

**REFERENCE  
DOCUMENT  
2013 ANNUAL  
FINANCIAL REPORT**

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French société anonyme  
with a share capital of €930,004,234  
Registered head office: 22-30, avenue de Wagram  
75382 Paris Cedex 08  
552 081 317 RCS Paris

# EDF Group

## Reference Document

### 2013 Annual Financial Report



This reference document was filed with the Autorité des marchés financiers (the “AMF”) on 8 April 2014 in accordance with Article 212-13 of the AMF General Regulations. It may be used for purposes of a financial transaction if supplemented with an offering memorandum (note d’opération) that received a visa from the AMF. This document has been prepared by the issuer and its signatories are responsible for its content.

Pursuant to Article 28 of the European Commission Regulation (EC) No. 809/2004, the following information is incorporated by reference into this Reference Document:

- consolidated financial statements of the EDF group for the fiscal year ended 31 December 2012, prepared in accordance with international accounting standards, as well as the accompanying Statutory Auditors’ reports, set forth respectively in Chapter 20, sections 20.1 (pages 267 to 365) and 20.2 (pages 366 and 367) of the EDF group’s 2012 Reference Document;
- consolidated financial statements of the EDF group for the fiscal year ended 31 December 2011, prepared in accordance with international accounting standards, as well as the accompanying Statutory Auditors’ reports, set forth respectively in Chapter 20, sections 20.1 (pages 289 to 385) and 20.2 (pages 386 and 387) of the EDF group’s 2011 Reference Document;
- the review of the financial position and results of the EDF group for the fiscal year ended 31 December 2012, presented in Chapter 9 (pages 165 to 199) of the EDF group’s 2012 Reference Document.
- the review of the financial position and results of the EDF group for the fiscal year ended 31 December 2011, presented in Chapter 9 (pages 180 to 215) of the EDF group’s 2011 Reference Document.

Copies of this Reference Document are available free of charge at EDF (22-30, avenue de Wagram, 75382 Paris Cedex 08) and on the EDF website (<http://www.edf.com>) as well as on the AMF website (<http://www.amf-france.org>).



In this reference document, unless otherwise stated, references to “**Company**” and “**EDF**” refer to EDF SA, the parent company, and references to “**EDF group**” and “**Group**” refer to EDF and its subsidiaries and affiliates.

In addition to the information contained in this reference document, investors should carefully consider the risk factors described in section 4.1 (“**Risk factors**”). These risks, or one of these risks, could negatively impact the Group’s activities, its financial position or its financial results. Furthermore, other risks, which have not yet been identified or considered as material by the Group, could have the same negative impact and investors could consequently lose all or part of their investment in the Company.

This reference document also contains information relating to the markets in which the EDF group is present. This information has been taken from surveys carried out by external sources. Considering the very rapid changes that characterise the energy sector in France and globally, it is possible that this information could prove to be erroneous or no longer up to date on the filing date of this reference document or thereafter. The Group’s activities could consequently evolve in a manner different from those described in this reference document and the declarations or information appearing in this reference document could prove to be erroneous.

Forward-looking statements in this reference document, notably in section 6.1 (“**Strategy**”) could also be impacted by risks, uncertainties or other factors that may cause the future income, performances and achievements of the Group to differ significantly from the objectives expressed and suggested. These factors may include changes in the economic and commercial environment, in regulations, as well as the factors set forth in section 4.1 (“**Risk factors**”).

Pursuant to European and French legislation, the entities responsible for the transmission and distribution of electricity within the EDF group may not communicate certain information they gather within the framework of their activities to the other entities of the Group, including its Management. Similarly, certain data specific to generation and marketing activities may not be communicated to the entities responsible for transmission and distribution. This reference document has been prepared by the EDF group in compliance with these rules.

A glossary for the major technical terms is provided at the end of this reference document, before the Appendices.



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# 1 Person responsible

## 1.1 Person responsible for the reference document

Henri Proglio, Chairman and Chief Executive Officer of EDF.

## 1.2 Certification from the person responsible for the reference document containing the annual financial report

Having taken all reasonable care to ensure that such is the case, I certify that, to the best of my knowledge, the information contained in this reference document accurately reflects the facts and contains no omission likely to affect its meaning.

I certify that, to the best of my knowledge, the financial statements are prepared in accordance with accounting standards and that they give a true and fair view of the assets and liabilities, financial position and the income of the Company and of all the companies included in the consolidation, and that the management report ("Rapport de gestion") presents a true and fair view of the business trends, income and financial position of the Company and of all the companies included in the consolidation and a description of the main risks and uncertainties they face.

I have obtained a letter from the Statutory Auditors certifying that they have verified the financial and accounting information provided in this reference document and that they have read the document in entirety. This letter contains no comments.

The consolidated financial statements for the year ended 31 December 2013 presented in the reference document have been reviewed by the Statutory Auditors; their report and comments are set forth on pages 387 and 388 of this document which contain comments in respect of:

- the change in accounting principle described in notes 1.2.1 and 2 related to the application as of January 1, 2013 of IAS 19 revised *Employee benefits* ;

- the valuation of long-term provisions relating to nuclear electricity production, which results from management's best estimates and assumptions as described in notes 1.3.2.1 and 29. This valuation is sensitive to the assumptions made concerning technical processes, costs, inflation rates, long-term discount rate and forecast cash outflows. Changes in these parameters could lead to a material revision of the level of provisioning.

The consolidated financial statements for the year ended 31 December 2012 presented in the reference document have been reviewed by the Statutory Auditors; their report and comments are set forth on pages 366 and 367 of this document which contain comments in respect of the change in accounting method for actuarial gains and losses on post-employment benefits and the valuation of long term provision relating to nuclear generation.

The consolidated financial statements for the year ended 31 December 2011 presented in the reference document have been reviewed by the Statutory Auditors; their report and comments are set forth on pages 386 and 387 of this document which contain comments in respect of the valuation of long term provision relating to nuclear generation.

Henri PROGLO,   
Chairman and Chief Executive Officer of EDF



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## 2 Auditors

### 2.1 Statutory Auditors

#### **Deloitte et Associés**

185, avenue Charles-de-Gaulle, 92200 Neuilly-sur-Seine, represented by Mr. Alain Pons and Mr. Patrick Suissa.

#### **KPMG SA**

Immeuble Le Palatin, 3, cours du Triangle, 92939 Paris - La Défense cedex, represented by Mr. Jacques-François Lethu.

The Statutory Auditors were initially appointed by decision of the Shareholders' Meeting of 6 June 2005 for a period of six fiscal years expiring

at the end of the Shareholders' Meeting ruling on the financial statements covering the fiscal year closing 31 December 2010.

Their terms of office were renewed by decision of the Combined Shareholders' Meeting of 24 May 2011 for a new period of six fiscal years expiring at the end of the Shareholders' Meeting ruling on the financial statements covering the fiscal year closing 31 December 2016.

The aforementioned Auditors consequently certified the financial statements reproduced in this reference document.

### 2.2 Deputy Auditors

#### **BEAS**

195, avenue Charles-de-Gaulle, 92200 Neuilly-sur-Seine.

#### **KPMG Audit IS**

Immeuble Le Palatin, 3, cours du Triangle, 92939 Paris - La Défense cedex.

The term of office of the company BEAS, initially appointed as Alternate Auditors by decision of the Shareholders' Meeting of 6 June 2005 for a period of six fiscal years expiring at the end of the Shareholders' Meeting ruling on the financial statements covering the fiscal year closing 31 December 2010,

was renewed by decision of the Combined Shareholders' Meeting of 24 May 2011 for a new period of six fiscal years expiring at the end of the Shareholders' Meeting ruling on the financial statements covering the fiscal year closing 31 December 2016.

The company KPMG Audit IS was appointed as Alternate Auditors by decision of the Combined Shareholders' Meeting of 24 May 2011, replacing SCP Jean-Claude André, for a period of six fiscal years expiring at the end of the Shareholders' Meeting ruling on the financial statements covering the fiscal year closing 31 December 2016.



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# 3 Selected financial information

Pursuant to European Regulation No. 1606/2002/EC of 19 July 2002 on the adoption of international accounting standards, the Group's consolidated financial statements for the year ended 31 December 2013 are prepared under the international accounting standards published by the IASB and

approved by the European Union for application as of 31 December 2013. These international standards are the IAS (International Accounting Standards), IFRS (International Financial Reporting Standards), and their interpretations (SIC and IFRIC).

## Key financial information

The selected financial information presented below is taken from the EDF group's consolidated financial statements as of 31 December 2013, which has been audited by EDF's Statutory Auditors.

The selected financial information below must be read in conjunction with (i) the consolidated financial statements included in section 20.1 ("Historical Financial Information") of this Reference document, and (ii) the operating and financial review contained in chapter 9 of this Reference document.

## Extracts from the consolidated income statements

(in millions of Euros)	2013	2012 <sup>(1)</sup>	2011 <sup>(2)</sup>
Sales	75,594	72,178	65,307
Operating profit before depreciation and amortization (EBITDA)	16,765	15,998	14,939
Operating profit (EBIT)	8,411	8,159	8,452
Income before taxes of consolidated companies	5,322	4,825	4,672
<b>EDF NET INCOME</b>	<b>3,517</b>	<b>3,275</b>	<b>3,148</b>

(1) Figures for 2012 have been restated for the impact of retrospective application of IAS 19 revised and the change in presentation of disposals of generation assets by EDF Energies Nouvelles as part of its Development and Sale of Structured Assets ("DSSA") business.

(2) Figures published in 2012, corresponding to 2011 published figures adjusted for the impact of the change in accounting method for actuarial gains and losses on post-employment benefits.



## Extracts from the consolidated balance sheets

(in millions of Euros)	31/12/2013	31/12/2012 <sup>(1)</sup>	31/12/2011 <sup>(2)</sup>
Non-current assets	183,485	181,758	163,281
Current assets	69,697	68,085	67,980
Assets classified as held for sale	3,619	241	701
<b>TOTAL ASSETS</b>	<b>256,801</b>	<b>250,084</b>	<b>231,962</b>
Equity (Group share)	34,207	26,257	28,483
Non controlling interest	4,663	4,854	4,189
Non-current provisions	62,475	61,267	53,956
Other non-current liabilities	95,290	99,350	93,925
Current liabilities	57,877	58,307	51,003
Liabilities related to assets classified as held for sale	2,289	49	406
<b>TOTAL EQUITY AND LIABILITIES</b>	<b>256,801</b>	<b>250,084</b>	<b>231,962</b>

(1) Figures for 2012 have been restated for the impact of retrospective application of IAS 19 revised and the change in presentation of disposals of generation assets by EDF Énergies Nouvelles as part of its Development and Sale of Structured Assets ("DSSA") business.

(2) Figures published in 2012, corresponding to 2011 published figures adjusted for the impact of the change in accounting method for actuarial gains and losses on post-employment benefits.

## Extracts from the consolidated cash flow statements

(in millions of Euros)	2013	2012	2011
Net cash flow from operating activities	11,189	9,924	8,497
Net cash flow used in investing activities	(12,275)	(14,410)	(6,791)
Net cash flow from financing activities	1,011	4,657	(1,591)
<b>NET INCREASE/(DECREASE) IN CASH AND CASH EQUIVALENTS</b>	<b>(75)</b>	<b>171</b>	<b>115</b>

## Information concerning net indebtedness

The definition of net indebtedness was revised in 2012 to take into account the Group's lending to jointly-controlled subsidiaries.

(in millions of Euros)	31/12/2013	31/12/2012	31/12/2011
Loans and other financial liabilities	53,313	59,932	50,034
Derivatives used to hedge liabilities	176	(797)	(834)
Cash and cash equivalents	(5,459)	(5,874)	(5,743)
Liquid assets	(12,548)	(10,289)	(9,024)
Loan to RTE <sup>(1)</sup> and to jointly-controlled subsidiaries	(1,005)	(1,397)	(1,400)
Net indebtedness from assets held for sale	985	–	252
<b>NET INDEBTEDNESS</b>	<b>35,462</b>	<b>41,575</b>	<b>33,285</b>

(1) RTE: Réseau de Transport d'Électricité ("RTE").



# 4 Risk Factors

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## 4.1 Risk factors

The Group operates in an environment that is experiencing profound change, which generates various risks, some of which are beyond its control and which are in addition to the risks inherent in its business operations. Below the Group describes the material risks to which it considers itself exposed. One or more of these risks could have an adverse effect on the Group's activities or results. Moreover, other risks, of which it is currently unaware, or which it currently believes are not material, may also have an adverse effect.

In particular, the Group faces legal risks in all of its activities and in its various markets. Legal risks associated with *inter alia* the statutory and regulatory framework, operating activities, partnerships set up and contracts concluded with customers and suppliers are described below and mentioned in section 4.3 ("Dependency factors"). Key litigation, proceedings and arbitrations in which the Group is involved are described in section 20.5 ("Legal proceedings and arbitration").

The risks described below are risks associated with the European energy markets and the Group's activities, risks specifically related to the Group's nuclear activities, risks related to the structure of the Group and changes thereto and, lastly, risks associated with EDF's capital structure and the listing of its shares.

### 4.1.1 Risks associated with the European energy markets

**The Group faces stiff competition in the European energy markets and, in particular, in the French electricity market, which is its main market.**

In France, since 1 July 2007, the electricity market has been totally open to competition. All EDF customers may now choose their electricity supplier and can therefore choose any of EDF's competitors (see section 6.2.1.2 ("Sales and marketing")). EDF has implemented measures to meet the competition, but the changing competitive landscape (new regulations, emergence of new players, mergers between existing players, changes in market prices, etc.) could cause EDF to lose market share. This loss of market share could, at constant consumption and price levels, have an adverse impact on the Group's sales. Lastly, to achieve its objectives, EDF could be forced to increase its marketing expenditures or reduce its margins (especially in the event of price competition), which would have a negative effect on its profitability.

Elsewhere in Europe, the Group faces differing contexts, depending on the competitive situation (more or less totally open markets, position of competitors, regulations, etc.). Therefore, in some countries, or in certain regions within a country, the Group must pursue a defensive strategy to protect its market share, as it does in France. On the other hand, in other countries, the Group must pursue an offensive strategy to gain market share. The type of competition, the expansion of such competition and its effect on the Group's activities and its results vary from one country to another. These factors depend on the degree of deregulation in the country in question and on various other factors over which the Group has no control (share of renewable energies, market price).

Within this context, despite the fact that the Group considers that the European electricity market offers opportunities, the Group may not be able to defend its market share or gain expected market shares, or it may see its margins decrease, which would have a negative effect on its activities, its strategy and its financial results.

**The legal framework governing the liberalisation of the energy sector is recent. This framework may change in the future and become more restrictive.**

The Group's activities in France and abroad are subject to numerous regulations (see section 6.5 ("Legislative and regulatory environment")). Moreover, laws may vary from one country to another, including in the European Union where directives only establish a general framework.

This legal framework organizing the liberalisation of the energy sector is relatively recent and does not necessarily provide comprehensive solutions to the difficulties created by market liberalisation. The legal framework is therefore subject to change, and such changes could be unfavourable to the Group. Such future changes to the legal framework, whether in France or abroad, could generate additional costs, be inconsistent with the Group's growth model or change the competitive context in which the Group operates.

For example, in the United Kingdom, the legal framework governing electricity producers' access to the main UK transmission and distribution network was amended in 2010. Against this background, at the end of 2012, the UK regulator (Ofgem) established the pricing principles applicable to rates from 2013 to 2021 for the transmission network and as from 2015 for the distribution network. More generally, the Electricity Market Reform (EMR) in the United Kingdom was adopted by Parliament and received royal assent in December 2013.

All of these regulatory changes in the various countries may lead to higher costs for operators and impact the profitability of current and future generating units.

**Due to its position in the French market, the Group faces the risk of having its expansion limited more than its competitors.**

Although it has seen a decrease in its market share due to market liberalisation, EDF should remain the largest operator in the French electricity market over the next few years, particularly with respect to power generation and supply.

The transmission and distribution businesses operated by RTE and Électricité Réseau Distribution France (ERDF), respectively, are required to be operated in a manner that ensures they are independent from generation and marketing activities in order to ensure non-discriminatory access to all users (see section 6.2.2 ("Regulated activities in France")).

The discussions about the Energy Transition that took place in 2013 may, through the Energy Act that is expected to be adopted in 2014, result in the imposition of additional constraints on power generation tools (the share of nuclear energy) and the rate system.

Although EDF complies and will continue to strictly comply with the applicable competition and non-discrimination rules, competitors have initiated and may initiate litigation on the grounds of non-compliance with these rules, and such litigations could be decided against the Group's interests.

In addition, the competent authorities or certain governments could, in order to maintain or enhance competition in certain energy markets, take decisions contrary to the Group's economic or financial interests or that impact its model as an integrated and balanced operator (see in particular, section 6.5.3.1, ("European legislation") and section 20.5.1 ("Legal proceedings concerning EDF")), which could have a material adverse impact on the Group's model, activities and financial results.



On 22 October 2013, the government announced that the decree containing details about the identification and accounting treatment of the costs of regulated access to electricity generated by existing nuclear capacity ("accès régulé à l'électricité nucléaire historique" or "ARENH") should be published before the end of the first quarter 2014. The consultation process for the draft decree was launched at the beginning of March.

Other European countries may also claim that the liberalisation of the French market is insufficient and implement measures intended to slow the Group's expansion in their own countries.

#### **Laws and regulations that require transmission and distribution activities to be managed independently limit control over these activities.**

In accordance with current laws and regulations, EDF manages its transmission and distribution networks independently from its generation and supply activities and has transferred its distribution and transmission activities to wholly-owned subsidiaries. EDF has been and may be affected by the loss of control over certain strategic and operational decisions, which may have an impact on the outlook for and profitability of its transmission and distribution activities in France (see section 6.5 ("Legislative and regulatory environment")). At the same time, EDF will continue to bear certain risks associated with its operations, potential liability to third parties and factors that may affect the profitability of its assets.

The Group may face similar risks in countries where it owns or manages transmission or distribution networks and where it is subject to similar regulatory restrictions.

### **4.1.2 Risks associated with the Group's activities**

#### **The Group operates facilities that may cause significant harm to the natural or human environment or for which accidents, natural disasters or external attacks may have serious consequences.**

The risks specific to nuclear facilities are described separately below in section 4.1.3 ("Specific risks related to the Group's nuclear activities").

Persons working in or near electricity transmission and distribution facilities may, in the event of an accident, error or negligence, be exposed to the risks of electric shock and electrocution. In this field, the Group also implements accident prevention and safety measures. However, the Group cannot guarantee that these measures will prove sufficient in all cases.

Questions concerning the risks to human health from exposure to electromagnetic fields (EMF), in particular, from power lines operated by the Group, have been raised both in France and abroad. Based on studies completed over the past 20 years, the existence of health risks due to exposure to EMFs has not been proven. Furthermore, in a report published in June 2007, the World Health Organisation considers that health risks, if any, are low and that adopting arbitrarily low exposure limits is unjustified. In 2010, RTE, in conjunction with the French Mayor's Association, launched an information and measurement campaign on the subject of very low-frequency (50 Hz) electromagnetic fields for the mayors of 18,000 municipalities that are crossed by high and very high voltage power lines. This joint campaign reinforces existing communication on EMFs and aims to respond openly to questions that neighbours may have about such structures.

The French government supports and bolsters RTE's transparency efforts on this topic: in application of the Grenelle 2 Act of 12 July 2010, the Decree of 1 December 2011 adopted a plan for controlling and monitoring electromagnetic fields emitted by high-voltage structures. In this connection, RTE provides the public with measurements online on its "key to the fields" information website dedicated to EMFs. At this time, 30 years of research is

available, but it cannot be excluded that medical knowledge about health risks related to exposure to EMFs may evolve, public sensitivity about such risks could increase or the precautionary principle could be applied very broadly. Despite these efforts, the possibility remains that the EDF Group could be exposed to risks of increased litigation or that the issue may lead to the adoption of more stringent and costly measures for the operation or construction of transmission or distribution networks (see section 6.5.6.1 ("Basic regulations applicable to the environment, health, hygiene and safety")).

More generally, the Group operates or has operated facilities which, as currently operated, could be or could have been the source of industrial accidents or environmental and public health impacts (such as inadequately controlled emissions, leakages in electricity supply lines insulated with pressurized oil, a failure of decontamination facilities, pathogenic micro-organisms, asbestos, polychlorinated biphenyls (PCBs), greenhouse gas emissions, etc.). In particular, large quantities of hazardous materials (in particular, explosive or flammable materials, such as gas and fuel oil) are stored in certain facilities. These facilities may be located in industrial areas where other activities subject to similar risks are conducted, which means that the Group's own facilities may be impacted by accidents occurring at neighbouring facilities owned by other operators and not under the Group's control.

In accordance with ISO 14001 (see section 4.2.2.4 ("Management of risks associated with industrial accidents or the environment or health impacts of the Group's activities")), the Group implements appropriate measures to prevent and, if necessary, repair any industrial accidents or environmental damage caused by the facilities that it operates. These measures are intended, in particular, to protect the Group not only from the risk of an accident (such as explosion, fire, etc.) occurring in its own facilities, but also from the impact of such an accident occurring in a neighbouring facility owned by a third party. However, in general, the Group cannot guarantee that the measures taken to control these risks will prove fully effective if any of the events listed above were to occur. An accident of the type described above could have serious consequences for persons, property and business continuity, and the Group could be found liable. Insurance policies for civil liability and damages taken out by the Group could prove to be significantly inadequate, and the Group cannot guarantee that it will always be able to maintain a level of cover at least equal to current cover levels and at the same cost. The frequency and magnitude of natural disasters seen over the past few years, in particular the nuclear accident that occurred in Japan in March 2011, could have a significant impact on the capacities of the insurance and reinsurance market and on the costs of civil liability and damage insurance cover for the Group. Such accidents could also lead to the shutdown of the facility affected and, possibly, of similar facilities that may be considered to present the same risks.

Lastly, facilities or assets operated by the Group may be the target of external attacks or malicious acts of any kind. Safety measures were incorporated into the design of the facilities and sites, and protective measures have been taken by EDF. Moreover, safety measures to counter all forms of attacks have been implemented in conjunction with the public authorities. Nonetheless, like any safety measures intended to counter an external threat, the Group cannot guarantee that these will prove fully effective in all cases. An attack or malicious act committed on these facilities could have consequences such as injury to persons and damage to property, the Group being held liable on the grounds of measures judged to be inadequate and interruptions to operations. In addition, the Group cannot guarantee that European and national legislation regarding the protection of sensitive sites and critical infrastructure will not become more restrictive, which could generate additional investments or costs for the Group.

Any one of these events may have material negative consequences on the Group's image, activities, results and financial position.

### **A significant share of the Group's revenue is generated from activities subject to regulated rates, and changes in such rates may have an impact on the Group's results.**

In France, a significant share of the EDF group's revenue depends on regulated rates that are set by public or regulatory authorities (integrated regulated sale rates and TURPE – see section 6.2.2.4 (“Tariffs for using the public electricity transmission and distribution networks (‘TURPE’)”). This method of setting rates with the participation of regulatory authorities also applies in other countries where the Group operates.

The principles defining rights to tariffs are described in the NOME Act of 7 December 2010 and are listed in Articles L. 337-7 to L. 337-9 and Article L. 445-5 of the French Energy Code (see section 6.2.1.2.1.3 (“Regulated sales tariff contracts”). The public and regulatory authorities may issue decrees that limit or block rate increases, yet require quality of service to remain unchanged. These authorities may also change the conditions of access for such regulated rates. Certain stakeholders may also challenge in court the decisions setting rates, to the Group's detriment.

The Group cannot guarantee that the regulated or purchase rates will always be set at a level which would allow it to maintain its short-, medium- or long-term investment capacity or its property interests, while ensuring a fair return on the capital invested by the Group in its generation, transmission and distribution assets.

### **EDF has certain obligations, in particular public service obligations, that are remunerated by mechanisms that may not provide complete compensation for additional costs incurred in connection with such obligations, or that are subject to change.**

The public service contract entered into by the French government and EDF on 24 October 2005 specifies the objectives and terms for performing the public service obligations that EDF is appointed to perform under Article 2 of Act no. 2000-108 of 10 February 2000, and also sets out the mechanisms under which EDF is compensated for the performance of these obligations (see section 6.5.2 (“Public service in France”).

The development of renewable energies connected directly to the distribution network may, in certain regions, saturate the reception capacities of the source substations and networks. This situation may possibly generate local imbalances, or disputes if ERDF must disconnect certain producers or connect them with significant delays. New investments may be required in these regions, with the risk that the costs associated therewith may not be taken into account.

EDF cannot be sure that the compensation mechanisms provided in the laws and regulations applicable to it for performing these public service obligations and adopting regulated rates will fully compensate additional costs incurred to perform such obligations and adopt such rates. Furthermore, EDF cannot guarantee that these compensation mechanisms will never be subject to change or that existing mechanisms will fully cover potential additional costs that may be incurred in relation with new duties imposed on EDF in connection with its public service obligations, in particular when a new public service contract is negotiated.

The occurrence of any of these events may have an adverse impact on EDF's activities and financial results.

### **The Group's activities require numerous administrative permits that may be difficult to obtain or that may be obtained only subject to conditions that may become significantly more stringent. Administrative appeals may also be filed against such permits, which may hurt the Group's business.**

The operation and expansion of the Group's industrial activities – generation, transmission and distribution – require numerous administrative permits, at both local and national levels, in France and abroad. The procedures for obtaining and renewing these permits can be drawn-out and complex.

These permits are not obtained systematically and the requirements for obtaining them may change and are not always predictable. Even when these permits have been granted, stakeholders may file administrative appeals against them (see, in particular, section 20.5.1 (“Legal proceedings concerning EDF”). Accordingly, the EDF group may incur significant expenses in complying with the requirements for obtaining or renewing these permits (for example, costs of preparing permit applications, investments associated with installing equipment required before a permit will be issued, setoffs of environmental impacts of structures to be built). This may also handicap the Group's industrial activities. Delays, overly high costs or the suspension of its industrial activities due to the inability to retain or renew permits may have an adverse impact on the Group's activities and profitability. In addition, the Group may also invest resources without obtaining necessary permits and authorisations and therefore have to cancel or withdraw from a project, which may have an adverse impact on its business, expansion or financial results.

### **At times, the Group operates its generation, transmission, distribution or supply businesses pursuant to public service concession arrangements and it is not always the owner of the assets it operates.**

The Group does not always own the assets that it uses for its activities and, in such case, frequently operates them pursuant to a public service concession arrangement.

In France, for example, ERDF does not own all distribution network assets, but operates them under concession agreements negotiated with local authorities (see section 6.2.2.2.2 (“Distribution activities”), which guarantee it the exclusive right to engage in expansion actions, operate the public electricity distribution network, and supply electricity at regulated sales tariffs. Under the law, only ERDF can be appointed by local authorities to operate their distribution networks, except for networks operated by local distribution companies (LDC). Therefore, at this time, when a concession agreement is renewed, ERDF does not compete with other operators. However, the Group cannot guarantee that such provisions will not be amended by law in the future (see section 6.5.5 (“Public electricity distribution concessions”). Furthermore, the Group may not obtain the renewal of these contracts under the same financial terms and conditions (see section 6.2.2.2.2 (“Distribution activities”).

ERDF's deployment of “communicating” meters (Linky) has been planned and broken down into two stages, with the first invitation to tender for the supply and installation of three million meters should be deployed by 2016. However, how these new assets will be taken into account when calculating TURPE has not yet been finalised (see section 6.2.2.2.5 (“Future challenges (renewal, development, communicating meters)”).

In France, RTE is both the owner and operator of the public transmission system pursuant to the standard concession terms of reference signed by the Minister of Industry (Decree no. 2006-1731 of 23 December 2006 – see section 6.2.2.1 (“Transmission – Réseau de Transport d'Électricité (RTE)”) and section 6.5.4.2 (“French legislation: Energy Code”).

Hydropower generation facilities of 4.5MW or more are also operated under concessions awarded by the French government. When they expire, these concessions are renewed pursuant to the so-called “Sapin Act” procedure (see section 6.2.1.1.4.4 (“Issues relating to hydropower generation”). In addition, the Water Act adopted on 30 December 2006 eliminated the preferential right of the incumbent concession holder at the time of renewal, and Decree no. 2008-1009 of 26 September 2008 sets out the conditions under which concessions may be renewed. If an expired concession is not renewed, under current regulations, the incumbent concession holder will not receive any compensation. However, the French Energy Code provides for either reimbursement of non-amortised expenditures incurred for modernisation works or works for increasing generation capacity if such works are built during the second half of the concession's term. If the French government shortens the term of a concession, for example in order to

group them by valley, it may compensate the incumbent concession holder for the loss of revenue caused by the early termination of the concession, in accordance with the concession's terms of reference. When renewed, hydropower concessions are subject to an annual fee indexed to the revenue from sales of electricity produced by the concession hydropower facilities, which is paid to the French government and allocated to the local authorities through which the watercourses used flow. The Grenelle 2 Act of 12 July 2010 provides that the fee shall not exceed a limit set on a case-by-case basis by the concession grantor as part of each renewal procedure. However, the renewal schedule has not yet been specified.

The EDF group cannot guarantee that each of the concessions that it currently operates will be renewed, or that any concession will be renewed under the same financial terms and conditions as the initial concession. Furthermore, the Group cannot guarantee that the compensation paid by the government in the event of early termination of a concession's operations will fully compensate the Group's consequent loss of revenue, or that future regulations regarding the limitation of fees will not change in a way that could negatively affect the Group. These factors could have an adverse impact on its activities and financial results.

Outside France, the Group also operates under electricity distribution or generation concessions in other countries where it does business, particularly in Italy. Depending on the conditions in each country, the transmission, distribution or generation concessions may not be continued or may be renewed in its favour with changes to the financial terms and conditions of the concession terms of reference, which would have an adverse impact on the Group's activities and financial results.

**The Group must comply with increasingly restrictive environmental and public health regulations, which generate costs and are sources of potential liability.**

The Group's activities are subject to environmental protection and public health regulations, which are increasingly numerous and restrictive. These regulations relate to the Group's energy generation, transmission and distribution industrial activities, as well as to energy supply and energy-related services, which must, for example, incorporate the concept of demand management into their offers (for a description of the environmental, health and safety regulations applicable to the Group, as well as future regulations likely to have an impact on its activities, see section 6.5.6.1 ("Basic regulations applicable to the environment, health, hygiene and safety")). Failure to comply with these regulations could expose the Group to significant litigation. The Group could be found liable, even if it is not at fault or has not breached applicable regulations. Furthermore, the Group may be compelled to compensate breaches, damage or injuries caused by entities that were not part of the EDF group at the time they were committed, if the Group thereafter takes over their facilities.

Furthermore, these regulations may be significantly reinforced by national or European authorities (see section 6.5.8 ("Principal planned regulations that are likely to have an impact on EDF Group's business")), which would have an adverse impact on the Group's activities and financial results.

Current regulations, and future changes to such regulations, have resulted and are likely to continue to result in an increasing level of operating costs and investments in order to comply with such regulations. The Group may even be required to close facilities that cannot be made compliant with new regulations. In addition, other regulations, which may be more restrictive or which may apply to new areas which are not currently foreseeable, may be adopted by the competent authorities and have a similar effect.

Lastly, stakeholders' external perception of the Group's sustainable development policy may change, resulting in a deterioration of the Group's non-financial rating and image.

**Changes to regulations concerning energy savings certificates (ESC) could impose additional obligations on EDF and generate costs in relation thereto.**

In France, the energy savings certificates (ESC) measure, which is set out in Article L. 221-1 *et seq.* of the French Energy Code, imposes energy savings obligations on energy suppliers.

Three-year energy savings objectives were established and allocated among parties subject to the obligation to achieve energy savings (the "obligors") on the basis of their sales volumes. Subject to financial penalties, payment of which discharges liability, by the end of the relevant period, obligors, including EDF, must produce energy savings certificates corresponding to their obligation, which are obtained in exchange for directly or indirectly carrying out energy savings actions, or which may be purchased from other so-called "eligible" economic entities through the National Certificates Register.

Due to its active involvement, EDF should meet the objective set for the second period (2011-2013), which has been extended until 31 December 2014. However, increased competition and a decrease in the principal mineral deposits associated with more stringent regulatory requirements have slowed the rate at which ESCs are produced and made them more expensive. This trend has been accentuated by the economic crisis, which has reduced households' investment capacity and hurt the construction sector.

Accordingly, considerably more stringent obligations for EDF may result from the French political decisions which has been taken as a consequence thereof if the existing measure is extended for a third period after 2015. These provisions could significantly increase EDF's sales costs and require a considerable increase in regulated sale rates. Because such rates are set by the public authorities, EDF cannot guarantee that increased sales costs will be completely reflected in the rates (see section 6.5.6.1 ("Basic regulations applicable to the environment, health, hygiene and safety")).

**The expansion of an integrated European electricity market may be slowed by a lack of cross-border transmission system interconnections.**

The development of an integrated European electricity market is inhibited by a lack of cross-border interconnections. This situation limits exchange capacity between operators in different countries, in particular the capacity to rapidly adapt supply to demand (blackout risk), and allows price differences in different countries to persist, which would be significantly reduced in an efficient integrated European market. It also impedes the emergence of efficient operators with a European scope as it limits the possibilities for synergies between companies within a same group located on different sides of a border. Although there are currently several projects to develop interconnections, in particular between France and Spain and France and Italy (investments are determined by transmission network managers independently from producers), their construction has nonetheless been slowed down, mainly by environmental, regulatory and local acceptability considerations.

Furthermore, the lack of adequate interconnections between countries where the Group is based or the failure to develop such interconnections at an adequate pace may limit the industrial synergies that the Group strives to achieve between its various entities or may cause network interruptions in countries in which the Group is established, which could have an adverse impact on its results, business and outlook.

Moreover, the increase in wind power generation in certain European regions will require modifications to the distribution network at the European level in order to rebalance supply and demand. In addition, distribution network expansion will be necessary in order for the network to carry the power generated by major new wind and solar power projects (mainly offshore wind farms).

### **Repeated or widespread blackouts in France or in an area served by a Group subsidiary, particularly if they are attributable to the Group, may have consequences for the Group's activities, financial results and image.**

The Group may be the source of repeated or widespread blackouts or be blamed for such blackouts, even if the causal event occurred in another network or was attributable to another operator.

The causes of blackouts vary: local or regional imbalances between electricity generation and consumption, accidental interruptions to the power supply, cascading power failures (more difficult to circumscribe in a market with cross-border exchanges), interconnection problems at borders and difficulty in coordinating operators in a liberalised market.

The initial impact of such power failures would be repair costs incurred to re-establish power or restore the network. Power failures may also generate capital expenditures if it were decided, for example, to install additional generation or network capacity. This could also cause a decline in the Group's turnover. Lastly, power failures may have an adverse impact on the Group's image with its customers, particularly if the blackouts are attributable to the Group.

### **Natural disasters, significant weather changes and any major event on a scale that is difficult to predict may have a material adverse impact on the Group's industrial and commercial activities.**

EDF and its subsidiaries have developed crisis management plans to deal with natural disasters or major events. These crisis management plans are assessed and tested on a regular basis (see section 4.2.4 ("Crisis management")).

As was the case with storms Klaus (2009) and Xynthia (2010) in France, natural disasters (floods, landslides, earthquakes, etc.), other significant weather changes (droughts, etc.), or any other event on a scale that is difficult to predict (large-scale epidemics, etc.) may affect the Group's activities. Based on its experience with these types of events, the EDF group implements measures aimed at limiting the consequences should such events reoccur. In this regard, RTE is conducting an ambitious programme to mechanically reinforce its aerial distribution network, which already proved its effectiveness during storms Klaus and Xynthia.

Such measures may generate costs in addition to the costs of repairing the damage caused by the natural disaster and the loss of earnings from the interruption to supply.

ERDF has taken out a policy covering its aerial distribution network against the consequences of major storms (see section 4.2.3.5.3 ("Storm coverage")). Neither RTE's aerial distribution networks nor the Isolated Energy Systems are covered for property damage. Damage to these networks could have an adverse impact on the Group's financial position in the absence of insurance cover or if cover is inadequate. In addition, renewing or taking out these specific covers may be difficult or more costly due to the impact, frequency and magnitude of natural disasters experienced in recent years by the alternative risk transfer markets.

To deal with a wide-spread health epidemic, EDF has created a plan intended to ensure the continuity of electricity supply, depending on the intensity of the crisis, while guaranteeing the safety of facilities and reducing the health risks to which its employees are exposed.

Lastly, after its initial analyses following the Fukushima accident, EDF supplemented its crisis management organisation with the Nuclear Rapid Action Force (FARN), a national team capable of quickly delivering material and human assistance to a site in great difficulty (see section 6.2.1.1.3.3 ("Environment, safety and radiation protection")).

Despite having set up a crisis management structure that enables it to react promptly to such events (see section 4.2.4 ("Crisis management")), the Group cannot guarantee that the occurrence of a natural disaster, a weather event or any other event on a scale that by its nature is difficult to predict will not have material adverse consequences on its activities, income and financial position.

### **The Group is exposed to risks associated with weather conditions and seasonal variations in the business.**

Electricity consumption is seasonal and depends to a great extent on weather conditions. For example, in France, electricity consumption is generally higher during winter months. Furthermore, available power may also depend on weather conditions. Thus, low water levels or heat waves may limit nuclear power generation due to the requirement that rivers downstream of facilities not exceed maximum temperatures. Similarly, power generated by wind power or solar plants depends on wind conditions or hours of sunshine at the sites where such facilities are installed (see section 9.2.1 ("Economic environment")).

Therefore, the Group's results reflect the seasonal character of the demand for electricity and may be adversely affected by exceptional weather conditions or by wind or sunshine conditions that are less favourable than anticipated. In such case, the Group may have to compensate the reduced availability of economical power generation means by using other means with higher production costs, or by having to access the wholesale markets at high prices.

### **The Group's activities may be handicapped by unfavourable economic conditions.**

The Group's activities are sensitive to economic cycles and economic conditions in the geographical areas in which the Group does business. An economic slowdown in these areas would result in a drop in energy consumption, investments and industrial production by the Group's customers and, consequently, would have a negative effect on the demand for electricity and other services offered by the Group. Such economic conditions could, for example, threaten the profitability of certain of the Group's existing or planned power generation assets or weaken certain of the Group's counterparties (see section 9.2.1 ("Economic environment")).

The Group cannot guarantee that the effects of an economic downturn in the geographical areas where it does business will not have a significant adverse impact on its activities, operating income, financial position or outlook.

### **Technological choices made by the Group may be outperformed by more efficient technologies.**

Although the Group at all times seeks to stay abreast of sustaining and disrupting technological innovations, the Group's business activities rely on a certain number of choices, which may be outperformed by other technologies that prove more efficient, more profitable, safer or more pertinent in light of possible future standardisation and standards than the technologies used by the Group. The use of such technologies by the Group's competitors could reduce or eliminate the competitive advantage that the Group has obtained from certain of its technologies, and thus have an adverse impact on its activities, financial results and outlook.

### **The Group is exposed to risks associated with the wholesale energy and CO<sub>2</sub> emission allowances.**

In conducting its production and marketing activities, the Group does business in deregulated energy markets, primarily in Europe. Therefore, the Group is exposed to price fluctuations in the wholesale energy markets (electricity, gas, coal, petroleum products) and the CO<sub>2</sub> emissions allowances markets. These fluctuations are particularly significant in the current context of major tensions and volatility in the energy markets (see section 9.2.1 ("Economic environment")).



The Group manages its exposure to these risks primarily through purchases and sales on wholesale markets. With the exception of petroleum products markets, these are recent markets that are still under development. Therefore, a lack of liquidity may limit the Group's ability to hedge its exposure to risks in the energy market. Moreover, certain of these markets continue to be partially partitioned by country due to, in particular, a lack of interconnections. Furthermore, these markets may experience significant price increases or decreases that are difficult to foresee, as well as liquidity crises.

Energy market risks are managed in accordance with the "Energy market risks" policy adopted by the Group (see section 4.2.1.2 ("Management and control of risks associated with energy markets")). The Group hedges its positions on these markets through derivatives, such as futures, forwards, swaps and options traded on organised markets or over the counter. However, the Group cannot guarantee that it is totally protected, in particular against liquidity risks and significant price fluctuations, which could have an adverse impact on its financial results.

Furthermore, the current context of prices in the European wholesale energy markets has hurt the profitability of certain production tools, in particular fossil fuel-fired power plants, for all European producers. Setting up capacity markets is currently under study in several European countries, but with different approaches. This may limit the risk that certain power generation assets will be closed or mothballed, but creates impairment risk for certain Group assets.

**The Group is exposed to fluctuations in the price and availability of materials and services (other than nuclear fuels) that it purchases in connection with its business operations.**

In the event of significant and sustained increases in the prices of raw materials, the Group may experience higher procurement costs for certain critical products or services. Such increases may also lead certain suppliers to reduce supply due to reduced profit margins. In addition, there is increased demand for certain equipment or services, which may have an impact on their availability, in particular equipment used for gas-fired combined cycle power stations, wind turbines and services and equipment in the nuclear sector.

**The Group is exposed to risks in the financial markets.**

As a result of its activities, the EDF group is exposed to risks in the financial markets:

- **liquidity risk:** the Group must at all times have sufficient financial resources to finance its day-to-day business activities, the investments necessary for its expansion and the annual appropriations to the dedicated portfolio of assets covering long-term nuclear commitments, as well as to deal with any exceptional events that may arise. Furthermore, in accordance with the practice in the organised energy and financial markets, some Group entities have set up a margin call system for certain over-the-counter transactions in order to limit counterparty risk. In light of the regulations in the process of being implemented in the derivatives markets, these margin call systems may in the near future have a broader scope for the Group. This may require the Group to mobilise cash in the event of high volatility on financial and energy markets (see section 4.2.1.3.3 ("Liquidity risk"));
- **currency risk:** due to the diversity of its activities and the geographical distribution thereof, the Group is exposed to the risks of fluctuations in foreign exchange rates, which may impact currency translation adjustments, balance sheet items and the Group's financial expenses, equity and financial results (see section 4.2.1.3.4 ("Currency risk"));

- **equity risk:** the Group is exposed to equity risk on securities held primarily as dedicated assets constituted to cover the cost of long-term commitments in relation with the nuclear business, in connection with outsourced pension funds and, to a lesser extent, in connection with its cash assets and investments held directly by the Group (see section 4.2.1.3.5 ("Equity risk"));
- **interest rate risk:** the Group's exposure to changes in interest rates involves two types of risks: (i) the risk of changes in the value of fixed-rate financial assets and liabilities and (ii) the risk of changes in cash flows associated with variable-rate financial assets and liabilities. Interest rate risk is also associated with debt securities held in connection with the management of dedicated assets constituted to cover the Group's long-term commitments in relation with the nuclear business and its commitments with respect to pensions and other specific employee benefits (see section 4.2.1.3.6 ("Interest rate risk")).

The manner in which these risks are organised and the management principles applied thereto are described in section 4.2.1.3 ("Management and control of financial market risks"), and the measures taken to control these risks are explained in section 9.5.1 ("Management and control of financial risks"). However, the Group cannot guarantee that it is totally protected, in particular in the event of significant fluctuations in foreign exchange rates, interest rates and the equities markets.

**Changes in financial regulations may adversely impact the profitability of trading activities and increase the cost of energy and financial markets risk hedging operations.**

In response to the financial crisis of 2008, and following the commitments made by the major economic powers at the G20 summit in Pittsburgh in 2009, in order to mitigate systemic risks, the derivatives markets have been or are in the process of being reformed. In Europe, this reform has led to the adoption of EMIR (European Market Infrastructure Regulation, Regulation no. 648/2012 adopted on 4 July 2012 by the Parliament and Council). This European initiative has been followed in other jurisdictions in different forms, such as the Dodd-Frank Act in the US. These reforms are gradually being implemented under the supervision of financial regulators. They seek inter alia to impose general clearing or collateral exchange requirements on derivatives transactions, but contain exemptions for companies that engage in hedging transactions within the meaning of IAS 39.

In connection with its energy markets risk management activities (which are part of the Group's "Energies Markets Risks" policy (see section 4.2.1.2 ("Management and control of risks associated with energy markets"))) and financial risk management activities (which are part of the internal policies described in section 4.2.1.3 ("Management and control of financial market risks")), the EDF group carries out derivatives transactions for hedging and trading purposes (only in the energies markets in the case of trading transactions).

EDF group companies that carry out derivatives transactions should come within the exemptions provided for in the new regulations. However, discussions with national financial regulators on the implementation conditions for these exemptions are still on-going, and EMSA may yet change these conditions in order to harmonise the interpretation and application of the rules at the European level. Furthermore, current financial regulations may be amended or made more stringent by the European authorities (see section 6.5.8.1 ("Future regulations at Community level")), which may significantly restrict the scope of these exemptions for trading activities.

Therefore, the Group cannot guarantee that, either due to the direct impact of these new regulations or because market practices evolve in this direction, it will not be required to clear or exchange collateral for a greater share of its derivative transactions or to place all or some of its trading activities under banking regulations. If this were the case, this would ultimately require that the Group furnish additional financial guarantees (in the form of cash, bank guarantees, equity, etc.) to execute its energies and financial market risk hedging and trading transactions, which would increase hedging costs and reduce trading profitability.

### **A default by the Group's counterparties (partners, subcontractors, service providers, suppliers or customers) may have an impact on its activities and results.**

Like all economic operators, the Group is exposed to possible default by certain counterparties (partners, subcontractors, service providers, suppliers or customers). A default by these counterparties may impact the Group financially (additional costs, in particular if EDF is required to find satisfactory alternatives or take over the relevant activates or pay contractual penalties). Such defaults could also impact the quality of work performed, completion deadlines or the procurement of certain critical products or services, and exposes the Group to reputational risk, business continuity risk for certain projects or the loss of contracts.

The monitoring and oversight procedures applied within the Group in connection with its exposure to the counterparty risk inherent in its contractual relationships are described in section 4.2.1.4 ("Management and control of counterparty risk").

### **The Group could be held liable for the occurrence of occupational illnesses or accidents.**

Although the Group has for many years taken the steps necessary to comply with the health and safety laws and regulations in the various countries in which it operates, and considers that it has taken the measures required to ensure the health and safety of its employees and of its subcontractors' employees, the risk of occupational illnesses or accidents cannot be excluded. The occurrence of such events may lead to lawsuits against the Group and may result in the payment of damages, which could be significant.

For a description of the measures taken by the Group with regards to ionizing radiation, see section 6.2.1.1.3.3 ("Environment, safety and radiation protection").

Regarding asbestos, the Group has taken measures to treat materials, as well as information and protection measures, as described in section 17.2.1 ("Occupational health and safety conditions"). For a description of on-going legal proceedings, see section 20.5 ("Legal proceedings and arbitration").

## **4.1.3 Specific risks related to the Group's nuclear activities**

The EDF group is the world's leading nuclear operator in terms of the number of plants in operation<sup>1</sup>. Nuclear-generated electricity accounts for approximately 73% of total electricity generated in France<sup>2</sup>. Since 2009, EDF has also operated nuclear assets in the United Kingdom. In addition, the Group holds minority stakes in nuclear power plants in the United States (through CENG), Belgium and Switzerland, which it does not operate. The share of nuclear energy in the EDF group's electricity mix is thus a major competitive advantage. The Group also plays an active role in construction

projects for new nuclear plants in France, the United Kingdom, China and potentially in other countries. Any event that has a negative effect on the nuclear business is likely to have greater consequences for the Group's image, activities, productivity, financial position and results than for its competitors that generate proportionally less electricity using this source of energy.

### **Due to its nuclear activities, the Group is exposed to substantial liability risks and potentially significant additional operating costs.**

Although the Group has adopted risk control strategies and procedures for its nuclear activities that are consistent with high standards, such activities, by their nature, still present potential risks. The Group relies on a number of subcontractors for a significant share of its maintenance activities and it has corporate social responsibilities vis-à-vis the employees of these service providers (see section 17.4.1 ("Responsible subcontracting")). Therefore, the Group may face significant liability as a result of *inter alia* incidents and accidents, security breaches, malicious or terrorist acts, aircraft crashes, natural disasters (such as floods or earthquakes), equipment malfunctions or problems in the course of storing, handling, transporting, processing or packaging nuclear substances and materials. Such events could lead to significantly stricter operating requirements for nuclear plants, or to a partial or total halt of the operation of the Group's power generation plants, and may have serious consequences, especially in the event of radioactive contamination or irradiation of persons working for the Group, the general population and the environment, as well as a material adverse impact on the Group's activities, strategy, outlook and financial position.

A nuclear operator is responsible for the nuclear safety of its facilities. The liability scheme that applies to European nuclear facility operators, and the insurance applicable thereto, are described in section 6.5.6.2.2 ("Special regulations applicable to basic nuclear facilities") and section 4.2.3.6 ("Special insurance for nuclear facility operations"). This scheme is based on the principle of the operator's strict liability. Accordingly, if an event occurs that causes damage, the Group would be automatically liable up to a monetary maximum set by the law applicable in the country where the event occurs, regardless of the source of the event that caused the damage and any safety measures that may have been taken.

The Group cannot guarantee that in countries where it operates nuclear facilities the maximum liability set by law will not be increased or cancelled. For example, the protocols amending the Paris Convention and the Brussels Convention, which are currently being ratified (see section 6.5.6.2.2 ("Special regulations applicable to basic nuclear facilities")), provide for these maximum amounts to be increased. The entry into force of these amending protocols or any other reform that seeks to increase the maximum liability of nuclear plant operators could have a significant impact on the cost of insurance, which the company is not currently in a position to estimate. Furthermore, the Group cannot guarantee that insurance covering this liability will always be available or that it will always be able to maintain such insurance.

Property damage to EDF's nuclear facilities is covered by insurance programmes (see section 4.2.3.6.3 ("Damage insurance for nuclear facilities")). Despite this cover, any event that may cause significant damage to a nuclear facility of the Group could have an adverse impact on the Group's business, financial results and financial position.

Lastly, the Group cannot guarantee that the insurers that cover both its liability as a nuclear plant operator and property damage to its facilities will always have available capacity or that the costs of cover will not significantly increase, particularly in light of the impacts on the insurance market of events such as the nuclear accident in Japan that occurred on 11 March 2011.

1. Source: Nuclear Power Reactors in the World, International Atomic Energy Agency, 2013 edition. (Figures to 31 December 2012.)

2. Source: 2013 Electricity Report - RTE.

## **A serious nuclear accident anywhere in the world may have significant consequences for the Group.**

Despite the precautions taken in their design and operation, a serious accident at a nuclear facility cannot be excluded, such as the nuclear accident in Japan, following the earthquake and tsunami that devastated the north of the country on 11 March 2011. This type of accident may turn public opinion against nuclear power and lead the competent authorities to substantially tighten power plant operating requirements or to refuse authorisation for proposed extensions of the operating life of power plants, leading to a temporary or permanent suspension of the operation of one or more nuclear facilities, or leading the authorities to consider a moratorium on the use of nuclear power to generate electricity and, therefore, also to suspend or cancel all on-going nuclear power plant development projects. Such decisions were taken in Germany (suspension of nuclear power generation) and Italy (suspension of nuclear power plant construction projects) following the Fukushima accident. Such decisions could be taken even if no accident occurs.

If such an accident were to occur near one or more of the Group's facilities, it could also contaminate the environment and thus jeopardise their operation.

Such events would have a material adverse impact on the business model, strategy, activities, results, financial position and outlook of the Group.

## **The Group's nuclear business is subject to particularly detailed and restrictive regulations that may become more stringent.**

The Group's nuclear business is subject to detailed and stringent regulations, with a system in place, in particular in France, that monitors and periodically re-examines operating conditions, which focus, firstly, on nuclear safety, environmental and public health protection, but also on national security considerations (terrorist threats, in particular). These regulations may be significantly tightened by national and Community authorities (for a description of the "Nuclear Package" and the French law on transparency and safety in the nuclear field, see section 6.5.6.2.2 ("Special regulations applicable to basic nuclear facilities")). Furthermore, stricter regulations or possible non-compliance with current or future regulations could result in the temporary or permanent shutdown of one or more of the Group's plants.

Such events may result in a significant increase in the costs of the Group's nuclear power plants, which may have an adverse impact on its financial position.

## **For its nuclear business, the Group depends on a limited number of contractors.**

Although the Group has adopted a policy to diversify the suppliers and service providers for its nuclear business, it is currently dependent on a limited number of contractors and persons who have the necessary qualifications and experience. This limits competition in the markets in which EDF is a buyer and exposes the Group to the risk of a default of one or more of these suppliers or service providers with specific expertise, which could have an adverse impact on the Group's results and financial position (see section 4.3 ("Dependency factors")).

## **The Group is exposed to changes in the conditions for procuring uranium and conversion and enrichment services.**

The Group's operating costs include nuclear fuel purchases.

For its nuclear power plants in France and the United Kingdom, EDF purchases uranium and conversion and enrichment services through long-term contracts containing hedging mechanisms that mitigate and smooth price fluctuations over time. Its main supplier is the Areva group, but EDF pursues a diversification policy by also buying supplies from other industrial companies (see section 4.3 ("Dependency factors") and section 6.2.1.1.3.4 ("Nuclear fuel cycle and related issues")). Prices and availability of uranium

and conversion and enrichment services are subject to fluctuations due to factors that are mainly political and economic and that the Group cannot control (in particular, the profitability outlook of mining investments, imbalances between supply and demand or supply shortages associated with, for example, an operating accident in a uranium mine or a combined cycle plant, delays in commissioning new mines or events leading to political instability in a uranium producing country).

In the United States, CENG purchases uranium and conversion, enrichment and assembly production services from several suppliers. The current contracts with these suppliers ensure a secure supply of these services for several years for the Calvert Cliffs, Nine Mile Point and Ginna plants.

However, the Group cannot guarantee that its contracts, in France and abroad, will completely protect it from sudden or significant price increases. The Group cannot guarantee that when these long-term contracts expire, it will be able to renew them, in particular at an equivalent price. This could have an adverse impact on the Group's financial results.

## **To operate its nuclear power plants, the Group relies on proper functioning of road and rail transport, in particular for the transport of fuel.**

The transport of new or spent nuclear fuel is a very particular operation that requires specific and restrictive safety and security measures. These constraints could become more stringent, generating additional difficulties and costs for the Group. Furthermore, several factors that are beyond the Group's control (such as opposition by local residents or anti-nuclear associations, for example, in the form of manoeuvres to prevent nuclear material from being shipped) may slow these operations. Operations may also be interrupted, in particular, in the event of an accident. In such case, the Group may be required to slow or halt some or all power generation at the relevant sites, due to non-delivery of new fuel assemblies or the saturation of onsite storage facilities, which may have an adverse impact on the Group's financial results (see section 6.2.1.1.3.4 ("Nuclear fuel cycle and related issues")).

## **The nuclear power plants that the Group operates may require significant or costly repairs or modifications.**

The group of nuclear facilities that the Group currently operates in France is highly standardised (see section 6.2.1.1.3.1 ("EDF's nuclear fleet")). This enables the Group to achieve economies of scale in equipment purchases and engineering, to apply improvements made to its newest power plants to all plants and, in the event of a malfunction in a facility, to anticipate the measures to be taken in other plants. However, such standardisation carries the risk of a malfunction that is common to several power plants or series of power plants (see section 6.2.1.1.3.2 ("Operation and technical performance of the nuclear fleet")). The Group cannot guarantee that it will not be required to make significant or costly repairs or modifications to all or some of its plants, or that events will not occur that may have an impact on the operation of its plants or their output or cause a temporary or permanent shutdown of all or some of its plants. In particular, in 2012, the French Nuclear Safety Agency (ASN) issued a first set of technical instructions, which impose regulatory requirements based on the lessons learned from the Fukushima accident. Some of these requirements will have to be applied prior to the next safety re-evaluations and ten-year inspections. This work programme, which requires additional study, will involve additional investments over the next 15 years and bringing forward certain expenditures that were already planned before the accident (see section 6.2.1.1.3.5 ("Preparing for the future of the nuclear fleet in France")). Industrial implementation of these works in power generation facilities will involve increased costs and a greater use of internal resources and the industrial fabric, and may also result in a loss of availability in future years.

The Group operates or holds equity interests in nuclear power plants elsewhere in the world, in particular the United Kingdom and the United States, and it may also be required to make costly repairs or modifications to these units or it could be faced with events that may impact their performance, power generation or availability. Like in France, safety authorities may take decisions that require additional works.

Despite the maintenance work carried out by the Group on its power plants, it is possible that certain plants may not operate at full capacity, in particular due to the age of certain equipment.

All such events may have an adverse impact on the Group's financial results and activities.

**The Group may not be able to obtain the authorisations necessary to extend the operating life of its power plants beyond the periods currently planned or it may not be authorised to operate its power plants until the end of such periods.**

In France, in connection with the studies associated with the third ten-year inspections of the 900MW units, in early July 2009 the ASN publicly stated that it had not detected any generic problem calling into question EDF's ability to ensure the safety of its 900MW reactors for up to 40 years. As required by the regulations, the ASN's position has been supplemented by a decision on each reactor following each of the third ten-year inspections (see section 6.2.1.1.3.5 ("Preparing for the future of the nuclear fleet in France")).

To postpone construction of new units and the investments associated therewith, and to continue to receive cash flows from its existing fleet, the Group seeks to extend the operating life of its nuclear power plants in France beyond 40 years. In 2012, the ASN had the improvement proposals submitted by EDF reviewed by the permanent "reactors" group, which judged these proposals positively, although it recommended that they be supplemented and, in certain cases, reinforced (see section 6.2.1.1.3.5 ("Preparing for the future of the nuclear fleet in France")).

However, the Group cannot guarantee that it will receive all authorisations. Furthermore, such extensions could be obtained under certain conditions, the financial impact of which, in particular in terms of investments, could affect the Group's strategy with respect to extending the operating life of its power plants or the Group's ability to pursue its global investment strategy.

In the United Kingdom, the current projected operating life of EDF Energy's nuclear power plants ranges between 35 and 47 years on average for advanced gas-cooled reactor (AGR) power plants and is 40 years for the pressurised water reactor (PWR). The objective is to increase the operating life of the most recent AGR power plants by 7 to 10 years and to increase the operating life of the PWR by 20 years (see section 6.3.1.4.2 ("Nuclear generation business unit")). However, in light of the safety rules applicable in the United Kingdom, the Group cannot guarantee that EDF Energy will obtain the necessary authorisations at the appropriate times to operate its existing nuclear power plants until the end of their currently projected operating life, or that such authorisations will not be obtained subject to conditions that entail significant expenditures or investments for the Group.

In the United States, the Nuclear Regulatory Commission (NRC) granted an operating life of 60 years<sup>1</sup> to all CENG nuclear plants (which were commissioned between 1970 and 1988 (see section 6.3.3.2.2.1 ("Existing nuclear business units – Constellation Energy Nuclear Group (CENG)"))). CENG is a joint venture created by EDF and Constellation Energy Group (CEG), to which the nuclear assets previously held by CEG were transferred. However, the Group cannot guarantee that these power plants will be actually operated for such period, particularly in the event of an incident affecting the safety or availability of the facilities.

If any of these events occur they may have a material adverse impact on the Group's financial results and financial position.

**A decision by the French public authorities to halt one or more nuclear power generation units could have material adverse consequences for the Group.**

During the discussions on the Energy Transition in 2013, the French President and the French government have undertaken to ultimately reduce the share of nuclear power in France's electricity generation mix from 75% to 50%. This goal may lead to a decision to close one or more units of EDF's fleet early, made not on the basis of industrial considerations, but as a result of a decision of the political authorities, as proposed in the energy bill that is expected to be tabled before Parliament in 2014 (see section 6.5.8.2 ("Future regulations at national level")). Similarly, a decision to halt all nuclear power generation by a specific date can also not be completely excluded. Lastly, it may be decided that new nuclear construction projects, in which the Group has already invested considerable sums, should be halted. Such events would have material adverse consequences on the outlook, financial position, results and image of the Group, which would lead the Group to request compensation that it is not certain to obtain.

**Construction of EPRs may encounter problems or not be completed.**

The Group has undertaken construction of the European Pressurised Water Reactor (EPR) in Flamanville (see section 6.2.1.1.3.5 ("Preparing for the future of the nuclear fleet in France")) in order to renew its nuclear power generation facilities in France and to serve as a model for the construction of new facilities abroad.

In December 2012, EDF submitted an upward cost revision for the construction of the Flamanville 3 project for a total of €8.5 billion at 2012 economic conditions. The Group may not obtain the authorisations required for the construction, commissioning and operation of EPRs, or authorisations may be challenged by court or administrative rulings. In particular with respect to the Flamanville EPR, which is a "prototype" reactor, technical or other difficulties may occur during development and construction, or during early stages of the operation of the EPR. These difficulties could slow or prevent the construction of other EPRs, alter the schedule for commissioning them or affect their performance. In addition, total construction costs could be higher than EDF estimates.

In the United Kingdom, the EDF group and the British government reached an agreement in October 2013 on the main terms of an investment contract for the construction of two EPRs at the Hinkley Point C site. The project is expected to be covered by a financial guarantee pursuant to a programme set up by the British government. This project will be developed with other investors.

The final investment decision is subject to a number of conditions, in particular:

- an agreement on the overall investment contract;
- finalisation of an agreement with industrial partners and on debt financing; and
- the decision of the European Commission concerning the rules on State aid.

In the event of disagreement on these various points, neither the investment decision nor the project as a whole may be carried out.

The EPR programme is an essential component of the Group's strategy. Any event that delays or blocks this programme or affects the construction of the "prototype" EPR or subsequent units would thus have a material adverse impact on the Group's activity and financial position.

1. Except for Nine Mile Point 2, which has an operating life of 58 years.



**The Group is responsible for most spent fuel and radioactive waste from its nuclear power plants, especially long life medium- and high-level waste from spent fuel.**

The nuclear fuel cycle is described in section 6.2.1.1.3.4 ("Nuclear fuel cycle and related issues"). In France, as an operator and waste producer, EDF is legally responsible for spent fuel from the time it leaves the power plant and for radioactive waste processing and long-term management operations. EDF assumes this responsibility in accordance with guidelines laid down by the public authorities and under their supervision.

The Group's liability may be alleged, in particular as a nuclear power operator or producer within the meaning of applicable legislation on waste, in the event of an accident or any damage to third parties or the environment from spent fuel or waste, even if they are handled, transported, kept, warehoused or stored by contractors other than the Group (especially, in France, the Areva group and ANDRA), in particular in the event of a breach by such contractors. If the Group were held liable for damage to third parties, the specific strict liability scheme applicable to nuclear plant operators would apply, up to the maximum amounts specified by this scheme (see section 6.5.6.2.2 ("Special regulations applicable to basic nuclear facilities")).

In France, the long-term management of radioactive waste has been the subject of various initiatives under the programme Acts of 30 December 1991 and 28 June 2006 on sustainable management of radioactive materials and waste (see section 6.2.1.1.3.4 ("Nuclear fuel cycle and related issues")). The Group cannot guarantee that all long-life high- and medium-level waste will constitute "final radioactive waste" within the meaning of Article 6 of the Act of 28 June 2006 and, therefore, that such waste may be directly stored in deep geological layers. Furthermore, the Group cannot guarantee the timeframe in which the public authorities will authorise such storage, or predict certain technical instructions related to such authorisations, which creates uncertainties about the future of such waste and the resulting liability and costs for EDF.

In the United Kingdom, when British Energy was restructured, agreements were entered into with the authorities concerning the management of certain radioactive waste from existing nuclear power plants (see section 6.3.1.4.2 ("Nuclear generation business unit" – "Costs related to radioactive waste management and plant decommissioning – British Energy group restructuring agreements")). Under the terms of these agreements, the liability and certain costs associated with the management of certain radioactive waste are transferred to the British government. However, EDF Energy Nuclear Generation Ltd. remains financially, technically and legally liable for the management, storage and processing of waste that does not come within the scope of the aforementioned agreements.

Directive no. 2011/70/Euratom of 19 July 2011 confirms the Commission's intention to establish a shared Community framework for the responsible and safe management of spent fuel and radioactive waste (see section 6.5.6.2.2 ("Special regulations applicable to basic nuclear facilities")).

In the United States, in accordance with the Nuclear Waste Policy Act (NWPA), CENG is a party to the contracts entered into with the Department of Energy (DOE). In such capacity, since November 2009, CENG has paid the contributions stipulated by the NWPA to fund the cost of construction by the DOE of a federal storage site for final disposal of spent fuel (CEG paid these contributions until November 2009). Because the DOE has stated that it could not take possession of spent fuel before 2020 (instead of 1998 as originally planned), CEG, and then CENG, have had to take additional actions, and incur the costs thereof, to provide onsite fuel storage, thereby allowing the operation of its plants until the federal storage site becomes available. The sums that the DOE will reimburse until the end of the transaction with EDF will be received by CEG. CENG will receive subsequent reimbursements (see section 6.3.3.2.2.1 ("Existing nuclear business units: Constellation Energy Nuclear Group (CENG)" – "Nuclear fuel")).

The Group cannot guarantee that it will have available, in a timely manner and under acceptable financial conditions, long-term storage and treatment solutions for the radioactive waste generated by the operation of power plants located in the relevant countries, which could have an adverse impact on the Group's financial results and financial position.

**Provisions booked by the Group for spent fuel processing operations and long-term radioactive waste management may prove insufficient.**

In France, EDF has booked provisions for spent nuclear fuel management operations (transport, processing, conditioning for recycling) (see note 29 to the consolidated financial statements for the financial year ended 31 December 2013) based on the price and volume conditions in the master agreement signed with Areva in December 2008 and broken down in an agreement signed on 12 July 2010, which covers the period from 2008 to 2012. Negotiations are underway with Areva to establish the processing and recycling terms and conditions as of 2013 (see section 6.2.1.1.3.4 ("The nuclear fuel cycle and related issues")). The amount of provisions currently booked to cover the period after 2013 may prove insufficient if the terms under which this agreement is renewed for such future period prove more onerous than those currently applicable.

EDF has booked provisions for long-term waste management based on an assumption of geological storage, and on a reasonable interpretation of the work conducted in 2006 by a working group comprising ANDRA, the public authorities and nuclear waste producers (see note 29 to the consolidated financial statements for the financial year ended 31 December 2013 and section 6.2.1.1.3.4 ("Nuclear fuel cycle and related issues")). Although the programme Act of 28 June 2006 on sustainable management of radioactive materials and waste confirms, without excluding other areas for additional research, that "final radioactive waste" will be stored in deep geological layers, the Group cannot guarantee that all long-life high- and medium-level waste will be considered as such or within what timeframe this type of storage, if it is selected, can be used. Consequently, the Group's final costs for long-term waste management may exceed the provisions booked in its financial statements. New calculations of the costs of deep storage are underway under the supervision of the DGEC, and the first estimates should become available in 2014.

In the United States, CENG has also booked provisions to cover its long-term nuclear waste management commitments.

The Group cannot guarantee that the amount of these provisions will be sufficient. Determining the amount of these provisions is sensitive to assumptions made in terms of costs, inflation rate, long-term discount rate and payment schedules. Given these sensitivity factors, changes in certain parameters may require significant adjustments of the provisions booked. In such case, any insufficiency of provisions for long-term nuclear commitments may have a material adverse impact on the Group's financial results and financial position.

**Decommissioning existing nuclear facilities may present currently unforeseen difficulties or be much more costly than currently anticipated.**

Given the size of the Group's nuclear fleet, decommissioning presents a significant technical and financial challenge. Although the Group has assessed the challenges, in particular the technical challenges, involved in decommissioning (particularly decommissioning the first-generation power plants in France), and has identified the solutions to be developed, it has never decommissioned nuclear power plants similar to those currently in service.

In France and the United States, the Group has booked provisions to cover the anticipated costs of decommissioning and managing the last cores. Determining the amount of these provisions is sensitive to assumptions made in terms of costs, inflation rate, long-term discount rate and

payment schedules. The timeframe and costs of these works also depend on administrative authorisations and the availability, at required times, of radioactive waste storage centres or other facilities required for conditioning or storing waste packages (see section 6.2.1.1.3.6 ("Decommissioning of nuclear power plants")). The Act of 28 June 2006 provided for a dedicated storage centre for low-level long-life waste, such as graphite. The initial search for a site was unsuccessful, and in 2013 ANDRA initiated a new search and is expected to present the result of this work before the end of 2015. Given these sensitivity factors, changes in certain parameters may require significant adjustments of the provisions booked and, therefore, the Group cannot guarantee that the provisions booked will equal the costs actually incurred at the relevant time, which would have an adverse impact on the Group's financial results and financial position.

In the United Kingdom, under the agreements concluded in connection with the restructuring of British Energy, the costs of decommissioning EDF Energy Nuclear Generation Group Ltd.'s existing nuclear power plants will be paid by the Nuclear Liabilities Fund. If this fund proves insufficient, these costs will be borne by the UK Government (see section 6.3.1.4.2 ("Nuclear generation business unit" – "Costs associated with radioactive waste management and plant decommissioning – British Energy group restructuring agreements")).

**Dedicated assets allocated by the Group to cover the costs of its long-term nuclear business commitments (such as radioactive waste and decommissioning) may prove insufficient and require additional expenditures.**

In France, as of 31 December 2013, the market value of EDF's portfolio of dedicated assets was €21.7 billion, compared to €17.6 billion on 31 December 2012 (see section 6.2.1.1.3.7 ("Assets available to cover long-term nuclear-related commitments (outside the operating cycle)")). Since the incorporation of the CSPE claim in February 2013, the amount of dedicated assets covers all eligible nuclear liabilities (see section 6.5.6.2.2 ("Special regulations applicable to basic nuclear facilities") and note 48 to the consolidated financial statements for the financial year ended 31 December 2013).

These dedicated assets may prove to be insufficient at the time actual payment is required if true costs are different or if the timeframe for decommissioning and storage costs are modified, which could have a material adverse impact on EDF's financial position. Moreover, stricter regulations at the national level (in particular those that impact the base for determining the dedicated assets to be constituted by EDF) or European level may lead to more stringent requirements regarding the constitution of dedicated assets and have an effect on EDF's financial position.

Lastly, although these assets are constituted and managed in accordance with strict prudential rules (see section 6.2.1.1.3.7 ("Assets available to cover long-term nuclear-related commitments (outside the operating cycle)")), the Group cannot guarantee that price fluctuations in the financial markets will not have a material adverse impact on the value of these assets (see section 9.5.1.6 ("Management of financial risk on EDF SA's dedicated asset portfolio") for a sensitivity analysis), which could require EDF to disburse additional amounts to restore the value of these assets.

In the United Kingdom, funds to finance nuclear commitments are managed by an independent organisation created by the UK government (Nuclear Liabilities Fund – "NLF"). Operators therefore have no assets to manage for this purpose (see section 6.3.1.4.2 ("Nuclear generation business unit")).

In the United States, in accordance with NRC regulations and requirements imposed by the relevant states, CENG has established funds strictly dedicated to covering the costs of power plant decommissioning. The strategy adopted in establishing these funds is based on the estimated costs necessary for decommissioning and the disbursement schedule associated therewith. CENG's estimate of the revenue generated by these funds is based on various factors, including the asset allocation strategy for the investments, the historical rate of return and market conditions. At this time, it is anticipated that decommissioning activities will continue until the 2080's. Any changes

that affect decommissioning costs or schedules, or any changes that affect the revenues generated by the funds, may impact the ability of the funds to cover the decommissioning costs of power plants, which could lead CENG to incur additional expenditures.

Such events could have an adverse impact on the Group's financial position.

### 4.1.4 Risks related to the Group's structure and changes within the Group

**The Group's expansion strategy may not be implemented in accordance with the objectives set by the Group.**

The Group intends to continue its expansion in the electricity, gas and energy services industries, both in France and abroad, in line with its industrial development plan, in accordance with its business model for each geographical area and in light of any relevant experience (upstream/downstream balance, marketing strategy, development of renewable energy sources or other production methods, such as nuclear, hydropower, coal, gas combined-cycle power plants, etc.). The Group thus implements programmes that focus on expansion, reorganisation, increasing profitability (see the discussion below of the risk factor entitled "The Group has set up programmes that aim to improve its operating and financial performance and increase its financial flexibility") and disposals.

In the field of nuclear power generation, the Group may not achieve the expansion it anticipates, or it may be unable to carry out projects it has initiated abroad or it may be unable to carry out such projects under satisfactory economic, financial and legal conditions.

Through partnerships or equity investments, the EDF group is committed to international projects for the construction and operation of nuclear power plants (in particular, in China and the United Kingdom). During the development phase, these projects require obtaining administrative authorisations, licences, permits and, in certain cases, setting up additional partnerships. These are major projects involving significant investment, and their funding conditions are subject to confirmation. Given the current economic climate, obtaining such funding may be delayed. Furthermore, the regulatory framework in some countries is in the process of being updated, which could have an impact on EDF's commitments and liability. Even when it has negotiated protective contractual arrangements, the Group cannot guarantee that any or all of these projects will be carried out in accordance with the anticipated schedules, under satisfactory economic, financial, regulatory or legal conditions or that they will, in the long term, generate the profitability anticipated at the outset, which could have a material adverse impact on the Group and its financial position.

In the new energies field, EDF relies primarily on its EDF EN subsidiary (see section 6.4.1.2.2 ("EDF Energies Nouvelles")), which does business in numerous countries. However, the profitability of these developments is often dependent on the support policies adopted in the various countries. The Group cannot guarantee that the support programmes will not change in some of these countries and adversely impact the profitability of investments made.

Furthermore, the expansion of the Group's gas business is an important issue, both in terms of the use of gas in power generation and the development of dual gas/electricity offers (see section 6.4.2 ("Gas activities")). The outlook for global supply and demand for gas is changing (the boom in unconventional sources of gas, particularly in the United States, rising demand in emerging countries, etc.). The competitive environment for the gas sector is evolving in France and in Europe with the emergence of new operators and the mergers of energy companies. The dependence of European countries on imports of natural gas is already high and continues to increase, due mainly to the depletion of local resources and increasingly distant supply sources.

To implement its gas strategy, the Group must not only have access to competitive sources of supply, but also to logistical infrastructure (such as storage, gas pipelines and LNG terminals) that allow it to transport its gas to locations near points of consumption, have the requisite flexibility and generate synergies between the various entities of the Group, including those which it does not control. The Group cannot guarantee that it will always have access to gas supply sources (through long-term contracts or the acquisition of gas fields, for example) or to gas infrastructure, or that it will be able to generate the synergies anticipated. All of these factors may slow the expansion of the Group's gas strategy, which would have an adverse impact on its activities, financial results and outlook.

Lastly, the Group also intends to develop and reinforce its offer of integrated services, including eco-efficiency energy services, as part of a sustainable development approach. The energy services market is very competitive, and the energy efficiency market has strong development potential (see section 6.4.1.3 ("Energy Services")). The future integration of Dalkia France into the Group should reinforce this expertise and development sector (see section 6.4.1.4 ("Dalkia")). The Group cannot guarantee that its service offer will be successful or that it will always be able to implement its expansion policy in this area, which may have an adverse impact on its financial results and outlook.

More generally, the Group may face unexpected changes in its regulatory, economic and competitive context, which may render its decisions inappropriate, or it may encounter difficulties in implementing or changing its strategy, which may have an adverse impact on the Group's business, financial results and outlook.

**The Group's acquisition and disposal transactions carry risks and may not always achieve the objectives pursued.**

As part of its development strategy, the Group has carried out and may carry out transactions involving the acquisition of assets or equity interests, as well as mergers or the creation of joint ventures and, more generally, all types of external growth transactions (see section 9.2.2.2 ("New investments and partnerships")).

External growth transactions involve *inter alia* the following risks: (i) the assumptions used by the Group in valuing an acquisition may not prove accurate, particularly concerning anticipated market prices, cost savings, profits, synergies and profitability; (ii) difficulties concerning the quality and performance of assets acquired may be encountered or the liabilities of acquired companies may be undervalued; (iii) difficulties integrating the businesses or companies acquired may occur; (iv) the Group may not be able to retain certain key employees, customers or suppliers of the acquired companies; (v) the Group may be required or wish to terminate certain pre-existing contractual relationships on costly or unfavourable financial terms; (vi) the Group may increase its debt to finance these acquisitions, limiting its financial flexibility and the opportunity to obtain additional loans in the future; and (vii) the Group may be required to make commitments to the antitrust authorities, which may be implemented on terms that are less favourable than anticipated by the Group.

Consequently, the benefits expected from future or completed acquisitions may be lower or may not be obtained as quickly as expected, which could have an adverse impact on the Group's financial results, financial position and outlook.

The Group has also carried out and may carry out transactions involving the disposal of assets or equity investments. In connection with such disposals, the Group may provide guarantees concerning the assets sold and, consequently, may have to pay compensation or make price adjustments to the purchaser, which could have an adverse impact on the Group's financial results, financial position and outlook.

The Group may also decide to not carry out external growth transactions and disposals it has planned, or to carry them out for a price other than the

desired price, due *inter alia* to contractual, financial or regulatory limitations, or political intervention. This may have an adverse impact on the Group's financial results, financial position and outlook.

**The Group may not hold a controlling majority or it may share control in certain of its subsidiaries and equity interests.**

Certain of the Group's business activities are conducted, or may in the future be conducted, through entities in which the Group shares control or in which it is the minority shareholder. In such situations, the Group may experience a deadlock if the partners are unable to agree, or decisions may be taken that are contrary to its interests, which may limit the Group's ability to implement the strategies it has adopted and have an adverse impact on its business activities, financial results, financial position and outlook.

**The various reorganisations required by market liberalisation could have operational and financial consequences for the EDF group.**

The organisation that has been put in place since the market has been liberalised, in which regulated activities are separated from competing activities, may yet generate difficulties for customers that may impact the image of the Group and, in particular, the energy supplier.

**Risks associated with information systems.**

The Group operates multiple and highly complex information systems (servers, networks, applications, databases, etc.), which are essential for the conduct of its commercial and industrial business, and which must adapt to a rapidly changing environment. A failure of one of these systems could have significant adverse consequences for the Group. In particular, the EDF group's activities may be adversely affected if the information systems or call centres in place, to be put in place or to be adapted following full liberalisation of the market are not sufficiently reliable or productive.

Therefore, the Group has adopted a policy to reinforce and improve the backup programmes for its information systems, which are tested annually. However, the Group cannot guarantee that these programmes will not experience technical deployment difficulties or delays in implementation, which could, in the event of a serious incident, have a significant adverse impact on the Group's business, financial results and financial position.

**As the Group's majority shareholder, the French government may interfere in decisions that are important for the Group.**

Pursuant to Article L. 111-67 of the French Energy Code, the French government is EDF's principal shareholder and must retain ownership of at least 70% of its share capital. Under French law, a majority shareholder controls most corporate decisions, including resolutions that must be adopted by general meetings (in particular, the appointment and dismissal of members of the Board of Directors, the distribution of dividends and amendments to the articles of association). In addition, the legal restriction on dilution of the French government's stake may limit EDF's capacity to access capital markets or carry out external growth transactions.

**A non-negligible share of the Group's workforce is employed by organisations common to EDF and GDF Suez. Therefore, the Group depends in part on management mechanisms set up within these joint structures.**

A non-negligible share of the Group's workforce is employed by organisations common to EDF and GDF Suez (almost all of them by the joint department of ERDF and GrDF, the two distribution subsidiaries of the EDF and GDF Suez groups). Therefore, certain decisions made within these joint organisations can have an impact on EDF, in particular on its costs and on the manner in which its resources are managed. Furthermore, EDF and GDF Suez may have divergent interests or views concerning these joint structures, which may have an adverse impact on the Group's labour relations, financial results and financial position (see section 6.2.2.2.4 ("Shared service and international")).

### **The Group does business in numerous countries and may face periods of political, economic or social instability.**

Certain Group investments and commitments are exposed to risks and uncertainties associated with doing business in countries that may experience, or have experienced, periods of political or economic instability. Several countries in which the Group operates have regulations that are less advanced and less protective, practice or may introduce controls or restrictions on repatriation of profits and capital invested, levy or may levy specific taxes and fees affecting energy businesses and impose or may impose restrictive rules on the business of international groups. In these countries, the electricity sector is also subject to sometimes rapidly changing regulations or regulations which may be influenced by political, social and other considerations, which may affect the operations or financial position of Group subsidiaries in a way that is contrary to its interests. The occurrence of any of these events may have an adverse impact on the Group's activities, financial results and financial position.

Lastly, the Group has developed or built a portfolio of Independent Power Plants (IPP) in different parts of the world, including Brazil, Vietnam, Laos and China, in which it plays one or more roles (engineering, project owner, project manager, investor, operator). In these different capacities, the Group may incur liability or its financial performance may be affected, especially if the return on capital employed for the IPP is lower than expected, if long-term electricity contracts or pass-through clauses, if applicable, are challenged, or in the event of major changes to electricity market rules in the relevant country.

### **The Group must continually adapt its expertise in a rapidly changing environment and renew a significant share of its workforce, while ensuring experience and skills are transferred to new employees.**

The challenges associated with achieving the Group's strategic objectives in a rapidly changing environment (in particular, the full liberalisation of markets, the international development of nuclear and "clean coal" power, the development of renewable energies, etc.) require continuously adapting and planning its expertise requirements, especially in functional and geographic areas.

In France, a large number of EDF employees reaches retirement age each year, despite the impact of the reform of the special pension scheme for Electricity and Gas Industry employees on average retirement age. For example, the workforce will be eligible for retirement within the next ten years (see section 17.1 ("Employment and skill development")). Although this situation represents an opportunity to adapt employees' expertise to the Group's new challenges, the renewal of this workforce requires planning the transfer of knowledge and involves competing in the market to recruit the most competent people.

The EDF group considers skills development to be a major challenge and, therefore, takes all necessary measures to recruit, retain, redeploy or renew such skills in a timely manner and under satisfactory conditions. However, it cannot guarantee that measures adopted will always prove sufficient, which may have an impact on its activities and financial results.

### **The Group may be required to meet significant commitments related to pensions and other employee benefits.**

The pension plans applicable in the various countries in which the Group operates involve long-term commitments to pay benefits to the Group's employees (see note 31 to the consolidated financial statements for the financial year ended 31 December 2013). In France, in addition to these pension commitments, the Group also owes obligations for post-employment benefits and long-term benefits for employees currently in service.

To cover these commitments, the Group has set up outsourced funds or pension funds, as appropriate. At the end of 2013, such assets only partially covered these commitments, although, for the Group, the maturity dates of these obligations are relatively smoothed over time.

The amounts of these commitments, the provisions booked, the outsourced funds or pension funds set up and the additional contributions required to make up insufficient funding are calculated based on certain actuarial assumptions, including a discount rate subject to adjustment depending on market conditions; the rules governing retirement benefits paid out by the general retirement scheme; and amounts owed by the Group. These assumptions and rules may be adjusted in the future, which could increase the Group's current commitments for pensions and other employee benefits and, therefore, require a corresponding increase in provisions.

Furthermore, if the value of outsourced funds or pension funds proves insufficient to meet the corresponding commitments, in particular in the United Kingdom and the United States, primarily due to calculation assumptions or developments in the financial markets, the Group may be obliged to make additional contributions to the relevant funds, which may have an adverse impact on its financial position and financial results.

### **Labour disputes could have an adverse impact on the Group's business.**

The Group cannot exclude that labour disputes or unrest, such as strikes, walkouts, claims or other labour disturbances, will not disrupt its business. The Group has not taken out any insurance to cover losses due to business disruptions caused by labour movements. Consequently, its financial position and operating results may be adversely affected by labour unrest.

### **The Group has set up programmes that aim to improve its operating and financial performance and increase its financial flexibility. The objectives set for these programmes may not be achieved.**

The Group has set up and may set up programmes that aim to improve its operating performance and increase its financial flexibility. For example, at the end of 2012, the Group initiated a new programme called "SPARK", which complements the "Group Synergies and Transformation" programme, and which aims to optimise purchases relevant to both operating expenses and investments. In 2012, the Group identified areas offering potential gains of approximately €1 billion as of 2013, an amount that was subsequently increased to €1.2 billion. By the end of 2013, this objective had been exceeded, with €1.3 billion in savings having been realised. However, the Group cannot guarantee that the programmes to improve performance that it implements will have the expected results or that those results will be achieved on schedule.

### **Risks associated with amendments to the IFRS standards applicable to the Group.**

The EDF group's consolidated financial statements for the financial year ended 31 December 2013 have been prepared in accordance with the applicable international accounting standards published by the International Accounting Standards Board (IASB), as approved by the European Union as at 31 December 2013 (see note 1 to the consolidated financial statements for the financial year ended 31 December 2013).

This accounting standards framework evolves and new standards and interpretations are currently in the process of being drafted or approved by the competent international bodies. The Group is studying the potential impact of these standards and interpretations, but cannot foresee their development or potential impact on its consolidated financial statements.



### 4.1.5 Risks associated with EDF's capital structure and the listing of its shares

#### Significant volatility in share price.

Stock markets have experienced significant fluctuations in recent years, which have not always been related to the performance of the specific companies whose shares are traded. Such fluctuations may significantly affect the EDF share price.

The EDF share price may also be significantly affected by a number of factors that affect the EDF group, its competitors, general economic conditions or

the energy industry in particular, which may be due, for example, to political decisions concerning energy policy.

#### Foreign exchange rate fluctuations.

EDF shares are listed only in euros and any future payments of dividends will be made in euros. The equivalent amount in foreign currencies of the share price or of any dividends paid to an EDF shareholder could be adversely affected by a fall in the value of the euro.

#### Risks associated with sales of EDF shares by the French government.

As of 31 December 2013, the French government held 84.49% of EDF's share capital. If the French government decides to further reduce its equity stake in EDF, such sales by the French government, or the perception that such sales are imminent, could adversely affect EDF's share price.

## 4.2 Risk management and control in the EDF group

### 4.2.1 General system set up to manage and control the Group's risks

For many years, the EDF group has pursued a policy to manage its operational, financial and organisational risks (see "Report of the Chairman of the EDF Board of Directors on corporate governance and internal control and risk management procedures", in Appendix A to this reference document).

The objectives of the risk management and control policy implemented by the Corporate Risk Management Division (*Direction Contrôle des Risques Groupe* or "DCRG") are to:

- contribute to securing the Group's strategic and operational progress by identifying and ranking risks in all fields in order to ensure increasingly firm control thereof, increasing awareness and mobilising all Group entities to identify, assess and handle risks in order that all managers are aware of the risks inherent in their activities and take the actions necessary to control such risks;
- provide the Group's officers and directors and governance bodies with a consolidated, regularly updated view of major risks and their level of control;
- meet stakeholders' increasing need for information regarding management of the company's risks.

#### 4.2.1.1 Risk management and control principles

In general, the operational and functional entities are responsible for managing risks within the scope of their activity, under the responsibility of the Group's Executive Management.

The Group's risk control policy is applied either directly to EDF and its controlled subsidiaries or through the governing bodies of regulated subsidiaries (RTE and ERDF) or jointly-controlled subsidiaries.

This policy is based on a system of risk control that is completely independent of the risk management functions. This system ensures a standard approach with respect to the identification, assessment and control of risks.

Under those principles, each year, EDF prepares a consolidated mapping of its major risks for the entities under its operational control or under joint control (except for Dalkia International), based on reports they provide. The consolidated mapping completed at the end of the year is approved by EDF's Executive Committee and is presented to the Board of Directors' Audit Committee (see section 16.3 ("Bodies created by Executive Management")).

The risk mapping and control measures are closely associated with the Group's internal control and internal audit functions, and the audit programme is prepared on the basis of the major risks identified. The overall risk mapping process provides support for numerous other processes implemented by the Group, such as the policy concerning insurance and its implementation (see section 4.2.3 ("Insurance")), the crisis management policy and the analysis of risks concerning matters examined by the Group's decision-making bodies (the Executive Committee, the Executive Committee's commitments committee, the upstream-downstream trading committee, etc.). The risk management process contributes *inter alia* to securing the investment and long-term commitments process by ensuring that matters presented to the Executive Committee's commitments committee comply with risk analysis methodology principles.

#### RTE

With respect to RTE, risk management and control are organised at the two relevant management levels:

- at the national level, every six months, RTE's Executive Committee approves the mapping of its major risks, which is then submitted to the economic oversight and audit committee of RTE's Supervisory Board. The Executive Committee tasks a national manager with monitoring each of the risks identified. RTE's Audit and Risks Department performs the national audits ordered by the Chairman of the Management Board, to whom it reports its findings and recommendations;
- at the level of RTE's various business lines, managers are responsible for conducting their own analysis of the risks associated with their businesses and for ensuring control thereof by implementing appropriate actions within the relevant entities. They monitor and report on these risks to the national level using an assessment system, the results of which are consolidated annually by RTE's Audit and Risks Department.

## ERDF

ERDF identifies and manages its risks in accordance with the Group's methodology. Risk control is implemented pursuant to the Group's control principles and is carried out by a unit that is independent of ERDF's operational entities, and which verifies, with reasonable certainty, control of its activities:

- a mapping of the major risks within ERDF's scope is updated semi-annually. After approval by ERDF's Management Board, it is submitted to ERDF's economic oversight and audit committee and to the Supervisory Board. A member of the ERDF executive committee is designated for each significant risk identified, and a national coordinator is tasked with implementing action plans covering related risks. An annual programme of national audits ordered by ERDF's Executive Committee, that is devised based on the risk analysis and overseen by ERDF's Audit, Internal Control and Risk department, supplements the control system;
- each regional operational division and each functional business line division is responsible for conducting its own analysis of the risks associated with its activities. For this purpose, it conducts an upstream risk analysis using the cross-disciplinary methodology applied within ERDF. Reports on internal control plans are submitted and consolidated at the national level.

The progress of the audit programme and the effectiveness of the improvement initiatives taken are also submitted for approval to the Management Board, and are presented semi-annually to the economic oversight and audit committee, and then to the Supervisory Board. An internal control report is approved and then presented each year to the same governance bodies respectively.

### 4.2.1.2 Management and control of risks associated with energy markets

Risk factors associated with wholesale energy markets and allowances are described in section 4.1.2 above ("Risks associated with the Group's activities").

#### 4.2.1.2.1 System set up to manage risks associated with energy markets

As a result of the liberalisation of the end-user market, the development of wholesale markets and international expansion, the EDF group is exposed to fluctuations in market prices for energy, which may materially impact its financial statements.

Therefore, the EDF group has implemented an "Energy Markets Risks" policy covering all energy commodities, which is applicable to EDF and entities under its operational control (see section 9.5.2 ("Management and control of energy market risks")).

In the case of Edison, an entity over which EDF has operational control since 2012, implementation of the principles of the energy markets risk policy began in 2012 with the consolidation of Edison's positions in the Group's risk profile. It continues in connection with the project to integrate Edison into the Group's risk policy, which covers all of the subsidiary's businesses and activities (see section 6.3.2 ("Italy")).

In the case of Constellation Energy Nuclear Group (CENG), a jointly controlled entity, its "Energy Markets Risks" policy is reviewed by its governing bodies.

The objectives of the Group's "Energy Markets Risks" policy are to:

- establish a general framework pursuant to which the various Group entities carry out their operational activities (power generation, optimisation and distribution) and interact with EDF Trading;
- consolidate the exposure of the various entities over which EDF exercises operational control on the structured energy-related markets;
- implement a coordinated hedging policy at Group level.

The operational management principles applicable to energy market risks are based on clarifying responsibilities for managing energy market risks, making a clear distinction between matters that are under the responsibility of power generation assets management, on the one hand, and trading on the other hand.

Power generation and supply asset managers are responsible for implementing a risk management strategy that minimises the impact of energy market risks on their financial results. Nevertheless, they remain exposed to risks that cannot be hedged on the markets, in light of various factors such as a lack of liquidity or market depth, or uncertainty about volumes, which may have a significant impact on the Group's financial results.

Within the Group, positions on the energy markets are taken primarily by EDF Trading, which is the Group's trading entity. In such capacity, EDF Trading operates subject to a strict governance and control scheme (see section 6.5.7 ("Regulations on the wholesale energy market")).

The operational management principles applicable to energy market risks include management indicators, limits and position sensitivity scenarios that ensure control of these risks (see section 9.5.2 ("Management and control of energy market risks")).

#### 4.2.1.2.2 Risk control organisation

For entities that are operationally controlled by the Group, the process for controlling energy market risks is based on:

- a governance and market risk exposure measurement system, clearly separating management and risk control responsibilities;
- explicit authority given to each entity, which defines *inter alia* hedging strategies and sets limits for related risks. This practice allows the Executive Committee to define each year a consolidated risk profile for this scope that is consistent with financial objectives and to direct operational management of energy market risks for a given market horizon (typically three years);
- a specific control process in light of their significant interactions with decisions taken within the power generation and supply businesses. This process involves the Group's Management and is based on a system of risk indicators and measurements that includes alert procedures in the event risk limits are exceeded.

In the case of entities that EDF does not control, the control process is reviewed by the governing bodies of those entities.

The consolidated exposure to energy market risks of entities under EDF's operational control is submitted to the company's Executive Committee on a quarterly basis. The control processes are regularly reassessed and audited.

### 4.2.1.3 Management and control of risks associated with financial markets

Risk factors associated with financial markets are described in section 4.1.2 above ("Risks associated with the Group's activities").

#### 4.2.1.3.1 System set up to manage risks associated with financial markets

EDF has set up a system for managing financial risk (see section 9.5.1 ("Management and control of financial risks")), which defines the policy and principles for managing the Group's financial risks (liquidity, currency, and interest rate risks) and which are applicable to EDF and operationally controlled subsidiaries. The Group is exposed to equity risk mainly through dedicated assets that cover long-term nuclear commitments and that are managed in a specific manner, outsourced employee benefit funds and, to a lesser extent, through its cash management by direct equity investments. These principles include management indicators and limits for controlling

these risks, and seek in particular to reduce the volatility of the Group's financial expenses.

All changes to the financial risk management system must be submitted to EDF's Audit Committee and Board of Directors for approval.

#### 4.2.1.3.2 Risk control organisation

The Financial Risks Control and Investments Department (*Département Contrôle des Risques Financiers et Investissements* or "CRFI") is in charge of controlling financial risks at the Group level by verifying proper application of financial management framework principles. It performs controls of the trading room for "cash" activities, of the Listed Assets Management Division (financial portfolio), and of the EDF Invest Division (unlisted portfolio) for activities associated with dedicated assets. CRFI is also tasked with carrying out a second level control (methodology and organisation) of EDF and entities under its operational control:

- with respect to controls of "cash" activities: CRFI provides daily monitoring of positions on the basis of risk indicators and submits a weekly report to the Operational Coordination Committee of the Finance and Investments Department (*Direction Financements et Investissements* or "DFI") of the corporate finance division. If limits are breached, corrective actions are decided by the mutual agreement of CRFI and the trading room. Any disagreements are referred to the Markets Committee of the corporate finance division, which, if applicable, decides on any specific changes to limits that may be necessary;
- with respect to controls of "dedicated asset" activities: CRFI provides monthly monitoring of positions and submits a monthly report thereon to the Operational Management Committee to enable it to monitor the financial portfolio. The risks assumed by the portfolio are discussed and, if necessary, actions to reduce risks are decided by this committee. With the creation of the EDF Invest Division in the summer of 2013, which is dedicated to investments in unlisted assets, a specific control framework is being set up. The Dedicated Assets Oversight Committee continues to be the body that manages and monitors risks associated with the entire dedicated assets portfolio.

In addition, regular internal audits ensure that controls are properly in place. The internal control mechanism covers two levels of control:

- internal control exercised at the DFI level: an internal control coordinator who reports directly to the Finance and Investments Director is responsible for developing an annual internal control plan;
- the control exercised by the Group Audit Department, which plans yearly audits of activities connected with financial markets and financial risk control.

In addition, if necessary, EDF may hire external firms to audit the financial risk control procedures.

#### 4.2.1.3.3 Liquidity risk

The objective of liquidity management is to look for resources at the best price and ensure that they may be obtained at any given time. These factors are described in section 9.5.1.1 ("Liquidity position and liquidity risk management").

EDF has set up regular monitoring of the Group's liquidity risk, which is incorporated in the business management cycle, and includes stress tests. In addition, the Operational Coordination Committee reviews liquidity needs on a weekly basis.

During the financial crisis, EDF strengthened the monitoring and control of liquidity risk associated with margin calls on the financial and energy markets. Accordingly, specific risk indicators have been in place since 2009

to monitor liquidity needs associated with margin calls on the energy and financial markets. In addition, a steering committee monitors liquidity needs associated with energy market activities and decides, if necessary, on appropriate corrective measures to be implemented.

#### 4.2.1.3.4 Currency risk

To limit its exposure to currency risk, the Group has adopted the following management principles:

- foreign currency financing: to the extent possible given the local financial markets' capacities, each entity funds its operations in its operating currency. When financing is contracted in other currencies, derivative instruments may be used to limit currency risk;
- asset-liability matching: the net assets of subsidiaries located outside the euro zone expose the Group to currency risk. On the consolidated balance sheet, currency risk on assets held in foreign currency is managed either by matching such assets with acquisition debt in the same currency or by hedging contracts involving the use of financial derivatives. Hedging of net assets in foreign currencies complies with a risk/return ratio. If no hedging instruments are available, or if hedging costs are prohibitive, the risk on open foreign currency positions is monitored by sensitivity calculations;
- hedging of operating cash flows denominated in foreign currencies: in general, the operating cash flows of EDF and its subsidiaries are denominated in their local currency, with the exception of cash flows related to fuel purchases which are primarily denominated in US dollars and, to a lesser extent, certain cash flows related to equipment purchases. EDF and its main subsidiaries concerned by currency risk (EDF Energy, EDF Trading, Edison, and EDF Énergies Nouvelles) hedge firm or highly probable commitments related to these future operating cash flows.

The measurement of currency risk is described in section 9.5.1.3 ("Management of currency risk").

#### 4.2.1.3.5 Equity risk

The management of this risk is explained in sections 9.5.1.5 ("Management of equity risk") and 9.5.1.6 ("Management of financial risk on EDF's dedicated asset portfolio").

#### 4.2.1.3.6 Interest rate risk

To limit its exposure to interest rate risk, in connection with its general policies, the Group lays down principles for the purpose of limiting the risk of changes in the value of assets invested or of an increase in its financial expenses.

These principles are described in section 9.5.1.4 ("Management of interest rate risk").

### 4.2.1.4 Management and control of counterparty risk

Risk factors related to counterparty risk are described in section 4.1.2 above ("Risks related to the Group's activities").

The EDF group is exposed to counterparty risk, which is defined as all losses that the Group would sustain on its operating activities and on the markets if any of its counterparties were to default and consequently fail to perform its contractual obligations.

Accordingly, a "Group counterparty risk management" policy, approved by the Board of Directors, is applied to EDF and the entities over which it has operational control. This policy organises the management and monitoring of counterparty risk, and lays out reporting procedures and channels.

Three major principles are at the heart of this system: (i) the organisation's responsiveness; (ii) the independence of the risk control functions from the activities which generate risks; and (iii) the entities' responsibility for the management of their exposures. The policy also sets a limit for the Group which is applied to each counterparty. In addition to this limit applied to each counterparty at the Group level, an additional limit for each counterparty was established in 2007, which is applicable to each EDF entity or subsidiary under the Group's operational control. Use of counterparty limits is monitored regularly at the entity level, and the Group's consolidated exposure to counterparty risk is updated quarterly for all controlled subsidiaries and monthly for all entities that are active on the energy or financial markets. The Group also actively monitors its major counterparties (see section 9.5.1.7 ("Management of counterparty/credit risk")).

In addition, in accordance with energy and financial markets practices, a margin call system has been adopted by certain Group entities to minimise counterparty risk.

RTE and ERDF subsidiaries that also make purchases on the energy markets to cover network losses also regularly monitor their counterparties and assign limits to each counterparty based on criteria defined by their governing bodies. In connection with its purchases on the energy markets to cover network losses, RTE also regularly monitors its counterparties based on criteria it defines.

## 4.2.2 Management of industrial and environmental risks

### 4.2.2.1 Management of nuclear safety risk

The risk factors associated with nuclear safety are described in section 4.1.3 above ("Specific risks related to the Group's nuclear activity").

Like other operators, the Group assumes responsibility for the nuclear safety of its facilities. Nuclear safety includes all technical, organisational and human measures that are intended to anticipate accident risks and limit the effects of an accident, and which are taken at every stage of the life of a nuclear power plant, from design to operation, until decommissioning.

The methods implemented in connection with the nuclear safety system have allowed continuous performance improvement in the protection of employees against the effects of ionizing radiation. The entire nuclear safety approach is continuously monitored, both internally and externally (see below and section 6.2.1.1.3.3 ("Environment, safety and radiation protection")), and the appropriateness of the organisation and measures in place are continuously re-examined, based *inter alia* on progress in knowledge and experience. Accordingly, the Group has always actively participated in the analysis of past accidents. Thus, the Group has been able to learn lessons from the accidents at Three Mile Island (1979) and Chernobyl (1986), which led to significant material and organisational improvements in the safety of nuclear facilities. This review is currently on-going, incorporating feedback from the events which took place in Japan in March 2011. Based thereon, EDF quickly proposed several possibilities for improving safety based on the initial lessons learned from that accident, concerning (i) a reassessment of earthquake and flood scenarios; (ii) dealing with the simultaneous loss of electrical power sources and the cold source; and (iii) dealing with the fusion of the core.

#### In France

The construction of the Group's nuclear power plants has led to the adoption of safety procedures that, starting at the design stage, take into account risks that may arise during plant operation, whether associated with the operation of the facilities, internal or external attacks or natural disasters.

These procedures rely primarily on the application of strict operating rules and on the Group's integrated skills (nuclear engineering, research and development), which allow planning ahead for resolution of possible failures, continuous assessment of equipment, regular re-evaluation of safety margins, technological monitoring and the implementation of new high-performance techniques.

Maintaining and improving safety also relies on the concept of in-depth defence, which provides for systematically handling the risk of technical, organisational and human failures by placing successive and independent lines of defence for facilities, processes and the organisation.

The operating quality and safety of the Group's French nuclear plants is ensured by multiple internal inspections, which are carried out *inter alia* by the Inspector General for nuclear safety and radiation protection, who reports directly to EDF's Chairman and Chief Executive Officer, as well as external inspections, which are carried out *inter alia* by the ASN, an independent administrative authority. Nuclear power plants must comply with terms of reference, the objectives of which are established and controlled by the ASN. The crisis management system to be implemented in the event of an accident is regularly tested through accident simulation exercises. Each year, approximately 100 exercises are organised for all French nuclear plants. Approximately ten exercises are carried out at a national level. The liability scheme applicable to European operators and the associated insurance are described in section 6.5.6.2.2 ("Special regulations applicable to basic nuclear facilities").

Following the Fukushima accident in March 2011, in September 2011, EDF submitted reports on the additional safety inspections of its facilities, as requested of all operators of nuclear facilities by the ASN (see section 6.2.1.1.3.5 ("Preparing the future of nuclear plants in France")). In its report on the additional safety inspections, which was submitted to the Prime Minister in early January 2012, the ASN deemed that the safety level of facilities inspected was sufficient and that no plant required an immediate shutdown, although in June 2012 it issued a first set of technical instructions. EDF has prepared an action plan based on a "central core", which will be carried out over several years, and which will cover the additional studies and changes decided. This plan will be finalised when the ASN publishes its complete set of instructions.

Moreover, immediately following its initial analyses of the Fukushima accident, EDF decided to supplement its accident management organisation with a national team capable of quickly providing material and human assistance to a site experiencing major difficulties. Since the end of 2012, this team, called the National Rapid Action Force (FARN), has been able to intervene in a unit of any site in difficulty, and its intervention capacity will be continually expanded through 2015. The FARN will back up the existing crisis management organisation (see section 6.2.1.1.3.3 ("Environment, safety and radiation protection")).

#### In the United Kingdom

The safety and reliability of EDF Energy's nuclear power stations is based on an approach that integrates the concept of in-depth defence, as from the design stage, through the technical characteristics of facilities and safety systems.

Maintaining and improving the safety of facilities in operation is ensured by implementing initiatives based on regular assessment of the risks that may affect plants, including extreme events. The main objective is to prevent the occurrence of any event that may cause radiation emissions that are potentially harmful to the public, EDF Energy employees or the environment.

Safety is also an integral part of the operating conditions imposed by the site licenses issued pursuant to the Nuclear Installations Act and enforced by the Office for Nuclear Regulation (ONR) and the Agency of the Health and Safety Executive (HSE). An ONR inspector is assigned to each power plant to monitor compliance with the conditions set by the site license, with the power to direct a shutdown if appropriate. The approach to plant



safety is based on standards and strict operating procedures, professional expertise and a process of organising and planning tasks to meet exacting standards and ensure compliance with quality assurance standards in force for each activity.

Pursuant to the Nuclear Installations Act, the Ionising Radiation Regulations of 1999, and the Radiation Emergency Preparedness and Public Information Regulation (REPPIR), safe operation of power plants is ensured by accident prevention and control of crisis situations, while addressing the need to protect onsite personnel and the general public. It is therefore crucial, in accordance with licensing requirements, to be able to demonstrate to third parties and the public that the organisation set up to address any crisis situation has been thoroughly prepared, including through the training of personnel and conducting regular crisis drills. Local authorities and/or other external stakeholders must be consulted whenever these measures concern them.

Following the events in Fukushima, Japan, the UK Secretary of State requested the nuclear safety authority to prepare a report on the implications for the United Kingdom. Dr Weightman, the chief nuclear safety inspector, submitted his final report on 11 October 2011. This report concluded that there is no reason to change current siting strategies for new nuclear power plants in the United Kingdom. The regulator stated that it was satisfied with the responses and plans initiated by the government and the nuclear industry in response to this report.

EDF's responses to the ONR in connection with the preparation of the Weightman report were incorporated into a comprehensive safety assessment, which was coordinated by a team of experienced nuclear safety professionals and verified by independent experts. This assessment confirmed the safe design of EDF Energy's nuclear fleet and the robust nature of its power plants, as well as their capacity to operate safely, even under the most extreme scenarios, including those whose likelihood of occurrence in the United Kingdom is extremely low. Nonetheless, EDF Energy has identified further means for enhancing the already very high current safety levels, which require investments in additional backup equipment for the cooling system electric supply, fuel pond cooling equipment, emergency commands and control equipment, as well as to provide additional training in accident management to key technical staff.

### In the United States

In the United States, the operating quality and safety of nuclear plants are monitored by the Nuclear Regulatory Commission (NRC). In addition, the Institute of Nuclear Power Operations (INPO), which includes all US nuclear operators, performs evaluations and analyses with the aim of achieving operational excellence.

CENG, a company controlled jointly by EDF and Exelon, has established a reporting system on operating quality and safety which is on-going, as well as ad hoc in the event of an incident. CENG's management team provides on-going reports to both parent companies, through the Board of Directors and the standing nuclear safety and operations committee, on the main results and key issues regarding operating safety and quality, and recommends corresponding improvement actions. In the event of a major incident, CENG's Chief Nuclear Officer directly informs the Board of Directors. CENG's communications officer also informs the EDF and Exelon communications officers.

In the United States, as in Europe, the Fukushima accident led to a reassessment of the design, accident prevention strategies and equipment of all nuclear plants. Shortly after the accident, a project was launched at the initiative of the nuclear industry (Fukushima Lessons Learned Implementation Project) to implement all actions required or deemed prudent in response to the events in Fukushima. On 12 March 2012, the NRC issued operators a first set of instructions and information requests to comply with the

Tier 1 recommendations of the report of the Near-Term Task Force (NTTF – "Recommendations for Enhancing Reactor Safety in the 21<sup>st</sup> century"). Since then, the NRC and industry associations, such as the Nuclear Energy Institute (NEI), have developed and produced guides, position papers and various documents (FAQs, etc.) in order to provide the nuclear industry with additional information enabling it to comply with both the letter and the spirit of the new regulations. In addition, the INPO has generated a total of five reports (Level 1 INPO Event Reports) requesting industry operators to follow their recommendations following the Fukushima events.

Throughout this process, CENG has been in line with the entire nuclear industry, placing the highest priority and emphasis on changes that would contribute the improvements to the safety of units. CENG has made significant progress in implementing the new recommendations and requirements, such as:

- reviewing the effectiveness of rounds to identify and fix defects vis-à-vis the design bases in light of earthquake and flooding risks;
- reassessing flooding risks by using updated data and the most recent calculation methods;
- purchasing and modifying hook-ups to be used for mobile equipment in the event of a loss of electrical power. This also included a revision of the procedures to be followed by crisis teams in using such equipment;
- preparing detailed integrated plans for each site in response to a loss of electricity sources. These plans were submitted to the NRC in February 2013;
- conducting design studies for new strategies for ventilation of the Nine Mile Point containment building;
- conducting design and selection studies for a water level instrumentation technology for the pool containing spent fuel;
- verifying communications capabilities in the event of a loss of electricity sources;
- responding to INPO's five recommendations.

To be in compliance with all of the NRC's Tier 1 regulatory requirements, CENG must furnish all analyses necessary for an initial response to these instructions, as well as a commitment to provide additional analyses and physical changes at a later date. To comply with the NRC's requirements, CENG must take all actions necessary to identify and perform its commitments, and comply with all other NRC requests when they are made.

CENG currently plans to complete all Tier 1 required actions in 2018.

### 4.2.2.2 Management of hydropower safety risk

Risk factors relating to hydropower safety are described in section 4.1.2 above ("Risks associated with the Group's activities").

The Group operates hydroelectric facilities under concession agreements or administrative licenses. As operator, it is responsible for their safety.

There are three strategic activities in connection with the management of hydropower safety: monitoring dams and related facilities, managing structures during floods and managing flow or level variations (see section 6.2.1.1.4.2 ("Hydropower safety")). In order to further improve the management of these risks, in 1995, EDF initiated quality assurance procedures for these three activities in France and in the French overseas departments, which resulted in each of the Hydropower Operating Divisions obtaining ISO 9001 certification at the end of 2003. These certifications are the basis of a continuous progress program in hydropower safety management, and have recently been renewed by the certification authorities.

In addition, the detection, analysis of any incidents, implementation of corrective and preventive actions, feedback and experience sharing are the basis of the process for improving the safety level of the facilities. Continuing a process begun in 2005 to identify failure risks by type of equipment, and after a period in which certain problems caused facilities to be unavailable over the medium term (the Tuilières dam in Dordogne, etc.), EDF decided in 2006 to launch a program of technical upgrades and stepped-up maintenance of facilities in order to renovate certain sites and to maintain, on a long-term basis, a high level of hydropower safety and preserve the technical performance of its facilities in the future. This hydropower facilities renovation programme, known in French as *"Sûreté et Performance de l'Hydraulique"* (Hydropower Safety and Performance), or *"SuPerHydro"*, has a budget dedicated to safety of €800 million for 2007-2016 (see section 6.2.1.1.4.3 ("Performance of hydropower generation facilities")).

Public information and outreach campaigns on the hazards of hydroelectric installations, initiated about ten years ago, are repeated each year. The breach of a dam or related facility may have serious consequences for persons and property located downstream. Facilities monitoring and maintenance, which are the principal measures to prevent the major risk of a dam breach, are carried out under the control of the French regional environmental, land planning and housing departments (DREAL). The 68 largest dams are covered by a special action plan implemented under the authority of the prefect, pursuant to the laws on major risks.

EDF has taken out general civil liability insurance policies to cover these risks (see section 4.2.3.3 ("Civil liability insurance (not including nuclear civil liability)")).

#### 4.2.2.3 Management of risks associated with the Group's transmission and distribution facilities

The risk factors associated with the Group's transmission and distribution facilities are described in section 4.1.2 above ("Risks associated with the Group's activities").

Investments made in transmission and distribution installations take into account the safety of persons and property.

In addition, in France:

- With respect to third parties, the information campaign "Under aerial power lines, beware - keep your distance" has been thoroughly renewed, new partnerships have been established, including with the *Caisse Centrale de la Mutualité Sociale Agricole* (CCMSA) and the French Aerostat Federation. Communications have also been directed to non-profit associations and trade unions (fishermen, construction contractors, farm co-op funds, etc.) to remind the public of the hazards of using tools near aerial power lines. In addition, training for construction and public works professionals to reduce damage to installations has been expanded, with more than 50,000 such professionals and 15,000 municipal workers having been trained over the past four years.
- With respect to network operators and their contractors, work is done by personnel qualified under the UTE C 18-510 standard. Such personnel are trained to control electrical risk, and undergo periodic tests of their knowledge and checks by their superiors, particularly during site inspections. To maintain their certifications, personnel qualified to work in live voltage situations must also complete a minimum number of live voltage assignments, which varies by type of live voltage work.

#### 4.2.2.4 Management of risks associated with industrial accidents or the group's environmental and health impacts

If not adequately managed, the Group's activities could cause industrial accidents or significant environmental and public health impacts.

Such risks of harm to the environment, the health of local residents or employees of the Group or its subcontractors are governed by increasingly stringent environmental and public health regulations. The corresponding risk factors are described in section 4.1.2 above ("Risks associated with the Group's activities").

The Group's environmental policy incorporates developments on major environmental issues, such as fighting climate change, adverse effects on biodiversity, etc.

Operational implementation of this policy relies on the deployment of an "Environmental Management System" (EMS) in all of the Group's entities that have a direct or indirect influence on environmental impacts. The implementation of this EMS ensures improved management of the Group's knowledge of and compliance with regulations and anticipation of regulatory developments. This system has been ISO 14001 certified since April 2002 (see section 6.6.3.1.1 ("Organisation and ISO 14001 certification")). With respect to industrial accidents, the ISO 14001 standard requires taking a controlled set of planned and systematic actions, in particular, for prevention of major risks, emergency situation testing and safety management. In this regard, the Group has taken out a general civil liability insurance programme (see section 4.2.3.3 ("Civil liability insurance (not including nuclear civil liability)")).

Each year, an authorized organisation external to the EDF group carries out follow-up audits of the entities within the scope of the certification. In June 2013, the Group obtained a new ISO 14001 certificate that incorporates new Group entities (see section 6.6.3.1.1 ("Organisation and ISO 14001 certification")).

### 4.2.3 Insurance

To protect its assets and limit the impact of certain events on its financial position, the EDF Group has dedicated insurance programmes that cover its major risks in terms of property damage, civil liability and insurance of persons. Nuclear risks are subject to the specific civil liability regime described below.

#### 4.2.3.1 Insurance organisation and policy

The Insurance Division is tasked with developing the EDF group's insurance policy and organising its implementation throughout the Group in order to continuously optimise the total cost of its insurable risks<sup>1</sup>.

Its duties are to:

- continuously analyse cover for the EDF group's risks in conjunction with the Group Risk Control Department: analysis by business line, entity and project;
- establish rules for the Group's entire scope that enable covering all risks that can and must be covered, as well as optimising the total cost thereof and reducing volatility;
- promoting and applying these rules to all Group entities, using appropriate means and in compliance with governance rules; and

1. Cost of losses (accepted or sustained) + cost of insurance/transfer + intermediation and management costs + prevention costs.

- developing and managing the tools necessary to perform the above tasks, including within the subsidiaries that report to the Insurance Division: EDF Assurances and the Group's captive insurance companies.

The insurance managers of entities and controlled subsidiaries that join the Group's programmes are responsible for:

- ensuring that all risks are insured;
- scheduling prevention inspections and overseeing implementation of the resulting recommendations;
- reviewing cover strategies and amounts declared (risk quantification);
- analysing losses and claims handling.

This work, which is carried in close conjunction with the Insurance Division, continuously improves the quality of information about insurable risks as programmes are renewed (expert appraisal of insured values at numerous sites) and prevention inspections are carried out (assessment of maximum possible losses – "MPL"). In connection with prevention actions, the Insurance Division establishes and oversees implementation of the site inspections programmes.

The Group's new insurance policy was approved by the Group Senior Executive Vice President, Finance in October 2012. It is periodically reviewed and approved by the Executive Committee and a report on its implementation is presented annually to EDF's Audit Committee.

### Objectives

The objective of the Insurance Policy is to reduce the total cost<sup>1</sup> of insurable risks for the entire Group, for an accepted risk level, while controlling its volatility.

The policy stipulates the risks that the Group decides to transfer to the market and the general principles for optimising such transfers: grouping purchases by setting up Group insurance programmes (common programmes for EDF and relevant subsidiaries), allocating risks between traditional markets and other types of cover (specialised mutual insurance funds, transfers to the financial markets, etc.), individual and Group deductibles (in general, only major risks are transferred), optimising intermediation costs.

### Implementation methods

In 2011, the Group Senior Executive Vice President, Finance created a Strategic Insurance Policy Committee, which serves as a forum for discussing and setting policy regarding cover for major risks, including use of Group insurance companies. The Committee also provides an opportunity for the operational and financial teams to reflect on changes to and procedures for implementing the Group's insurance policy.

Information exchanges between the Group Risk Management Division (see section 4.2.1.1 ("Risk management and control principles")) and the Group's Insurance Division have been made systematic to ensure that both divisions have a view of the Group's risks that is consolidated and as comprehensive as possible. As a result of this shared view, EDF is in a position to look for cover appropriate for its insurable risks in accordance with the principles established by the Group in this area.

EDF has set up its Group insurance programmes and extended them broadly to its controlled subsidiaries, as well as offering them to its regulated subsidiaries of the RTE and ERDF networks, in order to, firstly, harmonise risk cover and rationalise its management and, secondly, control the corresponding insurance costs.

However, the French Energy Code is gradually causing RTE to transfer to the insurance market the covers provided under the EDF group's insurance programmes. In 2013, RTE transferred its supplementary health cover policies.

RTE plans to become independent of the EDF group in terms of insurance by 1 January 2015, although a few covers or benefits may continue thereafter.

### 4.2.3.2 Membership in international mutual insurance funds and insurance premiums

EDF is a member of the Oil Insurance Limited (OIL) mutual insurance company, which covers the risk of damage (other than to aerial networks) to the Group's own property or property managed under concession (by EDF and its consolidated subsidiaries). OIL is an insurance mutual fund dedicated to the needs of businesses in the energy sector and provides its members with limited cover for property damage. The scope covered includes *inter alia* nuclear power plants (the conventional portion), fossil fuel-fired power plants, hydropower facilities, network substations and exploration and production assets.

In addition to this basic cover, EDF has taken out additional insurance to cover itself and many of its French and international subsidiaries.

EDF is also a member of the European Liability Insurance for the Nuclear Industry (ELINI), the European Mutual Association for Nuclear Insurance (EMANI), the Nuclear Industry Reinsurance Association (NIRA) and Blue Re, which are mutual insurance companies that manage cover in this area for European nuclear power operators.

Total insurance premiums for EDF and Group programmes managed by EDF Assurances, for all types of cover, amounted to €125 million in 2013, compared to €111 million in 2012, not including insurance of persons, of which €63 million was paid by EDF and €18 million was for cover for ERDF aerial networks. EDF considers that the policies purchased under the Group's Insurance Policy are in line with the current offer on the insurance market for operators of similar size and with similar operations around the world, particularly with regard to limits and excess amounts. The type as well as the price and amounts of insurance cover taken out are subject to change at any time depending on market conditions, the pace of deployment of insurance programmes and the EDF Board of Directors' assessment of risks and adequacy of cover.

In accordance with market practices, insurance policies include exclusions, policy limits and sub-limits.

### 4.2.3.3 Civil liability insurance (not including nuclear civil liability)

EDF has taken out general civil liability insurance covering EDF, RTE, ERDF and their controlled subsidiaries against the financial consequences of civil liability (not including nuclear damage) that they may incur in doing business as a result of damage caused to third parties. In particular, this programme covers the risks of civil liability associated with the operation of structures (hydroelectric dams, fossil fuel-fired power plants, substations and other network facilities), risks associated with development of the Group's renewable energy activities (wind, solar, etc.), as well as risks associated with environmental damage (emissions of solid, liquid or gaseous substances).

This cover is purchased to the extent of available capacity under acceptable financial terms on the insurance and reinsurance markets. Maximum cover is €1 billion. For this programme, the share of risk retained by the Group ("retention"), including the share of Wagram Insurance Company Ltd., an Irish insurance company wholly-owned by EDF, does not exceed €5 million per claim. Subsidiaries generally opt for lower deductibles that are more in line with their financial capacity.

1. Risks transferable to the insurance and alternative markets.

#### 4.2.3.4 Civil liability insurance for corporate officers and directors

EDF has concluded its civil liability insurance covering corporate officers and directors of EDF, RTE, ERDF and their controlled subsidiaries against the financial consequences of their civil liability incurred in performing their management functions.

#### 4.2.3.5 Damage insurance (not including nuclear assets)

##### 4.2.3.5.1 Contractual damage programme

The scope of the contractual damage programme includes EDF, ERDF, EDF Energy, Edison and numerous other subsidiaries.

Wagram Insurance Company Ltd., together with other insurers and reinsurers, provide extensions of cover (property damage and operating loss bringing the maximum up to €1 billion) in addition to the covers provided by OIL.

For this contractual damage programme, the Group's retention per claim, including the deductible (which varies by subsidiary) and the share of the risk retained by Wagram Insurance Company Ltd., does not exceed €25 million.

This programme provides cover for operating losses for most subsidiaries in the event of property damage, but not for EDF itself. The actions and measures taken to prevent industrial and environmental risks and limit their impact are described in section 4.2.2 ("Management of industrial and environmental risks").

RTE has taken out specific contractual damage insurance for its own property, not including electrical lines (substations and technical buildings and facilities).

##### 4.2.3.5.2 Cover for "construction" risks

EDF has taken out insurance policies covering specific construction risks (contractors' all-risk and construction all-risk policies). These policies are not included in any Group programme but are purchased on an ad hoc basis for major construction projects, such as the Flamanville EPR, the construction of combined cycle power plants, dams, combustion turbines, etc.

These covers are specifically monitored and are renegotiated if unforeseen events occur during the construction projects.

##### 4.2.3.5.3 Storm cover

On 11 August 2011, ERDF took out a five-year policy with Natixis covering ERDF's aerial transmission network against the consequences of exceptional storms. This "cat-bond" provides maximum cover of €150 million, and in the event of a claim will pay parametric-based compensation tied to a wind-speed index.

This cover was supplemented by a policy signed on 16 December 2011 with Swiss Re, which increases total cover to €230 million.

#### 4.2.3.6 Specific insurance for nuclear facility operations

##### 4.2.3.6.1 Civil liability of nuclear facility operators

###### Current situation

EDF's current insurance policies are in compliance with French Act no. 68-943 of 31 October 1968, as amended by Act no. 90-488 of 16 June 1990, which codified the civil liability obligations imposed on nuclear facility operators by

the Paris Convention (see section 6.5.6.2.2 ("Special regulations applicable to basic nuclear facilities")). To guarantee availability of the companies to meet such obligations, EDF took out insurance policies with Allianz and the European Liability Insurance for the Nuclear Industry (ELINI), which provide cover equal to the limits of liability set by law in the event of an accident at a nuclear facility.

For onsite accidents, total cover is €91.5 million per nuclear accident. In accordance with the law, these policies do not include any deductible. Océane Re, a Group reinsurance company, shares this risk through reinsurance agreements entered into with Allianz and ELINI.

EDF Energy operates nuclear plants in the United Kingdom. In the UK, the liability scheme applicable to operators of nuclear facilities is similar to that in France. EDF Energy is insured for £140 million, the current limit of civil liability applicable to nuclear plant operators in the United Kingdom. Since 1 January 2014, this insurance cover has been provided by ELINI and Wagram Insurance Company Ltd. Océane Re, the Group's reinsurance company, contributes to the cover for this risk through the reinsurance policy it has issued to Wagram Insurance Company Ltd.

Moreover, in the United States, the specific regime imposed by the Price-Anderson Act applies in the event of a major nuclear accident (over \$300 million).

###### Foreseeable changes

Protocols amending the Paris and Brussels Conventions were signed on 12 February 2004.

In France, Act no. 2006-686 of 13 June 2006 on transparency and safety in the nuclear field provides for the transposition of these protocols into French law and will apply as of the date they come into force (see section 6.5.6.2.2 ("Special regulations applicable to basic nuclear facilities")). At such time, EDF will be required to adjust its insurance cover to meet the new guaranteed maximum compensation of €700 million for liability of nuclear facility operators.

In the United Kingdom, in March 2012, in response to a survey on implementation of the amendments to the Paris Convention, the government announced that the obligation of British operators would be raised to €700 million and gradually increased over a five-year period to a total of €1.2 billion after the law had been adopted by the British parliament.

The current date chosen by the contracting parties for implementation of the amended Paris Convention is 1 January 2015.

The Group is currently studying possible cover solutions (nuclear insurance pools, mutual insurance companies, etc.) in order to be ready to implement them when the requirements come into force. Consequently, EDF and British Energy are founding members of Blue Re, a European mutual reinsurance company created on 17 June 2011 that specialises in covering these risks.

For more information on the laws governing nuclear power plant operators' civil liability, see section 6.5.6.2.2 below ("Special regulations applicable to basic nuclear facilities").

##### 4.2.3.6.2 Civil liability for transport of nuclear substances

Under the Paris Convention, the operator that is the "shipper" is civilly liable for transport of nuclear substances and such liability is currently limited to €22.9 million. This amount is likely to be revised when the amended Paris Convention comes into force.

Therefore, prior to such transposition, insurance for 2014 has been renewed on the bases in effect for 2013.



#### 4.2.3.6.3 Damage insurance for nuclear facilities

In addition to the cover obtained through EDF's membership in the OIL mutual insurance company, property damage (including following a nuclear accident) to EDF's nuclear facilities in France and to EDF Energy's nuclear facilities in the United Kingdom, as well as nuclear decontamination costs, are covered by a joint insurance programme underwritten primarily by the NRI British insurance pool, insurers, some of which are reinsured by the French nuclear pool (Assuratome), and the EMANI, which has total capacity of €1,750 million, over and above an amount of US\$320 million. The Group programme covering power plants in France and the UK was renewed on 1 April 2012.

Furthermore, in connection with CENG's activities in the USA, EDF Inc. became a member of Neil<sup>1</sup>.

### 4.2.4 Crisis management

The EDF group has a crisis management policy that is designed to enable it to manage situations in which its assets, business, personnel, activities or image are threatened by a foreseen or unforeseen event.

For this purpose, the EDF group ensures that it all times has the means available to respond to a crisis. A warning system is in place to immediately inform the company's executive management of any event that could potentially justify a decision to treat a situation as a Group crisis.

The crisis structure is based on crisis plans that are developed by the relevant divisions or entities, and which are specific by type of crisis (imbalance between generation and consumption, incidents affecting information systems, malicious acts, public health crisis, technical incident at a power generation facility, labour unrest, etc.), but which are consistent with the framework established by the Group's crisis structure.

In each entity, crisis management training is provided and structures are tested through crisis drills. A crisis drills programme is established each year at Group level (an average of two to three crisis drills per year involving the Group's crisis unit), in addition to the crisis drills organised by the divisions or entities (for example, 15 drills per year and per nuclear site).

Furthermore, following the Fukushima accident, EDF supplemented its national crisis teams with a National Rapid Action Force (FARN) capable of quickly delivering teams with "operational/maintenance" and "logistical" expertise to a nuclear power generating centre in difficulty (see section 6.2.1.1.3.3 ("Environment, safety and radiation protection")).

### 4.2.5 Ethics and oversight

The fact that the Group does business in many countries requires that it pay particular attention to compliance with the values and principles associated with the human and social rights derived from international laws and treaties. In addition, EDF believes that maximising its economic performance is inextricably linked not only to its environmental performance, but also to its social and ethical performance and, therefore, is particularly vigilant in ensuring that ethical and societal issues are considered in the conduct of its business.

#### Group Ethics Code

The new ethics policy (the "Group Ethics Code") was adopted in 2012 by the Group Management Committee and EDF's Board of Directors. It reminds employees of the public interest mission carried out by a worldwide electric

operator, which is guided by values such as respect, responsibility and solidarity. It also states the Group's main social responsibility undertakings and sets out individual commitments, such as respect for persons, integrity, protection of assets and dialogue with stakeholders, which are a precondition for effective and cohesive employment relations within the company.

The deployment of the Group Ethics Code throughout the Group was initiated in April 2013 under the direction of the Sustainable Development Department, with an ethics officer appointed within each entity. The objective of deploying the Group Ethics Code in EDF's departments and the vast majority of Group companies should be achieved during the first quarter of 2014 (see section 6.6.3.1 ("Ethics and transparency to stakeholders")). In the regulated sector, i.e. ERDF and RTE, this objective will be achieved by the convergence of their own ethics policies with the Group's values.

A Group Ethics and Values Committee has been set up to make employees aware of the Group Ethics Code and, with the support of the Group's management, to ensure compliance therewith. It advises EDF's Chairman and senior management on all issues related to the Ethics Code and its deployment and application. It answers all questions or inquiries about the content, development and application conditions of the Ethics Code. It receives, and handles or refers for handling, in complete confidentiality, any report concerning a situation or behaviour that is contrary to the Ethics Code. It receives all reports submitted by Group companies and departments on the achievement of the commitments stated in the Ethics Code. It may note any insufficiencies in the deployment or implementation of the Ethics Code and recommend measures to the Group's management to rectify such situations. The Committee chairman reports, in his own name, to the Chairman and the Board of Directors' Ethics Committee. In performing its duties, the Committee relies on the network of ethics officers in the Group's companies (see section 6.6.3.1 ("Ethics and transparency to stakeholders")).

#### Whistleblower system

The Group Ethics Code guarantees all Group employees who may encounter a situation that is contrary to the Group's values and undertakings the right to inform, in complete confidentiality and without risk, his/her management or a dedicated contact person within his/her company (the Ethics Delegate or Ethics Officer in the case of EDF France) or, if necessary, and as a last resort, the Group's Ethics and Values Committee, in particular by using a secure email address available for this purpose ([alerte-ethique@edf.com](mailto:alerte-ethique@edf.com)).

#### Combating fraud and compliance with competition rules

Combating fraud and corruption is a major concern of the EDF group.

On 14 September 2010, the Chairman signed a decision concerning combating fraud within the EDF group, together with a Good Practices Guide for managers. This guide provides recommendations for defining, preventing and detecting fraud and for handling fraud alerts. In 2013, a working group was set up to harmonise reporting and handling of suspected cases of fraud within the Group. The internal control guide has been revised and testing tools have been adopted in order to better address the risk of fraud within the entities. Furthermore, the increasingly international nature of the Group's businesses and regulatory amendments have led the EDF group to revise and standardise its practices aimed at preventing all forms of corruption.

Compliance with the competition rules is also an absolute priority for the EDF group. On 22 December 2010, the Chairman decided to set up a competition law compliance programme applicable to all Group entities and subsidiaries in France and abroad. This programme includes a set of awareness raising, training and monitoring measures that are intended to widely disseminate

1. Nuclear Electric Insurance Limited.

the competition law culture within the Group and to make employees and workers aware of their responsibilities for compliance with these rules. The awareness raising actions consist primarily of distributing in-house

information letters and educational instruments, organising online and live training sessions, and creating a network of lawyers. Control processes will be developed to supplement this system.

## 4.3 Dependency factors

The EDF group does not consider itself to be dependent on any single customer.

With regard to suppliers, EDF and ERDF used 24,620 suppliers in 2013 (compared with 24,720 in 2012 and 21,853 in 2011). The top five suppliers of EDF and ERDF accounted for 12.6% (14% in 2012 and 27.1% in 2011) of total EDF purchases (not including fuel purchases) and ERDF purchases, and the top ten suppliers accounted for 17.5% (18.9% in 2012 and 30.9% in 2011).

Certain suppliers and subcontractors that provide products or services that the Group purchases in conjunction with its operations cannot be replaced. The issue of EDF's dependency vis-à-vis its suppliers arises primarily in the nuclear sector and, to a lesser extent, in IT and telecommunications.

The EDF group has developed expertise as an architect-builder of its power generation plants and as a nuclear fuel cycle integrator, which gives EDF technical expertise that is independent of that of its suppliers.

Lastly, the EDF group has a very important commercial relationship with the Areva group, which is involved in each phase of the nuclear fuel cycle. The Areva group is also active in the construction, equipping and maintenance of nuclear power generation plants. In France, the Areva group is EDF's main supplier in the nuclear sector. Accordingly, EDF considers that there is a situation of interdependence with the Areva group.

### Nuclear fuel cycle

The relationship between EDF and the Areva group with respect to the fuel cycle is governed by multi-year contracts.

For the front end of the nuclear fuel cycle (see section 6.2.1.1.3.4 ("Nuclear fuel cycle and related issues" – "Front end")), EDF still relies to a large but decreasing extent on the Areva group, which accounted for approximately 44% of EDF's upstream purchases in 2013:

- For its natural uranium needs, EDF follows a policy of diversifying the origins and suppliers of supply sources. The Areva group continues to be an important supplier to EDF in this area.
- In terms of the nuclear conversion process, a significant share of EDF's needs are met by the Areva group's Comurhex factory, which competes with other global suppliers.
- In the field of uranium enrichment, EDF has also diversified its supply sources and now uses several major worldwide suppliers. After an interruption due to the permanent closure of the Eurodif plant, Areva's services on behalf of the EDF group resumed in 2013, and Areva's new Georges Besse II plant will provide a significant share of these services in coming years (see section 6.2.1.1.3.4 ("Nuclear fuel cycle and related issues")).

- EDF uses two suppliers to manufacture fuel assemblies: Areva and Westinghouse Groups.

For the back-end nuclear fuel cycle (see section 6.2.1.1.3.4 ("Nuclear fuel cycle and related issues" – "The back-end cycle in France")), the Areva group has been appointed to perform all operations in France.

Spent fuel management operations (removal, storage and treatment) are carried out in the Areva group's plant at La Hague. The terms and conditions for these operations, as well as the recycling of processing by-products, have been agreed for the 2008-2040 period in the EDF-Areva master agreement of 19 December 2008. Because the negotiations to determine the contractual terms and conditions applicable as from 2013 have not yet been finalised, EDF and Areva have concluded a transitional agreement that enables industrial operations to continue.

### Power plant development and maintenance

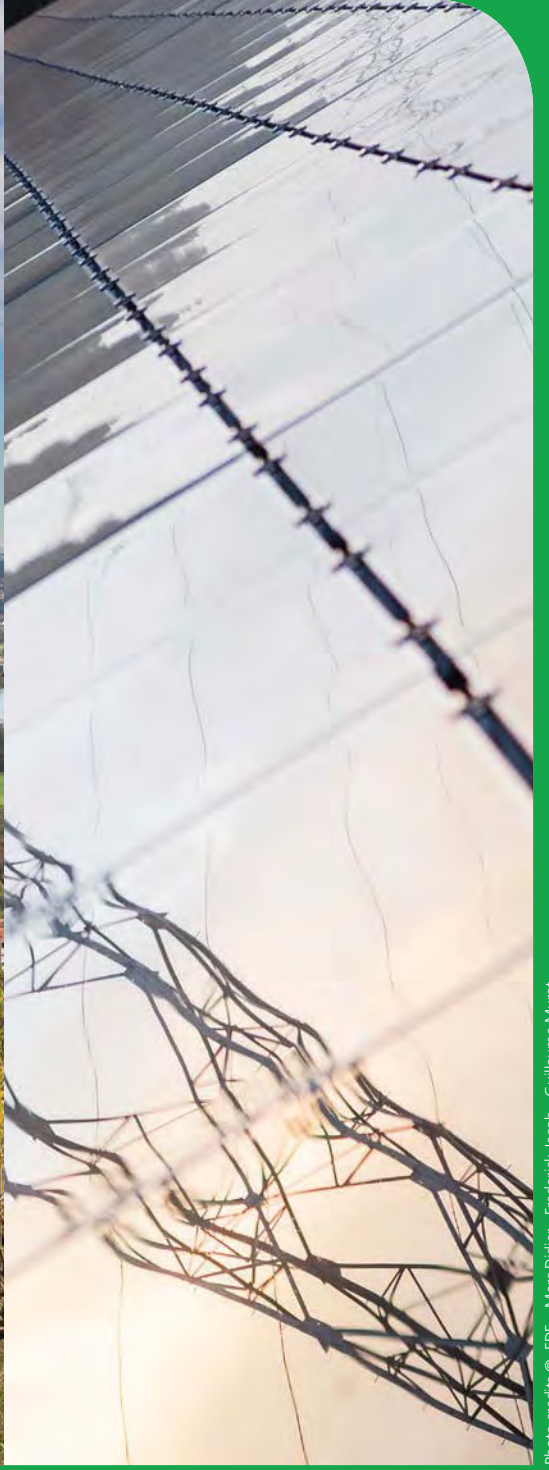
The Areva group is EDF's main supplier of power plant construction and maintenance services. In particular, the Areva group supplies nuclear boilers, their spare parts and the corresponding safety studies. In 2011, EDF signed two major contracts with Areva, one for the production of 32 of the 44 steam generators for the 1,300MW segments, and the other for the renovation of the control-command systems for the 1,300MW reactors. Nevertheless, a diversification program has been underway for several years, in particular, with Westinghouse and Mitsubishi, for the replacement of certain major components (12 of the 44 steam generators for the 1,300MW segments will be provided by Westinghouse) and for maintenance services.

To prepare for the renewal of its power generation facilities, EDF has decided to use the EPR technology developed with the Areva group, and has initiated construction of the Flamanville EPR power plant. In connection with this project, in 2007, EDF signed a contract with Areva for the supply of the EPR boiler.

EDF also has a relationship with the Alstom group for the maintenance of certain components of nuclear and fossil fuel-fired power plants. In addition, Alstom is supplying the engine room for the Flamanville 3 EPR. Goods and services that Alstom supplies to EDF are particularly important for the maintenance of the nuclear power plants' turbo-generators and of certain major components of fossil fuel-fired generation facilities. EDF does not consider that it is dependent on the Alstom group, which competes for most of the business given to it. In particular, in 2008 this competition led to Alstom and Toshiba being jointly awarded the major contract for the renovation of the generators of the nuclear power fleet.







# 5 Information about the issuer

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## 5.1 History and development of the Company

In this reference document, references to the articles of association refer to the Company's articles of association as approved by Decree no. 2004-1224 of 17 November 2004, issued pursuant to Act no. 2004-803 of 9 August 2004 on public electricity and gas service and electricity and gas companies (the "Act of 9 August 2004"), as subsequently amended on several occasions.

### 5.1.1 Company name and registered office

The name of the Company is: "Électricité de France". The Company may also be legally designated by the acronym "EDF".

The Company's registered office is located at 22-30, avenue de Wagram in the 8<sup>th</sup> arrondissement of Paris.

### 5.1.2 Trade and Companies Registry, APE code

The Company is registered with the Paris Trade and Companies Registry under number 552 081 317. Its APE code is 401E.

### 5.1.3 Date of incorporation and term of the Company

EDF was incorporated pursuant to Act no. 46-628 of 8 April 1946 as a French public industrial and commercial establishment. It was converted into a French *société anonyme* (limited company) by the Act of 9 August 2004 and the Decree of 17 November 2004.

The Company was incorporated for a term of 99 years as from 19 November 2004, unless the Company is dissolved before such date or unless its term is extended.

### 5.1.4 Legal form and applicable legislation

Since 20 November 2004, EDF has been a French *société anonyme* with a Board of Directors. It is governed by the laws and regulations applicable to commercial companies, in particular the French Commercial Code, except in the event of specific exceptions stipulated in the French Energy Code, Act no. 83-675 of 26 July 1983 and its articles of association.

### 5.1.5 History

The main stages in the Group's development are described below.

EDF was created in 1946. Before 1946, the electricity sector had developed around numerous local companies across France. At the end of the 1930s, there were approximately 200 generation companies, approximately 100 transmission companies and 1,150 distribution companies.

This multitude of private companies, plus some 250 local utilities, were responsible for about 20,000 distribution concessions. From this highly fragmented segment, a certain number of large groups emerged in the fields of generation and distribution.

In 1946, the electricity and gas sectors were nationalised. The Act of 8 April 1946 created EDF as a French public industrial and commercial establishment and created a special status for the personnel of the electric

and gas industries. The law nevertheless left in existence a certain number of non-nationalised distributors and local distribution companies.

Between 1946 and 2000, the Group's industrial base was developed. Initially, there was a fleet of fossil fuel-fired generation facilities using coal and then fuel oil, as well as hydropower facilities, in particular with the construction of the dams at Tignes in 1952 and Serre-Ponçon in 1960. In 1963, following the French government's decision to guarantee France's energy independence through nuclear power, EDF commissioned the first commercial-scale nuclear generation unit at Chinon (70MW), the first of a series of six generation units of the Uranium Natural Graphite Gas (UNGG) family, the construction of which continued until 1972. The oil crises of 1973 and 1979 led to accelerated replacement of fossil fuel-fired power with nuclear power. In 1969, the UNGG family was abandoned in favour of the Pressurised Water Reactor (PWR) family, which was used for new power plants: 34 generation units totalling 900MW, which were built until 1988; then, 20 generation units totalling 1,300MW, which were built until 1994; then, four N4 generation units totalling 1,450MW, which were commissioned in 2000 and 2002.

Beginning in the 1990s, EDF embarked on significant expansion abroad. In 1992, the Group acquired an interest in Edenor, a distribution and supply company in Argentina. It subsequently raised its stake in Edenor to 90%. In May 1996, EDF acquired a stake in the Brazilian electricity company Light, a distribution and supply company located in the state of Rio de Janeiro. As of 31 December 2004, EDF held 94.8% of the share capital of Light. In December 1998, EDF acquired 100% of London Electricity (which was renamed EDF Energy on 30 June 2003). This policy was pursued in 2000 with the acquisition of 20% of EnBW (a stake that was successively raised to 45.01% by 2005) and the acquisition of equity interests in the Italian company Edison by the IEB consortium (63.8%), in which EDF holds a stake of 18.03%, and in 2002, when London Electricity acquired 100% of the share capital of EPN Distribution Plc. and Seaboard Plc., two distribution companies located in the east and the southeast of England.

In France, the major development in recent years has been the liberalisation of the market pursuant to European regulations. In February 1999, sites where electricity consumption exceeded 100GWh per year, i.e. 20% of the market, became entitled to choose their supplier. The eligibility threshold was then progressively lowered. In May 2000, 30% of the market was thus opened to competition, then 37% in February 2003. In July 2004, all of the market for non-household customers, equivalent to 69% of the entire market, was liberalised. Since July 2007, the market has been liberalised, including for residential customers.

At the same time, the structures necessary for a competitive market to function effectively were set up. The French Electricity Regulation Commission, which became the Energy Regulation Commission (*Commission de Régulation de l'Énergie* or "CRE") was created in May 2000. That same year, in order to guarantee non-discriminatory access to all operators in the market, EDF created Réseau de Transport d'Électricité (which became a wholly-owned subsidiary of EDF in 2005 under the name RTE EDF Transport, and which has been renamed RTE Réseau de Transport d'Électricité), an independent internal entity responsible for managing the high voltage and very high voltage public electricity transmission network. In 2000, the Group formed the trading company, EDF Trading, with the trading specialist Louis Dreyfus. It became a wholly-owned subsidiary of EDF in 2003. In 2001, Euronext and various industrial and financial operators in the electricity market, including EDF, created Powernext, the French electricity exchange. In 2001, as a condition for authorising EDF's acquisition of a stake in EnBW, the European Commission required EDF to set up a system of power supply capacity auctions (Virtual Power Plants or "VPP") to facilitate access to the market for competitors. In 2003, the EDF group sold its stake in Compagnie Nationale du Rhône to Suez (now GDF Suez).

On 20 November 2004, pursuant to the Act of 9 August 2004, EDF became a *société anonyme* with a Board of Directors.



On 12 May 2005, EDF and A2A S.A. (formerly AEM S.p.A) entered into agreements for a joint takeover of Edison. A takeover bid was initiated on 4 October 2005, and the joint takeover was completed on 26 October 2005, the closing date of the bid.

Since 2005, the EDF group has pursued a strategy of refocusing on Europe and sold its controlling interest in its subsidiaries Edenor and Light and its assets in Mexico.

EDF filed for an initial public offering in the second half of 2005. Pursuant to this transaction, the Company offered 196,371,090 newly issued shares and the French government sold over 34.5 million shares it held to employees and former employees of EDF and of certain EDF subsidiaries. Subsequently, on 3 December 2007, the French government sold an additional 45 million of its shares.

In late November 2006, EDF Énergies Nouvelles, a subsidiary in which the EDF group holds a 50% stake, filed for an initial public offering. Pursuant to this transaction, 18,946,854 new EDF Énergies Nouvelles shares were issued, of which 4,798,464 were reserved to the EDF group.

Since 1 January 2008, EDF's distribution business has been conducted by Électricité Réseau Distribution France (ERDF), a wholly-owned subsidiary of EDF to which the distribution business was contributed pursuant to the Act of 7 December 2006 on the energy sector.

Since 2008, the EDF group has become a major player in the revival of nuclear power internationally, by creating a joint venture with the Chinese utility CGN, acquiring British Energy, one of the largest energy companies in the United Kingdom, in January 2009, and acquiring nearly half of the nuclear assets of US-based Constellation Energy in November 2009. EDF also acquired a 51% stake in the Belgian power company EDF Luminus in

late 2009, and subsequently raised its stake in EDF Luminus to 63.5% in June 2010.

On 29 October 2010, EDF finalised the sale of its British distribution networks to the Cheung Kong Group of Hong Kong and, on 17 February 2011, it completed the sale of its 45.01% interest in EnBW to the German state of Baden-Württemberg.

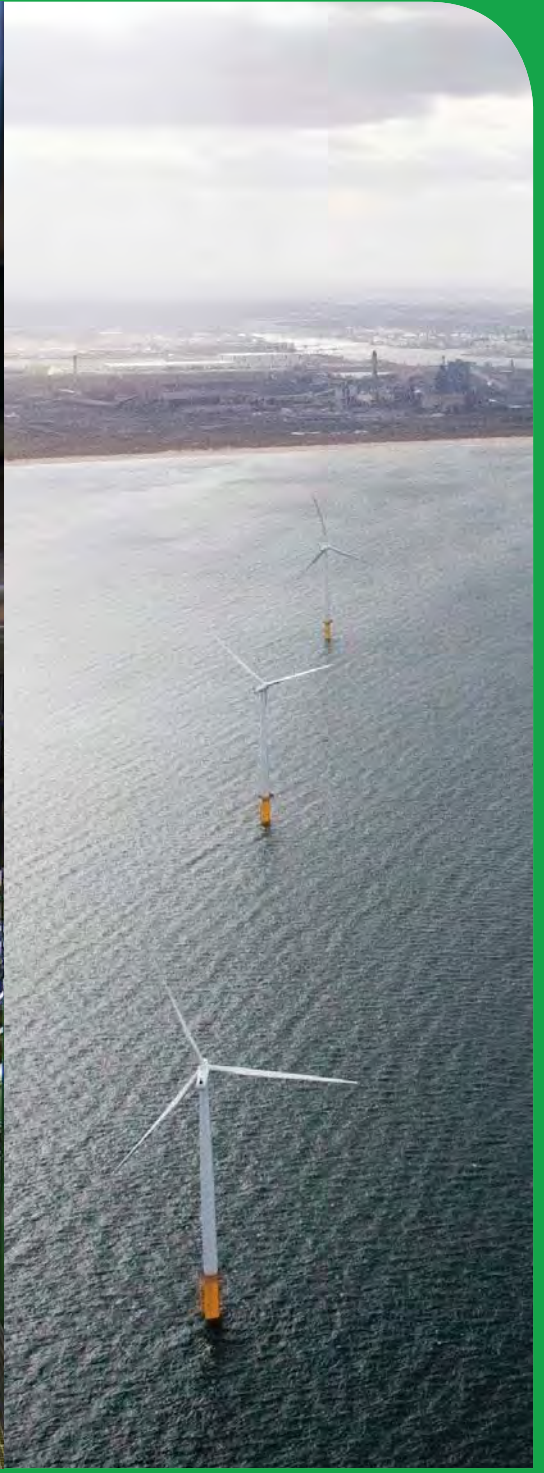
In 2011, after ten years of a strategic partnership in which it held a 50% stake in EDF Énergies Nouvelles, EDF confirmed its positioning as a key player in the field of power generation using renewable energies by increasing its stake in the company to 100% pursuant to a simplified alternative cash or exchange tender offer for EDF Énergies Nouvelles shares, followed by a squeeze-out of minority shareholders.

On 24 May 2012, after more than 7 years of strategic partnership with A2A, EDF acquired Edison, the oldest Italian electricity company and one of the main player in the Italian electricity market, the fourth European market. This operation is part of the implementation of the Group's gas strategy, which will be based on Edison skills throughout the gas chain, from exploration and production of hydrocarbons to the direct marketing of natural gas.

On 24 May 2013, EDF and Energetický a průmyslový Holding, a.s. (EPH), a Czech energy company that is a leading player in central and eastern Europe, signed a final agreement for the sale to EPH of a 49% stake in Stredoslovenska Energetika a.s. (SSE), Slovakia's number two electricity distributor and supplier. On 27 November 2013, this transaction was finalised after it was approved at SSE's General Shareholders' Meeting and SSE had received authorisation from the competition authorities. The transaction valued EDF's investment in SSE at approximately €400 million.

## 5.2 Investments

For a description of the Company's principal investments during 2012-2013, see section 9.4.1.2 ("Net cash flows generated by investments") of this reference document. For a description of the Group's investment policy for future financial years, see section 6.1.4 below ("Investment policy").





# 6 Overview of activities

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The EDF Group is an integrated energy utility active in all areas of the electricity market: nuclear, renewable and fossil fuel energy generation, transmission, distribution and marketing, energy efficiency and management services, as well as energy trading. It is the leading player in the French

electricity market, and holds strong positions in Europe (UK, Italy, Central and Eastern Europe) that make it one of the world's leading electricity utilities and a renowned player in the gas industry.

(in GW)	Net <sup>(1)</sup> generation capacity		Gross <sup>(2)</sup> generation capacity	
	2013	2012	2013	2012
Nuclear	74.8	74.7	77.5	77.5
Fossil-fuel fired	37.7	37.8	47.3	47.7
Hydropower and other renewables	27.9	27.0	32.4	31.1

(1) Net capacity: energy capacity attributable to the Group pursuant to the basis of the consolidation accounting rules.

(2) Gross capacity: total physical capacity of the unit in which the Group has a stake.

With a net installed capacity of 140.4GWe<sup>1</sup> worldwide at 31 December 2013 and global production of 653.9TWh<sup>1</sup>, the Group ranks among the world's leading energy utilities, with the biggest fleet emitting the least amount of CO<sub>2</sub> per kilowatt-hour generated<sup>2</sup> thanks to the proportion of nuclear, hydropower and other renewable energies in its generation mix.

The EDF Group supplies electricity, gas and related services to more than 39.1 million customer accounts<sup>3</sup> worldwide (nearly 28.5 million in France).

The Group's activities reflect the choice of a model balanced between France and international markets, spanning competitive and regulated operations and based on upstream-downstream integration. In 2013, the Group recorded consolidated revenue of €75.6 billion, operating profit before depreciation and amortisation of €16.8 billion and net income excluding non-recurring items of €4.1 billion.

## 6.1 Strategy

### 6.1.1 Context

The pressing context of financial and economic crisis is affecting all economic agents in OECD countries, including energy companies. These companies are particularly affected by the fall in demand, which results in overcapacities of electrical production resources. The high level of development of renewable energies, which are supported by public policies, amplify this phenomenon.

The price of coal is falling due largely to low gas prices in the United States resulting from the development of shale gas. The combination of these three phenomena is leading to a wave of closures or mothballings of gas facilities, some very recent, that are not used enough to be profitable. In Europe, the increased use of coal is compromising the reduction of CO<sub>2</sub> emissions. This is why many actors in the energy sector are calling for a rethinking of EU policy. However, this difficult situation must not overshadow underlying trends and long-term challenges, which remain present and should guide decisions by energy utilities, which must take a long-term view of their action.

Some current major global trends include:

- long-term worldwide energy growth (+ 40% in 2035 compared with 2009), particularly in emerging countries with increasing populations, even more pronounced for electricity (+ 70% in 2035); to date, 1.3 billion people<sup>4</sup> do not have access to electricity, which is a major barrier to progress;
- the increasing cost of access to resources and primary energy;

- the need to comply with CO<sub>2</sub> reduction targets in energy production in order to limit the effects of climate change. The electricity sector has a major role to play in meeting this objective;
- an increasingly pluralistic and multi-polar world: new emerging economic powers (China, Brazil, India, Russia), meaning the end of the developed countries' exclusive hold over the most efficient technologies;
- a set of energy solutions to meet the needs of an increasingly urban world (50% of the world's population now lives in cities, and the urbanisation rate is expected to reach 67% in 2050<sup>5</sup>): urban systems, local energies, networks and smart meters;
- increased consideration of safety with respect to major industrial risks.

The worldwide energy challenge is thus to meet this growth in needs, despite the increasing cost of access to resources and primary energy, coupled with climate constraints. However, it does represent an advantage for electricity, seen as a "vector for energy" when the whole range of primary resources (nuclear, renewable, fossil-fuel) can be used to create an energy mix adapted to each country, to produce affordable electricity that respects the environment and the climate.

Therefore, low CO<sub>2</sub> emission technologies should be given priority upstream, while downstream, demand for energy must be managed via more efficient usage.

1. Source: EDF. Figures calculated in accordance with the basis consolidation.

2. Source: PriceWaterhouseCoopers, « European Carbon Factor », november 2013.

3. Source: EDF. A customer can have two account: one for electricity and another for gas.

4. Source: Sustainable Energy for All Report, International Energy Agency ("IEA").

5. Source: World Urbanization Prospects, UN, 2011.

## 6.1.2 Strategic vision

When facing all these developments and the geopolitical change currently in progress, EDF - already the world's leading electricity producer - is aiming to set global standards as the leading electricity company, which involves:

- in every country where it conducts business, seeking the best production mix, adapted to technical, economic, and environmental conditions, in close partnership with the various public authorities concerned and all stakeholders;
- thanks to its industrial mastery of the entire chain of electricity (generation, grids, etc.), ensuring quality of service in terms of the volumes delivered to customers. Specifically, being the leader in terms of nuclear safety, so as to pass on the benefits to all its existing and future facilities in France, Europe and internationally;
- extending and increasing high-performance uses of electricity. Energy efficiency requirements (demand management), smart grids and electrical mobility are all ideas that contribute to the concept of the "sustainable city";
- adopting a worldwide scope, so as to seek growth where it can be found, by contributing expertise and diversifying generation types and countries. This favours feedback from areas in which EDF is already established, and enables the Group to continue expanding the use of the best available technologies in the countries where they are being developed;
- innovating on all the links of the integrated chain of generation, transmission, distribution, marketing, services and trading, to pave the way for tomorrow's solutions.

For an energy as vital as electricity, all these missions represent a public service process, the Group's heritage and a sustainable asset for the future, adapted to each local situation.

## 6.1.3 Strategic areas to 2020

### 6.1.3.1 Strengthening the Group's competitive advantage on its existing bases

#### EDF's industrial expertise: at the core of EDF's business

The Group has recognised industrial expertise in terms of generation, transmission, distribution, and downstream processes (marketing, efficiency and energy management services) as an integrated player in the design, building and operation of resources, with an exemplary record in terms of the safety of its industrial facilities, its performance and customer satisfaction.

Specifically, in terms of generation, the Group intends to roll out its capabilities across all subsidiaries: from nuclear energy to major hydropower facilities, not forgetting other renewable energies, gas-fired and clean coal-fired thermal power plants.

Safe nuclear energy relies on the responsibility of an operator that, like EDF, integrates its run, build and design skills within a framework of continuous improvement, and on a safety authority that is independent and competent.

In connection with the Fukushima accident and the stress tests undertaken on a European level, EDF is set to strengthen the protection of its nuclear power plants to face flooding/earthquakes, and to set up a rapid response task force to combat extreme events (e.g. the loss of electricity supplies and cold sources) (see section 6.2.1.1.3.5 ("Preparing the future of the nuclear power fleet in France")).

Today when many countries rely on nuclear energy or turn to it to meet their energy requirements in an affordable and decarbonised way, it is important to implement international discipline to move towards nuclear energy that is even safer and more demanding under the guidance of the International Atomic Energy Agency ("IAEA") and the World Association of Nuclear Operators ("WANO").

EDF is a worldwide reference, able to offer its skill bases and support those operators or countries that wish to use and develop safer nuclear energy.

#### France: the cornerstone of the Group's industrial legitimacy throughout the world

In France, EDF will continue with its actions implemented since 2010. The Group has set four priorities for its domestic market:

- operating performance relating to the generation fleet (including feedback and lessons learned from Fukushima), grids and support provided to its customers;
- strengthening of industrial facilities via investment, specifically the Flamanville EPR and offshore wind farms;
- deepening its regional roots, particularly through energy services and regional offerings;
- skills renewal, thanks to the Group's ability to provide employees with opportunities to develop their mobility and to attract new talent.

#### United Kingdom: strengthening our position

EDF aims to strengthen its foothold in the United Kingdom, with strong involvement in the renewal of the country's generation fleet. Political decisions in support of low-carbon energies, as well as recent agreements with the British government on the conditions of profitability regarding the proposed construction of new nuclear power plants, provide a favourable outlook for the Group's aim, which falls in line with its approach of developing partnerships with global players. At the same time, the Group keeps extending the lifespan of its existing fleet, under the highest safety conditions.

#### Italy: a platform for the Group's expansion

Full control of Edison allows the EDF Group to diversify its generation mix and strengthen its position in Italy, one of the key energy markets in Europe, which occupies an important geostrategic position for gas supplies.

As regards gas, EDF can count on the skills of Edison (specifically for Exploration & Production) and its complementary positions to those taken by the Group in infrastructures (specifically the Rovigo LNG terminal). In electricity, Edison is a platform for the Group's growth in all countries around the Mediterranean basin, particularly for thermal and hydropower generation.

#### Poland: growth prospects

The Group aims to expand in this country that is enjoying growth perspectives, both for the economy and in power consumption. The Group operates in three of its business lines in Poland, namely thermal and renewable generation, energy services and marketing, and continues to work to realise operational synergies.

#### Other European countries

With its presence in Benelux and Central Europe, the Group intend to optimise its portfolio of holdings and promote operational synergies.



### 6.1.3.2 Entering key countries

EDF distinguishes four key countries in terms of international development: Russia, Turkey, Brazil and China. All are high-growth countries with significant power requirements and are essential for the development of certain Group businesses: nuclear power in China, hydropower in Brazil, and gas supplies in Russia and Turkey. The Group wishes to develop a long term presence in these countries, with strong foundations, not limiting itself to a single business or a single production stage.

### 6.1.3.3 Responding to the diversity of its customers throughout the world

Beyond the four key countries mentioned above, EDF wishes to develop its international presence and enhance the diversity of its expertise. This means developing projects that create value and focusing on partnerships with local actors.

In terms of generation, the Group aims to have a net installed capacity by 2020 maintaining its position among the world's leaders and made up of 50% nuclear, 25% coal- or gas-fired, and 25% hydropower and other renewable energies (wind power, biomass, solar power, etc.):

- nuclear power, which provides competitive electricity without emitting CO<sub>2</sub>, is fully entitled to be part of the worldwide energy mix. Countries such as Russia, Brazil, India, China, South Africa and several countries within the European Union, such as the United Kingdom, Poland and Finland, have confirmed that nuclear power will play a significant role in their electricity generation;
- in fossil-fuel fired power plants, EDF aims to provide its knowledge of the most modern and environmentally friendly technologies, along with its project management expertise;
- as regards hydropower, the Nam-Theun 2 experiment in Laos showcases EDF's ability. Other countries in Asia, Africa and South America are interested in the Group's renowned expertise, particularly regarding control of human and environmental impacts, as well as cooperation with international organisations;
- for other renewable energies, the Group maintains its ambitions not only in the development of its portfolio but also in innovation, such as in the field of tidal turbines.

Furthermore, the Group aims to showcase its experience in the planning, design or operation of grids with countries that wish to strengthen or modernise their infrastructure and move towards smarter grids. Partnerships between ERDF and Chinese and Russian grid operators are examples of this.

In the downstream segment, which comprises optimisation, trading and marketing of offers adapted to customers, EDF intends to develop the value of the customer portfolio and widen the scope of its skills outside France. EDF is committed to meet the needs of its customers through the excellence of its relations and, equally, supports their actions and investments in energy efficiency. EDF also provides specific treatment for customers facing energy insecurity.

Lastly, gas for EDF is also a structural element in its electricity operator business, specifically enabling the supply of the Group's combined-cycle gas turbines, or the extension of offers to end-customers. Investment in the Dunkirk methane terminal, participation in the South Stream international gas pipeline project and the exclusive takeover of Edison are at the heart of this approach (see sections 6.4.2.2 ("Infrastructure"), 6.3.3.1.2 ("Russia") and 6.3.2 ("Italy")).

EDF wants to create sustainable industrial solutions through various contractual methods: assistance to project management operations for third parties or IPP (Independent Power Producer) investments. Rights of control in the shareholders' agreements will enable the Group to take full responsibility for its industrial and technological choices.

### 6.1.3.4 Controlling the future by combining the unique expertise of EDF and anticipating long-term needs

EDF wants to strengthen its innovation and R&D efforts so as to pave the way for the future in a context where the world is facing major challenges linked to global warming, supply security and the continuously increasing demand for electricity worldwide. 2,000 engineers and technicians are therefore mobilised to increase the Group's ability to anticipate, in all of its businesses, the safety and performance of production tools and networks, and their efficient use (see section 11.2 ("R&D priorities")).

The Group will specifically emphasise:

- low CO<sub>2</sub> emission generation activities. For instance, in addition to nuclear and hydropower, technologies such as new-generation photovoltaics, concentrated solar power, offshore wind farming, and tidal turbine farming represent potential in the future;
- CO<sub>2</sub> capture and storage, an essential challenge for the sustainable use of coal (as a fuel) throughout the world;
- investments linked to the lifespan of materials, specifically the replacement of some major equipment items with a view to improving both operational performance and safety levels. An important theme in R&D is the study of how materials age, a key parameter in calculating the operational lifespan of power plants.

EDF will also focus its R&D efforts on sales and grids, where significant changes are underway. The development of intelligent electrical systems, with the "Linky" communicative meter as a key step, and the services that EDF will offer customers downstream of the meter (such as improved control of consumption) give the Group an opportunity to demonstrate its skills and sense of innovation. Research undertaken by EDF will also focus on the development of reasonably priced low-energy buildings, smart buildings, and innovative uses of electricity for transmission, comfort or industry. As a result, EDF will participate, thanks to the opportunities offered by intelligent electrical systems, in the transition to a low-carbon society, which will be built around sustainable cities.

The quality and motivation of EDF's teams, their skills, their corporate involvement and their public service mission are also an essential asset for the future of the Company. Because the Group will have to deal with a substantial wave of retirements in the coming years, maintaining the wealth of this human capital within the Company is a subject that is continuously addressed.

Attracting new talent and further increasing training efforts will be central to the Group's concerns in order to succeed in the mission it has set itself (see section 17.1.2 ("Forward-looking management of jobs and enhanced skills")).

## 6.1.4 Investment policy

### 6.1.4.1 Investments in 2013

The Group continued its programme of gross operational investments, in the amount of €13.3 billion in 2013 (excluding the "Linky" project on communicative meters), compared with €13.4 billion in 2012. Net investments<sup>1</sup> amounted to €12.2 billion in 2013 compared with €11.8 billion in 2012. These focused on both the regulated (28%) and deregulated (72%) segments. In the deregulated segment, net investments are split between investments to develop new capacities (new nuclear power plants, combined-cycle gas turbines) in the amount of €3.1 billion (35% of the total) and maintenance investments of €5.7 billion (65% of the total), of which €3.6 billion dedicated to nuclear power plant maintenance in France.

1. Excluding Linky and strategic operations.

In France, net investments increased by 10.2% to €8.8 billion, reflecting the Group's significant investment effort in industrial facilities in France, slightly offset by the effect of new generation resources commissioned in island activities. Significant net investments of almost €1.2 billion were made in the United Kingdom relating in particular to nuclear activities, partly offset by the disposal of the Fallago Rig wind farm. In the rest of the world, net investments totalled over €1 billion, and €1.2 billion in other businesses (notably EDF Énergies Nouvelles, Dunkirk LNG terminal and Dalkia).

## 6.1.4.2 Investments over 2014-2018

In July 2011, when announcing its outlook for 2011-2015, the Group stated its ambition to diversify its energy mix and its geographical network. At that time, it estimated a wide range of net investments amounting to €15 billion in 2015 based on existing and identified projects.

In 2014, the Group plans to invest €13 to €13.5 billion.

Over the 2014-2018 period, the Group will deliver major industrial projects, some of which are well under way, such as the Dunkirk LNG methane terminal and the Flamanville 3 EPR, due to be commissioned in 2015 and 2016 respectively. The Group also plans to continue its investments in the distribution networks in France as well as in renewable energies, in line with its integrated electricity operator strategy. Thus, the Group foresees a peak in net investments in 2015, at €14 billion, which should fall back gradually as projects are commissioned.

## 6.2 Presentation of EDF group's business in France

### 6.2.1 Deregulated activities in France

EDF's deregulated activities in France (activities open to competition) include electricity generation and the sale of electricity and natural gas. EDF is implementing an integrated model for the joint operational management of its portfolio of assets upstream (generation and procurement of energy and fuels) and downstream (wholesale and retail) to guarantee supply of its customers through the best possible management of operational market risks and with a view to maximising gross margin.

#### 6.2.1.1 Electricity Generation

EDF groups together its main electricity generation activities in France within its Generation and Engineering Division, which has all of the skills and performance levers necessary to operate the largest European electricity generation fleet and to manage its development and continuity.

As at 31 December 2013, the Generation and Engineering Division had 40,268 employees<sup>1</sup>. It is organised around three business segments: nuclear, hydropower and fossil-fuel fired power. In addition, through its engineering, it provides technical and industrial skills to the entire Group in these three fields (see section 6.3 ("Presentation of EDF Group's international business")).

##### 6.2.1.1.1 General presentation of EDF's generation fleet

##### 6.2.1.1.1.1 Composition and specifications of the installed fleet

With a total installed generation capacity of 98.2GW in continental France<sup>2</sup> as at 31 December 2013, EDF has the largest generation fleet in Europe,

accounting for just over 10% of the total installed capacity of the main countries of Europe (the 35 areas having members of ENTSO-E – the European Network Transmission System Operators for Electricity – which includes Germany, Italy and Spain<sup>3</sup>).

In 2013, EDF's generation fleet represented 461.9TWh excluding pumped storage hydropower and 468.9TWh including pumped storage hydropower.

As at 31 December 2013, the capacity of EDF's generation fleet in mainland France was as follows:

- 58 nuclear units based on pressurised water reactors ("PWR") (a unit is defined as a generation unit including a reactor, steam generators, a turbine, a generator, the related equipment and the buildings that house them). These units have electrical power capacities varying from 900MW to 1,450MW and are spread out over 19 sites, with an average age of 28 years;
- 34 functioning fossil-fuel thermal units, with those in service having an average age of approximately 27 years; in addition, ten units under guaranteed multi-year shutdown<sup>4</sup>;
- 436 hydropower plants with an average age of 69 years<sup>5</sup>.

There were also:

- the wind power generation capacities of EDF Énergies Nouvelles in France (see section 6.4.1.2.2 ("EDF Énergies Nouvelles")) and the incineration plants of the Tiru group in France (see section 6.4.1.3 ("Energy services"));
- 83 hydropower plants falling within the scope of operation of the Generation and Engineering Division, though held by Group subsidiaries: SHEMA (100%), FHYM (69.5%), CERGA (50/50 owned with the German electricity company EnBW). These plants represent a total of around 121MW of installed capacity in 2013 and around 575GWh of energy production<sup>6</sup>.

1. An increase of 1,851 employees from 2012.

2. For Corsica and the French overseas departments, see section 6.2.2.3 ("Island Energy Systems").

3. Calculation based on the ENTSO-E statistics for 2013, as statistics for the year are not available until 30 April of the following year.

4. The generation facilities under "guaranteed multi-year shutdown" are awaiting a decision of reactivation or operational withdrawal.

5. Arithmetic mean.

6. Output potential and capacity are indicated in proportion to investment.

## 6.2.1.1.1.2 Evolution of the installed capacity and generation over the last three years

The table below shows the evolution of the fleet's installed capacity in mainland France over the last three years:

	At 31/12/2013		At 31/12/2012		At 31/12/2011	
Installed capacity <sup>(1)</sup>	MW	%	MW	%	MW	%
Nuclear	63,130	65	63,130	65	63,130	65
Hydropower <sup>(2)</sup>	20,026	20	20,010	20	20,007	20
Thermal <sup>(3)</sup>	15,028	15	14,734	15	14,275	15
<b>TOTAL<sup>(4)</sup></b>	<b>98,184</b>	<b>100</b>	<b>97,874</b>	<b>100</b>	<b>97,412</b>	<b>100</b>

(1) Expressed in MW of maximum capacity attached to the network.

(2) Excluding Corsica and the French overseas departments, 440MW in 2013.

(3) Excluding Corsica and the French overseas departments, 1,226MW in 2013, and including 3,390MW for units under guaranteed multi-year shutdown.

(4) This figure does not include 12MW of wind generation capacity.

The table below shows the change in the EDF's installed capacity in mainland France over the last three years:

	At 31/12/2013		At 31/12/2012		At 31/12/2011	
Generation	TWh	%	TWh	%	TWh	%
Nuclear	403.7	87.4	404.9	89.1	421.1	91.6
Hydropower <sup>(1) (2)</sup>	42.6	9.2	34.5	7.6	26.8	5.8
Thermal <sup>(3)</sup>	15.6	3.4	14.9	3.3	11.8	2.6
<b>TOTAL<sup>(4)</sup></b>	<b>461.9</b>	<b>100</b>	<b>454.3</b>	<b>100</b>	<b>459.7</b>	<b>100</b>

(1) Excluding Corsica and the French overseas departments, 1.6TWh in 2013.

(2) Net pumped storage power generation: the electricity consumption needed for the operation of pumped storage power plants ("STEP") amounted to 7.0TWh in 2013, resulting in hydropower generation (including pumped storage consumption) of 49.6TWh, and including generation from tidal power plant on the Rance river (449GWh).

(3) Excluding Corsica and the French overseas departments, 3.5TWh in 2013.

(4) These values correspond to the sum of the specific values, corrected to one decimal place.

## 6.2.1.1.2 Strengths of the generation fleet

With a total installed capacity of 98.2GW as at 31 December 2013, in mainland France EDF has the largest fleet of generation facilities in Europe. This fleet has significant assets:

- a competitive generation mix with low variable generation costs<sup>1</sup> and limited exposure to hydrocarbon and carbon market fluctuations due to nuclear and hydropower facilities;
- a variety of means of generation, which enables adequate coverage of EDF's downstream portfolio needs (end users, sales to alternative suppliers, sales on the wholesale markets, etc.). Use of the fleet's various components is managed by giving priority, at any given time, to the generation type offering the lowest variable costs: run-of-river hydropower plants are used for base generation; nuclear plants, because of their low variable generation costs, are used for base and mid-merit generation; adjustable hydropower generation (coming from dams) and fossil-fuel fired plants are used for mid-merit and peak generation;
- a significant standardised fleet of nuclear facilities, for which EDF provides full control over their entire life cycle. Moreover, EDF is working towards extending the operating life of its power plants and improving their technical performances;
- a fleet generating at over 95% without CO<sub>2</sub> emissions due to the predominance of nuclear and hydropower generation facilities, in an increasingly restrictive environmental regulatory context; and

- a geographical position at the junction of electricity exchanges between the continental platform and the electric peninsulas (Italy, Spain and the United Kingdom).

## 6.2.1.1.3 Nuclear generation

The electricity generated by EDF from its fleet of nuclear power plants represents, as at 31 December 2013, 87.4% of its total electricity generation excluding pumped storage hydropower. The specifications of this fleet are given below.

### 6.2.1.1.3.1 EDF's nuclear fleet

EDF's PWR model is divided into three series of available electrical power:

- a 900MW series consisting of 34 units of approximately 900MW (for a total power capacity of 30,770MW) with an average age of 32 years;
- a 1,300MW series consisting of 20 units of approximately 1,300MW (for a total power capacity of 26,370MW) with an average age of 25 years;
- the N4 series, which is the most recent with an average age of 13 years, consisting of four units of approximately 1,450MW (for a total power capacity of 5,990MW);

for a total of 58 units in operation with an average age of 28 years, spread over 19 sites owned by EDF, and constituting a total installed capacity of 63,130MW as at 31 December 2013.

1. Variable generation costs correspond to all costs that vary directly with the level of energy generated. For electricity generation, variable costs are essentially made up of fuel.

The commissioning and most recent ten-year inspection (Visite décennale, or "VD") dates for these units as of end 2013 are as follows:

Units	Year of industrial commissioning	Year of most recent ten-year inspection	Next ten-year inspection	Units	Year of industrial commissioning	Year of most recent ten-year inspection	Next ten-year inspection
Fessenheim 1	1978	2009	VD4	Gravelines 6	1985	2007	VD3*
Fessenheim 2	1978	2011	VD4	Cruas 3	1984	2004	VD3
Bugey 2	1979	2010	VD4	Cruas 4	1985	2006	VD3
Bugey 3	1979	2013	VD4*	Chinon B3	1987	2009	VD3
Bugey 4	1979	2011	VD4	Chinon B4	1988	2010	VD3
Bugey 5	1980	2011	VD4*	Paluel 1	1985	2006	VD3
Dampierre 1	1980	2011	VD4*	Paluel 2	1985	2005	VD3
Gravelines 1	1980	2011	VD4*	Paluel 3	1986	2007	VD3
Gravelines 2	1980	2013	VD4*	Paluel 4	1986	2008	VD3*
Tricastin 1	1980	2009	VD4	Saint-Alban 1	1986	2007	VD3*
Tricastin 2	1980	2011	VD4*	Flamanville 1	1986	2008	VD3*
Dampierre 2	1981	2012	VD4*	Saint-Alban 2	1987	2008	VD3*
Dampierre 3	1981	2013	VD4*	Flamanville 2	1987	2008	VD3*
Dampierre 4	1981	2004	VD3	Cattenom 1	1987	2006	VD3
Tricastin 3	1981	2012	VD4*	Cattenom 2	1988	2008	VD3*
Tricastin 4	1981	2004	VD3	Nogent 1	1988	2009	VD3*
Gravelines 3	1981	2012	VD4*	Belleville 1	1988	2010	VD3*
Gravelines 4	1981	2003	VD3	Belleville 2	1989	2009	VD3*
Blayais 1	1981	2012	VD4*	Nogent 2	1989	2010	VD3*
Blayais 2	1983	2013	VD4*	Penly 1	1990	2011	VD3*
Blayais 3	1983	2004	VD3	Cattenom 3	1991	2011	VD3*
Blayais 4	1983	2005	VD3	Golfch 1	1991	2012	VD3*
Saint-Laurent 1	1983	2005	VD3	Cattenom 4	1992	2013	VD3
Saint-Laurent 2	1983	2013	VD4*	Penly 2	1992	2004	VD2
Chinon B1	1984	2013	VD4*	Golfch 2	1994	2004	VD2
Cruas 1	1984	2005	VD3	Chooz B1	2000	2010	VD2
Chinon B2	1984	2006	VD3	Chooz B2	2000	2009	VD2
Cruas 2	1984	2007	VD3*	Civaux 1	2002	2011	VD2
Gravelines 5	1985	2006	VD3	Civaux 2	2002	2012	VD2

\* Pending confirmation by the ASN (the French Nuclear Safety Authority) of the reactor's suitability to continue operations (the ASN is responsible for authorising the restart of the reactor, as after each outage, and for issuing, where applicable, technical recommendations determining the conditions for the continued operation for another ten-year period).

The first unit of the 900MW series was commissioned for industrial use in Fessenheim in 1978. The most recent unit was commissioned for industrial use in Civaux in 2002. With an average age of approximately 28 years for an estimated technical operating life of over 40 years (benchmark for accounting purposes and the initial nuclear unit design), the EDF's nuclear fleet is in the mean of the fleets installed worldwide.

First-generation design EDF plants have been gradually shut down and are currently being decommissioned (see section 6.2.1.1.3.6 ("Decommissioning of nuclear power plants")).

### Generation allocation contracts

EDF has developed industrial cooperation with European operators in the nuclear industry in the form of generation allocation contracts related to units of EDF's French nuclear fleet.

After Enel's decision in December 2012 to cancel the cooperation agreements signed with EDF in 2007 (see section 6.2.1.1.3.5 ("Preparing for the future of the nuclear fleet in France")), EDF's fleet includes ten generation units (up to 1.5GW) with the following European electricity companies:

- Fessenheim 1-2: EnBW (17.5%) and the Swiss electricity group CNP (15%);
- Cattenom 1-2: EnBW (5%);
- Bugey 2-3: Électricité de Laufenbourg<sup>1</sup> (17.5%);
- Tricastin 1 to 4: Electrabel<sup>2</sup> (12.5%);
- Chooz B1-B2: Belgian company EDF Luminus (3.3%).

The purpose of these generation allocation contracts, for each unit concerned, is to make available to each partner the proportion of energy

1. Axpo group.

2. GDF Suez group.



generated actually due to them in return for payment of their share of the construction costs, annual operating costs (including upstream and downstream fuel costs), local taxes and taxes specific to nuclear energy, and the costs relating to decommissioning. In these operations, the partners shared the industrial risks with EDF during the development of the power plants (involving three initial series units) and take responsibility for the performance risks associated with the current operation of the power plants. They have, however, no operational role.

Furthermore, EDF signed a second type of generation allocation contract (totalling about 2GW) that enables its partners to receive a share of the electricity generation from a given power plant fleet based on the average actual performance of that fleet. These contracts mainly concern the following power plants:

- Chooz B1-B2 (initial series unit N4): Electrabel (21.7%);
- Cattenom 3-4: Électricité de Laufenbourg (7.8%) and the consortium of Swiss electricity companies CNP (21.8%).

#### 6.2.1.1.3.2 Operation and performance of the nuclear fleet

Nuclear power is a means of generation whose variable cost, which is mainly made up of the fuel costs, is low since it represents less than 30% of operating costs<sup>1</sup>. Therefore, the main competitive levers of the nuclear fleet are the amount of generated energy and the optimisation of fixed operating and maintenance costs. The levers relating to the fuel cycle are further discussed in section 6.2.1.1.3.4 ("The nuclear fuel cycle and related issues").

At the end of each ten-year inspection, the ASN is responsible for authorising the restart of the reactor, as after each outage, and for issuing, where applicable, technical recommendations determining the conditions for the continued operation for another ten-year period.

#### Operation methods of the nuclear fleet

##### Generation cycle and scheduled shutdowns

In order to reconcile the issues concerning the strong variations in seasonal consumption in France, the availability of maintenance resources and the efficient use of reactor fuel, EDF has now adopted normative operating cycles of 12 and 18 months for its fleet. At the end of 2013, they were distributed as follows:

- 28 units of the 900MW series have an operating cycle of about 12 months;
- 6 units of the 900MW series, 20 units of the 1,300MW series, and since 2010, four units of the N4 series (1,450MW) have an operating cycle of about 18 months.

After each 12- and 18-month operating cycle, shutdown periods are programmed in order to replace a fraction of the fuel loaded in the reactor's core and to perform scheduled maintenance.

Two types of programmed shutdowns are alternated at the end of each generation cycle:

- an ordinary shutdown for refuelling only (*Arrêt pour Simple Rechargement*, or "ASR"), during which unloading spent fuel and refuelling fresh fuel is the main operation performed, although light maintenance or periodic testing may also take place during this type of shutdown, for which the standard period<sup>2</sup> is around 35 days; and
- a partial inspection ("PI") for refuelling and maintenance, for which the standard period<sup>2</sup> is around 70 days.

Every ten years, the power plant is shut down for a standard period<sup>2</sup> of around 110 days in order to perform a ten-year inspection. This length varies according to the works and maintenance programme and the series in question. The programme for a ten-year inspection comprises:

- the unloading of spent fuel and loading of fresh fuel, as is the case at each shutdown;
- hydropower tests of the primary and secondary circuits, a liner test, and inspection works on the reactor vessel;
- adjustment work, associated with ten-year safety reassessments;
- other specific maintenance operations including major component renovation.

At the end of each ten-year inspection, the ASN decides whether or not to authorise the restarting of the reactor and it issues technical prescriptions which are key for continued operation for another ten-year period.

#### Operation of EDF's nuclear fleet

Owing to their low variable cost, nuclear generation means are first and foremost used as base-load generation means, after the run-of-river hydropower, the other renewable energies and the energy bought under the purchase obligations from the decentralised electricity producers. The variations in consumption of EDF's final customers during one year (summer-winter, day-night) and the current restrictions in fluidity of the wholesale markets due to limited interconnections, lead to nuclear power also being used for mid-merit generation. High variations in seasonal consumption in France and variations in levels of consumption during the winter months (a drop in temperature of 1°C in winter entails a rise in electricity consumption in France which can reach 2,400MW<sup>3</sup>) require that nuclear fleet shutdowns be concentrated between April and October. The 2003 heat wave highlighted the consequences of very high temperature increases in rivers, in particular regarding the operating conditions of "riverside" units. The frequency of unit shutdowns was thus reviewed to reduce the number of shutdowns in "seaside" units during July and August and thus to encourage these units to continue to operate at maximum generation, since their cooling capabilities are less linked to climatic conditions.

#### Generation and technical performance

The nuclear fleet's generation amounted to 403.7TWh in 2013, stable compared with 2012.

Nuclear generation expressed in annual energy corresponds to a load factor, "Kp" for the French nuclear fleet (defined as the generated energy as a percentage of the theoretical maximum energy, or the energy generated if the installed capacity were operated year-round). This factor is obtained by multiplying two coefficients ( $Kp = Kd \times Ku$ ):

- the availability factor, "Kd" (the available energy<sup>4</sup> as a percent of the theoretical maximum energy, or the energy generated if the installed capacity were operated year-round);
- a utilisation factor, ("Ku") (energy generated compared to energy available). Ku reflects environmental and social constraints, supply of system services and optimisation implemented by EDF (fuel and modulation).

In 2013, the Kp was, at 73.0%, stable compared to 2012 (73.0%). This is the consequence of a Kd of 78.0%, down 1.7 points compared with 2012, and a Ku of 93.6%, up 2.0 points compared with 2012.

1. Operating costs are cash costs and are defined as follows: fuel costs (including downstream expenses in the fuel cycle), operating expenses (purchases and external services, employee expenses) and maintenance costs (expenses and investments). They do not include investments related to construction, decommissioning expenses, or depreciation/amortisation and provisions.

2. Standard durations are tailored to the volume of routine maintenance required.

3. Source: RTE.

4. The available energy is equal to the maximum theoretical energy less losses for technical reasons inherent to power plants, such as planned shutdowns, unplanned outages due to failure or safety requirements, and regulatory tests.

2013 was characterised by:

- maintaining performance in terms of unexpected shortages (2.6% in 2013), thanks to a proactive maintenance strategy implemented since 2007 in terms of renovation and major component replacement;
- more extensions to scheduled shutdowns than expected. Consequently, the plan to control the duration of outages in 2013 was reinforced with notably a focus on stabilising routine maintenance during outages, improving the quality of the preparation of maintenance work and reinforcing controls of restart operations.

However, as the fleet has entered a significant maintenance programme scheduled over the next ten years, with a substantial volume of works resulting in extended production stoppages, the challenge in the coming years will be to industrially control the programme and its impact on the duration of stoppages. Furthermore, in view of the strong seasonality of the electricity demand in France (see section "Operation of EDF's nuclear fleet" above) and the state of the development of REN (renewable energy) generation facilities, the issues have shifted. Today, EDF's foremost objective is to have a maximum generating capacity in winter, including sustained availability of the nuclear fleet greater than 90% during this important period of the year. In winter 2013-2014 this stood at 92.9%.

### Implementation on the operational fleet of the EDF industrial nuclear power project

In order to further increase the level of safety and prepare for the extension to the fleet's operating period (see 6.2.1.1.3.5 ("Preparing for the future of the nuclear fleet in France")), EDF will carry out a substantial volume of works in the coming years on each of its 58 units.

Accordingly, by 2015, EDF aims to perpetuate its technical and industrial asset base, via technical, organisational and human resource actions. The renovation or replacement programmes for large power plant components such as alternators, transformers and steam generators are set to continue. By the end of 2013:

- alternator stators were renovated on 34 units, out of a total of 49 units showing insulation risks;
- the programme for preventative replacement of the "shielded" poles of the main transformers is ongoing. At the end of 2013, 44 poles out of 174 were replaced, i.e. over 25% of the programme;
- between 1990 and the end of 2013, steam generators were replaced in 25 units, including three in 2013.

The third series of ten-year inspections of the 900MW series are an opportunity to commit to large component renewal.

Regarding the organisational aspects of routine maintenance, EDF continues to deploy the AP 913<sup>1</sup> procedure to improve reliability and develop equipment health checks that aim to reduce unplanned outage rates.

Strengthening the operational management of power generation and of planned outages also continues through the systematic implementation, for each outage, of an Operational Centre for Continuous Management of Units Outages ("COPAT") and rolling out a new information system ("SDIN"). The ultimate goal is to reduce the average time for outage extension periods via continuous management of the critical activities of the outage and a reactive response to technical alerts.

The industrial project for the nuclear fleet will continue beyond 2015 on the occasion of the third and fourth series of ten-year inspections of 1,300MW units, the fourth series of ten-year inspections of 900MW units and the second and third series of ten-year inspections of N4 units. This project

will provide the opportunity to incorporate additional safety improvements identified following the Fukushima accident as well as modifications allowing to extend the operation of facilities significantly beyond 40 years (see section 6.2.1.1.3.5 ("Preparing for the future of the nuclear fleet in France")).

### 6.2.1.1.3.3 Environment, safety and radiation protection

#### Environmental protection

EDF bases its environmental procedure on an ISO 14001-certified management system (see section 6.6.3.1.1 ("Organisation and ISO 14001 certification")). Started in 2002 over a number of sites, ISO 14001 certification was widened to include all nuclear production units in 2004. After the renewals of 2005 and 2008, ISO 14001 certification was once again renewed in 2011 for all nuclear production units.

In this respect, EDF is making great efforts to reduce the incidence of liquid and gas emissions into the environment by its nuclear power plants. From 1990 to 2002, while already reaching levels much lower than the regulatory limits, EDF reduced its radioactive liquid emissions by a factor of 30 (excluding tritium and carbon-14). Since then, liquid emissions have again been halved, and now stand at a very low level.

In terms of the radioactive waste management plan, very low-level waste has been removed to the Morvilliers disposal facility in the Aube since 2004. As regards low- and medium-level waste, EDF is continuing to take steps to limit its storage on all nuclear sites. However, the unavailability of the Centraco plant (SOCODEI), which deals specifically with incineration and melting, following the accident of 12 September 2011 in one of the facility's furnaces, led EDF to evacuate a portion of the waste usually processed in this plant to the Aube disposal facility, and to store another portion on the plant sites and at Centraco. Since 29 June 2012, when the ASN authorised SOCODEI to restart the incinerator at its Centraco plant, the situation is returning to normal. Moreover, SOCODEI is currently undertaking the actions necessary to restart the waste melting facilities.

For a description of radioactive waste processing downstream of the fuel cycle as well as decommissioning, see sections 6.2.1.1.3.4 ("The nuclear fuel cycle and related issues") and 6.2.1.1.3.6 ("Decommissioning of nuclear power plants").

Under the authority of the ASN, a national network measuring environmental radioactivity has been established, with the aims of synthesising the results of environmental radioactivity measurements and ensuring the quality of these measurements. The regulatory measurements of environmental radioactivity around nuclear power plants have been available to the public since January 2010 on the website [www.mesure-radioactivite.fr](http://www.mesure-radioactivite.fr).

#### An ever-present nuclear safety procedure

EDF, in its capacity as a nuclear operator, takes responsibility for nuclear safety and reaffirms nuclear safety as its top priority within a context of rapid evolution (market competition, environmental issues, etc.).

The implementation of the French nuclear power programme led EDF to establish a safety procedure that:

- takes into account, from the design stage, the risks that might arise during the operation of the power plants, whether relating to the actual operation of the installations or to internal or external attacks;
- is based both on the application of strict rules of operation, and on the prudent and inquiring attitude of the technical teams by means of establishing a true safety culture;

1. See glossary.

- is based on the cumulative experience of a standardised fleet of 58 reactors (i.e., more than 1,600 reactor years of operation, the arithmetic sum of years of operation of EDF's PWR plants);
- incorporates a continuous improvement process that is notably embodied by ongoing efforts to decrease the number of automatic reactor trips;
- benefits from integrated nuclear engineering and R&D within the Group in order to anticipate the correction of failures, maintain the installations in good working order, develop materials/equipment on an ongoing basis, reassess safety margins, monitor technology advances as well as implementing more effective new technologies and managing work at sites being decommissioned;
- relies strongly on the development of skills; with this objective in mind, each nuclear generation site is equipped with a global simulator used for training and preparation to cope with any type of situation.

Nuclear safety is subject to numerous controls, both internal and external. The external control of the safety of nuclear facilities in France is carried out by the ASN.

At national level:

- regulatory inspections are carried out on sites by the ASN, randomly or on a scheduled basis (418 inspections in 2013 on all EDF nuclear facilities);
- a safety review process conducted on a ten-year basis has also been in place since 1989 and was formalised in the 2006 TSN Law on nuclear transparency and safety. It aims to strengthen management of compliance with safety standards for operation of nuclear plants and to reassess these standards based on feedback and new knowledge. The safety standards reassessed in this way are then set until the next review (barring a major event requiring an immediate assessment). The objectives are established by the ASN (which monitors compliance), while EDF proposes solutions to meet them and implements them after obtaining ASN approval (see section 6.2.1.1.3.1 ("EDF's nuclear fleet")). The ten-year safety review is an important step in extending the operating life of power plants (see sections 6.2.1.1.3.5 ("Preparing for the future of the nuclear fleet in France") and 6.5.6.2.2 ("Specific regulations applicable to basic nuclear facilities")).

At international level, regular inspections are held, making it possible to share the experience gained worldwide:

- the OSART (Operational Safety Review Team) of the IAEA (International Atomic Energy Agency) performs reviews at the request of the French government with the objective of formulating recommendations and promoting good working practices;
- the international "Peer Review" inspections carried out by the WANO (World Association of Nuclear Operators) are organised at the request of EDF and deal with the assessment of safety performance compared with best international working practices.

EDF has also implemented internal control procedures. For example, every three to four years, EDF performs overall excellence assessments for each nuclear power plant, which take place over a three-week period and involve approximately 30 inspectors. In addition, the General Inspector for nuclear safety and radiation protection, reporting to and appointed by EDF's Chairman and Chief Executive Officer, performs audits to assess the overall safety of the nuclear fleet on an annual basis and to provide the Company's management with suggestions for improvements.

Efforts made by EDF, notably in order to improve human performance, have enabled a reduction over the last few years of the annual average number of Automatic Reactor Trips ("ART"). While 40 ARTs occurred in 2010, this figure dropped to 34 in 2013.

EDF is subject to the law of 13 June 2006 relating to nuclear transparency and safety (see section 6.5 ("Legislative and regulatory environment")). This law guarantees access to information concerning health and environmental impacts for all individuals, and formalises transparency on nuclear safety.

### Warning system

In the event of an accident, a crisis plan is in place to limit impacts on the environment and on people, and to ensure that the facility is safe. This crisis plan relies on two closely coordinated plans designed for the national and local level. These are:

- the Internal Emergency Plan (*Plan d'Urgence Interne*, or "PUI"), prepared by EDF; and
- the Special Intervention Plan (*Plan Particulier d'Intervention*, or "PPI"), prepared by French prefectures in collaboration with the French government and EDF.

In order to provide greater effectiveness and thus, improved protection of people, these plans account for the risk of malicious actions.

The relevance of the system for warning, informing and protecting people is regularly assessed through accident simulation exercises, which make it possible not only to ensure the correct operation of the crisis plan, but also to improve upon it, in particular, by clarifying roles and validating all of the required physical and human resources. Each year, approximately 100 exercises are organised for the entire French nuclear fleet, i.e. approximately one drill every three days. Approximately ten of these exercises are held on a national level, under the management of the ASN and involve EDF and the public authorities, in particular the prefectures. In 2013, 13 national exercises were organised.

Following the initial analyses performed after the Fukushima accident in March 2011, EDF decided to enhance its crisis management strategy thanks to a national system able to quickly provide material and human aid to a site in great difficulty. Simulation exercises have been conducted using this system, known as the Rapid Response Nuclear Task Force ("FARN"), at regional bases located at Civaux, Paluel, Dampierre and Bugey. At the end of 2012, it was possible to deploy FARN on any unit at any site experiencing difficulties. At the end of 2015, it will be fully operational and allow simultaneous interventions on six units.

The FARN's missions are as follows:

- to act within 24 hours to support or take over from teams that have taken emergency action on the site in question, on which access infrastructures may be partially destroyed;
- to act autonomously for several days (involving logistical capabilities for support particularly in terms of feeding and sleeping) on a partially destroyed site (non-seismic tertiary buildings, for instance), in which the environment may be radioactive or even affected by chemical pollution on some sites;
- to deploy heavy protection or intervention equipment within a timeframe of a few days;
- to ensure a continuous connection with the company's Executive Management, the site's management and teams and the local authorities so as to be in a position to manage and coordinate actions;
- to prepare for actions to be carried out in the long-term, beyond the first few days of autonomy, in the event of a long-term crisis.

The FARN is intended to support the crisis planning already in place should an accident situation arise.

1. Automatic and instantaneous shutdown of the plant by starting up protective measures to ensure its safety.

## Major events concerning safety

Events are measured from 1 to 7 on the INES scale (International Nuclear Event Scale), with 7 being the most serious. Those of no consequence for nuclear safety are classified as "discrepancies" or "level 0 events".

Since the establishment of a scale of this kind in France in 1987, no level 3 event (serious incident-very low external emission, and exposure of the public representing a fraction of the regulatory limits) or above has occurred regarding the French nuclear fleet.

From 2002 to 2012, for its entire fleet, EDF recorded a yearly total of at most one level 2 event (incident with a significant failure in safety regulations). In 2013, there was no significant level 2 safety event. In 2013 results show significant progress compared to 2012 with an average of 1.19 level 1 events per reactor (i.e. 69 events) compared to 1.55 a year earlier. The average number of unclassified events (level 0) is 10.36 per reactor (or 601 events), stable compared to 2012.

## Radiation protection

The mobilisation of ground players has allowed a continuous improvement of performance on the protection of employees against the effects of ionising radiation. Thus, the average annual collective dose of all workers, both employees of EDF and outside companies involved in power plants, has been halved in less than ten years. In 2013, the average collective dose was 0.79 man-Sievert per reactor (or a collective annual dose of 45.9 man-Sievert in 2013), which is a comparable level to the average values recorded by operators for reactors using the same technology, i.e. pressurised water. Collective dosimetry in 2013 was higher than in 2011 (41.6 man-Sievert) and 2012 (39.3 man-Sievert). EDF is proactively continuing with the ALARA approach (As Low as Reasonably Achievable) to manage collective dosimetry in the context of the volume of work generated by the industrial project for the operational fleet in the coming years.

EDF is committed to continuing to lower exposure to radiation below the regulatory limit of 20mSv over 12 rolling months for the whole body. Accordingly, throughout 2013 and over 12 rolling months, none of the participants, whether EDF employees or contractors, received a cumulative dose of higher than 16mSv and eight persons were exposed to over 14mSv (20 in 2012).

In the coming years, given the levels already achieved, efforts will have to be focused on power plants with the poorest dosimetric results, in particular by cleaning their circuits.

## 6.2.1.1.3.4 The nuclear fuel cycle and related issues

The average annual reference volume for nuclear fuel used by reactors in the EDF fleet in France is around 1,200 tonnes (tonnes of heavy metal: natural uranium, enriched reprocessed uranium, plutonium), of which around 1,050 tonnes corresponds to ENU fuel (enriched natural uranium), 100 tonnes to MOX fuel (fuel produced from reprocessed plutonium) and 50 tonnes to ERU fuel (enriched reprocessed uranium).

The nuclear fuel cycle encompasses all industrial operations in France and abroad which enable the supply of the fuel to generate energy in a reactor, then to unload and process it. The cycle can be broken down into three stages:

- front-end (upstream): the processing of concentrates from uranium ore, fluorination (or conversion), enrichment and production of fuel;
- the core cycle, corresponding to the use of fuel in the reactor: receipt, loading, operation and unloading; the fuel spends four to five years in the reactor;
- back-end (downstream), for the reactor fleet in France: interim pool storage, reprocessing of spent fuel, conditioning of radioactive waste and recycling of reusable materials, the interim storage of treated waste prior to disposal, as required by the French law of 28 June 2006 on the sustainable management of radioactive materials and waste.

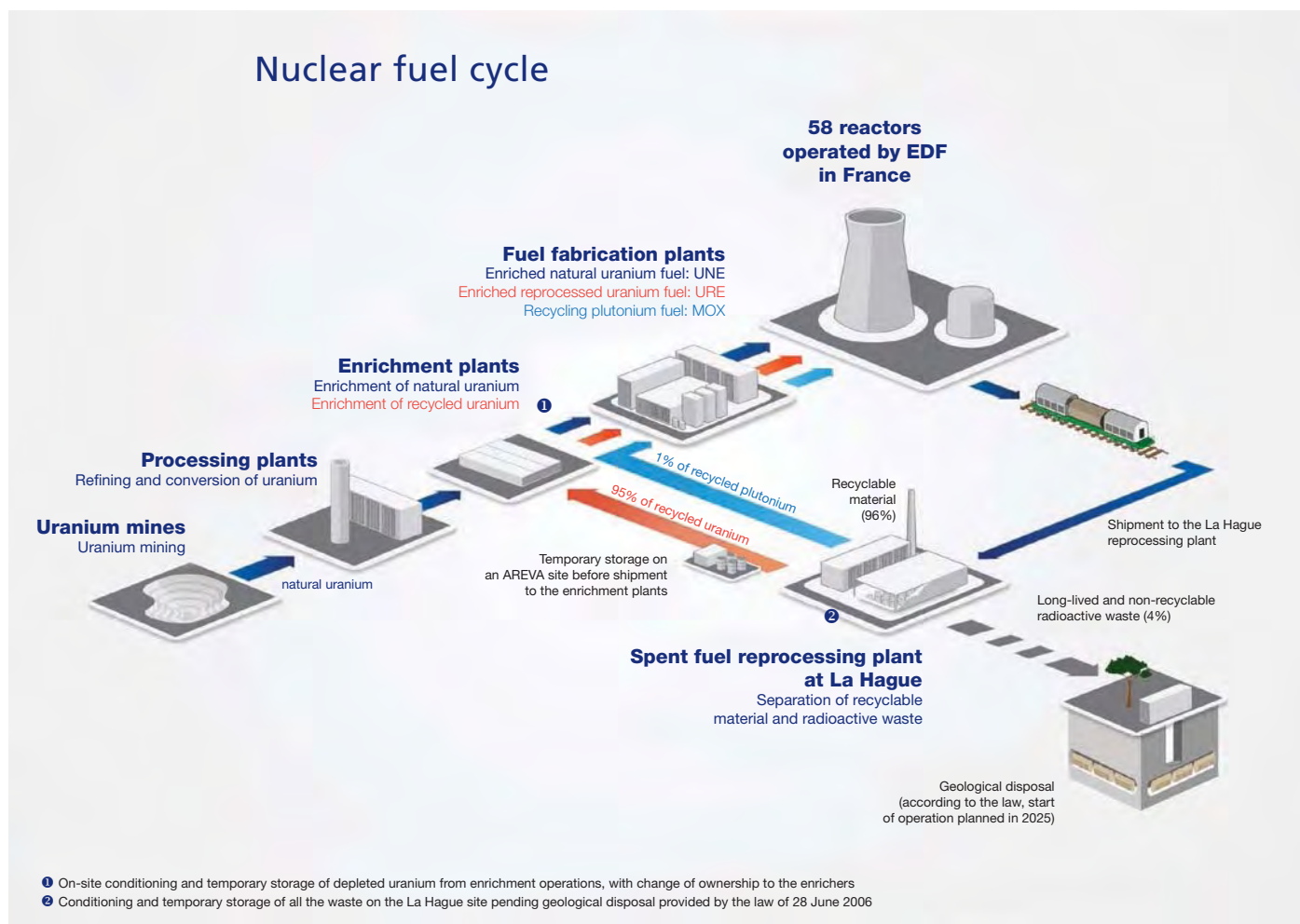
EDF ensures the coherence of all of the operations in the fuel cycle. Generally speaking, upstream and downstream operations are carried out by subcontractors and/or suppliers, generally on the basis of multi-year contracts. EDF carries out the operations for the core of the cycle and acquires most of the raw materials as uranium concentrates ( $U_3O_8$ ). The transformations into more processed products are carried out by industrial operators through services contracts (fluorination, enrichment and manufacture). EDF is the owner in most cases and is responsible for the fuel and materials it uses throughout all the subsequent stages.

### Front-end (upstream)

As part of the integration of the Group, supplies of uranium and associated services (conversion, enrichment) for EDF and its subsidiary EDF Energy are pooled.



The diagram below shows the different stages of the nuclear fuel cycle in France



In order to ensure the continuity and security of the supply of its reactors in France and the United Kingdom, EDF retains overall control of all operations at each stage of the cycle, and manages a portfolio of contracts with a long-term perspective.

By stockpiling fuel at different stages of the front-end stage of the fuel cycle (natural uranium, fluorinated enriched or unenriched uranium, and warehousing of new fuel assemblies), EDF seeks to avoid resorting to the short-term market in the event of production hazards in mines or plants in the cycle. These inventories provide guarantees in terms of supply and price security, on commodity markets and upstream services which may experience significant variations.

### Natural uranium supply

Most of EDF's uranium supplies are guaranteed in the long-term by contracts for periods of 7 to 20 years already signed, or by reciprocal commitments that will ultimately be confirmed by definitive contracts (options guaranteeing access to volumes subject to conditions of price negotiation, for the end of the period of cover). The primary objective of this long-term supply policy is to guarantee the long-term security of EDF's supplies and it also contributes to partial hedging of the price risk.

For its natural uranium needs, EDF has implemented a policy of diversification of its supply sources in terms of the origins and suppliers of its supply sources. This policy helps to strengthen the supplies coming from high-potential areas, such as Australia, Canada and Kazakhstan.

The AREVA Group remains an important supplier. As part of the continuity of decisions made by the Nuclear Policy Council on 21 February 2011, EDF and AREVA agreed in February 2012 to the principles of a partnership dealing specifically with the supply of uranium that contributes to securing EDF's supply in the long-term. In this context, EDF and AREVA signed two contracts in 2012 to ensure the supply of approximately 30,000 tonnes of uranium over the period 2014-2035.

Indexation formulas for portfolio contracts of natural uranium supply include fixed prices (basic prices whether inflated or not) and variable prices (indexed according to market price indexes) and are sometimes limited by floor and ceiling prices. Consequently, the effects of variations in the rise in market prices of natural uranium on supply costs are limited and smoothed out while enabling a benefit from potential decreases in price.

### Fluorination (or conversion)

EDF's needs are covered by the Comurhex plant of the AREVA Group, as well as by other international producers, such as Cameco in Canada and the United Kingdom, Converdyn in the United States and Tenex in Russia.

Contracts signed by EDF in 2013 have strengthened coverage of EDF's long-term needs for conversion services.

### Enriching natural uranium into uranium 235

In order to secure its supply in enrichment services under competitive conditions, EDF secured significant coverage of its needs, from enrichers

such as Urenco (United Kingdom, Germany, the Netherlands, United States) and Tenex (Russia).

In accordance with a long-term contract concluded between AREVA and EDF in 2008, the delivery of enrichment services to EDF by Georges-Besse 2 (the new AREVA facility using ultra-centrifugation technology and replacing the old gas-diffusion facility) began in 2013. Gradually, a significant portion of the enrichment services supplied by EDF will come from this new plant.

As a result, the service coverage of enrichment needs for EDF's fleet in France and the United Kingdom both installed and under construction has thus been reinforced until the post-2020 period on the basis of predominantly fixed-price contracts, decreasing in real terms.

### Enriched reprocessed uranium ("ERU")

This reprocessing makes it possible to recycle uranium from processing spent fuel, which represents approximately 95% of the spent fuel mass. The reloads provided by this reprocessing are carried out in the units of the Cruas power plant.

Reprocessed uranium that is not currently in use is stored in a stable form to be used at a later stage, depending on market trends for natural uranium.

### Fuel assembly manufacturing

Contracts with the fuel assembly manufacturers AREVA NP and Westinghouse were renewed in 2012 for the period 2013 to 2014, and include provisions relating to product development.

Most of EDF's needs are covered by the contract signed with AREVA NP.

### *Managing fuel in the reactor core*

EDF has implemented a strategy aimed at gradually increasing the performance of nuclear fuel for its different series, which has increased fuel energy efficiency and optimised operating cycles in order to increase the availability of the nuclear power plants and optimised operation cycles to increase power plant availability, while ensuring shutdown criteria that are consistent with the seasonal variation of demand. Consequently, EDF chose production cycles of 12 to 18 months for its fleet (see section 6.2.1.1.3.2. ("Operation and technical performance of the nuclear fleet")).

### *Back-end (downstream) in France*

EDF is responsible for what becomes of its spent fuel and how it is processed and for associated waste, without any possibility of transfer of responsibility neither limitation in time. AREVA is responsible for processing and ANDRA is responsible for long-term management operations for the storage of ultimate waste, in accordance with the law of 28 June 2006 on sustainable management of radioactive materials and waste.

EDF's currently adopted strategy with regards to the fuel cycle, in agreement with the French government, is to process spent fuel and to recycle the plutonium separated in the form of MOX fuel. The quantities handled are determined by the amount of recycled plutonium in reactors allowed to load MOX fuel. Recycling capacity has allowed the processing of about 1,000 tonnes of spent fuel per year.

### Processing spent fuel from EDF's nuclear power stations

Spent fuel awaiting processing is temporarily stored underwater in cooling pools, firstly in pools at the plants and subsequently in those of AREVA's reprocessing plant at La Hague. The storage conditions are recognised as being safe over periods spanning several decades. After a period of approximately 15 years, once the spent  $UO_2$  fuel has been unloaded from the reactor, it is processed to separate products that can be recycled from waste. The waste is subsequently conditioned and temporarily stored at this site in specific premises.

The relationship between EDF and AREVA concerning the transport, processing and recycling of spent fuel was formalised for the 2008-2040 period by the above mentioned framework agreement signed on 19 December 2008. A first contractual implementation of this framework agreement led to the signing on 12 July 2010 of a processing-recycling agreement and the protocol for waste recovery and treatment and the permanent shutdown and decommissioning of the plant at La Hague ("RCD-MAD/DEM" protocol).

The processing-recycling agreement covers:

- the transportation of spent nuclear fuel from EDF's power plants to La Hague reprocessing plant, and its intermediate storage;
- the separation of the fuel materials that can be recycled (uranium and plutonium) from high-level waste, and their conditioning;
- the conditioning of radioactive waste extracted from spent fuel;
- the intermediate storage of the conditioned waste pending discharge to a storage centre;
- recycling of plutonium in the form of MOX fuel;
- the oxidation and intermediate storage of reprocessed uranium (see "Enriched reprocessed uranium ("ERU")" above).

For the 2008-2012 period, this agreement sets the prices and quantities of services delegated to AREVA by EDF. In this context, it provides for an increase of the annual quantities of processed spent fuel and MOX fuel to approximately 1,050 tonnes and 120 tonnes, respectively, between 2010 and 2012. Negotiations are underway with AREVA to define treatment and recycling conditions starting in 2013. Pending finalisation of these negotiations, EDF and AREVA have signed an interim agreement which allows industrial operations to continue.

The RCD-MAD/DEM protocol defines EDF's contribution to the costs of decommissioning the facilities at La Hague, for which it sets the full and final amount to be paid to AREVA by EDF. The final payment was made in 2011.

### Storing conditioned ultimate waste

Radioactive waste, depending on its nature, level of radioactivity and the lifespan of its radionuclide components, has been classified into different categories: from high-level waste ("HLW"), to medium- and low-level waste ("MLW" and "LLW"), and finally to very low-level waste ("VLLW"). It is called "long life" when it remains active for more than 30 years and "short life" otherwise.

### *Long-lived high-level waste*

The processing of spent fuel enables the vitrification of long-lived high-level waste, which provides very high-quality packaging with a reduced volume. The waste is then temporarily stored at La Hague in specific facilities. All of the high-level long-life waste produced in this way, corresponding to the operation of the early natural uranium gas graphite plants ("NUGG") and to 40 years of operation of the current PWR facilities, will represent a volume of approximately 6,700 cubic metres.

On the basis of the works and research carried out pursuant to the law of 30 December 1991, the law of 28 June 2006 defines a long-term management programme for long-lived high-level waste, retaining geological disposal as a benchmark solution in its national plan for radioactive materials and waste management: "(...) Following interim storage, final radioactive waste which, for reasons of nuclear safety or radiation protection, cannot be stored at surface level or at a shallow depth, is to be stored in deep geological repositories." The law specifies in particular that "in order to ensure (...) the management of long-lived high- or medium-level radioactive waste, exploration and studies relating to such waste shall be pursued (...) in particular the reversible storage in deep geological formations (...) to choose a site and create a storage centre, so that the application for its

approval (...) can be examined in 2015 and, subject to this approval, the centre can begin to operate in 2025" (for more questions about the Law of 28 June 2006, see section 6.5.6.2.2 ("Specific regulations applicable to basic nuclear facilities")). This schedule was confirmed by the Nuclear Policy Council on 28 September 2012. ANDRA thus took the matter before the National Public Debate Commission on 9 October 2012 to organise a public debate on this project, which took place in 2013.

The report and conclusions of this public debate were published on 12 February 2014. ANDRA is to decide on how to proceed to take account of the expectations expressed, particularly in terms of a more gradual staggering of the project, including a "pilot" storage phase, and to make proposals to the State in response to these expectations. These proposals will be published by mid-May 2014.

When the geological storage project enters the industrial phase, it will have to deal with new challenges in order to produce a facility that is technically, industrially and economically optimised and managed, compliant with the safety requirements published by the French Nuclear Safety Authority ("ASN"), and executed consistently from design to completion. To meet this challenge, the best design principles should be settled on from now on for the project going forward and the best organisation decided to ensure the success of the industrial design and construction phases.

In 2011 ANDRA and waste producers set up a partnership aiming to facilitate completion of the geological storage project by leveraging on all the skills of the French nuclear industry. This partnership encompasses joint studies on targeted issues and an interface between the ANDRA project team and nuclear operators to help them make well-informed, relevant contributions to governance of the project. In 2012 and 2013 ANDRA carried out preliminary studies considering, in particular, the design options proposed by the producers. At this stage, it is studying optimisation measures identified during an analysis of the value to be added jointly with the producers, and it should be in a position to propose an estimate of disposal costs, including these elements, by mid-2014 at the earliest, having taken into account the recommendations of the ASN and the National Evaluation Committee ("CNE"), as well as the outcome of the public debate. After consulting waste producers and the ASN, France's minister for Energy is due to decide on the value of these costs and make a public announcement.

### **Long-lived medium-level waste**

The structures of the assemblies (shells and nozzles, clad pieces, etc.) separated during the processing of spent fuel, constitute long-lived medium-level waste, which is less active than the long-lived high-level waste. They are currently compacted and conditioned in stainless steel containers. The total volume of long-lived MLW, including the waste resulting from the operation of the NUGG fleet and that resulting from 40 years as a benchmark operator of the PWR fleet, will be about 37,000 cubic metres. Unlike long-lived high level waste, it does not generate heat and thus is suitable for faster storage than long-lived high-level waste because it does not require a long cooling off period before storage.

As with long-lived HLW, long-lived MLW is temporarily stored in dedicated installations in La Hague pending decisions on the storage of nuclear waste in deep geological layers, which will be made under the law of 28 June 2006.

### **Long-lived low-level waste**

Long-lived, low-level waste belonging to EDF comes from the decommissioning of the old NUGG reactors (graphite, processing waste - see section 6.2.1.1.3.6 ("Decommissioning of nuclear power plants")). Given its lifespan, this waste cannot be stored in existing surface facilities (see below), but due to its lower level than that of long-lived high- and medium-level waste, the law of 28 June 2006 provides for special subsurface storage. Within the scope of the National Plan for the Sustainable Management of Radioactive Materials and Waste ("PNGMDR") 2010-2012, and in partnership with ANDRA, nuclear operators studied alternative management scenarios that integrate graphite processing and intermediate storage solutions. Having failed to identify sites during an initial search in 2008, ANDRA resumed its search in 2013 and will present the results to the public authorities before year-end 2015.

### **Short-lived medium- and low-level waste and very-low-level waste**

Short-lived medium- and low-level waste comes from nuclear installations (gloves, filters, resins, etc.). It is stored on the surface at the Soulaïnes storage centre, managed by ANDRA, which is designed for low- and medium-level waste.

Very-low-level waste is waste in which the radioactivity is very close to natural radioactivity. It mainly arises from the decommissioning of nuclear installations, primarily from rubble (concrete, scrap, lagging, piping, etc.). This waste is stored on the surface at the Morvilliers storage centre managed by ANDRA.

In order to minimise volumes, some waste is treated beforehand by fusion or incineration at the Centraco plant owned by SOCODEI, a subsidiary of EDF. Following a complete shutdown of the Centraco plant subsequent to an accident which occurred in 2011 in the plant's metallic waste smelter, in June 2012 the ASN authorised SOCODEI to restart the incinerator at the plant, which enabled it to resume the treatment of waste temporarily stored onsite at nuclear plants (see section 6.2.1.1.3.3. ("Environment, safety and radiation protection")). SOCODEI is currently undertaking the actions necessary to restart the waste melting facilities.

### **Consideration of future charges relating to the management of spent fuel and long term management of radioactive waste**

Each year, EDF makes provisions for the downstream side of the nuclear fuel cycle in France (see note 29 to the consolidated financial statements for the year ended 31 December 2013) that cover the management of spent fuel (including fuel in the reactor but not yet irradiated) and the long-term management of radioactive waste.

To assess the future management costs of long lived medium- and high-level waste resulting from the processing of burnt fuel, EDF assumed the use of deep geological storage of waste, pursuant to the law of 28 June 2006, which established the storage of waste in deep geological layers as a benchmark solution.

For long-lived low-level waste from the decommissioning of shutdown NUGG power plants, EDF establishes provisions using the forecast waste production schedules and cost assumptions relating to the means of storage defined by ANDRA.

The cost of removing and storing short-lived medium- and low-level waste and very-low-level waste is determined on the basis of contracts entered into with ANDRA and the various carriers for the operation of existing storage centres. The costs of disposal and storage of waste from the decommissioning of power plants are provided for, with the expenditures relating to operating waste being included in annual expenses.

EDF's provisions as at 31 December 2013 were established in accordance with the provisions of the law of 28 June 2006 and implementation texts published in 2007. According to them, the new geological storage costs should be updated by ANDRA and after advice of the ASN and the nuclear operators, the minister in charge with Energy will make it public end 2014.

### **6.2.1.1.3.5 Preparing for the future of the nuclear fleet in France**

EDF believes that nuclear power constitutes a sustainable and economically efficient response to future energy needs: it allows relative energy independence thanks to considerable uranium reserves worldwide, which are more than sufficient to meet global demand forecasts up to 2035 (IEA, *World Energy Outlook 2013*); in addition, nuclear energy does not emit CO<sub>2</sub>, an essential asset in the context of climate change.

The development of new-generation nuclear reactors (called fourth generation, see section 11.2.1 ("Consolidate and develop a carbon-free energy mix")) will enable the level of consumption of natural uranium to be reduced significantly and the level of these energy reserves to be increased to several thousand years.

In addition, the Nuclear Policy Council met on 28 September 2012 and reaffirmed France's confidence in the French nuclear industry and technology and the continuation of the Flamanville EPR project.



For EDF, preparation for the future of the nuclear fleet rests on the following strategic areas:

- the implementation of technical conditions for the extension of the operational lifespan of functioning nuclear power plants beyond 40 years:
  - continued safety improvements, primarily by integrating lessons learnt from the Fukushima accident in Japan, and
  - implementation of a preventive policy with respect to the aging or obsolete equipment;
- the building of a first EPR unit in Flamanville;
- optimising the EPR by capitalising on Group feedback and the development of new model third-generation reactors (1,000MW and 1,500MW) (see section 6.3 ("Presentation of the EDF Group's international business" – "International nuclear")).

### **Extension of the functional lifespan of operating units well beyond 40 years**

#### **Additional Safety Assessments ("ASA") following the Fukushima accident**

On 15 September 2011, EDF submitted 19 Additional Safety Assessment reports to ASN, one for each of its nuclear sites, encompassing all its existing reactors and all those under construction. The Additional Safety Assessments were produced at the request of the ASN and the European Council, following the Fukushima accident in Japan.

These assessments consisted of re-examining the defences of existing power plants and those under construction, in light of the events in Japan, taking into account issues set out in the specifications drafted by the safety authorities as a direct response to feedback following the accident. Thus, the safety margins were reassessed against the risks of earthquake and flood, when dealing with situations of simultaneous loss of the cooling source and power supplies and the consequences of severe accidents. These assessments also led to inquire whether slight change to the scenarios planned beyond situations taken into account for dimensioning the protection systems, would be enough to make the consequences worse in terms of safety ("off-the-cliff effects") and finally to consider deterministically the extreme situations that substantially exceed those used in the design of nuclear installations and subsequent safety reviews. The safety of EDF's nuclear fleet is based on the principle of continuous improvement: thus, existing and new facilities continuously benefit from feedback from all power plants, and lessons are learnt from accidents that may occur in other parts of the world.

Finally, ASAs also re-examined the rules applied to the field of outsourcing.

These analyses confirmed first and foremost the good level of security throughout the EDF nuclear power fleet, particularly because of the periodic safety reviews carried out in France since the end of the 1980s and since codified by the law on nuclear transparency and safety (the "TSN Law") in June 2006. EDF also proposed additional measures to ASN that would strengthen the consideration of situations that exceed those considered for dimensioning safety systems to contribute to further raising the current safety level of power plants.

In its opinion to the government published on 3 January 2012, the ASN states, on the basis of the analyses of its technical support, that "after the additional safety assessments on priority nuclear facilities, the ASN considers that the facilities examined show a sufficient level of safety, and that it will not thus request the immediate shutdown of any of them". At the same time, the ASN considers that "continuing to operate these facilities requires an increase in their robustness as soon as possible, to an extent beyond that set down in the existing safety margins, to cope with extreme situations".

The ASN also acknowledged the "hard core" concept and the FARN system (see section 6.2.1.1.3.3 ("Environment, safety, and radiation protection")).

The "hard core" will be made up of the plant's structures, systems and components that can withstand situations studied in connection with ASAs (attacks above the levels considered in the safety standards and translating into loss of cooling functions or long-term electricity sources affecting several facilities on the same site).

On 26 June 2012, the ASN made 19 decisions requiring EDF to follow over six hundred technical requirements, which reflect regulatory requirements in the post-Fukushima action plan defined after further safety evaluations. These technical rules require that all nuclear sites must have an organisation and local crisis centres resistant to the occurrence of a large-scale event affecting several installations. For EDF power plants, the specified "hard core" must in particular have "bunkerised" electrical resources in each unit, which must be installed before 2018. In the meantime, a temporary back-up diesel generator was installed on each of the 58 units in the first half of 2013. The decisions published in June 2012 also confirmed the implementation of the FARN (see section 6.2.1.1.3.3 ("Environment, safety and radiation protection")). A complete definition of the "hard core" provision was submitted to the ASN which issued technical rules in that regard in January 2014. The work undertaken in the wake of the Fukushima accident will extend over several years and EDF will continue to mobilise its expertise and the resources of the industrial sector to study and achieve all of these improvements to meet the recommendations of the ASN.

#### **Operating life of EDF's PWR fleet**

The 2006 TSN law (*Transparence et Sécurité Nucléaire*, or "Nuclear Safety and Transparency") does not set a limit on service life, but requires a safety review of the facility every ten years in light of best international practices ("safety standards").

As part of the studies related to the third ten-year inspections of the 900MW series, in early July 2009 the ASN publicly stated that it had not identified a generic problem that called into question EDF's ability to control the safety of its 900MW reactors for up to 40 years.

The ASN's generic opinion is supplemented by an opinion on each reactor. After the ten-year inspection of each reactor of the 900MW series, the ASN issues an authorisation for its restart. Six months after the restart of a reactor following its ten-year inspection, the operator submits a safety review to the ASN, based on which the safety authority decides on additional technical requirements to be implemented by the operator in order to continue to use the relevant reactor for another ten years.

The Tricastin 1 unit is the first to have undergone the entire process required to continue operations for up to 40 years. This has been substantiated by a positive opinion, rendered by the ASN on 4 November 2010, on the unit's suitability to continue operating for an additional ten years following its third ten-year inspection. In line with the technical instructions issued on that occasion by the ASN, EDF will complete the works undertaken to reinforce the Donzère Mondragon hydropower plants by the end of 2014 and thus provide appropriate protection for the nuclear power plant against the risk of flooding in the event of a maximum thousand-year flood.

The Fessenheim 1 unit is the second to have reached the end of this process: it completed its third ten-year inspection in March 2010, after which the ASN gave a positive opinion on 4 July 2011 regarding the unit's suitability to continue operating for an additional ten years; that opinion was given on condition that the base of the reactor be strengthened before mid-2013 and that technical safety provisions be implemented to evacuate decay heat, in a sustainable manner, in the event of loss of the cooling source. The second Fessenheim unit also completed its third ten-year inspection in March 2012, after which the reactor was authorised to restart. For these two units, as for the others, EDF is committed to performing additional work in accordance with the conditions specified by the ASN; in fact, these works were completed in full for the first unit in 2013 (with regard to the decisions concerning Fessenheim, see section 6.5.8.2 ("Future regulations at national level")).



In total, at end 2013, 19 of the 34 900MW units passed their third ten-year inspection<sup>1</sup> and 5 of them (Fessenheim 1 & 2, Bugey 2 & 4 and Tricastin 1) have completed the exchange of information process with the ASN (the ASN's opinion and technical rules have been received).

EDF's industrial strategy is to operate the fleet well beyond 40 years in optimal conditions of safety and performance particularly in view of the significant investment made in connection with the third ten-year inspections and other improvements post-Fukushima. This target is consistent with trends observed around the globe for similar technologies. To this end, EDF has implemented industrial and R&D action plans. Actions are undertaken to renew those major components that could be renewed (see section 6.2.1.1.3.2 ("Operation and technical performance of the nuclear fleet")) and solutions are being studied to demonstrate the capacities of equipment that is considered to be non-replaceable, such as the reactor vessel and containment facilities, to ensure they can operate for up to 60 years.

With regard to the safety upgrades to be carried out to extend the operating life of units beyond 40 years, following an initial meeting with the ASN in September 2010 to present the main strategies, EDF submitted a dossier to the ASN in 2011 for instruction. The ASN had this dossier examined by the Radiation Protection and Nuclear Safety Institute ("IRSN") and by the permanent "reactors" group composed of experts commissioned by it, on 18 and 19 January 2012. The permanent group approved the proposals and recommended that they be completed and in certain cases strengthened.

The ASN's requirements, formulated at the instruction of the permanent group, were received at end June 2013. In October 2013, EDF submitted to the ASN an initial draft of a dossier setting out its strategies to improve safety at the 900MW units in preparation for their fourth ten-year inspection, thus commencing the regulatory safety inspection process.

A second version of this file was subsequently forwarded in February 2014. The ASN stated that it will issue an initial position in 2015 on the major strategic decisions of the safety review relating to the fourth series of ten-year inspections of the 900MW reactors and a definitive position in 2018-2019 on the "generic" phase of this review, the final operation authorisation after 40 years decisions being taken reactor by reactor.

While respecting the main priority, that of safety, an extension to the operating lifespan of the current nuclear fleet would enable:

- the most to be made of the industrial asset base it represents;
- the deferral of financial flows associated with decisions concerning investment in these new plants beyond 2025; and
- spreading the time period for the commissioning of new plants, which is beneficial from an industrial point of view.

## An update on the Flamanville 3 EPR (European Pressurized water Reactor) project

### Architect-assembler engineering

To complete the Flamanville 3 project, EDF is performing the architect-assembler role itself; this matches the position adopted by EDF for the development, renovation and decommissioning stages of its power generation assets and is based on its internal engineering capabilities. This role allows the direct control of the design and operation of its power plants, the organisation of development projects, the schedule and costs of construction, its relations with the ASN and the direct integration of operating feedback.

### Project launch phase

In October 2004, EDF's Board of Directors decided to undertake the process of building an EPR nuclear generation unit in France located in Flamanville that was consistent with the programme law that set energy policy guidelines (the so-called "POPE Law").

A public debate was organised by the French Commission for Public Consultations ("CNDP") concerning the construction of an EPR reactor initial series unit. The authorisation decree creating the Flamanville 3 nuclear power plant was issued on 11 April 2007. On 28 September 2012, the Nuclear Policy Council reaffirmed the continuation of the EPR project in Flamanville.

Several appeals were made by associations against some administrative authorisations, one of which is ongoing at the Council of State (*Conseil d'Etat*) (see section 20.5.1 ("Legal proceedings concerning EDF")).

### Studies

Completion studies are ongoing to produce the working documents and ensure the smooth running of the construction on-site.

### Interaction with the Nuclear Safety Authority

In October 2010, EDF submitted to the Nuclear Safety Authority (ASN) a first working version of the Flamanville 3 commissioning file to allow them to begin studying it ahead of completion. The submission of the final version of this document is required one year prior to the loading of the reactor with fuel, i.e., by 2015. The ASN also believes that the changes made by EDF to the control systems architecture of the EPR are satisfactory with regard to the request made in October 2009 for supporting documentation and review of alternative design features.

### Supply and work contracts

In 2013, work continued to secure the construction budget and contracts were entered into with the main suppliers for the remaining works required up to the commissioning stage. Around 70% of the construction budget is represented by the six main contracts (boiler, civil engineering, control systems, piping, offshore works and discharge tunnel, generator-condenser-water station). The main contracts, with the exception of the boiler contract signed with AREVA, were awarded following international calls for tender.

### Equipment manufacturing

The manufacture of the equipment required for construction is now well advanced. The first major components were delivered on-site in 2010, while major components for the turbine section were delivered in 2011, and most of the equipment for the nuclear section will be available in 2014.

The reactor vessel was delivered on site in October 2013 and installed in the reactor building in January 2014.

### Work on site

After a preparatory phase which began in summer 2006, the construction of the EPR reactor Flamanville 3 has been underway since December 2007 (first concrete poured). In 2013, important steps in the construction were completed:

- the reactor dome was installed in July 2013, following introduction of the polar crane;
- installation of the equipment access hatch in the reactor building;
- completion of concreting for the shells of ancillary nuclear buildings and fuel buildings;
- installation of the waste storage tank and the backup reservoir, known as the In-Containment Refuelling Water Storage Tank ("IRWST"), for leak tests;
- completion of casing for the cooling pool in the fuel building;
- installation of interconnecting steam distribution piping in the machine room;
- connection to the 400kV network and commissioning of the withdrawal transformer;

1. Of the six ten-year inspections of the 900MWe units carried out in 2013, two units were recoupled in the first weeks of 2014.

- increasing the output of mechanical and electrical assemblies with the installation and staged commissioning of power supply and of control systems cabinets for the nuclear island.

Following the replacement of the support brackets on the polar crane for reactor building maintenance, the work to fill the enclosure with concrete resumed at the beginning of 2013. At end 2013, the civil engineering work was close to completion and over 50% of the electro-mechanical equipment was in place.

### Commissioning schedule and budget

In December 2012, EDF announced an increase to the Flamanville 3 project construction costs, the total cost reaching €8.5 billion in 2012. In addition to the "first-in-series" effect (Flamanville 3 is the first nuclear power plant to be built in France for 15 years), certain factors have put additional pressure on its cost. Thus, this revaluation takes into account additional expenses related to industrial hazards, notably replacing polar crane support brackets for the reactor building and its impact on the development of the work schedule. EDF also included additional engineering studies, the integration of new regulatory requirements (including the decree on equipment under nuclear pressure) and lessons learnt post-Fukushima.

These elements were confirmed at the end of 2013 as was the objective of achieving first marketable production in 2016.

### Result of the Additional Safety Assessment for the EPR

The Additional Safety Assessment was also conducted on the EPR under construction, bearing in mind that this reactor draws its robustness from its initial design. The response times to be implemented are compatible with the schedule.

Regarding the EPR, the analysis by the ASN's permanent group of experts on 8, 9 and 10 November 2011 shows that the design of the power plant currently under construction in Flamanville already affords increased protection in terms of serious accidents of the type witnessed in Fukushima. In this context, the permanent group consider that EDF must identify, from the planned equipment, that equipment intended for the "hard core" relating to preventing and limiting the consequences of a serious accident. This analysis was confirmed by the ASN report on the Additional Safety Assessments.

### Penly 3

On 30 January 2009, the French President confirmed the construction on the Penly (Seine-Maritime) site of a second EPR-type nuclear reactor, which will be built by EDF. The work carried out as part of the preparation for this project was suspended in mid-2012 in anticipation of a redefinition of the basic outlines of this project.

### 6.2.1.1.3.6 Decommissioning of nuclear power plants

EDF takes full regulatory, financial and technical responsibility for the decommissioning of its nuclear power plants. For EDF, the issue is to demonstrate, through the decommissioning process, its control of the entire life cycle of the means of nuclear power generation.

The decommissioning of nuclear power plants involves three levels, according to a classification defined by the International Atomic Energy Agency ("IAEA") in 1980:

- level 1: shutdown of the power plant, fuel unloading, draining of circuits (99.9% of the radioactivity is eliminated), followed by final shutdown: disassembly of decommissioned non-nuclear facilities, access limited to facilities under surveillance;
- level 2: dismantling of non-nuclear buildings and nuclear buildings excluding the reactor building, conditioning and evacuation of waste to storage facilities, isolation and containment of the section of the facility surrounding the reactor, which is kept under surveillance;

- level 3: full dismantling and removal of the reactor building, materials and equipment that is still radioactive; monitoring is no longer necessary. After these operations, the site can be used for industrial purposes once again.

In general, the operations leading to level 1 and then to level 2 are conducted consecutively over a period of time of approximately five to ten years after the reactor ceases production. Operations leading to level 3 last around ten to fifteen years. Furthermore, conventional buildings can be kept and used during decommissioning.

The reference scenario adopted by EDF since 2001 is a decommissioning without a waiting period, in line with French regulations, which provide for a decommissioning "in as short a time as possible between the final shutdown of facility operations and its dismantling" (see Decree of 7 February 2012 laying down general rules for basic nuclear installations).

The regulatory process for decommissioning is governed by the TSN Law and its implementing decree no. 2007-1557 of 2 November 2007 (see section 6.5.6.2.2 ("Specific regulations applicable to basic nuclear facilities")). It is characterised, for a given site, by:

- a single decree allowing for complete decommissioning, following agreement from the ASN;
- key meetings to be held with the ASN, integrated in a safety reference system relative to final shutdown and decommissioning;
- an internal authorisation procedure for the operator, independent of the operational staff and audited by the ASN, and allowing work to be started within the authorised safety reference limits;
- preliminary phases prior to obtaining the decree during which:
  - at least three years before the final shutdown, the operator must provide a set of documents to its supervisory authorities and the ASN (Article 37 of Decree no. 2007-1557) outlining the decommissioning procedure (Article 40 of the Application Decree no. 2007-1557);
  - consultations and public inquiries must be organised (Article 38 of Application Decree no. 2007-1557).

### Decommissioning of first-generation power plants that have been shut down

As regards power plants that have been shut down (a pressurised water reactor ("PWR"), Chooz A; a heavy water reactor ("HWR"), Brennilis; a fast-neutron reactor ("FNR"), Creys-Malville; and six graphite-gas-moderated reactors ("NUGG") in Bugey, Saint-Laurent and Chinon), EDF has chosen to fully decommission them by 2040, in line with the commissioning date for the low-activity and long-life ("LLW") storage by the ANDRA, as currently foreseeable. The sites remain the property of EDF, and they will remain under its responsibility and monitoring.

Given its role as responsible owner, EDF will act as the contracting authority for the decommissioning.

The decommissioning of EDF's nine shutdown first generation units will produce approximately 1,000,000 tonnes of primary waste materials, of which 80% is standard waste material and none is high-level waste. The remaining 20% comprises very-low to medium-level waste including about 2% waste requiring the availability of a storage facility for long-lived low-level waste and long-lived medium-level waste (CIGEO deep geological storage plan).

Existing means of very low-level and low- and medium-level waste disposal will be supplemented by:

- the project to build a packaging and interim storage installation for radioactive waste (*Installation de conditionnement et d'entrepôt des déchets activés*, or "ICEDA"), launched at the Bugey site. The public inquiry, held in June and July 2006, led to a favourable opinion and a decree on 23 April 2010 authorised EDF to build the facility. However, at the same time, appeals against the decree and the construction

permit have been lodged. The Administrative Court of Lyon annulled the construction permit for the ICEDA in December 2011 as it did not comply with local planning rules in the town where it was to be built. The decision by the Administrative Court in Lyon confirming this ruling was quashed by the Council of State ("Conseil d'État") on 24 March 2014. The case has been referred back to the Administrative Court of Appeal in Lyon. Accordingly, work has been suspended since January 2012. At the administrative level, the local zoning plan for the town of Saint-Vulbas was reviewed in December 2012: it is currently being appealed at the Administrative Court of Lyon. However, a new construction permit was granted to EDF by order of the prefect on 21 August 2013, against which two appeals were lodged in mid-October (see section 20.5.1 ("Legal proceedings concerning EDF"));

- the long-lived LLW storage facilities provided for under the law of 28 June 2006 concerning the long-term sustainable management of radioactive materials and waste. As an initial search for sites by the ANDRA in 2008 was unsuccessful, after submitting a report to the French government at the end of 2012, the ANDRA resumed the search in 2013 and must present its results to the authorities before the end of 2015 (see section 6.2.1.1.3.4 ("The nuclear fuel cycle and related issues")).

The decommissioning process for the Chooz A and Creys-Malville plants continues. Chooz A is a pressurised water reactor, a technology similar to the 58 units in operation, but an older design. The situation of the reactor, which is in a rocky cave in the hillside, also creates very specific conditions.

Concerning Brennilis, pursuant to an agreement<sup>1</sup> of 2008 with the CEA, EDF has become fully responsible for its decommissioning. EDF submitted a new application to the ASN for authorisation to decommission the Brennilis plant in late July 2008. This submission followed the decision of the Council of State on 6 June 2007 to cancel the decree authorising EDF to carry out the complete decommissioning of the reactor. The reason for the cancellation was the failure to make available to the public, before the publication of the decree, an impact study for the deconstruction of the plant. Following this decision, EDF took steps in 2007 to ensure that the facility would not pose a threat while the decommissioning work was halted. The public inquiry was held from 27 October to 11 December 2009. The inquiry gave an unfavourable opinion of the project on 15 March 2010 that was, however, accompanied by a recommendation to carry out certain works. A decree published in the *Journal Officiel* on 28 July 2011 enabled the partial decommissioning of the power plant to be resumed and finalised. The decommissioning included in the scope of the decree is ongoing. However, final and complete decommissioning will be covered by an additional decommissioning decree, for which EDF lodged a request on 29 December 2011. In accordance with the opinion that ASN had expressed, the Mission for Nuclear Security and Radiation Protection notified to EDF in December 2012 that the inquiry for the application for authorisation to complete the decommissioning Brennilis cannot be pursued in its current state due to the cancellation of the ICEDA building permit (see section 20.5.1 ("Legal proceedings concerning EDF")).

As for the six NUGG reactors, EDF's decommissioning programme involves directly removing graphite from its long-lived low-level waste storage centre. However, extending the deadlines for ANDRA to make available the storage centre delays the progress of the work.

### Decommissioning costs

#### EDF nuclear power plants

Since the beginning of operations at its power plants, EDF has made provisions to cover decommissioning operations, engineering, surveillance and maintenance of facilities, and site security (see section 20.1 ("Historical financial information"), note 29.1.3 to the consolidated financial statements for the year ended 31 December 2013). The accrued amounts correspond to EDF's estimate for decommissioning costs incurred in order to reach level 3. Since the end of 2007, in accordance with the provisions of the Law of

28 June 2006 and its implementing legislation, the part corresponding to the management of the long-term radioactive waste from decommissioning has been grouped with all provisions of nuclear waste. Therefore, the amounts provided for decommissioning concern strictly industrial operations only.

As regards the first generation plants that were shut down, their technologies are very different from one another (NUGG, HWR, PWR and FNR). Decommissioning costs were assessed based on estimates made in 2008 and reviewed in 2012 taking into account accumulated industry experience, regulatory and technical issues encountered and the development of technical and regulatory assumptions. Unlike the PWR facilities that are in operation, first-generation reactors at shutdown are very different from each other and the estimated decommissioning costs have been established reactor by reactor. There is a provision for decommissioning in the EDF financial statements (see section 20.1 ("Historical financial information"), note 29.1.3 to the consolidated financial statements for the year ended 31 December 2013).

With respect to PWR reactors, provisions were made for all 58 operational units, on the basis of an estimated amount of €<sub>2013</sub>309 per installed kilowatt. This amount covers the decommissioning operations, excluding management of waste from decommissioning.

The detailed decommissioning cost estimate prepared in 1999 using the representative example of the Dampierre site was updated by EDF in 2009 to take into account the feedback of the dismantling operations carried out by EDF on its first-generation plants and level 3 decommissioning operations (full dismantling and removal of the reactor building, materials and equipment that is still radioactive) carried out by other operators, mainly US operators. When this update took place, an analytical approach verified that the decommissioning costs per installed kilowatt for the four 900MW units at the Dampierre site could indeed be extended to the entire PWR fleet and the provisions made for the decommissioning of the 58 operational units did not need to be reviewed.

As part of the update of this Dampierre study in 2009, EDF commissioned an inter-comparison study from the La Guardia firm based specifically on the Maine Yankee reactor. The results showed firstly that the estimates made by La Guardia and by EDF were very similar, and secondly that any inter-comparison exercise requires in-depth checking of the scope and assumptions considered. In particular, it is advisable to take account of the specific requirements laid down in each country, the level of standardisation and homogeneity of the fleet, the subsidiary, the number of units per site, any industrial re-use of the site, and so on. EDF, as the sole owner, operator, architect-assembler, benefits from the knowledge of its plants and from the expertise of an engineering company which specialises in this area.

Furthermore, an international comparison conducted by the OECD in late 2003 showed that EDF's estimates are consistent with the estimates made by other countries. With the exception of a few specific cases (Sweden, Japan), the costs advanced by each party are actually fairly similar, with France at 10% to 15% below the average, mainly explained by the series effect that can be reasonably expected from the decommissioning of the PWR fleet.

Audits on the tools for evaluating the end-of-cycle obligations concerning EDF, AREVA and the CEA will take place under the aegis of the DGEC from 2014. These audits are stipulated by the law of 28 June 2006 on the sustainable management of radioactive materials and waste and the decree of 23 February 2007 on secure financing of nuclear expenses.

#### Third-party installations: La Hague (AREVA) and Phénix (CEA)

As the responsibility for the decommissioning of facilities is incumbent on their operator, EDF wished to free itself financially from these operations.

Similarly, the agreements signed with AREVA in July 2010 and the CEA in late 2008 clarified the financial responsibilities of both parties. Following a cash payment, EDF was released from any obligation for the decommissioning of the Phénix power plant, which has been shut down, and La Hague power plant.

1. Pursuant to the same agreement, the CEA has become fully responsible for the decommissioning of Phénix.

## 6.2.1.1.3.7 Assets available to cover long-term nuclear commitments (outside the operating cycle)

Dedicated assets have been gradually built up since 1999 to cover long-term nuclear commitments. The Law of 28 June 2006 and its implementing regulations identified provisions that are not associated with the operating cycle and must therefore be covered by dedicated assets (see section 20.1 ("Historical financial information"), note 48.5 to the consolidated financial statements for the year ended 31 December 2013).

For EDF, these provisions relate to:

- the decommissioning of nuclear power plants (€13.0 billion as at 31 December 2013);
- the long-term management of radioactive waste (€7.5 billion as at 31 December 2013);
- the part of the provision for the last cores on future long-term management costs for radioactive waste (€454 million at 31 December 2013).

The provision for management of used fuel and the share of the provision for last cores relative to the cost of non-irradiated fuel are part of the operating cycle and are therefore excluded from the asset base for coverage.

The Law of 28 June 2006 had set a deadline of five years so that the portfolio value of the dedicated assets is at least equal to the value of provisions, i.e., no later than June 2011. The NOME law of 7 December 2010 granted operators an exemption extension of five years for complete coverage of liabilities by assets, or no later than June 2016, if the operator meets the conditions prescribed by law, which is true of EDF.

On 8 February 2013, the French State granted in compliance with the decree of 23 February 2007 the authorisation to allocate the CSPE receivable to the dedicated assets. Following this authorisation, the Group decided to allocate the entire receivable representing the cumulative CSPE as of end 2012 totalling about €4.9 billion. Accordingly, EDF was able to subtract around €2.4 billion in financial assets from its dedicated assets portfolio resulting in a net allocation of €2.5 billion and thus reaching a 100%

coverage ratio of the long-term nuclear-related commitments, ahead of the June 2016 deadline set out in law (see section 20.1 ("Historical financial information"), note 3.4 to the consolidated financial statements for the year ended 31 December 2013).

At 31 December 2013, the dedicated assets represented a realisable value of €21.7 billion, compared to €21.0 billion in provisions (see section 20.1 ("Historical financial information"), note 48.3 to the consolidated financial statements for the year ending 31 December 2013).

After the decree of 24 July 2013 amending the decree of 23 February 2007 on secure financing for nuclear expenses, EDF set up EDF Invest in July 2013 to manage the portfolio of unlisted investments within the EDF dedicated assets. These unlisted investments refer to three kinds of assets: infrastructures (mostly), real estate and private equity. The objective of EDF Invest is to manage around €5 billion of unlisted investments over the long term and to thus represent around a quarter of the total dedicated assets.

## 6.2.1.1.4 Hydropower generation

The electricity generated by EDF from its fleet of nuclear power plants represented, in 2013, 9.2% of its total electricity generation net of pumping.

### 6.2.1.1.4.1 EDF's hydropower generation fleet

EDF's hydraulic fleet in mainland France comprises 436 power plants:

- approximately 11% of plants have unit power of over 100MW; they represent 58% of total power generation;
- around 50% of plants have a unit power of less than 12MW and represent less than 8% of total production.

The average age of the fleet is 69 years.

The table below summarises the maximum power of the hydropower plants, as well as their net generation and consumption by pumping operations for the last three years, according to whether their capacity is more or less than 12MW.

	31/12/2013	31/12/2012	31/12/2011
<b>Hydropower plants with capacity lower than or equal to 12MW</b>			
Maximum capacity (MW)	997.0	996.2	996.2
Net pumping generation (TWh)	3.2	2.6	2.2
Consumption by pumping operations (GWh)	47.1	40.3	16.1
Generation including pumping (TWh)	3.2	2.6	2.2
<b>Hydropower plants with capacity greater than 12MW</b>			
Maximum capacity (MW)	19,029.4	19,013.3	19,011.1
Net pumping generation (TWh)	39.4	32.0	24.6
Consumption by pumping operations (GWh)	7.0	6.7	6.9
Generation including pumping (TWh)	46.4	38.6	31.5
<b>TOTAL MAXIMUM CAPACITY (GW)</b>	<b>20.0</b>	<b>20.0</b>	<b>20.0</b>
<b>TOTAL NET PUMPING GENERATION (TWH)</b>	<b>42.6</b>	<b>34.5</b>	<b>26.8</b>
<b>TOTAL GENERATION INCLUDING PUMPING (TWH) <sup>(1)</sup></b>	<b>49.6</b>	<b>41.2</b>	<b>33.7</b>

(1) Including tidal power plant on the river Rance (449GWh).



In terms of mainland France, the power plants are mainly located in mountainous areas in the Pyrenees, the Alps, the Massif central and the Jura, as well as on the Rhine. In all, they represent an installed capacity of approximately 20GW (excluding French overseas departments and Corsica), or 20% of EDF's fleet, for an annual generation capability (i.e., for average hydraulicity, see glossary) of approximately 43.5TWh, which makes France the second-largest generator of renewable electricity in the European Union.

The various hydropower infrastructures were designed to optimise the uses of water resources in the valleys. Given the size and variety of its fleet, EDF has infrastructures which are able to respond to all types of desired uses, at base or peak levels, which are optimum due to their flexibility: run-of-river

Category	Power	Average generation capability over 50 years
Run-of-river	3.6GW	17.1TWh
Lake	8.8GW	15.8TWh
Pondage	3.1GW	8.8TWh
Tidal	240MW	0.5TWh

The EDF energy transfer pumping stations in mainland France represent a capacity of 4.3GW for a generated quantity in 2013 of 4.9TWh. The generated capacity of STEP's related to upstream contributions in the upstream basins is 1.1TWh on average.

## 6.2.1.1.4.2 Hydropower safety

Hydropower safety comprises all the provisions made when designing and operating hydropower systems to ensure the protection of people and goods against the dangers associated with water and due to the presence or operation of facilities. Hydropower safety is the main, ongoing concern of the producer (see section 4.2.2.2 ("Management of hydropower safety risk")). It involves three main activities:

- managing operational risks: changes in the levels of bodies of water or in downstream water flows from the facilities;
- management of operations during flood periods, in order to ensure safety with respect to facilities and people;
- the prevention of a major risk, such as the breach of a dam, by means of monitoring and maintenance of installations under the supervision of public authorities, mainly the French regional environment, land use and housing authorities (*Directions Régionales de l'Environnement, de l'Aménagement et du Logement*, or "DREAL"). Among the most important dams, 68 are subject to a specific administrative procedure (*Plan Particulier d'Intervention*, or "PPI") implemented by the relevant prefect.

EDF performs regular monitoring and maintenance of its dams, including continuous testing. Real-time analysis and reports for each site with several parameters (settlement, pressure and outflow measures associated with a visual inspection of concrete and the control of mechanical parts, etc.) enable EDF to regularly prepare reports on the condition of its dams. Thanks to a series of sensors, EDF's teams in Grenoble and Toulouse can analyse the most important or the least accessible dams remotely and, if necessary, in real time.

In addition, a comprehensive check-up of each of the 150 largest dams is carried out every ten years, as well as a drain down or a structure inspection using underwater equipment. These operations are carried out under the supervision of public authorities (DREAL and STEEG – *Service Technique de l'Énergie Électrique et des Grands Barrages*, or Electrical Power and Large Dams Technical Service). In 2013, EDF carried out 16 complete technical examinations at these sites.

At an organisational level, the hydropower safety inspector, who reports directly to the Chairman and CEO of EDF, drafts a report each year intended for the EDF Chairman and hydropower safety partners. The aim of this report, after analyses, inspections and assessments performed by the hydropower

infrastructures, like on the Rhine, which have no storage capacity and generate energy according to water supply; locks with average-sized water reserves (smaller than lakes), for isolated use during the week or during the day, to cover peak times; lake infrastructures (seasonal reservoirs) located in mountainous areas (Alps, Massif central and the Pyrenees); plants to transfer energy by pumping ("STEP") which pump water from the downstream basin to the upstream basin at low price times, to build up reserves which will be used to generate energy at peak times (the water will then be "turbined" from the upstream basin to the downstream basin); a tidal plant on the River Rance which, using the up and down movement of the tides, provides a very regular supply of electricity.

safety inspector, is to give an opinion on the level of hydropower safety of the Group's facilities, and to provide areas for thought and development, so as to ensure improvement and consolidation. This report is published on the Group's website. Hydropower safety is an absolute priority for hydropower generation, and has been the catalyst for the substantial development in operating practices and policies adopted over the last few years. It is a determining factor in influencing decisions relating to the maintenance of EDF's assets.

These provisions are regularly checked by the monitoring bodies (DREAL at the regional level, DGEC centrally, supported by the *Bureau d'Études Techniques et de Contrôle des Grands Barrages*, or the bureau for technical and control studies for large dams), according to the procedures set out by Decree no. 2007-1735 of 11 December 2007 on hydropower structure safety. This decree classifies hydropower structures (dams, embankments, canals, etc.) by type and sets the obligations of the owner, operator or concession holder, as regards their operation, safety and surveillance.

## 6.2.1.1.4.3 Performance of the hydropower generation fleet

### A highly automated fleet

In order to take advantage of the flexibility of its hydropower generation facilities, for some years now, EDF has been initiating ambitious programmes involving automation, remote control of hydropower plants and centralised management of the valleys. Currently, the largest plants in EDF's hydropower fleet, representing over 15GW, i.e., around 75% of its installed hydropower capacity are remote-controlled from four control centres capable of changing their operating programme at any time in order to respond to the needs of the electrical system and to economic opportunities arising on the electricity market.

### Technical performance of the fleet and hydropower conditions 2013

Hydropower generation may witness substantial variations from one year to the next, depending on climatic fluctuations in water resources. 2013 was marked by particularly good hydrological conditions, with hydropower generation in 2013 higher than in 2012 and close to the maximum recorded in the last 25 years.

Hydropower electricity generation before the deduction of the power needed to operate pumped storage plants was 49.6TWh in mainland France and 42.6TWh in net terms.

The overall availability of the hydropower fleet, i.e., the percentage of time over the year during which the power plants are available at full power, was approximately 79.4% in 2013, down by 2.7 percentage points. In 2013, 16.2% of the unavailability of EDF's hydropower fleet was due to asset maintenance work (scheduled unavailability) mainly as part of the "SuPerHydro" renovation programme (see below), while 4.4% of unavailability was due to work delays and breakdowns (unplanned unavailability). The demand response rate, i.e., the rate of success in responding to start-up orders received by the power plants, has been over 99% for several years.

Since 2006, EDF has carried out a technical update and improved maintenance programme of the sites to maintain a high level of hydropower safety and preserve the technical performance of its fleet in the long term. The total budget to renovate the facilities was reassessed in 2011 to take into account the breadth of work, and now stands at around €900 million for the 2007-2015 period, of which €800 million is dedicated to the safety of facilities. This renovation programme for hydropower facilities, known in French as *Sûreté et Performance de l'Hydraulique* (Hydropower Safety and Performance), or "SuPerHydro", will, temporarily while the work is ongoing, entail longer programmed outages (resulting in a drop in overall availability of several points) than those recorded in recent years. The programme had an implementation rate of 88% at the end of 2013, and had no effect either on the unplanned unavailability of the hydropower fleet's generation capacity or on the rate of response to demand, which remained at a good level. At the end of the programme, EDF intends to continue with these investments to offset the natural ageing of its fleet and maintain its performance and safety.

In 2011, EDF began another ambitious modernisation project to improve the industrial performance of its hydropower fleet, for an overall amount of €840 million by 2021. This project, known as "RenouvEau", aims to modernise the maintenance and operation of the hydropower fleet, specifically via the renovation of electrical facilities, control monitoring and computerised management, maintenance and operating tools. It makes it possible, thanks to modernised and standardised maintenance and operating practices (e-operating, e-monitoring, computer-aided maintenance management, etc.) to improve the operating performance of the hydropower fleet, in particular its generation capacity, its availability and its contribution to system services. After testing on several sites in the last two years, the various components of this project move on to the industrial phase in 2013 with a view to a complete rollout from early 2014.

#### 6.2.1.1.4.4 Hydropower generation issues

The hydropower segment is currently striving to address the following issues: renew concessions, manage access to water and development.

##### Concessions renewal

Hydropower generation facilities are operated through concessions granted by decree, for facilities exceeding 100MW, or by the prefect, for facilities whose capacity is between 4.5MW and 100MW; and permits granted by the prefecture for facilities of less than 4.5MW.

EDF currently holds the majority of the hydropower concessions in France.

Concessions have an initial term of 75 years, pursuant to the French Law of 16 October 1919 with respect to hydropower, and are in general renewed for terms of 30 to 50 years. The renewal of these concessions provides an opportunity to update the specifications in order to incorporate new requirements for water resource management and to take into account the provisions set forth in the latest specifications annexed to Decree no. 99-872 dated 11 October 1999, as amended by Decree no. 2008-1009 dated 26 September 2008. This decree sets the rules and procedures for a hydropower concession application in a competitive market. It sets three selection criteria for future concession holders: (i) ensure energy efficiency of the operation; (ii) balanced management of water resources; (iii) better economic and financial conditions for the grantor. The new procedure to

appoint operators will now be for a duration of five years (compared with 11 years currently<sup>1</sup>).

The Act of 30 December 2006 (Amending Finance Act of 2006) provides for the introduction of a fee proportional to revenues generated from sales of electricity "upon the renewal of hydropower concessions". The Grenelle 2 law of 12 July 2010 provides that the fee shall not exceed a limit set on a case-by-case basis by the licensing authority as part of the process.

Under current regulations, the former concession holder does not receive any compensation if an expiring concession is not renewed after this procedure. Upon expiration of the concession, all of the state-owned installations (from the dam to the turbine) must be in "good working condition and maintenance". The amended finance law for 2006 provides for the reimbursement of unamortised expenses related to modernisation works or to works that permit the expansion of the generation capacity, provided that these works were made during the second half of the concession.

However, the concessions whose term is anticipated by the French government will be compensated. This compensation from the government is intended to offset the shortfall for the outgoing operator due to the early termination of the operation of the concession, under the provisions of the concessions specifications.

In this context, the government decided to organise the management of concessions approaching expiry and successively considered a number of approaches:

- On 22 April 2010, the government announced the scope of the concessions in mainland France that will be renewed through a call for tender. Ten concessions with total power of 5,300MW, representing some 20% of the French hydropower fleet, will thus be renewed (including 200MW of requested surplus capacity). The government wishes the early termination of 13 concessions, including 12 held by EDF, in order to create groupings by valley.

In all, the concessions held by EDF and affected by these renewals represent licensed capacity of about 4,300MW and an average production of nearly 7TWh per year, or 15% of EDF's hydropower generation, of which about half with early termination (about 2,150MW and 3.5TWh).

Between 2015 and 2025, approximately another 1,000MW and 3TWh will expire.

- In November 2012, following the proposal of the President of the French National Assembly's Committee on Economic Affairs, a fact-finding parliamentary mission was set up to study hydropower dams. The *rapporteurs* of this mission released their findings on 17 September 2013, outlining the pros and cons of three alternative scenarios for open competition: extension of the concessions being justified by the existence of a service of general economic interest, operation of hydropower concessions by a government body and changing from a concessions regime to an authorisations regime.
- On 27 August 2013, in response to a case referred to the French Court of Auditors on 21 June 2013 on the renewal of hydropower concessions, the Ministers for the Economy and Finance, for the Budget and for Ecology, Sustainable Development and Energy proposed opening the scheme to competition using the "barycentre" approach, which consists of combining concessions prior to open competition, so as to create a coherent whole with a single expiry date by weighing the expiry dates for various contracts in proportion to the revenues generated.

In this context, EDF is preparing to submit its best offer for each concession, combining improved energy efficiency, attention to aquatic environments, compensation of the government and municipalities through fees and land development, while ensuring the safety and security of the operation. To succeed, EDF is relying on its full expertise in operations and engineering as well as in the field of environmental protection.

1. These durations cover the full length of the open competition process to designate a concessionary, from the call for tender to the designation of the selected candidate.

### Managing access to water

The 239 dams-reservoirs operated by EDF in France enable the storage of 7.5 billion cubic meters of water, i.e. 75% of national surface storage reserves.

The hydropower installations have positive effects on both economic development and the environment, and EDF has a proactive management policy in relation to its hydropower resource, which it enforces in cooperation with various water stakeholders. EDF has entered into agreements with local elected officials, farmers, fishermen, managers of tourist sites and manufacturers.

EDF gives preference to consultation with local users. This process aims first at measuring the real effects of hydropower operations on the environment and on other uses, before attempting to minimise these effects when technically possible and financially reasonable.

As a result, 700 million cubic meters of water can be released each year from the dams according to needs, to satisfy uses other than the electricity generation (drinking water supplies, to supplement periods of low flow, irrigation, production of artificial snow, water sports, etc.).

The law of 30 December 2006 concerning water and aquatic environments contains provisions relating to the management of water resources (in particular, the value of reserved flows<sup>1</sup> and the flexibility of hydropower plant operations). EDF estimates that these provisions will have limited medium-term consequences for its hydropower activities (see section 6.5 ("Legislative and regulatory environment")).

Generally speaking, since the start-up of the first generation facilities, EDF has endeavoured to better understand the impact of its generation activities on the environment, especially in terms of biodiversity (see section 6.6.3.6 ("Helping to preserve biodiversity")). In 2011, this desire became reality with the signing of a partnership with the National Office of Water and Aquatic Environments ("Onema") for the protection and restoration of aquatic environments. This framework agreement lasting four years covers several issues associated with managing water resources, managing aquatic species, the dynamic of rivers and socio-economic aspects. This agreement was complemented by a specific research and development section on the response of aquatic ecosystems to the presence and operating methods used by electricity generation facilities.

The dam reconfiguration project at Poutès sur l'Allier, approved by the French government on 6 October 2011, is also part of this strategy. The result of dialogue between elected representatives and associations, under the aegis of the public authorities, this new-look dam will combine environmental performance and electricity generation using renewable electricity. The innovative project designed by EDF's hydraulic engineering division will see the dam reduced from 17 to 4 metres in height, making it easier for migrating fish to pass it, with only a 10% impact on the dam's maximum output and generation capacity.

### Development

95% of France's hydropower capacity is currently being operated. EDF is nevertheless continuing the development of its hydropower activities, through the study and realisation of new projects.

- In Alsace, EDF has been involved in a hydropower energy development plan since 2008 for a total capacity of 130MW and for an amount of €225 million:
  - in 2008, EDF commissioned the Brisach hydropower micro-plant, with capacity of 2.7MW; during the inauguration of this plant, EDF announced its development plan in Alsace;

- in 2009, EDF participated in the commissioning of the Kehl micro power plant on the German side of the Rhine, with a capacity of 1.4MW. A similar project is in progress close to the Kembs dam, for a capacity of 8MW and a generation capability of 28GWh, with commissioning planned for 2015;
- EDF is studying the reinforcement of the Gambsheim hydropower plant by the installation of an additional 28MW generator set. A similar operation took place on the Iffezheim dam with the installation of an additional 38 MW generator set on the German side of the Rhine; commissioning took place in spring 2013;
- in the Vosges mountains, under a new concession awarded on 20 April 2009, the old pump storage hydropower station at lac Noir should be replaced after 2016 by a modern plant with a capacity of 55MW;
- measures for the preservation of water resources and biodiversity will be implemented, notably with the realisation of fish passes at Strasbourg, where the attraction flow<sup>2</sup> will be turbinised, and Kembs.
- EDF is planning to operate a tidal turbine farm demonstration unit on the Paimpol-Bréhat site in the Côtes-d'Armor. This demonstration unit, the first of its kind, will eventually comprise four tidal turbines. The aim of this 2MW project is to test the principle of energy production from tidal currents under real conditions (see section 6.4.1.2.1 ("Description of new energies")). The development of the first tidal turbines continues with a new raft of sea tests.
- Generation from reserved flows will continue to be developed. The purpose is to equip a certain number of dams in order to process the reserve flow through the turbines and recover a portion of the associated energy. In 2013, two sets of reserve flow turbines were commissioned at the Gréoux dam on the river Verdon and the Chaumettes dam on the river Diège. Their respective power is 760kW and 195kW, representing annual power generation of 6.4 and 1.3GWh. Projects are under consideration or in progress for total capacity of some 21MW and energy generation in the region of 126GWh, with expected commissioning dates ranging from 2014 to 2017.

In addition, EDF's objective is to use all available opportunities for expansion, including:

- developing "small hydropower" (power stations under 12MW): the construction of the Rondeau power plant (in Echirolles in Isère) began this year for commissioning next winter. With a 2.2MW capacity, it will produce 13.7GWh every year. SHEMA, a fully-owned subsidiary of the EDF Group via Edev, and its subsidiaries, specialise in managing and operating small hydropower construction projects and to this end have a fleet of 81 power plants. One of their aims is to develop small-scale hydropower by:
  - optimising and increasing the generation capacity of the existing fleet (renovation of 16 power plants in the Mayenne region, renovation programme for power plants in the Var, Lot and Dordogne regions);
  - acquiring small hydropower stations in France;
  - building new small-scale hydropower facilities (Palisse power plant under construction in the Cantal region for 2.6MW and projects under consideration);
  - implementing partnerships for project development; with, for example, the response, in association with Vinci, to the PPP of Voies Navigables de France (French waterways) to replace 29 dams on the river Aisne and the river Meuse and modernise two others on the Meuse. The 30-year contract is for the financing, design, construction, operation, maintenance and large scale upkeep-renovation of the 31 dams. Plans are underway to equip several dams with micro hydropower plants, with total power of 8,300kW by 2020.

1. Minimum flow maintained downstream of dams to protect aquatic life.

2. Water flow rate to attract fish to crossings.

3. Public-private partnership.

- optimise the potential of energy transfer by pumping stations in France ("STEPS"): as part of a European Commission project, EDF has begun a project to transform one of the STEP groups in Cheylas so that it can work at variable speed;
- look into the possibilities for "surplus production" (for instance, by increasing the capacity of existing hydropower plants) specifically detailed in the law of 13 July 2005 (the "POPE" law) setting out guidelines for energy policy (see section 6.5.3.2 ("French legislation: Energy Code")) to contribute to the development of peak processes. Following the decree of 31 May 2011, EDF is adapting existing groups of the La Bathie power plant in Savoy to increase by 45MW the power available on the network. Similarly, a decree of 18 December 2011 authorises EDF to increase by about 55MW power of the Serre-Ponçon concession. Finally, following the decree of 17 June 2013, EDF began installing a new power generation group on the STEP site at la Coche in Savoy. This Pelton group, with a 240MW capacity, will be the most powerful example of this technology in France. It will increase the power of the existing facility by 20% and will generate around 100 additional gigawatt-hours every year. Other projects which make it possible to benefit from the provisions of the POPE law are also being studied;
- take the opportunity during facilities upgrades to increase their capacities. Accordingly, in 2010 EDF took the opportunity during a major renovation of the energy transfer pumping station at Revin to improve the facility's performance (increase of energy produced of about 20% for a pumped storage plant with a maximum capacity of 808MW);
- upgrading existing facilities (modernisation, optimising generation, etc.) as part of concession renewals. Accordingly, in the context of renewing the Moyenne Romanche concession and decrees published on 31 December 2010, EDF has begun work to replace six small existing plants with the construction of a new subterranean power plant (Romanche-Gavet power plant) with a capacity of 93MW and energy generation of 560GWh or 155GWh more than existing power plants.

These hydropower development projects by the EDF Group in mainland France are fully consistent with the policies of the Grenelle environmental action plan.

## 6.2.1.1.5.1 EDF's fleet of fossil-fuel fired generation facilities

As at 31 December 2013, the fossil-fuel fired generation facilities operated by EDF are of different types, both in terms of fuel and power<sup>2</sup>:

Fuel	Unit capacity (MW)	Number of units in operation as of 31/12/2013	Total capacity (MW)	Year Commissioned	Energy produced over the past three years (TWh)		
					At 31/12/2013	At 31/12/2012	At 31/12/2011
Coal	250	7	1,750	from 1966 to 1971	14.0	12.7	10.9
	580	3	1,740	in 1983 and 1984			
	535	2	1,070	in 1974 and 1975			
Fuel oil	585	2	1,170	in 1968 and 1973	0.2	0.8	0.4
	685	4	2,740	in 1976 and 1977			
	85	4	340	in 1980 and 1981			
Fuel oil and dual combustion turbines	203	1	203	in 1992	0.1	0.2	0.1
	134	1	134	in 1996			
	125-129	2	254	in 1997 and 2007			
	185	2	370	in 2010			
	170	3	510	in 2008 and 2009			
Combined-cycle gas turbines	427	1	427	in 2011	1.3	1.2	0.4
	465	2	930	in 2012 and 2013			

1. In the 2012 Reference document, the average age, calculated from the date of the first coupling, was 28 years. In line with the other calculations in the document, this year the age of the fleet was calculated based on the industrial commissioning dates. This gives an average age of 27 years for the fossil-fired plants.

2. This table takes into account the shutdown of two of the three fuel oil-fired units in Martigues (see section 6.2.1.1.5.2 ("Issues relating to fossil-fuel fired generation")).



The installed capacity of the fossil-fuel thermal fleet in operation in mainland France stands at 11,638MW, including the Blénod combined cycle gas plant commissioned in 2011 and the two combined cycles in Martigues, which were commissioned in 2012 and 2013. These are EDF's first combined cycle gas plants in France and they complement the investments made in combustion turbines, very reactive<sup>1</sup> extreme peak resources that were commissioned in Vitry (Arrighi), Vaires-sur-Marne and Montereau. Furthermore, the two Montereau combustion turbines can operate using natural gas or domestic oil, further improving their flexibility.

With a fuel-fired reserve which stood at the end of 2013 at 3,390MW, the total installed capacity of the EDF fossil-fuel fired generation fleet in mainland France amounts to 15,028MW.

## 6.2.1.1.5.2 Issues relating to fossil-fuel fired generation

### **Updating of the most recent coal-fired production means to meet mid-merit load capacity demand**

For mid-merit load capacity, maintaining the most recent (i.e. most efficient) coal-fired units is the best solution to ensure availability of competitive capacities.

In particular, the most recent 600MW coal-fired units benefit from the lowest fuel generation costs of all of the fossil-fuel fired generation facilities (better efficiency, seaside units, and large capacity sites). Their power, along with the flexibility of their generation, are essential advantages. They are equipped with a gas flow desulphuration system (90% reduction in sulphur dioxide emissions) and a smoke denitrification system (80% reduction in nitrogen oxide emissions). These processes mean that the units comply with environmental restrictions applicable since 2008, as well as meeting tighter regulations to be implemented from 2015. A renovation programme for these coal-fired units is currently in progress, with the aim of improving their reliability and the extension of their operating life by 2035.

However, due to environmental regulation constraints, EDF plans to close its nine 250MW coal units. For these units, maintenance programmes have been drawn up taking their forthcoming shutdown into account. In this context, two out of the nine 250MW coal units (Blénod 2 and Le Havre 1) were shut down in 2013.

The 600MW coal unit at Le Havre 2 was also shut down in 2013, as EDF decided to shut down this unit a few months in advance.

### **Strengthening of combustion turbine fleet and renovation of oil fleet to contribute to meeting peak needs**

Since 2007, EDF has commissioned 1,060MW in extreme peak capacity via combustion turbines on its sites in Vitry-Arrighi, Vaires-sur-Marne and Montereau. These highly responsive facilities are mobilised during periods of high electricity consumption.

Furthermore, EDF decided to equip two oil-fired units with low NO<sub>x</sub> burners, to enable them to operate until 2023, complying with the environmental regulations applicable from 2016.

### **Modernisation of the fossil-fuel thermal generation fleet with combined cycles**

After the commissioning in 2011 of a first combined cycle gas plant in France on the Blénod site, and that of the first combined cycle in Martigues in 2012, EDF commissioned a second combined cycle gas plant in 2013 in Martigues. The combined cycle plants in Martigues are the result of the repowering of former fuel units a part of whose facilities, such as the steam turbine, the condenser, and the water treatment facilities, were reused. The repowering of a unit of this power is a first in Europe. The installed power of the Martigues site is 930MW and the yield is over 50% higher than the yield from traditional thermal units. These renovation and modernisation

projects of the fossil-fuel fired generation fleet will enable EDF to reduce atmospheric emissions of CO<sub>2</sub>, nitrogen oxides and sulphur oxide. Moreover, the oil-fired units now use fuel at "Ultra low sulphur content" (oil known as "ULSD" with less than 0.55% sulphur content).

In addition to the finalising of the Martigues repowering project, in December 2011, EDF decided to commit to the joint development with General Electric of a new generation combined cycle gas plant, fitted with FlexEfficiency50 technology. This joint development will provide an opportunity to operate a combined cycle plant with innovative characteristics in terms of capacity, with 510MW achievable in less than 30 minutes, and output (61% versus an average output for a standard CCGT plant of 57-58%), while providing good environmental performance, with CO<sub>2</sub> emissions on average 10% less than those for a standard CCGT plant. The work on the Bouchain site in northern France started in April 2013. From 2016, the prototype will be tested for two years and then transferred to EDF, provided that the tests are conclusive.

Lastly, concerning CCS technology (Carbon Dioxide Capture and Storage), the EDF Group is participating in post-combustion and oxy-combustion capture projects with industrial partners as well as in studies concerning the transmission and storage of CO<sub>2</sub>. A CO<sub>2</sub> capture demonstrator was commissioned in 2013 at the Le Havre site. This project, a 25% stake of which is financed by the Demonstrator Fund coordinated by ADEME, is spearheaded in partnership with Alstom. This demonstrator will enable tests to be performed on the impact of post-combustion amine capture (a chemical process that consists of trapping CO<sub>2</sub> using an ammonia-based compound) on CO<sub>2</sub> found in smoke coming from the combustion of coal, as well checking the impact of this technology in an industrial setting and analysing its flexibility during operation.

## **Evolution of the environmental regulatory framework**

Fossil-fuel thermal power plants are operated now within the context of regulations that apply to installations classified for environmental protection purposes (*Installations classées pour la protection de l'environnement*, or "ICPE"), as well as regulations relating to greenhouse gas emissions and a specific regulation for air quality (see section 6.5.6.1 ("Basic regulations applicable to the environment, health, hygiene and safety")).

Total emissions of the EDF fleet in mainland France rose to 13.9 million tonnes in 2013<sup>2</sup>. Furthermore, in accordance with European regulations, electricity companies must pay the full CO<sub>2</sub> quotas corresponding to their greenhouse gas emissions beginning in January 2013.

Thanks to the shutdown of the oldest fossil-fuel thermal power plants, updating of the most recent plants, set up of pollution-reducing procedures and the use of low sulphur fuel, EDF has set a target to reduce by 30% its emissions of CO<sub>2</sub> (measured in tonnes) between 1990 and 2020 and to reduce by 50% its emissions of SO<sub>x</sub>, NO<sub>x</sub> and dust between 2005 and 2020 (see section 6.5 ("Legislative and regulatory environment")).

## **Generation and technical performance**

Fossil-fuel fired generation accounted for 15.6TWh in 2013. It represents about 3.4% of EDF's generation in mainland France.

The reliability of all components of the fossil-fuel fired generation fleet was confirmed in 2013, standing at the same level as European standards. The response rate of combustion turbines and fuel oil units to the optimiser were very good in 2013. Minimising unplanned outages is the essential aim for generation means such as fossil-fuel fired facilities, operating at mid-merit and peak. The priority for these generation resources required on a variable basis all year round is to ensure system security by ensuring maximum reliability and availability. In 2013, coal units supplied 14.0TWh, CCGT plants supplied 1.3TWh, fuel oil units and combustion turbines supplied 0.2TWh and 0.1TWh respectively.

1. "Extreme peak" designates plants running fewer than 200 hours per year.

2. Within the scope of EDF SA (including SEI and excluding PEI), total emissions amounted to 16.6 million tonnes in 2013.

## The decommissioning of the existing fleet

EDF has planned all of the decommissioning operations for its existing fossil-fuel fired generation facilities. The provisions for these operations have been made in an amount that corresponds to the cost of decommissioning all of the units being operated and the clean-up of the sites (see section 20.1 ("Historical financial information"), note 30 to the consolidated financial statements for the year ended 31 December 2013).

In 2013, EDF continued the decommissioning work on sites that have been permanently shut down.

## 6.2.1.2 Sales and marketing

### 6.2.1.2.1 Presentation of the market in France

#### 6.2.1.2.1.1 Demand

Domestic consumption in France, including Corsica, during the 2013 fiscal year stood at 495.0TWh<sup>1</sup>, up 1.1% from 2012. After adjustment for the weather factor and leap year effect, it is stable (-0.1%).

Domestic gas consumption amounted to 467TWh<sup>1</sup> in 2013, a 1.4% increase from 2012. When adjusted for climate effect, domestic gas consumption fell by 2% (445TWh in 2013 vs. 454TWh in 2012).

#### 6.2.1.2.1.2 Competition

Since 1 July 2007, the French market has been fully open for electricity and gas sales. All customers are free to choose their energy providers. They can opt at any time without notice for an offer at market prices from the supplier of their choice.

Among electricity suppliers on the French market, EDF's main competitors are GDF Suez, E.ON (SNET), Enel and Direct Énergie.

The main competitor, GDF Suez, with over 11 million gas and electricity customers in mainland France is the leading gas supplier<sup>1</sup>. The other major gas suppliers on the corporate and local authority customer segment are Tégaz, Eni, Gaz Natural, Gazprom, E.ON (SNET) and Antargaz. On the residential customer segment, Direct Énergie and Eni are the largest suppliers.

As at 31 December 2013, according to the CRE, the electricity market shares in terms of sites of alternative suppliers, i.e. excluding historical suppliers, were 7.9% on residential markets and 8.0% on non-residential markets, while their gas market shares in terms of sites on residential and non-residential markets were 13.6% and 25.6%, respectively.

The NOME law establishes certain rules for the marketing of electricity and gas. The main provisions of the law are as follows:

- regulated electricity and gas tariffs are now covered by provisions described in section 6.2.1.2.1.3 ("Regulated sales tariff contracts") below;
- the transitory tariff for market adjustment (*Tarif Réglementé Transitoire d'Ajustement au Marché*, or "TaRTAM") ended on 30 June 2011, when the ARENH programme entered into force;
- ARENH was introduced on 1 July 2011 for the benefit of EDF's competing suppliers. This system allows competitors to supply their end customers located in mainland France through EDF after the signing of a framework agreement. The primary ARENH allocation mechanism is described in

section 6.2.1.3.5 ("Regulated access to electricity from the existing nuclear fleet ('ARENH')").

About forty electricity suppliers have signed a framework agreement with EDF, an increase of 30% compared to 2012. The half-yearly volumes made available were stable at around 30TWh.

In order to supply their clients, in 2013, EDF Group competitive suppliers had access to:

- their own generation capacities;
- 64.4TWh associated with regulated access to electricity from the existing nuclear fleet (see section 6.2.1.3.5 ("Regulated access to electricity from the existing nuclear fleet ('ARENH')"));
- 8.5TWh<sup>4</sup> made available in 2013 by the EDF Group through "Capacity Auctions" ("VPP") described in section 6.2.1.3.3 ("Capacity auctions");
- imports;
- the wholesale electricity market.

#### 6.2.1.2.1.3 Regulated sales tariff contracts

##### Access to regulated electricity and natural gas tariffs

The principles defining the right to tariffs resulting from the NOME Law are contained in Articles L. 337-7 to L. 337-9 and L. 445-5 of the French Energy Code.

Since the NOME law entered into force, the situation for electricity, by energy source and customer category is as follows:

- domestic and non-domestic final consumers who have subscribed power for their site(s) not exceeding 36kVA: these customers receive regulated sales tariffs upon request. They can thus shuffle between regulated and market tariffs without a legal time limit;
- non-domestic final consumers who have subscribed power for their site(s) greater than or equal to 36kVA: only clients benefiting from the regulated sales tariff on the date of promulgation of the NOME Law and sites created after that date may continue to benefit until 31 December 2015. They can shuffle between regulated and market tariffs provided they maintain their account and regulated tariffs for at least one year. After 1 January 2016, these same customers will no longer benefit from the regulated sales tariffs for consumption by these sites;
- domestic and non-domestic final consumers for their site(s) located in areas not connected to the continental metropolitan network: these customers receive regulated sales tariffs upon request.

Only EDF and the Local Distribution Companies ("LDCs") supply electricity at the regulated sales tariffs.

Law no. 2014-344 concerning consumption promulgated on 17 March 2014 changed the principles defining the right to regulated sales tariffs for natural gas. The situation for gas, by category of customers, is from now on as follows:

- domestic and non-domestic final consumers consuming less than 30,000kWh per year of natural gas: these customers receive regulated sales tariffs for natural gas upon request. They can thus shuffle between regulated and market tariffs without a legal time limit;

1. Source: the 2013 French Electricity Report published by RTE.

2. Source: GRT gaz – Gas consumption in 2013.

3. Source: gdfsuez.com website, introductory media kit for the Energy Europe branch.

4. Rounded value of the precise value to one decimal place.

- domestic and non-domestic final consumers consuming more than 30,000kWh per year of natural gas: these customers can no longer claim the benefit of regulated tariffs once they have opted to offer contract and will not be anymore eligible for these rates on the following dates<sup>1</sup>:
  - for non-domestic consumers connected to the transmission network, on the expiry of a period of three months from the publication of the Law no. 2014-344 of 17 March 2014 relating to consumption;
  - for non-domestic consumers consuming more than 200,000kWh per year of natural gas, no later than 31 December 2014;
  - for non-domestic consumers consuming more than 30,000kWh per year of natural gas, no later than 31 December 2015;

Only GDF Suez and the LDCs supply natural gas at the regulated sales tariffs.

## The tariff structure and the principle of the integrated electricity tariff

The tariff structure includes a range of regulated tariffs applicable to electricity sales. There are three tariffs:

- for electricity provision to sites with low-voltage supply in mainland France (connecting voltage below 1 kV):
  - Blue Tariff: tariff available to end consumers whose maximum subscribed power is less than or equal to 36kVA,
  - Yellow Tariff: tariff available to end consumers whose maximum subscribed power is strictly higher than 36kVA;
- for electricity provision to sites with high-voltage supply (connecting voltage above 1 kV): Green Tariff.

Changes in these tariffs are fixed by order of the French Economy and Energy Ministers, after consultation with the CRE.

These regulated tariffs are provided by the traditional suppliers (EDF and the LDCs). They include a fee for making the load available and a variable amount proportional to consumption, with prices that may be adjusted depending on the time of day or season. The range of tariffs has been designed to take into account changes in customers' consumption with various options (peak hours/off-peak hours for residential customers, for example).

The tariff is known as "integrated" because it covers all of the following elements:

- the "supply" portion (about 60% of the tariff cost excluding tax in the case of residential customers on the Blue Tariff) comprising: (i) the "energy" portion, which is based mainly on operational and investment costs in generation facilities (including downstream processes and R&D expenses), and (ii) customer management and marketing costs;
- the "network" portion (around 40% of the tariff cost excluding tax in the case of residential customers on the Blue Tariff) comprising the cost of using the public transmission network operated by RTE and the public distribution networks operated by distribution network operators, also called the "delivery" portion.

The Decree of 12 August 2009 thus stipulates that the fixed portion and the proportional portion for each tariff option or version are the addition of a portion corresponding to delivery to a portion corresponding to supply, and that these are drawn up in such a way as to cover generation costs, supply costs, the cost of using the public transmission and distribution networks and marketing costs, borne by EDF and LDCs to supply their customers, as well as a reasonable profit margin.

As part of its public service missions, since 1 January 2005, EDF has also offered a basic necessity tariff for electricity (*Tarif de Première Nécessité*, or "TPN") in accordance with the conditions set out in Decree no. 2004-325 of 8 April 2004. This decree was amended by the Decree of 6 March 2011 with a view to allowing the automatic allotment of the tariff to all customers fulfilling the granting conditions. Law no. 2013-312 (the "Brottes Law") which was promulgated on 15 April 2013 amended the conditions of eligibility for the basic necessity tariff to allow a greater number of consumers to benefit from it. It also provides that all electricity suppliers should provide this basic necessity tariff.

Finally, Decree no. 2008-778 of 13 August 2008, pursuant to Article 7 of Law no. 2003-8 of 3 January 2003, as now codified in Article L. 445-5 of the French Energy Code, has established a special solidarity tariff for gas carried by all suppliers. It is financed by a contribution that will be passed on to all final customers.

Customers benefiting from regulated tariffs receive a single electricity bill for supply, delivery and associated taxes. This bill indicates the network usage cost portion calculated on the tariff for using the public electricity transmission and distribution networks ("TURPE"), set by the CRE proposal (see section 6.2.2.4 ("Tariffs for Using the Public Electricity transmission and distribution Networks ('TURPE')")). The separation of generation-sales and marketing activities from those of transmission-distribution is thus highlighted. The following taxes and contributions appear on the electricity bill:

- value-added tax ("VAT");
- Contribution to the Public Electricity Service or CSPE (see section 6.5.3.2 ("French legislation: Energy Code")), which was set on 1 July 2011 at €9/MWh and on 1 July 2012 at €10.50/MWh, at €13.50/MWh on 1 January 2013 and finally at €16.50/MWh on 1 January 2014. Since 1 January 2014, the CSPE has been capped at €597,889<sup>2</sup> per consumption site and per annum, and the total amount due in respect of this contribution by all industrial companies consuming over 7GWh of electricity per annum is also capped at 0.5% of its added value;
- municipal and departmental taxes, collected and reversed by EDF to municipalities; on 1 January 2011, the NOME law transposed Directive no. 2003/96/EC of 27 October 2003, restructuring the community tax structure for energy and electricity products and transforming them into taxes on end-usage electricity consumption (*Taxe sur la Consommation Finale d'Electricité*, or "TCFE");
- The CTA levy (*Contribution Tarifaire d'Acheminement*), which contributes to covering a portion of the fees for the pension system (see section 17.3.2 ("Social welfare policy")).

Following the cancellation of the 2009 tariff decree by the French Council of State, a new decree dated 14 February 2013 was published in the *Journal officiel* on 15 March 2013. This decree defines the various tariff categories and readjusts the rates for non-residential Blue Tariff customers only. The financial impact for the EDF Group is estimated at €8.5 million in 2013. EDF began repaying these amounts through invoices according to how frequently the affected customers invoice.

Another decree dated 26 July 2013 related to electricity sales tariffs to other LDCs entailed an 8.4% rise in these tariffs from 1 August 2013.

As of 1 August 2013, the rise excluding taxes of the regulated sales tariffs was 5% for Blue Tariffs, 2.7% for Yellow Tariffs and 0% for Green Tariffs, on average, in accordance with the decree of 26 July 2013. This increase was not identical for each tariff colour. It was modulated by option to better cover the costs of each of them, in accordance with the CRE opinion of 25 July

1. Two exemptions will be allowed:

(a) The sole proprietor or association of co-owners of a mainly residential building consuming less than 150,000 kWh per year can benefit from the regulated tariffs for consumption sites still subject to these tariffs;

(b) LDCs still subject to regulated rates and whose consumption is less than 100,000MWh per year may continue to benefit from them until 31 December 2015.

2. Ceiling updated in 2013 based on the consumer price index.

2013. The order of 26 July 2013 provides for an average increase (excluding tax) in regulated sale tariffs of 5% for Blue Tariffs from 1 August 2014.

The order of 20 July 2012 setting the regulated sales tariffs for the period running from 23 July 2012 to 31 July 2013 was appealed before the French Council of State. On 31 March 2014, the public *rapporteur* sought the annulment of the order based on the fact that the Yellow and Blue tariffs were too low. At the date of filing this Registration Document, the French Council of State's decision was not known.

#### 6.2.1.2.1.4 Market-rate contracts

In France since 1 July 2007, those customers have been free to leave the regulated sales tariffs at any time and without notice to pursue an EDF contract or one provided by another supplier. Those customers with power level commitments over 36kVA who exercised their eligibility right after 7 December 2010 and chose to return to regulated tariffs must continue to hold them for at least one year (see Section 6.2.1.2.1.3 ("Regulated sales tariff contracts")). With the exception of customers connected to the transmission network, who must sign separate transmission and delivery contracts, all other customers may enter into a single contract with the supplier of their choice for their electricity supply and delivery. Their electricity bill includes the electricity supply price, the transmission and distribution network access tariff ("TURPE"), and government mandated charges: CSPE, CTA, local taxes or TCFE following implementation of the NOME Law and VAT outlined in section 6.2.1.2.1.3 ("Regulated sales tariff contracts").

#### 6.2.1.2.2 Customer Division

EDF's sales and marketing activities in France are managed by the Customer Division.

##### 6.2.1.2.2.1 Introduction and marketing strategy

EDF markets energy and services to nearly 27.4 million customers in France (excluding overseas departments and Corsica), that is more than 33 million sites. Offers are developed and implemented in compliance with the Group's market risk policy.

On the electricity market, EDF's sales stood in 2013 at 380.6TWh<sup>1</sup>, giving a market share of 79.7%. In 2012, sales stood at 377.9TWh and market share at 80%.

EDF provides gas supply to all types of customers.

In 2013, EDF marketed 22TWh of gas, giving a market share of 4.4% on over 1,010,000 customers. At the end of 2013, EDF supplied gas to about 900,000 residential customers (versus nearly 780,000 at the end of 2012).

To supply its customers with gas, EDF has access to the gas market and its oil products through its subsidiary EDF Trading; EDF also owns medium- to long-term assets (molecules and logistics). The Customer Division establishes its sourcing strategy based on the challenges and risks specific to each customer segment.

EDF seeks to strengthen the value of its portfolio by maintaining its attractiveness to customers through the excellence of customer relationships and the proposal of offers tailored to their needs. To this end, EDF is implementing a marketing and contact strategy over several numerical and other channels while strengthening its operating performance.

EDF electricity supply offers integrate the concept of energy efficiency by providing an incentive to manage demand and smooth out peak consumption. This range of offers will be gradually broadened depending on the deployment of smart meters (see section 6.2.2.2.5 ("Future challenges (replacement, development and smart meters)")).

In addition to electricity supply offers and the gas offers that supplement them, the Group assists its customers in all market segments with energy efficiency and decentralised generation actions and investments. In early 2013, the EDF Group set up an Energy Services Division as an umbrella for energy services for corporate and government customers, mainly in France and Europe (see section 6.4.1.3 ("Energy Services")). EDF provides energy efficiency offers that enable its customers to better control their energy spending or guides them towards qualified partners.

This procedure meets the objectives of the POPE Law of 13 July 2005 on energy policy guidelines and the Grenelle 2 Law of 12 July 2010 (see section 6.5.6.1 ("Basic regulations applicable to the environment, health, hygiene and safety")) and government home heat renovation targets, thus enabling EDF to earn energy savings certificates (*Certificats d'économies d'énergie*, or "CEE") in return for actions taken with its customers. In this context, EDF is developing high-performance electrical solutions (heat pumps in well-insulated buildings, electric vehicles, etc.). EDF is the largest producer of CEEs in France (see section 4.1.2. ("Risks associated with the Group's activities")).

Furthermore, EDF is positioned as a major player in energy transition thanks to its visible and sustainable action on the ground. EDF is preparing for the deployment of communicative meters and is committed to the promotion of future electrical smart systems. In fact, EDF is experimenting with tariffs and service offers by taking part in the design and operation of projects like the Smart Electric Lyon demonstrator, which consists of testing innovative electrical solutions with some 25,000 residential customers and about a hundred businesses and local authorities in partnership with major actors, equipment suppliers, telecommunications operators, industry and academia.

The EDF Group wants to be the reference partner for local actors in energy transition. It supports them in their energy efficiency projects for the production of local renewable energy and the development of green districts. The EDF Group also has investments in the development of electric mobility vehicles. Present throughout the country, it has strong links with the French population, the industrial network and all local governments. This presence helps fulfil the Group values around energy efficiency, such as proximity to customers, continuity of service, professionalism and solidarity.

Finally, the Group acts to ensure that energy billing does not become an aggravating factor in insecurity. For 25 years, EDF has been at the heart of efforts to combat and prevent poverty in three ways: payment assistance, household support and prevention. In addition to the implementation of social energy tariffs and related protections, EDF assists customers in difficulty and contributes to the Housing Solidarity Fund ("FSL") and the "Live Better" programme. EDF's approach is complemented by targeted partnerships with public authorities and players in the associative sphere working to combat energy insecurity.

##### 6.2.1.2.2.2 Activity by client category

###### A. Residential customers

At the end of December 2013, EDF had nearly 27.8 million residential delivery points for electricity and over 900,000 for gas. In 2013, its sales volume amounted to 148.1TWh of electricity and 10.1TWh of natural gas.

The goal of EDF's customer relations policy is to strengthen customer confidence over the long term and to meet their expectations as fully as possible, especially when it comes to controlling their energy consumption.

EDF has been making committed efforts with its customers through its eight "EDF & Me commitments", which aim to modernize the customer relationship provided and are a tangible sign of a relationship of proximity that is personalised and helpful in the control of energy consumption.

<sup>1</sup> Data exclude domestic sales, sales to foreign operators, and block exchange notices; including Eurodif contract processing, adjusted for cut-offs.



These “EDF & Me commitments” offer simple and concrete personalised responses to EDF residential customer expectations. They are:

- offering plans suited to customer needs;
- billing as fairly as possible;
- offering flexible and personalised terms of payment;
- listening to customers to give them the best advice possible;
- helping them be better energy consumers;
- reimbursing them as soon as possible;
- always giving an answer if they make a claim;
- assisting them in difficult times.

In terms of customer satisfaction, more than 90% of customers say they were satisfied after dealing with EDF in 2013. The new bills introduced in 2013, which are simpler and more ergonomic, as well as the “EDF & Me commitments”, contributed to increased residential customer satisfaction.

### Residential customer brands

EDF activity on the residential customer market revolves around two major issues: the relationship around the power contract and support energy savings. Since 2012, EDF has chosen to differentiate itself by refocusing the EDF brand on customer relationship around the power contract, and by repositioning the Bleu Ciel brand around household energy savings (offers, advice services, network partners, etc.).

### Energy supply

EDF has been providing electricity at a regulated sale tariff to residential customers and also natural gas and electricity offers at market rates since 2007.

For its marketing activity on the residential customers market (over 30 million incoming calls, over 100 million customer bills annually, 8 million secure online customer accounts), EDF is implementing a marketing and customer relations strategy based on several features: around 40 customer service centres (“CRC”) open from 8.00 a.m. to 9.00 p.m., six days a week, a voice-response system, a network of retailers, two websites and smartphone applications with secure access to contract management.

### Services for residential clients

EDF has the whole range of offers and services aimed at residential customers:

- “energy management-related” services: free advice on various heating systems or insulation solutions, diagnostics, personalised insulation and heating assistance (“Diagnostic Habitat Bleu Ciel” offers), quote requests from Bleu Ciel partners and financing offers for all home thermal energy savings projects. All of these services are available on the Ma Maison Bleu Ciel website ([www.mamaisonbleucieledf.fr](http://www.mamaisonbleucieledf.fr)), as is the option of discussion with EDF experts or other Internet users in a forum dedicated to home energy savings;
- other services: digital account management (e-billing, direct contact billing service, online branch, etc.), network of partners providing maintenance services for natural gas water heaters, insurance (energy bill insurance – “AFE”), energy management system (“Suivi-Conso”), electrical and plumbing outage assistance (“ADE” and “ADEP”).

### Earning of energy savings certificates (“CEE”)

Regarding residential customers, energy savings certificates are earned from:

- offers providing solutions for home energy efficiency renovation (heating, hot water, insulation and ventilation) using high-performance materials.

In addition to advice and check-ups, customers are put in touch with EDF “Bleu Ciel” partners, who handle and coordinate the general contracting. EDF has thus supported some 2 million renovations since mid 2006, 730,000 of which have been for low-income housing;

- EDF’s partnership strategy, under which qualified small construction and renovation professionals are granted “EDF Bleu Ciel® partner” certification provided they comply with EDF Bleu Ciel® quality and ethics charter. Certification involves the granting of a brand licence that states the precise conditions and sets the commission that the partner pays to EDF. This network of partners allows customers carrying out construction or renovation work on their homes to have access to qualified professionals in all aspects of the building trade, all of whom are committed to energy efficiency, alongside EDF.

EDF also contributes to training and the promotion of energy savings efforts such as:

- FEEBAT (*Formation aux Économies d’Énergie des salariés et artisans des entreprises du Bâtiment*, or Energy Savings Training for Construction Craftsmen and Companies): this programme was created with building trade professionals and the French Environment and Energy Management Agency (“ADEME”) to develop businesses’ ability to respond to the energy efficiency renovation market. Since 2008 more than 60,000 professionals have been trained, thanks to EDF funding under the energy savings certificates programme. The system was opened up to materials distributors and project managers;
- overhaul of the “Grenelle de l’Environnement” best practices: this programme, launched by the Minister of Ecology, Energy, Sustainable Development and the Sea in November 2007 with building trade organisations, is designed to help businesses grappling with issues related to the Grenelle environmental action plan. Updated and integrated into reference training materials, including FEEBAT, these new rules will improve the quality of implementation of the renovations.

### Solidarity policy

Solidarity is a core value of EDF, which has had a policy dedicated to disadvantaged customers for 25 years. EDF supports its disadvantaged customers in three ways:

- payment assistance, which includes the establishment of social energy tariffs;
- household support, through which EDF mobilises its employees throughout the country so that they can provide flexible solutions that meet the needs of customers in difficulty;
- prevention, which covers the fields of research into energy insecurity, the pedagogy surrounding good energy management practices and access by vulnerable population groups to energy-efficient solutions.

In concrete terms, EDF takes part in the scheme financed by the CSPE implemented to help people in difficulty who are facing financial insecurity. Low-income customers can access subsidised energy prices for electricity and natural gas, as well as free arrangement and start-up. From March 2012, the basic necessity tariff (“TPN”) and the special solidarity tariff (“TSS”) have been granted automatically to all beneficiaries identified as EDF customers. EDF has worked actively towards this and has helped increase the number of beneficiaries by more than 50% in one year to nearly 1.6 million beneficiaries (including Corsica and France’s overseas departments) at the end of 2013. This increase is also due to the increase of the threshold of eligibility for the TPN<sup>1</sup>.

In 2013, EDF contributed €23.3 million to the Housing Solidarity Fund (“FSL”), which helps to write off unpaid bills for customers in financial difficulty. In 2013, it helped more than 200,000 households.

1. Eligibility threshold equal to the one for aid for taking out additional health insurance (“ACS”).

Over and above its legal obligations, EDF promotes its "energy guidance" offer bringing together services and advice about rates, usage, energy management and customised payment terms. In 2013, over 460,000 people took advantage of it.

To be closer to disadvantaged people, EDF provides 170 local contact points, in addition to its store network. The many partnerships developed by EDF with specialised associations in social mediation, such as PIMMS (Multiple Service Mediation Information Point), ANIL (National Housing Information Agency), a partner since October 2011, and other local bodies make these structures recognised sites for the dissemination of information and mediation, thus making public services easier to use.

EDF also supports initiatives in terms of home renovation, from both a financial and technical perspective, thanks to many partnerships with low-income housing agencies and the Fondation Abbé-Pierre programme "Toits d'Abord". EDF also supports campaigns to raise energy management awareness with public social action centres, the charities Secours catholique, Secours populaire, SOS Familles/Emmaüs France, and Unis-cités, part of the "Médiaterre" programme. In 2013, EDF has signed a new partnership with the French Red Cross, which is based on three programmes: assistance to resolve energy debts, training in the uses of energy and information on social tariffs and assistance in improving home thermal insulation. Finally, a similar partnership agreement was signed with Crédit Agricole.

EDF remains committed to the National Agency for Home Improvement ("ANAH") in connection with the "Live Better" programme. The Agreement signed in 2011 under the aegis of the government in response to the Grenelle 2 law requires EDF to make a financial contribution of a maximum amount of €49 million over three years. It has also helped to begin renovation on housing occupied by homeowners facing energy insecurity. EDF contributes to the mapping of households eligible for the programme and provides expertise in energy management actions (awareness-raising/training).

In return for these commitments, EDF is given energy savings certificates.

## B. Corporate and business customers

EDF has some 1.8 million corporate and professional customers, with 2013 sales of 184.3TWh for electricity at the regulated sale tariff and market rates and 10.5TWh for natural gas.

EDF assists its corporate and professional customers in managing their energy consumption, regardless of their sector of activity, their size or their organisational structure. It aims to make energy performance an integral part of the overall performance – both economic and environmental – of companies. Consistent with 2010 and due to the completely new context ushered in after the implementation of ARENH on 1 July 2011, EDF changed its range of offers dedicated to companies as well as its relational system.

As part of the long-term, 24-year contract signed in 2008, EDF and the consortium founded by seven major industrial groups, Exeltium, signed two amendments in 2010. These agreements thus deal with total supply of 311TWh, delivery of which is scheduled in two stages. The first stage covers 148TWh and began in the first six months of 2010. EDF currently has no projections for the start date of the second stage. The aim of the partnership is to secure part of the electricity supply of electricity-intensive industrial partners, who are Exeltium shareholders, under the supervision of the European Commission.

### The brand

The EDF Entreprises brand was extended in April 2013 to all market customers: Key Accounts, Large Companies, SMEs and professionals. EDF Entreprises aims to act alongside businesses and contribute to their

competitiveness. It relies on local relationships aided by territorial organisation and expertise at serving its customers.

### The offers

The EDF range of offers is adapted to customers' expectations and their respective profile, specifically with electricity supply offers providing competitive solutions that comply with new market rules as set out by the NOME Law.

EDF also enhanced its range of services intended for all its customers, whether small companies or large industrial customers. These services are designed to:

- assist SME and Professional customers by guaranteeing them 24/7 troubleshooting within two hours for all the breakdowns on their electrical installations;
- facilitate the start of company operations through offers that help the client to benefit from expert advice to adjust the power of its electrical supply contract to its energy needs during the first year of activity;
- simplify contract management and optimise energy expenditure: with the help of a multi-site bill, paperless billing, consumption monitoring, customised alerts, a wide range of payment options, etc.;
- advise the client on the reduction of energy expenses by analyzing its key uses, such as the production of cold, hot and compressed air and motorisation. This "Demand-Side Energy" advice helps to identify the major solutions for reduction of energy consumption. EDF can commit in the long term to identifying avenues for actions relating to energy savings and define a plan for implementing them (Energies Productivity Plan);
- optimise energy efficiency projects and assist in their implementation, fund implementation of more efficient equipment or better-performing energy solutions in three areas: building insulation, the installation of equipment that is energy-efficient or powered by renewable energy and the improvement of industrial processes, by relying on energy savings certificates. The financial aid given for energy savings certificates may also be matched with jointly-owned Domofinance loans (see section 6.2.1.2.2.6 ("Service subsidiaries supporting energy efficiency development")), which allow joint owners to finance major thermal renovation projects;
- raise awareness by company employees through educational tools such as the energy clock, which displays site consumption in real time, or through awareness sessions for employees at which eco-gesture kits are handed out to each participant. For customers deeply involved in steps to optimise energy that wish to share energy consumption reduction plans with other companies, EDF leads regional networks that bring together about ten companies that discuss energy choices for a period of three years;
- offer services that respond to customer expectations: audits, engineering and detailed studies, equipment delivery and installation, operating services and maintenance of newly installed equipment, financing options and remote monitoring of energy-efficient performance, etc.

To strengthen its expertise and best respond to its customers' investment projects, EDF has sought out partners, more than 450 companies committed to energy efficiency and the reduction of CO<sub>2</sub> emissions, to:

- guide customers in "low-carbon" strategies to: enhance commitments to renewable energy, diagnostics, carbon reduction and offsets, monitoring and valuation of savings earned;

- promote tele-monitoring solutions for energy consumption by customers such as the *"Télésuivi Courbe de Charge"* service, which gives thousands of customers access to an online graph of their consumption load curves.

Finally, its research continues to guide it towards new areas of innovation, such as smart grids, a cutting-edge and growing field. Its research into equipment enabling remote electrical usage disruption contributes to research on smoothing peak loads.

In order to be ever closer to the varied expectations of its customers, EDF in 2010 set up differentiated services devoted to large industrial customers, specifically with:

- custom electricity and gas supply offers;
- the development of disruption capacity for their customers;
- assistance on a European level through entities of the EDF Group. EDF has a "Large Corporates and Key Accounts" marketing network for managing large corporate customers who operate on a European scale and have a centralised purchasing structure. This coordinated network spanning six European countries (Belgium, Italy, the United Kingdom, Austria, Hungary and Poland) thus offers multi-country energy solutions;
- support for controlling their energy consumption and CO<sub>2</sub> emissions through the implementation of Energy Productivity Contracts ("PPE"). These contracts rely upon EDF Entreprises' expertise in terms of eco-efficient solutions in processes and utilities, proposing initiatives to be implemented and guaranteeing the resulting savings. These initiatives lead to energy savings investments that benefit from the CEE system;
- CO<sub>2</sub> trading for companies subject to the French national quota allocation plan ("PNAQ").

In addition to supplying electricity and services, EDF markets a full range of offers for the supply of natural gas intended for its customers. It offers them a single contact and simplified management of electricity and gas contracts. EDF has reorganised its sourcing activities and natural gas development offers to improve reaction time and thus offer its customers quickly customised solutions based on market opportunities and their expectations. The natural gas offer features management and advisory services, including online monitoring, annual consumption assessments, energy savings check-ups and other services.

EDF aims to make its professional customers' lives easier by offering them advice and solutions for better control of their energy consumption, optimising their bills, providing repair services and ensuring the continuous functioning of their electrical and plumbing systems.

### Relational system

EDF uses a full relational system to stay close to its customers, their issues and their expectations. Its employees in its eight regional sales divisions and one Key Accounts national division put EDF's expertise to work supporting and processing customer requirements.

With efficiency and proximity at the heart of the customer relationship, EDF employees use solutions that suit customers, according to their profiles and consumption habits, with the intent of encouraging dialogue and making it easier to access information. Accordingly, in addition to classic communication channels, EDF has also developed:

- a website specifically dedicated to companies. On the site they can perform standard operations, find a simplified presentation of offers, read the energy magazine or access a Frequently Asked Questions page classified by theme;

- The energy monitoring organisation, which was set up in 2009 with the aim of offering customers a place to talk about corporate behaviour in an ever-changing energy context and to offer issues to reflect on in terms of the adjustments required to cope with the new challenges of energy.

### Customer satisfaction

Since 2011, EDF Entreprises has been committed to a programme to improve customer satisfaction. In 2013, the nine projects comprising this programme were transformed into permanent structures in each of the nine commercial entities hosting them. Regular sharing of best local practices is overseen at a national level.

The programme helps mobilize EDF teams around customer satisfaction, and allows for:

- better consideration of expectations of business and professional customers;
- the development of a customer-oriented culture;
- mobilisation of managers and business lines;
- emulation, discussions and sharing between regions.

Thanks to this programme, a net increase in satisfaction has been recorded for the past two years, which translates into an increase of 56% of the level of satisfaction on contact between 2011 and 2013. The goal in 2014 is to further increase EDF customer satisfaction, with the help of:

- identification of area of operational improvement to innovate customer relationships;
- and further integration of the 2012 claims policy by stakeholders.

### C. Local authorities, low-income housing agencies, Local Distribution Companies ("LDCs") and public service providers

Law no. 2009-967 of 3 August 2009 regarding implementation of the Grenelle environmental action plan gives local authorities a major new role in local energy policies. In this context, EDF has been active in offering customised solutions for each authority and public institution with decentralised decision-making powers (hospitals, universities and major graduate schools, CROUS student service centres, chambers of commerce and industry, ports and airports).

EDF acts in five areas for these customers:

- supply electricity at the regulated sale tariff;
- sign concession contracts for the "supply" portion in connection with ERDF for the "delivery" portion;
- supply electricity and gas at the market rate, responding to customer energy problems (proposing customised offers and solutions for energy needs);
- assistance to their various plans (territorial climate plans, green neighbourhoods, sustainable cities, etc.);
- develop sustainable mobility offers with local authorities.

EDF thus manages more than 57,000 customers on this market: local authorities including municipalities and public institutions for inter municipality cooperation (cities, metropolitan areas, inter-municipal associations, regional and general councils), public institutions (secondary schools and sixth-form colleges, nursing homes, etc.), 2,456 local and regional government agencies, 1,004 public and private low-income housing management organisations (low-income housing agencies) and 159 LDCs (137 electric, 19 mixed gas and electricity, 3 gas).

All of these customers account for about 1.2 million electricity sites, of which 260,000 are for low-income housing agencies, with an annual consumption of 30TWh, and nearly 5,000 natural gas sites with an annual consumption of 1.4TWh. Coupled with that are 18TWh of electricity sold to LDCs in 2013.

In 2013, commercial satisfaction for these customers was at 83% and overall satisfaction was 89%. The quality of their interaction with customer service, the advice given, responses to claims, and actions to relieve energy poverty are voted in. 90% of these customers are satisfied with the billing.

## Customer solutions and offers

EDF enhanced its range of electricity offers at fixed prices and at prices indexed to ARENH changes, which were targeted according to sector of activity. This complemented the *Équilibre* offer, produced using renewable energy sources.

EDF also offers:

- customised management services to municipal and low-income housing agency customers, specifically web-based cost and consumption monitoring, Di@lège, customised bill consolidation or billing data sent electronically;
- a "cost amount" offer ("OMC") designed for low-income housing agencies. Its aim is to enhance energy efficiency in low-income housing and allow EDF to earn energy savings certificates. In 2013, over 146,000 low-income housing units were assisted by;
- agreements with local authorities to control their energy consumption. Some local authorities have been granted responsibilities in the area of energy, and they coordinate specific initiatives in Demand Side Management ("DSM") and renewable energy sources ("ENR") in their geographical areas;
- high-performance energy efficiency offers, such as the "Infrastructural Energy Analysis" offer allowing governments and housing agencies to categorise and prioritise energy savings and CO<sub>2</sub> reduction initiatives for their infrastructure through a multi-criteria approach (energy and environmental criteria, technical standards, etc.); a range of DSM and ENR-related advice permitting assembly of an optimal building programme through detailed energy analysis of selected buildings; and the "Local Energy Optimisation" offer that helps to evaluate, upstream from a development project, the local energy solutions best adapted to the area's local social, economic and environmental conditions; low-carbon solutions for evaluating, reducing and compensating for energy consumption-related carbon emissions of a building or of the organisation of an event;
- an "Awareness" range of offers, to get all of the occupants of a site involved in a concrete energy control process. The range includes the "Energy saving awareness" offers designed for the occupants of public sites (local governments, housing agencies, schools) and relies on eco-gesture training workshops (eco-gesture kit). This range includes the "Energy clock" developed by EDF R&D. This innovative device for monitoring real-time consumption in a building is accompanied by an awareness-raising process for the occupants of the site.

### 6.2.1.2.2.3 For sustainable Cities and Territories

The energy development of cities and territories is today naturally associated with sustainable development objectives such as environmental impact, local economic activity and insecurity, which are major concerns for local communities.

To accompany this transformation of communities and stakeholders in cities, the EDF Group, with the help of its R&D expertise, its field experience and specialised subsidiaries, has developed energy solutions that promote renewable energy and are economically relevant, low-carbon, reproducible, adaptable to the specificities of each territory or urban project.

Accordingly, EDF and its subsidiaries and partners offer:

- advice at various territory sizes (buildings, neighbourhoods, cities, regions) for identifying renewable energy potential in a territory and making comparisons among possible energy solutions;
- innovative energy networks such as thermal energy networks using heat pumps;
- renovation of public buildings and individual houses;
- promotion of soft mobility solutions<sup>1</sup> and the implementation and operation of electric transport (recharging infrastructures, electric vehicle car sharing solutions, last-mile solutions, etc);
- innovative local energy production solutions (photovoltaic, biogas, biomass, etc.) based on the potential and characteristics of each project;
- educational activities for saving energy on a daily basis as well as energy management services based on measurement and analysis of consumption and the actions needed involving all stakeholders.

All of these components (upstream advice, implementation and operation) constitute the foundation of an approach for sustainable cities and territories, in both new neighbourhoods and existing urban areas.

Through balancing a pragmatic approach based on operational projects in response to the needs of communities and stakeholders in the city and on innovations in research and development, EDF is a unifying benchmark reference for sustainable cities and territories.

More than 200 projects for the development of cities and sustainable territories are now underway in France, from the reflection phase to the first delivered projects.

### 6.2.1.2.2.4 Public electricity distribution concessions

Public electricity distribution concessions cover two separate assignments:

- development and operation of public distribution networks for which ERDF is responsible (see section 6.2.2.2.2 ("Distribution activities"));
- the supply of electricity to all customers at regulated rates throughout the concession territory, the responsibility of EDF for the entire territory of metropolitan France, excluding LDCs. This assignment consists of providing electricity to all Blue, Yellow, and Green tariff customers in compliance with the concession specifications commitments (such as subscription, payment and delivery terms and contracts).

Each concession agreement is co-signed by EDF, ERDF and by the licensing authority, which is a municipality or group of municipalities. The public distribution of electricity is carried out under 665 concession agreements, of which 45 are within the boundaries of a single department.

About 50 concessions will expire by 2015. The discussions with Niort, Orléans, Nice and Lyon led to the signing of an extension amendment. An organisational structure was established to, among other things, renew the concession agreements, mobilise both national and regional expertise, develop and improve the Concession Activity Summary Reports ("CRACs") each year and meet the oversight demands of the licensing authorities.

1. By foot and bicycle.



For the supply portion of the contract, the period ahead will be particularly marked by:

- the strengthening of some controls exercised by the licensors, in the wake of recent case law (and in particular the judgment of Assembly of the French Council of State of 21 December 2012 (no. 342788));
- the debate on the creation of metropolises and concessionary authority that the law might grant to them.

#### 6.2.1.2.2.5 Promotion of electric vehicles

The momentum for electric vehicles, to which the EDF Group has been committed for a long time, is now irreversible in industrialised countries. Based on its years of experience and advantages in the field, the Group has since 2011 been clearly oriented towards a role of industrial operator.

The Group's commercial offer as an industrial operator includes:

- a range of advice intended primarily for local authorities and businesses for the positioning and sizing of recharging infrastructures, such as the identification of areas that are difficult of access;
- the installation of recharging infrastructure for all customer segments: residential, local governments and businesses, parking lots and large-sized retailers;
- remote management and supervision of recharging stations;
- small-scale car-sharing solutions in urban neighbourhoods;
- continuation of the "on-board energy" service, i.e. rental and maintenance with performance guarantees for batteries for heavy vehicles (buses, trucks and electric river shuttles).

In addition to its expertise in recharging solutions, whether for on-board batteries or recharging stations, EDF has developed life-size experiments, with manufacturers such as Renault, PSA, BMW, Toyota. With the town of Font-Romeu, the EDF Group is experimenting with a seasonal electric shuttle that operates regular daily basis between residences, the centre of the village and access to the slopes by gondola. In Grenoble, an individual mobility demonstrator coupled with a network of connected recharging stations is being installed. The goal is also to test new services related to the interoperability of means of access and payment. This experience will allow users to use a unique badge for both public transport and car sharing. In Monaco, with Mobbee, 50 Twizy will be accessible 24 hours a day in 2014 according to the free floating principle: "I take and return my car where I want". The vehicles will be distributed throughout Monaco and may be located via the Internet and smartphones. The operation of the service will be provided by a company co-owned by the Principality of Monaco and SODETREL (see Section 6.2.1.2.2.6 ("Service subsidiaries supporting the Customer Division's strategy") below).

The Group has also initiated a discussion process to develop a commercial offer to allow both corporates and municipalities to discover electric vehicles without having to purchase them.

#### 6.2.1.2.2.6 Service subsidiaries supporting the Customer Division's strategy

Subsidiaries supporting the Customer Division supply energy services to various customer categories (Residential, Business, Corporate and Local Authorities) and cover a broad scope of activities, including studies, construction, equipment maintenance, investment financing and backing in obtaining authorisations and subsidies.

The portfolio of service subsidiaries is the result of successive investments made in existing companies, as well as from the spin-off of businesses that EDF developed itself. These subsidiaries are backed by EDEV (see section 6.4.1.7 ("Other equity interests") and Chapter 7 ("Organisational charts")).

### Integration of energy efficiency services

#### EDF Optimal Solutions ("EOS")

EDF Optimal Solutions brings EDF energy efficiency services to companies and local authorities. Its offerings involve the funding, design, implementation, operation and maintenance of solutions for reducing energy costs and CO<sub>2</sub> emissions. The subsidiary can make a commitment to the efficiency of its solutions in time in performance contracts.

The technical solutions proposed involve energy plants (boiler rooms, cogeneration, compressed air, hot and cold production), climate and electrical engineering, renewable energies including biomass, insulation, lighting and energy performance management (guidance and follow-up, communication with customers, etc.).

Its 2013 revenue was €122 million.

The main competitors of EOS include vertically integrated players such as the GDF Suez group or public housing/construction players, as well as groups involving important public housing/construction players and energy services like Eiffage, Vinci or Bouygues.

#### Heating specialists

##### CHAM

Wholly owned by EDF, CHAM performs maintenance work on central heating and hot water systems for residential customers, offices, low-income housing managers, and for jointly owned property managers. CHAM is expanding its presence throughout the country through targeted external growth operations. Its 2013 revenue was €71 million.

#### Engineering firms

##### Bastide-Bondoux, ETC, ICR-LBE, Transénergie and H4

These engineering firms wholly owned by EDF conduct thermal studies and provide advisory and optimisation services for all new or existing residential, service or industrial buildings.

#### Financial services

##### Domofinance

Domofinance was created in 2003 and licensed as a financial company by the *Comité des établissements de crédit et entreprises d'investissement* ("CECEI") on 29 September 2003, pursuant to Articles L. 511-9 to L. 511-14 of the French Monetary and Financial Code.

EDF holds a 45% equity interest in Domofinance; the remaining 55% is held by BNP Paribas Personal Finance (a subsidiary of the BNP Paribas group).

Domofinance meets the financing needs of EDF residential and collectively owned housing customers who wish to integrate efficient energy solutions in their home renovation projects. In particular, it markets and finances the "EDF Bleu Ciel® renovation loans".

In 2013, Domofinance granted more than 56,000 loans.

#### Waste treatment

See section 6.4.1.3 ("Energy services").

#### Downstream integration of smart electrical systems

Thanks to the opportunities offered by smart electrical systems, the role of electricity, an "intelligent energy" as a vector for transition towards a low carbon society specifically built around sustainable cities is another major priority around which the Group's marketing strategy is based.

Recently-created subsidiaries are now working in this strategic area.

## Netseenergy

Netseenergy, which is wholly owned by EDF, has historically developed and produced the range of services for remote monitoring of load curve, which gives corporate customers and local authorities access to an online graph of their consumption load curves. Its 2013 revenue was €6 million. Since 2010, the company has been marketing a new range of energy-efficient voice-activated services in the business market.

Based on the latest technological developments in the field of smart metering, these services make it possible to identify and display energy and water consumption in buildings on an ergonomic web portal. Diagnostic and advisory services provided by a specialised team of energy experts are offered in addition to the remote services.

Netseenergy also directs a growing part of its research to new areas of innovation, in particular the growing and cutting-edge field of smart grids, and more specifically the remote electrical usage disruption to smooth peak loads (smart building). As a result, the Company is engaged in multiple demo projects in metropolitan France and the overseas departments, including the "Nice Grid" project in Provence-Alpes-Côte-d'Azur and the "Smart Electric Lyon" project in Rhône-Alpes-Auvergne through EDF Rhône-Alpes.

## Edev Edelia (Téléservices)

Edelia, which is wholly owned by EDF, oversees the deployment and operation of prototypes within smart electronic systems (including the "Une Bretagne d'avance" experiment in Brittany of scattered disruption of residential customer usage, as part of the Brittany's Electricity Pact). Edelia conducts and develops full industrial solutions (such as screens, home equipment management) for up to as many as 100,000 customers. Its 2013 revenue amounted to €10 million. As part of pilot projects, Edelia is developing an interconnected solution with communicative meters that is compatible with all energy savings systems installed by their customers.

## Electric vehicles

### Sodetrel

Sodetrel is wholly owned by EDF. It implements all electric vehicle projects for local authorities, businesses or individuals. As such, it continues its "on-board energy" activity, i.e. rental and maintenance with performance guarantees for batteries for heavy vehicles (buses, trucks and electric river shuttles) with offers based on lithium batteries, and develops offers in the field of recharging infrastructures – installation, operation and supervision of recharging terminals. Sodetrel, in collaboration with its eco-mobility partners, also offers simple, economical and ecological car-sharing solutions.

## 6.2.1.3 Upstream-downstream optimisation - trading

### 6.2.1.3.1 Role and activities of the upstream-downstream optimisation trading division

The primary function of the Upstream-Downstream Optimisation & Trading Division (*Direction Optimisation Amont/Aval & Trading*, or "DOAAT") is to ensure a balance for electricity between EDF upstream resources and downstream outlets in France, and to maximise the gross margin of the integrated upstream-downstream entity:

- resources: generation fleet, long-term electricity procurement contracts, wholesale purchasing, purchase obligations from decentralised generating entities, contractual disruption capacity;

- outlets: long-term supply contracts, end customer sales, wholesale market sales, sales to competitor suppliers in France (including VPP and ARENH).

Optimisation consists of making short and medium-term economic arbitrages between the various resources available to satisfy EDF's supply commitments to its customers, while controlling risks linked to uncertainties related to generation, consumption, market events, and their financial consequences.

DOAAT's objective is to secure and maximise the gross electricity margin of the "generating-supply" entity through optimal use of upstream or downstream asset flexibility and by permanently seeking the best wholesale market purchasing and sales options.

DOAAT deals with supply in terms of fossil fuels – gas, coal and oil – for EDF's plants.

For the longer term, DOAAT is planning and proposing structural changes in the upstream and downstream asset portfolios, based on anticipated changes in the market and Company strategy in France.

For transactions on wholesale markets, DOAAT relies exclusively on EDF Trading, a wholly owned EDF subsidiary (see section 6.4.1.1.2 ("EDF Trading")).

DOAAT had 429 employees in France at the end of December 2013.

### 6.2.1.3.2 Upstream-downstream balance optimisation activities

DOAAT is responsible for the management of physical risks to EDF's upstream-downstream electricity portfolio and the financial consequences.

It maximises the generation and supply gross margin by using available flexibility leverage of upstream, downstream and wholesale market portfolios, and proposing changes in value and structure of these portfolios over different time periods.

In the medium-to-long term, DOAAT's role is to create an optimised and balanced view of EDF's generation-supply portfolio, by determining the financial trajectories and the landscape of acceptable physical and financial risks. The main levers of the portfolio are: (i) seeking new maintenance or operating policies with a view to improving the availability or flexibility of generation resources and adapting the fleet mix (DOAAT works in support of the DPI in this respect); (ii) segment-based market share strategies, tariff changes, scaling disruption and seeking new sales offers (DOAAT works in support of the DCO in this respect); (iii) adapting existing long-term contracts and seeking suitable new structured contracts; (iv) contributing to the preparation of the generation investment programme and, notably, the renewal of the fleet in parallel with the development of long-term downstream market opportunities.

Management of the electricity supply/demand equilibrium is also considered in shorter periods (three years to one month), within the framework set by extreme risk (volume risk) and price risk policies drafted in accordance with directives of the Corporate Risk Management Division and approved by the Company's Executive Committee. From a physical point of view, the main risks for energy are variations in temperature, water availability, availability of the generation fleet and market shares. Thus, for example, a decrease in temperature of 1°C in winter leads to an increase in consumption of electricity in France of approximately 2,400MW<sup>1</sup> and, in two extreme years, the difference in available hydropower loads can reach approximately 15TWh. DOAAT also manages the exposure of EDF's upstream-downstream portfolio to price variations on energy wholesale markets (electricity, gas, coal and oil products) and the CO<sub>2</sub> emission rights market.

1. Source: RTE.

In order to deal with the "volume" risk, DOAAT ensures that it has sufficient power margins over all time scales to allow it to meet its commitments in almost all situations. DOAAT has a group of leverage actions: scheduling of facility maintenance operations (especially nuclear), inventory management (fossil fuels, hydropower reserves and customer disruption capacity), and wholesale market sales and purchases. DOAAT manages "price" risk through EDF Trading, which is exclusively tasked with market access on DOAAT's behalf. The sales/purchases made by EDF Trading on behalf of DOAAT are carried out in accordance with the "price" risk policy.

DOAAT is tasked with "balance responsibility" within EDF's scope in mainland France and with regard to RTE, i.e., EDF will compensate RTE financially in the event of a discrepancy within the scope of its balance management. Optimisation consists of informing RTE one day in advance of a balanced offer programme for the next day, which allows the supply costs of EDF's contractual commitments to be reduced. In order to ensure balance in EDF's scope, DOAAT can benefit from the flexibility of the customer portfolio (namely disruptions) or generation assets (assets that can be mobilised within a few hours, such as its fossil-fuel fired fleet, or within a few minutes as is the case for combustion turbines and hydropower plants), depending on their economic value and by hedging them with the "spot" sales and purchases of energy carried out by EDF Trading on the markets. Customer portfolio and generation flexibility also enable arbitrages within the same day.

In addition, DOAAT analyses and evaluates the impact of regulatory and institutional developments on the physical and financial balance of the generation-supply portfolio: a system for allocating capacities at borders, reinforcement of environmental requirements.

### 6.2.1.3.3 Capacity auctions

Capacity auctions (or Virtual Power Plants – "VPPs") are the result of a commitment undertaken by EDF with the European Commission in early 2001, when EDF International acquired an interest in EnBW, to make part of its generating capacity available to the market. This commitment ended on 30 November 2011 following the buyout by the German state of Baden-Württemberg of EDF International's interest in EnBW in 2010.

This release from commitments did not, however, call into question the rights acquired during previous auctions. EDF will thus continue to deliver the volumes purchased to counterparts until mid-2015, at which time the delivery commitments for the longest contracts will expire. The volumes made available by EDF will thus decrease gradually to 400MW in 2014 and 150MW in 2015.

### 6.2.1.3.4 Long-term electricity purchase/sales contracts

EDF has business relationships with European operators such as GDF Suez, Enel, EnBW, Axpo and Alpiq, through numerous energy purchase or sales contracts.

There are several types of contracts, relating to:

- rights to energy generated by plants, mostly nuclear, in which the counterparts hold a stake during the operation of the facility (see section 6.2.1.1.3.1 ("EDF's nuclear fleet" – "Generation allocation contracts"));
- drawing rights for electrical power, totally or partially guaranteed for a period typically between 15 to 25 years.

The portfolio of contracts represents the EDF generation fleet structure, mainly composed of nuclear facilities (EDF sells base load energy and purchases mid-merit and peak load energy).

In 2013, the volumes sold and purchased represented 37.8TWh and 2.2TWh, respectively.

It should be noted that Enel's withdrawal from the EPR Flamanville 3 project, which took effect on 19 December 2012, will lead to the termination of the anticipated access agreements from which it benefits. As a result, Enel received 800MW in 2013 and will receive 320MW in 2014, under the commercial terms defined in these agreements.

### 6.2.1.3.5 Regulated access to electricity from the existing nuclear fleet ("ARENH")

ARENH, implemented under the Electricity Market New Organisation law ("*loi NOME*"), was introduced on 1 July 2011 for the benefit of EDF's competing suppliers. This system allows competitors, after signing a framework agreement, to supply their end customers located in mainland France through EDF and network operators to offset their losses.

The primary ARENH allocation mechanism is as follows: at regular intervals during the year ("windows"), EDF's competitors can make ARENH requests to the CRE for the following 12 months, based upon delivery load forecasts.

In the ARENH scheme, the products delivered are defined by a quantity (in MW) and a profile. Consumers are divided into two categories: (1) major consumers and buyers for losses and (2) small consumers. The first grant a right to their suppliers, whose power is constant (base), and the latter have a right to a product whose power is modulated at a rate of twice an hour. The second profile is built to reflect the modulation of the French nuclear fleet's generation and gradually converges towards the first to arrive, starting 1 January 2016, at a single profile.

The CRE determines the ARENH ex-ante rights of each provider based upon provider forecasts according to their customer portfolio and to established allocation methods. It then notifies each provider about its allocated load, and EDF about the aggregated load. Delivered loads in total cannot exceed 100TWh for deliveries to end users; beyond this ceiling, the losses of the network operators gradually benefit from ARENH rights, from 1 January 2014. ARENH rights depend on the historic nuclear generation portion of end-user consumption in France, and as such do not cover consumers' total supply. There is a possibility of revising the balancing coefficients (which guarantee that the ARENH loads match the proportion of nuclear power generation in national consumption in France) before the start of a delivery year, for example in the event that a decision is taken by a competent authority that affects annual power plant generation.

At the end of each year, the CRE settles the ARENH rights of each supplier based on actual customer consumption, in order to guarantee the usefulness of the competition-driven mechanism to the benefit of end customers. An additional price component is then billed to every supplier whose actual rights are below those allocated based on their forecast.

Since July 2011, the price of ARENH was, pursuant to Article L. 337-6 of the French Energy Code, fixed by order of the Ministers for the Economy and Energy after consultation with the CRE. Since 8 December 2013, the price has to be fixed by ministerial order on the proposal of the CRE in view of the historic economic conditions of nuclear electricity production in France, while the methods of identifying and recognising the costs taken into account will be set by French Council of State decree. The joint press release of the Ministry of the Economy and Finance and the Ministry of Ecology, Sustainable Development and Energy dated 22 October 2013 states that the price of €42/MWh shall be maintained until the publication of the decree to establish a methodology for the calculation of the price of the ARENH, in accordance with France's commitments to the European Commission. This decree, announced by the government for the end of the first quarter of 2014, is still considered. At the date of filing this reference document, this decree is not issued.

The loads delivered by EDF to its competitors in 2013 amounted to 64.4TWh.

On 31 January 2012, the Court of Auditors published its report on the nuclear power industry's costs. Based on the methodology developed by the Court

of Auditors including the post Fukushima impact, the MWh output average cost amounts to €54.2 with 2010 financial conditions on the period 2011-2025, on the basis of the "economic current cost" method. This method outlines all the costs related to the operating life of the fleet and enables to compare with other generation methods.

## 6.2.2 Regulated activities in France

### 6.2.2.1 Transmission – Réseau de Transport d'Électricité (RTE)

Created on 1 July 2000 and a subsidiary since 1 September 2005, RTE (the Electricity Transport Network) manages the French electricity transmission network, which it owns and operates, maintains and develops.

The table below provides a summary of energy flows on the RTE network over the last three years:

(in TWh)	2013 <sup>(1)</sup>	2012	2011
<b>Injections</b>			
Generation	550.9	541.6	542.5
<b>Withdrawals</b>			
Energy withdrawn for pumping	7.1	6.7	6.8
Deliveries (including losses)	495.0	489.5	478.8
<b>EXPORT BALANCE OF PHYSICAL EXCHANGES <sup>(2)</sup></b>	<b>48.8</b>	<b>45.3</b>	<b>56.9</b>

(1) Provisional data (definitive data from the 2013 French Electricity Report will be available in July 2014 on the RTE website: <http://www.rte-france.com>).

(2) Including water rights and exchanges via distribution networks.

RTE gives special attention to supporting the development of renewable energy in France in the best possible conditions. The development of the transmission network and interconnections is an essential element for ensuring development of renewable energies, particularly wind energy, and their integration into the electrical system.

Meeting together in the GO 15 – Grid Operators organisation, formerly called the Very Large Power Grid Operators ("VLPGO"), the 16 main transmission operators signed a common statement on investments at the General Meeting held in New York on 28 and 29 October 2013. The statement underscored the need for considerable investments to adapt networks to the new landscape of renewable energies, without forgetting the impact of the increase in electricity consumption in emerging countries. These investments are also required to replace obsolete electricity infrastructures and modernise the networks in order to improve reliability and security. They will be made possible due to regulatory incentives and transmission tariffs that cover both the operating costs for operating networks and the financing of extensions.

### 2013 Energy Balance <sup>1</sup>

Electricity consumption in France, corrected for meteorological contingencies, tends to stabilise.

2013 was marked by a particularly cold and rainy first half after which the trend reversed. During the year, temperatures were on average 0.8°C below reference temperatures and were a little colder than in 2012, in spite of the cold wave in February 2012. Consequently, gross consumption reached 495.0TWh, up by 1.1% compared to 2012.

With more than 100,000km of high and extra-high voltage circuits and 46 cross-border lines, this network is the largest in Europe. Its geographical position places RTE at the heart of the European electricity market. RTE is the entity responsible for the correct operation and safety of the electricity network. It guarantees free and fair access of all users of the network.

In 2010, EDF allocated 50% of the RTE's securities to its portfolio of assets dedicated to financing the dismantling of nuclear power plants. Following this transaction, RTE remains wholly-owned by EDF, but the change in governance that accompanied the operation (see section 6.2.2.1.1 ("Organisation of RTE") below) led the EDF Group to consolidate RTE using the equity method rather than by full integration, starting on 31 December 2010.

In 2013, the RTE Group recorded net income of €494 million (see section 20.1 ("Historical financial information") and note 23 to the consolidated financial statements for the year ended 31 December 2013 ("Investments in associates")).

This increase, linked to the thermo-sensitivity of French consumption, was set in a general downward trend in Europe in the first half of the year, particularly in Germany, Italy and Spain; in the United Kingdom consumption was stable.

After correction for various macro effects – meteorological effects, 2012 leap year, change in energy sector withdrawals – consumption in France reached 476.2TWh in 2013, nearly at the same level as that of 2011 and 2012 (respectively 476.3TWh and 476.7TWh).

Under the effects of the economic slowdown, consumption in the industrial sector (excluding energy sector withdrawals) declined by 2.5% between 2012 and 2013, with however a trend toward stabilisation appearing at the end of the year. This decline was more marked in the automotive, paper/cardboard and steel industries, whereas consumption in chemical industries was up slightly.

At the same time, electricity consumption (corrected for meteorological effects) of consumers connected to distribution networks tends to stabilise. At this stage it is not possible to determine in what proportion this slowdown is due to measures to manage demand rather than to the effects of the economic crisis.

Without a particularly marked cold wave, the peak was 92.6GW on 17 January 2013, a level that was reached for the first time in 2009 and has since been exceeded, notably on 8 February 2012 with 102.1GW. During the summer, power consumed reached its lowest level on 11 August with 26.6GW: this is the lowest level observed in five years.

In spite of the slowdown in the development of electrical heating in new construction, the sensitivity of consumption to cold temperatures became slightly more noticeable and can now be estimated in the order of 2,400MW per degree Celsius in winter.

1. Source: RTE, Electric Power in France in 2013.



Mechanisms of electrical usage disruption and consumption moderation continued to develop, with the maximum capacity offered on the balancing mechanism reaching nearly 900MW on some days in November 2013. The annual volume of activated disruption reached 20GWh over the year.

## The share of renewable energies in electricity consumption continued to increase

Due to exceptionally high levels of precipitation in spring 2013 – rainfall was among the highest in the last 50 years according to *Météo France* – hydropower generation increased by nearly 20% compared with 2012 to reach 76TWh. This annual volume is the highest in the last ten years, the previous record high dating from 2001 at 77TWh.

Nuclear power plants had a better availability rate in the summer of 2013 than in the summer of 2012, which enabled the industry to increase generation over this period. On the other hand, over the second half of the year, generation was down, which meant total nuclear generation in 2013 was 1.2TWh below 2012.

Fossil-fuel thermal power plants, which play a complementary role in electricity generation, saw their generation decline by 7% in 2013. This is first explained by the stagnation in demand, and also by the strong generation of hydropower and other renewable energies.

Within the thermal line, contrasting situations can be seen in coal-fired generation, which is up, and fuel oil and gas generation, which are down by nearly 20%. The particular difficulties in gas compared to coal are explained by the drop in the price of coal and the low cost of CO<sub>2</sub> quotas. CO<sub>2</sub> emissions linked to electricity production in 2013 are stable compared to 2012.

Taking into consideration hydropower, generation from all sources of renewable energy reached 20.7% of French consumption in 2013. This is the highest level in the six last years.

Generation from renewable energy sources excluding hydropower increased by 8.5% and exceeded 25TWh. More than half came from wind power while photovoltaic power and generation from power plants using renewable fuels continued to grow. Maximum wind power generation over 2013 was attained on 23 December at 9:00 p.m., reaching 6,440MW. The maximum photovoltaic power generation over 2013 was attained on 21 August at 2:00 p.m., reaching 3,000MW.

Wind power and photovoltaic projects whose connection to the transmission network is in progress or planned represent 6,270MW of additional power. Two thirds of these projects are devoted to offshore wind power. Development of small wind power and photovoltaic sources remains for its part preponderant over the distribution networks.

To accommodate these new projects, it is often necessary to enlarge the network. In compliance with applicable laws, RTE develops "diagrams for connection to the renewable energy network" in order to give visibility to stakeholders on current and future capacities. At the end of 2013, diagrams for the Alsace, Auvergne, Bourgogne, Centre, Champagne-Ardenne, Lorraine, Midi-Pyrénées and Picardie regions were approved by the competent regional prefectures.

## Interconnection capacities increasingly requested

France kept a positive export balance of 47.2TWh (contractual exchanges via the interconnection networks), up compared to 2012, with 79.4TWh of exports and 32.2TWh of imports. France was a net exporter every month in 2013, unlike 2012 when in February it was an importer due to the cold wave. From January to April, France imported more from Germany than in 2012, as a result of the cold temperatures in the country. In summer, the monthly balance became positive again (more exports than imports), which was not the case in 2012.

Exports to Belgium and the United Kingdom were up. This is explained by high gas prices, which maintained an electricity price differential favourable to the French generation fleet. One also sees strong imports from Spain between February and April as well as in November, months in which Spanish prices are very low due to a high wind power generation in Spain. The export balance to Italy remains positive, with however a slow period in summer due to the significant contribution of photovoltaic power recently developed in this country.

### 6.2.2.1.1 Organisation of RTE

In accordance with its articles of association, approved by Directive 2005-1069 of 30 August 2005, RTE is a French public limited company (*Société Anonyme*) with both an Executive Board and a Supervisory Board.

RTE's Supervisory Board is comprised of 12 members divided into three councils, including four employee representatives, four government representatives and four members appointed by the Ordinary Shareholders' Meeting.

RTE's Executive Board is made up of three members exercising their duties under the control of the Supervisory Board, within the limits set by the Energy Code and RTE's articles of association. Subject to the approval of the Minister for Energy, the Supervisory Board appoints the Chairman of the Executive Board and, based on the Chairman's recommendations, the other members of the Executive Board.

### 6.2.2.1.2 RTE's activities

In France, RTE operates a Public Transmission Network ("PTN") in application of Law no. 2004-803 of 9 August 2004 and performs its missions within the conditions set down by PTN concession model specifications. These specifications were approved by Decree no. 2006-1731 of 23 December 2006. An amendment was signed on 30 October 2008; it will end on 31 December 2051.

Pursuant to Directive 2009/72/EC, transposed in Articles L. 111-3 to L. 111-6 of the French Energy Code, transmission system operators must now be certified after a process involving the CRE and the European Commission, which aims to ensure that the entity has met the conditions of independence imposed by said text. RTE lodged a request for certification in June 2011. The CRE's certification decision of 26 January 2012 was published in the *Journal officiel* on 12 February 2012.

RTE thus manages the transmission infrastructure: it operates and maintains the public transmission network and is responsible for its development, minimising costs for the community and ensuring the safety of the system, people and property.

RTE guarantees access to the transmission network: it enters into contracts with transmission network users based on network access tariffs and in accordance with non-discriminatory regulations.

RTE also manages energy flows: it ensures the supply/demand balance and makes adjustments, manages electricity flows, and manages access rights to international interconnections in collaboration with neighbouring network operators. It mobilises reserves and offsets losses, carries out necessary accounting adjustments and resolves discrepancies.

RTE faces different challenges as operator of the electricity transmission network: integration of the European market, fundamental restructuring of the power generation fleet, societal changes strengthening restrictions on the integration of new public interest infrastructures and the maintenance of industrial resources to meet the needs of customers and local authorities. In response to such challenges and with CRE approval, RTE is undertaking a new phase of investment: they were increased to more than €1 billion annually

between 2009 and 2012 and to more than €1.4 billion in 2013. To finance its investments, RTE has its own resources, based primarily on the tariffs paid by network users. This tariff is calculated without discrimination to cover all of RTE's costs, insofar as they correspond to the efficient management of transmission, and a fair return on the capital committed to investment programmes approved by the CRE (see section 6.2.2.4 ("Tariffs for Using the Public Electricity transmission and distribution Networks ("TURPE")") below).

## 6.2.2.1.2.1 Management of the transmission infrastructure

### Maintenance

RTE manages the assets of the transmission network through daily maintenance, emergency repairs and replacement at end of life or after damage.

Following the storms of 1999, RTE implemented a mechanical safety programme. Undertaken with numerous external subcontractors, the programme's objective is to protect against major climate events by strengthening the mechanical resistance of overhead lines to enable them to withstand wind speeds of up to 150km/h, and the transformation or installation of approximately 16,400 anti-fall pylons in order to prevent a domino effect if wind speeds were higher. This programme aims to guarantee the supply of all stations in less than five days after a major weather-related disruption.

At the end of 2013, the rate of progress in the deployment of anti-fall pylons was greater than 97%. These special pylons present significantly improved mechanical resistance and are installed every three to five kilometres on extra-high voltage lines (between 225,000 and 400,000 volts). In 1999, falling trees were responsible for 50% of all damage to pylons. RTE has accordingly undertaken work to widen forest clearance corridors. This work was 98% complete by the end of 2013.

By the time the programme is completed in 2017, RTE will have spent a total of €2.4 billion on making its network mechanically secure. This represents an average rate of expenditure of around €160 million per year. The programme involves 45,000km of overhead lines on the RTE network.

Heavy snowfall in December 2010, and the Klaus, Xynthia and Joachim storms in 2009, 2010 and 2011 respectively, which were stronger in certain areas than the 1999 storms but resulted in less damage, demonstrated the soundness and results of RTE's mechanical network security programme.

By 2017, this security work will ensure that each RTE customer delivery point will be connected to the network by at least one line capable of withstanding wind speeds equivalent to those of 1999, in compliance with the new more rigorous mechanical resistance standards.

2013 confirmed the good results achieved in recent years in terms of power quality. Equivalent outage times for RTE customers were accordingly equal to 2 minutes and 59 seconds excluding exceptional events. The trend in equivalent outage times in 2013 remained near to that of previous years and thus reflected efforts to limit the number of incidents and their consequences, implemented as part of network development, maintenance and operation policies.

### Development and realisation of new investment in the transmission network

In addition, RTE is continuing to develop and renew the network. The proposed and completed projects are part of a trend towards a growing need to meet the challenges of the energy transition. Every year RTE prepares a multi-annual investment programme submitted to the CRE. In 2013, RTE invested a total of €1,446 million, of which €1,318 million for network facilities. The main projects contributing to RTE's 2013 investment programme are the project to strengthen the France-Spain interconnection in the eastern Pyrenees (Baixas-Santa Llogaia), projects to replace conductors along some 400kV axes to increase transits (Lyon-Montélimar, Baixas-Gaudière), the finalisation of work on the 400kV Cotentin-Maine line, and also, for the regional networks, the undertaking of the security net

project in PACA regions. In addition to the above, there are major projects to install compensation systems to guarantee voltage stability in northern and south-western France.

For 2014, the RTE investment programme approved by the CRE stands at €1,413 million. The main investments will focus on the continuation of work to replace conductors on the Lyon-Montélimar axis, construction of the France-Spain interconnection link on the eastern side of the Pyrenees, strengthening of the power supply in the south of the Pays de la Loire region, and the implementation of the PACA security net.

RTE's investments are made in a context of growing needs in order to meet the challenges of maintaining supply security levels, accommodating new means of power generation (including intermittent renewable energies), integrating European electricity markets and responding to the increasing need to renew infrastructures.

In 2013, the regulated asset base ("RAB") increased by €474 million, from €11,670 million at 1 January 2013 to €12,144 million at 1 January 2014<sup>1</sup>. For the record, the RAB is remunerated by the WACC tariff of 7.25% before tax. It represents RTE's industrial asset, after deduction of investment subsidies, and is calculated excluding property, plant and equipment in progress (that until the end of 2012 were remunerated by the TURPE 3 tariff of 4.8% and for the 2013-2016 period are remunerated at 4.6% in application of the CRE tariff decision of 3 April 2013 published in the *Journal officiel* of 30 June 2013).

## 6.2.2.1.2.2 Management of energy flows

### Cost allocation

The costs corresponding to "balancing offers" implemented by RTE to address negative imbalances are passed on to the balance responsible entities (generators, traders, suppliers, etc.) in proportion to their imbalance. In the event of positive imbalances, RTE financially compensates the balance responsible entities.

### Interconnections

RTE manages access to international interconnections in collaboration with the transmission system operators of neighbouring European countries.

The European electricity transmission networks are interconnected and ensure that energy can be transmitted from one country to another. These interconnections are used to ensure the operating safety of the electricity transmission networks (in particular using neighbouring electricity generation or transmission equipment to compensate for a major generating or transmission unit outage in France and vice versa) and to develop the European electricity market by enabling an electricity supplier to sell its energy to a customer in another country in the European Union. Moreover, these interconnections, by working on the basis of time differences between peak-loads on different sides of borders, enable generation capabilities to be better shared at a European level.

### Interconnection between France and Spain

INELFE (*Interconnection Électrique France Espagne*) is a Franco-Spanish company created in October 2008 to carry out the whole of the interconnection project between France and Spain, from the initial feasibility studies through the completion of the actual construction work. It will guarantee that the technical and environmental solutions selected by France and Spain for this project are consistent. INELFE is a French simplified limited company 50-50 owned by RTE and its Spanish counterpart REE (Red Eléctrica de España), which benefits from the structures and expertise of both its parent companies as regards the design and construction of the link. In October 2009, the Ministry for Ecology, Energy, Sustainable Development and the Sea confirmed the route (area of least impact) proposed. By order of 22 April 2011, the French part of the Baixas-Santa Llogaia underground direct-current link, and part of the France-Spain project, was declared to be of public utility. The declarations of public utility for the "Baixas substation"

1. Total pending approval by the CRE, calculated on the basis of actual amounts. The provisional total approved during deliberations on the TURPE 4 held on 3 April 2013 was €11,654 million for 2013 and €12,114 million for 2014.

and "service gallery" were also signed by the Prefect of the Pyrénées-Orientales department on 4 May 2011. The commissioning is planned in 2015. With this in mind, an agreement signed on Thursday 6 October 2011 between EIB, INELFE, REE and RTE provides for the participation of the European Investment Bank ("EIB") in financing the France-Spain underground interconnection link in the form of a €350 million loan granted to the two system operators, REE and RTE. This funding will represent half of the project's total budget of €700 million.

As part of the EEPR (European Energy Programme for Recovery), €225 million of the interconnection's financing will also be subsidised by the European Union. The main aim of this new interconnection is to double the electricity exchange capacity between the Iberian peninsula and the rest of Europe, from 1,400MW to 2,800MW.

### European Network Coordination

In December 2008, RTE and ELIA<sup>1</sup> created a joint venture called Coreso to coordinate the operation of electrical grids covering France and Belgium. The creation of Coreso meets the needs of strengthening operational cooperation between transmission system operators ("TSOs") as expressed both by the European Commission and by the actors on the electricity market. Coreso should enable a better integration at the regional level of output from renewable sources and guarantee a secure management of cross-border flows, which are rising sharply.

National Grid became a Coreso shareholder in May 2009, followed by Terna and 50 Hertz, transmission system operators in Italy and north-eastern Germany, on 26 November 2010. The integration of these TSOs enabled the technical coordination centre to greatly expand the scope of its European network monitoring. The expansion is part of RTE's desire to contribute to the affirmation of European electricity networks' "common interests", and makes cooperation with other TSOs a key performance component in the dynamic of its industrial project. Coreso is now being recognised more widely as a stakeholder in the European coordination processes.

### Market coupling

Because of existing limitations in transnational exchange capacity, EC Regulation 714/2009 establishes new European-level rules to handle network congestion problems for interconnection capacity allocation (see section 6.5 ("Legislative and regulatory environment")). In practice, there are two methods that allow for compliance with this regulation:

- interconnection capacity allocation by open auctions: the sale of exchange programming rights;
- allocation by implicit auctions: interconnection access priority is given to the least expensive energy blocks.

In the latter case, markets couplings have been established. Market coupling is based on the performance of energy markets and relates to merging the order books (purchases/sales) of two neighbouring markets and creating a common price for both markets, within the limits of import and export capacities.

Trilateral market coupling of the French, Belgian and Dutch electricity markets was started in November 2006. This was a first in Europe (apart from Noordpool), and is today a success. Since 2007, electricity markets and transmission system operators in Belgium, France, Germany, Luxembourg and the Netherlands have made significant progress in electricity market coupling in the "North West Europe" region (Central and Western Europe – "CWE") and improved supply security coordination. In October 2008, seven TSOs (RTE, Elia, TenneT, Cegedel Net, EnBW, E.ON Netz and RWE TSO) created a

joint venture called the Capacity Allocation Service Company (CASC-CWE) to offer one-stop transmission capacity auction allocation to CWE zone country borders (France, Benelux and Germany). After more than three years of work, on 9 November 2010, RTE and its partners in the CWE region, systems operators and markets successfully launched market coupling in the France-Germany-Benelux region. Market coupling in the region enabled simultaneous optimisation of cross-border interconnection capacity for generation in all the countries within the region. Barring interconnection congestion, this will enable a flat price in all these countries.

Since the launch, a flat price has also been set throughout the day in the zone, reflecting the gains in network infrastructure usage facilitated by market coupling.

This coupling marked an important step towards creating a single European energy market. Work is currently underway to expand regional coupling to "North-West Europe", including France, Germany, Benelux, the Scandinavian countries and the United Kingdom, by 2014.

### 6.2.2.1.2.3 RTE's international activities

RTE International, a subsidiary of RTE created in September 2006, is RTE's interface for all engineering and consultancy services outside France, either in response to calls for tender or by privately negotiated contracts. RTE International's revenue made up a minor part of that of RTE. RTE continues to pursue a strategy of geographic development and diversification of its international services.

### 6.2.2.1.3 Institutional and legislative news

Directive 2009/72/EC of 13 July 2009 confirmed the principle set down by Directive 2003/54/EC according to which the management of an electricity transmission network must be performed by a distinct legal person from those performing generation or supply activities, while substantially reinforcing the obligations of independence of the transmission system operator.

As part of the transposition of this directive, France decided to use the so-called "independent transmission system operator" model. This model allows an integrated group to be maintained, at the cost of high restrictions in terms of relations between RTE and the vertically integrated entity ("VIE"), including Group entities in charge of generation or supply.

These restrictions, set down in Directive 2009/72/EC, were transposed into domestic law and codified in Articles L. 111-9 *et seq.* of the French Energy Code. They mainly cover the conditions governing the exercise of the mandates of RTE's directors within the VIE<sup>2</sup>.

As regards relations with other VIE entities, Article L. 111-18 of the French Energy Code sets out the principle of prohibiting the provision of services by these entities for the benefit of RTE, with the exception of those required to ensure the safety and security of the transmission network. Confusion of image is also prohibited, requiring RTE to specifically own its brand.

Pursuant to Article L. 321-6 of the French Energy Code, RTE drafts a ten-year network development plan outlining the main infrastructure that must be built or substantially altered within ten years, investments already agreed to and new investments that must be made within three years. This plan is sent to the CRE, which checks that it covers all requirements. Every four years, it is submitted for approval to the Minister for Energy. In addition, in order to apply this ten-year plan, the Chairman of the RTE Executive Board submits the investment programme for the public electricity transmission network to the CRE on an annual basis, in accordance with RTE's medium-term financial plan.

1. ELIA is the operator of the Belgian high voltage electricity transmission network, from 30,000 to 380,000 volts.

2. In particular, the compensation of directors and employees must be based on indicators specific to RTE. They cannot hold any interest in or receive any financial benefit from the companies forming the VIE, except, for employees, holdings as of 1 June 2011, in respect of bonus share plans and profit-sharing or incentive agreements.

Lastly, pursuant to Articles L. 111-34 et seq. of the French Energy Code, RTE designates a Compliance Officer, who must ensure that the principle of independence is respected, and specifically check that the ten-year network development plan is correctly carried out.

## 6.2.2.2 Distribution – Électricité Réseau Distribution France (ERDF)

ERDF's main purpose is the operation and development of the public electricity distribution network, guaranteeing its safety and security and ensuring the balance of electricity flows at all times. ERDF is a wholly owned

subsidiary of EDF resulting from the spin-off of distribution activities. It has been operational since 1 January 2008. It serves approximately 34,000 of France's 36,500 municipalities. Other towns are served by Local Distribution Companies ("LDCs").

In 2013, ERDF distributed electricity to more than 35 million points of delivery ("POD") in mainland France via a network of approximately 1.3 million kilometres.

At 31 December 2013, ERDF employed 38,667 people.

In 2013, volumes of electricity carried on the ERDF network were as follows:

In TWh	2013	2012
Injections by RTE	358.0	351.1
Injections by decentralised suppliers	31.7	29.5
<b>TOTAL INJECTIONS</b>	<b>389.7</b>	<b>380.6</b>
Delivery	364.5	355.7
Losses	25.2	24.9
<b>TOTAL WITHDRAWALS</b>	<b>389.7</b>	<b>380.6</b>

Injections and withdrawals: ERDF delivers electricity to the installation terminals (meters) of network customers, where the withdrawals are made. A number of different operators feed power into the distribution network. It is mainly through RTE, which is responsible for transmission in France (see section 6.2.2.1 ("Transmission – Réseau de Transport d'Électricité (RTE)")), that corresponding injections occur at source substations throughout the distribution network, and generators, in their capacity as facilities whose size enables direct injection into the distribution network. These injections must compensate, at all times, for customer withdrawals and network losses. Failure to do so may result in deterioration in the quality of the supplied product (quality of the wave, voltage and even the continuity of supply).

Losses: the distribution network generates losses, which are in part due to physics (the Fers and Joule effects) and depend directly on the quantity of electricity transmitted. ERDF must compensate for these losses in order to supply the quantity of electricity required by the end-users. In 2013, the loss rate was 6.5% of electricity fed into the network, i.e. 25.2TWh. The cost to ERDF was €1,467 million in 2013. To compensate for these losses, ERDF purchases the corresponding electricity on the market by means of calls for tender, placing approximately 20 qualified suppliers in competition. From 2014 on a gradual scale, ERDF may, as other network operators do, use the ARENH programme to buy its losses for around 60% of its loss purchases.

Technical characteristics: at 31 December 2013, the distribution network for which EDF is the concession holder (see section 6.2.2.2.2 ("Distribution activities")) comprised approximately:

- 622,000km of 20,000V high-voltage A lines ("HVA");
- 702,000km of 400V low-voltage lines ("LV");
- 2,300 HVB/HVA source substations; and
- 764,000 HVA/LV transformers.

Network boundaries are generally, upstream, the source substation, the operational portion of which is ERDF property, which ensures the interface between the transmission and distribution networks, or, in some cases, the substation connected to generation installations in turn directly connected to the distribution network; downstream, the circuit breaker installed at the customer's premises, fall within the scope of the concession.

### 6.2.2.2.1 Organisation of ERDF

The EDF Group's distribution activity in France, in accordance with the legal framework, has been almost exclusively provided by ERDF, a French public limited company (*Société Anonyme*) with an Executive Board and Supervisory Board responsible for managing the public electricity distribution network.

In accordance with Directive 2003/54/EC which principles have been included in Directive 2009/72/EC of 13 July 2009, which stipulates that when the distribution network operator is part of a vertically integrated entity, its organisation and decision-making must be legally independent of other activities unrelated to distribution, EDF and Gaz de France, today GDF Suez, opted to spin off their systems operators; their two subsidiaries, ERDF and Gaz réseau Distribution France ("GrDF"), share a common service pursuant to the legal framework (see section 6.2.2.2.4 ("Shared service and international")).

Pursuant to the law of 9 August 2004, a partial asset transfer agreement allowed EDF to transfer the assets and liabilities related to its electricity distribution activity (such as the rights, authorisations, obligations and contracts related to managing the public electricity distribution network) to ERDF.

The ERDF Supervisory Board is made up of 15 members, of which eight are appointed by the Shareholders' Meeting, five are employee representatives elected according to French Law no. 83-675 of 26 July 1983 relating to the democratisation of the public sector, and two are French government representatives. The Executive Board of ERDF is composed of five members who perform their duties under the oversight of the Supervisory Board.

### ERDF's role in France

ERDF operates the public electricity distribution network according to conditions set in the concession bid specifications (see section 6.2.2.2.2 ("Distribution activities") below), and provides other public services in mainland assigned by French law. To accomplish this mission, ERDF:

- draws up and implements operating, investment and expansion policies for its electricity distribution network;
- ensures user connection and access to these networks in an objective, transparent and non-discriminatory manner, and also provides interconnections with other networks;



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- gives users the information needed to access its networks efficiently (information protected by regulations or law excepted);
- takes responsibility for relations with energy regulators (Ministry of Energy, CRE, concessionary authorities for public distribution) for these activities;
- handles relations with local authorities;
- negotiates, signs and manages concession contracts;
- operates, repairs and maintains electricity distribution networks;
- oversees the design and construction of network infrastructure, and provides project management for these networks;
- provides metering for users connected to these networks, in particular the supply, installation, checking, maintenance and replacement of meters, as well as data management and all tasks relating to the above activities;
- provides services to the LDCs, distributors and organising authorities referred to in III and IV respectively of Article L. 2224-31 of the French Local Authority Code;
- and more generally, engages in industrial, commercial, financial or property transactions relating to the above tasks.

ERDF's investments changed as follows:

Gross investments (in millions of euros)	2013	2012	2011
User and street connections	1,432	1,380	1,309
Intentional investments (reinforcement, security, quality, IS, etc.)	1,745	1,689	1,512
<b>ERDF's total investments</b>	<b>3,177</b>	<b>3,069</b>	<b>2,821</b>
Facilities handovers by third parties and local authorities <sup>(1)</sup>	803	878	932
<b>TOTAL NETWORK INVESTMENTS</b>	<b>3,980</b>	<b>3,947</b>	<b>3,753</b>

(1) After deducting PCT<sup>1</sup> and Article 8<sup>2</sup>

The additional resources committed were allocated to ensuring quality of transmission, network security, safety and environmental protection, fields in which customers' and local authorities' expectations are particularly high.

Increased investment allows ERDF to pursue asset replacement programmes, namely:

- a "climate contingencies" action plan in accordance with the Public Service Contract (see section 6.5.2 ("Public Service in France")), based on a comprehensive assessment of the network's potential weaknesses in relation to climate events. The plan was completed by a "life extension" programme for the overhead high-voltage network in the amount of €50 million, with the provision of remote switching equipment allowing customers' connections to be restored quickly in case of power cuts;

(in millions of euros)	2013	2012	2011
Preventive maintenance budget	273	264	242

### Departmental conferences

Investment programmes are broken down every year on a regional basis during departmental conferences organised and chaired by the Prefect. These departmental conferences aim to strengthen dialogue between contractors

### 6.2.2.2.2 Distribution activities

ERDF operates through the following businesses: ensuring the management of concession assets, managing and maintaining the network to ensure continuity of supply, carrying out work on the network (in particular, the work of connecting, strengthening and renewing the network), providing access to the network for all users within the framework of existing contractual arrangements and managing meter units, acquiring, processing and transmitting network user consumption data.

### Change in investments

In 2013, ERDF invested €3.2 billion, of which €1.4 billion was allocated chiefly to the connection of new customers and producers and to regulatory obligations (moving of roads, PCBs, implementation of regulations to strengthen construction safety close to the networks, etc.). The continuation in relaunching investment resulted in an increase of €356 million in investment on the distribution network between 2011 and 2013. In addition, licensing authorities invested €803 million in 2013. In total, nearly €4 billion were invested on distribution networks in mainland France in 2013.

- the replacement of old underground HVA and LV networks in major cities has also begun, with 1,196km of underground HVA networks replaced in 2013;
- a programme of substation modernisation (checks of digital command equipment, replacement of switchgear, etc.) and to secure these fixtures, especially in dense urban areas.

In addition to its investments, ERDF continues to increase budgets allocated to preventive maintenance of networks, especially for pruning.

who invest in the public distribution network in order to achieve greater efficiency in the capital expenditure devoted to the safety and quality of electrical power.

1. PCT (portion covered by the tariff): portion paid to licensors of the delivery tariff fee for financing a connection when the licensors manage the project.

2. Article 8 of Appendix 1 of the concession specifications on integrating installations into the environment (e.g. burying of power lines).

## The Public Service Contract and environmental and aesthetic concerns

In order to comply with the Public Service Contract's objectives as well as with environmental and aesthetic objectives, ERDF has undertaken to bury 90% of new high-voltage A lines ("HVA") and to apply "discreet techniques" (twisted cable for building façades) to install two-thirds of new low-voltage lines ("LV"). ERDF is not seeking to bury its entire network. A buried network is still subject to the risk of failure, as is an overhead system. It can suffer external aggressions (heat waves, floods, work, etc.) and the time required to locate the incident and restore power to customers tends to be longer than in the case of an overhead system.

In 2013, ERDF built over 98% of new medium-voltage lines using the underground technique, and over 79% of new low-voltage lines using the underground or discrete technique. It thus exceeded its commitment to the French government to reduce the visual impact of the networks established under its contractorship. Also, as part of its climate contingencies plan, ERDF laid more than 4,700km of overhead high-voltage lines in 2013.

## Quality of service

Quality of service is a major objective for ERDF. In 2013, the average outage time excluding transmission incidents and exceptional events was 82 minutes. Quality of service is also reflected by maintaining steady voltage, as close as possible to the value set by regulation, and by minimising the number of power cuts.

Decree no. 2007-1826 of 24 December 2007 sets out the quality of service thresholds to be respected by distribution network operators. This decree aims to ensure over the long term a minimum level of quality for users structurally subjected to significantly more unfavourable power conditions than the vast majority of French users. It dovetails with provisions adopted by the regulator in the Tariffs for Using the Public Electricity transmission and distribution networks ("TURPE") to encourage network operators to maintain and improve the trend in average quality. Regarding the quality of voltage, over 99% of customers in 2013 were considered "well supplied" under existing regulations.

In order to cope with major incidents, ERDF relies on a special rapid-response task force ("FIRE") that can send at any time, to any region, teams and resources from other regions in order to restore electricity to customers as quickly as possible.

To insure the overhead distribution system against the consequences of large-scale "storms", ERDF concluded a contract with Natixis in August 2011, for a period of five years. This "cat-bond" provides maximum cover of €150 million, and in the event of a loss will pay parametric-based compensation tied to a wind-speed index. This cover was supplemented by a policy signed in December 2011 with Swiss Re, which increased total cover to €230 million.

## Development of renewable energies

Within the scope of ERDF, the number of connections made to photovoltaic generation facilities again increased: as of end-2013, 3,731MW of photovoltaic facilities were connected (compared with 3,126MW as of end-2012) representing some 294,490 facilities (262,850 were connected in 2012). The development of wind-farm generation connected to the public distribution network also continued, with over 7,360MW connected as of end-2013.

As of end-2013, ERDF had connected total photovoltaic and wind generation capacity of around 11GW, breaking down as 3.7GW of solar power plants and 7.4GW of wind generation. This generation is rounded out by other types of power, including "established" hydropower (1.4GW) and

cogeneration plants (1.7GW). In total, ERDF had connected an installed base of approximately 15.7GW as of end-2013. These generations represented roughly 8% of generation managed within the scope of ERDF in 2013.

## Electricity market

The French market for electricity supply has been open on a competitive basis to all customers since 1 July 2007.

22 electricity suppliers operate in the French market. They have signed a contract with ERDF, defining terms of operation between the supplier and the distributor when the customer subscribes to a single contract encompassing electricity supply and delivery.

## Concessions

ERDF and EDF manage 625 concessions covering approximately 95% of the population.

In France, public electricity distribution is generally undertaken in a concession regime derogating from the common law on local public service concessions. Pursuant to the law, the licensing authorities own the distribution networks, which are return property<sup>1</sup>. Concession contracts are generally entered into for a period of between 20 and 30 years.

The development and operation of public distribution networks (rational national coverage by public distribution networks, connection and access to public distribution networks under non-discriminatory conditions) is entrusted, pursuant to the French Energy Code (Article L. 121-4), to ERDF, to EDF in areas not connected to the mainland grid and to LDCs in their exclusive service areas.

Pursuant to Article L. 334-3 of the French Energy Code, concession contracts in progress are deemed to be signed jointly by the licensing authority (local authority or cooperative public establishment), EDF (or the territorially competent LDC) for the portion supplied at regulated rates, and by ERDF (or the territorially competent LDC) for the networks portion. At the time of their renewal or modification, concession contracts are co-signed according to these terms.

## The concession contract model

A framework of concession contract and specifications was adopted (with adjustments, depending on whether the contract was entered into with an urban municipality or a syndicate of municipalities) in June 1992 following negotiations between EDF and the National Federation of Licensors and Local Utilities ("FNCCR") and was validated by the public authorities (see section 6.5.5 ("Public electricity distribution concessions")).

The main provisions of the concession specifications cover the following points:

- the purpose and scope of the concession: the licensing authority guarantees to the concession holder the exclusive right to operate the public service missions of development and operation of the public electricity distribution network in a given area and supply at regulated sales tariffs. The concession holder is responsible for the operation of the service, and operates it at its own risk. It collects from users a tariff compensating it for the obligations imposed upon it;
- the payment of royalties by the concession holder to the licensor;
- the obligation for the concession holder to perform industrial depreciation and constitute renewal provisions taking into account the cost of replacing facilities needing to be renewed;
- the rights and obligations of the parties in case of renewal of the concession;

1. Return property is that which is essential to the exercise of the licensed service. Such property is deemed from the outset to belong to the licensing authority. The concession contract provides for its mandatory return to the licensing authority at the end of the concession.

- the rights and obligations of the parties in the event of non-renewal of the concession (or its early termination) should continued service no longer be of interest as a result of economic or technical circumstances of a permanent nature, or because of scientific progress;
- verification of the correct fulfilment of the public service mission set by the licensing authority in the concession specifications: this verification is exercised by an agent designated by the licensing authority and separate from the public distribution network operator.

Additionally, as part of the implementation of the French Solidarity and Urban Renewal ("SRU") and Town Planning and Housing ("UH") acts, ERDF and FNCCR renewed an agreement on 18 July 2012, called "PCT", organising payment to licensors of the delivery tariff fee for financing a connection when the licensors manage the project.

Network project management (the contractor is responsible for the organisation, implementation and financing of the work) is determined in accordance with the terms set out in each of the specifications, generally as follows:

- with respect to connection (network extensions and creation of connections) and facilities modification (network improvements as a result of an increase in electricity demand or to improve quality of service), ERDF and the licensor share the contracting of work by connection type (consumers) in municipalities that are part of the rural electrification networks (i.e. those where the licensor, who is also the main contractor, can benefit from grants from the electricity depreciation and amortisation expense fund ("FACE")). In urban networks, ERDF is generally responsible for contracting the work;
- ERDF is the main contractor for maintenance and renewal work (maintenance, pruning, renewal, displacement and compliance);
- the licensor is the main contractor for integrating existing installations into the environment (burying work, improvement of aesthetics, etc.).

### Main fees and contributions

The contracts provide for the payment of fees by the concession holder to the licensing authority.

In compensation for the funding provided by the licensing authority for the facilities it manages and which are included in the concession, for the authority's own share of works for which the concession holder is the contractor, or for any expenses incurred by the licensing authority for the public service covered by the concession, ERDF pays a fee to the concession authority broken down via its calculation methods as an R1 (operational) fee and an R2 (investment) fee.

As a network operator, ERDF must pay charges for use of public land by electricity facilities. Pursuant to a decree of 26 March 2002, charges paid to local authorities are capped according to their population. They are paid to municipalities or to certain local authority groups, as well as to departments.

ERDF, like the LDCs, pays a contribution to the FACE based on the number of kWh delivered. FACE redistributes the collected funds to the licensing authorities to fund their rural network electrification expenditure.

ERDF and local distribution companies also pay into an electricity tariff balancing fund ("FPE"), which splits the equalisation charges among the distribution network operators. Equalisation charges relate to the obligation to ensure that all customers across the domestic market benefit from the same electricity delivery tariff.

### 6.2.2.2.3 Institutional and legislative news

Institutional news in 2013 was marked by the national debate on the energy transition. ERDF participated actively in discussions at both the national and regional levels. A distribution-specific working group has been created and this was an opportunity for all stakeholders to express their expectations on the electrical system of the future.

As the purpose of the Law of 15 April 2013 is to prepare for the transition towards a sober energy system, which contains various provisions on the pricing of water and wind power, new measures have a significant impact on ERDF's business, with regard to the following points in particular:

- establishment of an electricity disruption market under the control of RTE, but in which the role of the network managers will be decisive, as disruption has a direct impact on the management and conduct of distribution networks;
- securing of the energy purchased by the network operators to offset their losses due to the capacity obligation. This obligation, the principles of which were established by the NOME Law of 7 December 2010 and by the Decree of 14 December 2012, provides that each electricity provider contributes to supply security, by financing, directly or indirectly, the resources for reducing the risk of failure during power peaks. Henceforth, network managers must obtain certificates associated with their capacity obligation, depending on the actual volume of losses on the networks, either directly or through identified providers;
- extension of the winter truce principle: cuts are now prohibited for any person or family, from 15 November to 31 March, whether or not they have received any assistance from social services. However, a reduction in power is permitted. The law now equates terminations at the initiative of suppliers to power cuts. ERDF is therefore organised to cope with the influx of demands for limitation of power and for restoration of power that it will have to face at the beginning and at the end of the winter truce.

The Decree of 14 January 2013 regarding the terms and conditions of technical inspection of public electricity network fixtures requires, effective 1 January 2014, that managers of public electricity networks carry out a technical (functionally independent) inspection on the occasion of the commissioning of a new electrical fixture, and conduct technical inspections of fixtures already in service. In both cases, the initial inspection must be renewed at least every 20 years.

Finally, the regulatory scheme to implement metrological oversight of electric meters in service was introduced by the Decree of 1 August 2013 on active electrical energy meters. ERDF and other network managers must now verify that the counters remain reliable throughout their lifespan. A permissible margin of error is fixed by the regulations.

### 6.2.2.2.4 Shared service and international

#### Service shared by ERDF and GrDF

The service shared by ERDF and GrDF, which is defined by the French Energy Code, is tasked with, in the distribution of electricity and gas, the construction of electricity and gas networks, project management, network operation and management, and metering activities. It has no legal personality.

ERDF and GrDF are bound by an agreement defining their relationship in the shared service, the jurisdiction of the latter and the sharing of the costs resulting from it. The agreement was made for an unlimited duration and may be terminated at any time with 18 months' notice, during which the parties must undertake to negotiate a new agreement.

In November 2011, ERDF and GrDF signed a Memorandum of Understanding outlining each distributor's vision of the target organisation of the shared service. The opening of markets and the differentiation of processes have led to changes and specialisation in the organisation of certain activities. To date, ERDF has favoured an organisation by regional directorates that integrate all of its operational missions in the local scale. A finer meshing is reserved for local activities. Certain activities, such as meter reading or logistical activities, are held in common service because of the efficiency gains generated.

## International

ERDF has continued to develop its international business in 2013 by providing its know-how, expertise and services to its customers:

- continuation of business in Lebanon with the implementation of performance contracts signed in 2012 and the signing of additional contracts with the same customers;
- confirmation of the extension of the management agreement delegated to Tomsk and signing of a supplement to the strategic agreement with Rossetti concerning the development of a second project in Russia;
- continuation of commercial development in China with the first two service agreements with China Southern Power Grid ("CSG") and the negotiation of an initial long-term cooperation project with Jineng Group ("SLPC");
- establishment of a branch in Congo Brazzaville in September 2013 and signing of a contract for the provision of a long-term service agreement with the aim of improving the performance of the Congolese national electricity company.

In June 2013, ERDF-I, through which ERDF conducts its international business in a deregulated framework, was sold to EDF International, a subsidiary of EDF. Following this transfer, ERDF-I changed its name and is now called EDF Distribution International. However, the corporate purpose of this company was not called into question, and it continues to be chaired by the Chairman of the Executive Board of ERDF.

### 6.2.2.2.5 Future challenges (replacement, development and communicative meters)

#### Smart grids and communicative meters

Because it is responsible for the continuity of the electricity distribution public service, ERDF continuously invests in order to develop, modernise and secure the electrical grid. Aligning the grid with society's new needs is a major strategic challenge. To this end, ERDF has developed the Linky system, based on a new generation of smart meters, known as "communicative meters". The Linky system represents the initial stage of the smart grid. After a successful experiment approved by the government, nearly 300,000 Linky meters are operating in Lyon and Touraine.

At the initiative of the Minister of Ecology, Sustainable Development and Energy, a working group bringing together all stakeholders (providers, industry players, consumer associations, licensors, regulator, etc.) was launched at the end of 2012 to allow collective ownership of four key points of the project: responses to consumer expectations, capabilities of the system to manage disruption, planned roll-out strategy and funding arrangements. This work, which continued until the summer of 2013, enabled the French Prime Minister to announce, on 9 July 2013, the roll-out by ERDF of an initial instalment of 3 million Linky meters from now until the end of 2016 as part of a replacement project of 35 million meters (90% of all meters in France) by 2020. For this period, the investment is estimated to be in total €5 billion at current prices and will be funded by the EDF Group. The installation of meters will begin in 2015, and it will be cost-neutral for customers, while

the gains earned by Linky (less travel expenses and losses) will offset the extra cost of the necessary investments in the long term.

The Linky communicative system, of which the meter is a key component, offers consumers:

- billing based on actual surveys of consumption indexes;
- remote performance of most operations in less than 24 hours without the presence of the customer (surveys, power changes, start of service, etc.);
- shorter response times in case of an incident;
- easier integration of new uses (electric vehicles, etc.) and distributed renewable energies;
- secure access via the Internet to information allowing customers to understand their use;
- a control device to manage home consumption;
- a simple tool to help in the development of disruption.

In October 2013, public tenders for the supply of the first instalment of 3 million meters were launched. To date, the regulatory framework applicable to Linky has yet to be defined and will have to integrate the specificities of the project, in particular via an incentive to performance and compensation adapted to the risks brought by ERDF.

#### Foster the energy transition

Simultaneously, ERDF is currently conducting large-scale tests of the following stages, which will give consumers and businesses a profoundly modernised grid. This research and experimentation work focuses on the operation of low- and medium-voltage networks, the integration of renewable energies and electric vehicles, storage management, maintenance of electric voltage, etc. ERDF is managing or supporting 15 test units in France and Europe with various partners, including industry, SMEs, start-ups and universities. Its challenge is to foster the energy transition by modernising grids at the lowest cost to society. Thanks to new technologies, more granular and faster control is possible, based on a better understanding of consumption, production and grid status. This "intelligence" avoids oversized investments on peak demand while ensuring the reliability of the network, in accordance with the dual objective of public service entrusted to ERDF, namely performance and security.

Since the end of 2011, ERDF coordinates the "GRID4EU" programme. This program brings together a consortium of six European distributors (ERDF, Enel, Iberdrola, CEZ, Vattenfall and RWE). It contributes to experimentation with the potential of smart grids in the field of renewable energy integration, the development of electric vehicles, the automation of networks, storage of energy, energy efficiency and disruption solutions.

### 6.2.2.3 Island Energy Systems

Island Energy Systems ("SEI") combines electrical systems operated by EDF that are not interconnected or marginally connected to the continental plate: mainly Corsica and the French overseas departments, and the overseas local governments of Saint-Barthélemy, Saint-Martin and Saint-Pierre-et-Miquelon.

All these territories are known as "zones not interconnected to the continental mainland network", as outlined in Article L. 121-3 of the French Energy Code. They share the following characteristics:

- they benefit from tariff equalisation with continental metropolitan France;
- the small size of their electricity networks and the lack or insignificance of their interconnection to a continental network means that generation costs are structurally far higher than those in mainland France and, for this reason, much higher than the portion reflected in the tariffs;



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- the obligation to entrust transmission and distribution to a separate legal entity from the one generating and supplying the electricity does not apply.

This situation results in the lawmaker considering additional SEI output costs to be a public service charge and therefore reimbursable through the Contribution to the Public Electricity Service ("CSPE") (see section 6.5.2 ("Public service in France")).

The table below gives the main specifications of the Island Energy Systems at the end of December 2013:

	At 31 December 2013	
	Total	of which Corsica
Number of EDF employees <sup>(1)</sup>	3,365	748
Number of customers	1,080,361	240,991
Network length (in km)	34,827	11,197
Installed capacity of the EDF fleet (in MW) <sup>(1)</sup>	2,049	520
of which hydropower and other renewable energy sources	455	197
of which thermal power <sup>(1)</sup>	1,594	323
Electricity generation (in GWh)		
EDF generation <sup>(1)</sup>	5,485	1,360
of which hydropower	1,564	532
Energy purchases from third parties	4,093	875
of which REN, including bagasse	1,186	212
of which others	2,907	663
<b>TOTAL OF ENERGY GENERATED BY EDF AND PURCHASED FROM THIRD PARTIES</b>	<b>9,578</b>	<b>2,235</b>

(1) Data including EDF Production Énergétique Insulaire (PEI), a wholly-owned subsidiary in charge of renewing the fossil-fired plants in Corsica and French islands. The 70MW increase in installed thermal power generated in 2013 compared to 2012 is temporary since it is linked to the arrival of the PEI motors, notably in Martinique at the end of 2013, without total declassification of the SEI motors, in periods of "hot reserve".

In these networks, given the existing imbalance between the MWh generation cost and the sale price at the equalised tariff, EDF's sales activities consist of spearheading energy efficiency actions, either alone or in partnership with ADEME and local institutions.

However, most of the Island territories are experiencing significant growth in their electricity consumption (high rate of population growth, late technological developments in household appliance adoption). This increase in demand must be met by the creation of new generation plants, which are decided upon by the Minister for Industry within the scope of the Multi-Year Investment Programme ("PPI"), either by means of calls for tender or by authorising projects developed by private operators. The operators' interest, including EDF, in investing in SEI generation was strengthened by an order taken by the Minister for Industry on 23 March 2006 setting at 11% the nominal remuneration rate before tax of capital expenditures related to generation investments made in Corsica, overseas departments, St-Pierre-et-Miquelon and Mayotte.

At the end of 2012, the French Energy Code was modified in respect of the compensation of energy efficiency measures, electricity storage costs and the cost of electricity imports from neighbouring countries under an amendment tabled during the debate on the France's third amended 2012 Budget Act (Article 60), promulgated on 29 December 2012. This compensation can only be made within the limits of generation cost overruns that these actions help avoid. A decree by the Council of State and an order by the Minister for Energy are expected in early 2014 to govern its implementation.

EDF's organisation in each of these territories is therefore based on maintaining an integrated structure guaranteeing the majority of output and all the management functions for supply-demand balance, network operator functions (HVB, HVA and LV) and supplier functions.

In these territories, EDF is the main actor in terms of electricity generation.

## Developments and outlook

### Investments designed to modernise and reinforce the electricity generation fleet with guaranteed capacity

The Multi-Year Electricity Generation Investment Programme has set an objective of implementing electricity generation at guaranteed capacity for Corsica and the French overseas departments of 1,166MW by 2020. This programme includes refurbishment of almost all existing diesel-fuelled power plants.

On the basis of the strategy adopted, namely to remain the leading actor in each of these territories as regards installed capacity, the EDF Group has taken on the project of renewing its main power plants. Construction sites on four of these diesel-fuelled power plants have been started for a total capacity of nearly 740 MW: Port-Est in Réunion Island, Bellefontaine B in Martinique, Pointe-Jarry in Guadeloupe and Lucciana B in Corsica. These new generation facilities will enable the Group to deliver better industrial and environmental performances, and will contribute to meeting part of the emerging electricity requirements in these territories.

The 12 engines of the Port-Est plant in Réunion were commissioned between the end of 2012 and October 2013. This thermal power plant operating on fuel oil was built to replace the plant in Port-Ouest, which was shut down in April 2013. It was inaugurated on 11 October 2013. It is equipped with innovative and particularly high performing technologies from an industrial

and environmental point of view. It has notably new-generation diesel motors that allow savings of 15% on fuel consumption and are equipped with catalytic devices to filter waste gases. The EDF Group has invested more than €500 million in this new means of electricity generation for Réunion in order to meet the structural growth in the island's energy consumption. The power plant was built and is operated by the EDF subsidiary PEI (Island Energy Generation). Its motors were provided by the European manufacturer MAN, associated with the French industrial groups Eiffage and Clemessy that developed the site with more than 150 companies, the majority of which are from Réunion. This power station guarantees the continuity of the electrical supply of the island and secures its energy transition before the arrival at maturity of new kinds of technology (ocean energy, storage, etc.) and the evolution of modes of consumption toward greater energy efficiency, in an environment in which renewable energies (hydropower, biomass, photovoltaic and wind) today represent more than 34% of the energy mix in Réunion.

The first trials of the power plants Bellefontaine B in Martinique and Lucciana B in Corsica started at the end of 2013.

The refurbishment of the Saint-Pierre-et-Miquelon plant, with a capacity of 21MW, is also underway, as is extension work on the Saint-Barthélemy plant (two new engines).

The 55MW Rizzanese hydropower dam in Corsica, whose coupling of the first group to the network took place on 12 December 2012 and of the second one in 2013, was inaugurated in June 2013. With its 60-meter thick foundation and 40-meter height, the Rizzanese hydroelectric development is a "gravity-type dam" facility. The Rizzanese will be utilised during peak periods. The dam's commissioning confirms the importance, in Corsica, of hydroelectric power as the leading source of renewable energy. With the Rizzanese, renewable energies in Corsica will cover on average 30% of the needs of the population and the economic sector.

EDF invested €393 million in Island Energy Systems electricity generation in 2013, and plans to invest €275 million in 2014.

## Electricity network investments

Continued growth in electricity consumption in these areas, despite energy efficiency measures and the development of renewable energies, has led the EDF Group to further strengthen its electricity networks. Because of the abundance of natural parks in Corsica and the French overseas departments, some of the new high-voltage connections will be laid using underground and underwater techniques.

EDF invested €173 million in its networks in 2013 and plans to invest a further €176 million in 2014.

## Involvement in projects intended to better integrate renewable energies into the electricity generation mix and optimise electricity system management

The EDF Group supports the emergence and development of different ways of generating power from renewable energies that are tailored to Island Energy Systems. The ways of choice are those that guarantee abundant, sustainable energy at competitive generation costs, making them credible alternatives to thermal generation: biomass, marine and river energy, waste recycling and biogas. The use of LNG as a substitute to fuel oil is currently being researched.

EDF is also helping to develop the technical capacity to use intermittent renewable energies in Island Energy Systems (developing forecasting tools with other producers and universities, commissioning a 1MW battery in Reunion Island, which is the first of this capacity in Europe, coupling photovoltaic generation and storage capacity) and participating in smart grid research projects in partnership with other producers, research laboratories and the French Agency for Environment and Energy Management ("ADEME").

The EDF Group's R&D expertise was called on for all these projects.

## 6.2.2.4 Tariffs for Using the Public Electricity Transmission and Distribution Networks ("TURPE")

### Tariff for using the public electricity distribution networks

In 2013, tariffs for using HVA or LV public electricity networks (distribution) were treated differently to those applicable to HVB networks (transmission). This followed the decision of the French Council of State of 28 November 2012 cancelling TURPE 3, which set the tariffs for using the public distribution networks for the 2009-2013 period.

In order to fill the legal void left by this cancellation, the CRE decided, on 29 March 2013, to propose new tariffs for using the public distribution networks to the Economy and Energy Ministers, applicable retroactively from 1 August 2009 to 31 July 2013. The decision approving these so-called "TURPE 3 HTA-BT" tariffs, was published in the *Official Journal* of 26 May 2013. Through its resolution of 28 May 2013 published in the *Official Journal* of 30 July 2013, the CRE decided the renew these tariffs until 31 December 2013, in order to have enough time to come up with a new pricing method that would take account of the points made in the Council of State's decision. The changes in the tariffs were set at -2.5% on 1 June 2013, then +2.1% on 1 August 2013.

Based on these figures, tariff revenues amounted to €12.7 billion in 2013 for ERDF's distribution network.

At the same time, through a public consultation launched on 9 July 2013, the CRE sought the opinion of market players on two possible pricing methods for TURPE 4 HTA-BT, which was set to come into effect from 1 January 2014: a method put forward by ERDF and an alternative method devised by the regulator.

On 12 November 2013, the Ministers of the Economy and Energy sent the Chairman of the CRE a letter announcing the upcoming introduction of a bill aimed at tightening the legal framework applicable to tariffs for using the distribution networks and facilitating the "implementation of a generally accepted method of normative economic regulation".

On 13 November 2013, the CRE put forward a tariff proposal based on the alternative method submitted to the July consultation.

Taking into consideration the advice of the *Conseil Supérieur de l'Énergie* (Upper Council on Energy) of 10 December, the CRE deliberated on 12 December 2013 as to the new tariffs for using the HVA/LV public electricity network, applicable from 1 January 2014 for a period of around four years. The decision was published in the *Official Journal* of 20 December 2013.

ERDF's tariff revenue increased 3.6% as of 1 January 2014. It will subsequently be adjusted according to the consumer price index on 1 August every year from 2014 to 2017.

The CRE has once again opted for the mechanism of the income and expenses adjustment account ("CRCP"), put in place for TURPE 2, making it possible to measure and correct, for certain pre-defined items, the differences between the actual figures and the forecasts on which the tariffs are based. The contribution of the CRCP balance to the annual change in price schedules, added to inflation, is limited to plus or minus 2%.

Moreover, the regulator wished to reinforce the existing multi-annual regulation framework, inciting ERDF to improve its cost control, the quality of its supply and the quality of the service provided to users, and removing tariff barriers to new R&D and innovation projects (in particular smart grid demonstrators).

# 6 | Overview of activities

## Presentation of the EDF Group's international business

The expenses linked to the roll-out of Linky smart meters have not been taken into account in these tariffs: the corresponding pricing framework will be the subject of an ad'hoc decision expected in 2014.

### Tariff for using the public electricity transmission network

Pursuant to Article L. 341-3 of the French Energy Code, the tariff for using the public electricity transmission network is subject to a reasoned decision from the French Energy Regulation Commission ("CRE"). The current tariff for using the public transmission network (TURPE 4 HTB), set by the CRE decision of 3 April 2013, came into force on 1 August 2013.

RTE's tariff revenue increased 2.4% as of 1 August 2013, and will be adjusted subsequently according to the consumer price index on 1 August every year from 2014 to 2016.

The amount of the financial compensation from RTE's assets is obtained by multiplying the amount of the regulated asset base, estimated on 1 January 2013 at €11.7 billion, by a fixed rate of compensation corresponding to a nominal rate before tax of 7.25% for the 2013-2016 tariff period.

Moreover, the CRE has maintained the prior mechanism for neutralising the effects of external, unforeseeable and uncontrollable factors on the network manager's expenses and income. This income and expenses adjustment account ("CRCP") recognises off-balance sheet, on previously identified items, any excess or shortfall experienced by the network operator and is balanced by decreasing or increasing expenses to be recovered through the tariffs for using the public electricity network over the following years.

The annual rise in the TURPE also takes into account this factor through clearance of the CRCP, the absolute value of which may not exceed 2%, and which is added to the variation depending on inflation.

Maintaining a tariff period of around four years gives RTE good visibility on its future revenues. This period is also conducive to capital investments and the implementation of technical policies that will allow RTE to control its costs and maintain high-quality service.

On that basis, 2013 tariff revenues amounted to around €4.1 billion for the electricity transmission network.

To incite the electricity transmission network manager to improve the technical and economic efficiency of its activities over the 2013-2016 tariff period, while complying with the public service missions entrusted to it, the CRE has set RTE objectives to curb its controllable operating costs and has improved the mechanism to promote power supply continuity. The regulation scheme thus aims to eliminate any incentive that would result in a drop in the quality of the electrical power supply. The regulator also introduced an incentive for the development of interconnection investments. Specific monitoring mechanisms have been set up, in particular concerning the control of volumes linked to the compensation of losses on the electricity transmission network, RTE's R&D expenses and the investments that contribute to the upkeep of or increase in interconnection capacities between the French network and its neighbours.

See section 6.5.3.2 ("French legislation: Energy Code") for the transportation and distribution of natural gas (Law no. 2003-8 of 3 January 2003).

## 6.3 Presentation of the EDF Group's international business

The EDF Group is positioned as an energy leader, with a priority aim of investing for sustainable and profitable industrial growth, based on the development of skills and the promotion of its technical expertise. The Group intends to continue to strengthen its international businesses as a complement to its activities in France.

The international activities of the EDF Group are an operational expression of the Group's strategic directions (see section 6.1 ("Strategy")); these strategies involve strengthening European positions, the international rollout of nuclear activities and projects and other key projects.

The table below shows the installed capacity and outputs of the EDF Group's international operations at the end of 2013<sup>1</sup>:

	Installed capacity <sup>(1)</sup>		Generation <sup>(1)</sup>	
	MW	%	GWh	%
Nuclear (excluding 100MW drawing rights on Chooz B)	11,638	35	83,406	51
Thermal	18,940	58	74,811	45
Hydropower	1,439	4	4,672	3
Other renewables	926	3	2,017	1
<b>TOTAL</b>	<b>32,943</b>	<b>100</b>	<b>164,906</b>	<b>100</b>

(1) Excludes international data for EDF Énergies Nouvelles, or 4,054MW and 9,724GWh.

### European positions

The EDF Group has consolidated its European presence, the mature market that forms the foundation for its industrial presence.

Group activity in Europe is based upon a will to contribute to building a single market for both electricity and gas, encouraging the emergence of new

technologies and innovative solutions that are customised to environmental, social and economic challenges, and lastly to respect natural and human resources, and the wishes of local stakeholders in their concerns over energy issues and associated services.

1. The figures shown reflect the consolidation method used for the entities.

The main events of the year were:

- in the UK: the agreement in principle with the British government on Hinkley Point C (see section 6.3.1.4.3 ("Nuclear New Build business unit ('NNB')"));
- in Poland: the consolidation of Group assets in the country, with the merger of four of its subsidiaries within a new entity, EDF Polska, to provide greater cohesion, improve management efficiency and increase the competitiveness of Group companies;
- in Slovakia: a definitive agreement signed on 24 May 2013 between EDF and EPH and the finalisation of the transaction on 27 November 2013 for the sale of EDF's 49% stake in Stredoslovenska Energetika a.s. ("SSE") to EPH (see section 6.3.3.1.1.3 ("Slovakia"))).

## The Group's ambitions in Europe

The EDF Group aims to consolidate the coherent industrial group it has in Europe through organic growth and realising synergies at Group level. It will review any new opportunity of profitable development in Europe, which is its core market.

In addition, the Group intends to continue building its gas positions that are necessary to its ambition of becoming an active provider in both the gas and electricity sectors in Europe in order to secure provision of a multi-energy offer for its customers and to ensure competitive supply of the Group's electricity generation means through the use of gas.

The Group is also realising operational synergies among its various entities in France and Europe through the following actions:

- improving operational performance by sharing best practices observed within the Group;
- using the opportunity of the various subsidiaries' generation assets construction projects in order to standardise the design and to group the orders placed with equipment manufacturers;
- coordinating gas supplies and investments in order to further the Group's ambitions in the gas market;
- developing upstream-downstream optimisation at a European level.

## International nuclear

As the world's largest nuclear generator, EDF has major technical assets (in operations and engineering) and solid experience in constructing and operating nuclear plants in France (58 pressurised water reactors), the United Kingdom (15 reactors) and the United States (through Constellation Energy Nuclear Group LLC, "CENG" and its subsidiaries), which allow it to be a major player in the revival of nuclear power internationally. In China, EDF and its partner CGN are building two EPR units in Taishan.

In the UK, through its subsidiary EDF Energy, EDF has confirmed plans for a nuclear plant programme, which translated into the agreement in principle on Hinkley Point C entered into with the British government in 2013. Despite the Fukushima accident in March 2011, some countries and electricity utilities have announced or confirmed their intention to launch or reactivate nuclear projects. This development is motivated by the search for energy independence combined with growing awareness of the environmental impact of the use of fossil fuels. It has led to the emergence of several models and new industrial partnerships.

EDF has thus identified, outside China and the UK, other opportunities both in Europe and elsewhere (see section 6.1.3 ("Strategic areas to 2020")). EDF is developing contacts and forming partnerships in other countries such as Poland and Saudi Arabia.

In each of these countries, EDF adapts to the institutional context and the industrial and economic environment; the resulting organisational models may be different each time.

The EPR programme under way in France and China and planned for the UK is currently the Group's benchmark programme.

EDF is pursuing the objective of expanding and modifying its range of reactor and service offerings in international markets.

In line with the strategy outlined by the Nuclear Policy Council at its meeting on 21 February 2011, confirmed by the Nuclear Policy Council at its meeting on 28 September 2012, EDF, AREVA and CGN signed a cooperation agreement on 19 October 2012 with a view to building a new intermediate-sized third-generation reactor (1,000 to 1,100MW). This cooperation is ongoing, taking changes in the Chinese context into account. In cooperation with AREVA, EDF is also focusing on optimising EPR design as well as taking into account feedback received from EPRs under construction.

## 6.3.1 United Kingdom

EDF Group activity in the United Kingdom ("UK") is led by EDF Energy focusing on energy supply and electricity generation. The Group is also active in oil and gas exploration production with EDF Production UK, in the North Sea. (see section 6.4.2.2.3 ("Exploration – Production ('E&P')")).

### 6.3.1.1 EDF Energy and the UK market

EDF Energy is one of the UK's largest energy companies, employing around 15,000 people at locations throughout the country. In 2013, it maintained its position as the largest generator of electricity (in TWh produced) and of low carbon electricity<sup>1</sup> in the UK. Based on the most recent data<sup>2</sup>, EDF Energy also retained its position as the number one supplier of electricity to non-domestic customers (as measured in TWh sold<sup>3</sup>). The most recent published market data (as of 31 October 2013) suggests that EDF Energy was the sixth largest residential supplier to domestic gas and electricity customers (measured by the number of accounts). However, EDF Energy gained almost 300,000 accounts over the two last months of 2013, reaching a record 5.7 million B2C customer accounts in December 2013. Considering this, and customer divestment announced by RWE npower, EDF Energy expects to be the fourth largest residential supplier overall<sup>4</sup>. Overall, EDF Energy is the leading electricity supplier in the UK (measured in TWh sold<sup>3</sup>).

EDF Energy's main competitors in the UK generation and gas and electricity supply markets are: Centrica, E.ON UK, RWE npower, ScottishPower, Scottish and Southern Energy ("SSE") and GDF Suez Energy International (the latter is not present in residential supply). Residential supply has also seen an increasing share of the market being captured by smaller suppliers.

EDF Energy is not involved in electricity transmission or distribution in the UK. The high-voltage electricity transmission network is owned by National Grid in England and Wales, and by SSE and ScottishPower in Scotland. The UK regional distribution networks are in turn operated by companies including UK Power Networks, Northern Powergrid, SSE, ScottishPower Energy Networks, Western Power Distribution and Electricity North West. The gas distribution network operators include National Grid, Scottish and Southern Gas Networks, Wales and West Utilities and Northern Gas Networks.

1. Source: Elexon Reporting.

2. Source: Cornwall Energy Associates Business Sector – Electricity as at 31 October 2013. Data excludes Northern Ireland.

3. According to the available data, excluding Northern Ireland.

4. In November 2013, RWE npower announced the sale of its subsidiary companies, Electricity Plus and Gas Plus, to Telecom Plus, involving the transfer of ~770,000 residential customer accounts.



### 6.3.1.2 The strategy

EDF Energy operates in a complex market environment characterised by volatile commodity markets, high levels of competition and Government interventions to deliver energy policy objectives of energy security, decarbonisation and affordability. Notwithstanding the economic downturn, demand for electricity is expected to return to growth in the long-term as decarbonisation policies prompt fuel switching from gas and oil to low-carbon electricity particularly in the heat and transport sectors.

EDF Energy's strategy is focused on ensuring a sustainable long-term business. It seeks to create value through continued operational excellence; by achieving maximum value from its existing nuclear, coal and gas assets; by increasing profitability in the customer businesses based on a fair risk reward relationship with customers; by developing a portfolio of renewable projects; and by leading the revival of nuclear new build in the UK. EDF Group plans to build two to four new nuclear units in the UK: a twin at Hinkley Point in Somerset and a possible further twin at Sizewell in Suffolk (subject to ongoing studies). In October 2013, EDF reached an agreement in principle with the UK Government on a fair, balanced deal on revenue certainty via a Contract for Difference ("CfD") for Hinkley Point C ("HPC"), following the granting of planning consent for the project in March 2013. A final investment decision on HPC remains subject to a number of further conditions including: agreement on a fully termed CfD; agreements with industrial partners for equity funding and with Infrastructure UK (a unit within the UK Government Treasury that works on the UK's long-term infrastructure priorities and secures private sector investment) for debt funding; and a clearance decision from the European Commission ("EC") on the CfD (including related mechanisms) under state aid rules. Regarding the latter condition, the UK Government formally notified the CfD to the EC on 22 October 2013. On 18 December 2013, the EC decided to initiate a "formal investigation procedure" consisting of a detailed assessment of the notified measures. This decision was published in the *Official Journal* of the European Union (OJ) on 7 March 2014, thus opening a discussion period for all stakeholders. Simultaneously, the Energy Act received Royal Assent on 18 December 2013, demonstrating real momentum for the decarbonisation of the UK generation sector in general (see section 6.3.1.4.5 ("United Kingdom Legal Environment") and section 6.3.1.4.3 ("Nuclear New Build business unit")).

EDF Energy's existing nuclear power stations continue to provide the UK with safe and reliable low-carbon electricity, with the highest output in eight years achieved in 2013 at 60.5TWh. Lifetime extensions for plant, where safe and commercially viable, allow the UK to continue to benefit from nuclear energy until new low-carbon capacity can come online at scale, in addition to providing employment opportunities and allowing for the maintaining of skills in the UK nuclear industry. In February 2014, EDF Energy confirmed that it now expects to achieve a ten year life extension for Dungeness B nuclear power station to 2028, subject to receiving the necessary approvals. Based on expected life extensions, all seven AGR stations and the Sizewell B PWR station will be operating in 2023 when Hinkley Point C is due to be commissioned if a final investment decision is taken in 2014 (see section 6.3.1.4.3 ("Nuclear Generation business unit")).

Other important strategic actions concerning the company's generation fleet include optimising the lifetime value of coal generation capacity affected by the Large Combustion Plant Directive ("LCPD") and the Industrial Emissions Directive ("IED"); maximising the output of existing nuclear plants; optimising the operations of the new West Burton B Combined Cycle Gas Turbine ("CCGT") power station, commissioned in 2013; and continued delivery of renewable generation projects and of fast cycle gas storage caverns; and consideration of options for new, flexible gas-fired generation.

In the customer businesses, EDF Energy's focus is on standing out as a fair energy supplier, while simultaneously improving its profitability. It has introduced customer commitments to deliver fair value, better service and simplicity to customers, and across the company, processes have been put in place to check that all activities pass the Trust Test implemented in 2012 that ensures the right things are done for customers. Profitability improvements are sought through controlled margin management; increased cost efficiency and transformation of key processes; and efficient delivery of regulatory obligations such as smart metering and energy efficiency schemes - all supported by investment in people and information systems. Supported by the Feel Better Energy brand strategy and the innovative, nuclear-backed Blue product, progress is being made towards being seen as different. Blue is also behind the ten-year deal to supply Network Rail (see section 6.3.1.4.1 ("Energy Sourcing & Customer Supply ('ESCS')")).

EDF Energy's future financial success will be highly dependent on the returns achieved by nuclear plants, which are driven largely by plant availability and, for existing capacity, wholesale market power price development. EDF Energy is focused on improving the risk profile of the portfolio to capture any value creation opportunities from its combined nuclear and flexible generation assets; participating in the creation of a fit-for-purpose regulatory framework; and helping to set up a rigorous investment framework.

In order for EDF Energy to realise its strategy, continuous focus on the company's "Zero harm" health and safety ambition as well as on developing and retaining high-performing people are essential. EDF Energy has continued to invest heavily in the training and development of its people across the business, including through its Campus project. To support its substantial investment plan in the UK, EDF Energy expects to recruit nearly 4,000 talented employees from 2013 to 2016, of which 1,320 were recruited in 2013.

### 6.3.1.3 Operational results

In 2013, EDF Energy supplied 52.7TWh (versus 51.6TWh in 2012) of electricity and 31.5TWh (versus 31.1TWh in 2012) of gas to residential and industrial & commercial customers. At the end of 2013, EDF Energy had 6.0 million customer accounts (versus 5.8 million in 2012), mainly residential customers (5.7 million customer accounts), with 323,000 customers from small & medium-sized enterprises and major business.

At 31 December 2013, EDF Energy owned eight nuclear power stations, three thermal power stations, a Combined Heat and Power Scheme and onshore and offshore renewable assets through EDF Energy Renewables, a joint venture with EDF Énergies Nouvelles, a wholly owned subsidiary of EDF Group. These assets generated 85.4TWh<sup>1</sup> (83.4TWh in 2012) of electricity in the year, around one fifth of the UK's electricity.

1. Output excluding West Burton B commissioning volume.

In 2013, EDF Energy achieved a strong safety performance with a 47% reduction in the Total Recordable Incidents Rate compared with 2012. The combined employee and contractor incident rate stands at 0.84 incidents per million hours worked.

The survey conducted among employees in 2013 demonstrated their commitment, with a participation rate of over 84%. The results demonstrated

the high levels of commitment (78%), agreement with the company's goals (80%), involvement (79%) and loyalty towards EDF Energy (76%). These excellent results also illustrate the fact that 82% of employees are confident in the future success of EDF Energy, that 84% believe in the company's ambitions, that 82% would recommend it as a good employer and that 90% of employees go the extra mile in order to add to EDF Energy's success.

The following table shows EDF Energy's key figures for the financial year ended 31 December 2013.

	31/12/2013	31/12/2012
Electricity supplied <sup>(1)</sup> (GWh)	52,746	51,595
Gas supplied (GWh)	31,468	31,092
Number of residential customer accounts (thousands)	5,710	5,455
<b>Total capacity (MW)</b>	<b>14,224</b>	<b>14,150</b>
Nuclear <sup>(2)</sup>	8,748	8,741
Coal <sup>(3)</sup>	3,987	3,987
Gas <sup>(4)</sup>	1,333	1,306
Renewables <sup>(5)</sup>	156	116
<b>Total output (TWh)</b>	<b>85.4</b>	<b>83.1</b>
Nuclear <sup>(2)</sup>	60.5	60.0
Coal <sup>(3)</sup>	23.1	22.6
Gas <sup>(4)</sup>	1.33	0.3
Renewables <sup>(5)</sup>	0.47	0.2
Number of employees <sup>(6)</sup>	15,162	15,153
Total Recordable Incident Rate <sup>(7)</sup>	0.84	1.58

(1) Power supplied to final consumer including previous year metering cut-offs.

(2) The figures shown represent 100% of nuclear capacity and generation output, shared 80%/20% by EDF Energy and Centrica.

(3) Net capacity represents "transmission entry capacity" and including Biomass.

(4) Gas output excluding West Burton B commissioning volume.

(5) When EDF Energy holds more than 50% of assets, the capacities shown are 100% of the installed capacity and generation output. Renewable output excluding Biomass.

(6) Includes staff on maternity leave.

(7) Total Recordable Incident Rate – Annual total combined number of Lost Time Incidents, fatalities, Restricted Work Injuries and Medical Treatment Injuries (excluding First Aid) / number of hours worked × 1,000,000. This covers all employees, agency and contractor staff. Excludes EDF Energy Renewables.

### 6.3.1.4 Structure of the EDF Energy group

EDF Energy is organised into three main business units: Energy Sourcing and Customer Supply; Nuclear Generation; and Nuclear New Build.

Since 2009, Centrica plc ("Centrica") has held a 20% shareholding in Lake Acquisitions Limited, the company within which the Nuclear Generation business unit sits. Centrica also held a 20% stake in NNB Holding Company Limited, the company which has been created to undertake the pre-development activities for a nuclear new build programme in the UK. On 4 February 2013, Centrica announced its decision not to participate in the UK nuclear new build. This decision does not affect the continuing partnership between the two companies in the Nuclear Generation business.

From 1 January 2014, EDF Energy has reorganised its three main business units to: Customers, Generation and Nuclear New Build. The Customers

business unit includes residential and business customers, energy services and smart metering. The Generation business unit includes nuclear, coal, gas and renewables generation. All legal entities remain the same. For the purposes of this Document de Reference, reporting is in line with the business units as they were structured in 2013.

#### 6.3.1.4.1 Energy Sourcing and Customer Supply business unit ("ESCS")

ESCS has the responsibility for maximising the long term value of EDF Energy's residential and business customers' portfolios, gas storage assets, fossil fuel fired and renewable generation assets, and optimisation of the company's exposure to energy markets within an agreed risk mandate. ESCS employs around 8,000 people.

## Customer Supply

EDF Energy sells energy to two major customer segments: residential customers, described as the Business to Customers segment ("B2C"); and business customers, described as the Business to Business segment ("B2B") with the size of business customers ranging from large industrial businesses to small privately owned businesses. EDF Energy adopts different risk management strategies for B2C and B2B.

At the end of December 2013, EDF Energy had 4.0 million customers and 6.0 million customer accounts across those two segments. During the year, EDF Energy supplied 17.2TWh of electricity to 3.6 million B2C accounts, 188,609 B2B Small and Medium Enterprise ("SME") accounts and 35.6TWh of electricity to 132,702 B2B Major Business accounts. It also had 2.1 million B2C gas customer accounts and supplied 31.4TWh of gas to these customers in 2013.

## B2C

### Tariffs

Four of the six major suppliers announced price increases of 8-10% in October 2013, citing increasing costs of Government-mandated environmental and social schemes, as well as higher transportation charges and wholesale energy prices. The announcements prompted calls for Government to review its energy programmes in light of affordability issues for consumers. As a result of the Prime Minister's commitment to lower environmental taxes, EDF Energy announced a 3.9% price increase in November 2013, less than half that of the other suppliers' increases, due to the anticipated reduction in Energy Company Obligation charges. On 1 December 2013, Government published outline plans to reduce the cost impact of environmental and social obligations on energy bills. Some of the other major energy suppliers then indicated that they would pass on the savings on the programmes to their customers.

### Weather

The colder than seasonal normal weather in H1 2013 increased customers' consumption. For EDF Energy B2C the total increase in 2013 was estimated to be 3,320GWh for gas and 512GWh for electricity.

### Products

Throughout 2013, EDF Energy expanded its portfolio of Blue products. Its flagship product, Blue+Price Promise has electricity backed by low carbon nuclear generation, an innovative price promise, no termination fees, a Thank Yous reward every month and a promise to notify the customer if a competitor launches a product that is cheaper by more than £52 per year, i.e. £1 per week. At the end of 2013 there were 2.1 million product accounts on a Blue product.

Churn rates in the United Kingdom B2C market (the net result of customer losses and acquisitions) remained relatively high compared to other countries, even though there has been a downward trend from the high of 2008. At the end of September 2013, 16.3 million (63%) of UK B2C electricity customers and 12.6 million (59%) of UK B2C gas customers were no longer with their original supplier at the time of market liberalisation.

### Energy Company Obligation ("ECO")

The Energy Company Obligation ("ECO") is an energy efficiency programme that until recent developments, covered the period 1 January 2013 to 31 March 2015. This has now been extended to 31 March 2017 with a view to reducing the impact of green levies on customer bills. It replaces the

Carbon Emissions Reduction Target ("CERT") and the Community Energy Saving Programme ("CESP"). ECO places legal obligations on larger energy suppliers to deliver energy efficiency measures to domestic energy users. It is also intended to provide additional support in the domestic sector, with a particular focus on vulnerable consumer groups and hard-to-treat homes. It operates alongside the Green Deal which is designed to help people make energy efficiency improvements to buildings by allowing them to pay the costs through their energy bills rather than upfront. The ECO obligation cost is accounted for using "as delivered" methodology. This is a change from the way previous obligations have been accounted for, being on a straight-line basis over the life of the obligation.

### Regulatory Change

In late 2012, Ofgem published its detailed Retail Market Review ("RMR") Updated Domestic Proposals. The aim of the RMR is to enable consumers to get the best deal in the energy market and to rebuild trust and confidence in the market. The proposals require suppliers to provide consumers with simpler choices, clearer information about prices, products and available savings, and fairer treatment of customers through the introduction of Standards of Conduct backed by licence conditions. These are all in line with EDF Energy's own ambitions synthesised in our Customer Commitments. The domestic Standards of Conduct were implemented in August 2013, the other RMR obligations will be rolled out in three stages, the first commenced in October 2013.

EDF Energy has put customers at the heart of the business by enhancing the existing Trust Test, a checklist for all activity that ensures EDF Energy is doing the right thing for its customers, supported by training, processes and guidance to ensure employees embrace the cultural development required.

### Smart Metering

UK energy suppliers are mandated to deliver the Government's Smart Metering Programme which requires all reasonable steps to be taken to deploy smart electricity and gas meters to 100% of residential and small business customers by 2020. The purpose of the deployment is to enable customers to reduce their usage, cut end-use carbon emissions and unlock supplier savings through more efficient billing and meter reading.

The programme will require EDF Energy's supply business to install an estimated 6.1 million meters, including communications hubs and in-home displays, to all of its domestic and small business customers. EDF Energy has already commenced smart meter installations through a series of trials and pilots to test smart grid technology with UK Power Networks, through the Low Carbon London trial.

## B2B

The B2B division is the largest supplier of electricity to the non-domestic market (Small and Medium Enterprises ("SME") and Industrial and Commercial ("I&C") businesses) in the UK, supplying 37.6TWh and holding a 20% share of the market. B2B supplies businesses across all I&C sectors including public sector buying groups, large multi-site customers, manufacturing businesses and SME.

In 2013, EDF Energy secured an iconic ten-year deal to supply Network Rail with 3.2TWh of low carbon electricity a year. EDF Energy will power a rail network which carries three million passengers and tens of thousands of tons of freight a day. The business continues to be well established in the large, national and multi-site customer segment with the renewal of major UK supermarket chains such as Tesco and Morrisons. This year, B2B also completed the successful on-boarding of Scottish Procurement Services' 27,000 sites.

Competition across I&C sectors remains fierce. This is demonstrated by the continued erosion of the combined market shares of large suppliers by smaller entrants and the increasing influence of Third Party Intermediaries. This resulted in energy supply margins for business contracts being put under pressure. B2C is responding to this by increasing margins from other activities such as the provision of low carbon (levy exempt) energy and energy services.

B2B continues to focus on innovating products and improving processes and systems designed to enhance the customer experience. In particular, B2B is investing significantly on replatforming a new integrated pricing, billing and metering system for the I&C business. Full migration of customers and prospect data will be phased over several stages in 2013 and 2014.

## Optimising and managing risks

### General principles

The policies surrounding EDF Energy's energy purchasing and risk management activities are compliant with EDF Group's policies and ensure that EDF Energy's activities are optimised and its services delivered at a competitive price while limiting its gross margin volatility.

The Optimisation division's purpose is to manage the wholesale market risk of EDF Energy in one place within pre-defined risk limits and control framework. Optimisation compiles the positions and risks provided by the business divisions into a portfolio and manages price and volume risks exposures until delivery. The hedging strategy is designed to gradually reduce the impact of energy market risk over time, consistent with the guidelines of the EDF Group Energy Market Risk Policy. Optimisation is also responsible for balancing portfolio positions and maximising value in the prompt market.

Optimisation provides a unique interface with the wholesale market, via EDF Trading. Optimisation also provides modelling services to the whole of EDF Energy, as well as negotiating and managing asset backed commercial structures with third parties e.g. Nuclear Decommissioning Authority ("NDA") and Centrica.

## Energy sourcing

### Thermal energy generation and gas storage

As at 31 December 2013, EDF Energy's generation business that is managed by ESCS (which excludes Nuclear Generation) comprise of the following:

Power plant	Location	Year commissioned	Number of units	Type of station	Capacity (MW)	Output (TWh) Year ended 31 December	
						2013	2012
Cottam	Nottinghamshire	1970	4	Coal-fired	2,000	11.3	11.0
West Burton A	Nottinghamshire	1970	4	Coal-fired and OCGT	1,987	11.8	11.6
West Burton B	Nottinghamshire	2013	3	CCGT	1,332	1.3	0.0

In the year ended 31 December 2013, Cottam and West Burton A coal-fired power plants generated 23.1TWh of electricity which represents a strong output on the back of good availability and high dark spread. West Burton B CCGT generated 1.3TWh in the period following the progressive commissioning of its three units.

EDF Energy also owns a 1.4MW Combined Heat and Power ("CHP") Scheme, it has an operation and maintenance agreement for a 9.0MW CHP site and it also has an 18.6% shareholding in Barking power station, located in the London area.

### Electricity sourcing

The power generated by the Nuclear Generation fleet is sold through intra-group transactions between Nuclear Generation and ESCS in order to allow a single point of optimisation of the company's wholesale market exposures. Since April 2010, 20% of the generation output from Nuclear Generation is separately sold to Centrica under the agreements made at the time of the Centrica transactions. The remaining 80% is sold to ESCS under the same transfer price as used for the transaction with Centrica, based on published market prices, smoothed over forward electricity prices where liquidity allows.

Over and above its own generation, EDF Energy also sources electricity through export power supplied from power purchase agreements which are mainly with renewable and CHP generators. In 2013, EDF Energy acquired approximately 4.7TWh through this channel.

For delivery in 2013, EDF Energy's net position on the wholesale market was a sale of approximately 23TWh (including structured trades). In 2013, EDF Energy sold approximately 100TWh and bought 77TWh.

### Gas, coal and carbon rights procurement

Coal and gas contracts (physical and financial) and CO<sub>2</sub> emissions rights are entered into by EDF Energy, as well as contracts to hedge the fuel requirements of its power plants and gas consumers.

Purchases are based on coal and gas asset generation forecasts and target coal stock levels. In 2013, due to the high level of generation EDF Energy sourced the majority of its coal requirement from international suppliers through EDF Trading. ESCS has a need for gas to supply its residential gas and dual fuel customer portfolio and its new West Burton B CCGT power station. The current approach followed by ESCS is to source all the required gas from the wholesale gas market through purchases mainly on the forward market executed by EDF Trading.

EDF Energy continues to explore and invest in various options to address the commercial, technical, environmental and regulatory challenges that EU legislation presents for existing coal powers stations after 2016. The development of the strategy will take into account the outcome of the forthcoming Capacity Auctions, its emission reduction trials and other related market developments, with a decision regarding which of the Industrial Emissions Directives routes it will take for both plants being made prior to 1 January 2016.



EDF Energy has developed and is in the process of delivering a fast cycle gas storage facility alongside EDF Trading's existing Hole House gas storage facility in Cheshire. Two cavities with a total tradable capacity of 9.6 million therms have been completed and are ready for commercial operation pending commissioning of the associated gas plant, which imports and exports gas between the National Transmission System and the operational cavities. A third cavity has now been fully debrined and is being prepared for commercial operation with five additional cavities to be commissioned between now and 2017.

### Renewables

Through EDF Energy Renewables ("EDF ER"), a joint venture between EDF Energy and EDF Énergies Nouvelles ("EDF EN"), EDF Energy is developing its own onshore and offshore assets. In addition, EDF Energy has signed power purchase agreements with renewable generators and supporting independent developers. This is to ensure a balanced approach for compliance with its Renewables Obligations ("RO") and the provision of renewable electricity to its customer base. The RO has been subject to various reforms and in April 2010 the end date was extended from the current end date of 2027 to 2037 for new projects.

During 2013, the renewables operational portfolio increased by 225MW. This included three new onshore wind farms: Fallago Rig, Boundary Lane and Glass Moor II, as well as EDF Energy Renewables' first offshore wind farm, Teesside which has an installed capacity of 62MW and began commercial operation in July 2013. At the end of 2013, EDF Energy Renewables operated 25 wind farms with a total capacity of 529MW. These are primarily located in the north of England and in Scotland.

In addition, EDF Energy Renewables has a pipeline of projects which it is developing and constructing. This includes a 26MW onshore wind farm at Burnhead Moss. This is scheduled to enter commercial operation in the second half of 2014.

On 10 December 2013, EDF Energy and EDF EN announced the completion of the sale of 80% of Fallago Rig wind farm, to Hermes GPE infrastructure fund. As part of the sale, EDF ER will continue to provide asset management activities for the wind farm.

EDF Energy also has joint ventures in the renewables field with:

- Eneco, a Dutch energy utility, to develop an offshore wind project to the west of the Isle of Wight, Navitus Bay. This is part of The Crown Estate Round 3 offshore wind programme and the proposed development could deliver up to 1,100MW of capacity. In 2013, the project's main focus was on the Environmental Impact Assessment, local stakeholder consultation and preparation for the submission of the Development Consent Order expected to be submitted in April 2014;
- AMEC, a construction group, to develop a 130MW wind farm near Stornoway on the Isle of Lewis in Scotland. Having entered into the grid connection agreements in May 2013, the current focus of the project is the discharge of planning conditions.

#### 6.3.1.4.2 Nuclear Generation business unit

EDF Energy owns and operates eight nuclear power stations ("Nuclear Generation Fleet") in the UK with a total capacity of 8.7GW. The Nuclear Generation business unit employs over 5,500 people.

### Nuclear Generation fleet technology

Seven of the eight nuclear power stations are Advanced Gas-Cooled Reactor ("AGR") power stations (Dungeness B, Hartlepool, Heysham 1, Heysham 2, Hinkley Point B, Hunterston B and Torness) and the eighth is a Pressurised Water Reactor ("PWR") power station (Sizewell B). Each of the AGR power stations has two reactors and two turbines; the PWR has one reactor and two turbines.

An AGR differs in many respects from a PWR. Whereas the AGR design is unique to the UK, the PWR design is the most common reactor type in the world:

- an AGR has a graphite moderator which helps to control the reaction. The reactor is encased in a steel-lined pre-stressed concrete pressure vessel several metres thick which also acts as a biological shield. The steam generator in which water is heated is situated inside the pressure vessel. An AGR uses enriched uranium dioxide encased in a stainless steel pin for its fuel and CO<sub>2</sub> as its coolant;
- a PWR is contained inside a steel pressure vessel filled with pressurized water which acts as the moderator and coolant. The pressure vessel is located behind concrete biological shield walls within a steel-lined, reinforced concrete containment building. The fuel used is enriched uranium dioxide and is contained in zirconium alloy tubes.

### Regulation

The operation of nuclear power stations is subject to extensive regulation in a number of areas, including nuclear safety and security (in particular, in relation to the construction, operation and decommissioning of nuclear installations and the protection of workers and the public against ionising radiations), electricity market and environmental regulation.

### Safety

Nuclear safety is our overriding priority and EDF Energy has no greater responsibility than to protect the public, the environment and its employees from the potential adverse effects of our stations. Having a strong safety culture embedded in the organisation is crucial to achieving these goals and EDF Energy continues to invest in the training and development of its staff.

The actual and potential significance of individual nuclear events is measured against the International Nuclear Event Scale ("INES"). These are categorised between Level 0, which has no nuclear safety significance and Level 7 which represents a major accident. During the year ended 31 December 2013, EDF Energy had no nuclear event rated higher than INES Level 1 events (i.e. "Anomaly"). 10 INES Level 1 events have been rated.

EDF Energy operates strict procedures to minimise and control the radiation doses received by employees and contractors at all of EDF Energy's existing nuclear power stations. Any worker required to enter a radiological controlled area is issued with an electronic personal dosimeter, which measures radiation dose and warns the wearer if pre-determined dose levels are exceeded.

Radiation doses are measured in millisieverts (mSv), and the legal dose limit is 20mSv per year. In calendar year 2013, the average individual dose received by all workers on EDF Energy's existing nuclear sites was 0.061mSv. The highest individual dose received in 2013 was 4.6mSv.

After the events at Fukushima in 2011, the Office for Nuclear Regulation ("ONR") carried out an independent review of UK nuclear power plants. This concluded that the "UK nuclear facilities have no fundamental weaknesses". These findings were supported by EDF Energy's Japanese Earthquake Response ("JER") Programme on completing an internal review and challenge across the entire fleet of nuclear power plants which showed "there is no challenge to nuclear safety for within design basis events". Almost three years after the events in Japan, EDF Energy is still committed to enhancing the capability of its fleet of eight nuclear power plants to withstand and recover from an extreme natural event. EDF Energy is now in the final months of delivery of the JER Programme enhancements and will be substantially complete by the third anniversary of the event. The fully integrated solution has incorporated improvements to on-site resilience, including the installation of enhanced flood protection, seismic restraints and tie-ins for a wide range of new deployable Back Up Equipment. A Through Life Management Partner has been contracted to manage the maintenance and deployment of the new Back Up Equipment at three regional storage locations. In addition, at Sizewell B, a new Emergency Response Centre has been commissioned and will commence service in 2014.

## The operating lifetime of power plants

The potential lifetime of each of the power stations is determined primarily by the technical and economic practicability of supporting an agreed safety case for that power station in accordance with its nuclear site licence. Any decision by EDF Energy to extend the operating life of a power station beyond its current scheduled closure date is based, in large part, on a combination of economic factors and the engineering judgments reached in respect of technical and safety issues. Lifetime extensions will require the consent of the Nuclear Decommissioning Authority ("NDA") if the extension will result in an increase in the Costs of Discharging Liabilities (as defined in the Nuclear Liabilities Funding Agreement).

The current station lives (as formally declared by the company and approved by the NDA) and corresponding current scheduled closure dates of the power stations in the Nuclear Generation Fleet are set out in the following table:

Power Plant	Type of reactor	Start of Generation	Power Station Lifetime (Formally Declared)	Life Extensions (Already Formally Declared)	Associated Scheduled Closure Date	Scheduled Periodic Safety Reviews <sup>(1)</sup>
Hinkley Point B	AGR	Feb. 1976	47 years	22 years	2023	2017
Hunterston B	AGR	Feb. 1976	47 years	22 years	2023	2017
Dungeness B	AGR	Apr. 1983	35 years	10 years	2018	2018
Heysham 1	AGR	Jul. 1983	35 years	10 years	2019	2019
Hartlepool	AGR	Aug. 1983	35 years	10 years	2019	2019
Torness	AGR	May 1988	35 years	10 years	2023	2020
Heysham 2	AGR	Jul. 1988	35 years	10 years	2023	2020
Sizewell B	PWR	Feb. 1995	40 years	–	2035	2015

(1) ONR's response expected.

NB. The table refers only to extensions formally approved by the NDA and does not therefore include future expected life extensions as described below.

The lives of the AGR stations have already been extended by between 10 to 22 years compared to their original lives. These formal extensions were declared following completion of the necessary technical and economic evaluations and receipt of the relevant external consents.

In February 2012, EDF Energy announced that it would continue to seek life extensions for all its nuclear power stations where it is safe and commercially viable to do so. Based on a technical review of the potential life limiting plant areas, which was completed in 2011, and subject to the necessary formal reviews and approvals, EDF Energy announced that it expected in due course to achieve further life extensions of an average of seven years across the AGR fleet relative to the scheduled closure dates assumed in January 2009. EDF Energy typically seeks to make these formal extensions no later than 3 years before the current formal closure date for each station. EDF Energy has already announced that having completed the necessary technical, safety and economic evaluations and having received the relevant external consents, the decision has been made to extend the

The adequacy of the safety case for each power station is confirmed at each statutory outage for the following period by undertaking appropriate inspection, maintenance and testing of the plant and reviews of its operating performance. The results are reported to the ONR, which must give its formal consent under the nuclear site licence before the reactor concerned may be restarted. A reactor may only be operated following restart for the period determined by the safety case. This period is normally three years for AGR power stations and eighteen months for the PWR power station.

In addition, every ten years EDF Energy is required to undertake a Periodic Safety Review ("PSR") for each power station. PSRs also require ONR acceptance in order to secure continued operation of a power station.

lives of Hartlepool and Heysham 1 power stations by five years (to 2019) and Hinkley Point B and Hunterston B power stations by seven years (to 2023). These formally approved life extensions are consistent with the company's Lifetime Programme expectations and are included in the table above.

In addition, following work completed through 2013 EDF Energy now expects to achieve a further ten year life extension for Dungeness B taking its expected closure date to 2028. The formal decision to change the closure date will be subject to receiving the necessary approval. Achieving this expectation would mean all eight of EDF Energy's existing nuclear stations would be operational until at least 2023, with three of the seven AGR stations operating until nearer 2030 and Sizewell B, the company's Pressurised Water Reactor, remaining at 2055. As such, in the December 2013 accounts, EDF Energy updated its life extension expectation to an average of eight years across the AGR fleet, subject to the necessary formal reviews and approvals. This average is relative to the scheduled closure dates at British Energy acquisition in January 2009.

## Capacity and output

The table below shows the last two years' actual capacity and output of each of the nuclear power stations.

Power Plant	Capacity (MW) <sup>(1)</sup>	Output <sup>(2)</sup> (TWh) Year ended 31 December	
		2013	2012
AGR Power Plants			
Dungeness B	1,040	4.8	4.1
Hartlepool	1,180	7.0	8.8
Heysham 1	1,155	6.9	6.6
Heysham 2	1,220	8.8	9.4
Hinkley Point B	880	7.5	6.3
Hunterston B	890	7.5	6.9
Torness	1,185	9.3	8.6
PWR power plant			
Sizewell B	1,198	8.7	9.3
TOTAL	8,748	60.5	60.0
LOAD FACTOR <sup>(3)</sup>		79%	78%

(1) Capacities are stated net of all power consumed for the power stations' own use, including power imported from the Grid. Capacities are subject to review each year end. The capacities shown reflect the benchmark generation of units from 1 January 2013. In particular, Hinkley Point B and Hunterston B power stations were adjusted to reflect planned operation at approximately 70% load, due to boiler temperature restrictions.

(2) Output in each year reflects any re-fuelling, planned and unplanned outages.

(3) Load factors are obtained by dividing the actual output by the output that would have been achieved had each power plant operated at its stated capacity appropriate for the period.

## Operational review of the existing Nuclear Generation fleet

Output from the Nuclear Generation fleet for the year ended 31 December 2013, was 60.5TWh, which meets the performance objective of consistently achieving nuclear output above 55TWh and which was 0.5TWh higher than nuclear output of 60.0TWh for the year ended 31 December 2012. The increase principally reflects lower losses from refuelling and statutory outage in 2013 together with increased output following the uprating of Hinkley Point B and Hunterston B during the year, partially offset by higher losses from unplanned events in 2013 (particularly the flooding resilience work at Dungeness B) and 2013 being one day shorter than 2012.

During the year ended 31 December 2013, a programme of planned outages was carried out on the Nuclear Generation fleet. Statutory outages were completed on Hartlepool Reactor 2, Sizewell B, Heysham 2 Reactor 8 and on 1 January 2014, Heysham 1 Reactor 1. This programme of outages reflects the continued focus on investment to improve the long-term reliability and safe operation of the Nuclear Generation fleet by proactively targeting investment designed to deliver equipment reliability and to reduce the risks of future losses.

### Plant status

#### Dungeness B

The station remained shutdown between May and July 2013 while interim measures were implemented to extend and improve plant resilience to flooding. Construction of a permanent flood protection wall around the site has been finished in early 2014.

However, fuel route production levels has benefitted from improvement equipment reliability and the resolution of some safety case issues.

#### Hinkley Point B and Hunterston B

In 2006, following the identification of higher than expected levels of boiler tube cracking on one reactor at Hunterston B, all four reactors at Hinkley Point B and Hunterston B were shut down for boiler inspections and repairs. In 2007 all four reactors were returned to service at reduced boiler temperatures and reduced capacity. Work continued during 2008 and 2009 to increase the capacity of all four reactors to around 70% to 75% of their former capacity.

Subsequent technical modifications and consequential adjustments to plant parameters during 2012 and 2013, together with the necessary approval processes, have allowed capacity on all four to be increased to around 80% of their former capacity during 2013.

## Radioactive Waste Management

In the UK, radioactive waste is classified as:

- Low Level Waste ("LLW"): The upper bound of the LLW category is defined as: "radioactive waste having a radioactive content not exceeding 4 gigabecquerels per tonne (GBq/te) of alpha or 12 GBq/te of beta/gamma activity". A near surface disposal route exists for LLW – LLW Repository at Drigg West Cumbria
- Intermediate level waste ("ILW") is defined as radioactive waste exceeding the upper activity boundaries for low level waste but which does not need heat to be taken into account in the design of disposal facilities. No disposal route is currently available for ILW in the UK.
- High level waste ("HLW") is defined as radioactive waste in which the temperature may rise significantly as a result of the radioactivity, so that this factor has to be taken into account in the design of storage and disposal facilities.
- Higher Activity Waste ("HAW") – This is effectively ILW and any LLW that are unsuitable for near-surface disposal.

EDF Energy Nuclear Generation's strategy for LLW and HAW reflects that the UK Government is focused on application of the waste hierarchy (reduce, reuse, recycle, recover). This represents a move away from the past focus solely on disposal and will help to make the best use of the UK's Low Level Waste Repository ("LLWR") in Cumbria. Examples of this include use of the Metals Recycling Facility at Lilyhall (Cumbria) and increased use of incineration facilities for combustible wastes such as the recycling of LLW metals. Only a disposal route for LLW currently exists in the UK.

HAW is stored for the medium-term in safe, purpose built facilities at EDF Energy's stations while a longer term National solution is established within England and Scotland.

Under historic contractual arrangements spent fuel from the AGRs is transported to Sellafield for reprocessing or long term storage. Heat generating HLW is generated at Sellafield from the reprocessing of spent AGR fuel. This is converted into glass blocks for safe, long term storage at Sellafield.

The policy position within the EU and UK is that spent fuel is not defined as waste whilst the option of reprocessing the fuel remains a possibility. Ultimately reprocessing is theoretically still an option until placement within a Geological Disposal Facility ("GDF"). Hence, spent fuel is not defined as waste until placed within the GDF.

At Sizewell B PWR station, the spent fuel is stored on site and EDF Energy is planning to build a further storage facility to allow the station to continue to safely store all of the spent fuel that will be generated over Sizewell B's life. The approved strategy for Sizewell B fuel management consists of an Independent Spent Fuel Storage Installation ("SFSI") Dry Store concept to store spent PWR fuel in HOLTEC metal casks held on a concrete pad within a purpose built building. Following long-term surface storage the Sizewell B PWR spent fuel will be disposed to a future UK Geological Disposal Facility.

The nature of EDF Energy Nuclear Generation's business and its historic government link means that the strategy for spent fuel and the management of radioactive waste from EDF Energy Nuclear Generation's power stations is approved by the Nuclear Decommissioning Authority. However EDF Energy has policies to continually improve and minimize the spent fuel and waste arising through the company's wider safety, sustainability and environmental policies.

## Costs relating to radioactive waste management and decommissioning – Restructuring agreements of British Energy Group

Restructuring Agreements were originally entered into on 14 January 2005 as part of the restructuring of the former British Energy Group of companies (hereafter referred to as "the EDF Energy Nuclear Generation Group") carried out from 2002 under the aegis of the UK Government in order to stabilise the financial situation of the EDF Energy Nuclear Generation Group.

By virtue of these restructuring agreements:

- the Nuclear Liabilities Fund ("NLF"), an independent trust set up by the UK Government as part of the restructuring, agreed (at the direction of the Secretary of State) to fund, to the extent of its assets: (i) qualifying uncontracted nuclear liabilities (including liabilities in connection with the management of spent fuel at the Sizewell B power station); and (ii) qualifying costs of decommissioning in relation to the existing nuclear power stations owned and operated by EDF Energy Nuclear Generation Group;

- the Secretary of State agreed to fund: (i) qualifying uncontracted nuclear liabilities (including liabilities in connection with the management of spent fuel at the Sizewell B power station) and qualifying costs of decommissioning, in each case in relation to the existing nuclear power stations owned and operated by EDF Energy Nuclear Generation Group, to the extent that they exceed the assets of NLF; and (ii) subject to a cap of £2,185 million (in December 2002 monetary values, adjusted accordingly), qualifying contracted liabilities for the EDF Energy Nuclear Generation Group's spent fuel (including in particular liabilities for management of AGR waste from spent fuel loaded prior to 15 January 2005); and
- EDF Group is responsible for funding certain excluded or disqualified liabilities (mainly liabilities incurred in connection with an unsafe or careless operation of the power stations) and the potential associated obligations of its subsidiaries to the NLF and the Secretary of State are guaranteed by the principal members of the EDF Energy Nuclear Generation Group.

Certain companies in the EDF Energy Generation Group including EDF Energy Nuclear Generation Limited entered into a separate contract, now with the NDA for management of AGR spent fuel loaded from 15 January 2005 and have no responsibility for this fuel after it is received at Sellafield.

The Secretary of State and EDF S.A. agreed to limited amendments to the Restructuring Agreements in connection with the acquisition of the EDF Energy Generation Group by Lake Acquisitions. The amendments, among other things and subject to limited exceptions, restrict the majority of rights and obligations imposed by the Restructuring Agreements only to EDF Energy Nuclear Generation Group and its subsidiaries and subsidiary undertakings and accordingly, do not extend similar rights and obligations to EDF Group, or its other subsidiaries and subsidiary undertakings. The amendments do not impact on the contractual funding commitments of the Secretary of State or NLF to the EDF Energy Nuclear Generation Group.

Certain amendments have been made to the Restructuring Agreements, reflecting the EDF Energy Nuclear Generation Group access to an improved credit rating following the acquisition. In particular, EDF Energy Nuclear Generation Group is required to maintain a minimum cash reserve. The amendments reduced the minimum level to £290 million. The cash reserve may be further reduced to nil provided the EDF Energy Nuclear Generation Group achieves and maintains an investment grade rating or irrevocable Committed Facilities of the same amount are put in place between third party financial institutions or a member of the wider EDF group with an investment grade rating and a member of the EDF Energy Nuclear Generation Group.

### 6.3.1.4.3 Nuclear New Build business unit ("NNB")

#### Nuclear New Build business unit activity

EDF Energy aims to build up to four new European Pressurised-water Reactor ("EPR") nuclear reactors in the UK: twin reactors at Hinkley Point and possibly a further twin at Sizewell. The plans are conditional on the necessary consents being received and a robust investment framework being in place.

Safety is a key focus of the EPR design and for the NNB business unit. The same EPR technology is already being deployed at the new nuclear power station being constructed by EDF at Flamanville in France and at Taishan in China (as part of a joint venture) (see section 6.2.1.1.3.5 ("Preparing for the future of the nuclear fleet in France")). Using the same technology, adapted for UK requirements, will enable the efficiencies that come with standardisation of design in the construction and operation of a series of plants.



## Hinkley Point C

### Planning and Consents Progress

Before a Radioactive Substances Regulation ("RSR") permit is granted for any planned new nuclear power station, Article 37 of the Euratom Treaty requires the UK Government to make a submission to the European Commission enabling it to determine whether the plan is liable to result in radioactive contamination of another member state. The Environment Agency cannot grant an RSR permit until the Commission has given its opinion. In the case of HPC, following Article 37 submissions by the UK Government, the Commission provided its opinions in February and May 2012. Public consultation on the draft decisions ended on 9 November 2012 and following the results of the consultation, the three operational permits were formally issued on 13 March 2013.

On 19 March 2013, following a six-month examination of the HPC application and subsequent review period, the Secretary of State for Energy and Climate Change granted a Development Consent Order ("DCO") for the project, giving EDF Energy the planning permission to build a new nuclear power station at Hinkley Point C.

The DCO for HPC is subject to a number of requirements that EDF Energy must comply with or provide further information on, as requested by the DCO itself, for the subsequent approval by the local planning authority (known as discharging). To date EDF Energy has discharged 39 requirements which are needed prior to the commencement of earthworks and the associated development: 27 of which relate to the 72 pre-commencement requirements, as specified in the DCO, and 12 were carried out in relation to Site Preparation Works. The majority of these relate to ecology, landscaping and archaeology for the Associated Development sites.

Following signature of the legally binding Planning Obligations (Section 106 Agreements) with the local authorities in 2012, whereby a commitment was made to deliver approximately £92 million for local communities, EDF Energy has to date released £9 million to support advance mitigation of the proposed HPC power station. The majority of this funding has been distributed to local councils to fund local authority posts, community safety initiatives, tourism, landscape/ecology, archaeology and economic development, while the rest has been invested in funding skills and training.

### Revenue Arrangements

NNB and the Department of Energy and Climate Change ("DECC") reached an agreement in principle on HPC Investment Contract Heads of Terms on 21 October 2013. The Heads of Terms of the Contract for Difference of HPC have been agreed in principle. This is a key milestone for the project.

Under this agreement the HPC power plant will have an investment contract, valid as from the plant's start-up date. If the reference price at which the producer sells electricity on the market is lower than the strike price set under the terms of the contract, the producer will receive an additional payment. If the reference price is higher than the strike price, the producer will be liable for the difference.

EDF Group has plans for two EPR reactors at HPC in Somerset. In addition it is also developing proposals for two EPR reactors at Sizewell C ("SZC") in Suffolk. Successive power stations built to the same design have a series benefit from a shared design, supply chain and engineering work.

The Strike Price is set at:

- £92.50/MWh for HPC project if SZC does not go ahead.

- £89.50/MWh if SZC goes ahead. There will be a payment from SZC to HPC equivalent to £3/MWh upon the final investment decision being taken with respect to SZC reflecting the fact that the first of a kind costs of EPR reactors are shared across HPC and SZC sites.

The payment mechanism funded by the SZC project is intended to ensure there is no impact on HPC economics if SZC goes ahead. In addition, if savings are achieved in the construction of the HPC project, these will be shared with customers through a lower strike price.

DECC forecasts that electricity from HPC will be competitive with future gas generation prices as well as all low carbon energy sources. It is estimated that the UK new nuclear programme could reduce bills.

The full terms of the Investment Contract still have to be developed and agreed, expected in 2014. In parallel to agreeing the full investment contract for HPC, the Energy Bill received Royal Assent on 18 December 2013.

### Cost of the project

As announced on 21 October 2013, the construction cost of the two nuclear power units at Hinkley Point is expected to be £<sub>2012</sub>14 billion. The project development costs amount to £2 billion. These include land purchases, achieving the different consents, construction of a spent fuel storage facility and preparing the 900 strong team which will run the station. This means that the total costs to first operation are expected to be close to £<sub>2012</sub>16 billion.

The total cost estimate has been subject to a thorough internal cost review process as well as a detailed cost verification process with DECC as part of the process to agree the Strike Price for HPC.

The cost estimate includes the agreed details of the four main construction contracts (see below), which together make up the majority of the construction costs.

### Financing & Partners

On 21 October 2013, NNB announced the confirmation that the HPC Project has pre-qualified for the Government's Infrastructure Guarantee Scheme, under terms and conditions to be agreed upon.

Agreement in principle on the scope of the UK Guarantees scheme and on the key terms of the investment contract allows EDF Group to move ahead to secure partners for the financing of the project. The share of equity is expected to be:

- EDF Group: 45-50%;
- AREVA: 10%;
- China General Nuclear Corporation ("CGN") and China National Nuclear Corporation ("CNNC"): between 30 and 40%;
- Discussions are also taking place with a shortlist of other interested parties who could take up to 15%.

AREVA has been integral in the construction of all the existing EPR projects and will bring the expertise and lessons learned from these projects to be applied in the UK.

The EDF Group has been working as an industrial partner with CGN and CNNC for 30 years. This includes the joint venture between EDF Group and CGN to build two EPR reactors at Taishan. The UK will benefit from this long-standing co-operation and the extensive and proven capability of CGN and CNNC in the construction and operation of nuclear plants.

The UK's nuclear regulation ensures that all builders and operators must demonstrate that they operate in the interests of the UK and meet strict compliance requirements for safety and security.

The partnership will give CGN and CNNC the opportunity to gain experience in the UK and will support their long-term objective of becoming nuclear developers in the UK in partnership with EDF Group and in full compliance with UK regulatory requirements.

The risk of constructing the power station to budget and schedule will be shared by the EDF Group and its partners.

### State aid

A final investment decision (FID) on HPC will only be taken at the time by the Group when it has agreed the full terms of the Investment Contract with the UK Government, it has finalised the agreement on the Infrastructure Guarantee with the UK Government, EDF Group has finalised agreements with the investment partners, as well as when the European Commission has authorised the measures announced by the British government on the basis of regulation on State Aid. The Investment Contract for Hinkley Point C will be the first example of a new kind of agreement to unlock the investment needed for low carbon energy at the best possible price for consumers and so as part of a far-reaching reform of the UK market.

### Funded Decommissioning Programme ("FDP")

Operators of new nuclear power stations are required under the Energy Act 2008 to have a FDP in place and approved by the Secretary of State before nuclear safety related construction begins. The overall objective of the FDP is to ensure that operators make prudent provision for:

- the full costs of decommissioning their installations;
- their full share of the costs of safely and securely managing and disposing of their waste; and that in doing so the risk of recourse to public funds is remote.

A preliminary version of FDP was formally submitted in draft form to DECC in March 2012. There have been a series of subsequent discussions with DECC and their advisers, including the independent Nuclear Liabilities Financing Assurance Board. EDF Energy and DECC have worked to an overall review and discussion programme and achieved agreement to the broad terms for a Funded Decommissioning Programme for Hinkley Point C. In support of this EDF Energy has received a letter from the Managing Director of the Office for Nuclear Development in DECC confirming that DECC and NNB had reached agreement in principle on the FDP. Final detailed discussions of the Funded Decommissioning Programme are scheduled to be completed in line with the Contract for Difference programme and prior to the HPC Final Investment Decision.

### UK EPR Generic Design Assessment ("GDA")

On 13 December 2012, the Health & Safety Executive ("HSE") issued a Design Acceptance Confirmation ("DAC") and the EA issued a Statement of Design Acceptability ("SODA") thereby signifying their acceptance that the UK EPR design is capable of meeting the licensing requirements for design, construction, operation and decommissioning of a nuclear power station in the UK. This marked the end of the GDA process that commenced in 2007.

During the GDA process a number of Assessment Findings were raised. GDA Assessment Findings are defined as findings identified during the regulators' GDA assessment, but not considered critical to the decision to start nuclear island safety-related construction. These GDA Assessment Findings are the responsibility of NNB to resolve and will continue to be the subject of normal regulatory oversight.

### Nuclear Site Licence ("NSL")

Since the NSL Grant on 26 November 2012, NNB has continued to consolidate arrangements and capabilities supporting compliance with the NSL. Interfaces with the Regulators have continued and the positive and strong relationship.

Moving forward, further development of arrangements is needed to maintain the NSL, including arrangements for commissioning and operation. The NSL Forward Work Plan provides plans for the development of these arrangements across the HPC Project lifecycle.

Whilst EDF Energy is someway from the preparation of the SZC NSL application, outline plans and cost estimates for this work have been developed.

### Main Construction Contracts

The contractor for the early enabling earthworks contract was appointed in 2012 and is currently completing the contractor design phase, ready for mobilisation of construction activities.

The preferred bidders have also been selected for the four major construction contracts – Main Civil Works, Turbine/Generator, Marine Works and combined Nuclear Steam Supply System and Instrumentation & Controls ("I&C").

Contract documents are currently being finalised ready for signature in case of a positive final investment decision ("FID"). A number of these selected contractors are being engaged on Early Contractor Involvement ("ECI") activities, including inputting into the HPC Engineering and Pre-Construction Planning teams to help de-risk the project and better secure the construction schedule. Procurement also continues on other critical path contracts including the early Associated Development enabling works (Road Improvements, Bypass, Logistic Facilities & Worker Accommodation) and also with the key Electrical & Mechanical Installation and Equipment supply contracts for the main site.

### Land Deals

Land acquisition has mirrored the planning progress and reflects those sites applied for in the Planning Inspectorate ("PINS") process.

In 2012, the land required at the main site for the terrestrial construction of HPC was secured with negotiations concluded with relevant parties to allow three 999-year leases of the HPC main site to be put in place when needed and one of these leases is now in place. This supports the security of tenure requirements for the NSL. Much of the land needed to assemble the Associated Development sites required to support the construction process was secured by the end of 2012, with the bulk of the remainder having been secured in 2013. Much of this is secured through Option Agreement therefore EDF Energy does not yet have possession of the land but has the right to acquire or lease it when the land is required by the project. Through

the consent of the Development Consent Order, EDF Energy also secured the powers of Compulsory Purchase, meaning it has statutory powers to acquire certain land identified in the planning application if any remaining land owners are not willing to sell, therefore giving confidence that the necessary land can be secured. Negotiation of contracts for certain Marine rights continued.

#### HPC Site Activities

At the start of 2013, the final report relating to the remediation works performed was approved by West Somerset Council.

During 2013, the security construction fencing including a detection system and the revised access control system to meet ONR and License condition requirements were completed.

The 11kV substation civil works were completed as part of early site establishment in June. This 11kV station will feed the site with the temporary electricity necessary for the construction works.

As part of our undertaking to West Somerset Council, the Delivery Management System to control the Heavy Goods Vehicle ("HGV") lorry number was delivered including number plate recognition cameras, web based software and associated training.

The earthworks contractor completed a number of ground trial pits and backfilling tests to ensure that the site excavated materials needed for backfill will meet the needs and that no additional materials will have to be delivered to site, this will ensure that the project reduces the number of HGV journeys to meet our sustainability commitments. A number of boreholes – onshore and offshore – were completed to ensure that the final jetty design requirements were also met.

#### Sizewell C

The Sizewell C project development continues to make good progress. Initial plans and options for the project were formally consulted upon with the public and statutory bodies between 21 November 2012 and 6 February 2013. Since then outline design and environmental studies have continued. These are informed by an ongoing series of workshops with the local authorities and environmental bodies.

#### 6.3.1.4.4 Commitments under European Commission Merger Regulation ("ECMR")

The British Energy Acquisition was subject to certain conditions, including Approval from the European Commission under the ECMR. On 22 December 2008, the European Commission announced its decision to approve the acquisition, subject to certain commitments by EDF. Specifically, EDF has committed to the following: (i) to divest EDF Energy's gas-fired power plant at Sutton Bridge; (ii) to divest British Energy's coal-fired power station at Eggborough; (iii) to sell minimum volumes of electricity on the UK wholesale market, ranging from 5 to 10TWh per year during the period from 2012 to 2015; (iv) to divest, without conditions, one site potentially suitable for the construction and operation of new nuclear generation facilities situated adjacent to existing British Energy stations at either Heysham or Dungeness, at the option of the potential purchaser; and (v) to give up one of the combined group's three grid connection agreements at Hinkley Point. Commitments (i), (ii), (iv) and (v) have been met. For item (iii) EDF Energy has begun the sale of electricity on the wholesale market for the period 2012-2015. These sales continue to be carefully monitored by the European Commission.

Following the approval of the European Commission, the sale of Sutton Bridge power station was completed as of 27 March 2013, and the Virtual Tolling ended.

#### 6.3.1.4.5 United Kingdom Legal Environment

##### Electricity Market Reform ("EMR")

On 29 November 2012, the Energy Bill was introduced to the House of Commons by the Secretary of State for Energy and Climate Change. Following Parliamentary scrutiny, the Energy Act received Royal Assent on 18 December 2013.

The Energy Act establishes the legislative framework for delivering secure, affordable and low carbon energy by implementing the EMR proposals outlined in the Government's July 2011 White Paper. These include:

- Contracts for Difference ("CfD") – long-term contracts between a CfD counter-party and eligible generators, funded by contributions from licensed electricity suppliers to provide stable and predictable incentives for companies to invest in low-carbon electricity generation;
- Investment contracts – long-term contracts broadly similar to CfDs to enable early investment in advance of the CfD regime coming into force;
- Capacity Market – to ensure there is sufficient generating capacity to maintain security of electricity supply;
- Emissions Performance Standard ("EPS") – to limit carbon dioxide emissions from new fossil fuel power stations.

The Government has also identified two areas where it believes action may become necessary and has established backstop powers in the Energy Act:

- Firstly, while recognising the improvement in liquidity seen in the near term day ahead market, it recognises that it may be necessary to introduce regulations to further promote liquidity in general.
- Secondly, the Energy Act provides powers for the Secretary of State to make changes to promote the availability of Power Purchase Agreements ("PPA").

The carbon price floor is also a key component of the Government's EMR package, and was introduced as part of the Finance Act 2011.

The "carbon price support rate" that underpins the carbon price floor is set two years in advance, alongside indicative rates published for two further years. The carbon price support rate for 2015-2016 was therefore determined at Budget 2013 on 20 March 2013, together with indicative rates for 2016-2017 and 2017-2018.

The Energy Act will provide the legal certainty required for robust and durable CfDs, with a single Government-owned counterparty which will offer stability and value for customers, as well as long term assurance for investors. EDF Energy also welcomes confirmation that there will be a Capacity Market with an intention to run the first auction in 2014, which will help maintain security of supply. On 10 October 2013, DECC published detailed proposals for the implementation of EMR for consultation. Illustrative draft secondary legislation, covering both CfDs and the Capacity Market, was also included alongside the consultation document. The consultation closed on 24 December 2013. The Government will consider the responses received from stakeholders and its indicative plan is to draft, and then lay, the final package of secondary legislation in Parliament in late spring 2014. The regulations are expected to come into force in summer 2014.

The implementation of EMR is subject to State Aid approval and the Government is working with the European Commission to secure this.

## 6.3.2 Italy

### 6.3.2.1 EDF Group's strategy in Italy

The Italian energy markets have a strong strategic interest for EDF: the Italian gas market is the third largest in the European Union and the electricity market, the fourth largest European Union market, is connected to the French market and which, until now, benefits structurally from a high average level of prices.

The current position and ambitions for growth of Edison, of which EDF took exclusive control in May 2012, allow the Group to implement a balanced strategy in Italy, based on Edison's goals in terms of managing its electricity generation fleet and developing its customer portfolio and gas business.

The exclusive takeover of Edison provided EDF with a major player of the electricity market in Italy and a real international gas platform. EDF intends to give Edison a new outlook, with:

- development in Exploration and Production (oil and gas), a sector in which the EDF Group can draw on Edison's recognised internal expertise;
- development of gas infrastructures: LNG terminal (Rovigo) and import gas pipeline projects (ITGI/IGB, Galsi) additional to Group projects (South Stream, Dunkirk LNG terminal) with the objective to build from Italy a potential gas hub for Europe;

- international development in the Mediterranean basin (Balkans, Greece, Turkey, etc.) and the Caspian Sea region, mainly through Edison's engineering skills in fossil-fuel fired and hydropower generation.

### 6.3.2.2 Presentation of the Group's business in Italy

As at 31 December 2013, the EDF Group was mainly present in Italy through its 97.405%<sup>1</sup> shareholding in Edison, which is a major player in the Italian electricity and gas markets and a well-known Italian brand.

Edison was de-listed in 2012, but its savings shares remain listed on the Italian stock exchange.

Furthermore, as at 31 December 2013, the EDF Group operates in Italy through the following subsidiaries and shareholdings:

- EDF Fenice: the Group wholly owns EDF Fenice, a company specialised in environmental services and energy efficiency. EDF Fenice, whose registered office is in Turin, has an international presence with subsidiaries in Spain, Poland and Russia. Its main activities are the generation of electricity and/or heat (from gas, coal, hydropower, biomass and waste), the operation and maintenance of energy assets, the treatment of solid and liquid industrial waste and environmental engineering (see section 6.3.2.4 ("EDF Fenice"));
- Dalkia International (see section 6.4.1.4 ("Dalkia")) and EDF Énergies Nouvelles also own subsidiaries and holdings in Italy.

## 2013 Installed capacity and Generation for Edison and Fenice

### Electricity

The table below shows Edison and Fenice's installed capacities and output in 2013 including their foreign operations:

2013 installed capacity (in MW)	Edison	EDF Fenice	Total	%
Thermal	5,812	468	6,280	77
Hydropower	1,358	2	1,360	17
Other renewables	490	-	490	6
<b>TOTAL</b>	<b>7,660</b>	<b>470</b>	<b>8,130</b>	<b>100</b>

2013 output (in GWh)	Edison	EDF Fenice	Total	%
Thermal	14,841	1,168	16,009	75
Hydropower	4,338	5	4,343	21
Other renewables	876	-	876	4
<b>TOTAL</b>	<b>20,055</b>	<b>1,173</b>	<b>21,228</b>	<b>100</b>

In Italy, in 2013, the EDF Group's net electricity generation was 19.7TWh<sup>2</sup>, which accounted for 7.1% of net electricity generation in Italy, whilst gas activities accounted for 15.7 Gm<sup>3</sup>, or 22.5% of Italian gas demand (15.8 Gm<sup>3</sup> and 21.3% in 2012).

1. The remainder of the capital is distributed between savings shares, which do not confer any voting rights, and ordinary shares that are now delisted.

2. Excluding EDF Énergies Nouvelles and Dalkia in Italy.



## Gaz and hydrocarbons

Gas and Hydrocarbon production	2013	2012
Gaz in Italy (in millions of cubic meters)	410	611
Gas abroad (in millions of cubic meters)	1,799	1,906
Oil in Italy (in thousands of barrels)	1,940	1,809
Oil abroad (in thousands of barrels)	1,640	1,737

In Italy and abroad, the Group's hydrocarbon production activities through Edison were down compared to 2012, reaching 2.2 Gm<sup>3</sup> for gas generation (-12.2% compared to 2012).

Oil production remained stable in 2013 with 3.58 million barrels, 1.94 of which in Italy.

### 6.3.2.3 Edison

#### 6.3.2.3.1 Electricity generation business

At 31 December 2013, the Edison Group's installed production capacity was 7.7GW with net electricity generation of 20.1TWh over 2013, including 1.3TWh abroad. This decrease compared to 2012 is primarily due to the reduction in thermoelectric generation caused by a decrease in electricity demand in Italy. Edison's current generation fleet is comprised of 47 hydropower plants, 22 thermal power plants, 32 wind farms, 9 photovoltaic power plants and one biomass plant. 74% of electricity generated is from combined-cycle gas ("CCGT"), 22% from hydropower and 4% from wind and solar power.

Edison operates about 1,358 MW in hydropower facilities, generating 4.3GWh (up 11.8% compared to 2012), accounting for about 21.6% of the energy produced by Edison.

Through its wholly owned subsidiary EDENS, Edison operates on the renewable energy market with an installed capacity of 13MW in photovoltaic power and 471MW in wind power.

In addition, outside the Edison Group, EDF Énergies Nouvelles has operations in Italy (see Section 6.3.2.5 ("Other Group Activities in Italy") and Section 6.4.1.2.2 ("EDF Énergies Nouvelles")).

Internationally, Edison has a well-established presence in Greece, where it is the second-largest electricity operator through Elpedison, a 50/50 joint venture with Hellenic Petroleum. Elpedison owns two CCGT plants: the Thessalonique plant (389MW) and the Thisvi plant (410MW), built by Edison.

In Brazil, Ibiritermo, a 50%-owned subsidiary of Edison, operates a 226MW CCG power plant.

#### 6.3.2.3.2 Hydrocarbon sector business

The takeover of Edison allows the EDF Group, in implementing its gas strategy, to benefit from the experience that has been developed over the course of many years by Edison along the entire gas value chain, from exploration/production to the direct sale of natural gas.

Edison's gas supply portfolio includes long-term contracts, and in 2013 comprised approximately 15.6Gm<sup>3</sup> in purchased output (around 12.5Gm<sup>3</sup> of which was via pipeline and LNG) and more than 0.41Gm<sup>3</sup> of own production in Italy. Changes in inventory and network losses were 0.34Gm<sup>3</sup>.

In 2013, Edison delivered 2.7 Gm<sup>3</sup> of gas to the industrial sector, 2.74Gm<sup>3</sup> to the residential sector and 6.6Gm<sup>3</sup> to the thermal power sector; the latter volume included Edison's own needs.

Due to the difficult gas market situation, since 2010, Edison, like all other players in the sector, has asked suppliers to adjust their contractual terms. It is within this context that the Sonatrach arbitration proceedings were launched in August 2011. On 23 April 2013, the Court of Arbitration of the International Chamber of Commerce ruled in favour of Edison by accepting its request to revise the long-term gas contract signed with Sonatrach. In July 2013, Edison also signed an agreement with Sonatrach as part of a second phase of the renegotiation.

In addition, in July 2013, Edison signed a new agreement renegotiating long-term gas supply contracts with Qatar.

In exploration-production ("E&P"), Edison had 58 concessions and exploration permits in Italy and 53 abroad, and had around 50.4 billion cubic meter equivalents of reserves at 31 December 2013. Abroad, Edison's biggest asset is the Abu Qir gas field in Egypt for which Edison bought the exploration, production and development rights for an initial length of 20 years in early 2009, extendable by ten years.

Edison is pursuing its exploration activities in Italy and abroad, particularly in Norway where it has been active since 2007. Currently, Edison holds licenses in the North Sea, in the Norwegian Sea and in the Barents Sea. As at 31 December 2013, the portfolio comprises 20 licenses (seven were granted in 2013), including four as operator. Furthermore, Edison purchased EDF Production UK, a company involved in exploration and generation in the North Sea in October 2013.

#### Gas infrastructures

Edison owns a 7.3% share in Adriatic LNG Terminal, which operates the Rovigo offshore regasification terminal (8 Gm<sup>3</sup>/year). This terminal is powered via Qatari gas. The other shareholders are ExxonMobil Italiana Gas (70.7%) and Qatar Terminal Company Limited (22%).

Under the terms of the contract signed with Ras Laffan Liquefied Natural Gas Company Limited II (RasGas II), Edison owns 80%, i.e. 6.4Gm<sup>3</sup>/year, of the terminal's capacity.

Edison is involved in two gas import infrastructure projects: GALSI (20.8% share), a gas pipeline to connect Algeria and Italy via Sardinia (annual capacity of 8Gm<sup>3</sup>) and ITGI, a gas pipeline connecting Turkey-Greece-Italy (annual capacity of 10Gm<sup>3</sup>) to open up gas transit coming in particular from countries near the Caspian Sea and the Middle East via Turkey, Greece and Italy. A second component known as "IGB" (Greece-Bulgaria Interconnection) will connect Greece with Bulgaria.

#### 6.3.2.3.3 Sales and marketing structure

In 2013, Edison sold 45.0TWh of electricity in Italy. With CIP6 volumes, captive sales and auction effects, this figure rises to 56.3TWh (up 10.3% compared to 2012), of which 18.7TWh generated and 37.6TWh purchased on the markets. Sales to end customers amounted to 19.1TWh, a 5.8% increase compared to 2012. At end-2013, Edison served more than 815,000 electricity customers and about 596,000 gas customers on the business and residential customer segments.

In sales and marketing, Edison continues to significantly develop its electricity and gas sales to individuals and in the SME segment. The development of an end-customer portfolio is part of the Group's strategy to promote the upstream-downstream balance of its positions.

#### 6.3.2.3.4 Regulated activities in Italy

##### **Gas transport and storage**

Edison wholly owns Edison Stocaggio, a company that handles regulated storage and transport activities.

The company also offers storage services through the Cellino and Collalto concessions, located in Abruzzo and Veneto respectively. In June 2013, the new concession for San Potito-Cotignola located in the Ravenna province started.

Infrastrutture Trasporto Gas Spa (ITG), wholly-owned by Edison Spa owns and directly manages the Cavarziere Minerbio pipeline, a functional link from the Rovigo terminal to the national network with a transport capacity of over 9 billion cubic metres per year.

##### **Distribution**

Gas distribution in Italy is regulated and supervised by the AEEG, the electricity and gas authority that establishes quality and safety parameters and network access rules.

Edison DG (Distribuzione Gas) is the company within the Edison Group dedicated to natural gas distribution. Every year, Edison DG distributes approximately 280 million cubic metres of natural gas to 150,000 users in the north and centre of Italy.

#### 6.3.2.4 **EDF Fenice**

In Energy services, the Group has operations in Italy, Spain, Poland and Russia through Italian company EDF Fenice, which is wholly owned by EDF and historically linked to the industrial sites of the Fiat Group which sold its stake in this company to the EDF Group.

EDF Fenice operates in the field of energy efficiency and outsourced management, and in the operation of cogeneration and tri-generation plants, electricity substations, thermal power plants producing both superheated water and steam for industrial use or site heating, cold generation power plants, compressed air generation units, and internal electricity distribution units, as well as various energy streams (hot air, refrigerated air, industrial compressed air and gas). EDF Fenice now focuses on energy efficiency project development and performance contracts.

At 31 December 2013, in terms of energy assets, the EDF Fenice Group had electricity generation capacities of 470MW and heat generation capacities of 3,108MWth. EDF Fenice has 48 thermal power (steam, superheated water and hot water), electricity and compressed air generation sites.

In 2013, EDF Fenice generated revenue of €425 million.

With the creation of the Energy services division in 2013, EDF Fenice will be able to provide solutions in the field of energy efficiency to EDF's industrial customers throughout Europe (see Section 6.4.1.3 ("Energy Services")).

#### Italy

Today, contracts with the Fiat Group still account for the majority of EDF Fenice's business. In December 2012, Fiat and EDF Fenice renewed their agreements on the supply of energy and environmental services for the Spanish and Italian sites of Fiat Auto and Fiat Industrial for a term of five years. The new contract type differs from the previous one in that it concentrates the joint efforts of both parties on the development of energy efficiency and cost reduction. In order to prepare for its development, in 2013, in a difficult economic environment, EDF Fenice began to reorganise its portfolio of assets and projects, excluding Fiat. In one year, any contracts or projects that did not bring much value to the table were renegotiated.

In order to establish its reputation, EDF Fenice put in place its Energy Efficiency Campus, a training and sales tool which aims to become an exchange hub between customers, researchers, financial backers, public administrators and players from the EDF Group.

#### Spain

EDF Fenice has operated in Spain since 2001 through its wholly owned subsidiary EDF Fenice Instalaciones Iberica. This company offers to the operators in industry and in the service sector technical and economic solutions in the field of energy efficiency. EDF Fenice Instalaciones Iberica currently has 205 employees and operates a generation capacity of 180MW.

In 2013, EDF Fenice Iberica continued its growth in the market by signing a comprehensive energy partnership agreement with the Coren Group – the largest Spanish food-processing cooperative - to take over and operate all of their energy facilities.

#### Poland

EDF Fenice has a wholly owned Polish subsidiary, EDF Fenice Poland Sp. z o. o. This company is involved primarily in thermal plant operation and outsourced management with combined electricity, heat and cold production. It also provides various energy and environmental services (hot or cold, compressed air, industrial gas, and waste and liquid effluent treatment). EDF Fenice Poland began diversifying beyond Fiat and is currently forming a partnership in services with EDF Polska (see section 6.3.3.1.1.1 ("Poland")).

#### Russia

EDF Fenice also wholly owns a subsidiary in Russia, Fenice Rus, with the aim of marketing services in the field of energy efficiency to industrial companies. Since its creation, Fenice Rus has signed seven contracts with Avtovaz, Russia's leading car maker, and finalised the implementation of six of them, which are now fully operational. The facilities built for TMH (TransMashHolding) are also operational. These projects have become a benchmark for customers and public authorities and have the advantage that they can be duplicated on other sites and in different business sectors. Against a backdrop of growing demand, EDF Fenice Rus enjoys an excellent reputation and extremely favourable growth prospects.

In 2013, EDF Fenice Rus signed an initial contract with the Danone Group to build a water treatment facility in one of its Russian plants. A framework agreement is being discussed to enlarge and reinforce the collaboration of both groups in the field of energy and the environment.

Lastly, Fenice SpA and Inter Rao decided to shut their joint subsidiary, Interenergoeffect, without ending their global cooperation.

## 6.3.2.5 Other Group activities in Italy

### EDF Énergies Nouvelles

EDF Énergies Nouvelles, which operates in Italy, increased its generating capacity over 2013 to 548.4MW of gross wind energy (354.6MW net) and to 99.5MW of gross photovoltaic energy (95.5MW net) (see section 6.4.1.2.2 ("EDF Énergies Nouvelles")).

## 6.3.3 Other international

The table below shows the installed capacity and outputs of the EDF Group by segment at year-end 2013<sup>1</sup>:

	Installed capacity		Generation	
	MW	%	GWh	%
Nuclear	2,890	27	22,922	40
Thermal	7,340	69	32,930	58
Hydropower	79	1	329	1
Other renewables <sup>(1)</sup>	279	3	599	1
<b>TOTAL</b>	<b>10,588</b>	<b>100</b>	<b>56,780</b>	<b>100</b>

(1) Excluding EDF Énergies Nouvelles data from the "Other International" segment, i.e. 3,365 and 8,381GWh.

## 6.3.3.1 Continental Europe

### 6.3.3.1.1 Central and Eastern Europe

The Group operates in two countries of Central and Eastern Europe ("CEE"): Poland (power generation, cogeneration and marketing) and Hungary (cogeneration, distribution and marketing). The EDF Group also operates in these countries through its subsidiaries Dalkia International (see section 6.4.1.4 ("Dalkia")) and Fenice, mainly in cogeneration, major urban heating networks and energy efficiency.

#### 6.3.3.1.1.1 Poland

The Group operates in Poland mainly through the following subsidiaries:

- The Group controls EDF Polska SA which combines:
  - the Rybnik production plant, with installed capacity of 1,775MWe;
  - the Krakow cogeneration plant, which has installed capacity of 460MWe and 1,118MWth;
  - the Gdansk and Gdynia cogeneration plants (formerly EDF Wybrzeże SA), which have installed capacity of 333MWe and 1,199MWth;
  - the Optimisation and Sales Division (formerly EDF Energia Sp. z o. o.), which handles the marketing of electricity generated by all EDF Group power plants in Poland.
- Lastly, the Group controls the Zew Kogeneracja SA cogenerator of the city Wrocław. It has installed capacity of 363MWe and 1,133 MWth. Kogeneracja owns 98.4% of EC Zielona Gora SA, a heat and power generation company whose installed capacity is 198MWe and 304MWth.

EDF Paliwa Sp. z o. o., owned by EDF Polska SA, oversees the supply of coal and biomass to all EDF Group sites in Poland.

In the field of environmental protection, the Group decided to make investments and selected service providers to build desulfurisation and denitrification facilities for its assets in Poland. The project was officially

### Dalkia

The Group also has an indirect presence through SIRAM (a wholly owned subsidiary of Dalkia International) in the fields of energy efficiency and optimisation, and in environmental activities (sanitation, continuous facility surveillance, environmental engineering, lab analysis, etc.) (see section 6.4.1.4 ("Dalkia")).

inaugurated on 19 November 2013 in Wrocław. It will allow use of the asset to continue until at least 2035.

In December 2012, EDF Group suspended its plans to build a coal-fired, supercritical plant totalling 900MW in Poland. It decided to invest in the eight existing tranches of the Rybnik site to bring them into line with new environmental standards, and to extend their useful life until 2030 and improve their efficiency accordingly.

Moreover, the Group operates in Poland through its subsidiary EDF Énergies Nouvelles ("EDF EN"). In 2013, EDF EN announced the development of two projects of electricity generation from renewable energy, specifically wind power. A wind farm in Linowo with total installed capacity of 48MW was officially inaugurated on 20 September 2013.

Following the 2009 agreement between EDF and Polska Grupa Energetyczna (PGE, Poland's leading electricity player, listed on the Warsaw Stock Exchange) to conduct pre-feasibility studies for the development and construction of nuclear reactors in Poland, which confirmed the interest of including nuclear energy in Poland's energy mix, in May 2013, PGE consulted a number of organisations prior to its future call for tender for a nuclear programme, in particular with EDF and AREVA. EDF and AREVA investigated the prospect of making an offer under the terms of and according to the schedule of political and industrial decisions in Poland. As part of its political process, on 28 January 2014, the Polish government adopted a national nuclear programme, which strengthens the legal and technological framework for implementing its first reactor.

#### 6.3.3.1.1.2 Hungary

In Hungary, the Group operates in the generation of heat and electricity through its subsidiary Budapesti Erőmű Zrt ("BE Zrt"), and in the supply and distribution of electricity and gas through EDF Dömász Zrt.

After entering a recession in 2012, the economic situation in Hungary stabilised in 2013 with government deficit under control. State intervention in the economy increased during the pre-election period. Foreign companies, and especially those in the energy sector, were hit by a new adverse package of predominantly fiscal and tariff measures.

1. The figures shown reflect the consolidation method used for the entities.

### BE ZRt

At 31 December 2013, EDF owned 95.6% of BE ZRt, a electricity and heat generation company. Based in Budapest, BE ZRt has a net installed capacity of 406MWe and 1,170MWth, and supplies 60% of the municipal heating needs of the Hungarian capital.

Until the end of 2008, almost all of BE ZRt's electricity output (1.7TWh/year) was sold to a single Hungarian purchaser, Magyar Villamos Művek ZRt ("MVM"), through three long-term power-purchase agreements ("PPAs"). These contracts were cancelled by the Hungarian government with no compensation at the end of 2008, after the European Commission demanded their termination on the ground that they constituted State aid contrary to competition law.

As of 1 January 2009, BE ZRt was nevertheless still able to sell its electricity, partly through an eight-year commercial contract and partly through a regulated cogeneration support mechanism, which the Hungarian government terminated prematurely on 1 July 2011.

In addition, the government decided in October 2011 to set by decree prices for heat previously governed by a commercial contract. Faced with a critical situation due to very unfavourable prices, the company managed to obtain acceptable payment conditions from the regulator for the 2011-2012 heating season. Although the heating decrees enacted in late 2012 and in 2013 continue to set reasonable heating tariffs, they have introduced retroactive controls and have severely limited the company's profitability.

The ensuing forced termination of long-term electricity sale contracts having caused significant prejudice to its shareholders, EDF International filed with the Permanent Court of Arbitration at La Hague a statement of claim against the Hungarian government for compensation for the loss of the PPAs (see section 20.5 ("Legal proceedings and arbitration")) on 30 December 2011. An arbitration ruling is expected to be handed down in late 2014.

### EDF Démász ZRt

EDF Démász ZRt is wholly owned by EDF. It distributes and markets electricity.

Regarding its supply activity, under the universal service concept (as defined by a Hungarian government decree pursuant to the Hungarian Electricity Act of 2007), EDF Démász ZRt supplies electricity to individuals, small businesses and public institutions in the south-east region of Hungary. Since 31 December 2009, the company has supplied electricity and, more recently, gas across Hungary to customers who opted for the open market. EDF Démász ZRt has two trademarks in the Hungarian market: "EDF Démász" for residential customers and "EDF Energia" for business customers. In 2013, EDF Démász ZRt sold 3,480GWh to some 757,900 customers, including 1,840GWh on the open market.

Regarding its distribution business, EDF Démász Hálózati Elosztó Kft, a wholly owned subsidiary of Démász ZRt, began operations on 1 January 2007, in response to the legal requirement that network activities be separated from generation/supply activities. It owns the electricity network assets (about 32,200km of high-, medium- and low-voltage lines) and operates the regulated distribution business in Hungary's south-east region (19.6% of the country). In 2013, it distributed 4.100TWh to 774,100 delivery points.

The introduction in January 2013 of a new network tax (€0.45/m) and new constraints, as well as a series of price cuts imposed by the legislator (-10% in early 2013, then -11.1% in early November), are weighing heavily on the company's performance. Further price cuts are expected in September 2014.

#### 6.3.3.1.1.3 Slovakia

Present in Slovakia since 2002 through a 49% stake in distribution and supply company Stredoslovenska Energetika a.s. ("SSE"), on 27 November 2013, the Group sold its minority stake to Energetický a rūmyslový holding a.s. ("EPH"). The deal follows the approval given by the SSE shareholders' meeting and has received the go-ahead from the competition regulator. It

valued EDF's 49% stake in SSE at around €400 million. EDF announced on 21 May 2013 that it had signed an exclusivity agreement with EPH, and the two companies signed a definitive agreement on 24 May 2013.

#### 6.3.3.1.2 Russia

The EDF Group operates in Russia in the field of energy services, through EDF Fenice and its Russian subsidiary Fenice Rus, as well as in the field of electricity distribution, through EDF Distribution International and its Russian subsidiary ERDF Vostok, both wholly-owned. EDF is also actively looking to expand in Russia.

Fenice Rus was established in November 2009 to market energy services to industry, particularly in the field of energy efficiency. The company continues to do business with its key Russian partners and in 2013 received funding from the European Bank for Reconstruction and Development ("EBRD") to develop new projects (see section 6.3.2.4 ("EDF Fenice")).

ERDF Vostok was set up in January 2012 and is responsible for the operations of EDF Distribution International in Russia. In 2013, a Memorandum of Understanding was signed by Rosseti (the Russian company created in 2013 and responsible for electricity transmission and distribution, formerly MRSK and FSK) and ERDF-I (EDF Distribution International) to establish a framework for cooperation between the two groups. The companies have agreed to conduct a feasibility study on joint network management in one of the Russian regions.

The Group also continued its collaboration with other major players in Russia's electricity sector: Rosatom, Inter RAO, RusHydro and Gazprom.

In this context, EDF and Gazprom signed a cooperation agreement in 2012 on electricity generation from gas in Europe. In partnership with Gazprom, EDF is contributing to the development of the underwater part of the South Stream project in which ENI and Wintershall also hold shares (see section 6.4.2.2.2 ("Infrastructure")). The shareholders of South Stream Transport B.V. confirmed their commitment to completing the South Stream project on 4 October 2013 (see section 6.4.2.2.2 ("Infrastructure")).

#### 6.3.3.1.3 Ukraine

On 27 November 2013, Ukraine signed an agreement with ENI, EDF, Vody Ukrainy and Chornomornaftogaz for the sharing of offshore hydrocarbon generation in the Black Sea. ENI will be the project operator with a 50% stake in the joint venture; EDF owns 5% and the Ukrainian state-owned companies Vody Ukrainy and Chornomornaftogaz own 35% and 10% respectively.

#### 6.3.3.1.4 Benelux

Benelux is an area that includes major interfaces with the Franco-German electricity marketplace, with proposals for new links with Germany and Great Britain being examined. It is also an important centre for the European natural gas market due to its significant import and transit infrastructure, like the Zeebrugge hub and the LNG terminal under construction nearby in Dunkirk. The EDF Group has two subsidiaries in Belgium: EDF Belgium (which directly holds 50% of the Tihange 1 nuclear power plant) and EDF Luminus (number two player in the Belgian market, with a balanced upstream-downstream portfolio). In the Netherlands, EDF has been present since 2009 with a combined-cycle gas plant.

### EDF Belgium

Through a long-term cooperation agreement with Electrabel in nuclear energy, EDF holds 50% in undivided co-ownership of the Tihange 1 nuclear power plant through its wholly-owned Belgian subsidiary, EDF Belgium. The capacity attributed to EDF represents 481MW (or approximately 3% of Belgium's generation capacity). Tihange 1's generation, which is attributed to EDF Belgium, is sold to EDF Luminus through a long-term contract that will expire in 2015.



The Belgium nuclear phase-out law of 2003 initially provided for the closure of Tihange 1 on 1 October 2015. Following the adoption of a Development Plan on 4 July 2012, the Belgian government announced it would extend the life span of Tihange 1 until 2025.

On 14 October 2013, the Belgian government approved a bill amending the law of 2003 concerning the nuclear phase-out schedule and a draft agreement involving Electrabel, EDF and the Belgian State, which defined the terms of the extension of Tihange 1 until 2025. The law was passed on 18 December 2013 and was published in the Belgian Official Gazette (*"Moniteur Belge"*) on 24 December.

The extension of the life span of Tihange 1 requires significant investment, amounting to €300 million (EDF share) spread between 2011 and 2020.

## EDF Luminus

EDF holds 63.5% of EDF Luminus via its subsidiary EDF Belgium, with the remaining equity held by Belgian shareholders representing the country's different regional balances.

EDF Luminus has the second-largest share of the Belgian energy market. It accounts for nearly 10% of the country's installed capacity, with an installed capacity of 1,897MW at end 2013.

EDF Luminus generated 5,446GWh of electricity in 2013. At 31 December 2013, the company employed around 970 people.

## EDF Luminus in Belgium at end 2013

	Installed capacity		Generation	
	MW	%	GWh	%
Nuclear (excluding 100MW drawing rights on Chooz B)	419	22	2,693	50
Thermal	1,281	67	2,248	41
Hydropower	73	4	287	5
Other renewables	124	7	218	4
<b>TOTAL</b>	<b>1,897</b>	<b>100</b>	<b>5,446</b>	<b>100</b>

EDF Luminus owns 10.2% (419MW) of Belgium's Tihange 2 and 3 nuclear power plants (commissioned in 1983 and 1985 respectively) and the Doel 3 and 4 plants (commissioned in 1982 and 1985 respectively), which have a life span of 40 years. EDF Luminus also has 100MW in drawing rights on the French Chooz B nuclear power plant, on the basis of guaranteed baseload generation in accordance with the average availability of the French fleet.

In 2013, EDF Luminus saw its nuclear generation decline due to the unplanned stoppage of two nuclear units (Doel 3 and Tihange 2), following the detection of micro-defects in the vessels. After an in-depth inspection, the AFCN (Belgian safety authority) authorised the resumption of operations by Electrabel, subject to an inspection of the condition of the vessels at Doel 3 and Tihange 2. Given that one of the tests has not produced results meeting the experts' expectations, as a precautionary measure, Electrabel decided at the end of March to anticipate for the planned outages of the two reactors scheduled for the end of April and May respectively.

EDF Luminus' generation fleet consists of power plants fired by natural gas, wind farms and a few run-of-river hydropower plants. In particular, three peak thermal power plants are operated in Monsin, Ham and Angleur.

EDF Luminus also operates four combined-cycle power plants in Angleur, Ringvaart, Seraing and Ham. In the latter, recoverable heat from the steam turbine is used for the district heating network.

Under its "Luminus" brand, EDF Luminus supplies electricity and gas to approximately 1.7 million delivery points for business and residential customers in Belgium.

A tripartite agreement signed in 2012 with the province of Liège and the municipalities of Liège and Seraing was presented to the Provincial Council on 12 June 2013. It provides for cooperation on electric mobility, energy efficiency, solidarity, training and R&D.

The nuclear tax for all producers had been increased from €250 million for 2011 to €550 million for 2012. For 2013, in principle the same tax level was applied as in 2012, but the amount of the tax was reduced to €481 million to take account of the stoppage of two nuclear units (Doel 3 and Tihange 2) for several months following the detection of micro-defects in the vessels.

2013 was a year of fierce competition on the Belgian market.

In this context, EDF Luminus re-examined its price and product strategy to better address customer expectations, the government's new demands and its positioning in terms of the prices of its competitors.

EDF Luminus managed to maintain a stable market share of around 20% and keep financial impacts under control, despite the market's high churn rate<sup>1</sup>.

EDF Luminus actively pursued its strategic goal by reducing its costs, optimising its fossil-fired fleet, continuing to develop its wind power fleet and initiating a study on the development of energy services.

EDF Luminus is also currently working on two new gas-fired power stations: Navagne (Wallonia) and Nest-Energie (Flanders), each with potential installed capacity of 890MW. In October 2012, EDF Luminus had initiated a process aimed at selling the Nest-Energie project, in accordance with commitments made by EDF to the European Commission as part of the acquisition of Segebel (majority shareholder of EDF Luminus, formerly SPE) in 2009. As these commitments are no longer applicable since 13 December 2013, the disposal proceedings have been abandoned.

EDF Luminus is active in the renewable energy sector with 7 hydropower plants and 60 onshore wind turbines spread out across 15 sites in Wallonia and Flanders. The company is one of the leaders in wind power in Belgium, with an installed capacity of 124MW. In 2013, EDF Luminus built two 3.4MW wind turbines, the first on the Stradus site in the port area of Gand, and the second on the Evonik site in Antwerp.

## Netherlands

Through a joint venture, Sloe Centrale B.V., EDF and Delta own an 870MW gas-fired power plant in the south-west Netherlands, whose two 435MW units were commissioned in 2009. After over 20,000 hours of operation and 750 start-ups, Sloe was closed in May 2013 for the servicing of the power plant's two units. The power plant was restarted in June 2013. In 2013, Sloe performed well in terms of occupational safety with over 1,100 accident-free days.

<sup>1</sup>. Churn rate: customer loss indicator.

## 6.3.3.1.5 Switzerland

The EDF Group is present in Switzerland through its investments in Alpiq Holding SA (25%) and in hydropower generation facilities in Chatelot (50%) and Mauvoisin (10%).

Alpiq is a leading player in the European energy market. It was born of the merger in 2009 of Swiss utilities Atel and EOS, and the contribution by EDF of its energy rights and its share of the capacity and loads of the Émossion dam in Switzerland. It is an electricity company of significant size at the heart of the European electricity market, active in the generation, sale and

trading of energy, as well as in energy services. Alpiq is roughly supplying more than one third of the electricity in Switzerland.

Based on its 2013 revenue (CHF9,370 million), Alpiq is Switzerland's leading electricity company (101TWh sold in 2013, mainly in wholesale markets and to key European customers in southern Europe and in Central and Eastern Europe). Alpiq also supplies approximately 100,000 customers in north-west Switzerland. The activity has major generation and transmission assets in Switzerland and in countries where Alpiq is developing its presence. In 2013, Alpiq had a total installed capacity of 6,461MW and output of 17,169GWh (excluding long-term contracts), as shown in the table below.

	Installed capacity <sup>(1)</sup>		Generation <sup>(1)</sup>	
	MW	%	GWh	%
Nuclear	785	12	5,668	33
Thermal	2,623	41	5,040	29
Hydropower <sup>(2)</sup>	2,769	43	5,965	35
Other renewables	284	4	496	3
<b>TOTAL</b>	<b>6,461</b>	<b>100</b>	<b>17,169</b>	<b>100</b>

(1) Figures on a 100% basis.

(2) Including small hydro assets.

Alpiq's 2011 and 2012 results led the company to undertake a major restructuring programme which continued in 2013. In 2012, Alpiq thus sold its 20% stake in the Italian company Edipower as well as its German energy transmission technology subsidiary EVT. In 2013, it sold its stakes in Romande Énergie, Repower and Società Elettrica Sopracenerina SA ("SES"), as well as a 15% interest in the pumped storage power plant project of Nant de Drance, in which it still holds a 39% stake. Along with the transfer of its very high-voltage network in exchange for securities and receivables, all of these disposals earned Alpiq over CHF1.5 billion.

Given the current market conditions, Alpiq abandoned the idea of selling its renewable energy assets or the lignite-fired plants of Kladno and Zlin in the Czech Republic.

In addition, to reinforce its capital structure, Alpiq placed a public hybrid bond of CHF650 million in May 2013 and signed a hybrid loan of CHF366.5 million with its main Swiss shareholders.

Through its divestments, combined with its hybrid financing and operating cash flow, Alpiq reduced its net debt, which fell from CHF4 billion in 2012 to CHF2 billion in 2013.

By reducing its international sales activities, selling its non-strategic interests, and pushing ahead with its restructuring and cost-cutting programme, Alpiq generated profits of CHF18 million at end-2013, despite further valuation adjustments in the amount of CHF275 million.

In the face of the new market conditions and the transformation of the electricity sector, Alpiq announced a strategic review, notably based on its positioning in energy services.

## 6.3.3.1.6 Austria

Austria is located in the centre of the electricity and, especially, gas interconnections of the European network. It is strongly integrated with the market in Germany, and is therefore of interest to foreign investors. Hydropower plants represent 70% of Austria's fleet of generation facilities.

EDF International owns 25% of the holding company ESTAG (corresponding to a non-controlling interest with blocking power in Austrian law). The

Austrian state of Styria owns the remaining ESTAG shares, and has entered into a shareholders' agreement with the EDF Group, giving EDF greater powers than its non-controlling interest with blocking power. ESTAG heads a group of Austrian companies operating in the fields of energy and associated services. Centred in Styria, the ESTAG Group is also developing its business in the other Austrian states and some neighbouring countries.

Its two main subsidiaries are Steweag-Steg ("SSG") – Styria's leading electricity distributor, of which the ESTAG Group acquired the 34.57% stake that had until January 2013 been held by the main Austrian electricity player Verbund – and Steirische Gas und Wärme ("STGW") which transports, distributes, sells and markets gas and heat in the region.

## 6.3.3.1.7 Spain

On 31 December 2013, the EDF Group held 31.48% of the capital of Elcogas. Elcogas operates an Integrated Gasification Combined Cycle ("IGCC") plant at Puertollano with a gross capacity of 320MW powered by the gasification of local coal and petroleum coke (petcoke). In addition to natural gas, this installation allows the use of coal and petroleum coke, which produce atmospheric emissions that are far below European standards. This facility is the largest solid fuel power plant of this type in the world. In 2013, Elcogas produced 775GWh<sup>1</sup>, of which 652GWh in IGCC mode. Since 2010, the Puertollano installation has included a pilot CO<sub>2</sub> capture and hydrogen production unit. It is the world's first industrial sized pilot project associated with an IGCC. With a capacity of 14MWth, the pilot unit can handle 2% of the syngas produced by the gasifier, capturing 4.17 tonnes of CO<sub>2</sub> and producing between 83 and 207.5 kg of H<sub>2</sub> per hour. The process involves capture before combustion, upstream of the combustion turbine, based on chemical absorption using activated amines.

The Group is also present in the Spanish market through Spanish companies owned by its subsidiaries: Fenice Instalaciones Iberica (see section 6.3.2.4 ("EDF Fenice")), 6.4.1.4 ("Dalkia") and 6.4.1.2.2 ("EDF Énergies Nouvelles"). EDF Trading operates in this market from its trading platform in London (see section 6.4.1.1.2 ("EDF Trading")).

1. Figures on a 100% basis.

### 6.3.3.2 North America

The EDF group operates throughout the North American continent, with a strong presence in the United States.

#### 6.3.3.2.1 North American energy markets

##### 6.3.3.2.1.1 United States of America

With total electricity generation of 4,055TWh in 2013<sup>1</sup>, the USA is one of the world's largest energy markets.

In 2013, the US electricity generation mix was comprised of 39% coal, 27.5% natural gas, 19.5% nuclear, 12.9% renewable energy and 2% from other sources of energy. Natural gas and renewable energy accounted for the largest share of new capacity in 2013.

The Energy Information Administration ("EIA") estimates that future electricity needs will require the provision of additional capacity of 340GW between 2012 and 2040. Over the same period, the EIA is forecasting the removal of 103GW of capacity, mainly in coal. By 2040, natural gas is expected to account for 63% of capacity additions, compared with 31% for renewable energy, while coal will only represent 3% of the energy mix.

In parallel, the Environmental Protection Agency ("EPA") proposed a cap on CO<sub>2</sub> emissions for new natural gas and fossil fuel plants of 1,000lbs CO<sub>2</sub>/MWh<sup>2</sup> (or 1,100lbs CO<sub>2</sub>/MWh depending on the size of the power plant) and 1,100lbs CO<sub>2</sub>/MWh respectively. A similar proposal regarding existing power plants is expected in June 2014.

The entry into force of EPA regulations on SO<sub>x</sub> and NO<sub>x</sub> emissions, scheduled to take effect in January 2012, was delayed by litigation and is now expected in 2014. In the meantime, some states and regions have adopted their own emissions regulations. Projects to reduce carbon emissions, whether through the implementation of a carbon tax or a cap and trade system, do not currently have enough support in the US for regulations to be passed.

Electricity prices remain relatively low due to low natural gas prices, linked to the dramatic rise in the production of shale gas and low demand, which has not yet returned to pre-crisis levels. After reaching its lowest level since 1999 in April 2012 (US\$1.82/mBtu<sup>3</sup>), the price of Henry Hub natural gas rose to US\$4.52 in December 2013 and is expected to stabilise at around US\$5/mBtu, according to IHS CERA<sup>4</sup>.

According to the EIA, the United States became the leading producer worldwide of oil and natural gas in 2013, ahead of Russia and Saudi Arabia. The US is also set to become a net exporter of liquefied natural gas in 2016, and an overall net exporter of natural gas in 2020.

Six infrastructures have received approval to export liquefied natural gas; 22 other Non-Free Trade Agreement export applications are currently being processed by the Department of Energy<sup>5</sup> ("DoE").

##### 6.3.3.2.1.2 Canada

In 2012, power generation in Canada stood at 594.9TWh, of which 63.3%<sup>6</sup> from hydropower plants.

Electricity networks in Canada and the US are highly integrated, enabling the US to benefit from the stability of the Canadian market.

On the other hand, the Canadian electricity market is structured by province and is relatively fragmented due in particular to the decisive role of provincial policies in terms of carbon emissions and renewable energies. For example, the provinces of Ontario and Quebec, which together account for over 55% of the Canadian market, do not have the same energy mix targets. In Ontario, the government is committed to ensuring that more than 40% of the energy mix continues to come from nuclear energy. In Quebec, due to the new system of reliability standards regarding electricity transmission implemented in 2009 and the closure<sup>7</sup> of the only nuclear power plant, Gentilly 2, in December 2012, the Régie de l'Énergie (the organisation that regulates the energy sector) approved a large-scale investment plan to renovate the entire electricity grid<sup>8</sup>.

The share of nuclear energy in the Canadian energy mix currently stands at approximately 15%. The National Energy Board estimates that this share will fall to 12% of the energy mix in 2035<sup>9</sup>, due to the development of wind farms and gas-fired power plants.

Aware of the opportunity presented by growing demand in Asia-Pacific markets, Canada is determined to play a significant role in supplying global demand for gas and oil. To achieve this objective, Canada needs to secure its commercial relationships with its Asian partners and develop major international infrastructures to export hydrocarbons while attracting foreign investors into the energy industry. As the government has limited foreign shareholdings in Canadian oil sands since December 2012, foreign companies are now focusing on export opportunities via the Gulf of Mexico and the possible Keystone pipeline or via the export terminals on the Atlantic and Pacific coasts.

##### 6.3.3.2.1.3 Mexico

In Mexico, the public electricity system had an installed capacity of 53GW in 2012, and gross output of 260TWh<sup>10</sup>. Most of Mexico's power generation comes from fossil-fired power plants, which make up 73% of its energy mix. The rest of the energy mix comes from hydropower plants (22%), nuclear power plants (3%) and wind farms and geothermal power plants (2%). While natural gas is playing an increasingly important role in the Mexican energy mix, Mexico remains a net importer of natural gas, particularly from the United States.

On 20 December 2013, the Mexican parliament voted in a series of amendments to restructure the oil, gas and electricity sectors<sup>11</sup>. This will see the government giving up its monopoly on the entire energy sector, which it held through two public companies: the Comision Federal d'Electricidad ("CFE") for electricity and Petroleos Mexicanos ("Pemex") for hydrocarbon

1. US Energy Information Administration, *Short-Term Energy Outlook*, February 2014.

2. Lbs: US unit of weight (pound)

3. Btu: British unit of energy (British thermal unit).

4. IHS CERA, *Energy Insight "North American Gas Demand and Market Outlook"*, October 2013.

5. DoE website, "Applications Received by DOE/FE to Export Domestically produced LNG from the lower-48 States", updated on 24 March 2014.

6. Canadian Electricity Association, *Key Canadian Electricity Statistics*, May 2013.

7. Hydro-Québec, *Refurbishment project for the Gentilly 2 nuclear power plant – Appendices*, October 2012.

8. Régie de l'Énergie, *Québec Energy Tribunal*, 2013.

9. Canadian Chamber of Commerce, *Electricity In Canada: Smart Investment to Power Future Competitiveness*, January 2013.

10. Mexican Secretariat of Energy, "Estadísticas e Indicadores del Sector Electrico", October 2013.

11. KPMG Global Energy Institute, *Mexico: Energy Reform 2013*, 2013.

exploration and generation. From now on, private oil companies will be able to share generation contracts with Pemex and take part in midstream and downstream activities (petrochemicals, refining, transportation, storage and distribution). As regards electricity, private companies are now authorised to generate electricity without being required to sell it back to the CFE. Transmission and distribution will remain under the control of the Mexican government.

The high prices of electricity for business and industrial companies, together with the favourable conditions of bank loans, make wind energy competitive, without the need for subsidies. The federal government aims to increase the share of renewable energy in the energy mix to 7.5% by 2017.

### 6.3.3.2.2 The EDF Group's activities in North America

#### EDF's strategy

The EDF Group's strategy focuses on the sectors of high added value in the US and, more generally, in North America, with the aim of reinforcing its existing positions, benefiting from the Group's expertise and resources, and improving financial performance. The EDF Group has more than 4.3GW<sup>1</sup> of installed capacity. It also manages, on behalf of third parties, more than 28GW of installed capacity under operation and maintenance or optimisation services.

EDF's activities in North America mainly comprise:

- nuclear power generation, through Constellation Energy Nuclear Group ("CENG"), 49.99% owned by EDF, which operates five nuclear reactors in the US, with a total installed capacity of 4.0GW (i.e. 2.0GW consolidated by the EDF Group), and UniStar Nuclear Energy ("UNE"), a wholly-owned subsidiary of EDF, which focuses on new nuclear developments;
- renewable energies, with a net capacity of 2.3GW in the US mainly through EDF Renewable Energy, a wholly-owned American subsidiary of EDF Énergies Nouvelles. Equally, EDF Renewable Services (a wholly-owned subsidiary of EDF Renewable Energy) manages about 7GW in North America through operation and maintenance ("O&M") contracts on its own account or on behalf of third parties;
- trading and management of energy assets across the entire value chain in North American gas and electricity markets, through EDF Trading North America.

#### 6.3.3.2.2.1 Existing nuclear facilities: Constellation Energy Nuclear Group (CENG)

On 6 November 2009, the EDF Group and CEG established Constellation Energy Nuclear Group. Since the merger between Exelon and CEG, EDF and Exelon have owned stakes of 49.99% and 50.01% respectively in CENG. In July 2013, EDF and Exelon agreed to transfer the operating licenses of CENG to Exelon to take advantage of the economies of scale thus generated. The final agreement was announced on 1st April 2014. As CENG now comes under Exelon management, CENG employees will subsequently be directly

employed by Exelon. Under the terms of this project of agreement, CENG will pay EDF US\$400 million in dividends and EDF will have a put option to sell its CENG shares to Exelon at market value between 2016 and 2022.

#### Organisation and governance rules of CENG

CENG is governed by a Board of Directors of ten members, five of whom are appointed by the EDF Group and the other five, including the Chairman, by Exelon. CENG is jointly managed by Exelon and the EDF Group, excluding issues of safety, security and the reliability of nuclear facilities and compliance with environmental regulation, as well as the appointment of senior managers, for which Exelon has a casting vote as it appoints CENG's Chairman. In addition to the Chairman, the Chief Nuclear Officer and the Chief Executive Officer of CENG are also required to be US citizens. The EDF Group appoints the Vice-Chairman of the CENG Board of Directors. Pursuant to the operating agreement, the CENG Board of Directors has a standing audit and finance committee and a standing governance and compensation committee comprised of an equal number of Exelon-appointed and EDF Group-appointed directors.

After receipt of the approval of the US Nuclear Regulatory Commission ("NRC"), EDF has finalised on 1 April 2014 its transaction regarding CENG, on terms set forth in the agreement with Exelon dated 29 July 2013.

Under the terms of this agreement, EDF delegates to Exelon, America's leading nuclear operator, operational management of the five nuclear reactors owned by CENG (spread across three sites in the United States and representing a total output of 4.2GW).

As contemplated by the agreement, CENG has also paid a special dividend of US\$400 million (about €300 million) to EDF, which has been financed by Exelon. Exelon has also granted to EDF an option to sell its holding in CENG to Exelon – at market value – between January 2016 and June 2022.

After this deal, EDF will continue to hold 49.99% of CENG, whilst Exelon holds 50.01% and the Board of Directors will continue to comprise equal numbers of Exelon and EDF board members.

#### CENG's nuclear activities (nuclear electricity generation and operation)

CENG's nuclear business is undertaken within a historically predictable regulatory environment, under the control of the US Nuclear Regulatory Commission ("NRC").

#### Capacity

CENG owns and operates five nuclear reactors, spread across three operating sites. The power plants, which have a combined capacity of 4,228MW, are shown in the table below. The duration of licences for Units 1 and 2 of Calvert Cliffs, Unit 1 of Nine Mile Point and R.E. Ginna has been extended from 40 to 60 years. The duration of the licence for Unit 2 of Nine Mile Point has been extended from 40 to 58 years.

Reactors	Location	Capacity (in MW)	% interest	Company-owned capacity (in MW)
Calvert Cliffs 1	Calvert County (Maryland)	892	100	892
Calvert Cliffs 2	Calvert County (Maryland)	864	100	864
Nine Mile Point 1	Scriba (New York)	617	100	617
Nine Mile Point 2 <sup>(1)</sup>	Scriba (New York)	1,279	82	1,049
R.E. Ginna	Ontario (New York)	576	100	576
<b>TOTAL</b>		<b>4,228</b>		<b>3,998</b>

(1) CENG owns 82% of this unit (i.e. 1,048MW of the unit's total capacity of 1,279MW). The 18% of Unit 2 of Nine Mile Point not owned by CENG belongs to the Long Island Power Authority ("LIPA"). LIPA receives 18% of the capacity and electricity generated by Nine Mile Point Unit 2, in consideration for payment to CENG of its share of the costs incurred by the unit, and is responsible for its 18% share of costs of dismantling the unit. CENG and LIPA are each required to provide specific funding for Nine Mile Point 2.

1. Integrating consolidated net installed capacity of CENG and EDF Énergies Nouvelles in the US.



### Output and technical performance

CENG's stations generated 33.1TWh of nuclear electricity as of 31 December 2013.

(in TWh)	Generation		Load factor	
	2013	2012	2013	2012
Calvert Cliffs 1	7.8	6.1	99.7%	77.9%
Calvert Cliffs 2	6.4	7.5	85.9%	99.2%
Nine Mile Point 1	4.9	4.8	90.0%	89.0%
Nine Mile Point 2	9.0	6.9	97.0%	79.2%
R.E. Ginna	5.0	4.6	98.9%	91.2%

### Nuclear safety

Nuclear safety is the priority of the operation and maintenance of CENG's nuclear power stations. The Steering Committee, managed by the Chief Nuclear Officer, is in charge of the rules of conduct and processes necessary for the company to meet its safety targets. These measures aim to promote model behaviour, personal responsibility, problem identification and resolution, risk analysis and appropriate decision-making, all to help create a safe working environment. CENG's nuclear power stations comply with the federal Clean Water Act.

### Nuclear fuel

#### Supply of nuclear fuel

The supply of fuel for nuclear power stations includes the purchase of uranium, the conversion of uranium concentrates to uranium hexafluoride, uranium hexafluoride enrichment and the manufacture and transportation of nuclear fuel assemblies (pressurised water reactor ("PWR") and boiling water reactor ("BWR")).

#### Manufacture of nuclear fuel assemblies

CENG has concluded long-term contracts for the purchase, conversion and enrichment of nuclear fuel, as well as for the building of fuel rod assemblies. These commitments should enable it to have sufficient quantities to meet its estimated needs for future years. These contracts extend from 2013 to 2028. The nuclear fuel markets are competitive markets and sometimes experience volatile prices, but the Group's management does not foresee any problems meeting its future supply needs.

#### Storage of spent nuclear fuel – Federal facilities

The Nuclear Waste Policy Act ("NWPA") of 1982 requires the federal government, through the Department of Energy ("DoE"), to develop a repository for the disposal of spent nuclear fuel and high-level radioactive waste. In accordance with the NWPA and with the standard contracts agreed between CENG and the DoE, CENG is bound to pay the DoE one thousandth (0.001) of one dollar per KWh of its net nuclear power output to pay the costs of highly-radioactive waste (the DoE tax). This expense is recorded as "DoE tax of nuclear waste repository". However, even though the NWPA and the contracts agreed between CENG and the DoE mention that the DoE should have taken charge of the highly-radioactive nuclear waste by 31 January 1998, at the latest, this deadline was not respected. The DoE's delay has meant that CENG has had to take measures with additional costs to arrange and maintain the storage of spent fuel on site at its three nuclear sites. CENG has installed independent spent fuel storage installations ("ISFSI") at its sites which will be maintained as needed. In two significant rulings rendered in June 2012, the Court of Appeals for the District of Columbia, firstly, asked the DoE to justify the collection of the tax on nuclear power generation aimed at replenishing the Nuclear Waste Fund and, secondly, ruled on the non-compliance of the NRC's Waste Confidence

Rule ("WRC"). The NRC is now required to cease issuing licences relating to this law (for new reactors, renewals and the independent activity of fuel storage) until such time as the effects on safety have been assessed by a Generic Environmental Impact Statement ("GEIC"). The NRC has submitted a draft policy and invites comments from the public by the end of 2013 and should publish a new WCR on 3 October 2014.

#### Storage of spent nuclear fuel – On-site facilities

The Calvert Cliffs nuclear power plant has been operating an independent spent fuel storage site on its own site since 1992. It is currently carrying out a renewal procedure to extend its operating licence until 2036, subject to NRC approval via the WCR. The storage capacity at the site together with the independent storage facility provides sufficient capacity to contain the full contents of the core until 2015. The installation of two independent fuel storage units was completed in 2010 and 2012, at the Ginna and at Nine Mile Point sites respectively.

#### Cost of decommissioning nuclear facilities

CENG is obliged to decommission its nuclear power plants after these plants cease operation. In accordance with NRC Regulations and relevant state requirements, CENG has established reserves exclusively dedicated to cover the cost of plant decommissioning. CENG's Investment Committee decides on the general investment strategy of these reserves, including the allocation between the various asset classes.

#### 6.3.3.2.2.2 Nuclear development: UniStar Nuclear Energy ("UNE")

UniStar Nuclear Energy ("UNE"), a wholly-owned subsidiary of EDF, is continuing its work towards filing a Combined Licence Application ("COLA") for a proposed new nuclear reactor on the site of Calvert Cliffs 3 in the State of Maryland, using the EPR technology. In addition, UNE provides services to Pennsylvania Power & Light ("PPL") under its COLA for Bell Bend (State of Pennsylvania). PPL currently operates two nuclear power reactors (Susquehanna 1 and 2, in Pennsylvania).

#### 6.3.3.2.2.3 EDF Trading in North America

EDF Trading operates in the North American markets for electricity, gas, coal, oil, freight and environmental products. The entity is also involved in the optimisation of assets relating to electricity, gas and environmental products. EDF Trading is one of the largest providers of energy management services on the electricity and gas wholesale markets in North America (see section 6.4.1.1.2 ("EDF Trading")).

#### Electricity and gas businesses

In North America, EDF Trading is one of the main providers of energy management services to power generation companies in the US and Canada. Its services include fuel supply, market analysis, hedging operations

and linking with independent system operators ("ISO"). EDF Trading North America handles 21 GW of electricity generation (40 plants spread out across the US), which includes the nuclear assets of EDF Inc. and two EDF Renewable Energy wind farms in Texas. As part of a value chain integration process, EDF Trading also partners with retail energy providers ("REPs"), offering them solutions to manage and optimise their electricity and gas supplies and to purchase environmental certificates. Its broad range of services makes it a key player in the largest electricity hubs in North America.

In the gas market, EDF Trading manages assets contracted with transportation and storage operators on the market. This allows EDF Trading North America to provide services to its partners (electricity producers, REPs, utilities, gas producers and industrial customers). EDF Trading is thus one of the leading wholesale gas marketers in the USA.

### Gas generation business

At the end of 2011, EDF Trading formed EDF Trading Resources, a company dedicated to the acquisition and development of gas generation assets in the USA. In this highly-fragmented, high-growth sector, EDF Trading Resources is ably led by its expert management team and supported by EDF Trading in hedging the market risks related to its gas production. After acquiring assets in Texas in 2012, EDF Trading Resources formed a joint venture in 2013 in order to develop its activity in the Marcellus shale region in the United States.

### Environmental products business

EDF Trading's products include renewable energy certificates ("RECs"), biogas, carbon emissions and credits, and weather derivatives. EDF works in partnership with renewable energy producers, helping them to monetize certificates generated by their green electricity production. In 2013, EDF Trading entered into a seven-year REC offtake agreement with one of the major players involved in the development of wind energy.

### Electricity and gas retail business

EDF Trading has a dedicated offering for large industrial players operating in the North American electricity, gas and environmental products markets. This offering is rolled out in 13 states and provinces in the US and Canada. Most of these large customers are European or also present in Europe, which allows EDF Trading to service them on the different markets they operate on.

### Coal and freight business

EDF Trading has a fully integrated freight and coal business, with numerous supply sources across the globe. EDF Trading North America provides support to EDF Trading teams based in London, managing the coal exporter activity on the North American market.

### Crude oil markets

In 2012, EDF Trading created a new line of marketing and logistics activities in the crude oil segment, operating on various markets and offering a transportation service by rail, truck and pipeline. This new activity delivers support to oil producers, allowing them to move their production to wholesale markets or refining sites. It has made its first commercial transactions in five of the largest crude oil producing states in the United States (Texas, Louisiana, Oklahoma, Wyoming and Utah).

#### 6.3.3.2.4 EDF Énergies Nouvelles in North America

EDF Énergies Nouvelles, through its subsidiaries EDF Renewable Energy, EDF EN Canada and EDF EN Mexico, continued its expansion in North America, commissioning 583.1 MW of wind, photovoltaic and biomass capacity in 2013.

In parallel, EDF Énergies Nouvelles continued its dynamic asset optimisation policy by divesting of some of its fleets in the region, for a total capacity of more than 350 MW.

### USA

The Group is also present in the US through EDF Énergies Nouvelles' wholly-owned subsidiary EDF Renewable Energy, an independent producer of renewable energy. As at 31 December 2013, EDF Énergies Nouvelles had 1,896.3 MW of gross installed wind, solar and biomass capacity (1,780.7 MW net) in the US. In 2013, EDF Renewable Energy commissioned the Pinelands Biomass project (2 x 17.8 MW) in South Carolina. In parallel, EDF Renewable Energy completed the Catalina Solar solar photovoltaic project (143.2 MW). As part of its operations and maintenance business, EDF Renewable Services, a subsidiary of EDF Énergies Nouvelles, manages wind turbines and solar panels as a primary operator and on behalf of third parties, with total capacity of more than 6 GW at 31 December 2013.

### Canada

In 2008, through the Saint-Laurent Énergies consortium, EDF Énergies Nouvelles won a call for tenders issued by Hydro-Québec for the building of five wind fleets with a total capacity of 954 MW in Quebec. The Saint-Robert-Bellarmino farm (80 MW) was commissioned in October 2012. Two other projects, Massif du Sud (150 MW) and Lac Alfred Phase 1 (150 MW), were commissioned in December 2012. The Lac Alfred phase 2 wind fleet (150 MW) has been operational since September 2013. The implementation programme continues until 2015. Two other projects with total capacity of 49.2 MW, drawn up following a call for tenders by Hydro-Québec won in December 2010, are also in development, and the Rivière du Moulin (1 and 2) project is currently under construction (350 MW). EDF EN Canada also has two solar generation fleets, Arnprior Solar Projects, with a generation capacity of 23.4 MW located in the province of Ontario. An asset disposal programme ("DVAS") in Canada enabled the continuation and strengthening of the partnership with Enbridge through the joint holding (50/50) of the Saint-Robert-Bellarmino, Massif du Sud and Lac-Alfred 1 and 2 fleets. EDF EN Canada and Enbridge also jointly acquired the Blackspring Ridge (300 MW) wind project, currently under construction.

### Mexico

In Mexico, a country with considerable wind development potential, EDF Énergies Nouvelles built and commissioned the La Ventosa wind farm in 2010. This 67.5 MW site is located in the very windy region of Oaxaca, in southern Mexico. In September 2013, the Bii Stinu/EDI wind farm (164 MW), located in the same region, was commissioned. It is jointly owned (50/50) with the Japanese Mitsui & Co Group. Furthermore, the construction of the Santo Domingo/EDP (160 MW) wind project continued with partial commissioning in 2013 (100 MW). As of end-2013, the Group has a total installed capacity in Mexico of 331.5 MW gross (199.5 MW net).

### 6.3.3.3 Asia-Pacific

The EDF Group's activities led by the Asia-Pacific division are focused on China and the fast developing countries in South and South-East Asia.

Investment in the electricity generation field in Asia and in China in particular is one of the EDF Group's major industrial stakes. In nuclear power, in addition to the project to build and operate two EPR reactors, the new projects in this region are intended to give the Group access to technological innovations and, at the same time, allow it to develop its industrial expertise. EDF's goal is, thus, to maintain its competitive and technological advantages in the international arena for the global nuclear programme to equip the emerging countries and in order to renew the French fleet.

### 6.3.3.3.1 EDF Group's activities in China

The EDF Group has been operating in China for the past 30 years through advisory services in nuclear, thermal and hydropower technologies. Today it is one of the country's largest foreign investors in power generation, with investments in coal-fired thermal plants that have a total installed capacity of 4,980MW<sup>1</sup>. With the Taishan Phase I project (2 × 1,750MW reactors), EDF became an investor in an electricity generation project of an EPR nuclear power plant in China. EDF has also formed partnerships offering new investment opportunities in nuclear power, the most technologically advanced coal-fired thermal facilities, gas plants, hydropower, research and development, electricity distribution and energy efficiency.

#### Nuclear power generation activities

##### Daya Bay - Ling Ao and Taishan EPR phase 1 Power Plants

After leading the design, construction and commissioning of the two 1,000MW nuclear reactors of Daya Bay in 1994, and then helping the Chinese Group China General Nuclear Power Co ("CGN") with the construction of two units of the phase I Ling Ao plant (2 × 1,000MW reactors), which were commissioned in 2002 and 2003, EDF now assists Daya Bay Nuclear Operation and Management Co. Ltd. with the operation of these facilities. The performance achieved by these power plants since commissioning is one of the Group's main benchmarks in China.

EDF has provided assistance to one of CGN's subsidiaries, China Nuclear Power Engineering Company Ltd ("CNPEC"), with phase II of the Ling Ao project, which consists of building two 1,000MW units on the site. The two Ling Ao phase II units were commissioned in September 2010 and August 2011, respectively.

As at 31 December 2013, EDF owned 30% of the shares of Taishan Nuclear Power Joint Venture Company Limited ("TNPJVC"), the goal of which is to build and operate two EPR technology nuclear reactors in Taishan, in the province of Guangdong. The duration of the company is set for 50 years, which is the current maximum permitted for a joint venture in nuclear power in China. Through this transaction, for the first time, the Group is an investor in nuclear power generation in this country.

The reactor dome for the first unit of the Taishan phase I plant was successfully installed in October 2011, while that of the second unit was installed in September 2012. 2013 saw the completion of the construction of the main buildings of unit 1 and the start of the rinsing of its boiler circuits. The electro-mechanical assembly is well under way and the first trials have begun. In unit 2, the civil engineering work continued and the first electromagnetic equipment was installed. In addition, the work on the common buildings' pumping station was completed. The success of the project will rest on the complementarity of EDF and CGN skills.

#### Partnership agreements

The general partnership agreement between EDF and CGN (Global Partnership Agreement – "GPA") signed in 2007 was completed with a Memorandum of Understanding on the implementation of this partnership signed on 29 April 2010. EDF set up a facility in Shenzhen, with the aim of promoting EDF's model as an integrated architect-assembler operator, while boosting French industry. Experts at this facility are working, in particular, to further French codes and standards as well as EDF's nuclear safety guidelines.

During 2012, EDF, AREVA NP and CGN signed a cooperation agreement with a view to considering the development of a third-generation intermediate-size nuclear reactor.

On 25 April 2013, in the presence of the President of the People's Republic of China and the President of France, EDF signed an agreement with CGN and AREVA laying down the conditions for the launch of future reactors as well as the contribution of EDF in the operation and development of CGN's facilities. EDF also signed a partnership framework agreement on 29 April 2010 with China National Nuclear Corporation ("CNNC") to encourage cooperation on business management and certain technical areas (see section 12.1 ("Subsequent events")).

In 2013, EDF signed a new partnership framework agreement with Huadian Distributed Energy Engineering Technology Co. Ltd. for the development of projects in the decentralised energy generation sector. It also renewed its cooperation agreement with China Datang Corporation to promote technical exchanges and envisage new joint projects in high-performance thermal technology with a low CO<sub>2</sub> footprint (see section 12.1 ("Subsequent events")).

#### Coal-fired thermal power generation activities

EDF has been involved in coal-fired power generation in China since 3 September 1997, the date on which the Laibin B power plant concession contract was signed and approved by the Guangxi government.

##### French Investment Guangxi Laibin Electric Power Company, Ltd. ("Figlec")

As at 31 December 2013, EDF owned 100% of French Investment Guangxi Laibin Electric Power Company, Ltd. ("Figlec"), the company that owns the Laibin B power plant (2 × 360MW of installed capacity) in the province of Guangxi, and 85% of Synergie, the company responsible for its operation and maintenance, with the remaining 15% held by local partners. Laibin B was commissioned in November 2000 as part of a Build, Operate and Transfer ("BOT") project, and will be transferred contractually to the Guangxi government in 2015.

##### Shandong Zhonghua Power Company, Ltd ("SZPC")

As at 31 December 2013, EDF held a 19.6% stake in SZPC, which owns three coal-fired power plants in the Shandong province, with a total capacity of 3,060MW. The other shareholders are the Guodian Group and the Hong Kong electricity utility CLP. These power plants were commissioned progressively between 1987 and 2004.

##### Datang Sanmenxia Power Generation Company Ltd. ("DSPC")

As at 31 December 2013, the EDF Group held a 35% stake in DSPC, owner of the Sanmenxia 2 (Province of Henan) power plant, commissioned in 2007, with installed capacity of 2 × 600MW, which uses a technology known as "supercritical coal". This investment was made through a joint venture with a lifespan set until 2039 by the Chinese authorities. The other shareholders are two Chinese companies including Datang, the majority shareholder in DSPC.

#### New projects

Along with Chinese electricity generation operators, the Group is studying the opportunity of investments in new advanced technology coal-fired power plants known as "supercritical" or "ultra-supercritical".

The Group intends to develop in the field of energy efficiency. Following the first contract signed with Dongfeng Peugeot Citroën Automobile in 2011, the Group wishes to offer innovative energy-efficiency solutions to industrialists and eco-districts on the strength of EDF's know-how in Europe, especially in the field of gas cogeneration, recoverable heat and decentralised renewable energies (heat pumps, urban solar, biomass and geothermal energy).

1. Figure on a 100% basis.

## Activities in the gas sector

### Beijing United Gas Engineering & Technology Company ("Buget")

EDF made the decision to withdraw from Buget. To this effect, on 9 October 2013, the Chinese authorities approved the sale of EDF's 20% stake in Buget to Tractebel Engineering SA.

## Hydropower generation activities

Present since 1985 in this segment, EDF is a recognised player. The Group operated as consultant on several structures installed in China and is looking at investment opportunities or service offers that will respond to the needs of the Chinese party, which is developing an ambitious hydropower programme.

## R&D activities

Two years after its creation, EDF's R&D centre in China is continuing to build up its network of scientific partners in that country, together with the R&D departments in France and the Group's other international R&D centres. The centre's activities focus on the generation of zero-carbon electricity, tomorrow's electricity network, sustainable cities and innovation. Digital simulation capacities are a major component in all of these fields.

## Electricity distribution activities

In keeping with the Group's policy, ERDF hopes to grow its business activities internationally, and especially in China. ERDF-I has had a presence in China since 2011 and maintains the contacts and visits previously carried out with EDF China by promoting cooperation and potential projects with five main partners. ERDF-I hopes to bring its highly effective tools, methods and expertise to the table to support the management and performance of the network.

### 6.3.3.3.2 EDF Group's activities in South-East and South Asia

The EDF Group's activities in South-East and South Asia are centred on the development of the electricity sector, notably through opportunities for design, construction and operation projects on new fossil-fired and hydropower plants in countries where there are opportunities for Independent Power Plants ("IPPs"), such as the Nam Theun 2 complex in Laos and the Phu My 2.2 combined-cycle gas plant in Vietnam.

#### 6.3.3.3.2.1 Vietnam

As at 31 December 2013, EDF owned 56.25% of Mekong Energy Company Ltd. ("MECO"), the owner of the Phu My 2.2 combined-cycle gas power plant with a capacity of 715MW, commissioned in 2005. It is the first IPP project financed exclusively by foreign investors in Vietnam. MECO's other shareholders are international subsidiaries of Sumitomo Corporation (28.125%) and Tokyo Electric Power Company, Inc. ("Tepco") (15.625%), both Japanese companies. The term of the BOT (Build, Operate, Transfer) contract is 20 years. In 2005, EDF provided "turnkey" delivery of the power plant and today MECO directs the operation.

#### 6.3.3.3.2.2 Laos

As at 31 December 2013, the EDF Group held 40% of Nam Theun 2 Power Company ("NTPC"), which owns the hydropower complex Nam Theun 2 with installed capacity of 1,070MW that was built by the EDF Group under a "turnkey" contract. NTPC's other shareholders are a Thai company, EGCO (Energy Generating Company) at 35%, and a Laos State company, LHSE (Lao Holding State Enterprise) at 25%. NTPC will operate the plant for 25 years under a concession contract entered into with the government of Laos. The electricity generated is sold to Thailand (95%) and to Laos (5%). The Nam Theun 2 hydropower complex was commissioned in its entirety on 30 April

2010. In October 2013, the Government of Laos and EDF, which is the main shareholder of NTPC, signed a joint declaration to evaluate the potential benefit of a 500MW increase in the installed capacity of Nam Theun 2.

### 6.3.3.3.2.3 Hydropower and thermal power generation activities

The EDF Group has expressed interest in participating in studies and the development of electricity generation projects in Nepal, Cambodia, Laos, Myanmar, Indonesia and the Philippines.

### 6.3.3.4 Latin America, Africa and the Middle East

In Latin America, the EDF Group is present in the Brazilian market, considered as a priority for the Group's international development. The Group is also seeking out development opportunities in certain neighbouring countries such as Chile, Colombia, Peru and Mexico.

In Africa and the Middle East, the Group intends to tailor its operations according to the specific features of each geographic region to ensure operations in high-growth countries offering new markets. Additionally, it continues its work providing access to energy.

#### 6.3.3.4.1 Latin America

##### 6.3.3.4.1.1 Brazil

The EDF Group owns 90% of EDF Norte Fluminense, the company which built and has operated the combined-cycle gas turbine at Norte Fluminense in Macaé (the state of Rio de Janeiro), since 2004. This power plant has an installed capacity of 0.86GW. EDF Norte Fluminense sells 725MW to Light under a Power Purchase Agreement ("PPA") for a period of 20 years. The balance is sold on the open electricity market. EDF Norte Fluminense sold 6,352GWh in 2013.

EDF Norte Fluminense operates a solar power plant in the country, in Macaé, comprising 1,764 photovoltaic modules, which help to reduce CO<sub>2</sub> emissions by around 250 tonnes a year.

EDF is looking into conducting other solar generation projects in Brazil. To this end, on 23 February 2012 EDF Consultoria (a subsidiary of EDF) and Light Esco created a consortium for the design, construction and operation of a photovoltaic facility on the roof of the Maracana Stadium in Rio de Janeiro. The last phase of the work was completed at the end of November 2013. The plant's final connection to the network is still subject to the conclusion of an administrative procedure between the local network manager (Light SESA) and the stadium operator and concession holder (Odebrecht/IMX).

The Technical Cooperation Agreement signed between EDF, Eletrobras, Eletronorte and Camargo Correa, which lays down the terms of the technical, economic and environmental feasibility studies for the hydropower complex of Tapajos in the Brazilian state of Para (a complex of five hydropower facilities on the Tapajos river in the Amazon, with a total capacity of around 10,682MW), is set to run until July 2014. Specifically, it establishes the organisation and division of roles and responsibilities between the parties and the schedule for each of the five facilities, up until the receipt of preliminary licences prior to public auctioning. The environmental and social studies connected with the project, initiated following the promulgation of the Act of 25 June 2012 authorising the delisting of certain protected areas, are a major concern for the Group and continued in 2013. The research consortium, which expanded in 2012 to include GDF Suez, Néoennergia, Endesa, Cemig and Copel, is now made up of nine partners.

Since 29 May 2012 and the signing of two new agreements, the partnership between EDF and Eletrobras continues through the implementation of international projects (excluding Brazil) and R&D activities.



#### 6.3.3.4.1.2 Chile

On 2 August 2013, EDF signed a Joint Development Agreement with the Chilean project developer Australis Power, with a view to conducting a project involving the construction and operation of a CCGT power plant consisting of two 570MW units and one FSRU unit (Floating Storage Regasification Unit – “FSRU”).

#### 6.3.3.4.2 Africa

##### 6.3.3.4.2.1 South Africa

The South African government, which plans to double the country's installed power generation capacity (from 44 to 89GW) by 2030, remains committed to the use of nuclear power in its future energy mix. Under the country's energy master plan, promulgated in May 2011, 9.6GW of nuclear power should be commissioned between 2023 and 2030.

EDF EN also gained a foothold in the wind power market when it was selected by the South African energy department for three projects allocated as part of the second round of renewable energy tenders in South Africa, launched in August 2011. The construction of one of these three projects began at the end of 2013 and should be completed in 2015 (see section 6.4.1.2 (“New Energies”)).

EDF is also present through KES (Kukhanaya Energy Services), established in 2002 (see section 6.3.3.4.4. (“Access to Energy Mission”)).

EDF is also exploring new avenues such as the sale of services to and participation in regional projects in the form of public-private partnerships for electricity generation (thermal and hydropower) alongside national electricity companies. As regards thermal power, the Ministry of Energy is seeking to develop independent power production (“IPP”) projects capable of covering up to 30% of the national energy mix.

Moreover, an EDF expert is in charge of the Eskom Power Plant Engineering Institute (“EPPEI”) which Eskom has been developing since 2011, initially to provide training the field of electricity generation and subsequently in electricity distribution and transmission.

##### 6.3.3.4.2.2 Morocco

EDF and Morocco's national electricity and water office (“ONEE”) continued their cooperation, in accordance with the agreement signed on 11 January 2012. The two operators aim to set up and develop a solid and lasting partnership in all areas of the value chain, including hydropower, thermal power and renewable energy generation. Their partnership also includes upstream-downstream optimisation, training and regional cooperation.

In Morocco, the consortium headed by EDF Énergies Nouvelles, in partnership with the Japanese group Mitsui & Co, was selected in a call for tenders sponsored by the ONEE for the 150MW Taza wind project. Located in the north of Morocco, this project will be equipped with 50 Alstom turbines, each with a unit capacity of 3MW (see section 6.4.1.2 (“New Energies”)).

##### 6.3.3.4.2.3 Senegal

The very serious crisis in the Senegalese energy sector led the government of this country to ask EDF to assist in diagnosing the situation and defining an emergency plan to permanently re-establish the quality of service.

At present, EDF's efforts focus on renovating the generation fleet of Sénélec (the Senegalese National Power Company), which will help to limit the use of the least well-performing producers.

##### 6.3.3.4.2.4 Cameroon

EDF is developing the Nachtigal project, which targets an investment decision by 2015 for the construction of a 400MW dam for the sale of energy in Cameroon.

##### 6.3.3.4.2.5 Republic of the Congo

On 3 June 2013, EDF signed a three-year service agreement with the Congolese Ministry of the Economy and Finance to reduce the technical and commercial losses of the national company S.N.E.

##### 6.3.3.4.3 Middle East

The EDF Group is present in the Middle East through its subsidiary EDF Abu-Dhabi which provides engineering and consultancy services for transmission works, dispatching and network studies in the United Arab Emirates. The Group is also interested in developing independent power production (“IPP”) and seawater desalination (“IWPP”) plants in this region.

##### 6.3.3.4.3.1 Saudi Arabia

EDF and AREVA opened a joint office in Riyadh in June 2012 with a view to working with the Saudi government, which is planning to develop an energy policy that focuses on replacing fossil fuels with nuclear power and renewable energy sources (solar power). Kacare (King Abdallah City for Atomic and Renewable Energy) is the entity in charge of developing a programme that will entail 17.6GW of nuclear power and 41GW of solar power by 2032. The programme aims to cover 20% of the country's power needs.

##### 6.3.3.4.3.2 Israel

In Israel, where the Group only recently initiated operations, EDF Énergies Nouvelles is building a net capacity of nearly 90MWp (at end 2013) through its subsidiary EDF Énergies Nouvelles Israël, which entered into a strategic partnership with Israel's pioneering solar energy player Arava Power. At the end of 2013, the total gross capacities under operation and under construction amounted to 158.5MWp (see section 6.4.1.2 (“New Energies”)). EDF wishes to develop other engineering, operational and maintenance activities in that country in the framework of power generation projects. The subsidiary EDF International Israël Ltd was set up for that purpose on 10 February 2013. EDF had confirmed its development ambition in 2012 by signing an agreement with Israeli Electric Power (“IEC”) laying down the terms of the cooperation between the two companies.

##### 6.3.3.4.4 Access to Energy Mission

Since 2001, the Group has been developing a programme to provide access to energy in developing countries. In remote rural areas far from electricity networks, the programme operates by setting up decentralised energy service companies. In all of these operations, EDF acts in partnership with other international industrial players such as Total, or local companies such as Calulo in South Africa, BPC (Botswana Power Corporation) in Botswana and Matforce in Senegal, in an effort to enable local players to take over when EDF is ready to sell its stake, once it deems that the conditions for a profitable and sustainable operation have been met. Approximately 80% of the initial investment is financed by international financial institutions, by grants and/or loans from donors or by States.

In South Africa, the company KES (Kukhanaya Energy Services) is 50% owned by EDF and 15% owned by local operator Calulo, with the remaining 35% being held by Total. Created in 2002, KES initially developed its business through photovoltaic kits in KwaZulu-Natal. It subsequently expanded its activities in the Eastern Cape region. At the end of 2013, KES supplied electrical power and domestic gas to around 125,000 people with a goal of 270,000 in the next three to four years in the two provinces.

In Botswana, EDF has been chosen by BPC (Botswana Power Corporation), the national electricity network operator, to assist it as strategic partner in the implementation of its decentralised rural electrification programme, essentially using photovoltaic systems over the entire area. EDF holds

45% of BPC Lesedi, a local subsidiary owned jointly with BPC. This company is responsible for rolling out the programme (targeting service to 360,000 people over the next five years) relying on a network of franchises. It currently provides power to 3,500 people.

In Senegal, EDF has a 70% holding in the company ERA, alongside its local partner Matforce. ERA operates the rural electrification concession of Kaffrine-Tambacounda-Kédougou, which will be moving into its operational phase in 2014, after obtaining the first tranche of the ASER<sup>1</sup> grant at the end of December 2013. Its objective is to supply 180,000 people within three to four years. It currently supplies electricity to some 1,500 people in test villages.

## 6.4 Other activities and cross-divisional functions

### 6.4.1 Other activities

The table below lists the EDF Group's installed capacity and outputs in the Other activities segment at 31 December 2013<sup>2</sup>:

	Installed capacity		Generation	
	MW	%	GWh	%
Thermal	2,140	30	3,105	21
Hydropower	77	1	113	1
Other renewables <sup>(1)</sup>	5,016	69	11,382	78
<b>TOTAL</b>	<b>7,233</b>	<b>100</b>	<b>14,600</b>	<b>100</b>

(1) Including the entire EDF Énergies Nouvelles group.

#### 6.4.1.1 Group Optimisation Trading

##### 6.4.1.1.1 Roles and missions of the Group Commerce Optimisation Trading division

To improve cooperation between the Group's various Commerce, Optimisation and Trading entities, a new division called "Group Commerce Optimisation Trading" ("COT") was created at the beginning of 2012. Its missions are as follows:

- promote the sharing of best practices in Commerce, Optimisation and Trading activities and identify any synergies;
- pool certain specific skills at European level, in particular the analysis of European energy markets fundamentals;
- host the activities for structuring the EDF Group's gas portfolio and its gas sales to major European customers.

While reinforcing the integration of the various geographical entities in the activities concerned, the EDF Group ensures that all geographical entities operate autonomously and are accountable for their results.

Concerning electricity, each country entity is responsible for optimising its upstream-downstream portfolio. Cooperation between national optimisers and EDF Trading has been strengthened, in order to make the most of the skills of EDF Trading. The COT Division is tasked with promoting greater integration, as well as identifying and spreading good practices

in optimisation among geographical entities. It also has analytical skills: analysis of European energy markets fundamentals, production of long-term scenarios for these fundamentals and characterisation of the risk profile of the Group's consolidated portfolio.

By integrating the gas structuring activity, the COT Division will promote the pan-European optimisation of the Group's gas assets. The entity has a portfolio of "Group" assets and a framework to delegate the management of risks in accordance with the Group's risk policy. In particular, it hedges its market risks via transactions with EDF Trading, the single market interface for local entities and subsidiaries. The COT Division is also tasked with managing the structuring process relating to the Group's gas assets: it aggregates the gas needs of the various Group entities over the medium and long term, either for the sale of gas to end customers or for electricity generation; it then builds a target structure for the portfolio (contracts, physical assets, transmission capacities, etc.) in order to fill those needs under the best economic conditions. This target portfolio structure is then used as a base to negotiate long-term gas procurement contracts and the possible development or acquisition of physical assets.

Concerning Commerce, while taking account of the local scope of this function, the division sets up cooperation projects with the relevant Group entities on Group-wide issues or on a medium/long term basis, for example in the fields of IT systems, the use of the Internet, energy efficiency services or smart grids.

1. ASER: Senegalese rural electrification agency.

2. The figures shown reflect the consolidation method used for the entities.

### 6.4.1.1.2 EDF Trading

EDF Trading is the interface between the EDF Group and the energy wholesale markets providing optimization and risk management services. The company is active in the wholesale markets for electricity, natural gas, gas production, LNG, coal and freight, oil logistics and environmental products. It also has a commercial and industrial end-user business in North America (see section 6.3.3.2.2.3 ("EDF Trading in North America")). In 2013, EDF Trading traded around 3,320 TWh of electricity (Europe and the US), 412 billion therms of natural gas, 666 million tonnes of coal and 380 million tonnes of CO<sub>2</sub> (in emission certificates). EDF Trading is one of the largest wholesale market traders in Europe for electricity, gas and coal. It is one of the main providers of energy management services for power generation companies in the US and the fifth largest marketer of gas in North America. The trading activities of EDF Trading are integrated into DOAAT's optimisation strategy and other Group's entities.

EDF Trading has offices in Europe, Asia and North America. Its registered office is in London. The company has around 1,000 employees.

A wholly-owned subsidiary of EDF, it is governed by the British financial market regulator, the Financial Conduct Authority.

#### 6.4.1.1.2.1 European Electricity

EDF Trading is a leading participant in the European electricity wholesale market. EDF Trading manages EDF's long-term electricity export contracts and has a major role in optimizing and hedging the production and sales portfolio of EDF in Europe. EDF Trading provides risk management services including short-term and long-term structured hedging instruments. In 2013, EDF Trading extended its market making activities across Europe promoting liquidity in a wider range of markets.

#### 6.4.1.1.2.2 European Gas

EDF Trading is a leading player in the European gas wholesale market. EDF Trading manages EDF's and other Group entities' gas assets including production, transmission, re-gasification, long-term supply and storage. This enables it to support the EDF group and third party customers with complete gas wholesale market solutions.

EDF Trading works with Group entities to optimise their short term assets. In 2013, EDF Trading developed its first NBP calendar spread option in Europe which protects utilities from fluctuating prices between the summer and winter months. This was the first ever such deal in the European market. EDF Trading also provides gas market fundamentals to the trading desks and the wider EDF Group.

#### 6.4.1.1.2.3 Environmental products

EDF Trading is active across the carbon, biomass, green energy and weather derivatives markets. It is a prominent participant in the trading of CER (Certified Emission Reduction) credits and manages a large portfolio of CDM (Clean Development Mechanism) projects. The company is also involved in the trading of a broad suite of environmental commodities that include renewable energy certificates ("RECs"), biogas, emissions in the RGGI and Californian carbon markets, and weather derivatives in the US. It is also a significant supplier of biomass in the United Kingdom and Poland. In 2013, EDF Trading's German biomass plant upgraded its products to premium

wood pellets to meet increasing industrial demand. EDF Trading expanded its product offering in weather derivatives to include "quantos" (weather contingent commodity options). It also signed a solar REC offtake and asset optimization agreement with one of the main US solar developers and signed one of the largest structured sales of forward emission allowances in the developing California carbon market.

#### 6.4.1.1.2.4 Liquefied Natural Gas ("LNG")

EDF Trading offers a complete range of LNG services including supply and delivery and nominations into the appropriate network. EDF Trading is currently developing an LPG activity in conjunction with its gas production activities. In 2013, EDF Trading entered into a joint venture with Exmar to develop barge-mounted natural gas liquefaction in order to develop LNG export opportunities in North America.

#### 6.4.1.1.2.5 Coal and freight trading

EDF Trading operates a fully integrated coal and freight business, with numerous supply sources across the globe. In 2013, EDF Trading's joint venture with EDF Paliwa (see section 6.3.3.1.1.1 ("Poland")) for the supply and optimisation of coal and biomass needs of the Polish power plants of the Group became operational. Its Chubu joint venture in Singapore undertook its first sale to a Japanese power utility. EDF Trading also began taking delivery of coal from the Narrabri coal mine in Australia in which it holds a minority stake.

#### 6.4.1.1.2.6 Oil marketing and transportation

EDF Trading's crude oil marketing and transportation service offer was launched in 2012 and is now established in North America and currently transacting in the key oil producing states of Texas, Louisiana, Oklahoma, Utah and Wyoming. It provides all the expertise necessary to purchase oil at the well head and deliver the product to market utilising rail, pipeline and truck logistics.

#### 6.4.1.1.2.7 North America

See section 6.3.3.2.2.3 ("EDF Trading in North America").

## 6.4.1.2 New energies

Renewable energies<sup>1</sup>, particularly new branches (wind, solar, biomass, geothermal, marine energy, etc.) have undergone tremendous growth, mainly in Asia (China), Europe and the US.

The combined installed wind capacity worldwide reached 318GW at the end of 2013, more than 60GW of which was in the US and around 120GW in Europe. Over the course of 2013, 35GW of wind capacity was built worldwide, some 16GW of which was in China<sup>2</sup>.

As regards solar photovoltaic power, total global capacity stood at over 140GW at the end of 2013, of which nearly 40GW was from new capacity built in 2013<sup>3</sup>. Today, it is mainly wind, solar and biomass that drive growth in renewable energies. Hydropower generation is in fact close to its maximum output potential in many developed countries, even though it retains significant development potential in other parts of the globe (of the 99GW of new renewable capacity development expected each year worldwide, around 27GW is hydropower capacity<sup>4</sup>).

1. Renewable, or "green" energies, are derived from natural resources that are replenished quickly enough to be considered non-depletable in human terms.

2. Source: Global Wind Statistics 2013.

3. Source: Bloomberg New Energy Finance, Generation capacity.

4. Source: International Energy Agency, World Energy Outlook 2013, "New Policies Scenario".

The EDF Group is among the world's top five companies for renewable energies, with installed capacity of nearly 28GW (mainly in hydropower). Its aim is to develop all forms of renewables, focusing primarily on wind and solar power. This process is in line with the Group's sustainable development policy (see section 6.6.2 ("Sustainable development policy")).

### 6.4.1.2.1 Description of new energies

#### Wind power

The wind turbine operates through the action of the wind, which drives rotor blades connected to an electrical generator. The wind power categories are:

- Onshore wind power. This is a mature sector which is now close to competing with, if not matching, traditional sectors, particularly in parts of Brazil. It benefits from economic incentives in most countries (see section 6.5.3 ("Electricity market legislation")). For every 1MW of installed capacity, average annual electricity generation can vary from 2 to 4GWh, depending on the quality of the site and the type of machines used. Each turbine has an average capacity of 2MW, a figure which is increasing steadily.

In 2013, France was ranked fifth in Europe in terms of installed capacity (behind Germany, Spain, the United Kingdom and Italy).

The division responsible for developing wind power within the EDF Group is EDF Énergies Nouvelles, which relies on the internal expertise of its teams for the operational implementation and technical supervision of the various technologies, as well as on EDF's research and development (R&D) and engineers. The subsidiaries EDF Luminus and Edison also have wind farms in service. The EDF Group's production of wind-based electricity was 11.3 TWh in 2013;

- Offshore wind power. Considered a high-growth sector, offshore wind power demands a higher initial investment and is more expensive to connect to the grid than onshore wind power. Offshore operation and maintenance is also more difficult, and operators have less experience in this than with onshore wind farms. The advantages of this segment are the higher capacity of each wind turbine (3 to 6MW) and increased productivity due to steadier winds (every 1 MW installed generates 3 to 4GWh). The sector is on a learning curve that will enable it to reduce the cost differential with onshore wind generation. The EDF Group has decided to gradually increase its investment in offshore wind generation. The outlook for growth in offshore wind generation is considerable. Europe intends to build nearly 44GW<sup>1</sup> of offshore wind capacity by 2020, of which nearly 13GW will be in the UK and 6GW in France. To reach this latter target, the French government launched its first call for tenders in January 2011, which aims to commission 3GW of offshore wind capacity by 2020. The consortium led by EDF Énergies Nouvelles won three out of the four sites allocated, i.e. up to 1,500MW. A second call for tenders has been launched for an additional 1,000MW (see section 6.4.1.2.2 ("EDF Énergies Nouvelles")).

#### Solar photovoltaic power

The operating principle of solar photovoltaic power is to convert sunlight directly into electricity. Each photovoltaic cell is an electronic component which, when exposed to light, generates electricity. The cells are grouped into modules or photovoltaic panels.

Two technologies dominate the market: crystalline silicon technology, which is the most common, and thin-film technology, newer and cheaper to make, but less efficient.

Photovoltaic solar power is used in two ways: it can either be connected to the grid, or it can take electricity to isolated sites. Grid-connected photovoltaic systems have witnessed steady growth around the world in two markets: ground-based solar farms and rooftop installations.

EDF Énergies Nouvelles is responsible for implementing the EDF Group's development strategy in solar energy. At 31 December 2013, the subsidiary had 645.5MWp gross capacity in service. It is positioned in both markets: ground-based solar farms and rooftop installations. EDF ENR PWT (brand Photowatt), a subsidiary since 2012, is present in the silicon-based module production segment.

With a reduction in government subsidies in several European countries and Chinese competitors exerting downward pressure on prices, the solar power market saw several European operators disappear in 2013.

In 2012, the solar photovoltaic power market grew sharply in France, with connected capacity rising from 2,924MW at 31 December 2011 to 4,058 at 31 December 2012, i.e. more than 1GW. In 2013, growth slowed in France, with a little bit more than 400MW connected to the grid the nine first months<sup>2</sup>.

The cost of generating solar power, while still high, has fallen considerably in recent years and has halved in less than five years. Nevertheless, there is still considerable room for improvement, depending on whether a technological breakthrough can be found that will revolutionise the sector. One of the major challenges for solar power research is to develop technology able to cut generating costs.

EDF Énergies Nouvelles is pursuing this goal through its investment in the company PV Alliance, involved in research into high-efficiency silicon cells, and in the company Nexcis, which specialises in thin-film technology. EDF R&D also conducts research on photovoltaic technology at its Chatou site, under the aegis of the French Institute for Photovoltaic Power Research and Development ("IRDEP"), established in partnership with CNRS (National Centre for Scientific Research) and ENSCP (National Graduate School of Chemistry in Paris).

#### Biomass and biogas

Technologies based on biomass mainly consist of burning certain waste, particularly from the timber and farming industries, or of exploiting dedicated forests, to produce heat or electricity.

Biofuels originate from a wide range of sources. There are three categories of energy segment: combustion plants for vegetable matter (wood, agricultural waste) or animal matter; biogas production plants (gas produced from the fermentation of organic animal or vegetable matter); and household waste incineration plants.

In biomass, EDF Énergies Nouvelles has a gross capacity of more than 61MW: gross capacity of 26MW at its plant in Lucena (Andalusia), processing waste from olive plantations through its Spanish subsidiary, and since 2013, gross capacity of 35.6MW at a new plant (Pinelands) belonging to its subsidiary in the US, EDF Renewable Energy.

In biogas, EDF Énergies Nouvelles has a gross capacity of 69.7MW: 19.7MW in operation in Europe through its subsidiary Verdesis, and a 50MW plant (Beacon) belonging to its US subsidiary, EDF Renewable Energy.

1. Source: European Environment Agency, "Renewable Energy Productions" as published in the National Renewable Energy Action Plans of the European Member States, February 2011.

2. Source: Third quarter 2013 Wind and solar energy scorecard, Sustainable-development division of the Ecology ministry (Commissariat Général au Développement Durable).



In Poland, EDF operates several co-combustion facilities (incorporating biomass in fossil fuels) for a total capacity of 104MW.

Through its holdings, notably in the Dalkia Group (see section 6.4.1.4 ("Dalkia")), the EDF Group owns shares in France and abroad in several dozen heating networks and small-scale, mainly wood-fired generating plants. EDF also has a controlling interest in the company Tiru, which processes biomass through the incineration of organic household waste and green waste. Its plants represent a total installed capacity of 101MW, of which 51MWe is considered as distributed renewable energy (see section 6.4.1.3 ("Energy services")).

### Geothermal energy

The temperature of the rocks in the earth's crust increases with depth (3°C on average every 100 metres). In some parts of the globe, geothermal energy reaches the surface in the form of hot springs, water or steam. The hot water is used directly for heating, either in residential central heating or for heating greenhouses.

Steam extracted from the ground is also used in electricity generation to drive a turbine, in the same way as in a conventional thermal power station. It is also possible to use hot dry rock to generate electricity from steam. To develop this type of energy, EDF has joined forces with several partners (including Électricité de Strasbourg, EnBW and German energy companies) as part of a European consortium that develops and operates a prototype geothermal power plant in the hot, naturally fractured crystalline rock around Soultz in Alsace (see section 6.4.1.5 ("Électricité de Strasbourg")).

France also has high-temperature geothermal resources located in its overseas departments. The EDF Group is present, in this segment, particularly through its non-controlling interest in Geothermie Bouillante in Guadeloupe.

### Other technologies

Renewable energies cover a wide range of sectors and technologies. To prepare for the future, EDF Énergies Nouvelles is responsible within the EDF Group for identifying promising sectors and, with the support of the Group's R&D teams or industrial partners, contributes to the emergence of new technologies. Along with solar power (see above), marine energy is another area the Group is exploring in depth. It covers a wide range of technologies whose technical validity and efficiency must be assessed before they can be developed on an industrial scale, in the same way as wind and solar power.

EDF Group's commitment to developing marine energy is visible through two major projects currently in development:

- tidal turbines: underwater turbines harnessing the energy of tidal currents. EDF has built a prototype tidal current turbine on the Paimpol-Bréhat site in the Côtes-d'Armor department. It was launched during the summer of 2012 and will soon enter a second test phase, when it will generate electricity for the first time. The goal of the project, which will ultimately include four turbines with a total capacity of 2MW, is to test the feasibility of producing energy from tidal currents in real conditions. Continuing the experiment, EDF Énergies Nouvelles, in partnership with DNCS, Europe's leading manufacturer of naval vessels, is examining the industrial applications needed to produce electricity from tidal current turbines and is working on the "Normandie Hydro" project, a larger-capacity tidal energy farm in the Raz Blanchard off the Cotentin coast;

- floating offshore wind turbines: EDF Énergies Nouvelles has chosen VertiWind technology and has joined forces with Technip, the manufacturer leading the project and responsible for the "floating" aspect, and with Lille-based start-up Nénuphar, in order to build the turbine. The "Provence Grand Large" project, a pilot wind farm in the Provence-Alpes-Côte-d'Azur region based on this technology, has been chosen by the European Commission to receive significant funding.

### 6.4.1.2.2 EDF Énergies Nouvelles

The EDF Group's involvement in renewable energies is undertaken mainly by EDF Énergies Nouvelles.

### Shareholding structure of EDF Énergies Nouvelles

EDF acquired an initial stake in EDF Énergies Nouvelles in 2000 and, as of the filing date of this reference document, directly and indirectly owns 99.9% of the company's capital (the remaining 0.1% is owned by its employees).

Since then EDF Énergies Nouvelles has changed dramatically, becoming one of the major players in electricity generation from renewables in the space of a few years, ranked alongside other leading players in the major regions in which it is based: North America and western and southern Europe.

EDF Énergies Nouvelles has thus become the EDF Group's centre of expertise and development in the fields of wind and photovoltaic energy. The financial results of subsidiaries dedicated to renewable energy are consolidated with those of EDF Énergies Nouvelles.

### Activities of EDF Énergies Nouvelles

EDF Énergies Nouvelles generates electricity from renewable energy sources and is involved in every stage of the value chain. EDF Énergies Nouvelles thus operates upstream in project development, in the construction of power plants and finally in their operation and maintenance. Each of these activities may be conducted on its own account or on behalf of third parties. As part of its project development activities, the Group also undertakes the Development and Sale of Structured Assets (an activity referred to as "DVAS"), which mainly consists in developing projects on behalf of third parties in the field of renewable energies.

With development focusing on wind and solar power (which represent more than 95% of installed capacity), the EDF Énergies Nouvelles group is also present in other renewable energy segments: biogas, biomass, biofuels, marine energy and small hydro (211.5MW gross at the end of 2013). EDF EN is also present in the decentralised renewable energy sector (decentralised solar power).

Historically, EDF Énergies Nouvelles has developed in two geographical regions: western and southern Europe (mainly France, UK, Italy and Portugal) and North America (USA, Canada and Mexico). In 2012, the Group became established in new countries with significant potential for renewables development, such as South Africa, Morocco, Israel and Poland. In 2013, expansion in these countries continued and a new solar plant in India was announced in December 2013. The plant is being built through a 25% stake in an Indian joint venture in partnership with ACME Cleantech Solutions Limited.

At 31 December 2013, EDF EN had a gross installed capacity of 6,611.2MW, a net installed capacity of 4,764.3MW and a net capacity of 1,578MW under construction.

The following table sets out the capacities by segment and by country:

Installed capacity (in megawatts)	At 31 December 2013		At 31 December 2012	
	Gross <sup>(1)</sup>	Net <sup>(2)</sup>	Gross <sup>(1)</sup>	Net <sup>(2)</sup>
<b>Wind power</b>				
USA	1,662.3	1,546.7	1,805.8	1,642.1
France	773.9	522.3	383.3	376.7
Italy	548.4	354.6	525.0	342.9
Portugal	495.8	302.9	495.8	302.9
Greece	340.5	314.2	316.5	289.2
Canada	265.0	265.0	218.0	218.0
UK <sup>(3)</sup>	494.2	239.1	269.7	184.5
Turkey	447.3	193.9	311.2	112.8
Mexico	331.5	199.5	89.5	89.5
Poland	48.0	48.0	48.0	48.0
Belgium <sup>(4)</sup>	325.2	29.7	214.5	19.6
Germany	3.0	3.0	3.0	3.0
<b>Total wind power</b>	<b>5,735.0</b>	<b>4,018.9</b>	<b>4,680.3</b>	<b>3,629.2</b>
<b>Solar power</b>				
France	207.8	151.7	218.1	190.2
USA	148.4	148.4	4.9	4.9
Italy	99.5	95.5	122.8	102.1
ENR	82.4	54.3	66.1	39.4
Spain	57.4	46.9	50.3	37.9
Canada	23.4	23.4	23.4	23.4
Greece	12.1	12.1	11.6	11.6
Israel	14.5	9.9	-	-
<b>Total solar</b>	<b>645.5</b>	<b>542.3</b>	<b>497.3</b>	<b>409.6</b>
<b>Other segments</b>				
Hydropower	80.2	77.4	84.2	81.4
Biogas	69.7	65.2	64.9	63
Biomass/Cogeneration	80.8	60.5	45.2	24.9
<b>Total other segments</b>	<b>230.7</b>	<b>203.1</b>	<b>194.3</b>	<b>169.3</b>
<b>TOTAL</b>	<b>6,611.2</b>	<b>4,764.3</b>	<b>5,371.9</b>	<b>4,208.1</b>

(1) Gross capacity: total capacity of the facilities in which EDF Énergies Nouvelles has a stake.

(2) Net capacity: capacity corresponding to EDF Énergies Nouvelles' stake.

(3) EDF Énergies Nouvelles owns 50% of EDF Energy Renewables (the other 50% is owned by EDF Energy). Consequently, the net capacity shown of 239.1MW includes only 50% of the wind capacity of EDF Energy Renewables.

(4) MW in offshore wind exclusively.

At 31 December 2013, EDF Énergies Nouvelles employed 3,050 people (including EDF Énergies Nouvelles Réparties).

### Wind power

#### Onshore wind power

EDF Énergies Nouvelles actively pursued growth in onshore wind energy in 2013, increasing its wind generation capacity by 882.3MW gross, bringing its total operating capacity to 5,347.8MW gross at 31 December 2013.

Commissioning of onshore wind farms reached a figure of 778.9MW gross in 2013 (including wind farms developed for third parties).

In France, EDF Énergies Nouvelles has considerably expanded its wind portfolio, both through commissioning and through acquisitions and partnerships.

Thus, EDF Énergies Nouvelles has announced the acquisition of Iberdrola's wind farms in France, an operation carried out with a consortium composed of EDF Énergies Nouvelles (20% stake), MEAG and General Electric. EDF Énergies Nouvelles is in charge of the operating and maintenance of these 30 wind farms (305MW). The acquisition of the France wind energy business of Séchilienne Sidéc, with installed capacity of 56.5MW, was also announced at the start of the year. In addition, EDF Énergies Nouvelles signed a partnership in July with a subsidiary of the Mitsubishi Corporation group to build four wind farms (72MW in total, commissioning scheduled for 2014). Finally, EDF Énergies Nouvelles has commissioned the following wind farms in France: Fraisse-sur-Argoût (23MW) and Pouzols (5.1MW) in the department of Hérault; Portes-de-Champagne (12.3MW) in the department of Marne.

In Mexico, the wind farms of Bii Stinu (164MW), 50% owned by the Japanese group Mitsui & Co, and of Santo Domingo (100MW), were also commissioned.

In Canada, EDF Énergies Nouvelles continued its commissioning of wind farms in Quebec with the second phase of Lac Alfred (300MW in total). These wind farms are among seven projects comprising a 1,003MW programme resulting from bids tendered by Hydro-Québec. The Blackspring Ridge wind farm project (300MW) in the province of Alberta was also acquired by EDF EN Canada, in partnership with the company Enbridge.

In Europe, EDF Énergies Nouvelles has commissioned the wind farms of Fallago Rig in the UK (144MW), Santa Luce in Italy (23.4MW) and Geycek (93.2MW – partially commissioned) in Turkey.

Construction began on numerous projects in 2013, mainly in North America (Canada and the United States) for more than 1,000MW, as well as in Poland, France, Turkey and the UK. In total, onshore wind farms under construction represented a gross capacity of 1,615.7MW at 31 December 2013.

As part of its international expansion, EDF Énergies Nouvelles announced new sites in 2012 in countries with significant potential for wind power, which it continued to develop in 2013.

In Poland, through its wholly owned subsidiary EDF EN Polska, it has 48MW in service, 94.7MW gross under construction and further developments in the pipeline.

In South Africa, EDF EN also entered the wind power market when it was selected by the South African Energy Department for three wind power projects allocated as part of the second round of renewable energy tenders in South Africa, which was launched in August 2011. Construction began on one of these projects at the end of 2013 and is due to be completed in 2015.

In Morocco, the consortium led by EDF Énergies Nouvelles in partnership with the Japanese Group Mitsui & Co was selected through a call for tenders issued by Morocco's ONEE (National Electricity and drinking Water Office) for the 150MW Taza wind power project. Located in the north of Morocco, this project will be equipped with 50 Alstom turbines, each with a unit capacity of 3MW.

As part of the DVAS activity, 437.6MW of onshore wind power was sold mainly in North America (Canada, USA and Mexico) and in the UK.

#### Offshore wind power

Offshore wind power will be a key vector of growth in the coming years, mainly in western Europe.

In France, the public consultation on the three projects awarded in 2012 was finalised in September 2013 with a consultation review and publication of reports. In October 2013, the owners of the three sites chosen each confirmed that they would be able to proceed based on the original tariff, technical options and timetable described in their bids in 2012.

Following its early success in France, EDF Énergies Nouvelles, in association with wpd offshore, decided to respond to a second call for tenders in exclusive partnership with Alstom as the turbine manufacturer. The response to this second call for tenders concerns projects on the islands of Yeu/Noirmoutier (Vendée 480-500MW) and Tréport (480-500MW). The results will be known in the spring of 2014, with the construction of the two wind farms due to take place between 2021 and 2023.

In Belgium, EDF Énergies Nouvelles has a 9.14% interest in C-Power's Thornton Bank wind farm through its subsidiary EDF EN Belgium. The construction of the wind farm, which began in 2008 and was completed in late July, marks the end of the third phase of the works and the installation of the 54<sup>th</sup> turbine.

In the United Kingdom, the Teesside offshore wind farm, which has a 62 MW capacity and is 100% owned by EDF Energy Renewable, the 50/50 joint venture between EDF Energy and EDF Énergies Nouvelles, was completed this summer. This flagship project positions the EDF Group as a key player in offshore wind power in Europe.

### Photovoltaic solar power

EDF Énergies Nouvelles pursued growth in solar photovoltaics, its second area of growth. At 31 December 2013, installed solar capacity was 645.5MWp gross.

In 2013, Catalina Solar's large-scale solar plant was commissioned in the Mojave Desert in California (143MWp). This is the largest photovoltaic plant ever built by EDF Énergies Nouvelles.

EDF Énergies Nouvelles Outre-Mer has also embarked on the construction of the Toucan solar project (5MWp) in French Guiana, a groundbreaking new project combining a photovoltaic plant with energy storage. Batteries are used to adjust photovoltaic production up or down according to daily forecasts supplied by EDF EN to the transmission system operator. Commissioning is scheduled for 2014.

A total of 169.6MWp gross went into service in 2013.

In Israel, where the Group recently became established, EDF Énergies Nouvelles is building a net capacity of nearly 90MWp net (at end-2013) through its subsidiary EDF Énergies Nouvelles Israël, which has entered into a strategic partnership with Israel's pioneering solar energy player Arava Power. The total gross capacity in service and under construction is 158.5MWp.

In addition, EDF Énergies Nouvelles announced on 5 December 2013 that it would be developing its activities in India, another country with significant potential, in association with the Indian company ACME Cleantech Solutions Limited. The joint venture, based in India and 25% owned by EDF Énergies Nouvelles, will focus on the development, construction and operation of solar projects in India.

At 31 December 2013, EDF Énergies Nouvelles had a portfolio of solar projects under construction of 191MWp gross, mainly in Israel.

As part of its DVAS activity, 38.7MWp of photovoltaic solar power was sold, mainly in France.

## Operating & Maintenance

As an integrated operator, EDF Énergies Nouvelles operates and maintains its own facilities. This activity has grown significantly and is also carried out on behalf of third parties. Worldwide, the EDF Énergies Nouvelles Group operated more than 9,000MW at the end of December 2013. The growth in this activity is driven by the commissioning of new wind farms and by taking over wind farms operated by turbine manufacturers reaching the end of their contract.

This makes EDF Énergies Nouvelles the leading operation-maintenance company in the US through its subsidiary EDF Renewable Energy (formerly enXco). In April 2013, EDF Renewable Services won an operation-maintenance contract for the Edom Hills wind farm (20MW) in California.

## Decentralised Energy

EDF Énergies Nouvelles Réparties (EDF ENR), wholly owned by EDF Énergies Nouvelles since 30 June 2012, continued to refocus its activities on photovoltaic solar power through its major subsidiaries:

- EDF ENR PWT, a wholly owned subsidiary, continued trading in a challenging market, essentially capitalising on opportunities within the EDF EN Group. In February 2013, EDF ENR PWT (brand Photowatt) was

awarded “made in Europe” certification for its photovoltaic panels and cells. It is one of Europe’s leading manufacturers of solar panels certified by accredited bodies Certisolis and LCIE (bureau Veritas). In addition, the Group financed a programme of investments aimed at increasing the efficiency of cells and reducing costs. 2013 also saw the relocation to France of the module assembly business, which will make EDF ENR PWT a “100% made in France” manufacturer and one of the top two integrated manufacturers in the EU involved at each stage of the manufacturing process of purified silicon for photovoltaic modules;

- EDF ENR Solaire, a wholly owned subsidiary, markets and installs photovoltaic solar power solutions in France. Today, with more than 12,000 domestic customers and over 600 projects delivered to business customers and local authorities, EDF ENR is a major player in solar photovoltaic roof panels in France.

EDF ENR has also adopted a photovoltaic innovation strategy as part of its R&D activities with EDF ENR PWT and EDF ENR Solaire, mainly via its stake in Nexcis (development of thin-film technology).

Finally, EDF ENR generates around 30MW of clean energy from more than 200 rooftop photovoltaic plants that it owns in mainland France.

## Support schemes and price setting for wind and solar power electricity

The table below summarises the various support schemes for wind and solar power in force at 31 December 2013 in each of the major countries where EDF Énergies Nouvelles and its subsidiaries are present:

Country	Support schemes for renewable energy (wind and solar)
Canada	Tax incentive programme (“FTS”) for investors in energy utilities. Prices set under long-term purchase agreements with local service providers or through calls for tender. In Ontario, purchase obligation for wind farms ended in 2013, and will be replaced from 2014 by competitive tenders.
USA	“Production Tax Credit” for wind farms and “Investment Tax Credit” for both solar and wind farms. Accelerated depreciation. Compulsory renewable energy quotas (Renewable Portfolio Standards) set in 29 states and the District of Columbia.
France	Purchase obligation (non-renewable 15-year wind contracts and 20-year solar contracts with EDF or a non-nationalised distributor at regulated prices). Calls for tender. Tax incentives greatly reduced since the 2011 moratorium.
Italy	For wind: feed-in tariff mechanism allocated based on reverse auctions during the first 20 years of operation (subject to certain annual commissioning quotas). For photovoltaics: no more support mechanism for new photovoltaic initiatives (the ceiling imposed under the 5 <sup>th</sup> “Conto Energia” was reached in 2013).
UK	Renewables Obligation Certificate came into effect in 2002 under the Utilities Act (2000). Additional tax on electricity consumption (Climate Change Levy).

The table below summarises the various pricing schemes for wind power electricity in force at 31 December 2013 for each of the major countries where the Group is present:

Country	Pricing schemes for wind power electricity
Canada	Prices set under “Power Purchase Agreements” (“PPA”) negotiated with local energy utilities or through calls for tender. In Ontario, 20-year purchase obligation will be replaced by competitive tenders from 2014.
USA	Prices set under “Power Purchase Agreements” (“PPA”) negotiated with local energy utilities.
France	Onshore wind: Tariffs in force in mainland France and Corsica for onshore farms commissioned after 26 July 2006: 8.2 euro cents per kilowatthour for the first ten years. For the next five years, tariffs between 8.2 euro cents and 2.8 euro cents per kilowatthour, depending on the number of equivalent full power hours observed during the first ten years of operation. For the overseas departments, Saint-Pierre-et-Miquelon and Mayotte, a single tariff of 11 euro cents per kilowatthour applies. These rates are reassessed on an annual basis and are partially indexed to inflation. Offshore wind: Calls for tender system.



# 6 | Overview of activities

## Other activities and cross-divisional functions

Country	Pricing schemes for wind power electricity
Italy	Since 1 May 2013, new wind farms commissioned have benefited from a feed-in tariff allocated based on reverse auctions. The floor was set at €127/MWh for 2013 and will be reduced by 2% per annum for 2014 and 2015 (with an annual commissioning quota of 500MW). Wind farms commissioned before 1 May 2013 are eligible for the previous "green certificates" system until end-2015, the price of the green certificate being calculated as follows: (€180/MWh – electricity price) × 78%. From 2016, this system will be replaced by a feed-in tariff calculated on the same basis until the end of the support period.
Mexico	Prices set under Self-Supply Agreements ("SSA") negotiated with end-customers.
UK	Quota system for the contribution of renewable energy sources to the electricity supplied by utilities. Suppliers obtain "Renewables Obligation Certificates" ("ROCs") either by generating electricity from renewable sources or by purchasing it from renewable energy producers. Non-compliance with the renewable energy quota results in a penalty ("buy-out price"), which is then paid to energy suppliers in proportion to their renewable energy output ("buy-out fund"), representing additional remuneration. In terms of the Climate Change Levy, companies can be exempt by signing voluntary agreements or obtaining electricity from a renewable energy supplier. Based on the same principle as green certificates, decentralised energy generators receive an exemption certificate for each MWh generated. Green certificates, the redistribution of income from fines and exemption certificates linked to the tax on electricity consumption increase the selling price of decentralised energy for distributors:

Electricity price in £/MWh	Onshore wind power	Offshore wind power
2012/2013	93.83	137.53

The UK is working on the introduction of a new system ("FiT CfD", or Feed-in Tariffs with Contracts for Differences), which will apply to other forms of low-carbon electricity generation. The new contracts will be designed to give low-carbon electricity generators increased certainty over their long-term revenue (15 years). They will receive an additional payment when the electricity market price (reference price) is less than the agreed price, and will have to repay this when the market price exceeds this price. Generators will have to negotiate the sale of their electricity separately with a third party. The FiT CfD will come onstream in 2014. However, until 2017, new generators will be able to choose between the current RO scheme and the new tariffs. Existing plants will continue to be subsidised under the RO scheme, due to be phased out by 2037. From 4 December 2013, strike prices for renewables have been published:

Technologies	Onshore wind power	Offshore wind power	Wind power on the Scottish islands
2014/2015	95	155	
2015/2016	95	155	
2016/2017	95	150	
2017/2018	90	140	115
2018/2019	90	140	115

The table below summarises the various pricing schemes for solar power electricity in force at 31 December 2013 for each of the major countries where the Group is present:

Country	Pricing schemes for solar power electricity
USA	Prices set under "Power Purchase Agreements" ("PPA") negotiated with local energy utilities. Feed-in tariffs set by some states (including California) for smaller farms and limited volumes. "Investment Tax Credit" ("ITC") renewed until December 2016.
France	Significant changes since 2011. Calls for tender for ground-based and building-mounted solar installations with a capacity exceeding 100kWp. For projects with a capacity of less than 100kWp, quarterly tariff adjustment based on the number of projects completed in the previous quarter, with an annual target of 500MWp.
Italy	There is no longer a support mechanism for new photovoltaic initiatives.

### 6.4.1.3 Energy services

The EDF Group's Energy Services Division was set up in 2013 as an umbrella for energy services for corporate and government customers, mainly in Europe. The offering of the relevant energy services includes solutions consulting and design, works implementation and facilities operation & maintenance.

The EDF Group is keen to expand its energy services business to provide long-term support to its customers and local authorities in their energy projects, through a clear, transparent and innovative offer that incorporates performance commitments, financing solutions and energy management systems.

The EDF Group is targeting five priority growth areas:

- major projects for large industrial sites;
- energy efficiency for public buildings and tertiary and industrial companies;
- local power generation and the associated heating networks;
- public lighting;
- electric vehicles.

In 2013, the EDF Group generated €920 million from sales of energy services to corporate and government customers in Europe.

Sales are largely generated by three major specialist subsidiaries: EDF Fenice (€425 million in sales in 2013), from energy service provision at large industrial sites (see section 6.3.2.4 ("EDF Fenice")); EOS (€122 million in sales in 2013), from energy efficiency services in public buildings and business support (see section 6.2.1.2.2.6 ("Service subsidiaries supporting the Customer Division's strategy")); and Tiru (€235 million in sales in 2013), from waste recycling.

#### Tiru

Tiru is 51% owned by the EDF Group. It specialises in waste-to-energy technology, generating electricity and steam for urban heating or industrial applications. A renewable energies pioneer, Tiru is generating clean energy. Since 1922, the Tiru group has designed, built and operated waste-to-energy plants.

In 2013, its 19 thermal and biological units in France and Canada sold almost 2.55TWh of electricity and steam, of which 50% was clean energy, from 3 million tonnes of treated waste. Tiru's material recovery units, located in France and internationally, process 340,000 tonnes of mixed waste (sorting/recycling and composting). Each year, the Tiru Group provides 293,000 people with heating and supplies electricity to 620,000 people, which represents savings of 1.6 million barrels of oil and avoids 703,000 tonnes of CO<sub>2</sub>.

### 6.4.1.4 Dalkia

Dalkia, a leading European energy services provider, generated revenue<sup>1</sup> of €7.410 billion in 2013 over its scope of consolidation, comprising Dalkia France (99.93%), Dalkia International (75.81%) and Dalkia Investissement (50%). Dalkia offers a full range of services with excellent coverage throughout France, as well as substantial operations across Europe.

#### Dalkia's businesses

Dalkia's business is based on optimised energy management. Dalkia has gradually built up a variety of services which improve the energy efficiency and

environmental performance of the regions and industrial customers: heating and cooling systems, thermal and multi-technology applications for buildings, industrial utilities, installation and maintenance of generating equipment, and management of public lighting through its subsidiary Citelum.

Dalkia also promotes renewable and alternative energies, including cogeneration, biomass, geothermal power, household waste incineration, and heat recovery systems from manufacturing processes.

#### Information on EDF stake in the Dalkia Group

As at 31 December 2013, EDF owned 34% of the share capital and voting rights of Dalkia, the Group's holding company. Dalkia's remaining share capital, i.e. 66%, is held by Veolia Environnement. On 31 December 2013, EDF also held directly approximately 24% of Dalkia International's share capital and 50% of Dalkia Investissement's share capital.

Moreover, EDF had a stake of approximately 4% of the share capital of Veolia Environnement which was sold on 26 November 2013.

#### Partnership agreements with Veolia Environnement

The partnership between EDF and Veolia Environnement within the Dalkia Group is governed by a set of agreements signed on 4 December 2000. Under these agreements, EDF acquired interests, as described above, in the Dalkia Group companies and brought some of its subsidiaries in energy services to Dalkia as in-kind contributions.

The partnership is based on the principle of parity in the control and management of both partners in all Dalkia Group companies with a progressive increase of EDF's stake in Dalkia share capital from 34% to 50% of the share capital.

The shareholders' agreement between EDF and Veolia Environnement also includes a change of control provision under which each partner has the right to repurchase to the other its entire stake in Dalkia, if it were to get controlled by a third party competitor. Finally, it gives each party of pre-emption right in the event of sale of Dalkia shares to a third party purchaser.

#### Evolution of the partnership

On 28 October 2013, EDF and Veolia Environnement announced that they were engaged in advanced discussions to finalise an agreement regarding their joint subsidiary Dalkia.

These discussions led to the signing of an agreement between EDF and Veolia Environnement on 25 March 2014, under which EDF will take over Dalkia's activities in France (including those of the Citelum group in France and abroad), while Veolia Environnement will take over the activities of Dalkia International, in accordance with the principles announced on 28 October 2013.

This agreement was concluded on the back of a consultation process with authorised employee representatives and with the approval of the Boards of Directors of both groups. The transaction will be finalised subject to authorisation by the relevant competition authorities.

The transaction will benefit all parties by ensuring the development of Dalkia's activities in France and abroad, while supporting the ambitions of both EDF and Veolia Environnement in energy services. It will also put an end to the dispute between EDF and Veolia Environnement before the Commercial Court of Paris since October 2012.

1. Including the revenue of discontinued activities (Citelum).

## 6.4.1.5 Électricité de Strasbourg

Électricité de Strasbourg is a French public limited company (Société Anonyme); EDF owns 88.64% of its shares, which are traded on NYSE and Euronext Paris. The remaining shares are held by the public and employees.

Électricité de Strasbourg distributes electricity to 409 municipalities in the Bas-Rhin region and has 376 concession contracts that were renewed between 1993 and 2001 for a 40-year term; it serves approximately 80% of the population of the Bas-Rhin department. Due to its electricity distribution business, Électricité de Strasbourg is subject to legal and operating restrictions related to the opening up of the markets.

As required by the law, in January 2009 Électricité de Strasbourg spun off its marketing activity as a subsidiary by creating the company ES Énergies Strasbourg.

In 2012, the ES Group acquired 100% of the shares and voting rights of Enerest from RGDS (*Réseau Gaz Distribution Services*). Enerest is the longstanding gas supplier to the economic region of Strasbourg. In 2013, the Group merged the two energy marketing companies of the ES Énergies Strasbourg Group, effective as of 1 May 2013. By maximising synergies, this operation strengthens the ES Group's position as a regional multi-energy company with three business lines: marketing, distribution and energy services.

ES Énergies Strasbourg sells electricity to approximately 515,000 customers. In 2013, the company sold 6.1TWh of electricity and 5.3TWh of gas to some 109,000 customers.

As regards deep geothermal energy (see section 6.4.1.2.1 ("Description of new energies")), ECOGI, which is 40% held by ES via Fipares, was set up in 2011 in partnership with Roquette Frères and the Caisse des Dépôts et Consignations to build and operate a geothermal power plant. In 2013, ECOGI completed the drilling and development of its first well; this first phase of the project confirmed its potential in terms of expected thermal power.

Moreover, in June 2013, Électricité de Strasbourg was granted an exclusive permit to search for high-temperature geothermal resources in the Illkirch region, south of Strasbourg.

Ecotral, a subsidiary of Électricité de Strasbourg specialised in energy eco-efficiency services for businesses and local authorities, as well as in renewable energy, designed and carried out renovation work to transform an investment property in the centre of Strasbourg into a low-energy building. Furthermore, in the framework of the 2011 concession agreement, in 2013 Ecotral started work on the future geothermal heating system for Strasbourg's eco-district, Cronembourg.

## 6.4.1.6 EDF Trading Logistics

With a fuel oil supply volume of 916,000 tonnes and 5,222 million tonnes of coal delivered in 2013, EDF Trading Logistics is EDF's agent for fuel oil purchases and organises fuel oil and coal supply logistics operations for all of the EDF Group's fossil-fuel fired plants in mainland France, Corsica and France's overseas departments. EDF Trading Logistics also acts as a coal freight forwarder for several large industrial companies (cement manufacturers, heating specialists, etc.) in close cooperation with EDF Trading and the operators of the coal terminals at the ports of Le Havre and Saint Nazaire. EDF Trading Logistics acquired these coal terminals under Law no. 2008-660 of 4 July 2008 on port reforms.

Furthermore, EDF Trading Logistics provides EDF with its expertise in the implementation of processes for managing risks relating to the transport of fuel oil (hazardous materials), an activity that has been awarded ISO 14001 certification, and in the management of environmental crises arising from this activity.

## 6.4.1.7 Other equity interests

In addition to interests in Local Distribution Companies or LDCs (SMEG, Enercal, Électricité de Mayotte, EDSB), the EDF group has subsidiaries and interests in industrial companies. These companies contribute to the Group's objectives in their respective business sectors (generation, fuel and engineering), and more specifically to those of the Generation and Engineering Division: to ensure the short and medium-term performance of EDF's French portfolio of generation assets.

These companies include Cofiva, a holding company of the EDF Group specialised in engineering; SAE, which specialises in fuel transport and trading operations on behalf of the EDF Group; SHEMA, which specialises in hydroelectric power generation by small power plants and SOCODEI, a wholly owned subsidiary of EDF specialised in the treatment and packaging of low- and intermediate-level radioactive waste. SOCODEI owns two machines that are taken to the different nuclear power plants to treat the primary circuit's resins. SOCODEI treats metallic waste by fusion and solid or liquid waste by incineration in its Centraco plant in Marcoule in the Gard region (see section 6.2.1.1.3.4 ("Nuclear fuel cycle and related issues" – "Short-lived medium- and low-level waste and very-low-level waste")).

## 6.4.2 Gas activities

The EDF Group is present over the entire natural gas chain, mainly through EDF Energy (United Kingdom), Edison (Italy), EDF Luminus (Belgium), and in France. The Group also operates through EDF Trading, particularly in the wholesale natural gas market.

### 6.4.2.1 Natural gas end-market

In France, the Group continued a marketing strategy designed to develop the loyalty of the most attractive customers and to grow the value of its customer portfolio, by meeting customer expectations for dual electricity-gas offers, and by capitalising on the Group's experience, particularly on "EDF Bleu Ciel®" brand for the domestic market.

In 2013, EDF's natural gas sales to its end customers in France totalled around 22TWh, which represents a market share of 4.4%. As at 31 December 2013, some 1,010,000 customers (ranging from residential customers to key accounts) had chosen EDF as their natural gas supplier. In 2012, these figures were respectively 20.9TWh and 880,000 customers.

In Italy, the United Kingdom and Belgium, the development of sales is based on a more aggressive approach with downstream customer portfolios composed of:

- in Italy: around 596,000 customer accounts, 15.7 billion cubic metres of gas (around 157TWh), for a market share of around 22.5%;
- in the United Kingdom: around 2.1 million customers and 31.5TWh, for a market share of around 5%;
- in Belgium: around 550,000 customer accounts, 16.3TWh, for a market share of around 18.1%.

### 6.4.2.2 Gas assets and projects

#### 6.4.2.2.1 Supply sources

The Group's gas supply is provided mainly through a diversified portfolio of long-term contracts, coming from Qatar, Russia, the North Sea and North Africa.

The Group actively renegotiates its contracts with suppliers to respond to fluctuations in the European gas markets and to restore profitability. In April 2013, Edison obtained a favourable ruling on the arbitration procedure begun in August 2011 with Sonatrach concerning the renegotiation of Algerian gas delivery prices for 2010-2012. Edison also managed to come to amicable agreements with Algerian and Qatari gas suppliers in July, Sonatrach and RasGas respectively, within the context of the second round of renegotiations for 2012-2015. Moreover, in the first half of 2013, Edison started arbitration procedures with Gazprom and ENI (regarding Russian and Libyan gas respectively) (see section 6.3.2 ("Italy")).

In addition, during the Saint Petersburg International Economic Forum, an agreement on the principles of a gas supply contract was signed on 22 June 2013 between EDF and Gazprom.

Furthermore, in February 2013, EDF Trading signed a Memorandum of Understanding with Gail, an Indian natural gas company, to jointly prospect American gas exploration-generation assets. EDF Trading also announced its intention to develop a small-scale joint liquefied natural gas ("LNG") project with Belgian company Exmar in the United States via barge mounted liquefaction units (see also section 6.4.1.1.2 ("EDF Trading")).

### 6.4.2.2.2 Infrastructure

#### Gas pipelines

Alongside ENI (20%), Wintershall (15%) and Gazprom (50%), EDF is a shareholder (15%) of South Stream Transport BV, which is in charge of developing and building the section of the South Stream gas pipeline that passes underneath the Black Sea. Stretching 900 km in length and providing 63Bcma in capacity, this offshore project consisting of four gas pipelines is designed to directly link Russia to Bulgaria in order to supply Russian gas as of the end of 2015. The shareholders of South Stream Transport B.V. confirmed their commitment to completing the South Stream project on 4 October 2013.

EDF is also involved in two gas import infrastructure projects through its subsidiary Edison: Galsi, a gas pipeline connecting Algeria and Italy via Sardinia, and the ITGI, a gas pipeline that will serve as an interconnection between Turkey, Greece and Italy. The ITGI project includes a pipeline section known as the "IGB" (Greece-Bulgaria Interconnection) that will link Greece to Bulgaria (see section 6.3.2 ("Italy")).

The Group also holds various transmission capacity rights on the European network.

#### Liquefied natural gas ("LNG") regasification terminals

On 29 June 2011, EDF – through its subsidiary Dunkerque LNG (65% owned by EDF, 25% by Fluxys and 10% by Total) – made the final decision to build an LNG terminal with a capacity of 13Bcma on the land owned by the *Grand Port Maritime de Dunkerque* in France. Construction on the Dunkirk LNG terminal started on 5 October 2012 and commissioning is scheduled at the end of 2015. This project, which is the second largest industrial building site in France after the Flamanville EPR, involves three main components: the platform and maritime work (carried out by the *Grand Port Maritime*),

the LNG terminal, and the work to connect the facility to the French and Belgian networks (developed by operators GRT gaz and Fluxys). With three LNG storage tanks, each of a capacity of 190,000cm, the terminal will give greater flexibility to the gas network to supply gas-fired power plants and which have to face demand peaks during winter. This facility, which is unique in the fact that it will be connected to two markets, France and Belgium, will be a major step in efforts to secure and diversify European natural gas supplies. In the interest of the environment, EDF opted for a liquefied natural gas heating system that does not generate CO<sub>2</sub> by partly using the warm water released by the Gravelines nuclear power plant, putting the terminal on the cutting edge of energy efficiency. In 2013, three domes were hoisted into position using compressed air and work started on the excavation of the tunnel linking the terminal to the Gravelines plant on 2 September. The Group holds 8Bcma per year of regasification capacity in the project.

In Italy, Edison owns 7.3% of the capital of Adriatic LNG Terminal, the company that operates the Rovigo offshore terminal, and 80% of the regasification capacity, i.e. 6.4Bcma per year (see section 6.3.2 ("Italy")).

Lastly, the Group holds regasification capacity in the LNG terminals of Fos Cavaou (France) and Zeebrugge (Belgium).

#### Storage

In Germany, EDF has a participation in gas storage in Etzel. The aboveground facilities are operated through a 50/50 joint venture with EnBW. EDF holds approximately 190Mcm of volume capacity in this salt cavity storage.

In Italy, Edison operates three storage sites, Cellino, Collalto and San Potito e Cotignola, in depleted reservoirs. An additional storage project, Palazzo Moroni, is under development (see section 6.3.2 ("Italy")).

In the UK, EDF Energy continues to develop its Cheshire-based Hill Top Farm salt cavity storage site. The site is next to the existing storage site of Hole House, which is owned by EDF Energy (see section 6.3.1.4.1 ("Energy Sourcing and Customer Supply ('ESCS') – "Thermal energy generation and gas storage")).

On 14 January 2013, EDF decided to discontinue the Salins des Landes project as it was initially designed and presented at the 2011-2012 public debate, as the technological and economic requirements for this project were no longer met.

EDF also holds storage rights in the Netherlands, Belgium and France.

### 6.4.2.2.3 Exploration and Production ("E&P")

The Group conducts upstream exploration and generation ("E&P") activities, mainly through Edison (see section 6.3.2 ("Italy")).

EDF Trading North America holds gas exploration and generation rights in Texas and Pennsylvania to develop its upstream gas activity in the United States (see section 6.3.2.2.3 ("EDF Trading in North America")).

In November 2013, EDF also took a 5% stake in an exploration permit in Ukraine (Black Sea) alongside ENI and Ukrainian national companies (see section 6.3.3.1.3 ("Ukraine")).

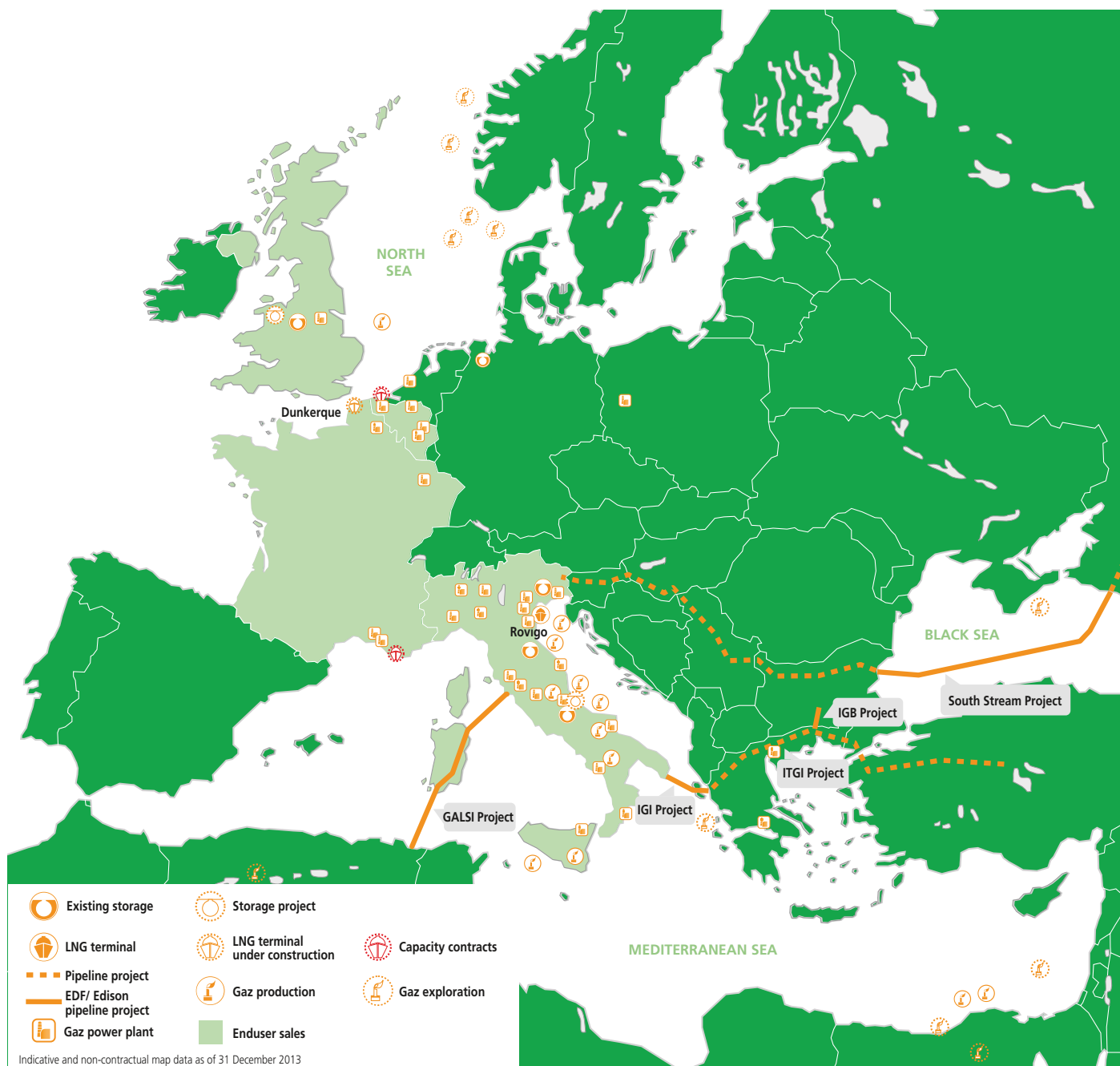


# 6 | Overview of activities

## Other activities and cross-divisional functions

### Gas projects and Assets

#### Map of the gas projects and assets of EDF Group in Europe



## 6.5 Legislative and regulatory environment

EDF group entities are subject to a wide variety of regulations in conducting their business activities. In particular, EDF is subject to European legislation on the electricity and gas markets, which has been transposed into French law, as well as to the applicable environmental, nuclear power, health and safety regulations.

The following review of legal and regulatory provisions is not designed to be an exhaustive description of all such provisions that are applicable to the EDF group.

### 6.5.1 EDF as a public undertaking

At 31 December 2013, the French State held 84.49% of the share capital and 84.56% of the voting rights of EDF and, pursuant to Article L. 111-67 of the French Energy Code, must at all times hold at least 70% of EDF's capital.

The French Government Shareholding Agency ("APE"), which was founded by Decree no. 2004-963 of 9 September 2004, fulfils the State's remit in its capacity as Company shareholder and, in this respect, proposes and implements the State's decisions and guidelines, in consultation with the ministers concerned.

In accordance with the legislation that applies to all undertakings of which the State is a majority shareholder, EDF may have to undergo certain State audit procedures, in particular through an economic and financial evaluation assignment, pursuant to Decree no. 55-733 of 26 May 1955 on State economic and financial evaluation and Decree no. 53-707 of 9 August 1953 on State evaluation of national public undertakings and certain organisations, the purpose of which has an economic or social component.

EDF also has to undergo the audit procedures performed by the French General Accounting Office and Parliament. Thus, in addition to the control performed by the statutory auditors, the Company's accounts and management and, where applicable, those of its directly-held majority subsidiaries, fall under the control of the French General Accounting Office, in accordance with Articles L. 111-4, L. 133-1 and L. 133-2 of the French Code of Financial Jurisdiction.

Moreover, the Legislative Decree of 30 October 1935 that organises the State audit of companies, unions and associations or undertakings of all types that have used State financial support, allows the Minister for the Economy to have EDF audited by the General Finance Inspection Office.

The disposal of EDF shares by the State, or the dilution of the State's stake in EDF's capital, is subject to a specific procedure under the applicable regulations, and in particular the so-called "privatisation" Laws no. 86-793 of 2 July 1986, no. 86-912 of 6 August 1986 and no. 93-923 of 19 July 1993.

### 6.5.2 Public service in France

#### Statutory definition of public service in France

Articles L. 121-1 *et seq.* of the French Energy Code outline the Public Electricity Service (see section 6.5.3.2 ("French legislation: Energy Code") below for a description of this regulation).

#### Public service missions

Articles L. 121-1 *et seq.* of the French Energy Code state that the purpose of the Public Electricity Service is, *inter alia*, to guarantee electricity supply throughout French territory, while acting in the general interest, to develop and operate public electricity networks and to supply electricity at regulated sale tariffs and at the basic necessity rate.

#### Balanced development of supply mission

The mission to promote the balanced development of electricity supply aims to achieve the objectives defined in the multi-year generation investment plan, which sets targets for allocating generation capacities by primary energy source and, where necessary, by generation technique and geographical area.

At present, the multi-year investment plan is defined by an Energy Minister Order of 15 December 2009.

This mission also involves guaranteeing the supply of areas that are not interconnected to Continental Metropolitan France (Corsica, the overseas departments and territories).

As a power producer, EDF, along with the other producers, contributes to the performance of this mission.

#### Mission to develop and operate public transmission and distribution networks

The mission to develop and operate the public electricity transmission and distribution networks involves ensuring rational access to electricity in France through the public transmission and distribution networks, in a way that is environmentally friendly, interconnection with neighbouring countries, as well as connection and access to the public transmission and distribution networks, under non-discriminatory conditions.

The public network operators that are designated by the law are responsible for this mission, namely RTE for transmission, ERDF and the Local Distribution Companies ("LDCs") for distribution, and EDF in the areas not interconnected to the continental metropolitan network.

#### Mission to supply electricity

The public service mission to supply electricity involves ensuring the supply of electricity throughout France to customers who benefit from regulated electricity sales tariffs.

By law, this mission has been entrusted to EDF and to the LDCs.

The conditions under which customers can benefit from regulated electricity sale tariffs are defined in Articles L. 337-7 *et seq.* of the French Energy Code.

This mission also involves the application of the special "basic necessity" tariff that is assigned to all electricity suppliers.

The mission to supply electricity moreover includes supplying emergency power to customers who are connected to the public networks. Emergency suppliers are designated by the relevant administrative authority upon completion of one or more calls for tenders.

## Social cohesion

Article L. 121-5 of the French Energy Code provides that the supply of electricity at regulated tariffs must contribute to social cohesion, in particular through the national equalisation of regulated electricity sale tariffs.

Article L. 115-3 of the French Social Action and Families Code prohibits electricity suppliers from cutting off electricity supplies to the primary residences of individuals or families during the winter period (1 November to 15 March) due to unpaid bills, including through contract termination. Electricity suppliers may, nevertheless, in certain cases, reduce the power supplied, except with regard to customers who benefit from basic necessity rates.

In its capacity as electricity supplier, EDF is required to maintain electricity supplies under the conditions laid down by said article and Decree no. 2014-274 of 27 February 2014 adopted for its application.

## Public Service contract

On 24 October 2005, a Public Service contract was signed by the State and EDF pursuant to Article 1 of the Law of 9 August 2004, now Article L. 121-46 of the French Energy Code. This contract details the commitments made by EDF and the State over the period 2005-2007 and states that the rules governing the financial consideration for service commitments will remain in force until a new contract is signed, as provided for in the contract itself.

### Commitments by EDF (excluding network managers)

EDF's public service commitments include:

- access to the Public Electricity Service and the supply of electricity to customers who choose to remain at regulated tariffs;
- production and sales. These areas include the implementation of the energy policy and maintaining secure power generation that is environmentally friendly;
- contributing to the safety of the electricity network. In this regard, EDF undertakes to sign several contracts with RTE, in particular concerning the optimisation of work on generation facilities and the availability of the resources required to maintain network balance.

### Commitments by network managers

In the Public Service contract, the ERDF and RTE network managers made commitments concerning the management of the public networks for the transmission and distribution of electricity and the safety of the electricity system. These commitments are financed by the Tariff for Using the Public Electricity Transmission and Distribution Networks ("TURPE").

These commitments concern, above all, network safety, supply quality, third party safety and the preservation of the environment – four areas where customer and local authority expectations are especially high.

## More accessible services

On 28 September 2010, the State and EDF, as well as eight other public service operators, signed a partnership agreement entitled "*+ de services au public*" ("more services to the public"), which aims to develop access to a set of services intended for rural populations in France (information on bill payment, general information, travel ticket sales, etc.).

Reception staff and internet access points are some of the many resources made available to users through shared facilities such as Multiservice Conciliation Information Points ("PIMMS"), Public Service Relays ("RSP") and other structures such as town halls. This protocol is being deployed in 23 French *départements*.

## 6.5.3 Electricity market legislation

### 6.5.3.1 European Legislation

Three European directives, which form the basis for the current organisation of the electricity market in France, were successively adopted in order to lay down the common rules for the generation, transmission, distribution and supply of electricity. Directive 96/92/EC of 19 December 1996 laid the foundation for opening up the electricity market to competition.

Directive 2003/54/EC of 26 June 2003 reiterated the major principles and took an additional step on the path to opening up the market, by progressively expanding eligibility to all customers.

Directive 2009/72/EC of 13 July 2009, known as the "third directive", was adopted as part of the third Energy Package. This directive primarily strengthens the guarantees of the independence of transmission network managers and increases the power of the national regulatory authorities.

### Regulations (EC) no. 1228/2003 of 26 June 2003 and no. 714/2009 of 13 July 2009

The conditions for access to the network for cross-border exchanges in electricity are currently defined by Regulation (EC) no. 714/2009 of the European Parliament and of the Council of 13 July 2009, which is part of the third Energy Package. This Regulation, *inter alia*, provides for a compensation mechanism between transmission network operators for the costs incurred by hosting cross-border flows of electricity on their networks. This compensation is paid by the operators of the national transmission networks from which cross-border flows originate and the systems where those flows end.

### "Security of Electricity Supply" Directive 2005/89/EC of 18 January 2006

The "Security of Electricity Supply" Directive 2005/89/EC, which was adopted on 18 January 2006, is intended to provide a better definition of the responsibilities of the various operators, ensure that minimum operational standards are respected, maintain balance between demand and supply, and direct investments toward the systems. The objectives of this directive have been taken into account in various French laws and regulations.

### 6.5.3.2 French legislation: Energy Code

The various pieces of legislation on energy law (Law of 15 June 1906, Law no. 46-628 of 8 April 1946, Law no. 2000-108 of 10 February 2000, Law no. 2003-8 of 3 January 2003, Law no. 2004-803 of 9 August 2004, Law no. 2006-1537 of 7 December 2006 and Law no. 2010-1488 of 7 December 2010) were then incorporated into the French Energy Code by Order no. 2011-504 of 9 May 2011, in accordance with Authorisation Law no. 2009-526 of 12 May 2009, with the exception of provisions on nuclear energy, which were incorporated into the French Environment Code, pursuant to Order no. 2012-6 of 5 January 2012.

Directive 2009/72/EC of 13 July 2009 was transposed into French law by the aforementioned Order of 9 May 2011, which organised the legislative section of the French Energy Code, in accordance with Authorisation Law no. 2011-12 of 5 January 2011.

Moreover, the Policy Act that laid down energy policy guidelines (Law no. 2005-781 of 13 July 2005 – "LPOPE"), defined the energy policy priorities in France: supply security, reaffirmation of the role of nuclear power, competitive energy pricing, the fight against the greenhouse effect, and social and national cohesion.

### Generation facilities

Anyone can operate an electricity generation facility, subject, above a certain power threshold determined by decree, to obtaining an operating licence issued pursuant to Article L. 311-5 of the French Energy Code. The powers and responsibilities of local authorities with regard to electricity generation are defined in Articles L. 2224-32 and L. 2224-33 of the French Local Authorities Code, and in Article 88 of Law no. 2010-788 of 12 July 2010 on the national commitment to the environment.

### Regulated access to electricity from the existing nuclear fleet ("ARENH")

The rules governing regulated access to electricity from the existing nuclear fleet ("ARENH"), provided for in Articles L. 336-1 *et seq.* of the French Energy Code, have been implemented since 1 July 2011. See section 6.2.1.3.5 ("Regulated access to electricity from the existing nuclear fleet ('ARENH')") on this point.

### Choice of electricity supplier

All customers, without exception, have been eligible since 1 July 2007, *i.e.*, they may freely sign a contract for the purchase of electricity with a producer or supplier of their choice that is established on the territory of the European Union or on the territory of a State that is party to an international agreement with France (Article L. 331-1 of the French Energy Code).

Customers can choose to benefit from regulated electricity sales tariffs under the conditions set out in Articles L. 337-7 *et seq.* of the French Energy Code. Pursuant to these provisions:

- household and non-household customers whose power demand is less than or equal to 36 kVA benefit from regulated sales tariffs; this is also true for all customers in areas that are not interconnected to the continental metropolitan territory;
- household and non-household end users whose power demand is greater than 36 kVA, who had not exercised their eligibility on 7 December 2010 may, until 31 December 2015, benefit from regulated sales tariffs. If said consumers exercised their eligibility after 7 December 2010, they may once again benefit from regulated sales tariffs and switch back and forth between regulated tariffs and new offers, subject to a one-year wait each time. After 1 January 2016, they will no longer benefit from regulated tariffs.

Article L. 111-84 of the French Energy Code requires internal accounts to be kept that make it possible to distinguish between supply to customers who exercised their right to eligibility and supply to customers at regulated tariffs. The State and the CRE have a right of access to the electricity companies' accounts.

### Third party access to networks

Article L. 111-91 of the French Energy Code provides that network managers must guarantee access to the public transmission and distribution networks in order to:

- perform the public service missions to supply electricity at regulated electricity sales tariffs and at basic necessity special rates;
- perform electricity procurement contracts;
- perform electricity export agreements signed by a producer or by a supplier who is located on French national territory.

Disputes concerning third party access to networks are heard by the Settlement of Disputes and Sanctions Committee ("CoRDIS"), which is part of the Energy Regulation Commission ("CRE").

The Tariffs for Using the Public Transmission and Distribution Networks ("TURPE") mentioned in Articles L. 341-2 *et seq.* of the French Energy Code, which are currently in force, were established by the CRE Decision of 3 April 2013, which was published in the Official Journal of 30 June 2013,

for transport (TURPE 4 HTB) and by the CRE Decision of 12 December 2013, which was published in the French Official Journal of 20 December 2013, for distribution (TURPE 4 HTA/BT).

For more details on the Tariffs for Using the Public Transmission and Distribution Networks, see section 6.2.2.4 ("Tariffs for Using the Public Electricity Transmission and Distribution Networks ('TURPE')") above.

### Electricity purchase obligations

EDF is subject to electricity purchase obligations.

Articles L. 311-10 *et seq.* of the French Energy Code provide that the Minister for Energy may, when generation capacities do not meet the objectives of the multi-year investment plan, launch a tendering procedure. EDF, in its capacity as a "producer", can submit a bid in response to this tendering procedure. EDF, in its capacity as a "buyer", is then required to enter into an electricity purchase contract with the selected applicant(s) (this is a protocol in the event that EDF, in its capacity as "producer", is itself the selected applicant).

Articles L. 314-1 *et seq.* of the French Energy Code moreover provide that EDF (as well as the LDCs that are responsible for supply in their service area) must sign a purchase contract, at the request of producers, for the electricity primarily generated by:

- facilities that recover household waste or that supply a heating network;
- facilities whose installed capacity does not exceed 12MW and that use renewable energy sources (in particular photovoltaic energy) or high-performance technologies in terms of energy efficiency, such as cogeneration;
- facilities that use wind-based mechanical energy;
- facilities that use energy recovery sources;
- windmills and water mills that are refurbished to generate electricity;
- in the overseas departments, electric facilities that generate electricity from biomass sources, including sugar cane.

These facilities may benefit only once from a purchase obligation contract, except in the specific case, for certain sectors, of facilities that implement a renovation programme defined by order.

Decree no. 2001-410 of 10 May 2001 provides that producers who benefit from the purchase obligation must sell all of their production to EDF and that the purchase agreement indicative models between EDF and the producers must be approved by the Minister for Energy. Purchasing terms and conditions, specifically the electricity purchase prices, are set by order of the Minister for Energy, after consulting the Higher Energy Council and the CRE.

Decree no. 2010-1510 of 9 December 2010 suspended, for three months as from 10 December 2010, the obligation to sign a contract to purchase the energy generated by photovoltaic facilities, with the exception, however, of facilities with power less than or equal to 3 kWp, facilities with a current contract, and projects that are already well advanced.

At the end of this suspension period, a new regulatory framework became effective. The new price conditions were laid down by an Order of 4 March 2011, which establishes several price formulas that primarily take into consideration the integrated or non-integrated nature of the facility, its peak power and the peak power of all the other facilities connected or planned on the same building or the same land parcel.

Purchase prices for electricity of photovoltaic origin are adjusted quarterly, based on the cumulative power of the facilities for which complete connection requests were made during the previous quarter. Some facilities, especially ground facilities, must apply a quarterly sliding scale that does not take into account the volume of the connection requests filed with the network manager in question.

An order of 7 January 2013 provided for an increase in these purchase prices for facilities with photovoltaic modules that were manufactured in the European Economic Area. However, this order is likely to be repealed in the near future.



The arrangement is completed by a tendering procedure system for facilities on buildings of more than 100 kWp, and ground facilities. The conditions for holding these tendering procedures are specified by Decree no. 2002-1434 on the tendering procedure for electricity generation facilities. Thus, a tendering procedure involving photovoltaic facilities installed on a building with peak power of between 100 and 250 kW is pending as of the filing date of this reference document.

The additional costs for EDF and the LDCs resulting from contracts signed pursuant to the obligation to purchase energy are compensated by a contribution received from final consumers, the "CSPE". The CRE estimated the future costs of public electricity service at €6.2 billion for 2014, 39% of which are for costs linked to the photovoltaic energy sector. The additional costs linked to the purchase in REN obligation paid by EDF and LDCs, are estimated at €3.7 billion and represent 60% of the total costs.

### Mechanism for compensating the additional costs of public service

#### The Contribution to Public Electricity Service – "CSPE"

The Contribution to Public Electricity Service costs ("CSPE"), which is provided for by Articles L. 121-6 *et seq.* of the French Energy Code, is a tax intended to compensate the costs that are attributable to the public service missions assigned to EDF and the LDCs.

The law states that in principle, the following costs are compensated in full using the CSPE:

- for electricity generation:
  - the additional costs that result both from electricity purchase agreements entered into after tendering procedures (Articles L. 311-10 *et seq.* of the French Energy Code) and from purchase obligation agreements signed within the framework of Articles L. 314-1 *et seq.* of the French Energy Code, including when the facilities concerned are operated by EDF or an LDC,
  - in zones not interconnected to continental metropolitan territory:
    - additional generation costs that are not covered by the generation portion in regulated sales tariffs;
    - the costs of storage facilities managed by the electricity system manager, within the limits of the additional generation costs they help to avoid;
    - additional electricity procurement costs (other than those, mentioned above, linked to the purchase obligation) that are not covered by the generation portion in regulated sales tariffs, within the limit of the additional generation costs they help to avoid;
    - the costs paid by electricity suppliers in respect of supply control initiatives, less any income received through these initiatives, within the limit of the additional generation costs they help to avoid;
  - the remuneration paid by EDF to cogeneration facilities within the framework of transitional contracts, pursuant to Article L. 314-1-1;
- for the supply of electricity:
  - loss of income and the additional costs incurred by suppliers due to the implementation of the special "basic necessity" rate ("TPN"),
  - costs incurred by suppliers as a result of their participation in the plan established for low-income persons (within the limit of a percentage, which is set by order, of the cost borne by the supplier in respect of the TPN for the year in question).

In accordance with Law no. 2013-312 of 15 April 2013 on the preparation of the transition towards a low energy system (known as the "Brottes Act"), which, in particular, completed Article L. 121-10 of the French Energy Code,

the purpose of the CSPE is also to finance the payment of a premium to the consumption cut-off operators mentioned in Article L. 123-1 of the same Code.

The CSPE is collected directly from the final customer, either as an additional levy on regulated sales tariffs or on network usage tariffs or directly from power producers that produce power for their own use.

The mechanism for compensating public service costs is governed by Articles L. 121-9 *et seq.* of the French Energy Code, which were amended, *inter alia*, by Budget Act no. 2011-900 of 29 July 2011 and by the Amended Budget Act for 2013 no. 2013-1279 of 29 December 2013. Pursuant to these provisions:

- following a proposal by the CRE, each year the Minister for Energy sets the total amount of costs borne by EDF and the LDCs, as well as the amount of the CSPE; the increase in the amount of the contribution may be staggered over one year;
- if these amounts are not set by the minister before 31 December, the amounts proposed by the CRE automatically become effective on 1 January. For the amount of the CSPE, this automatic entry into effect is nevertheless limited to a maximum increase of 0.003 €/kWh compared to the amount applicable before this date.

As an exception to these provisions, Article 56 of the Amended Budget Act for 2011 set the amount of the CSPE at €9/MWh for the period from 31 July 2011 to 30 June 2012, then at €10.50/MWh from 1 July to 31 December 2012.

In 2013, the amount of the CSPE owed per consumption site was capped at €569,418. Pursuant to the Amended Budget Act for 2013, this limit, which is provided for in Article L. 121-12 of the French Energy Code, will be updated each year in a proportion equal to that of the change in the amount of the contribution mentioned in Article L. 121-13, within the limit of a 5% increase.

The massive expansion of facilities that generate electricity using renewable energy sources (mainly wind power and photovoltaic facilities) and that benefit from the purchase obligation, has led to a significant increase in the costs to be compensated by the CSPE. This phenomenon continues today: accordingly, the CRE forecasts costs for 2014 (€6.2 billion) are 29% higher than the costs for 2012 (€4.8 billion). Since 2007, the amount of the CSPE has not been enough to compensate the increase in these costs. The deficit of a mechanism that is paid for exclusively by EDF weighs on the Group's debt.

On 14 January 2013, EDF announced that it had reached an agreement with the authorities, which provides for the repayment of the debt formed by the CSPE deficit at 31 December 2012 (around €4.3 billion, adjusted to €5.0 billion at 31 December 2013 to take into account the deficits related to public service charges at 31 December 2012, as confirmed by the CRE decision of 9 October 2013 and the brokerage costs incurred by the Group of around €0.6 billion). Under this agreement, this debt will be paid off by 31 December 2018, according to a progressive repayment schedule, and will be remunerated at market conditions. As a result of this agreement, in its 2012 financial statements the Group recognised financial income of €0.6 billion, which corresponds to the recognition of past accrued brokerage costs as of 31 December 2012. Article 59-I of the Amended Budget Act for 2013 added an Article L. 121-19-1 to the French Energy Code, which lays down the principle of using the CSPE to pay for any financial expenses incurred in the future due to a compensation loss, at a rate set by decree. As regards the past, Article 59-III of the same Act states that, without prejudice to Article L. 121-19-1, the compensation owed to EDF would exceptionally be increased by an amount set by order of the Ministers for Energy and the Budget, which will correspond to the brokerage costs that result from the delay in the compensation of the public service charges paid by EDF until 31 December 2012.

### Compensation for additional distribution costs

The remit of the Electricity Equalisation Fund ("FPE"), the accounting management of which is entrusted to EDF under Article L. 121-29 of the French Energy Code, is to distribute the charges incurred as a result of public service missions assigned for managing the electricity distribution networks among the operators concerned, in particular those linked to the specificities of the networks operated and that will not be covered by the tariffs for using the public electricity transmission and distribution networks. The charges linked to involvement in the development of areas with particular geographical, economic or social difficulties, as defined by Article 42 of Law no. 95-115 of 4 February 1995, are also concerned.

### Capacity guarantees

Articles L. 335-1 *et seq.* of the French Energy Code, which are taken from the NOME law, obligate each electricity supplier to contribute to the security of electricity supply on continental metropolitan territory, in light of its customers' energy consumption patterns. Under penalty of an administrative sanction, each supplier must therefore provide direct or indirect guarantees of its capacities to interrupt electricity consumption and generation, which can be implemented to ensure balance between generation and consumption, in particular at peak periods.

The decree issued following consultation of the Council of State that specifies how this system will work in practice was published in the *Official Journal* of 18 December 2012 (Decree no. 2012-1405 of 14 December 2012). The decree provides for the effective implementation of the system by winter 2016-2017. In the meantime, the decree entrusts the CRE with the organisation, on a transitional basis, "on behalf of suppliers" and under the conditions defined by the Minister for Energy, of a call for tenders for the 2015-2016 winter period. In practice, however, this call for tenders, which was supposed to be launched in the first quarter of 2013, did not take place as the manager of the transmission network ultimately decided that additional capacities were not necessary for this period.

The decree refers to various applicatory measures that will determine how the future mechanism will be implemented, within which the transmission network manager will hold a decisive place:

- firstly, "capacity mechanism rules" must be defined by ministerial order, on the basis of a proposal by RTE after consulting the CRE;
- secondly, some specific points mentioned in the decree must be the subject of a CRE decision (e.g. capacity guarantees associated with volumes purchased from the ARENH, at sale prices or as part of the purchase obligation).

On the filing date of this reference document, these applicatory measures had not yet been implemented.

### Electricity sector regulation

#### The Energy Regulation Commission

The Energy Regulation Commission ("CRE") is an independent administrative authority created by Article 28 of the Law of 10 February 2000.

Articles L. 131-1 *et seq.* of the French Energy Code give a general definition of the remit of the CRE, which is tasked with improving the situation of final consumers, and contributing to the correct functioning of the electricity and natural gas markets. In this respect, the CRE ensures, in particular, that the conditions for access to electricity and natural gas transmission and distribution networks do not impede the development of competition.

The CRE has both advisory powers (power to recommend and issue an opinion), and decision-making powers (approval power and regulatory power).

The CRE makes proposals to the Ministers for the Economy and for Energy regarding the amount of the costs that are attributable to the public service missions assigned to power producers, and the net amount of the related

contributions. Under the NOME law, the price of regulated access to electricity from the existing nuclear fleet ("ARENH") will be defined on the basis of a proposal by the CRE, once the decree has been published that specifies the methods for identifying the eligible costs and recognising them in accounts. In a press release of 22 October 2013, the Ministers for the Economy and for Energy announced that this decree would be published by the end of March 2014. Consultation on the draft decree closed on 14 March 2014; the same will apply as from 2016 for regulated sales tariffs and the transfer tariffs. Moreover, the CRE now has decision-making power to set Tariffs for Use of the Public Electricity Transmission and Distribution Networks: it notifies its decision, with the attendant reasons, to the administrative authority, which can only ask the CRE for a new decision in the event of non-compliance with energy policy guidelines. The CRE also has significant powers to obtain information and hold investigations, as well as authority to settle disputes and to apply penalties, through the Settlement of Disputes and Sanctions Committee ("CoRDIS").

### The Agency for the Cooperation of Energy Regulators

Regulation (EC) no. 713/2009 of the European Parliament and of the Council of 13 July 2009, established an Agency for the Cooperation of Energy Regulators ("ACER"). ACER participates in the design of network codes in the electricity and gas sectors, and can make decisions relating to cross-border infrastructures (see also section 6.5.6.2.5 ("Regulations applicable to renewable energy generation")).

## 6.5.4 Gas market legislation

### 6.5.4.1 Community legislation

Directive 98/30/EC of 22 June 1998 and Directive 2003/55/EC of 26 June 2003 were the major steps towards opening up the gas market to competition.

New rules aimed at improving the functioning of the internal natural gas market were defined in Directive 2009/73/EC of 13 July 2009 and by Regulation (EC) no. 715/2009 of 13 July 2009 on conditions for access to the natural gas transmission networks.

### 6.5.4.2 French legislation: Energy Code

Directive 2009/73/EC of the European Parliament and of the Council of 13 July 2009 was transposed into French law by Order no. 2011-504 of 9 May 2011, which organised the legislative section of the French Energy Code. The Energy Code entered into force on 1 June 2011.

### Access to natural gas networks

The French Energy Code provides that customers, suppliers and their agents have a right to access natural gas transmission and distribution infrastructures, as well as LNG facilities, under the terms and conditions set forth in an agreement with the operators that run them.

Natural gas network operators must refrain from discriminating between users or categories of users in any way.

### Customers

Since 1 July 2007, all customers can freely choose their supplier.

Pursuant to the provisions of Article L. 445-4 of the French Energy Code, household and non-household customers who consume less than 30,000 kWh per year may benefit from regulated tariffs, at their request and without having to meet any conditions. Household customers who are entitled to the special "basic necessity" rate for electricity, may benefit from a special solidarity rate applicable to the supply of natural gas and related services for part of their consumption. The conditions for application

of this provision are specified by Decree no. 2008-778 of 13 August 2008 on the supply of natural gas at the special solidarity rate, as amended by Decree no. 2012-309 of 6 March 2012 on the automation of procedures for allocating social tariffs for electricity and natural gas. The additional costs that result from supply at this rate are compensated by a contribution due by natural gas suppliers, based on the quantities of natural gas sold by these suppliers to final customers.

Customers whose consumption exceeds 30,000 kWh per year can only benefit from regulated gas sales tariffs for a site if no new offer has been accepted for such site, pursuant to Article L. 445-4 paragraph 2 of the French Energy Code.

### Suppliers

Article L. 443-4 of the French Energy Code defines suppliers as persons who (i) are established on the territory of a Member State of the European Union or on the territory of another State pursuant to international agreements, and (ii) hold a licence issued by the Minister for Energy.

EDF is authorised to supply natural gas to non-household customers that do not provide services in the public interest, pursuant to an Order of the Deputy Minister of Industry of 14 September 2004, and pursuant to an Order of 9 August 2005, to non-household customers that provide services in the public interest, as well as to natural gas distributors and suppliers, and pursuant to an Order of 15 June 2007, to household customers.

EDF only supplies its clients pursuant to a new offer and not at regulated sales tariffs, which can only be proposed by GDF Suez and the LDCs tasked with supplying gas.

### Underground storage and third-party access to natural gas storage facilities

The French Energy Code requires all suppliers to hold, on 31 October of each year, directly or indirectly through an agent, sufficient inventories of natural gas in France to meet their direct or indirect contractual obligations to supply household customers and other customers that provide services in the public interest or that have not contractually accepted interruptible gas supply, during the period between 1 November and 31 March.

Decree no. 2006-1034 of 21 August 2006, as amended, specifies the legal framework that applies to underground storage facilities for natural gas. This decree was amended by decree no. 2014-328 of 12 March 2014 to enhance security of supply.

### Control and penalties

The French Energy Code grants the Minister for Energy and for the Economy, as well as the Energy Regulation Commission, power to oversee the gas market. The Minister for Energy may also levy a fine, or withdraw or suspend an authorisation to supply natural gas. The CRE can carry out investigations into whether offences that breach the provisions of the French Energy Code have been committed (Article L. 135-13 of the French Energy Code).

## 6.5.5 Public electricity distribution concessions

### French legal system applicable to concessions

In accordance with Articles L. 121-4 *et seq.*, L. 322-1 *et seq.* of the French Energy Code and Article L. 2224-31 of the French Local Authorities Code, the public distribution of electricity is operated under a system of public service concessions. Pursuant to this body of law, the contracting authorities organise public electricity distribution service through concession agreements and specifications that set forth the respective rights and obligations of the contracting authority and the operator. Currently, the contracting

authorities are most often public institutions for inter-municipal cooperation, and increasingly inter-département cooperation.

The unbundling of supply and network operations required under Community Directives has led to the identification of two separate public service missions: first, the mission to supply electricity at regulated tariffs assigned to EDF and the LDCs in their exclusive service areas and, second, the mission to develop and operate the public electricity distribution networks assigned to ERDF and the LDCs in their service areas, and to EDF for areas which are not interconnected to the continental metropolitan network.

Article L. 334-3 of the French Energy Code provides that the signature of new concession agreements and amendments, as well as renewals of existing concession agreements, must be executed by three parties: the contracting authority, the distribution network manager (for the provisions relating to management of the public distribution network) and by EDF (or the LDC having the authority in the geographic area) for supply at regulated tariffs. The current concession agreements in force are deemed to have been signed jointly by these three entities.

### Rights of the contracting authorities

The rights of the contracting authorities are detailed in section 6.2.2.2.2 ("Distribution activities") above.

## 6.5.6 Regulations applicable to the environment, nuclear facilities, health, hygiene and safety

EDF's business in France, as well as in other countries where EDF operates, is subject to regulations applicable to the environment, nuclear power, health, hygiene and safety. Compliance with these increasingly strict and continuously changing regulations exposes the Group to significant costs in order to ensure it does business compliantly.

### 6.5.6.1 Basic regulations applicable to the environment, health, hygiene and safety

#### Environmental regulations

##### Grenelle Laws 1 and 2

Following the Grenelle Environmental Forum that was initiated in 2007, in Law no. 2009-967 of 3 August 2009, known as the "Grenelle 1 Law", the French government undertook to meet a certain number of objectives and to implement certain environmental measures concerning the reduction of greenhouse gas emissions, energy efficiency, the development of renewable energy sources, ensuring clean bodies of water, the protection of biodiversity, the prevention of risks to health and the environment, waste management and ecological governance.

These commitments and objectives were implemented by Law no. 2010-788 of 12 July 2010 ("Grenelle Laws 2"), many provisions of which impact EDF's activities.

#### Public involvement in environmental matters

Law no. 2012-1460 of 27 December 2012 on the implementation of the principle of public involvement recast the applicable procedure for the public to be involved in decisions by the State and public institutions (other than individual decisions) that have an impact on the environment, as from 1 January 2013.

Order no. 2013-714 of 5 August 2013, which has been applicable since 1 September 2013, specifies the rules for the public to be involved in the individual decisions by the public authorities.

### Environmental Liability ("LRE" Law)

The purpose of the Law of 1 August 2008 on environmental liability ("LRE"), which is incorporated into the French Environment Code under Articles L. 160-1 to L. 165-2, is to promote the prevention and remedying of environmental damage to water, soil and biodiversity that reaches a certain level of seriousness. The remedy must be environmental only and must allow the natural environment to return to its previous state or an equivalent state.

### Balanced management of Water Resources

The Law on Water and Aquatic Environments of 30 December 2006 strengthened the restrictions EDF must comply with in particular as regards the possibility given to the administrations of amending or cancelling the operating licences (authorisations), in particular if significant disturbances are caused to aquatic environments (without, however, calling into question the economic balance of the licence concerned), or in the event of changes in waterway classifications that prevent the construction of new sites on certain waterways or parts of waterways or "environmental" requirements when operating licences are renewed or as a result of the increase in the minimum flow rate to be restored downstream of dams. In the latter case, however, flexibility is stipulated, particularly for sites contributing to peak production (Decree no. 2010-1391 of 12 November 2010). Finally, the simplification of administrative procedures organised by the Policy Act of 13 July 2005 that laid down energy policy guidelines (the "POPE" Act), which allow for the installation of additional hydroelectric equipment, has been maintained.

### Protection of biodiversity

As an occupant and user of natural land and water areas, EDF is directly concerned by biodiversity issues.

In order to protect and restore biodiversity, the Grenelle Environmental Forum set ambitious targets, which include the implementation of a national strategy for the creation of protected land areas ("SCAP"), which aim to provide extensive protection, by 2019, for at least 2% of metropolitan French land mass, as well as the construction of a green and blue belt, a tool for land-use planning that sets up green corridors to connect protected areas, thereby enabling flora and fauna to migrate.

The provisions on the green and blue belt are incorporated in the French Environment Code in Articles L. 371-1 to L. 371-6. Decree no. 2012-1492 of 27 December 2012 specifies the components of the green and blue belt, as well as the contents of the procedure for drawing up regional green coherence schemes ("SRCE") that implement it. A Decree of 20 January 2014 (no. 2014-45) specifies the "national guidelines" for the SRCE that are currently being developed by the Regions and the State, in consultation with all local stakeholders. In accordance with the policies of the roadmap for ecological transition adopted at the close of the 2012 Environmental Conference, as confirmed in the 2013 Environmental Conference roadmap, a framework law on biodiversity will probably be enacted in the first half of 2014. This law should increase the protection of biodiversity and set up a French Agency for biodiversity.

### Social and environmental reporting obligation for businesses ("RSE")

Articles L. 225-102-1 and R. 225-104 of the French Commercial Code require companies whose securities are admitted to trading on a regulated market, as well as companies that employ more than 500 staff and whose revenue or balance sheet total exceeds €100 million (for the latter, according to a schedule that covers the years 2012 to 2014), to disclose in the management report information on how they take into consideration the social and environmental consequences of their activity, as well as on their societal commitments to sustainable development ("RSE reporting"). EDF and some of its subsidiaries are concerned by these provisions.

Article L. 225-102-1 of the French Commercial Code authorises subsidiaries and controlled companies not to disclose their RSE information, provided that this information is published by the company that controls them, in detail by subsidiary or by controlled company, and that they state how to access this information in their own management report. Moreover, when subsidiaries and controlled companies are established in France and have facilities that are classified for the protection of the environment ("ICPE") that are subject to authorisation and registration), the information provided must concern each of them, if the information cannot be consolidated.

The social and environmental information provided in the management report must be verified, according to a schedule that takes into account, for non-listed companies, the number of their employees and their revenue, by a third party independent organisation, which is appointed in accordance with the provisions of Article R. 225-105-2 of the French Commercial Code. An Order of 13 May 2013 determined, in particular, the rules according to which the independent third party organisation will perform its assignment. The verification by this organisation leads to a certificate concerning the presence in the management report of all the required information and a substantiated opinion on the accuracy of the information itself (see section 6.6 ("Corporate responsibility")).

### PCBs and PCTs

The Group is subject to Regulations on polychlorobiphenyls (PCBs) and polychloroterphenyls (PCTs) in the various countries where it operates, particularly in Europe.

Directive 96/59/EC of 16 September 1996 required that an inventory of equipment containing PCBs and PCTs at levels of more than 500 ppm be drawn up, together with a national plan for decontamination and the gradual disposal of these substances, which are mainly found in certain electricity transformers and condensers. Decontamination of equipment containing these substances was to be completed by 31 December 2010 at the latest. EDF had a special disposal plan and has achieved this objective.

Pursuant to a Decree of 10 April 2013 (no. 2013-301), EDF must clean up and decontaminate equipment with pollution levels of between 50 et 500 ppm, with the possibility, as the holder of more than 150 pieces of equipment, of benefiting from a "specific plan" that is approved by order of the Ecology Minister. This plan must, as a minimum, provide for the decontamination or destruction of one-half of the equipment before 1 January 2020 and all equipment before 31 December 2025. The contents of the application for the specific plan were defined by an Order of 28 October 2013. The Decree of 10 April 2013 also specified the new obligations in terms of identifying, labelling, declaring and using equipment containing PCBs with a quantity higher than 5 dm<sup>3</sup>. The rules for conforming to these obligations were stipulated in detail by two orders of 7 January and 14 January 2014.

(See also section 6.6 ("Environmental and societal information")).

### Greenhouse gases

#### Quota exchange system

Some of the EDF Group's activities fall within the scope of application of Directive 2003/87/EC of 13 October 2003, as amended by Directive 2009/29/EU of 23 April 2009, which established a European scheme for greenhouse gas ("GHG") emission allowance trading, using the project mechanisms set forth in the Kyoto Protocol (the Emissions Trading System ("ETS") Directive).

In France, this Directive was transposed and integrated into Articles L. 229-5, R. 229-5 *et seq.* of the French Environment Code. The Group has an annual obligation to surrender allowances equal to the level of CO<sub>2</sub> emitted by its facilities. In order to comply with this obligation, under certain conditions, EDF may use credits issued under projects eligible for the project mechanisms provided for under Articles 6 and 12 of the Kyoto Protocol (parties acting jointly to fulfil obligations and clean development mechanism).



Under the ETS Directive, the third period for the greenhouse gas ("GHG") quota exchange systems started on 1 January 2013. The provisions of the French Environment Code on this system were amended accordingly by Order no. 2012-827 of 28 June 2012 (ratified by Law no. 2013-619 of 16 July 2013) and by Decrees no. 2012-1343 of 3 December 2012 and no. 2014-220 of 25 February 2014. Since 1 January 2013, the rule for the electricity sector is the auctioning of quotas, in accordance with the rules defined by Regulation (EC) 1031/2010 of 12 November 2010. Since that date, EDF has to purchase 100% of its allowances.

### GHG Reporting

Pursuant to Articles L. 229-25 and R. 229-45 *et seq.* of the French Environment Code, companies with over 500 employees must provide an annual report on their greenhouse gas emissions and a summary of the action they plan to take to reduce such emissions.

The information disclosed is made public and must be updated every three years. The first EDF report was published in the Indicators section of the EDF annual report in March 2012.

### Energy efficiency

#### Energy efficiency directive

On 25 October 2012, the European Union adopted a directive on energy efficiency (2012/27/EU). The purpose of this directive, which must be transposed by Member States before 5 June 2014, is to enable the European Union to reach its energy savings target of 20% by 2020. With this aim in mind, the directive boosts the provisions of existing directives on energy efficiency services (2006/32/EC) and cogeneration (2004/8/EC), which it abrogates.

The directive contains several provisions that are liable to impact the activities of the EDF Group, first and foremost of which is the obligation for Member States to reach an energy savings target each year that is equivalent to an aggregate annual reduction in energy sales of 1.5% over the period 2014-2020, which can take the form of an obligation for energy distributors and/or suppliers to reduce sales. The directive also contains provisions on providing customers with information on their consumption, the promotion of energy services, taking into account energy efficiency in heat and cold production, and in the transmission and distribution of energy.

Law no. 2013-619 of 16 July 2013 transposed Article 8-4 of the directive into French law, which requires enterprises that are not SMEs to perform an energy audit on their business activities in France by 5 December 2015, then every four years. Decree no. 2013-1121 of 4 December 2013 determines the thresholds above which undertakings are concerned. Those undertakings that use an energy management system will, under certain conditions, be exempted from this obligation. A future decree will state the conditions to be fulfilled by energy auditors.

#### Energy savings certificates

At national level, the energy savings certificates mechanism, which is provided for in Articles L. 221-1 *et seq.* of the French Energy Code, places energy suppliers under the obligation to save energy. This mechanism defines a three-year objective that is shared between persons subject to an obligation to achieve energy savings (the "obligors") based on their sales volumes. For the second period of the mechanism, running from 1 January 2011 to 31 December 2013, the total savings objective announced was 345 TWhc (compared to 54 TWhc for the first period). The final volume will be decided and notified to parties no later than 31 March 2014 after a certified declaration by the obligor undertakings, via a certified accountant or a statutory auditor, of the annual quantities of energy sold over the period. At the end of the relevant period and under penalty of sanctions, the obligors must produce energy savings certificates corresponding to the amount of the energy savings they are under the obligation to achieve,

obtained either by carrying out (directly or indirectly) energy savings actions or by purchasing credits from the other "eligible" economic players through the national register of certificates.

A Decree of 20 December 2013 extended the second period of the mechanism until 31 December 2014. The rate of the savings and the operating terms and conditions of the mechanism will remain the same during this period. In December 2013, the Ecology Minister announced setting the level of obligation in the third period to 220 TWhc/year.

### Registered natural sites and classified sites (buried lines)

The EDF Group is also subject to regulations on classified and protected sites, according to which electricity lines in France must be buried underground if they are located in classified sites or in national parks. These registrations and classifications can also have an impact on the day-to-day operations of facilities (if more than one site is visible at the same time; obligation to obtain the opinion of the State architect, etc.). The draft framework law on biodiversity mentioned above is also expected to alter the regulations that are applicable to registered sites.

### Protection of the environment through criminal law

Directive 2008/99/EC of 19 November 2008 on the protection of the environment through criminal law, the main purpose of which is identifying conduct that leads to serious environmental damage that must be punished by all Member States, was at the origin of French Order no. 2012-34 of 11 January 2012, which harmonised the criminal penalties laid down in the French Environment Code.

### Regulations applicable to health, hygiene and safety

#### Asbestos

In France, the regulations require, among other things, the identification of materials containing asbestos in buildings and, if necessary, monitoring procedures or asbestos removal work. EDF is also subject to regulatory obligations to inform and protect workers who may be exposed to asbestos dust inhalation.

#### Legionella

EDF operates air cooling towers needed, in particular, for its electricity generation business, which are now subject to ICPE Regulations and basic nuclear facilities ("BNF"). EDF must, among other obligations, carry out a methodical analysis of the risk of proliferation of legionella in its air cooling towers and implement a preventive maintenance plan for cleaning and disinfection. EDF is also required to carry out analyses once or twice a month, depending on the type of facility involved.

#### Nanoparticle substances

As from 1 January 2013, Articles L. 523-1 *et seq.* and R. 523-12 *et seq.* of the French Environment Code make it mandatory to report the quantities and uses of nanoparticle substances or nanomaterials produced, distributed or imported in France. Information on these substances must be made available to the public and to inspection authorities. The information to be declared and the rules governing the declaration were specified in an Order of 6 August 2012. EDF is likely to be concerned by these provisions as it uses nanoparticle substances.

#### Exposure to Electromagnetic Fields ("EMF")

Pursuant to the Grenelle 2 Law, Decree no. 2011-1697 of 1 December 2011 requires managers of public electricity transmission networks to perform regular verifications of the EMF caused by electric lines transmitting electricity.

### Chemical products

Regulation (EC) no. 1907/2006 on the registration, evaluation and authorisation of chemicals, known as "REACH", came into force on 1 June 2007 and is designed to ensure a high level of protection of human health and the environment, as well as the free movement of substances within the internal market while improving competitiveness and innovation. EDF is affected by this Regulation as a user, but also as a manufacturer and importer of chemical products. EDF has complied with its obligation to register substances that it manufactures or imports in quantities of more than 1,000 tonnes per year with the European Chemicals Agency. In May 2013, EDF registered the monochloramine that is manufactured in situ at certain nuclear plants.

In addition, on 1 September 2013 the Biocides Regulation (EU) no. 528/2012 of 22 May 2012, which repealed Directive 98/8/EC, provides for a new procedure, with an extended scope of application, of authorisations for placing on the market of biocidal products. In this new regulatory environment, EDF could be concerned as a manufacturer of monochloramine and sodium hypochlorite, due to the extension of the scope of application of this future regulation to the in situ generation of active substances. Where necessary, applications for authorisation must be prepared and filed before 2017.

### Health and the environment

Law no. 2013-316 of 16 April 2013 on the independence of expertise in the area of health, the environment and the protection of whistleblowers confirms the recognition of an alert procedure in the area of public health and the environment within businesses and lays down the rules for using this procedure. This law also organises a system to protect whistleblowers and sets up the National Commission for Ethics and Public Health and Environment Alerts ("CNDA"). The Decree no. 2014-324 of 11 March 2014 specifies the terms and conditions to implement an alert procedure within businesses.

## 6.5.6.2 Regulations applicable to EDF group facilities and activities

### 6.5.6.2.1 Regulations applicable to facilities classified for the protection of the environment ("ICPEs")

#### Facilities subject to authorisation

Certain facilities operated in France by the EDF Group, in particular fossil-fuel fired power plants, are subject to legislation on facilities that are classified for the protection of the environment ("ICPEs"), which is organised in the French Environment Code. These facilities are subject to either a prior declaration, a simplified authorisation (called "registration") or to an authorisation depending on the magnitude of danger or adverse effects they may cause to the environment or public health.

The ICPE Regulation also requires that the site be restored when a facility is taken out of service depending on the expected future use of the land. Under Article L. 516-1 of the French Environment Code, lodging financial guarantees is also required for certain ICPE facilities that are subject to the authorisation and registration system, as well as for Seveso facilities. The list of the ICPEs that will now be required to lodge financial guarantees, as from 1 July 2012 or 1 July 2017, is laid down in the schedule to an Order of 31 May 2012. The rules for determining and lodging these financial guarantees are respectively laid down by Orders of 31 May 2012 and 31 July 2012. A Decree of 5 January 2014 regulates the provision of guarantees in case of use of a private equity guarantee. The EDF Group operates facilities that are concerned by these new requirements.

Depending on the type of danger or adverse effect each category of facility could cause, the financial guarantees are designed to ensure the on-going

surveillance of the site and safety of the facilities, potential measures that must be taken in case of an accident before or after closing of the site and decontamination of the site once it has been closed. These guarantees do not cover compensation owed by the operator to third parties who may suffer damages due to pollution or an accident caused by the facilities.

ICPEs are placed under the authority of the Prefect and the Regional Directorates for the Environment, Land Planning and Housing ("DREAL"), which are responsible for organising inspections of classified facilities. If the operator of an ICPE fails to comply with the conditions for its operation, and independently of any criminal action, the Prefect may order administrative penalties, such as the deposit of an amount equal to the cost of the works to be performed to make the facilities compliant, enforcement of the measures ordered per the Prefect's Decision, suspension of operations, or even a proposal to shut down or decommission the facility by way of a decree issued by the Council of State.

#### Seveso facilities

"Seveso" ICPEs are governed by the provisions of the Seveso 2 Directive (96/82/EC) and, as from 1 June 2015, the provisions of the Seveso 3 Directive (2012/18 of 4 July 2012), which will replace it. The entry into force of the Seveso 3 Directive will result in new products (resulting from the CLP Regulation of 16 December 2008) being incorporated into the scope of the Seveso regulations.

The Seveso 3 Directive also contains stricter provisions concerning access by the public to information related to safety, public participation in the decision-making process and access to justice, as well as improvements in the way information is collected, managed, made available and shared. The Seveso 3 Directive also introduced stricter standards for facility inspections. Law no. 2013-619 of 16 July 2013 transposed the legislative portion of the directive into French law by inserting into the Environment Code (Articles L. 515-15 et seq.) a section that is specific to Seveso establishments. These provisions, complemented by two Decrees (no. 2014-285 and no. 2014-284) of 3 March 2014, will enter into force on 1 June 2015. Until that date, the existing provisions will apply, in particular the Order of 10 May 2000 on the prevention of major accidents involving dangerous substances or preparations that are present in certain categories of facilities, which, for the protection of the environment, require authorisation.

#### Industrial emissions and soil provisions

Directive 2010/75/EU of 24 November 2010 on industrial emissions (known as the "IED" Directive) revised and recast into a single piece of legislation several existing Directives, including the IPPC, LCP, Waste Incineration and VOC Directives, among others. Chapter III of this Directive affects EDF in particular as it regulates the combustion plants using fossil-fuel fired plants. The level of requirements applicable to these plants depends on the type of facilities and fuel used and, in particular, the nominal thermal power of the combustion plants concerned. This Directive has been partially transposed into French law via Order no. 2012-7 of 5 January 2012 (added to the French Environment Code under Articles L. 515-28 to L. 515-31) has the effect of broadening the scope of application of the IPPC Directive to include new activities, strengthening the application of the best available techniques ("BAT") on which the fixed emission limit values will be based, causing a periodic reconsideration of operating conditions in order to take into account changes in BAT and, in certain cases, requiring a "baseline report" on the state of soil.

Decree no. 2013-5 of 2 January 2013 partially transposed the provisions of the IED Directive on the state of soil. Article 1 of the decree states that interim analysis of the soil will now be required in the event of a substantive change of the facility and, if pollution occurs, the operator must propose measures. Another Decree of 2 May 2013 (no. 2013-374) completes this transposition: it introduced provisions into Articles R. 515-58 to R. 515-84 of the Environment Code that are specific to facilities that are covered by the IED Directive. These provisions apply to fossil-fuel fired plants. Applicatory orders are being prepared.

### 6.5.6.2.2 Specific regulations applicable to basic nuclear facilities

EDF is subject in France to Law no. 2006-686 of 13 June 2006 on transparency and safety in the nuclear field (the “TSN Law”, integrated into the French Environment Code via Order no. 2012-6 of 5 January 2012) and to Decree no. 2007-1557 of 2 November 2007, as amended, that implemented this law. This legislation establishes the legal system applicable to Basic Nuclear Facilities (“BNF”). The Law created the Nuclear Safety Authority (“NSA”), an independent government agency, with the ministers for nuclear safety retaining authority to issue the main authorisations and draft general regulations.

The TSN Law provides that the establishment of Basic Nuclear Facilities may be authorised after a public inquiry has been conducted by way of a decree issued by the Prime Minister. This decree is issued after an opinion from the French NSA has been given and is based on the report from the Ministers for nuclear safety. The decree authorising a Basic Nuclear Facility defines the identity of the operator, and records the type and capacity of the facility. The application for authorisation to set up a BNF must include, in particular, a preliminary security report (“PSR”), a study of the impact of the facility on the environment and health, a dismantling plan and a risk management study (“RMS”). An internal emergency plan (“IEP”) specifies the organisational methods, intervention methods and requisite resources implemented by the operator in the event of an emergency situation. The decree that authorises the BNF sets a time limit to commission the facility and sets the frequency of safety inspections if not equal to 10 years and, finally, lays down requirements to ensure the public health, the sanitation and the safety, and the protection of nature and the environment. The commissioning authorisation is granted by the NSA. Subsequent safety inspections assess the compliance of the facilities with the applicable regulations and update the assessment of the risks that the facility poses to the interests mentioned above.

Pursuant to the decree that authorises the facility to be set up, the conditions applicable to pumping water, discharging liquid and gaseous wastes – whether radioactive or not – as well as the related limits placed on these activities are set by an NSA decision; decisions that set the limits for discharges by facilities into the environment require approval.

The NSA also issues regulations pursuant to the decree that authorises the facility to be set up, in order to prevent or limit the effects of any accidents or incidents, to define measures to protect residents on an individual and collective basis, limit noise pollution and manage the waste generated by and stored at the facilities.

### Rules on the safety and inspection of nuclear facilities

The nuclear facilities operated by EDF are subject to nuclear safety regulations and, in this respect, must also comply with the general rules defined by ministerial decision with a view to guaranteeing the protection of public safety, health and sanitation, nature and the environment. In February 2012, the BNF order was thus published, which precisely fulfils this objective. Its provisions entered into force on 1 July 2013 and cover the following topics: the security policy, risk management, noise reduction and harmful environmental impacts, waste management, emergency situations, and information provided to the authorities and the public.

On the basis of this order, the NSA also has the authority to issue regulatory decisions of a technical nature to complete the terms and conditions for application of the decrees and orders issued in the field of nuclear safety and radiation protection. These decisions are subject to the approval of the relevant ministers. To date, out of the twenty or decisions that are being prepared, three have been published.

The TSN Law also sets up mechanisms for informing the authorities. In this respect, all accidents and incidents, whether nuclear or otherwise, that have or may have particular consequences for the security of a BNF, must be declared without delay by the operator, in particular to the NSA and to the State’s representative in the *département* where the incident or accident took

place. Moreover, the TSN Law created or improved tools used to inform the public, with, for example, the creation of a High Committee for transparency and information on nuclear safety or the possibility given to any person to ask the operator directly for information on the risks involved in exposure to ionising radiation and on the safety and radiation protection measures adopted to prevent or reduce these exposure risks.

Finally, increasingly harsh administrative and criminal law penalties have been established to punish Basic Nuclear Facilities operators who do not comply with their legal and regulatory obligations, such as a three-year prison sentence and a €150,000 fine if a Basic Nuclear Facility is operated without authorisation, or a one-year prison sentence and a €30,000 fine if radioactive substances are transported without authorisation or approval.

### Decommissioning of nuclear facilities

The final shutdown and decommissioning of a Basic Nuclear Facility are authorised by a Prime Minister’s decree that is issued after a public enquiry and an opinion by the NSA. The decree specifies, in particular, the stages of the decommissioning, how long it will last and the intended final status. Once the decommissioning has been completed, the operator must send the NSA a declassification request, which, following approved authorisation by the NSA, makes it possible to end the BNF status of the facility. The Order of 17 February 2012 confirmed, from a legal standpoint, the decommissioning strategy implemented since the early 2000s by EDF by stating that decommissioning must take place within a timeframe that is as “short as possible” after definitive shutdown.

### Radioactive waste

EDF’s business is subject to French regulations on the sustainable management of radioactive waste. EDF bears liability for the radioactive waste resulting from its operations. In France, radioactive waste is managed by the National Agency for Radioactive Waste Management (“ANDRA”), a public institution of industrial and commercial nature created by the Law of 30 December 1991.

The management method used for radioactive waste in France depends on its level of radioactivity and lifespan of radioactivity. In addition to some storage on EDF sites, very low-level waste produced by EDF (for example, concrete or metal waste from the decommissioning of a nuclear power plant) is disposed of on an ANDRA site opened in 2003. Short-life, low or intermediate-level radioactive waste that is produced by EDF’s operations is disposed of above ground at the ANDRA storage centre in the Aube *département* (see section 6.2.1.1.3.4 (“The nuclear fuel cycle and related issues”)). Long-life, high-level radioactive waste produced from the treatment of spent fuel is vitrified and stored temporarily by AREVA NC (formerly Cogema) at the La Hague site pending the adoption of a long-term management solution (see section 6.2.1.1.3.4 (“The nuclear fuel cycle and related issues”)). Long-life, intermediate-level waste (for example, from shells, nozzles, sheaths, etc.) is either cemented or compacted and confined in stainless steel containers. This type of waste is currently in intermediate, temporary storage pending a final decision concerning long-term management (see section 6.2.1.1.3.4 (“The nuclear fuel cycle and related issues”)).

The Law of 28 June 2006 defines the organisation and the financing of radioactive waste management, along with the terms for a framework to evaluate and cover the costs of decommissioning Basic Nuclear Facilities, as well as managing spent fuels and radioactive waste. In particular, the assets allocated to cover provisions cannot be used for any other purpose by the operator, and separate accounting procedures for these assets must be used. The implementation of these provisions is controlled by the administrative authority, i.e. the Minister for Energy, which is itself overseen by a National Commission for the assessment of the financing of decommissioning costs for BNFs and the management of spent fuels and radioactive waste.

Decree no. 2007-243 of 23 February 2007 on securing the financing of costs in the nuclear industry sets forth the terms and conditions for implementing the Policy Act of June 2006.



A report is filed with the administrative authorities and the NSA every three years, with a copy sent to the Statutory Auditors and includes, in particular, a valuation of the costs, the methods used for the calculation of provisions, and the composition of the assets. The administrative authorities may require any additional supporting documents, have an outside organisation conduct a study, or require an expert valuation of the assets at the operator's expense.

Council Directive 2011/70/Euratom established a Community framework for the responsible and safe management of spent fuel and radioactive waste for a certain number of European Union Member States, and clarifies several concepts that were potential sources of litigation. This Directive presents, in particular, deep geological disposal as the safest and most sustainable option to manage long-life, high-level waste and considers the possibility of creating disposal facilities shared between several Member States, on a voluntary basis.

### Regulations on radiation protection

In France, nuclear activities that present a risk of exposure of persons to ionising radiation are regulated by two separate systems, depending on the category of persons to be protected. These systems are taken from Council Directive 96/29/Euratom of 13 May 1996, known as the basic standards directive, which is adopted by the Council of the European Union.

Regulations on the basic protection of the population against such radiation, which are governed by the French Public Health Code, are derived mainly through the subordination of all nuclear activities to a declaration or authorisation. Authorisations granted to establish a Basic Nuclear Facility serve as the authorisation required under the French Public Health Code. Article R. 1333-8 of the French Public Health Code sets the maximum exposure level of the general public at 1 mSv per year.

French Regulations on the protection of workers against the dangers of ionising radiation, which are governed by the French Labour Code, lay down various obligations for employers of workers who are likely to be exposed and, in particular, set a limit on exposure of workers to ionising radiation at 20 mSv over a period of twelve consecutive months.

The French Health Code contains the provisions applicable to controlling high-level sealed radioactive sources and orphan sources.

Directive Euratom, which was adopted by the Council of the European Union on 5 December 2013 and published in the *Official Journal* of the European Union on 17 January 2014, lays down basic safety standards for protection of the population and workers against the dangers arising from exposure to ionising radiation. This directive aims to update the technical provisions of Directive 96/29/Euratom and to organise the various European texts in this field. The work to incorporate the directive into the French Public Health Code and the French Labour Code should involve the NSA, the Directorate General of Labour and the operators in the coming months.

### Civil liability of nuclear facility operators

Several international conventions govern the civil liability of nuclear facility operators, in particular the Paris Convention of 29 July 1960 on Third-Party Liability in the Field of Nuclear Energy and the Brussels Convention of 31 January 1963, which supplements the Paris Convention. These two Conventions are applicable in the signatory countries that have ratified them, including France and the United Kingdom.

The Paris Convention established a special liability derogation system, which has the following characteristics:

- damages covered: all damages to persons and property must be remedied;
- type of liability: strict liability, i.e. even in the absence of a fault committed by the operator;
- person liable: the principle of channelling liability exclusively to the operator of the nuclear facility;
- limitations of liability: the operator's liability may be limited both in terms of the amount and duration by national legislation, provided this complies with the common minimum liability amount as set under the Conventions:

- if the facility is in France, the operator's liability is limited to approximately €91.5 million per nuclear incident at a facility and to approximately €22.9 million per nuclear incident during transport. The time limit to file a claim for compensation is 10 years from the date of the incident,
- over and above the maximum amount for which the operator is liable, the State in which the nuclear facility of the operator liable for the incident is located and where the incident occurred is responsible for compensating victims up to a maximum of €201.4 million (provided that said State is a Contracting State of the Brussels Convention),
- over and above this amount, Member States that have ratified the Brussels Convention (including France) contribute collectively to compensation up to a ceiling of €345.3 million;
- financial guarantee: the operator has an obligation to contract insurance or lodge financial security up to the liability amounts established in order to guarantee the availability of funds. This insurance or financial security must be approved by the State in which the insured or guaranteed facility is located. EDF has opted for insurance and is in compliance with the current coverage requirements (see section 4.2.3 ("Insurance")).

Protocols amending the Paris and Brussels Conventions were signed on 12 February 2004. They require significantly higher amounts of compensation to be available in order to cover a greater number of victims and types of damage that are eligible for indemnification. The operator's liability is accordingly at least €700 million per nuclear incident in a facility and €80 million per nuclear incident during transport. The State in which the nuclear facility of the operator liable for causing the damages is located is liable for amounts above the €700 million for which the operator is liable, up to €1,200 million (provided that said State is a Contracting State of the Brussels Convention). Above this amount, the Contracting States of the Brussels Convention are liable up to a maximum amount of €1,500 million. In addition, for personal injury only, the time limit to claim compensation has changed from 10 years to 30 years from the date of the incident. Another important change is the introduction of a detailed definition of "nuclear damage", which includes economic loss, the cost of preventive measures, the costs of measures of reinstatement of an impaired environment, and certain other losses resulting from damage to the environment. Finally, the amending Protocols provide that exemptions of an operator's liability are limited to cases of armed conflict, hostilities, civil war or insurrection (natural disasters no longer entitle the operator to an exemption).

These new provisions were transposed into French law in the above-mentioned TSN Law of 13 June 2006. However, these provisions will only be applicable when the protocol that amends the Paris Convention comes into force, i.e. when at least two-thirds of the sixteen Contracting States have ratified them. Moreover, the thirteen Member States of the European Union are required to file their ratification instruments simultaneously. As of 31 December 2012, thirteen States, of which ten from the European Union out of sixteen, have transposed the provisions of the Protocols into their national laws and are ready to file their ratification instruments. France has adopted a law permitting ratification of both Protocols (Law no. 2006-786 of 5 July 2006), but has not yet filed the corresponding ratification instruments.

Even so, at a meeting held 8 February 2012, the French Nuclear Policy Council requested that the Government present a bill to the Council of Ministers for a new law aimed at increasing the ceilings of compensation in the event of an incident, without waiting for the Protocols amending the Paris and Brussels Conventions to come into force. On 21 March 2012, the Prime Minister presented a bill to ratify Order no. 2012-6 of 5 January 2012 that amends the French Environment Code, the French Public Health Code and the French Defence Code. The order for which ratification is proposed added to the French Environment Code all the provisions on transparency, safety, waste management and civil liability in the field of nuclear activities. As requested by the Nuclear Policy Council, the bill increases the cap on compensation in the event of a nuclear accident from €91.5 to €700 million.

Moreover, on 28 March 2012, the Minister for Foreign and European Affairs presented a bill authorising approval of the joint protocol on the application of the Vienna Convention and the Paris Convention. This joint



protocol establishes a link between the Paris Convention, which covers countries in Western Europe, and the Vienna Convention of 21 May 1963 on civil liability for nuclear damage, which covers (among others) countries in Eastern Europe. It enables the parties to one of these two conventions (Paris or Vienna) who adhere to the protocol to benefit from the coverage provided by the other convention. The Senate approved this bill on 17 April 2013. It is now awaiting a reading before the National Assembly.

### Protection of nuclear facilities and material

The purpose of the regulations on the protection and control of nuclear material governed by Article L 1333-1 of the French Defence Code is to detect and prevent the loss, theft or misappropriation of nuclear material that is stored at facilities or being transported, or any attempts to alter, damage or disperse such material.

These regulations were completely recast by Decree no. 2009-1120 of 17 September 2009 on the protection and control of nuclear material, facilities and transportation, as set forth in the French Defence Code. The main purpose of this decree was to extend the protection of nuclear material to the facilities where it is stored. Several orders published in 2011 detail operators' obligations.

For nuclear power plants, the Order of 10 June 2011 is based on in-depth defence of targets, namely nuclear material, the equipment or functions, which, in the event of default or damage by a malicious act, are liable to have radiological consequences. Accordingly, the operator must set up several lines of protection in the form of six zones (e.g. access control zones, vital zone, internal zone, etc.).

The Order of 10 June 2011 on the physical protection of facilities that house nuclear material, for which storage requires an authorisation, carries a certain number of obligations for operators, with which compliance is required by 6 July 2016 at the latest.

The Order of 9 June 2011 develops the system for physically monitoring nuclear material, as well as the accounting conditions for nuclear material and operator obligations. Accordingly, operators must ensure that the physical monitoring and accounting are protected against the malicious actions identified when the authorisation is issued.

### 6.5.6.2.3 Regulations applicable to fossil-fuel fired energy generation

The EDF Group's fossil-fired energy generation business is subject in France to the Regulations applicable to ICPEs (see section 6.5.6.2.1 ("Regulations applicable to facilities classified for the protection of the environment ('ICPEs')")). EDF's fossil-fuel fired facilities must also comply with specific regulations on air quality, adopted mainly as a result of European Directive 2001/81/EC of 23 October 2001 on national emission ceilings for certain atmospheric pollutants ("NEC Directive"), and Directive 2001/80/EC of 23 October 2001 on the limitation of emissions of certain pollutants into the air from large combustion plants ("LCP" Directive). These directives were transposed into French law by several orders, in particular the Order of 30 July 2003 on boilers that are present in existing combustion facilities with a power rating of more than 20 Mwth.

Exemptions to obligations concerning emissions into the air are possible up until 2015. As of that time, the ceilings and the exemptions originating from the IED Directive mentioned above will apply, with, in particular, specific issues concerning production facilities in the overseas departments and emergency systems, for which the pollution levels require negotiating adapted provisions. Two orders of 26 August 2013, which entered into force on 1 January 2014, bring together all the provisions that are applicable to combustion facilities and specify the conditions under which these facilities will be allowed to exceed emissions limits.

Fossil-fired energy production is also subject to the provisions of the Seveso 2 and 3 Directives and to the obligation to lodge financial guarantees (see section 6.5.6.2.1 ("Regulations applicable to facilities classified for the protection of the environment ('ICPEs')")).

### 6.5.6.2.4 Regulations applicable to hydropower facilities

In France, hydropower facilities are subject to the provisions contained in Articles L. 511-1 *et seq.* of the Energy Code. They require a concession agreement granted by decree (for facilities generating over 100MW) or by order of the Prefect (for facilities generating between 4.5MW and 100MW), or an authorisation from the Prefecture (for facilities under 4.5MW), (see section 6.2.1.1.4.4 ("Issues relating to hydropower generation") concerning hydropower concessions).

EDF's hydropower generation business is subject to the substantive provisions of water regulations. Such regulations cover in particular control over variations in water levels and flow rates, the safety of areas in the vicinity and downstream of hydropower facilities and, in general, maintaining balanced management of water resources (see section 6.5.6.1 ("Basic regulations applicable to the environment, health, hygiene and safety")).

### Conditions applicable to reviewing of bids to set up or renew hydropower concessions

Decree no. 94-894 of 13 October 1994, as amended by Decree no. 2008-1009 of 26 September 2008, specifies the conditions for the awarding or renewal of a hydropower concession. This decree, which at present places concessions within the legal framework for public service delegation contracts, provides for a public bidding procedure for concessions that are about to end. The former preferential right of the outgoing operator was eliminated as it was not compatible with the law derived from Community Treaties.

When a hydropower concession is renewed, an annual concession fee indexed to the revenues generated from sales of electricity produced by the hydropower facilities under concession will be levied, which is paid in part to the French State and in part to the French *départements* and municipalities through which the waterways used flow. The Grenelle 1 Law provided for the possibility of capping the amount of this fee above the current threshold of 25% of the aforementioned revenues. The Grenelle 2 Law provides for a cap to be set by the contracting authority on a case-by-case basis, for each new or renewed concession. To date, the decree has set three criteria for the choice of the future operator: a guarantee of the energy efficiency in the operation of the waterfall, respect for balanced management of water resources and better economic and financial conditions for the contracting authority. The new procedure to appoint operators now lasts for five years (compared to eleven years previously).

### 6.5.6.2.5 Regulations applicable to renewable energy generation

The "Climate Package" is the source of a set of measures aimed at ensuring that, by 2020, the EU will achieve the objectives of a 20% reduction of greenhouse gas emissions ("GHG"), a 20% improvement in energy efficiency and a 20% portion of renewable energy ("REN") in energy consumption.

One of the five instruments that make up the Climate Package is Directive 2009/28/EC of 23 April 2009 on the promotion of the use of energy from renewable sources, known as the "REN Directive". The Directive allocates the effort to reach the 20% EU target of energy from renewable sources by 2020 among Member States, taking into account, among other aspects, the national energy mix, the potential of each State and its GDP, and requires Member States to adopt national renewable energy action plans.

Pursuant to Article 4 of the aforementioned REN Directive, France adopted its National Action Plan in favour of renewable energies (2009-2020). This Plan covers the objectives contained in the Multi-annual Investment Programme ("PPI") and lays down, in accordance with the Grenelle Law, a national objective of renewable energy production at 23% of the gross final consumption of energy by 2020.

In order to achieve this objective, the Grenelle 2 Law created new land planning instruments with a view to enabling balance development between the various renewable energy sectors, which include:

- regional climate, air and energy schemes ("SRCAE"), for which the legal framework is laid down in Articles L. 222-1 to L. 222-3 and R. 222-1 to R. 222-7 of the French Environment Code. Almost all regions have adopted their SRCAE;
- regional schemes for connection to renewable energy networks ("S3RER"), including Decree no. 2012-533 of 20 April 2012, which specifies the composition, approval rules, host capacity management and financial conditions for the connection of electricity producers.

Under Article 15 of the REN Directive, an Order of 14 September 2011 (ratified by Law no. 2013-619 of 16 July 2013) amended the legal rules on the guarantee of origin of electricity produced using renewable sources or by cogeneration, laid down in Articles L. 314-14 *et seq.* of the French Energy Code. The terms and conditions to implement this new scheme and the rules for appointing the organisation in charge of managing guarantees of origin (issuing, transfer, cancellation) are stipulated in Decree no. 2012-62 of 20 January 2012. As mandatory producer and purchaser of electricity produced using renewable energies (hydroelectricity), the EDF Group is concerned by these provisions.

The Grenelle 2 Law also contains more favourable provisions for sea-based renewable energies:

- exemption from all urban planning procedures for facilities located off shore "on the public maritime domain which are underwater below the low tidemark", provided that their characteristics are included in a forthcoming decree (Article L. 421-5 of the French Urban Planning Code);
- derogation allowing structures to connect marine facilities using renewable energies to public networks to transmit and distribute electricity along coastal areas (and more specifically a 100-metre zone – Article L. 146-4 III of the French Urban Planning Code).

### 6.5.6.2.6 Regulations specific to the generation of wind power

Pursuant to Articles R. 421-1 and R. 421-2 of the French Urban Planning Code, a building permit must be obtained for land wind farms with a height equal to or greater than 12 metres. The construction of wind farms on the public maritime domain is exempted from the requirement for a building permit, in accordance with Article R. 421-8-1 of the French Urban Planning Code.

In addition, the Grenelle 2 Law provides that land wind power farms are now subject to the nomenclature applicable to ICPEs with the legal system of authorisation or declaration (see section 6.5.6.2.1 ("Regulations applicable to classified facilities for the protection of the environment ('ICPEs')")) under item 2980 "Terrestrial facilities for the generation of electricity using mechanical wind energy with one or several wind-power generators". In connection with the application for a building permit, an impact study must be done for wind power farms subject to authorisation and submitted with the authorisation file. A distance of 500 metres between the facilities and buildings used as housing, inhabited buildings and areas intended for housing is required for the operating authorisation to be issued.

The operator of a wind farm, or in the event of default, the parent company, is responsible for decommissioning the farm and site restoration, as soon as operation is terminated for any reason (Articles L. 553-3 and R. 553-1 of the French Environment Code). For this purpose, the operator is required to lodge financial guarantees as of the start-up of production and for subsequent accounting periods.

## 6.5.7 Regulations on the wholesale energy market

Inspired by the rules contained in Directive 2003/6/EC on market abuse applicable to financial markets (see section 16.5 ("Stock Exchange Ethics Code")), Regulation (EU) no. 1227/2011, known as the "REMIT" Regulation on wholesale energy market integrity and transparency came into force on 28 December 2011. This Regulation is aimed at preventing market abuse and manipulation on wholesale energy markets and strengthening the confidence of market participants and consumers.

Strengthening wholesale energy market integrity and transparency must foster open and fair competition on these markets, in particular so that prices set on these markets reflect a fair and competitive interplay between supply and demand. The Regulation prohibits insider trading and market manipulation and establishes an obligation to publish inside information as defined in the REMIT.

The European Agency for the Cooperation of Energy Regulators ("ACER") is responsible for monitoring wholesale trades in energy products, in order to detect and prevent transactions based on inside information and market manipulations.

ACER also collects the data needed to assess and monitor markets, inasmuch as the regulation provides that market participants, or a person empowered to do so on their behalf, must supply ACER with a detailed statement of wholesale energy market transactions.

Lastly, market participants that perform transactions for which a declaration to ACER is mandatory must register with the national regulatory authority of the Member State in which they are established (the CRE in France) or, if they are not established in the European Union, that of a Member State in which they do business.

## 6.5.8 Principal planned regulations that are likely to have an impact on the EDF Group's business

Several planned regulations, both at community level and in France, are being drafted which could have a significant impact on the EDF Group's business.

### 6.5.8.1 Future regulations at community level

#### Regulations on service concessions

The European directive on the award of works and services concession contracts has been finally approved by the European Parliament and was adopted by the Council of the European Union on 26 February 2014 and published in the *Official Journal of the European Union* on 28 March 2014. This directive has been conceived as an autonomous piece of legislation, quite separate from the market directives although it refers to a number of the same concepts.

The directive does not provide for any sector-specific exemptions for the sectors covered by Directives 2009/72/EC and 2009/73/EC, but certain *ad hoc* provisions allow concession contracts for the distribution and supply of electricity at regulated sales tariffs to remain outside of the scope of the mandatory competitive procurement process. The impact on the legal system applicable to hydropower concessions, which is currently governed by the Sapin Act on public service delegation contracts, should be limited, except with regard to the possibilities of upratings under the 2005 POPE Act.

The Member States will have until 18 April 2016 to transpose the Directive.

## Environment

### Seventh Environment Action Programme ("EAP")

The Seventh Environment Action Programme ("EAP"), which was adopted by a decision of the European Parliament and Council on 20 November 2013 and published in the *Official Journal* of the European Union on 28 December 2013 will guide European Union environmental policy until 2020. It defines nine priority objectives, which include protecting nature and improving ecological resilience, protection against health threats that are linked to the environment and the promotion of sustainable growth, effectiveness in the use of resources and low carbon emissions.

### Environmental evaluation

On 26 October 2012 the European Commission presented a proposed directive to amend the directive on impact studies (Directive 85/337/EC of 27 June 1985, as amended by Directive 2011/92/EU of 13 December 2011, published in the *Official Journal* of the European Union on 28 January 2012). The amendments made are liable to impact the authorisation procedures that are applicable to EDF Group projects.

## 6.5.8.2 Future regulations at national level

### Measures to simplify and make corporate life safer

The Law of 2 January 2014, which empowered the government to simplify and make corporate life safer, authorised the government to issue an order, within 8 months of the law being published, containing "all measures within the scope of the law, regarding the governance of public companies and the rules of equity transactions for these businesses.

The adoption of this order is liable to have major consequences for the governance of public institutions, and in particular the governance of EDF and the companies in its Group.

### Measures announced as part of the 2012 and 2013 environmental conferences

During the 2012 and 2013 "Environmental Conferences", the French government announced a series of measures that could have a major impact on the activities of the EDF Group. These include:

- the adoption in 2014 of a law on energy transition. According to the commented plan for the energy transition policy bill that was made public on 10 December 2013 by the Minister for Ecology, Sustainable Development and Energy, the law contains five sections that are respectively devoted to the definition of energy transition goals, transition tools and governance, control over energy demand and efficiency, the development of renewable energies and nuclear energy.
- the adoption, also in 2014, of a framework law on "biodiversity";
- a reform of ecological tax law;
- a reform of environment law, started as part of the General Assembly on the Modernisation of Environment Law and carried out by the government, with the support of the Specialised Commission on the Modernisation of the Environment Law implemented with the National Ecological Transition Council ("CNTE").

### Compensation of ecological damage

Following the decision of the French Supreme Court on 25 September 2012 in the case of the ship Erika, the Justice Minister announced that a bill would be brought before Parliament by the end of 2014 that will introduce a scheme for the compensation of ecological damage under civil law rules.

## 6.6 Corporate responsibility

This section includes information that the EDF Group is required to publish in accordance with the Article L. 225-102-1 of the Commercial Code and the Decree of 24 April 2012 implementing the Grenelle 2 Law, which require companies to disclose how they take into account the social and environmental consequences of their activities and social commitments in favour of sustainable development. Social information are presented in Chapter 17 ("Employees – Human Resources").

Environmental and social information presented in section 6.6 ("Corporate responsibility") are complemented by sustainable development indicators presented in Appendix E of this reference document, as well as the assurance report of the Statutory Auditors.

With its core values of respect, responsibility and solidarity for excellence underpinned by integrity, ever since it was formed the EDF group has applied a strategy that focuses on the public interest and is founded on a corporate responsibility approach.

This is reflected in EDF's constant concern for the safety of people, the security of its industrial facilities, and protection of the environment, while contributing to secure supplies of quality electricity at a competitive price in each country where the Group does business.

The EDF group's policies are part of this corporate responsibility approach:

- the Group strategy to 2020, as presented at the 2011 General Shareholders' Meeting;
- the Group-level sustainable development policy signed by all principal Group companies in 2009;
- the EDF group's corporate social responsibility commitments presented at the 2013 General Shareholders' Meeting;
- a global approach to Human Resources and social matters called "*Vision RH 2020*", consisting of Group policies on diversity, career equality, disability, etc. and through a worldwide Corporate Social Responsibility ("CSR") agreement signed with the union organisations of 16 Group companies;
- a Group charter of ethics, validated in 2013.

### 6.6.1 Corporate Social Responsibility Commitments

The Corporate responsibility commitments are intended to give EDF group companies a common focus on eleven shared objectives with associated measurement and monitoring indicators, to generate more value and global performance efficiency. These objectives draw together the Group's various corporate responsibility policies and approaches (its sustainable development policy, *Vision RH 2020*, responsible purchasing policy, etc.) and are the outcome of a 2-year preparation process with the Group's business lines and companies, involving extensive consultation with employees and managers through interviews and working groups.

They cover three areas: responsible industrial operator, responsible employer and responsible partner.

#### Responsible industrial operator

EDF's responsibility primarily concerns the way it does its business as generator and supplier of a highly specific commodity, electricity, which is essential

for the human and economic development of the planet. As the world's number one nuclear power operator, it exercises its activity with all due attention to safety, guided by the sense of the public interest. Participating in the fight against climate change is a duty.

This translates as follows into all Group companies: giving priority to low-carbon energies, investing for greater competitiveness in renewable energies and emphasising contribution of its skills to reinforce control over energy loss from homes, in viable economic conditions for its customers.

#### Commitments in this area:

- maintaining top levels of safety in its installations;
- remaining the best of the major energy operators in development on low-carbon energies;
- investing in renewable energies and reinforcing their competitiveness;
- contributing significantly to improving household energy efficiency.

#### Responsible employer

In a fast-changing environment, the human dimension is more central than ever to EDF's strategic plan. It is the cornerstone of Group performance. Health and safety for both employees and subcontractors is an absolute priority.

To deal with its industrial issues, EDF must remain a top-level employer that sets a standard for professionalism and employee motivation, by developing their skills and diversity in their profiles. The Group applies its values wherever it operates, demanding integrity and respect for fundamental rights.

#### Commitments in this area:

- proactively reducing work-related accidents for employees and subcontractors;
- maintaining professional excellence and effective performance by its teams, through training and promotion of diversity;
- refusing to tolerate any violation of human rights, fraud or corruption in all Group companies and also at suppliers.

#### Responsible partner

Because energy questions concern everyone, because the electricity produced transforms people's lives and also modifies their environments, the EDF group is involved in dialogue with stakeholders at all levels.

Its priorities are to reinforce transparency on subjects of interest to civilian society, create economic value wherever the Group has establishments, preserve and share water resources because it is vital for EDF's business and the life of its fellow citizens, and step up action against energy poverty which is on the rise in this time of crisis.

#### Commitments in this area:

- foster transparency and dialogue on sensitive subjects;
- contribute to local development through employment;
- take action to fight energy poverty and promote access to electricity;
- preserve water resources in all its activities.



## Results of the indicators of Corporate Social Responsibility Commitments

### Responsible industrial operator

	Unit	2013	2012	2011
<b>Maintaining the highest levels of security in Group installations</b>				
Meet the international FTSE4Good criteria for nuclear safety	Remaining	Inclusion	–	
<b>Remaining the best among major energy providers in the development of low-carbon energy</b>				
Keep direct CO <sub>2</sub> emissions of the Group within the 150g/kWh limit <sup>(1)</sup>	g/kWh	116.3	117.0	99.6
<b>Investing in renewables and increasing their competitiveness</b>				
EDF Group installed capacity from renewable energies <sup>(1)</sup>	MWe			
Hydropower	MWe	21,982	21,933	21,417
Wind	MWe	4,782	4,345	3,231
Solar	MWe	555	428	353
Other renewables	MWe	617	266	314
<b>Significantly contributing to the improvement of energy efficiency within households</b>				
Number of households supported by Group companies in terms of energy efficiency:	Number			
EDF	Number	328,800	303,300	248,900
EDF Energy	Number	53,400 <sup>(2)</sup>	212,000	168,000
Électricité de Strasbourg	Number	1,960	1,800	1,500

(1) Change in the method of consolidation of three international subsidiaries (Edison, Kogeneracja and Zielona Gora) from a proportional integration in 2011, to a full consolidation in 2012.

(2) Downgrade of 74.8% due to a new legislation at the beginning of the year 2013 in the United Kingdom. The amounts dedicated to housing works remain equivalent and concern more significant measures.

### Responsible employer

	Unit	2013	2012	2011
<b>Resolutely reducing workplace accidents among our employees and our subcontractors</b>				
Halve the lost-time accident frequency rate for Group employees within five years (objective 2017: 1.9)		3.1	3.8	3.9
<b>Preserving the professional excellence and performance of its employees through training and promoting diversity</b>				
Over 75% of Group employees receive at least one training session, each year	%	85	82	76
30% of the pool of potential future top executives have to be women by 2015	%	25	24.1	–
<b>Refusing to tolerate any violation of human rights, fraud or corruption in any of its companies or among our suppliers</b>				
13 companies will include an Ethics/Sustainable development clause in their purchasing contracts <sup>(1)</sup> by 2015	Number	8	3	–
13 companies will meet the requirements of United Nations Global Compact Advanced Level by 2017	Number	2	1	–

(1) Excluding energy purchases on the SPOT market.

## Responsible partner

	Unit	2013	2012	2011
<b>Promoting transparency and dialogue on sensitive issues</b>				
8 companies will set up a formal space for stakeholders dialogue by 2015	Number	3	3	-
<b>Contributing to the development of territories through employment</b>				
Number of direct jobs (Group employees) and indirect jobs (related to orders to suppliers and service providers) generated by EDF Group business activities	Number			
Direct jobs <sup>(1)</sup>	Number	158,467		-
Indirect jobs <sup>(2)</sup>	Number	475,498		-
<b>Proactively fighting energy poverty and promoting access to electricity</b>				
Number of actions <sup>(3)</sup> to support our customers in need carried out by Group companies supplying electricity				
EDF	Number	804,300	625,000	516,900
EDF Energy	Number	233,000	190,000	132,000
EDF Luminus <sup>(4)</sup>	Number	39,207	36,557	35,826
EDF Demasz	Number	1,870	2,000	2,000
<b>Preserving water resources in all our activities</b>				
Publication, starting in 2015, of the "water footprint" at Group level		<sup>(5)</sup>	-	-

(1) Consolidated data.

(2) Application of an auditing method for the first year, local Footprint. The indicator is calculated excluding uranium and real estate purchases, and including EDF, ERDF, EDF Energy, EDF Polska, Edison, EDF Luminus, EDF Énergies Nouvelles and Électricité de Strasbourg.

(3) Energy guidance advice, negotiated payment plans, grant of financial aid, etc.

(4) Data for 2011 and 2012 corrected following the retrospective adjustment of the calculation methodology defined by the Group.

(5) Since 2013, EDF has led the development of a tool to assess the impact of the combined energy sector on water. This tool is intended for use worldwide and it is being developed in conjunction with the scientific community and international authorities representing the coal, nuclear, hydrocarbon and renewable energy sectors.

## 6.6.2 Sustainable development policy

The Group's Sustainable development policy combines respect for the environment, societal responsibility and governance, and enables Group companies to place their actions in a shared framework of coherence. This policy is designed to meet three challenges and assign three commitments to each one.

- Fighting climate change and protect biodiversity.
  - remain the lowest carbon emitting group of all the major European energy utilities;
  - adapt its generation fleet and its customer offers to promote climate protection;
  - reduce its environmental impact, especially on biodiversity.
- Improving access to energy and developing close links with local communities, where EDF works.
  - promote access to energy and energy efficiency;
  - develop and sustain links with local communities;
  - support education on energy-related issues.
- Contributing to the debate through dialogue, information, and communication.
  - continue with all stakeholders to implement the sustainable development policy and share values inside the Group;
  - communicate and report on its initiatives and results in this area.
  - contribute to the debate on sustainable development at both a national and international level.

In 2014, the EDF group expects to renew its sustainable development policy to incorporate changes in context (energy markets, societal issues, environmental situation, etc.), reassess society's demands and strengthen its positions on subjects that have become real key issues in business today, chief among them being biodiversity, water, energy efficiency, local development and energy poverty.

### 6.6.2.1 Governance of sustainable development

Governance of sustainable development takes place through the following organisations, systems and monitoring bodies:

- a Group Sustainable Development Department, whose task is to coordinate and support actions by EDF departments and Group companies to meet its commitments under the sustainable development policy, and report on those actions. The sustainable development department has three levers: dialogue with stakeholders, support for sustainable development in projects, and management of sustainable development inside the Group;
- a Group Sustainable Development Committee made up of the heads of sustainable development from the principal Group subsidiaries and divisions. While respecting the independence of each Group entity, the Committee's task is to supervise implementation of the Group's sustainable development policy and coordinate actions associated with the Group's ISO 14001 certification, as well as to develop sharing of experiences and best practices between its entities. This Committee held three meetings in 2013, mainly to examine the adjustments necessary to the Group's current sustainable development policy in the light of new situations, share development of the Group's new corporate responsibility commitments, monitor progress on the rollout of the Group's charter of ethics, begin thinking on water resources and the Group's related commitments, and discuss the sustainability of developing a biomass policy;

- an environmental management system ("EMS") that is used in all entities (see section 6.6.3.1.1 ("Organisation and ISO 14001 certification"));
- project screening: projects must be approved by the COMEX's Commitments Committee. Before being submitted to this committee, the Group's major investment projects undergo an assessment of their exposure to the risk of "non-achievement of sustainable development commitment".

### 6.6.2.2 Awareness and training in sustainable development for managers and employees

One of the objectives of the Group's sustainable development policy is awareness-raising and training of personnel on environmental issues.

The ISO 14001 certification process followed by the Group over the last decade is also encouraging it to maintain and develop employee skills in environmental and sustainable development matters.

#### 6.6.2.2.1 Raising sustainable development awareness in managers and employees

In 2013, EDF and the other Group companies continued their programme to raise managers' and employees' awareness and consideration of sustainable development issues, essentially via:

- the sustainable development community, an intranet system to raise awareness of stakeholders' expectations and the environmental and societal challenges in the energy sector;
- systematically making purchasers aware of the issue of social integration through economic activity;
- a short film made to tackle preconceived ideas about services provided by firms in the protected and special work sector, to be shown to the Group's purchasers.

Every company also has its own specific operations, some examples being:

- continuation of EDF's "responsible purchasing" project in France, to encourage all purchasers to include environmental and societal components in the procurement contracts; 14 new training sessions were held in 2013;
- organisation of the third EDF – ERDF inter-business line waste reduction competition named "*Ça déborde, à vous de jouer*" for the ADEME's<sup>1</sup> European week on waste (109 projects were presented);
- awareness-raising modules are made available to EDF employees in the form of e-learning (a quiz on "Introduction to sustainable development" and another on "HR and sustainable development");
- inclusion of two sustainable development criteria in calculation of EDF's employee profit share. 40% of employee profit share is linked to achievement of these criteria, one concerning the recycling rate for waste managed by EDF, and the other concerning the proportion of employees who followed at least one training course during the year.
- at EDF Energy, introduction of a Company Incentive Plan ("CIP") that includes employee profit share criteria based on the degree to which the company's economic, environmental and social performance commitments are kept;
- raising awareness of all new recruits on EDF Energy's sustainable development challenges through the "EDF Energy & me" programme;

- at EDF Luminus, management-led training sessions to raise employee awareness of the ecological footprint and water savings (900 hours of training given);
- organisation of environmentally-themes courses by Edison in Italy (2,800 hours, 309 employees concerned in 2013);
- continuation of an employee awareness programme on health, safety and the environment by Nam Theun Power Company in Laos (262 employees in 2013; more than 900 employees have attended in three years).

#### 6.6.2.2.2 Sustainable development training for managers and employees

In France, EDF has reviewed its training focuses and created a "sustainable development" section to increase incorporation of sustainable development into the business lines' training plans. Meanwhile, a single catalogue of courses in sustainable development has been redesigned in connection with the major issues defined by the Sustainable Development Division: dialogue with stakeholders, calculation of the water footprint, regulation of biodiversity, waste management, and control of environmental chemical risks. The main actions concerned the following:

- rollout of the project management standards, along with their own local diagnosis system and the Durabilis methodology, to help managers develop action plans for sustainable development and more clearly identify the stakeholders concerned by their project, the project's consequences for local employment, and the biodiversity impacts. The Durabilis methodology was rolled out as part of the "Developing and monitoring a project" programme and through the "project management" community created for the purpose on the intranet in 2013;
- development after feedback of a new version of the "Purchasing and sustainable development" training accessible to all purchasers (364 hours of training given in 2013); this complements the "responsible purchasing" module followed by all new purchasers (2,485 hours of training given in 2013);
- creation of a new 4-day training in management and optimisation of industrial waste for employees in the generation activity, attended by 100 people in 2013;
- inclusion of a biodiversity component in the environmental training module, which is compulsory for all people joining the nuclear engineering departments.

ERDF added to its range of training on consideration of stakeholders by holding a seminar in 2013 on the theme of "Sharing our achievements and building our projects together", which was attended by most of the project leaders in urban renovation; the company also created a specific training for the same audience on the theme of "Urban regeneration: issues and actors".

EDF Énergies Nouvelles gave 30% of its French workforce training in environmental management, environmental safety, and the European directive 2004/17/EC on the procedures for contracts aiming to contribute to environmental protection and promotion of sustainable development. All new arrivals in the company in France have been trained in sustainable development issues and environmentally-friendly practices as part of their integration procedure.

Internationally, 150 employees of EDF Polska and 1,395 employees of EDF Démász attended training courses on environmental protection and sustainable development in 2013. All new personnel joining EDF Energy were evaluated on their knowledge of the company's environmental and societal commitments, following the compulsory Sustainable Steps course they receive on their arrival.

(1) French environment and energy management agency.

## 6.6.3 Environmental information

### 6.6.3.1 Environmental matters

#### 6.6.3.1.1 Organisation and ISO 14001 certification

The environmental management system ("EMS") coordinates initiatives, objectives and indicators at Group level according to the environmental commitments in the Group's sustainable development policy, through action by a Group Sustainable Development Committee, an environmental supervisory Board for EDF and groups focusing on specific themes.

The EDF group has held ISO 14001 certification since 2012. In 2013, the certified scope accounts for 95% of the consolidated sales revenues of EDF and of its subsidiaries and associates.

In June 2013, the independent certification body AFNOR awarded the Group a new ISO 14001 certification including new certified sites at EDF Trading, Sloe Centrale and Electricité de Strasbourg.

The AFNOR audit noted that the EDF group's Corporate Social Responsibility commitments reinforced the perspective and propensity for committed environmental action.

In France, the environmental management programme ("EMI") updated and validated when the SME was reviewed by the environmental Supervisory Board on 20 March 2013, aims to consolidate the environmental initiatives in order to achieve the targets set in EDF's sustainable development policy.

The most significant actions are the following:

- continuing to reduce the Group's CO<sub>2</sub> emissions by improving nuclear fleet availability and adjusting the energy mix (developing renewable energies and commissioning new generation units);
- incorporating the requirements of the new regulations into the business lines (EPR, Basic Nuclear Facility decision, etc);
- controlling incident-free radioactive waste management and complying with authorised discharge levels;
- continuing to prepare biodiversity guides and preparing for EDF's membership of the French National Biodiversity Strategy (see section 6.6.3.6 ("Preserving biodiversity"));
- improving management and recycling of non-nuclear waste, in particular reducing site waste at the point of production;
- screening sustainable development criteria for investment, development and maintenance projects for industrial installations;
- maintaining the good level of employment and management awareness (communication and training);
- giving greater recognition to employees' efforts to achieve targets;
- improving organisation further, ensuring that activities are in compliance with regulations (renovation of the monitoring mechanism).

At the Group level, at the annual review of the EMS in June 2013, the members of the Sustainable Development Committee defined the following major orientations:

- continued integration of certified companies into the Group's ISO 14001 certification;

- implementation of Group commitments regarding water (see section 6.6.3.4.2 ("Management of water resources")) with the support of a dedicated international working party;
- presenting analysis of the water theme to the Group's decision-making bodies, to increase understanding of the risks and opportunities;
- analysing each Group entity's approach to the European REACH directive<sup>1</sup>.

#### 6.6.3.1.2 Oversight of environmental risks

Risk mapping and assessment of risk control levels, including EDF's environmental risks, are carried out by the Group's Risk Control Division, in relation with all Group subsidiaries and entities.

The 2013 update highlighted a gradual tightening of the regulations, generating potential risks of non-compliance, and also showed that the risks related to use of chemicals are falling due to elimination of certain substances (PCBs and replacement of chemicals).

As in 2012, financially and economically, the most significant factors associated with environmental risks relate to:

- deployment of energy efficiency actions and achieving the associated certificates;
- impacts of EDF businesses on the air, water and ground quality and waste production;
- protection of biodiversity and the services rendered by eco-systems;
- management of water resources;
- greenhouse gas emissions.

These risks are fully integrated into EDF's environmental management system and the Group's internal control system, and are covered by action plans resulting from the orientations laid down in the Group's Sustainable Development policy.

#### Resources devoted to preventing risk and pollution

To control the risks of industrial accidents with potential consequences for the natural environment and/or public health, EDF carries out:

- an active investment policy and programme for decommissioning of industrial assets now shut down, which involved depollution operations<sup>2</sup>;
- a programme of employee training and awareness-raising of all stakeholders;
- inspections and audits of generation sites (see sections 6.6.3.2.1 ("Nuclear safety") and 6.6.3.2.2 ("Hydropower safety"))
- crisis drill exercises; in 2013 in France, in addition to the regular local exercises on each nuclear site, 13 national exercises (including 5 conducted together with the French authorities) took place at the 19 French nuclear power plants. At international level, the companies regularly test their procedures through crisis exercises; in 2013, EDF Energy conducted an exercise on the construction site for the new Hinkley Point C power plant;
- a Group environmental management system, which is constantly maintained and improved in the entities and on the sites, with external ISO 14001 certification audits.

1. The European Union (UE) introduced the REACH regulation for registration, evaluation, authorisation and restriction of chemical substances and set up a European chemicals agency.

2. These depollution operations may concern contamination and alteration dating from before EDF's became the operator.



### 6.6.3.1.3 Environmental incidents

Each operational unit and company in the Group identifies potential events with major environmental impacts, manages the emergencies that may result and carries out the corresponding crisis drill exercises, with its own monitoring system and reporting on the environmental events under its responsibility.

Such events are of minor importance and generally relate to operating problems such as low-volume, localised hydrocarbon spills, dust emissions in the air, legacy ground pollution, and changes in water flow downstream of hydropower facilities.

Each event is analysed individually, and the necessary corrective action to prevent recurrence is defined based on an overall review using the ISO 14001 certified management system.

The incidents arising in 2013 had no major environmental or health impact. They principally concerned hydrocarbon or acid leaks or discharge, and were all brought under using the applicable emergency procedures.

Some of these incidents are followed by litigation after formal action is taken with the legal authorities by NGOs, particularly *Sortir du Nucléaire*. Two court rulings against EDF were issued in France in 2013. Action plans have been introduced in the operating units to ensure better containment of products.

There were no major significant environmental events<sup>1</sup> in 2013.

### 6.6.3.1.4 Environmental research and development

With its forward-looking action for the medium and long term, EDF group R&D is preparing for change in the Group's activities in liaison with its member companies, and rising to its environmental challenges. In France, EDF devotes more than 20% of its R&D budget to environmental concerns. One third of the budget is used to plan for industrial technological innovations, and the R&D teams also initiate other forms of collaborative research, especially with the Ademe and the Institute for excellence in low-carbon energies (*Institut d'excellence pour les énergies décarbonées* – "IEED").

EDF is also a partner in four venture capital funds for clean technologies, including Electranova Capital, endowed with a minimum investment capacity of €60 million, including €30 million contributed by EDF (see section 11.1 ("R&D organisation and key figures")). In 2013, the fund made two new investments: in the French company Forsee (development of energy storage solutions) and the American startup Enlighted (a specialist in energy optimisation for buildings).

The three major R&D priorities focus on the following themes (see section 11.2 ("R&D priorities")):

- consolidating and developing a low carbon energy mix;
- adapting the electricity system;
- steering energy demand.

The main areas of attention in 2013 in sustainable development are:

- control of nuclear plants' impact in the environment; intensification of research on safety (risks of flooding from outside) and plant operating lifetime;
- improving competitiveness and availability of nuclear plant, with the objective of producing as much electricity but reducing fuel consumption;

- assessment and control of the impact of EDF's installations on the quality of surface water;
- assessment of future water flows in rivers close to EDF's generation plants, with reference to climate change developments;
- assessment of the risk of shortages in 11 commodities at risk of becoming scarce (chrome, silver, indium, cadmium, lithium, boron, etc);
- reducing the costs of renewable energies, especially offshore wind power and photovoltaic power;
- impact of the development of intermittent energies in Europe, which require greater flexibility in centralised generation resources;
- mass storage of electricity, in association with development of renewable energies;
- insertion into the networks of intermittent, decentralised power generation from renewable sources, notably through application of Concept Grid, an experimental platform unique in the world, half-way between laboratory testing and field experiments;
- carbon capture and geological storage, with commissioning of the first carbon capture demonstrator at Le Havre fossil-fired power plant (the first tonne of CO<sub>2</sub> was captured in July 2013);
- recycling of industrial energy loss using high-temperature heat pumps;
- development of planning instruments for sustainable cities and areas;
- new architectures for intelligent metering and direct control of use, in support for development of the "Linky" smart meter project (a tool to help control consumption).

## 6.6.3.2 Safety of industrial facilities, and personal safety for employees and third parties

### 6.6.3.2.1 Nuclear safety

Safety in nuclear operation is the top priority for the EDF group. It is taken into consideration from the initial design stage, and is regularly monitored, together with implementation of an employee motivation policy and large-scale investment programmes. The Group's nuclear safety policy is incorporated into training for both EDF personnel and subcontractors.

#### Control and surveillance

Nuclear safety is subject to numerous controls both internal (annual reviews, internal control plans and nuclear inspections in France) and external (peer reviews between WANO<sup>2</sup> member firms and OSART<sup>3</sup> audits conducted by experts from the IAEA<sup>4</sup>).

In France, the safety of nuclear facilities is verified by the Nuclear Safety Authority ("ASN"). The International Nuclear Event Scale ("INES") classifies events on a scale of 1 to 7, with 7 being the most serious. Incidents of no consequence for nuclear safety are classified as "deviations" or level 0 events.

1. High-stake environmental event: event causing serious environmental damage (areas, resources and natural environments, sites and landscapes, air quality, animal and plant species, diversity and biological balances), combined with high media coverage or a financial impact exceeding €3 million. An event causing environmental damage and likely to affect human health falls within the scope of a high-stake environmental event for the EDF Group.

2. World Association of Nuclear Operators.

3. Operational Safety Review Team.

4. International Atomic Energy Agency.

The ASN also approved the creation of an additional FARN (*Force d'Action Rapide du Nucléaire* or Nuclear Rapid Action Force) crisis management unit, after additional safety assessments carried out by EDF.

To ensure the nuclear fleet remains effective and safe after 40 years of operation, EDF is implementing a coherent industrial project. A key aim of this project is to improve safety performances, as required for the ASN and the State to receive permission to continue operation.

In the United Kingdom, the Office for Civil Nuclear Security ("OCNS") is the independent watchdog authority for safety in the civil nuclear sector. It monitors compliance with safety rules, including for transportation of radioactive matter.

In the United States, the Nuclear Regulatory Commission ("NRC") oversees the quality and safety of the nuclear fleet's operations. The Institute of Nuclear Power Operations ("INPO"), of which all US nuclear operators are members, conducts evaluations and analyses with the aim of achieving excellence in operation.

## Results for 2013

There was no serious safety event or above-limit discharge in 2013.

In France, the results for the nuclear power fleet held up well in 2013. For the first time since 2010 there was no event classified as INES level 2, and INES level 1 events were down significantly by 23% (1.19 per reactor compared to 1.55 in 2012) (see section 6.2.1.1.3.3 ("Environment, safety and radiation protection")). The number of automatic reactor trips (ARTs) reached 0.59 (0.55 in 2012), which was satisfactory in view of the better international performances and comparable to the figure for the 69 PWRs in the United States (0.60). In 2013, 32 reactors had no ART all year (36 in 2012).

The good results on fire safety in 2012, a major risk in nuclear installations, were confirmed in 2013: few fires started and preventive measures and organisation was improved on all sites. After a slight fallback in 2012, progress was made in control of regular testing, an activity that helps to demonstrate the availability of key safety materials and systems throughout the reactor's operating life: the number of significant safety events detected during tests showed a substantial decrease of 20%.

In the United Kingdom, safety event declaration procedures are different due to different reporting requirements, affecting comparability with EDF results. The number of significant safety events declared by EDF Energy was up slightly in 2013 (to 5.1 per reactor from 4.6 in 2012). More comparable is the number of events classified under the INES: the number of events declared, all limited to level 1, remained low as in 2012 (0.80 per reactor). 2013 confirmed the progress made the previous year as regards operation of the fuel handling machines in AGR reactors, following significant efforts to improve reliability. No fires started and there was no major fire incident in 2013; nonetheless, the observations made during a nuclear safety inspection concur with the WANO Peer Reviews, noting that despite the markedly lower level of oil leaks, further efforts are needed in raising employee awareness about fire prevention.

In the United States, the INPO classifies and analyses significant safety events. The number of significant safety events declared by CENG was down slightly from 11 per reactor in 2012 to 8.8 in 2013. The number of events classified under the INES, all were limited to level 1, and dropped slightly (0.8 per reactor) back to the 2011 level. In the United States, the total automatic and manual trips must be considered together, as US procedures rely more often on operators to trigger a reactor trip before the automatic measures are activated. CENG's results improved, declining to 0.68 per reactor after 0.87 in 2012, with contrasting situations depending on the site. The rate

of unscheduled outages was good at 1.7%, placing the CENG fleet's performance above than the American average.

Detailed results on nuclear safety for 2013 are published in the annual report drawn up by the Inspector of Nuclear Safety, available from EDF's sustainable development report website (<http://rapport-dd.edf.com>, to be released in May 2014).

## 6.6.3.2.2 Hydropower safety

See section 6.2.1.1.4 ("Hydropower generation"). In France, EDF operates 436 hydropower plants and manages the water reservoirs held by its 239 large dams. The average age of French hydropower facilities is 69 years. Hydropower safety measures are designed to control risks of breaches in dams or related facilities, the risks associated with operating during high water level periods, and the risks related to water flow variability during operation.

Safety at EDF's hydropower fleet remained satisfactory in 2013. There was only one incident classified as "orange" (hydropower safety incident that placed people in danger, as defined in the decision of 21 May 2010) and no injuries were caused. The key indicators are still at good levels:

- good detection of significant (non-serious) events (level 0) by local teams (around 3,000 detected);
- low proportion of events with external effects (level 1 or higher): 57 arose, of which 24 were caused by exceptionally high water levels;
- a lower number of sites with high sensitivity to risks associated with variations in water flow downstream of installations: it has fallen from 114 in 2005 to 19 in 2013, although this was slightly up on the 16 sites identified in 2012.

Several regions of France had very high water levels in June 2013 as a result of the weather. The exceptionally water levels in the Pyrenees caused considerable damage around the mountain riverways, and were the source of damage to certain components of concession facilities. The most important point is the avoidance of human injury and material damage due to the reaction of the flooded installations, confirming that dams are well-managed by EDF teams.

Control of risks associated with wear and tear is a major concern in hydropower and has been strengthened, and the long-term maintenance policy was updated in 2012.

The SuperHydro hydropower facility renovation programme launched in 2007 for fleet safety and efficiency is 88% complete. It is being rolled out through a long-term maintenance programme designed to succeed it, including a dedicated hydropower safety dimension: IPHE-S programme, covering the safety aspects of hydropower engineering for plants in operation, which in 2013 accounted for more actions and more annual resources than SuperHydro.

Immediate maintenance actions (specific measures and resources) were taken through this programme to ensure that the safety margins are clearly identified and countermeasures are active until the work is complete. At the end of 2013, 610 specific actions were in process and monitored in 5 priority groups of facilities: galleries, pipes, dams, penstocks and floodgates.

Overall, by 2017, €908 million will have been invested in safety.

Both of these programmes are backed up by the "RenouvEau" programme to improve the safety, performance and competitiveness of the hydropower fleet. This programme will be rolled out to all major installations of the hydropower fleet in 2014 after a validation phase on pilot sites last year.

The decree of 11 December 2007 set new regulatory requirements for owners or operators of dams, one of which is to conduct exhaustive studies that contribute to safety: danger assessments for class A facilities (dams at least 20m high) and class B facilities (dams at least 10m high and above a certain volume set by regulator), and safety reviews for class A facilities. EDF respects the timetable for these studies and assessments, which consolidate the overview of risks and countermeasures associated with dams.

For further details, see the 2013 report by the Inspector of Hydropower Safety, available from EDF's sustainable development report website (<http://rapport-dd.edf.com>, to be released in May 2014).

## Results for EDF in France

	Unit	2013	2012	2011
Very low-level radioactive waste from decommissioning	t	1,110	2,528	634
Low and medium-level short-life solid radioactive waste	m <sup>3</sup> /TWh	19.0	20.7	15.6
High and medium-level long-life solid radioactive waste	m <sup>3</sup> /TWh	0.86	0.88	0.87
Transported spent nuclear fuel	t	1,099	1,075	1,199

EDF applies a strategy of gradually increasing the performance of nuclear fuel. The objective is to raise nuclear energy output by increasing the combustion rate and optimising operating cycles to improve nuclear plant availability, while allowing for shutdown schedules in line with seasonal variance in demand.

EDF's current strategy for the nuclear fuel cycle, in agreement with the French state, is to process spent fuel and recycle the plutonium separated in this process in the form of MOX fuel. Currently 22 (of the total 34) 900 MW nuclear units use this type of fuel, and two more units have been authorised to do so by the ASN. The objective for future years is to load 120 tonnes of MOX per year. Since 2010, recycling capacities have processed close to 1,050 tonnes of spent fuel annually, of a total of some 1,200 tonnes of fuel used.

The cost of removing and storing waste resulting from plant decommissioning is covered by a provision, and the charges related to operating waste are included in annual expenses.

## Results for EDF Energy

	Unit	2013	2012	2011
Transported uranium	t	177	216	211
Transported low level radioactive waste	m <sup>3</sup>	655	698	608
Generated medium level radioactive waste	m <sup>3</sup>	178	161	161

In the United States, the Federal Government has banned reprocessing of spent nuclear fuel, and the Nuclear Waste Policy Act ("NWPA") enacted in 1982 requires CENG to construct permanent storage facilities for spent

## 6.6.3.3 Waste management

### 6.6.3.3.1 Radioactive waste

In France, radioactive waste is classified by activity level and lifetime, following the classification used by the French national agency for radioactive waste management ANDRA (*Agence nationale pour la gestion des déchets radioactifs*). Waste is listed in an inventory stating its location, and the data are public and regularly updated by ANDRA.

Four industrial principles govern management of this waste: limiting quantities, sorting by nature, stable conditioning, isolation from humans and the environment. Limited quantities of radioactive waste are produced: 1 MWh of nuclear electricity (equivalent to a month's consumption for 2 households) generates around 11g of radioactive waste, 90% of which is short-life waste.

EDF's provisions at 31 December 2013 are established in compliance with the law of 28 June 2006 and its implementing decrees, which were issued in 2007.

At 31 December 2013, the EDF group's provisions for decommissioning and last cores amounted to €22,150 million, and provisions for the back-end nuclear cycle totalled €20,547 million. The price per kWh thus includes all expenses related to this obligation, i.e. the cost of managing long-life waste and the cost of plant decommissioning and current waste conditioning.

In the United Kingdom, radioactive waste is classified as high, medium and low level (HL, ML and LL) and each type is treated differently. Medium level waste is stored on the plants' sites in dedicated facilities, and inspected in compliance with safety requirements. Low level waste is stored on the plants' sites until prepared for dispatch (for processing or elimination), and is monitored and regularly inspected.

fuel and high level radioactive waste, through the intermediary of the Department of Energy ("DoE").

## Results for Constellation Energy Nuclear Group (CENG)<sup>1</sup>

	Unit	2013	2012	2011
Nuclear fuel delivered	t	44	46	48
Transported low and medium level solid radioactive waste	m <sup>3</sup>	1,411	2,419	1,287

### R&D for radioactive waste

Many of the EDF group's in-house and partnership R&D projects focus on radioactive waste. These research programmes mainly concern transportation, temporary storage, reprocessing and final storage of spent fuel and the associated waste.

EDF's R&D teams and ANDRA are continuing to work together on the question of how packages of nuclear waste behave in geological storage, and on models simulating the behaviour of the host rock, particularly argillite.

As its UK facilities mostly use graphite-gas technology ("AGR" – advanced gas-cooled reactors), EDF is part of the European Carbowaste project on management of the graphite resulting from decommissioning, alongside German research bodies, the CEA, Manchester University and ANDRA. This 4-year project started in 2013.

EDF Energy principally concentrates its research projects on long-life waste processing: the lead programme, "AGR ILW Debris Vaults Engineering Design Review", concerns the monitoring system for water infiltration during the dismantling/maintenance period.

### 6.6.3.3.2 Management of radioactive effluents

In France, management of the nuclear power plants' radioactive gas and liquid effluents is governed by strict regulations and EDF's ambition to limit the environmental and health impacts of its installations. In terms of radioactive emissions, plant performance depends not only on the efficiency of effluent processing systems, but also on operating practices.

Actions taken in plant design and operation have kept the nuclear plants' radionuclide discharge in liquid form (other than tritium and carbon-14) to a very low "floor" level for several years, after reducing them by a factor of 100 in 15 years. This achievement results from the efforts put into capture, sorting and orientation of effluents at source, increasing evaporation treatments, implementing demineralisation processes and optimising recycling of effluents.

Tritium and carbon-14 are the only radioactive substances discharged by the nuclear plants. They have low radiotoxicity and their effect on dosimetry is also very low (well below the annual limit which is set at 1,000µSv/year for the public).

Measurements taken by the operator are monitored to confirm that the environment is not affected by the installations' operation.

Sampling and measurement campaigns carried out by external laboratories and universities for radio-ecological and hydro-biological monitoring have confirmed the lack of long-term impact.

In the United Kingdom, radioactive effluents remained stable and within regulatory limits given the varying levels of electricity generation.

### 6.6.3.3.3 Industrial waste

In its sustainable development policy, the EDF is committed to limiting the environmental and health impacts of its installations and businesses. With its ISO 14001 certified environmental management system, industrial waste is managed with the emphasis on reducing waste at source, sorting waste, recycling, particularly for onsite waste, and upstream use of products designed and produced in environmentally-friendly ways. A permanent progress approach is applied, founded on the conviction that the "best waste" is waste that is never produced. This is getting results, as the recycling rate is showing steady progress despite the lack of regulation and organised recycling operations in certain countries.

### Waste recycling

Construction, decommissioning and maintenance activities increased in 2013, particularly in France including the island energy system, but also in the United Kingdom, the Netherlands and Hungary, and this had an impact on the overall volumes of waste generated and recycled.

## Results for the EDF group

(in tonnes)	2013	2012	2011
Volume of non-nuclear waste recycled or transferred for recycling	294,378	253,412	251,908

### Waste recycling rate

(in %)	2013	2012	2011
EDF group	69.6%	65.6%	69.3%
EDF	88.9%	86.8%	85.1%
EDF Energy	90.6%	83.4%	67.2%

1. Consolidated data of the percentage interest in the subsidiary.



In France, in nuclear engineering, waste management organisation plans are now drawn up before every important construction, decommissioning or maintenance project, and yearly feedback is monitored by the concerned divisions. This approach is becoming standard practice for major projects in the fossil-fired and hydropower activities.

EDF's sustainable development policy strengthened the target of recycling all suitable waste, raising it from 75% in 2011 to 85% in 2012 and 2013. The actual recycling rate for all non-nuclear waste produced by generation and engineering work (excluding fly ash and gypsum, which are fully recycled) has risen steadily in recent years, reaching 89% in 2013.

In the overseas French territories, where recycling of waste is hindered by isolation and the lack of certain local facilities, a 92% recycling rate was achieved in 2013 compared to 84% in 2012.

Internationally, in the United Kingdom, EDF Energy has made a commitment to cut waste by 30% and stop sending office waste to refuse collection sites by 2020. Work on identifying alternative solutions has also begun. "Waste plans" devised at the industrial sites succeeded in reducing the proportion of waste sent each month to underground disposal sites (below 10%), with a forecast recycling rate of 95%.

In Poland, EDF Wybrzeże set up ash silos, which have enabled the company to sell its fly ash and limit the volumes transferred to disposal sites. In 2013, all slag and ashes produced (more than 1.6 million tonnes) by EDF Polska were reused, in building, road infrastructures, coal mine fill or land rehabilitation.

In China, 98% of fly ash and slag generated by the Figlec fossil-fired plant were sold in 2013 for uses such as paving roads, cement and brick-making.

### 6.6.3.4 Sustainable management of resources

The Group has several levers to reduce its consumption of natural resources:

- increasing plant efficiency and limiting loss during generation, transmission and distribution by using the most effective technologies. For example:
  - replacing old fossil-fired plants by the latest-generation coal-fired (supercritical) plants or combined-cycle gas plants;
  - developing cogeneration, i.e. combined generation of heat and electricity;
- using more effective fossil fuels (coal, fuel oil, gas) and fissile fuel (uranium);
- increasing the efficiency of uranium by recycling (of plutonium as MOX fuel), and raising the capacity of certain "breeder reactors" to generate more fissile matter than they consume;
- developing renewable energies: hydropower, onshore and offshore wind power, solar power (particularly photovoltaic), biomass, and marine energy (marine turbines and tide power) (see section 6.6.3.4.1 ("Development of renewable energies"));
- developing high-power pumped storage power stations ("STEP") to cope with the need for high consumption in peak periods without using fossil fuels.

As all types of energy-saving campaigns are another source of resource protection, EDF develops and markets packages for its customers that incorporate energy-efficient equipment, use of renewable energies in buildings, and incentives for energy-saving behaviour.

These actions are founded on:

- demand side management ("DSM") services: insulation, building renovation, advice and heat diagnoses;
- development and intensive integration of new distributed energies into buildings for heat generation (heat pumps, solar water-heaters, woodburning stoves and fireplaces);
- management of the load curve to reduce or defer peakload CO<sub>2</sub>-producing consumption;
- use of smart meters, to optimize networks and carry out remote measurement services and remote actions to reduce greenhouse gas emissions;
- "green" energy options offered to customers, producing no CO<sub>2</sub> emissions, or partly carbon-offset offers.

#### 6.6.3.4.1 Development of renewable energies

In a world where the pace of development of renewable energies is highly dependent on national and international policies supporting these energy sources (purchase obligations or quotas, favourable electricity purchase tariffs, tax incentives, green certificate systems, etc), the EDF group is continuing to make significant investments concentrating on hydropower and technologies it considers mature: wind power and photovoltaic power. To achieve its non-hydropower objectives it is supported mainly by EDF Energies Nouvelles. The EDF Group is working to reduce the risks associated with changing regulations by optimising its investment costs and reinforcing both its geographical diversification and multi-sector strategy.

Furthermore, EDF Energies Nouvelles' operation and maintenance activity on its own behalf and for other companies continues to grow. It is punctuated by commissioning of new wind farms, and takeovers of wind farms previously operated by the turbine manufacturers when the contract comes up for renewal. At 31 December 2013, EDF Energies Nouvelles was in charge of operation and maintenance of more than 9,000 MW. In the United States it has become leader in this business sector, through its subsidiary EDF Renewable Energy.

#### Investments

In the last three years the Group has dedicated the greatest share of its gross operating development investments to renewable energies, ahead of annual investments in development of the nuclear sector. In 2013, renewable energies benefited from 36% of the Group's gross operating development investments (41% in 2012).

To finance future renewable energy projects, in November 2013 EDF launched its first "Green Bond", in Euros, the first large corporate issuer to do so. The funds raised (€1.4 billion) are exclusively dedicated to financing projects undertaken by EDF Energies Nouvelles. For this inaugural issue, EDF made an innovative dual commitment, both in terms of project eligibility criteria and fund allocation. The selected projects will have to comply with five eligibility criteria drawn up by the Vigeo<sup>1</sup> rating agency: human rights compliance and governance in the country where the projects are located; management of environmental impacts; protection of workers' health and safety; promotion of a responsible supplier relationship; dialogue with local stakeholders. The investments made will be subject to a unique traceability process, being annually disclosed by EDF and audited by Deloitte & Associates. This initial operation paves the way for new channels of financing for other essential Group businesses, such as hydropower and energy services (see Appendix F ("Information relating to the allocation of funds raised through the Green Bond issued by EDF in November 2013")).

1. The European leader in Environmental, Social, and Governance ratings.

Thanks to its continuous investments, the EDF group is now the European leader in renewable energies in terms of installed capacity<sup>1</sup>. Excluding major hydropower facilities, it is ranked 5<sup>th</sup>, compared to just 10<sup>th</sup> in 2011, and under IHS typology it is second in Europe for emerging renewable energies (photovoltaic solar power, marine energies, geothermal techniques, small hydropower, biomass, waste combustion).

## Objectives

The Group has set a target of achieving a 25% share of renewable energies in the energy mix by 2020 (installed capacities). Renewable energies accounted for 19.9% in 2013 (19.3% in 2012) mainly as a result of commissioning of major onshore wind power facilities in Mexico, Canada and Scotland, and large offshore wind farms off the coast of England and Belgium.

The French government aims to develop 6GW of offshore wind power capacity by 2020. The Group in turn aims to be part of the emergence of a French offshore wind power industry; thus Energies Nouvelles is the leader of the consortium selected by the authorities for a 1.5GW offshore project. One of the stakes to address is reducing generation costs. More than 200 wind turbines are to be installed under this programme off the coasts of

Brittany and Normandy in north-west France. EDF Energies Nouvelles is also bidding for the second contract tendered by the French government in 2013, which concerns 1GW.

To contribute to development of renewable energies, the Group is also working on three levers to reduce generation costs:

- reducing engineering costs, by insourcing the operations of transporting and erecting turbines, which were previously carried out by the manufacturers, or by changing to all-steel structures instead of wooden structures to hold solar panels;
- reducing operation and maintenance costs developing preventive maintenance and for instance by fitting wind farms with a vibration detection system that can predict risks of damage and thus improve turbine availability;
- optimising technologies by R&D programmes on matters such as raising onshore turbine hubs so that better quality winds can be captured and thus improving output per MW installed, or increasing the output of new-generation solar panels, in cooperation with Photowatt and EDF's R&D department.

## Main developments in 2013 in the Group

Hydropower	<ul style="list-style-type: none"> <li>■ Commissioning of the Rizzanese dam (55MW) in Corsica.</li> <li>■ Continuation of the hydroelectric development project at Romanche Gavet (93MW, €44 million in 2013), Isère, France, for commissioning in 2017. This plant will produce 560GWh annually, 155GWh more than the existing facilities.</li> <li>■ Authorisation has been received to increase the power of the Coche dam (+64MW) in France.</li> <li>■ Start-up of the power-raising project for the Lixhe plan (+7MW) in Belgium, which will help the plant to keep its operating permit.</li> <li>■ Start of industrial operation of the Rivière de l'Est facility on Réunion island (1MW).</li> </ul>
Onshore wind power	<ul style="list-style-type: none"> <li>■ Commissioning of Fallago Rig (144MW) in Scotland by EDF Energy Renewables, as well as Glassmoor II (12MW) and Boundary Lane (6MW), in east and north England.</li> <li>■ Commissioning in Mexico of the Bii Stinu (164MW) facility, jointly owned 50% by EDF Energies Nouvelles and 50% by Mitsui&amp;Co Ltd group, and the Santo Domingo wind farm (100MW).</li> <li>■ Commissioning by EDF Energies Nouvelles and Enbridge group (50/50) of the second phase of the Lac Alfred wind farm (150MW) in Canada, doubling its capacity.</li> <li>■ Commissioning of 134MW in Turkey by EDF Energies Nouvelles.</li> <li>■ Commissioning in France of the Portes de Champagne wind farm (12,3MW) in the Champagne Ardenne region, the Fraisse-sur-Argoût (23MW) in the Hérault region and Pouzols (5,1MW) in the Aude region.</li> <li>■ An additional 12MW of capacity was commissioned by Edison in Italy.</li> </ul>
Offshore wind power	<ul style="list-style-type: none"> <li>■ Completion of construction of the Teesside wind farm in north-east England by EDF Energy Renewables, and, as announced, commissioning of the first 13 turbines; this facility will ultimately have 27 turbines and capacity of 62MW.</li> <li>■ Completion of the 54-turbine C-Power wind farm (325MW) 30km off the coast of Belgium at Zeebrugge, constructed through the C-Power consortium (EDF Energies Nouvelles: 9.1%).</li> </ul>
Solar power	<ul style="list-style-type: none"> <li>■ Commissioning by EDF Energies Nouvelles of the Catalina plant in the United States (143MWp) in California. With more than 1.1 million "thin film" solar panels, this is the largest photovoltaic plant ever built by EDF Energies Nouvelles, and 8<sup>th</sup> largest in the world in terms of installed power.</li> </ul>

## Capacities under construction

Onshore wind power	<ul style="list-style-type: none"> <li>■ The Hereford (200MW gross), Longhorn (200MW gross) and Spinning Spur 2 (161MW gross) wind power facilities in the United States.</li> <li>■ The Blackspring Ridge (300MW gross) and Rivière-du-Moulin (150MW gross) wind farms in Canada.</li> <li>■ The Ecotera (72 MW gross), Luc-sur-Orbieu (11.5MW gross), Cornihac (9.2MW gross) and Vallée de l'Hérault (14 MW gross) wind farms in France.</li> <li>■ Soma 3 (100MW gross) wind farm in Turkey.</li> <li>■ The Grassridge (66MW gross) wind power plant in South Africa.</li> <li>■ A programme for 51MW of new capacities in Italy, associated with a repowering plan for existing capacities (197MW).</li> <li>■ The Burnhead Moss and Roade (33MW) wind farms in the United Kingdom.</li> <li>■ Extension (4.1MW) to the Burnfoot Hill wind power plant in the United Kingdom.</li> </ul>
Solar power	<ul style="list-style-type: none"> <li>■ Power generation plants with total gross capacity of 144MW in Israel.</li> <li>■ The Madya Pradesh facility in India (30MW gross).</li> <li>■ The Toucan facility in Guyana (5MW), which combines a photovoltaic plant and energy storage.</li> </ul>
Biogas	<ul style="list-style-type: none"> <li>■ The Heartland facility (20MW) in the United States.</li> </ul>

1. Source: IHS report, June 2013.

## Other developments

Offshore wind power	Phase 3 of the Navitus Bay offshore wind farm to the west of the Isle of Wight (a 50/50 EDF Energy/Eneco Wind UK Ltd joint venture), with installed capacity of up to 1,100MW.
Marine energies	Progress on the marine STEPs (pumped storage power stations) that can store energy in Guadeloupe and Réunion islands by EDF Systèmes Énergétiques Insulaires. Commissioning expected by 2020. Installation of a river hydropower demonstrator in Guyana (the Harvest project) by EDF Systèmes Énergétiques Insulaires, intended to supply populations that are a long way from the networks, and replace fossil fuel use. EDF Energies Nouvelles is participating in the 2 <sup>nd</sup> generation floating wind farm project VertiMed, for which it is developing a pilot site off the coast at Marseille following a European project tender.
Solar power	Continuation of the Millener Pilot project in French overseas territories, aiming to install micro-power systems in homes, with individual energy storage and computerised electricity consumption management facilities. In Corsica, more than 300 installations began operation in 2013.

## Research

Given the synergies developed with the Group, EDF Energies Nouvelles signed a three-year agreement with Group R&D. The main areas of research in 2013 were reducing noise levels at onshore wind power facilities, modelling photovoltaic plants and assessing sunlight strength, studying new technologies such as floating offshore wind turbines and wave energy converters, and storage of electricity produced by these new energies.

The Group also has to meet the challenge of the question of how to integrate decentralised renewable energies, which are intermittent by definition, into the networks. ERDF, Europe's leading electricity distribution network manager, is working on incorporation of renewable energies into the French grid, with the objective of absorbing 15 to 25GW of wind power and 15 to 20 GW of photovoltaic power by 2030.

With the support of Group R&D, ERDF is experimenting with new ways of smoothing fluctuations in electricity output by wind farms. Together with the Ademe it manages the Ventea demonstrator launched in 2012. The aim is to test sensors that measure the voltage of the wind power supply to 1% accuracy, and send their data to an automated regulator.

### 6.6.3.4.2 Management of water resources

In view of the importance of water resources for its electricity and heat businesses (cooling for nuclear and fossil-fired plants; hydropower generation), the EDF group includes "water risks" in its risk management policy. Every investment decision is subjected to detailed risk analysis and impact studies. In France, a strategic committee for water has drawn up a water policy and oversees its implementation. This policy is a response to four major concerns: preparing for the future, in a more complex

context for sharing the resource of water; adjusting to regulatory and societal change; contribution to multi-use management of water and local economic development; and optimising the energy producer's operational management of water.

Water levels were very favourable in France in 2013. They were more than 20% above annual average, largely due to record snowfall on the mountain ranges. EDF met all its commitments to stakeholders in terms of required water levels for tourism, water restitution, support for low-flow periods and farming, while retaining sufficient stocks for the start of the 2013-14 winter. Production losses due to environmental constraints (relating to flow volume or temperature) were comparable to 2012.

In operating its generation facilities, the Group seeks to optimise water use, especially by its fossil-fired plants. Several actions have been undertaken to reduce the consumption of fresh water by generation facilities. On Réunion island, desalination of sea water can save some 50,000m<sup>3</sup>/year on the volume of water pumped from fresh water reserves and the water table.

Also outside France, other entities have set up programmes to cut water consumption.

In the Netherlands, the Sloe plant has halved its basic water consumption by revising the gas circuits through a "Hot Gas Path Inspection".

In Hungary, BE ZRt recovers and recycles cooling water from the plants and has achieved a recycling rate of 34% for certain facilities.

In Poland, the Kraków power plant is reducing water consumption by using recycled water from other industrial operators and collecting rain water (almost 680,000m<sup>3</sup> in 2013).

## Volumes of water drawn and returned by the Group

(in billions of m <sup>3</sup> )	2013	2012	2011
Cooling water drawn	53.9	54.8	55.2
Fresh water	18.3		
Brackish (or estuary) water	8.4	28.0	26.8
Cooling water returned	53.4	54.2	54.6
Fresh water	18.0		
Brackish (or estuary) water	8.4	27.5	26.3

Nearly 99% of the volumes of water drawn are returned to the natural environment, in compliance with local rules on quality and temperature.

## Specific consumption of evaporated water per kWh of electricity produced by the Group's fossil-fired and nuclear power plants

(litres per kWh)	2013	2012	2011
Water consumed / fossil-fired generation	0.938	0.933	1.002

### EDF group involvement in international bodies

EDF is the joint leader of the World Business Council for Sustainable Development ("WBCSD") Water working which reinforces two strategic positions: the Group's participation in the Board of Governors of the World Water Forum, and its management of the new Water group formed by French business managers' association MEDEF.

EDF has also joined the OECD initiative on water governance.

In 2012 the EDF group made commitments to:

- invest the necessary resources in development of methods and instruments to assess the water footprint of its electricity generation activities;
- control the water footprint of its electricity generation activities;
- create value locally, and incorporate the aim of minimising its water footprint from the design phase whenever an electricity generation project is in development.

### Achievements of these commitments in 2013

As the first commitment concerns a very complex subject, work on methodology was begun in collaboration with the international scientific community.

For the second commitment, the evaluation methodology has been shared with Group companies and discussion have taken place on the Group's water concerns and reporting.

For the third commitment, the value creation project has concentrated on hydropower generation plants and two case studies have been selected: the Durance-Verdon facilities in France and the Nam Theun 2 project in Laos.

The Group has undertaken to use the IHA's<sup>1</sup> Hydropower Sustainability Assessment Protocol in assessing its hydro-electricity projects. It decided to assess the Romanche-Gavet project, which is currently the largest hydroelectricity project in development in France. It should increase power and energy output while also better integrating facilities into the valley and significantly reducing environmental impacts. The assessment was conducted from May to June 2013 by independent auditors and concerned the new dam and dismantling of the existing generation facilities. The results show very good performance in view of the hydroelectric durability criteria under the IHA protocol.

#### 6.6.3.4.3 Ground management

The Group's industrial activities can cause ground pollution. An action plan exists for all Group land assets, consisting of four stages:

- identification of land sites (this stage is complete for EDF);
- identification of sites potentially affected by pollution;
- analysis of soil samples from the potentially polluted sites, beginning with sensitive areas;

- monitoring those sites to control sources of pollution and develop a management plan, and lastly rehabilitation where relevant, depending on the future use and regulatory requirements.

To reduce the likelihood of pollution, strong synergies are forming in the Group to step up efforts to replace dangerous products by products that are less harmful to the environment and health, when technically possible. This is the case between EDF, EDF Energy, EDF Luminus, EDF Norte Fluminense and BE ZRT through reinforced campaigns within the EMS. In Italy, EDF Fenice has launched a programme with the University of Rome on substitutes for chlorinated solvents. R&D action to improve techniques for characterisation of polluted ground areas has continued, as seen in the Innvasol partnership with the University of Bordeaux and other industrial operators. In France, the nuclear fleet stepped up its monitoring programme in 2013 for underground water by intensifying the measurements made on water samples. In overseas French territories where there is a large risk of marine and land pollution due to fuel oil, IES worked with EDF-Trading Logistics to reinforce security of transportation and prevention procedures, and undertook crisis drills.

### Pyralene

European directive 96/59/EC of 16 September 1996 requires an inventory of equipment containing PCBs<sup>2</sup> and PCTs<sup>3</sup>, together with a national plan for decontamination and the gradual elimination of these substances, which are principally found in certain electricity transformers and condensers.

Decontamination of equipment containing more than 500ppm PCBs was completed by the regulatory deadline of 31 December 2010 (70,000 transformers were removed between 2006 and 2010). ERDF has since embarked on depollution of transformers with PCB content below 500ppm, ahead of the regulatory requirement to do so, setting itself a target of entirely eliminating PCBs by 2025, with an interim target of 50% to be reached in 2019. Of the 59,000 transformers concerned at 31 December 2012, 6,000 were treated in 2013.

### Phytosanitary products

The Group's Real Estate division has undertaken an inventory of phytosanitary product consumption across all property sites managed in France.

In 2013, an action plan to reduce phytosanitary product use achieved its first result: consumption was reduced by 7.3% from 2012 (and 21% compared to 2009 levels).

### 6.6.3.5 Climate change

Thanks to its low-carbon generation fleet, with high proportion of nuclear and renewable energy plants (including hydropower facilities), the EDF group is committed to remaining the leading electricity operator in action to fight climate change and reduce greenhouse gas emissions. It subscribes to the EU objective of cutting emissions by at least 20% between 1990 and 2020, taking into account the diversity of local energy situations.

The Group is addressing the issue of climate change by investing in low-carbon or carbon-free generation facilities, including renewable energies

1. International Hydropower Association: a nonprofit organisation formed in 1995 under the aegis of Unesco to promote sustainable hydropower, <http://www.hydropower.org>.

2. PCB: Polychlorinated biphenyls.

3. PCT: polychlorinated terphenyls.



(see section 6.6.3.4.1 ("Development of renewable energies")) and nuclear power, with the aim of achieving 75% carbon-free generation by 2020 (for total installed gross capacity of 160GW<sup>1</sup>).

The Group has made a commitment to cut indirect emission, for example by office buildings, through appropriate management of buildings and employee motivation.

### Comparative figures 2010-2012 <sup>(2)</sup> emissions:

(in kilotonnes of CO <sub>2</sub> equivalent)	2012	2011	2010
Scope 1 <sup>(1)</sup> – direct emissions	17,000	14,800	19,600
Scope 2 <sup>(1)</sup> – emissions related to consumption for the company's own operations	49	50	57
Scope 3 <sup>(1)</sup> – indirect emissions	16,300	16,000	17,700

(1) Scopes 1, 2 and 3 are defined by the GHG Protocol 1, covering the six greenhouse gases in the Kyoto Protocol (CO<sub>2</sub>, CH<sub>4</sub>, N<sub>2</sub>O, HFC, PFC, SF<sub>6</sub>).

(2) 2013 figures not available at the date of publication. The figures will be available in the Indicators at:

<http://strategie.edf.com/investisseurs-socialement-responsables/indicateurs-de-developpement-durable/indicateurs-281609.html>.

The change in GHG emissions between 2010 and 2012 is correlated with variations in weather conditions in mainland France: 2010 particularly, and 2012 to a lesser extent, were colder than normal, while 2011 was particularly mild.

The 23% increase in direct emissions (scope 1) between 2011 and 2012 is mainly explained by the colder weather of 2012, which meant more use was made of the fossil-fired power plants to generate electricity.

Significant energy efficiency efforts have been made by EDF in its buildings, successfully stabilising emissions relating to electricity consumption to heat its premises (scope 2) despite the weather effects.

Meanwhile, the Group's strategy also involves helping customers to reduce their own CO<sub>2</sub> emissions by creating and promoting eco-efficient packages and advice on rational energy use.

### CO<sub>2</sub> emissions by electricity and heat generation

(in g/kWh)	2013	2012	2011
EDF group	116.3	117.0	99.6
EDF	35.1	35.2	30.4

EDF has several levers to reduce its greenhouse gas emissions and keep them at one of the lowest European levels, below 150g/kWh, in view of the Corporate Responsibility commitment made in 2012:

- in the short term, optimisation of the generation fleet by improving operating performance;
- in the longer term, adapting the generation fleet: renewing plants (combustion turbine and combined-cycle gas plants), protecting hydropower potential, developing renewable energies and downgrading the highest-pollution facilities.

Since 2011 EDF has published its greenhouse gas ("GHG") emissions figures, including indirect emissions, going beyond its legal obligations under Article 75 of the "Grenelle 2" Law. This report covers all EDF activities, mainland France and island energy systems, from fuel production to power generation, to the office activities of employees.

### 6.6.3.5.1 Reducing CO<sub>2</sub> emissions by industrial facilities, particularly in generation

In 2013, the Group produced 80.6 million tonnes of CO<sub>2</sub> emissions worldwide. In France, EDF produced 16.6 million tonnes of CO<sub>2</sub> even though close to 96% of electricity generation emits no CO<sub>2</sub>, bringing its specific emission rate to 35.1g CO<sub>2</sub>/kWh.

On the European scale, the most recent study by PWC <sup>2</sup> stressed that "the EDF Group contributes to a very significant extent to maintaining Europe's average emission rate at a relatively low level" (excluding EDF, the carbon factor amounted to 452kg CO<sub>2</sub>/MWh in 2012, against only 350kg CO<sub>2</sub>/MWh when the EDF is included).

### Optimising environmental performance by the fossil-fired plants

The environmental performances of fossil-fired plants have been constantly improved in response to the progressively stricter regulatory requirements. Investment programmes incorporate the requirements for improvement of air quality and reduction of atmospheric emissions. They also respond to the regulations on greenhouse gases, taking into consideration security of supply and the cost of fossil fuels.

Since the DeNO<sub>x</sub> systems to reduce nitrogen oxide were put into operation in recent years, the Group's atmospheric emissions have fallen considerably.

In France, all oil-fired facilities now use oil with very very low sulphur content (0.55% sulphur).

1. Including 100% of capacities for fully consolidated companies and at the prorata share of equity interest at 31 December 2013 for proportionately consolidated companies or companies accounted for under the equity method.

2. PricewaterhouseCoopers (PWC) study of November 2013: European Carbon Factor – Comparison of CO<sub>2</sub> emissions of Europe's leading electricity utilities.

With the R&D teams, EDF is continuing studies on reducing NO<sub>x</sub> emissions through the Sperone Q600 project (low-NO<sub>x</sub> configuration studies to optimise boiler operation).

In Italy, Edison's fossil-fired fleet consists entirely of high-efficiency, low-carbon CCGT plants. These efficient plants and the hydroelectric and renewable energy facilities (particularly wind farms) make Edison one of Italy's lowest-emission electricity operators.

In Poland, the fossil-fired plants are particularly challenged by pollutant emissions in the air. Most of EDF Polska's boilers are now fitted with low-NO<sub>x</sub> burners. In preparation for application from 1 January 2016 of the EU's Industrial Emissions directive that will limit sulphur oxide (SO<sub>x</sub>) and nitrogen oxide (NO<sub>x</sub>) emissions to 200mg/Nm<sup>3</sup>, EDF Polska will fit desulphurisation systems in the Cracow, the Kogeneracja and the Gdansk and Gdynia (ex EDF Wyrzeże) cogeneration units.

### Modernisation of the fossil-fired plants

In France, three CCGTs were commissioned between 2011 and 2013, at the Blénod (430MW) site in 2011 and at, Martigues in 2012 and 2013 (Martigues 5 and 6, 465MW each). The programme is continuing with construction of the CCGT at Bouchain (510MW) in north France. In late 2011 EDF signed a partnership agreement with General Electric for joint development of a new-generation CCGT at the Bouchain site. It will use FlexEfficiency50 technology, and benefit from the best technical performances (efficiency raised to 61%, 3-4% higher than a traditional CCGT) and environmental efficiency (CO<sub>2</sub> emissions cut by 10%). Commissioning is scheduled for late 2015.

Some of the highest-pollution fossil-fired plants were shut down in 2013 (see section 6.2.1.1.5.2 ("Issues relating to fossil-fuel fired generation")).

In the United Kingdom, the three new units of the combined cycle gas plant at West Burton B (1,300MW) have been commissioned in 2013. Serving 1.5 million customers every year for a forecast operating lifetime of 25 years, this plant will contribute to achievement of EDF Energy's objective for 2020: to cut specific CO<sub>2</sub> emissions by 60%.

In Poland in 2013, EC Zielona Góra completed modernisation of its power plant and now uses gas instead of coal as fuel.

Finally, concerning CCS (Carbon Dioxide Capture and Storage) technology, the EDF group is participating in post-combustion and oxy-combustion capture projects with both Group and non-Group industrial partners, and studies concerning the transmission and storage of CO<sub>2</sub>. In 2013, the carbon capture demonstrator built at Le Havre in conjunction with Alstom and Veolia Environnement, with the support of the French environment and energy management agency ADEME, was put into operation.

### 6.6.3.5.2 Diffuse greenhouse gas emissions

In addition to direct emissions by its industrial facilities, EDF is committed to reducing its diffuse emissions from office buildings, company vehicles and business-related travel, and to promoting a DSM programme with Group employees.

The EDF group manages a significant real estate portfolio (more than 4.5 million m<sup>2</sup> excluding electricity generation buildings). The Group monitors and seeks to reduce the environmental impact of all its buildings, whether owned outright or leased.

Under EDF's sustainable development policy, the Real Estate department has set itself the target of cutting energy consumption by the service buildings it manages by 8 GWh/year, drawing on the following levers:

- DSM actions through adjustment of the way installations are operated;
- optimisation of surface occupation;
- renewal of the portfolio of directly-owned buildings;
- use of the best available technology, particularly in maintenance work;
- application of energy performance contracts for all office locations under subcontracted management.

In 2013, EDF devoted almost €10 million to improving the energy efficiency of its buildings.

EDF is a member of the International Sustainability Alliance ("ISA"), whose main objective is to contribute to development of sustainable buildings at European and worldwide level. Since this primarily requires good knowledge of the current portfolio's actual performance, ISA members have joined forces with the BRE (Building Research Establishment) to create an environmental database currently covering some 10,000 buildings.

### 6.6.3.5.3 Demand side management

#### 6.6.3.5.3.1 Energy efficiency

Promoting energy efficiency to all customers is an integral part of the EDF group's sustainable development policy, and one of the principal levers in the battle against climate change. One essential aspect of its work concerns improving insulation in the homes of people with low financial security (see section 6.6.4.3.1 ("Contributing to action against energy poverty")). In early 2013, the Group formed an Energy services section grouping all energy service activities for business customers and local authorities, principally in Europe. Energy efficiency for service sector and industrial companies is one of the five key areas of development.

In France, EDF is deploying offers that encourage customers to control their demand for energy and give priority to the lowest-carbon generation methods. This entitles it to energy savings certificates under the system which assigns every supplier obligations to save energy with customers (see section 6.5.6.1 ("Basic regulations applicable to the environment, health, hygiene and safety")). As the leading French ESC producer in the EU, EDF met its obligations for the period 1 January 2011 – 31 December 2013.

EDF has also achieved its goal of a cumulative reduction of 2 million tonnes in CO<sub>2</sub> emissions by customers, which was part of its sustainable development policy and covered the period from July 2009 to June 2013.

## DSM action by EDF in 2013 with residential customers, business customers and local authorities

### France

Energy saving promotion and training	<ul style="list-style-type: none"> <li>■ Launch of the dedicated energy-saving website <a href="http://www.mamaisonbleuciel.fr">http://www.mamaisonbleuciel.fr</a> for residential customers.</li> <li>■ Funding of training in saving energy for employees and tradesmen in the building sector through the FEEBAT system to develop these businesses' capacity to respond to the thermal renovation market (13,000 professionals trained in 2013).</li> </ul>
Awareness-raising/information	<ul style="list-style-type: none"> <li>■ Organisation of an information campaign on environmentally-friendly habits: several million leaflets, mobile apps, advertising.</li> <li>■ Events on the theme of controlling energy consumption for businesses through the Club Business Entreprises.</li> <li>■ Launch of a quarterly magazine for 100,000 public sector decision-makers, to give a forward-looking overview of local energy issues.</li> </ul>
Energy-efficient offers and advice	<ul style="list-style-type: none"> <li>■ General rollout of free "Energy Label" advice, to show residential customers the heat efficiency of their home.</li> <li>■ Launch of the new "Diagnostic Habitat Bleu Ciel" offer: an energy-saving expert visits the home for a heating assessment, simulation of potential savings, recommendations, estimation of the cost of work required and advice on financing it.</li> <li>■ Almost 10% of large business customers have signed up to the Energy Productivity Plan in which EDF makes a commitment to make energy savings (and is rewarded by a share of the savings achieved over a multi-year period).</li> <li>■ Launch of the Energy Savings Awareness offer to help local authorities cut energy consumption.</li> <li>■ Development of the "Energy analysis of assets" and "Local energy optimisation" for local authorities (economically suitable energy diagnoses to encourage carbon-free local energy in defining energy strategies); more than 200 projects are under way.</li> </ul>
Experiments	<ul style="list-style-type: none"> <li>■ EDF is continuing experiments on energy consumption at peak times. In Lyon and Brittany, the "Modération Conso 18h-20h" project is testing a new tariff grid that provides incentives to limit consumption between 6 and 8 p.m. for a few days in winter.</li> <li>■ EDF is also testing new tariffs including disruption incentive in Brittany through the project named "Une Bretagne d'Avance", which involves consumers in reducing peaks in consumption by remote control of their electric heating.</li> </ul>
Controlling consumption	<ul style="list-style-type: none"> <li>■ Signature of an agreement with the French National Space Studies Centre in Kourou, Guyana, to help it reduce energy requirements by 15% in the first three years (or nearly 2.7GWh per year).</li> <li>■ A pilot sea-water-based air conditioning project to reduce electricity consumption by 90% was undertaken in partnership with the ADEME and the regional authorities in Réunion island (the Saint Pierre hospital has already adopted this project).</li> <li>■ At Électricité de Strasbourg, development of temporary disconnection of solar-powered water heating equipment and of tariffs including disruption incentive for 40% of residential sites (close to 200,000 customers); promotion of the text-message alert system for customers on the Tempo or <i>Effacement Jour de Pointe</i> tariffs.</li> </ul>

### Internationally

Controlling consumption	<ul style="list-style-type: none"> <li>■ Continuation in the United Kingdom of EDF Energy's EcoManager energy monitor for residential customers, showing energy consumption by electric appliances in order to help people cut energy use; 253 customers signed up in 2013.</li> <li>■ Rollout of an offer of free cavity wall insulation offer for homes and boiler replacement under the government's Energy Carbon Obligation ("ECO") (see section 6.3.1.4.1 ("Energy Sourcing and Customer Supply business unit ("ESCS")")) campaign which introduces an obligation to reduce domestic heating costs for poorer customers and customers aged over 70.</li> <li>■ In Hungary at Démász, launch of a pilot smart meter project, and proposal of an energy audit service to business customers.</li> </ul>
Energy efficiency	<ul style="list-style-type: none"> <li>■ At EDF Energy, commercial action has been stepped up on the business customer segment, based on the Energy performance contract and Energy efficiency tariffs, which account for 46% of the company's service sales.</li> <li>■ In Italy at Edison, launch of energy review offers, assistance with Environmental Management Systems, energy efficiency advice and training: introduction of pilot public lighting systems with external partners.</li> </ul>

## 6.6.3.5.3.2 The sustainable city

By 2050, three quarters of the world's population will live in towns and cities, which will account for almost three quarters of the energy consumed in the world<sup>1</sup>. This trend is bringing new challenges for our cities and local areas: controlling land and urbanisation, respecting environmental requirements, guaranteeing access to electricity, improving transport and transport networks, and reinforcing inter-urban solidarities.

For the EDF group, the city of the future must be energy efficient, low-carbon, green to preserve biodiversity and resident comfort, inclusive and united, with an attractive economy and services.

To meet the requirements of local authorities for a more sustainable city, EDF has proposed a cross-functional approach since 2013, structured in three phases:

- First, advice on energy questions, to identify and describe local energy resources as they stand now and up to 2030, but also to identify priority sectors for saving resources. The aim is to supply an analysis of the possible options by taking into account parameters concerning energy consumption, energy poverty and access to transport, in order to make the best energy choices for the area under consideration.
- Design and production of facilities, together with an operation and maintenance service offer executed for new districts by EDF Optimal Solutions which develops new low-carbon techniques (recovery of lost energy from the ground water or sea water, biomass, solar power). For today's towns and cities, EDF helps local authorities to target the least energy-efficient housing and undertake renovation work that strikes a judicious balance between the investment level and the expected benefits. EDF can help with street lighting (30 to 40% of a town budget), which offers the best return on investment (within 10 years) thanks to recent technological advances. Supplying equipment and facilities also covers alternative low-carbon mobility solutions (electric shuttles, car sharing, battery charging terminals);
- Finally, monitoring and measurement of the installations' energy performance (energy management) backed up with educational action to raise user awareness of energy saving (behavioural action).

Internationally, EDF is focusing on improving energy efficiency in developing countries. In east Morocco, the Group is constructing a project begun in 2012 that involves local actors in development of energy efficiency and use of local renewable energies. The earliest actions were a study conducted with ADEME on family energy consumption by type of use in the town of Oujda, preparation of an energy efficiency charter for the new buildings in the region (in anticipation of the forthcoming Moroccan heat efficiency regulations), energy audits of buildings, and lighting plans appropriate to the types of district to be lit.

In 2013, EDF and Veolia also signed a contract with Singapore's Housing Development Board, the city's leading constructor of homes, to develop a computerised urban modelling system. The collaboration covers energy efficiency in buildings and their air conditioning systems, as well as collection of household waste. It includes the possibility of incorporating photovoltaic panels into the home, revegetation of rooftops and total water recycling.

## 6.6.3.5.3.3 Smart grids

Adapting the existing electricity network to the new needs of today's society is a major strategic point of focus.

Making new information and communication technologies a more integrated part of modern electricity networks will help bring about the transition towards a carbon-free energy economy:

- The new grids will facilitate inclusion of intermittent renewable energies, and adoption of new uses (heat pumps, electric vehicles/rechargeable hybrid vehicles, etc), both key factors for the future of distribution networks. The aim is to create mesh networks equipped with remote control systems and software to identify damaged areas in the network, and compensate for any shortfalls or even optimise electricity deliveries. The Group's distributors are cooperating on these new networks. ERDF took part in the launch of the "EDSO for smart grids" association created with other European distributors in order to share experiences and establish an industry standard;
- The new grids will allow consumers to take charge of their energy use, to achieve greater energy efficiency in interaction with the network.

In France, ERDF is developing the "Linky" system of new-generation smart meters. The aim is to modernize the 35 million electricity meters all over France. Following a successful pilot experiment validated by the authorities, 300,000 Linky smart meters are now in use in the Lyon and Touraine regions (see section 6.2.2.5 ("Future challenges (replacement, development and smart meters)")).

ERDF is also coordinating the European GRID4EU (Grid for you) project, which has been set up as part of the European Commission-financed smart grid research programme. GRID4EU is the largest programme for smart grids co-financed by the European Union (€25 million of the total €54 million cost), and involves a consortium of six European distributors representing 50% of customers in Europe.

The aim is to work together to move forward on:

- integration of generation from renewable energy sources;
- automation and security of the electricity network;
- effective customer participation in consumption management;
- support for development of electric vehicles and electricity storage solutions.

## 6.6.3.5.4 Adapting the Group's businesses to climate change

As climate change directly affects energy demand as well as the physical environment in which generation, distribution and transmission are carried out, EDF has a strategy for adaptation to climate change, in a timely response to France's National Plan for Adaptation to Climate Change for 2011-2015, which covers most of the Group's nuclear fleet and distribution networks. This strategy concerns current and future industrial facilities, customer offers, production/consumption optimisation, and R&D themes. It is organised around the following aims:

- evaluating the impact of climate change (currently observed and predicted) on installations and activities;
- adapting the installations concerned to reduce their sensitivity to extreme weather conditions;
- taking future weather and climate into consideration in the design of new facilities;
- improving resilience to extreme changes and situations that are harder to predict.

1. Source: International Energy Agency.



In France, EDF heads action 3.3 of the National Plan for Adaptation to Climate Change, « In the energy sector, improve performances in terms of water drawing and consumption by existing and future power plants ».

The nuclear power plants have been designed to withstand serious external weather events. To improve efficiency in hot weather, renovation work is under way (€400 million until 2019) for 15 French plants that have cooling towers.

According to the Intergovernmental panel on climate change ("IPCC"), sea and ocean levels are rising and could rise a further 18 to 42cm by 2100 as a result of climate change. This potential rise has been incorporated into the design of the Group's new EPR plants. The Flamanville EPR, for example, is built 4m higher than the maximum forecast rise in sea level.

In the United Kingdom, as well as the Group's adaptation strategy, EDF has joined the JER (Japanese Earthquake Response) study programme on extreme weather events. It is working with the Met Office (the national UK weather office) and universities on long-term weather studies, and has given its R&D the task of researching adaptations to extreme rainfall situations.

In the French overseas territories, the design of the four new oil-fired plants under construction by EDF incorporates the risks related to climate change: they include a sea wall able to withstand 13m tsunami waves at Réunion island, and a flood wall in Martinique (flooding recurrence interval: 2,500 years). All openings of the industrial buildings are protected against cyclones and special pools are intended to collect water in major storms.

### Weather risks

Given the recurrence of large-scale weather events, EDF and ERDF have drawn up a "Weather event" plan. EDF has introduced measures to reinforce resilience to external weather effects (the aim being to withstand the initial exceptional event then return to normal as soon as possible). The lessons learned from the Fukushima accident have been integrated into these measures, and a rapid response nuclear task force (*Force d'Action Rapide du Nucléaire* – "FARN") has existed since 1 January 2013 to intervene in an emergency (see section 4.2.2.1 ("Management of nuclear safety risk")).

ERDF's plan describes the measures taken to reduce network vulnerability (1.3 million km) and shorten the time to resupply customers in the event of a power cut. It also covers risks of flooding and summer heatwaves. The plan essentially consists of putting high-voltage overhead lines underground to avoid risks of falling trees, wind, snow and frost, beginning with the most exposed and significant facilities for customer connection. ERDF thus took down 27,400km of high-voltage overhead lines between 2007 and the end of 2013, including 12,600 with an identified weather risk. 98% of new high-voltage networks are underground, and 80% of new low-voltage networks use more discreet, safer techniques.

In addition to this investment programme, a Rapid intervention electricity task force (*Force d'intervention rapide électricité* – "FIRE") has been formed. It can involve up to 2,000 persons both in and outside France. In 2013, the task force was called in three times.

## 6.6.3.6 Preserving biodiversity

### 6.6.3.6.1 The EDF group's biodiversity policy

The EDF group's industrial activities take place in sometimes remarkable natural areas. They interact with this biodiversity and benefit from the services of the ecosystems. Biodiversity is a strong economic consideration for the Group, as failure to respect it may lead to sites or plants being stopped, or result in a ban on new industrial programmes.

The Group's commitment is structured by its biodiversity policy (2009) which is built on three objectives in line with the Global Reporting Initiative (GRI4) indicators:

- developing knowledge of natural environments and potential impact of Group activities on these ecosystems;
- preserving biodiversity, while protecting or restoring natural spaces;
- informing employees and local residents, raising awareness, and dialogue with scientific communities and associations.

This policy is adjusted by the Group's companies and business lines, which implement strategies appropriate to their businesses and local regulations. This is part of the ISO 14001 certified Environmental Management System.

The Group's Sustainable Development department, in direct liaison with the subsidiaries and business lines, is pursuing and guiding a policy of biodiversity partnerships to encourage exchanges of technical knowledge, support projects led by associations and implement practical technical projects. In France, priority is given to projects with EDF's longstanding NGO partners: the Bird Protection League (*Ligue pour la Protection des Oiseaux*), the Coastal Protection Agency (*Conservatoire du Littoral*), French Nature Reserves (*Réserves Naturelles de France*), the French Committee of the International Union for Conservation of Nature, and the National Federation for Fishing in France (*Fédération nationale pour la pêche en France*) (see section 6.6.4.2.3 ("Redesigned sustainable development partnership strategy")).

### 6.6.3.6.2 Generation sites' sensitivity to biodiversity (GRI4 indicators EN11 and EN14)

In France, the great majority of EDF's generation sites are in or near protected sites (80% of hydropower facilities are in or near a Natura 2000 classified site), which are preserved from farming and urbanisation and near some kind of waterway, all factors that favour biodiversity. The fossil-fired and nuclear plants draw their water and make discharge into rivers or the sea. The company's sites and land near conservation areas or rich biodiversity zones involve key biodiversity challenges, and the company must be well aware of them in order to reconcile the needs to protect biodiversity with the needs of its industrial activity.

## EDF generation sites partly or entirely located in protected areas and rich biodiversity zones:

		Number of industrial sites		
IUCN categories <sup>(4)</sup>		Nuclear <sup>(1)</sup>	Fossil-fired <sup>(2)</sup>	Hydropower
I	Nature reserve	2		14
II	National park (core zone)			18
III	National monument or Feature			53 classified 113 registered
	Decrees for the protection of biotope	1	2	39
	Ecological reserves (integral or managed)			4
IV	National Hunting and Wildlife reserves	1		7
	Regional national park	4	1	109
V	Marine natural park	1		
Rich biodiversity zones	Natural zones of interest for ecological, wildlife and plant reasons	15	7	458
	Natura 2000 (special protection zone, sites of community interest)	13 <sup>(3)</sup>	2	167
<b>TOTAL (not equal to the direct sum of columns as certain spaces correspond to more than one classification)</b>		<b>21</b>	<b>15</b>	<b>502</b>

(source: EDF)

(1) Sites in operation or being dismantled.

(2) Sites in operation.

(3) through discharge facilities.

(4) International Union for Conservation of Nature.

## Main actions in 2013

EDF	<ul style="list-style-type: none"> <li>■ Development of ecological quality indicators in partnership with EDF R&amp;D and the French national history museum <i>Muséum National d'Histoire Naturelle</i>.</li> <li>■ Analysis of natural environments in and around the 19 nuclear generation sites and the Brennilis and Creys Malville sites being decommissioned, and fossil-fired plants in operation, decommissioned or currently being decommissioned.</li> <li>■ Launch of a "Biodiversity Atlas" for hydropower sites, to assess their ecological value.</li> <li>■ Launch of a guide on attention to the species that interact with hydropower activities.</li> </ul>
Edison	<ul style="list-style-type: none"> <li>■ Completion of the "Assessment of the value of biodiversity" programme.</li> <li>■ Analysis of natural ecosystems upstream and downstream of the Chievolis dam in the Friuli region of Italy.</li> </ul>

### 6.6.3.6.3 Description and management of impacts (GRI4 indicators EN12)

The potential impacts of EDF's generation activities principally concern:

- Water and aquatic biodiversity, chiefly through:
  - Hydropower plants, which can modify biodiversity upstream of facilities if they hold back water, and downstream due to fragmentation of spaces and limitation or changes in flow volumes;
  - Fossil-fired and nuclear plants, to a lesser degree.
- The natural habitats of the flora and fauna in the areas concerned, when building or maintenance work is in progress;

- Flying wildlife (birds and bats), due to the overhead distribution lines and wind farm installations.

However, some of the locations of EDF's hydropower and other plants can also provide spaces for protection or restoration of biodiversity.

For all large-scale projects, detailed studies of the effects on biodiversity are conducted and reported formally in environmental impact studies. In particular, measures to avoid and reduce significant impacts on biodiversity are presented in the spirit of the French ecology ministry's Avoid – Reduce – Offset approach, along with any relevant offsetting measures for unavoidable residual impacts.

### Main actions in 2013

EDF	<ul style="list-style-type: none"> <li>■ Hydroecologie and radio-ecologic supervision of nuclear sites and the main fossil-fired sites, together with national partners (Onema, Ifremer, Irstea, IRSN, etc).</li> <li>■ During renovation of the water intake system for the Cordemais fossil-fired plant, installation of a pump that reduces aspiration of fish.</li> </ul>
EDF Energies Nouvelles	<ul style="list-style-type: none"> <li>■ Installation of bird and bat-scaring devices at the Aumelas wind farm.</li> <li>■ In France, partnership with the French Bird Protection league to examine the biodiversity issues of offshore wind power.</li> <li>■ Differentiated management of green spaces at all photovoltaic plants, to preserve local species' reproduction periods.</li> </ul>
EDF Energy	<ul style="list-style-type: none"> <li>■ Preliminary studies for construction of a flood wall at the Dungeness B nuclear site, which showed the presence of two protected species protégées (the Sussex emerald butterfly and the early spider orchid). The protection plan was approved by Natural England, which has given permission for the necessary work.</li> </ul>
ERDF	<ul style="list-style-type: none"> <li>■ In France, extension of the action plan to save the Bonelli's eagle, previously focused on the Mediterranean region, to the Ardèche region.</li> <li>■ 50 more sensitive sites have been equipped with tags to reduce the risks of collision for birds.</li> </ul>
Island Energy Systems	<ul style="list-style-type: none"> <li>■ In Guyana, monitoring of the oxygenation and methane levels in the water held by the Petit Saut dam (365km2 of a river and forest ecosystem transformed into a lake ecosystem). The results of these observations are used in Unesco-sponsored research into hydropower in the tropical environment.</li> <li>■ On Réunion island, after changing public lighting, training of personnel in protective measures for the petrel (an endemic bird classified as an endangered species on the IUCN's Red List) if one is stranded, and tests of anti-collision devices on the lines.</li> <li>■ On Réunion island, a study on the Reunion Island Day Gecko (an endemic protected reptile) on the Rivière de l'Est dam.</li> </ul>
EDF Luminus	<ul style="list-style-type: none"> <li>■ Pursuit of a study on mortality and migration of salmon and eels, which is a prerequisite for the Lixhe hydropower plant to be authorised to operate. The programme is being extended to two other hydropower sites.</li> </ul>

#### 6.6.3.6.4 Protection and restoration action (GRI4 indicator EN13)

The concern for biodiversity is leading the EDF group to become a manager of natural spaces, generally in partnership with local associations; either setting up and managing offsetting measures, or taking proactive measures on its land.

The EDF group is also helping to roll out public policies in favour of biodiversity:

- EDF and ERDF are involved in several national action plans: Pyrenean desman, cinereous vulture, bearded vulture, European otter, Zingel asper, Bonelli's eagle;
- Some of EDF group's sites contribute to the protection objectives for Natura 2000 zones;
- The EDF group is organising an internal procedure to incorporate recommendations for measures against invasive non-native species to limit their spread.

### Main actions in 2013

EDF	<ul style="list-style-type: none"> <li>■ Introduction of protective measures for the common wall lizard on the Bouchain CCGT plant site.</li> <li>■ A preservation plan for the local Ophrys orchid on the Martigues CCGT plant site.</li> <li>■ Signature of a partnership agreement between the hydropower activities and the French Bird Protection League to manage biodiversity on certain hydropower sites.</li> </ul>
EDF Energy	<ul style="list-style-type: none"> <li>■ Hinkley Point C EPR plant: validation of natural habitat management plans (preparation phase) and plans to reduce ecological impacts and monitoring (operational phase) by the local authorities.</li> <li>■ The Wildlife Trust Biodiversity Benchmark label was achieved for environmental management of the Dungeness B nuclear plant site. The site has been recognised as a site of special scientific importance ("SSSI") and partly classified as being of European importance. 100% of the English nuclear plants now hold an approved label. Submission of application for the label for the two Scottish nuclear power plants in 2014.</li> </ul>
EDF Luminus	<ul style="list-style-type: none"> <li>■ Introduction of green zones at the Angleur gas-fired plant site, and definition of measures against invasive species.</li> </ul>
ERDF	<ul style="list-style-type: none"> <li>■ Study of the creation of "ecological corridors" for natural species as part of the national reflections on the "Green and Blue Grid" (<i>Trame Verte et Bleue</i>) with the Biodiversity Club for infrastructure operators (CIL&amp;B).</li> <li>■ Assessment of the efficiency of environmental measures in the Mediterranean region by the French Bird Protection League, as an experiment.</li> </ul>
Island Energy Systems	<ul style="list-style-type: none"> <li>■ On Réunion island, creation of a botanical station to study an endemic orchid that will be a species bank in view of revegetation operations.</li> <li>■ Participation in the "<i>Koudmen pour la mangrove</i>" project in Guadeloupe, ecological coastal restoration operations which were awarded Palme IFRECOR first prize.</li> <li>■ Heritage restoration operations with the Martinique coast conservation agency.</li> <li>■ Creation of artificial reefs that foster development of coral by immersing old electric pylons from Réunion.</li> </ul>

## 6.6.3.6.5 Offsetting measures (GRI4 indicator EN15)

In France, EDF was selected by the Minister for Ecology, sustainable development and energy in 2012 as the biodiversity offsetting operator in the French region of Isère for the Combe-Madame project. This experiment is one of the biodiversity offsetting mechanisms currently being tested. It consists of joint ecological management with local partners and NGOs of 120 hectares belonging to EDF, to rehabilitate environments and make re-implantation possible for notable Alpine species. This initiative would enable regional planners to offset the impact of their work on natural environments.

## 6.6.4 Societal information

The EDF group's societal policy aims to create and develop bonds and dialogue with all external stakeholders at all levels (worldwide (UN, NGOs), regional (European Union, etc), national and local), to optimise and strengthen connections with vulnerable customers, by helping to reduce energy poverty and make intraGroup links more active.

This policy incorporates, supports and reinforces the existing initiatives, ensuring they are coherent within the Group. It complies with the United Nations Global Compact and is integrated into the EDF group's sustainable development policy, its CSR agreement and the public service contract.

### 6.6.4.1 Ethics and transparency to stakeholders

#### The new ethical standards

The Group Management's decision to renew and adjust its ethical guidelines led to concerted elaboration and adoption by EDF group's Management Committee and Board of Directors of the Group's Code of Ethics in 2012.

The Code complements the laws, regulations and national and international conventions by simply stating the values, actions and rules of conduct that apply to workplace in each company and for each employee of the Group. It must be known and shared by all members of the Group. It is accessible directly from the edf.com website in French and English, with local translations supplied by the subsidiaries. In April 2013, the Chairman and CEO launched the rollout of the Code of Ethics across the whole Group. The first phase covered the main companies, representing approximately 85% of the Group's workforce.

In application of the Code of Ethics, every Group employee has the right to report concerns, confidentially and without risk of reprisal, to his/her manager or a dedicated Ethics correspondent in the unit or company concerned, and as a last resort to the Group's Ethics and Deontology committee<sup>1</sup> which was set up in 2013. It consists of a chairman appointed by EDF's Chairman and CEO, an executive secretary, five discussant members and three consultative members.

This committee exists to provide advice, consultation and support. It receives reporting from each company on implementation of the Group's ethical approach. Its chairman reports to the Chairman and CEO of EDF in the name of the Committee, and to the EDF Board of Directors' Ethics Committee.

## Fraud prevention

The Chairman and CEO's decision on anti-fraud action in the Group, with its basic principle of zero tolerance, has been in application since late 2010. To ensure this decision is correctly implemented, the managers have prepared and adopted anti-fraud plans in the principal entities, supported by the distribution of the Group fraud prevention guidelines which specifically address risks of fraud and corruption.

All these ethical actions are subject to the Group's internal control, which has made it possible to spread generalise practices that encourage auto-evaluation and sharing of good practices, in line with the recommendations on Ethics and Anti-fraud measures that make up some of the first sections of the Group's internal control guide.

In 2012, a "Fraud alert" working party was formed at EDF to supply all levels of management with a methodology and instruments to handle and manage alerts that could indicate fraud. The process was presented in the second quarter of 2013 to the Group's General Secretary, who has asked for it to be extended to the other companies.

## Corruption prevention

In the issue of corruption, procedures for validation of intermediaries' contracts were reinforced by application of the Chairman's decision of 31 May 2010 on consultancy and agency agreements. A control system for these contracts has been put in place at the top level of the Group.

A programme to raise awareness of EDF's criminal risk (Chairman's decision of 28 July 2011) was launched in response to the emergence of higher exposure to this type of risk as the Group has expanded and diversified its establishments across the world. This also results from tightening of anti-corruption laws in the US (the Foreign Corrupt Practices Act) and the UK (the Anti-Bribery Act): due to the extraterritorial aspect of these laws, international anticorruption regulations are taking shape.

Increasing internationalisation of Group activities in changing regulatory contexts is leading EDF to launch a programme to harmonise practices to prevent corruption in all its forms.

## Compliance with competition rules

Respecting competition rules is an absolute priority for the EDF group.

To reduce the Group's exposure to the risks associated with application of competition rules, the competition compliance programme deriving from the Chairman's decision of 22 December 2010 extended its awareness-raising and training action in 2011 to the greatest possible number of operative staff in all subsidiaries, both in and outside France. This programme involves a set of awareness-raising, training and control measures designed to best spread a competition law culture in the Group, and make employees and partners more accountable as regards compliance with those rules.

## Human rights policy

As part of its CSR commitments, the EDF group has undertaken not to tolerate any violation of human rights, fraud or corruption in any Group company or at any supplier.

This commitment is notably reflected in the Group's membership of the United Nations Global Compact, and introduction of ethical clauses into all long-term purchase contracts with suppliers.

EDF is also a founder member of the EDH association (*Entreprises pour les Droits de l'Homme* or Companies for Human Rights).

1. Form available on the edf.com website, addressed to the specific e-mail [alerte-ethique@edf.com](mailto:alerte-ethique@edf.com).



### 6.6.4.2 Dialogue with stakeholders

The Group is investing in what it hopes will be more effective dialogue with stakeholders at all levels of the territory. In its CSR commitments, it promises to encourage transparency and dialogue on sensitive subjects, with a commitment for eight of its companies to have a formal space for dialogue with stakeholders by the end of 2015; this has already been achieved by three companies, EDF, EDF Energy and Edison.

All Group companies engage in dialogue with stakeholders, each using its own procedures. This dialogue covers 5 areas:

- local consultation concerning generation sites and proposed new industrial establishments;
- organised relations with customers, suppliers, sector partners, socio-professional associations, local authorities and national and international institutions;
- operational partnerships with NGOs and the academic world;
- gatherings of experts and representative personalities in independent boards or panels (see section 6.6.4.2.2 ("Advice from independent panels")) to provide Group managers with external critical analysis;
- public information and education in energy and sustainable development issues, especially for young people.

#### 6.6.4.2.1 Informing local populations near generation sites and consultation on industrial projects

##### Generation sites

In France, 38 local information commissions consisting of elected officials, State representatives, associations and professional bodies keep local residents informed of nuclear facility activities, as required by regulations. EDF works with these commissions at its power plants and provides the information needed to fulfil their mission.

In addition to this regulatory system, EDF has set up a public information centre at each nuclear power plant to inform local populations of the plants' operations and impacts, energy-related issues, control of energy consumption and presentation of activities that will provide jobs in the electricity sector in the future. In line with last year, EDF's image with local populations remained broadly positive: 86% declared it has a good image, 84% thought nuclear power plants had a high level of operation and 78% acknowledged that there was a positive impact on economic activity.

In hydropower, EDF pursued its permanent information and safety campaigns to warn water users of the risks of variable water flow in the rivers. Hydroguides were again employed in the summer season. Special relations were developed on local projects, such as setting up a Monitoring committee for the work on the Poutès dam project in Haute-Loire, bringing together elected officers, State departments and representatives and NGOs.

In the United Kingdom, EDF Energy organises regular meetings with local stakeholders (three to four times a year depending on requirements) covering matters related to its business activities and impacts. In line with the objective announced in 2012, it opened three new visitor centres in 2013 near its nuclear power plants (7 new plants in two years). Given its industrial plan, EDF Energy also began considerations under the Better Energy programme to strengthen relations with local populations in the long term, and will publish its new ambitions in 2014 together with the associated objectives.

### New industrial projects

In France, authorisation procedures for the Bouchain CCGT plant were completed in a short 16-month period, thanks to dynamic dialogue with local residents, the national and local authorities and local associations.

The regulatory public debate procedure was held for construction of the Dunkirk methane terminal. In 2007, an earlier consultation led to amendments to the initial project, to avoid encroaching on a protected area with the risk of harming endangered bird and plant species, and protect living and leisure areas for families. Since the construction work began, local dialogue has continued and has led to jointly developed solutions with stakeholders: environmental offset measures defined with a committee of experts and environmental protection associations, social and economic development measures in liaison with local authorities and economic actors, establishment of a concrete production unit and transport of some materials by barge, to reduce truck deliveries which were a point of anxiety for the local population.

For development of EDF Energies Nouvelles' three offshore wind power projects (Fécamp, Courseulles-sur-Mer and Saint-Nazaire), three public debates were held between March and July 2013 as required by the French Environmental Code for projects above €300 million. More than 5,000 people attended the debates. Their main concerns were respect of the environment, attention to uses of the sea, disturbances caused by the work, the visual impact (visibility from the coast) and the economic consequences. EDF Energies Nouvelles is voluntarily continuing the dialogue by holding regular public meetings and setting up information points near the future sites.

In international activities, 2013 saw confirmation of the EDF group's commitment to the undersea section of the South Stream gas pipeline. This pipeline will connect Anapa in Russia to Varna in Bulgaria, successively crossing Russian, Turkish and Bulgarian economic territories. The project will be conducted in compliance with national laws, EU directives, international conventions and protocols, standards issued by the international financial institutions, and industrial good practices for social and environmental performance.

Impact study reports are currently being drawn up for all the countries concerned. They will cover the socio-economic dimension, the environmental and social dimension, and the cultural, onshore and maritime heritage, and will also incorporate the opinions expressed by stakeholders. These reports will be published in mid-2014.

#### 6.6.4.2.2 Advice from independent panels

Several panels of experts provide their outside view to Group managers and companies: the Sustainable development panel at Group level, the Sustainable development, Scientific and Medical Councils at EDF in France, the Stakeholder Advisory Panel for EDF Energy, and the Social Committee at Edison (which is currently being reorganised).

The International sustainable development panel is a body for dialogue made of independent, global specialists in fields relating to the Group's activities or who represent the expectations and interests of civil society. It also includes, as automatic statutory members, the Chairmen of the Sustainable development and Scientific Councils for France, as well as the Chairman of EDF Energy's Stakeholder Advisory Panel. The International sustainable development panel provides advice and a critical assessment of the Group's commitments to sustainable development and their implementation.

In 2013, this panel met twice to examine the CSR commitments made by the Group in 2013 and the new Group sustainable development policy, which will be introduced in the first quarter of 2014. Every year, it issues a critical analysis of the Group's sustainable development performance<sup>1</sup>.

1. The Group's sustainable development report will be published in the first half of 2014, exclusively online at: <http://rapport-dd-2013.edf.com/fr/avis-du-panel-des-parties-prenantes>.

The Sustainable development council in France, whose members are also external personalities who are representatives of the issues associated with the impact of EDF's installations and businesses, challenges managers and experts at EDF as early as possible over the company's proposed options regarding sustainable development.

In 2013 this council met twice to examine subjects related to nuclear plant decommissioning and the role of electricity in heating buildings.

Regarding decommissioning, the selected strategy is "immediate decommissioning" (the choice made by the Nuclear Safety Authority, which is compatible with the Finance Law) and wishes EDF to constantly question its decommissioning strategies in a "peer review" approach recommended at European level (Directive of 19 July 2011). Among its six other recommendations, it recommends that EDF should take a leading role in the emergence of a nuclear plant decommissioning industry, and has encouraged the company to play a proactive part in setting the release threshold for radioactive waste, which is a decisive factor for volumes.

Regarding the role of electricity in heating buildings, the council wishes EDF to examine the "zero-carbon heating" scenario further (developing insulation and extensive use of optimised-performance heat pumps) for each company, commenting that the debate on the energy transition lacked pertinence.

EDF's Scientific Council is a consultative body that gives the company well-known senior scientists' opinions and advice on the impact of scientific and technical developments on its business lines, and on long and medium-term research activities. It discusses specific themes, issuing detailed reports and recommendations to EDF's Chairman.

In 2013, the Council covered three subjects:

- the cities and local areas of the future: challenges and the electricity operator's role;
- industrial approach to progress in nuclear safety;
- the local/global connection: which electricity system for the future?

EDF's Medical Council, composed of leading personalities from the medical world, and university professors, is a body for reflection and advice on a number of current health topics connected to EDF's activities. Its Chairman is Professor André Aurengo of the French Academy of Medicine. The Medical Council held three plenary meetings in 2013.

The main subjects discussed by the Council covered the essential health and environmental issues of current relevance – the European REACH<sup>1</sup> regulation and the case of monochloramine, Géocap<sup>2</sup> studies on infant leukaemia near electricity transmission lines, energy poverty and health, absenteeism for medical reasons in the electricity and gas industries, leukaemias near nuclear power plants in the United Kingdom through a new case study, the energy transition and radioactive exposure of contractors

The Stakeholder Advisory Panel advises EDF Energy's CEO and management committee on corporate strategy and sustainable development. It consists of six independent members and met three times in 2013 to discuss questions related to the British electricity market reform, smart meters, the new tariff conditions defined for the energy regulator Ofgem effective in 2013 and 2014 and the resulting Standards of Conduct. The panel also examined EDF Energy's sustainable development performances and published its critical assessment (<http://www.edfenergy.com/about-us/annual-report/stakeholder-views.shtml>).

## 6.6.4.2.3 Redesigned sustainable development partnership strategy

The sustainable development partnerships cover three main aspects: strategic partnerships, biodiversity partnerships, and societal partnerships.

### Strategic partnerships

Against the backdrop of the debate on the energy transition, the Sustainable Development division continued its strategic partnerships in 2013 with think tanks and research chairs, for instance that of the MIT (Massachusetts Institute of Technology) and Paris-Dauphine University on climate matters. In 2013, the partnership with the Nicolas Hulot Foundation for Nature and Humans focused on support to the think tank founded by the association to consider the ecological transition, involving academics, researchers and top scientists with the aim of bringing out new ideas and proposals to govern the ecological transition, and making them known to the general public.

EDF continued to support the *Institut du développement durable et des relations internationales* ("IDDRI"), a think tank renowned for the quality of its research, and it took part in preparation of international negotiations and laws in France. EDF provides particular support in three programmes that are closely related to its sustainable development activities and commitments: climate, the economy of biodiversity and the urban fabric. In 2013, EDF and IDDRI launched a project for modelling scenarios for cutting CO<sub>2</sub> emissions by the world's largest economies.

### Biodiversity partnerships

In view of the two developments of reinforced regulations and the new environmental governance resulting from France's *Grenelle de l'Environnement* Round Table, biodiversity is now a factor in sustaining and developing EDF's activities both in and outside France. Application of the Group's biodiversity policy requires external expert input from organisations such as the French natural history museum (*Muséum national d'histoire naturelle*), the International Union for Conservation of Nature, the Bird Protection League (*Ligue pour la Protection des Oiseaux*), the Coastal Protection Agency (*Conservatoire du Littoral*), French Nature Reserves (*Réserves Naturelles de France*), and the National Federation for Fishing in France (*Fédération nationale pour la pêche en France*). These longstanding partnerships foster sharing of technical knowledge and dialogue with various business lines (particularly generation and the networks), support for the associations' long-term projects, and implementation of practical measures overseen locally by EDF's divisions and entities.

### Societal partnerships

In 2013, in coherence with the Group's CSR approach, the Sustainable Development division decided to redefine its strategy for societal partnerships in relation with the divisions concerned. This focused on access to energy and the fight against energy poverty, social development in local areas, social integration and education, with the objective of elaborating innovative solutions with multi-actor economic partners. Priority was given to partnerships with an international scope, and the following are currently under consideration: partnerships with the European Anti-Poverty Network, the *Compagnons Bâtisseurs* master tradesmen's network, the Action Tank set up by French business school HEC (for a project on "Damaged co-ownership" including a social business solution), and the Electrification Roadmap, an emerging international initiative aiming to make the United Nations' "universal access to energy" objective a reality, especially in Africa, working with other electricity operators such as Duke and Eskom.

1. The European Union has set up the REACH system, an integrated business registration, evaluation and authorization of chemicals system and has established a European Chemicals Agency.

2. A scientific project by research bodies Inserm and IRSN concerning childhood leukemia due to several environmental exposures (road traffic, exposure to benzene, high voltage transmission lines, industrial sites classified Seveso, etc.).

## 6.6.4.2.4 Information on energy and sustainable development issues

In 2013 the Group's companies continued their programmes to raise awareness in the general public and young people of energy control and sustainable development issues.

### Main actions of 2013

EDF	<ul style="list-style-type: none"> <li>■ Repositioning of EDF's Bleu Ciel brand for residential customers with a focus on energy savings. An information letter was sent out (several million copies) to raise awareness of the website <a href="http://mamaisonbleuciel.fr">mamaisonbleuciel.fr</a> and the associated mobile apps to develop ecological habits, backed up by a press advertising campaign also based on ecologically-friendly habits.</li> <li>■ Reorganisation of the educational content on sustainable development issues of the website aimed at young people (<a href="http://jeunes.edf.com">http://jeunes.edf.com</a>; over 480,000 visits in 2013; 197,000 in 2012).</li> <li>■ 1,780 talks on sustainable development issues given in secondary schools, in connection with the curriculum and at the request of teachers (more than 43,000 young people have attended).</li> <li>■ 2,688 lectures on safety for primary schools, including an energy saving aspect on uses in the home (more than 65,000 have been informed).</li> </ul>
EDF Energy	<ul style="list-style-type: none"> <li>■ Pursuit of the online educational programme The Pod, in partnership with the European Eco-School programme and the British NGO Eden Project, with the participation of over 17,500 schools and more than 10 million children since its launch in 2008 (initial target: 2.5 million).</li> </ul>
Edison	<ul style="list-style-type: none"> <li>■ Continuation of the Eco Generation School is the climate's friend campaign conducted with the NGO Legambiente in pilot schools (20 schools in 20 Italian towns), teaching pupils to assess their school's energy efficiency and helping them to look for ways to control energy consumption (2,600 children and 2,100 parents participated; 40 associations and 35 public authorities were involved).</li> </ul>
EDF Asia Pacific	<ul style="list-style-type: none"> <li>■ Continued distribution of a book on the uses of electricity and reasonable use of natural resources, intended for children in rural areas and distributed in China, Thailand, Vietnam and Laos. This book is now part of school curricula.</li> </ul>

## 6.6.4.3 Societal affairs

The EDF group's societal policy is an integral part of its sustainable development policy, in compliance with the UN Global Compact.

The three main strategies of the societal policy, in coherence with the Group's CSR commitments, are:

- to facilitate access to energy and energy eco-efficiency for vulnerable people;
- to contribute to the economic and social development of the areas covered by EDF;
- to contribute to the debate on sustainable development and EDF's activities, fostering local dialogue and knowledge of energy-related issues.

The sustainable development division leads a specific network of correspondents of the Group's various entities on these questions. The network meets annually to discuss good practices and share the main actions initiated.

### 6.6.4.3.1 Contributing to action against energy poverty

As the issue of energy poverty intensifies across Europe, the EDF group reinforced its involvement in action against energy poverty in 2013, going further than the regulatory obligations. This is reflected by the incorporation of this issue into the eleven CSR commitments made in May 2013, and implementation of new solutions and programmes specific to each country concerned. The Group's chosen approach is to accompany customers in difficulty by tailored aid, and wherever possible, more long-term upstream action to reduce the most vulnerable households' consumption costs.

In France, in addition to operations conducted as part of public programmes<sup>1</sup>, EDF's action has three focuses:

- help with paying bills;

- assistance to customers in difficulty;
- preventive action.

Help with paying bills: EDF was the largest contributor to the housing solidarity fund (*Fonds de solidarité pour le logement*, or "FSL") applied with local authorities, paying in €23.3 million in 2013. EDF's 350 social advisors handled 400,000 applications and more than 200,000 underprivileged households, after local commission decisions, received financial aid to pay part of the energy bill.

Assistance: EDF increased the alert resources for fragile customers as the winter approached (mailings, text message campaigns and automatic phone calls). In 2013 the firm helped more than 466,000 customers under its "Energy Assistance" system (324,000 in 2012), working with them to find appropriate solutions to their situations: deadline extensions, putting them in touch with social services, providing advice on making energy savings.

As well as its in social mediation centres (170 reception points), EDF concluded a new partnership with the French Red Cross in June 2013, based on three actions: aid in finding solutions to energy debts, training action in energy uses and information on social tariffs, and help with improving home insulation.

In French overseas territories, the Group continued the measures initiated in previous years, distributing more than 95,000 low-energy lamp kits and multisocket standby savers ("Packécos") and "HydroEko" domestic water regulation kits in 2013 to customers who benefit from the basic need tariff, to help them control their electricity consumption. More than 70,000 customers in difficulty were supported, especially through the "Eco Solidaire" system in Réunion island, which can finance almost all the cost of installing an individual solar-powered water heater. In Guadeloupe, EDF and the housing information agency (*Agence Départementale d'Information sur le Logement*, or "ADIL") have begun to prepare an agreement to provide vulnerable people with more accessible information on the energy support available.

External partners consider EDF's customer support arrangements effective overall: 78% of local authorities declare they are satisfied (BVA survey, 2013).

1. EDF offers social tariffs in France for electricity (it is the only operator authorised to apply the Basic Necessity tariff) and natural gas (Special Solidarity tariff): it receives compensation for these tariffs through the Contribution to the Public Electricity Service ("CSPE") and the Contribution to the special solidarity tariff for gas ("CTSSG") respectively, and the startup of electricity supply is free. In 2013, the Brottes law extended the number of potential beneficiaries to 4 million households compared to more than one million in 2012.

Prevention: EDF develops long-term campaigns to improve the energy efficiency of the homes of people in energy poverty situations. It has continued its involvement in the “*Habiter mieux*” (Better living) programme headed by the ANAH agency for home improvement subsidies. Under the agreement signed in 2011 under the aegis of the Government and in response to the “Grenelle 2” environmental law, EDF’s financial contribution is a maximum €49 million over three years, making EDF the largest contributor ahead of GDF-Suez and Total. In 2013, renovation work begun on more than 31,230 homes occupied by owners in energy poverty situations (13,000 in 2012). EDF also participates in identifying the households eligible for aid, and provides expert advice in energy control (awareness-raising and training).

This commitment adds to EDF’s voluntary contributions, for instance:

- the “*Toits d’abord*” operation in partnership with the Fondation Abbé Pierre, aiming to build 2,000 “very social” housing units for disadvantaged sections of the population (more than 1,300 homes were being built or renovated at 31 December 2013);
- the “*Médiateur*” programme in partnership with Unis Cités, in which young volunteers do outreach work with residents in housing estates, to help them adjust their energy consumption behaviour (operation conducted in 23 towns);
- organisation of “Energy poverty meetings” with local actors to identify the new questions raised by energy poverty (5 meetings held in 2013 in Bordeaux, Nantes, Orléans, Nancy and Vesoul).

## In other Group companies

In 2013, ERDF launched the “*PRECARITER*” programme for local authorities, a statistical and mapping software to evaluate the various forms of energy poverty in mainland France. This is based on statistics for all French households<sup>1</sup>, their income and expenses (energy for the home, transport, rent, food, health, etc). Considering all unavoidable expenses faced by households, it offers a more detailed overview of energy poverty, without reducing understanding of the question simply to analysis of energy bills.

Given the growing numbers of payment difficulties (1,000 new cases of serious debt and tens of thousands of rescheduled payments) the Electricité de Strasbourg group is going beyond its obligations and stepped up its participation in the housing aid fund *Fonds de Solidarité Logement* (€130,000), extended its convention for helping customers in difficulty in the town of Illkirch, and signed an agreement with the city of Strasbourg so that its agencies can use special aid cheques to help customers.

In the United Kingdom, EDF Energy’s action is organised in several regulatory and voluntary systems.

Regulatory aid for vulnerable customers:

- 2013 was the third year of application of the Warm Home Discount Regulations (obligation incumbent on energy suppliers with more than 250,000 customers, requiring them to provide support for customers at risk or in a situation of energy poverty, via an annual discount of £135 on their bills). EDF Energy helped more than 175,000 customers for a total amount of £23 million. In 2014 the discount will be raised to £140.
- The government ECO initiative (Energy Companies Obligation) was introduced in early 2013 to reduce energy consumption in the United Kingdom, and help households in energy poverty by funding measures to improve energy efficiency. EDF Energy’s obligation for the period

2013-2015 concerns a total estimated amount of £490 million, including £150 million to priority need customers: people on benefits, people aged over 70, residents of rural areas or underprivileged areas. The company achieved its objective of completing 45% of the programme in 2013, particularly through more than 42,800 insulation projects.

Voluntary support mechanisms:

- In view of the new British regulations, EDF Energy discontinued in September its previous tariffs for vulnerable customers (automatic application of the lowest tariffs to eligible customers) and in November relaunched a personalised online aid service to help people in difficulty to get access to all the support offered by the company, and easily locate the cheapest tariffs and payment terms, to fight indebtedness. Advice is also available on reducing consumption and reinforcing household energy efficiency.
- Partnerships and voluntary support to charities were continued in 2013:
  - with the Plymouth Citizens Advice Bureau, an independent body that helps concerned customers of EDF Energy find solutions to their debt problems;
  - support for the London Warm Zone programme, which launched a boiler replacement plan in 14 disadvantaged areas of London, and the Newham Warm Zone programme, one of five pilot schemes supported by the government to increase efficiency in the support systems to help vulnerable households cut their energy bills;
  - sponsorship of energy poverty forums as part of the National Energy Action programme;
  - the Trust Fund, which allocates aid to help families in serious debt after serious illnesses or bereavement get back on their feet (donation of £1.6 million for 2,720 households);
  - work with the Cheshire Lehmann Fund, which supports academics and associations in research on the correlation between energy poverty and energy efficiency.

In Poland, where Group companies produce electricity and heat for local authorities but have no energy sales dealings with residential customers, all action to fight energy poverty is implemented voluntarily by EDF Polska through a policy of donations to town councils and NGOs.

In Hungary, EDF Démász continued in 2013 its partnership with the Hungarian branch of the Order of Malta (Maltese charity service), to provide financial aid and personalised advice for the people with unpaid energy bills.

## 6.6.4.3.2 Contributing to local economic development

In all the countries where it operates, the EDF group’s industrial activities (nuclear plants, fossil-fired plants, hydropower plants, renewable energies, distribution networks) are part of local areas and generate direct and indirect local employment, local purchases and payment of taxes that support local development.

In France, EDF has always had a public service mission designed to reduce inequalities between different regions. Through its investment policy it is the country’s largest investor, contributing €8.8 billion of net investments to the French economy in 2013 (€8.1 billion in 2012). It is also the largest customer of France’s small and medium-sized businesses, placing orders worth €2.4 billion in 2012 with 26,500 SMEs. One in two of EDF’s suppliers

1. All information is public data, essentially drawn from surveys by the national economic statistics body INSEE (Institut national des statistiques et des études économiques) and comply with CNIL data protection regulations.



is a SME. In the current crisis that has been affecting Europe since 2009, and in response to demand from local areas to develop local energy projects, EDF is taking action in several areas:

- preserving firms' competitiveness by offering them the cheapest possible energy;
- increasing the share of purchases related to investments (networks, new generation facilities, industrial maintenance) in regional businesses;
- becoming the leader of new industries that will generate jobs and local economic development, such as the offshore wind farm with EDF Energies Nouvelles (more than 7,000 jobs are expected to be created directly and indirectly for development of 1.5GW of wind power capacity), and energy services with Dalkia France (see section 6.4.1.4 ("Dalkia"));
- setting up innovative growth-driving partnerships with firms or local authorities to define local projects that will gradually integrate more local production and local management of energy demand.

This approach is coherent with the Group's CSR commitments as a "responsible partner".

The agreement on Dalkia, signed with Veolia Environnement on 25 March 2014 (see section 6.4.1.4 ("Dalkia")), will allow the Group to increase its presence in energy services (see section 6.4.1.3 ("Energy Services")) on the French and European markets. EDF thus aims to meet the energy supply needs of local authorities and offer them a complete range of energy solutions comprising collective heating, local energy production, and customised energy efficiency solutions for buildings according to their area, their installation and running costs, their environmental footprint, urban transport and public lighting. The manufacture, operation and maintenance of the equipment will stimulate local employment.

### Main contributions to local development in 2013

France	<ul style="list-style-type: none"> <li>■ Investments in distribution networks have risen by more than 50% over the last four years to €4 billion in 2013 (to meet connection needs and improve supply quality). 22,000 jobs have been generated directly and indirectly. In application of its new industrial policy, ERDF is balancing its purchases between large firms and small and medium businesses. In 2013, 95% of work and services were ordered from French companies, 53% from small and medium companies.</li> <li>■ Dunkirk methane terminal: at the end of 2013, 37% of the 693 contracts for construction of this terminal were with firms on the Opal Coast and 24% to regional firms. A partnership has been formed with Dunkirk borough, the local university, local research laboratories and industrial firms to develop a research and development activity on refrigeration.</li> <li>■ Romanche-Gavet hydroelectric development project: in addition to increasing the production capacity (93MW compared 85MW previously), access to the waterway will become open to other economic activities by reinforcing security on the new installations. The town's drinking water will be improved by financial contributions and loans. The riverbanks will be rehabilitated as natural land (six installations removed, to be replaced by a single dam). Construction of a low-energy building that will be moved to the town when building is complete. Incentives to use local companies (currently 24%).</li> <li>■ Flamanville EPR: at the end of 2013, 39 of the 58 projects selected for the support programme had been completed (€23.6 million). The main achievements of 2013 were: safety improvement and widening of the main road leading to the site, modernisation of Barneville-Carteret school and building a crèche in the Cherbourg conurbation. Fifteen other projects are still in progress.</li> <li>■ Corsica: application of an agreement for commissioning of the new Rizzanese dam with the Corsican local authorities; EDF will make 1.6 million m<sup>3</sup> of water available to support farming needs every year. Construction of the project (500,000 working hours) employed up to 300 people at its busiest point, one third of them from local firms. Almost 170 new staff were hired by EDF in five years and over a hundred apprentices were trained. Local companies benefited directly from a total €60 million via new roads, reinforcement of telecommunications networks required for the site, development plans around the reservoir, creation of an Energy-themed visitor centre and landscaping around Saint Jean-Baptiste de Poggio chapel, which is a popular tourist site.</li> <li>■ Plan Energie Alsace: €16 million (54% of the total budget) and 42 agreements or projects were in progress by the end of 2013 under a 3-year local support agreement. Areas of intervention: energy efficiency and poverty, innovation, biodiversity, training, energy education, integration of disabled people.</li> <li>■ Local energy projects: more than 200 projects for development of sustainable cities and areas are in progress, with the objective of applying economically suitable, low-carbon energy solutions that can be adapted to urban projects with the emphasis on renewable energies.</li> <li>■ Energy Productivity Plans: 20 new plans of the kind have been signed, and a service has been introduced to reinforce competitiveness in large French companies (10% of the portfolio of customers consuming more than 7GWh annually).</li> </ul>
Laos	<ul style="list-style-type: none"> <li>■ Continuation of economic support programmes by NTPC in connection with the Nam Theun hydropower plant. Development of farming and forestry activities by transfer of 190 local plots of public land for the purpose by the end of 2013, something not seen before in Laos. The reservoir will be used for fishing. NTPC also runs a micro-credit system (via a fund of €520,000) for individual entrepreneurs (516 loans had been made by the end of 2013, for a total of €100,000).</li> </ul>

## Contributing to social and local cohesion

Under a partnership agreement between the French government and nine major public service operators including EDF, intended to provide inhabitants of rural areas with a range of services in a single place, 22 contracts with French departments were signed in 2013.

### 6.6.4.3.3 Responsible suppliers and purchasing

#### Responsible purchases

The EDF group's Purchases Division is rolling out a "Responsible purchases" approach in all EDF activities and Group companies to incorporate consideration of the following into all stages of the purchase process:

- the environmental impact of purchasing decisions;
- societal and social aspects of the supply chain;
- the economic impact of purchasing decisions on the firm, its environment and its suppliers.

EDF, EDF Energy and EDF Luminus include in their purchasing terms and conditions the sustainable development charter that is always signed between EDF and its suppliers. In 2013, the EDF group made a commitment that 10 other companies would include an ethical/sustainable development clause in their purchasing contracts<sup>1</sup> by 2015. This project is being led by the Group's Purchases Division.

The division has also implemented the "Responsible purchases – Group synergies" programme which provides subsidiaries with tools and contracts it has developed, particularly concerning assessment of the supplier's attention to sustainable development.

At the end of 2013, ERDF signed a good practices charter with the electricity cables union SYCABEL (*Syndicat professionnel des fabricants de fils et câbles électriques et de communication*) in which the company undertakes to incorporate environmental concerns, including the environmental impact of cables, into its purchases and supplies.

In practice, respect of environmental and societal issues by suppliers is executed through auto-evaluation questionnaires and sustainable development and social responsibility audits at suppliers' premises, chiefly covering:

- control of their risks, including risks related to their manufacturing equipment;
- establishment of a carbon review of their manufacturing sites or their services;
- establishment of a study concerning the impact of their activity on biodiversity;
- application of innovation policies to develop environmentally-friendly substitute technologies or to save resources and reduce polluting emissions;
- introduction of a waste-reduction programme;
- implementation of a proactive policy to foster development of the local economic fabric.

Almost 80 audits were launched in 2013 and 60 were completed (57 in 2012), for a declared target of 54.45% of audits reported a rating of "satisfactory", 47% "acceptable with comments" and 8% "unsatisfactory". This confirms experience of previous years: problems with environmental and social impacts are low and often unusual in France, but are frequent in Asia. 50% of the suppliers audited are aware of EDF's sustainable development concerns. The main areas for improvement mainly concern subcontractors to whom the suppliers do not transmit EDF's demands. For EDF, these areas are: local purchases, purchases from small and medium sized businesses, the payment times, and the supplier audit process itself.

The number of SD/SR<sup>2</sup> services (audits and auto-evaluation questionnaires) will be increased to 100 in 2014 and will focus on risky purchase segments, especially when manufacturing is offshored.

#### Coal supply chain

The Group's coal supply chain has been the focus of particular attention for several years, and the Group has been a member of the Bettercoal<sup>3</sup> initiative since 2011. This initiative aims to improve corporate responsibility in the coal supply chain, particularly in mining sites, and ensure that fundamental rights (human rights, working conditions, workers and community life, environmental protection) are respected on those sites. A set of common standards of social, environmental and ethical principles was adopted in 2013 by all signatory companies, in line with existing international standards (issued by organisations such as the International Labour Organisation) and existing measures concerning the extractive industries (e.g. the Extractive Industries Initiative). From 2014, it will form the basis for audits and auto-evaluations of suppliers at the mining sites. The audit results will be recorded in a dedicated database managed by Bettercoal and shared by its members in compliance with antitrust rules.

#### Purchases from the protected sector

EDF has an objective for purchases from the protected sector, set by its sustainable development policy. Since 2010, the minimum volume objective has been €2.1 million annually. In 2013, these purchases amounted to €1.1 million and €1.5 million in 2012. For ERDF, the volume of these purchases was stable in 2013 from 2012 at around €2.5 million. More than 95% of these purchases concerned three areas: work on the networks (40%), pruning and clearing land (35%) and meter reading (20%).

### 6.6.4.3.4 Consumer health and safety

In France, EDF offers residential customers an electricity safety survey service proposed in partnership with the Consuel<sup>1</sup> (electricity users' safety inspectors). This service is designed to enhance the safety of interior electricity installations: a Consuel inspector can come to customers' homes to look at the key points of their electricity fittings in all accessible rooms, checking that they meet minimum safety requirements under the UTE XP C 16-600 "State of electricity fittings in residential property" standard. A report of any problems noted and the associated risks is remitted to the customer.

1. Excluding energy purchases on the SPOT market.

2. Sustainable development/social responsibility.

3. Bettercoal is an international initiative made up of the following industrial operators: EDF, DONG Energy, Enel/Endesa, E.ON, GDF Suez/Electrabel, RWE, Vattenfall/Nuon and Fortum.

4. The Consuel electricity users' safety committee (Comité National pour la Sécurité des usagers de l'électricité) is a public interest body in France that certifies the conformity of electric fittings in new or entirely-renovated homes, after inspection where necessary.

## 6.6.5 Reporting and non-financial rating

The commitment of transparency to stakeholders is put into practice through reporting action and non-financial ratings. EDF publishes an annual sustainable development report on its website analysing the environmental, societal and social impacts of Group companies' industrial and commercial businesses.

### 6.6.5.1 Reporting

This reporting uses the non-financial indicators defined in the Global Reporting Initiative. It complies with France's NRE law and Article 225 of the "Grenelle 2" Law (implementing Decree of 24 April 2012) and is consistent with the international commitments of the Global Compact to which the EDF group was one of the earliest signatories.

The form and content of the Group's non-financial reporting are constantly reviewed for improvement: reinforcing reporting processes for qualitative information; publishing a schema mapping relations between Group companies and their stakeholders; publishing supplier audits; comparing EDF's performance with others in the sector; taking on board stakeholder views (safety authorities, service providers, customers); simplifying access to information for internet users; including educational graphics (illustrating the environmental, societal and social issues related to Group activities); and publishing assessments by non-financial ratings agencies.

In 2013 the Group has made a commitment that 13 Group companies will attain Global Compact advanced level by 2017. This is earned through detailed reporting on four items: human rights, working conditions, environment and fight against corruption. 7 Group companies were members of the Global Compact at 31 December 2013, and two, EDF and Edison, are already at advanced level.

The Group is also engaged in a progressive process to have the quality of these non-financial indicators verified by the Statutory Auditors, initially voluntarily since 2007, and since 2013 in compliance with article L. 225-102-1 of the French Commercial Code.

The EDF group's Statutory Auditors have accordingly issued a report certifying the presence and fair presentation of the 42 required themes, in compliance with the decision of 13 May 2013.

In keeping with the Group's commitment to transparent communication, the Statutory Auditors issued "unreserved assurance" regarding the reasonableness of the "CO<sub>2</sub> emissions (for electricity and heat generation)" and "total workforce at year-end" indicators, broken down by gender and age (see Appendix E ("Summary of environmental and social indicators and methodological information on the environmental and social indicators for 2013")).

The sustainable development information published by the Group is based on evaluations by ratings agencies or non-financial analyst departments acting on behalf of investors.

### 6.6.5.2 Non-financial ratings

In March 2012, EDF was admitted to the FTSE4Good index. This admission is reviewed every six months, and EDF's acceptability has been confirmed at every review since it first joined the index.

EDF is also part of the Vigeo France 20 and Vigeo Europe 120 indexes, which include 20 firms in France and 120 in Europe which are the most advanced in six areas (human rights, the environment, human resources, market behaviour, corporate governance and societal commitment). In the most recent ratings in 2012 EDF was given an overall score of 55 out of 100. It is ranked ninth of the 34 electricity and gas sector companies.

EDF also participates in the Carbon Disclosure Project ("CDP"), an international organisation representing large investors and aiming to assess the leading global companies' impact on climate change.

EDF's transparency score was 95 out of 100 in 2013 (up by 8 points from 2012) and its performance was graded B (on a scale from A to F).





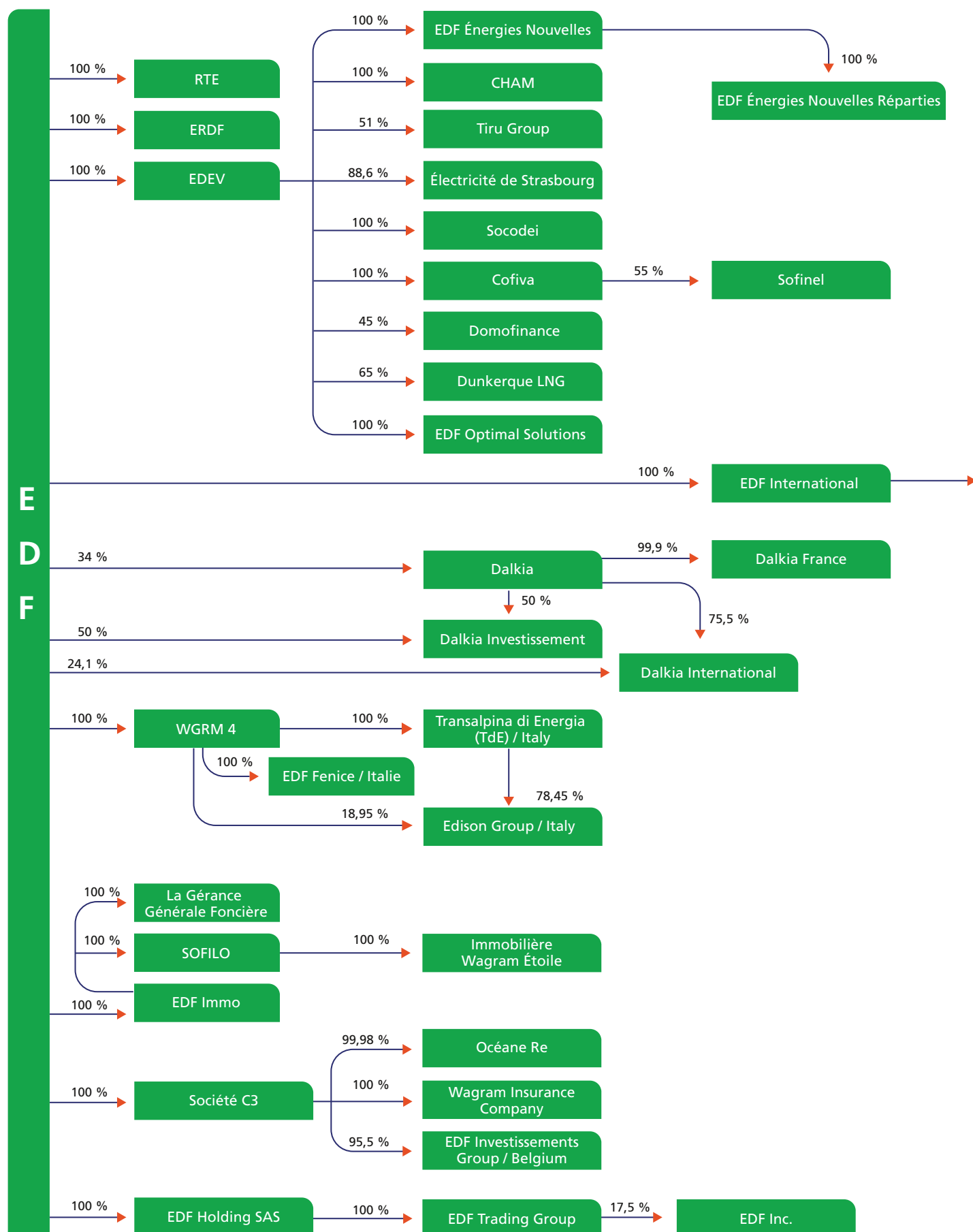


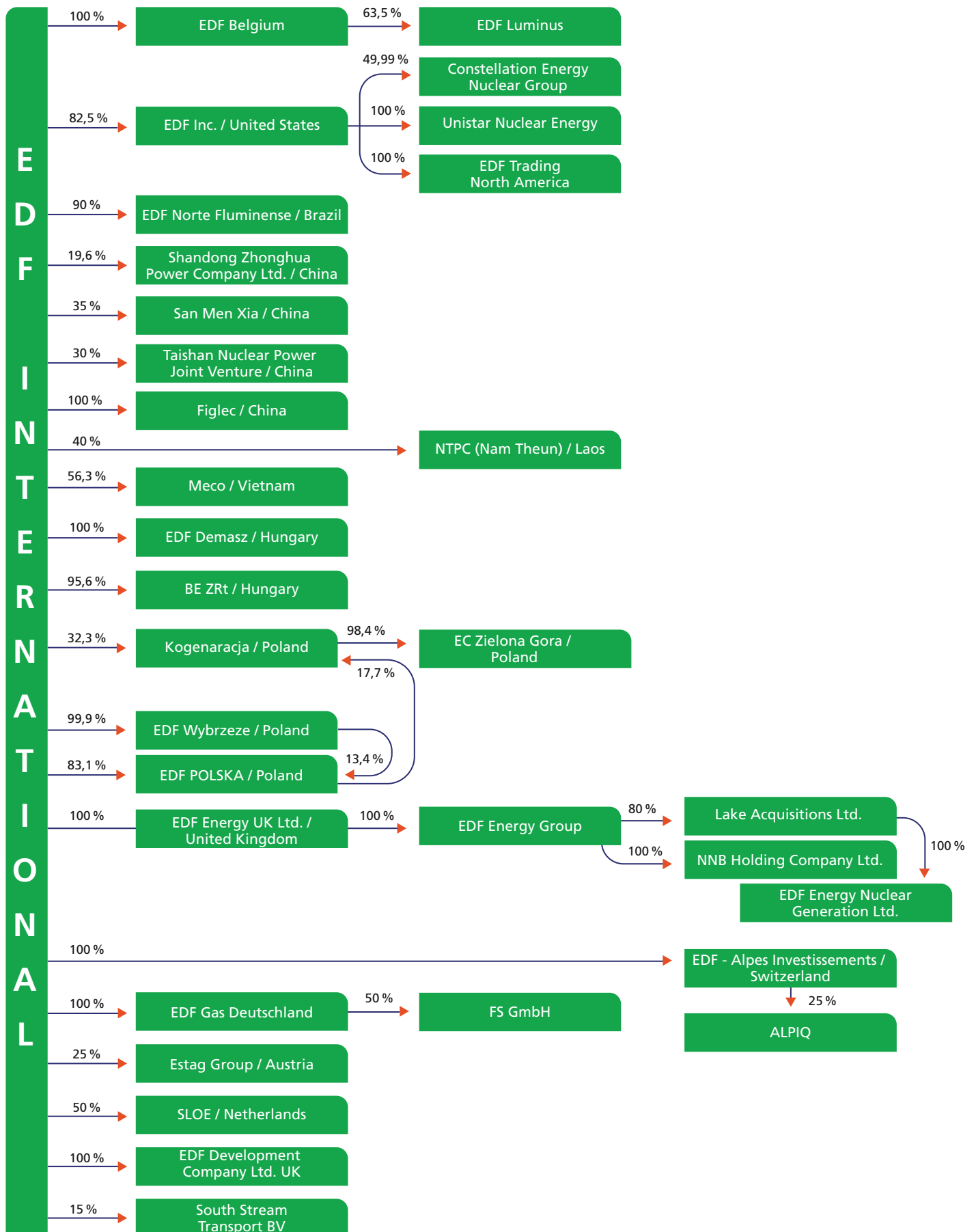
# 7 Organisational charts

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# 7 | Organisational charts

A simplified organisational chart for the Group, as of 31 December 2013, is presented below. The percentages for each entity represent the ownership interest in capital.







All the companies within the Group's scope of consolidation are indicated in note 52 to the consolidated financial statements for the year ended 31 December 2013

## Information on subsidiaries

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The presentation of the activities of the main subsidiaries of the Group, the description of their recent acquisitions, and their economic weighting in the Group appears in section 6.2 ("Presentation of the EDF Group's business in France") and 6.3 ("Presentation of the EDF group's international business")

of this reference document. In addition, note 6 to the consolidated financial statements for the year ended 31 December 2013, provides further financial information on the Group companies presented by operational sectors.

## Offices held by EDF executives

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Offices held by EDF executives within the Group's subsidiaries are indicated in section 14.1.2 ("Personal information on members of the Board of Directors").

## Intra-group contracts

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### Cash pooling agreements entered into between EDF and its subsidiaries

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The cash pooling set up by EDF centralises all the cash positions of the subsidiaries and the Group's liquidity can be optimised. This cash pooling consists in grouping all the cash balances of the subsidiaries at the level of the parent company. It includes certain French and international subsidiaries. It does not include RTE.

The system for cash pooling in place for the companies of the EDF group is defined under cash agreements. Bilateral agreements between EDF and each subsidiary define the specific conditions for each arrangement, such as remuneration of balances, etc.

On the international level, subsidiaries participating in the system enter into a framework agreement, whereby EDF serves as the Cash Center.

EDF also centralises all the currency flows from its French subsidiaries.

### Financial flows between EDF and its subsidiaries

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In addition to the financial flows relating to the cash pooling agreements mentioned above, financial flows between EDF and its subsidiaries are also

related to distributions of dividends within the Group. A substantial portion of the dividends paid by some of the Group's subsidiaries (including EDF Energy) is exclusively paid to EDF International. Total dividends received by EDF International in 2013 came to €725 million. EDF received a total of 2,112 million euros in dividends in 2013 from its consolidated subsidiaries.

Other financial flows between EDF and its subsidiaries are loans, asset transfers and guarantees made by the parent company of the Group for the benefit of certain subsidiaries.

In the context of the Group's financing centralization policy decided on in 2006, EDF centralizes the financing of its subsidiaries. In this context, in 2007 EDF created a subsidiary located in Belgium, EDF Investissements Groupe, which centralizes medium and long term intra group financing.

With regard to financial flows related to fees paid by subsidiaries, contracts for supply of intragroup services were concluded with the main subsidiaries of the scope of consolidation in 2012. EDF may also be required to provide specific services to certain subsidiaries or entities outside the Group. In addition, following the works of branding EDF, the Company set up licensing agreements with subsidiaries using the EDF brand.

A description of the financial flows related to contracts between EDF and its subsidiaries is set forth in chapter 19 ("Related party transactions") hereafter.

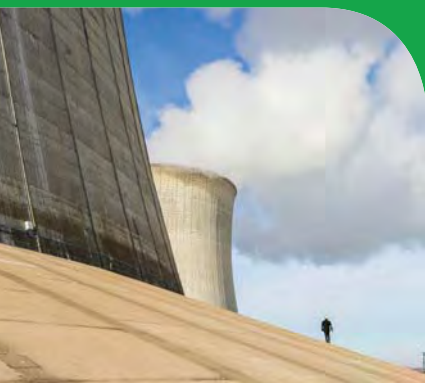


Photo credit © EDF – Cyrus Cornut

# 8 Property, plant and equipment

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## 8.1 Service sector real estate assets

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EDF's Real Estate Division, which includes the real estate department and its associated subsidiaries, operates in France as the Group's real estate provider by managing and optimising a real estate portfolio of nearly 4.4 million square meters of service premises, approximately 73% of which is owned outright by the Group and 27% is leased from third parties (leases and concessions).

The Real Estate Division is in charge of real estate asset management, lease management, the technical operation of building as well as the operation-maintenance of the facilities and the services provided to occupants, by offering areas through a sub-lease system for Group entities and units. By taking leases from third parties, the Real Estate Division made commitments for EDF amounting to €1,016 million for the period from 2014-2028.

## 8.2 Employer participation in the construction effort

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Each year, EDF is subject to an obligation to participate in the French construction effort program. Its contribution is 0.45% of its total payroll, which represented approximately €17.0 million for 2013 (€16.2 million for 2012).

In exchange for this payment, EDF's employees benefit from services intended to facilitate their residential mobility: assistance with renting, assistance with home purchase, assistance with mobility, advice on financing.

## 8.3 Subsidised home ownership loans

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As part of its social policy, EDF assists its employees to purchase their primary residence. Thanks to a partnership concluded with Crédit Immobilier de France ("CIF"), the bank manages the production, financing, and management of loans to the company's employees. EDF compensates the CIF for the difference between the subsidised rate at which CIF grants loans to EDF employees and the rate resulting from the bank survey conducted in 2005 on the basis of which the CIF was chosen.

As of 31 December 2013, the residual non-securitised balance for personal residence mortgages was €4.6 million on EDF's balance sheet (€5.3 million as of 31 December 2012).



# 9

## Operating and financial review

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## 9.1 Key figures

Pursuant to European regulation 1606/2002 of 19 July 2002 on the adoption of international accounting standards, the EDF group's consolidated financial statements at 31 December 2013 are prepared under the international accounting standards published by the IASB and approved by the European Union for application at 31 December 2013. These international standards are IAS (International Accounting Standards), IFRS (International Financial Reporting Standards), and interpretations issued by the SIC and IFRIC.

The Group's accounting policies are presented in note 1 to the consolidated financial statements at 31 December 2013.

The figures presented in this document are taken from the EDF group's consolidated financial statements at 31 December 2013.

The comparative figures for 2012 have been restated to reflect the impact of the change in accounting method resulting from application since 1 January 2013 of IAS 19 revised on the measurement and recognition of employee benefit provisions, and the change in presentation of disposals of generation assets by EDF Énergies Nouvelles as part of its Development and Sale of Structured Assets business. In the tables in this management report, these figures are reported as "2012 restated" and correspond to the comparative figures for 2012 shown in the 31 December 2013 consolidated financial statement.

The Group's key figures for 2013 are shown in the following tables. Variations in value and percentage are calculated with reference to the restated 2012 figures.

### Extract from the consolidated income statements

(in millions of Euros)	2013	2012 restated	Variation	Variation in %	Organic growth (%)
Sales	75,594	72,178	3,416	+4.7	+2.9
Operating profit before depreciation and amortisation (EBITDA)	16,765	15,998	767	+4.8	+5.5
Operating profit (EBIT)	8,411	8,159	252	+3.1	
Income before taxes of consolidated companies	5,322	4,825	497	+10.3	
EDF net income	3,517	3,275	242	+7.4	
Net income excluding non-recurring items <sup>(1)</sup>	4,117	4,175	(58)	-1.4	

(1) Net income excluding non-recurring items is not defined by IFRS, and is not directly visible in the consolidated income statements. It corresponds to the Group's share of net income excluding non-recurring items and the net change in fair value on Energy and Commodity derivatives, excluding trading activities, net of tax (see section 9.3.9).

### Extract from the consolidated balance sheets

(in millions of Euros)	31 December 2013	31 December 2012 restated
Non-current assets	142,509	140,279
Inventories and trade receivables	36,687	36,710
Other assets	54,974	55,294
Cash and cash equivalents, other liquid assets, loans to RTE and joint ventures	19,012	17,560
Assets held for sale	3,619	241
<b>TOTAL ASSETS</b>	<b>256,801</b>	<b>250,084</b>
Equity (EDF share)	34,207	26,257
Non-controlling interests	4,663	4,854
Special concession assets	43,454	42,551
Provisions	67,323	65,149
Loans and other financial liabilities	53,489	59,135
Other liabilities	51,376	52,089
Liabilities related to assets classified as held for sale	2,289	49
<b>TOTAL EQUITY AND LIABILITIES</b>	<b>256,801</b>	<b>250,084</b>

## Cash flow before dividends<sup>(1)</sup>

(in millions of Euros)	2013	2012 restated	Variation	Variation (%)
Cash flow before dividends	2,199	(5,607)	7,806	n.a.

(1) Cash flow before dividends is not an aggregate defined by IFRS as a measure of financial performance, and is not comparable with indicators of the same name reported by other companies. It is equivalent to the operating cash flow defined in section 9.4 after the changes in working capital and net investments as defined in section 9.4, and allocations and withdrawals from dedicated assets.

## Details of net indebtedness

(in millions of Euros)	31 December 2013	31 December 2012	Variation	Variation (%)
Loans and financial liabilities	53,313	59,932	(6,619)	-11.0
Derivatives used to hedge liabilities	176	(797)	973	
Cash and cash equivalents	(5,459)	(5,874)	415	-7.1
Liquid assets	(12,548)	(10,289)	(2,259)	+22.0
Loans to RTE and joint ventures	(1,005)	(1,397)	392	-28.1
Net indebtedness of discontinued operations	985	-	985	
<b>NET INDEBTEDNESS<sup>(1)</sup></b>	<b>35,462</b>	<b>41,575</b>	<b>(6,113)</b>	<b>-14.7</b>

(1) Net indebtedness is not defined in the accounting standards and is not directly visible in the consolidated balance sheets. It comprises total loans and financial liabilities, less cash and cash equivalents and liquid assets. Liquid assets are financial assets consisting of funds or securities with initial maturity of over three months that are readily convertible into cash regardless of their maturity and are managed according to a liquidity-oriented policy. Since 2012, it has also included the Group's loans to RTE and to joint ventures.

## 9.2 Economic environment and significant events of 2013

### 9.2.1 Economic environment

#### 9.2.1.1 Trends in market prices for electricity and the principal energy sources

In an increasingly interconnected European market, analysis of market prices in France and also in Italy, the United Kingdom and Germany is among the vital context information that the Group takes into consideration in its operating, distribution, optimisation and trading activities, given its strong positions in Europe.

Electricity prices in France, Germany and Italy declined during 2013 compared to the prior year, principally due to the marked downturn in coal and CO<sub>2</sub> prices.

In France, this electricity price downturn was limited by higher consumption during the winter periods. The first and last quarters of 2013 were marked by low temperatures that were often below normal monthly levels and colder than the previous year.

In the United Kingdom, however, prices rose as a result of their strong correlation with gas prices, which were up from 2012 levels.

##### 9.2.1.1.1 Spot electricity prices in France, the United Kingdom, Italy and Germany<sup>1</sup>

	France	United Kingdom	Italy	Germany
Average baseload price for 2013 (€/MWh)	43.2	59.1	63.0	37.8
Variation in average baseload prices, 2013/2012	-7.8%	+7.1%	-16.6%	-11.3%
Average peakload price for 2013 (€/MWh)	55.1	67.6	70.3	48.7
Variation in average baseload prices 2013/2012	-7.2%	+6.8%	-17.5%	-8.9%

1. **France and Germany:** Average previous day EPEXSPOT price for same-day delivery;  
**United Kingdom:** Average previous day EDF Trading OTC price for same-day delivery;  
**Italy:** Average previous day GME price for same-day delivery.

The comments below concern baseload prices.

In **France**, spot electricity prices stood at an average €43.2/MWh in 2013, €3.7 MWh lower than in 2012, largely as a result of the significant fall in the price of CO<sub>2</sub> emission rights and coal, although the seasonal effect on prices was more pronounced than in 2012. In the first and final quarters of the year, temperatures remained below seasonal norms and led to high consumption throughout those periods. This affected spot electricity prices, which remained close to their 2012 levels at those times. Over the rest of the year and in June especially, prices were noticeably lower than in 2012 due to the greater nuclear availability and hydropower output.

In the **United Kingdom**, spot electricity prices rose by more than 7% year on year, in line with the upward trend in spot gas prices. A carbon tax on

electricity generation introduced on 1 April 2013 also contributed to the rise in prices.

In **Italy**, prices were down by almost 17%, principally as a result of significantly higher hydropower and wind power output and lower consumption levels.

In **Germany**, spot prices retreated by an average €4.8/MWh compared to 2012, also as a result of fuel price movements. This price decrease was more pronounced than in France: since demand for electricity is not highly temperature-sensitive in Germany, prices were not driven up by colder-than-normal temperatures. As the German electricity system is more dependent on coal-fired plants than the French system, the decline in coal and CO<sub>2</sub> emission rights prices had a greater impact in Germany.

## 9.2.1.1.2 Forward electricity prices in France, the United Kingdom and Germany

	France	United Kingdom	Italy	Germany
Average baseload price for 2013 (€/MWh)	43.3	61.3	62.7	39.1
Variation in average baseload prices, 2013/2012	-14.4%	-0.5%	-14.5%	-20.7%
Forward baseload price at 23 December 2013	44.2	63.5	62.8	37.3
Average peakload price for 2013 (€/MWh)	56.6	70.5	69.9	49.7
Variation in average peakload prices, 2013/2012	-11.5%	+0.9%	-13.5%	-18.4%
Forward peakload price at 23 December 2013	56.2	72.3	70.2	48.6

The comments below concern baseload prices.

European annual contract baseload prices<sup>1</sup> were on average lower than in 2012, except in the United Kingdom, where the contract remained stable.

In **France**, the annual contract baseload price was 14.4% lower on average than in 2012. This decline is mainly explained by the lower prices for coal and CO<sub>2</sub> emission rights. However, market actors' anticipation that risks of supply / demand tension were likely in the first quarter of 2014 kept prices stable over that horizon and thus limited the impact of the downturn.

In the **United Kingdom**, the April Ahead baseload contract price for 1 April Y+1 to 31 March Y+2 remained relatively stable, registering a -0.5% change compared to the previous year. This is explained by the rise in forward prices for gas, which is more widely used for generation in the United Kingdom than in other countries. Also, the carbon tax introduced in the United Kingdom on electricity generation will be raised by £4.9/t on 1 April 2014, which will drive the contract price up. These upward movements are counterbalanced by the falling price of coal and the prospect of imports from France.

In **Italy**, the annual baseload contract price was lower than in 2012 due to developments in fuel and CO<sub>2</sub> prices, and the more relaxed spot markets.

In **Germany**, the annual contract baseload price also fell below its 2012 level, due to developments in fuel prices.

## 9.2.1.1.3 CO<sub>2</sub> emission rights prices<sup>2</sup>

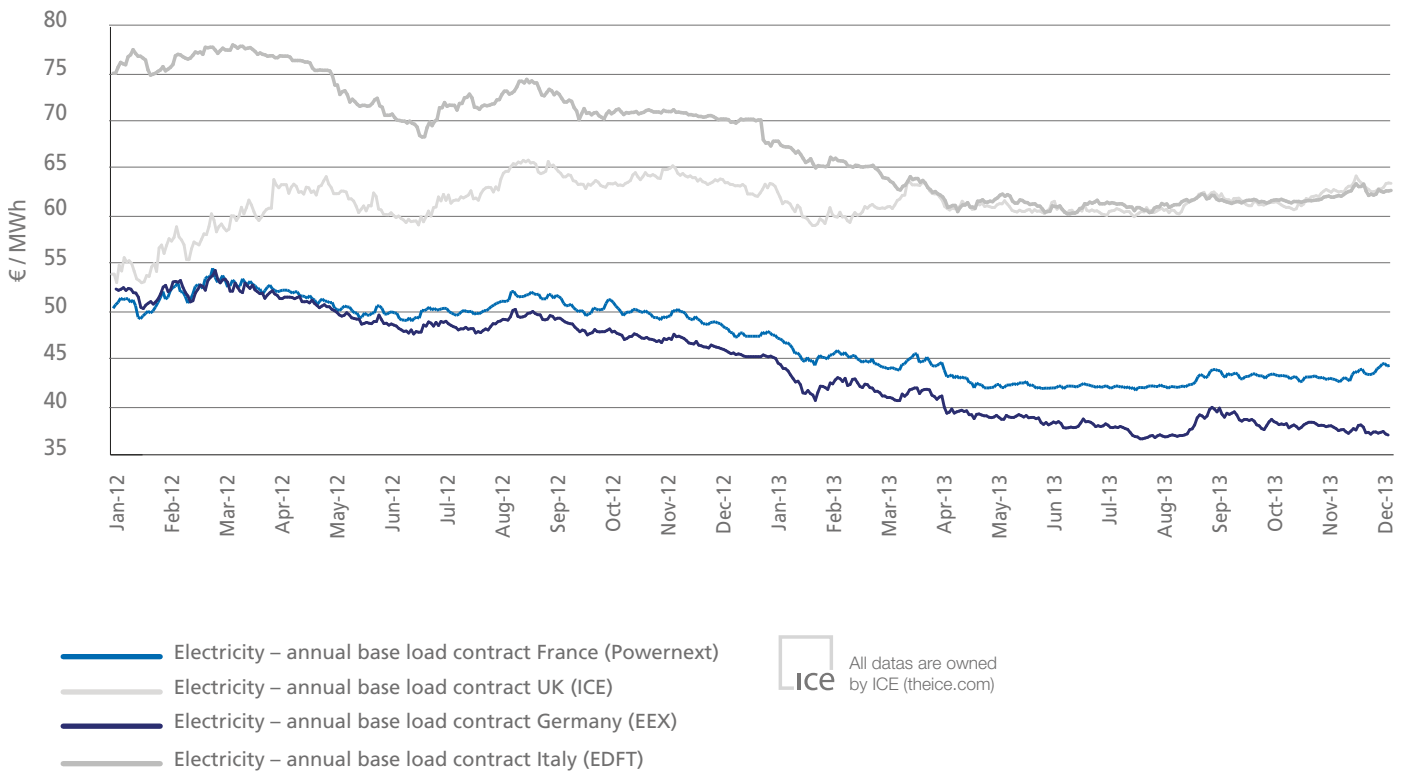
The price of CO<sub>2</sub> emission rights for delivery in December 2013 stood at €4.5/t on average over 2013. Prices fell by more than 40% compared to 2012, when CO<sub>2</sub> traded at €7.5/t on average.

At European level, supply continued to outstrip demand overall on the market for CO<sub>2</sub> emission rights, mainly because of the economic crisis and the development of renewable energies. Discussions took place at European Commission level to bring in a "backloading" law that would temporarily limit supply, the principle being to reduce the volume of CO<sub>2</sub> emission rights sold to market actors by the various governments during the first part of Phase III, but to put the full volumes back on the market for later periods. Over 2013, the price of emission rights varied in response to announcements concerning the possible adoption of this law by the European authorities, and it was finally adopted on 16 December 2013. This had an upward but only moderate impact on prices that was not enough to take them back to 2012 levels.

1. **France and Germany:** Average year-ahead EPD price i.e. average listed price of the product for 2014 delivery; the final day of listing in 2013 was 23 December; **Italy:** average year-ahead EDF Trading price i.e. average listed price of the product for 2014 delivery; **United Kingdom:** Average ICE annual contract prices, April 2013 then April 2014 (in the UK, annual contract deliveries take place from 1 April to 31 March).

2. Average ICE prices for the annual contract, Phase III (2013-2020).

## Forward electricity prices in France, the United Kingdom, Italy and Germany



## CO<sub>2</sub> emission rights prices (Phase III 2013-2020)





## 9.2.1.1.4 Fossil fuel prices<sup>1</sup>

	Coal (\$/t)	Oil (\$/bl)	Natural gas (p/th)
Average price for 2013	88.9	108.3	67.5
Average price variation, 2013/2012	-13.8%	-3.0%	+4.4%
Highest price in 2013	102.2	118.9	69.7
Lowest price in 2013	80.8	97.7	64.5
Closing price, 2012	94.1	111.1	65.8
Closing price, 2013	82.3	110.8	66.9

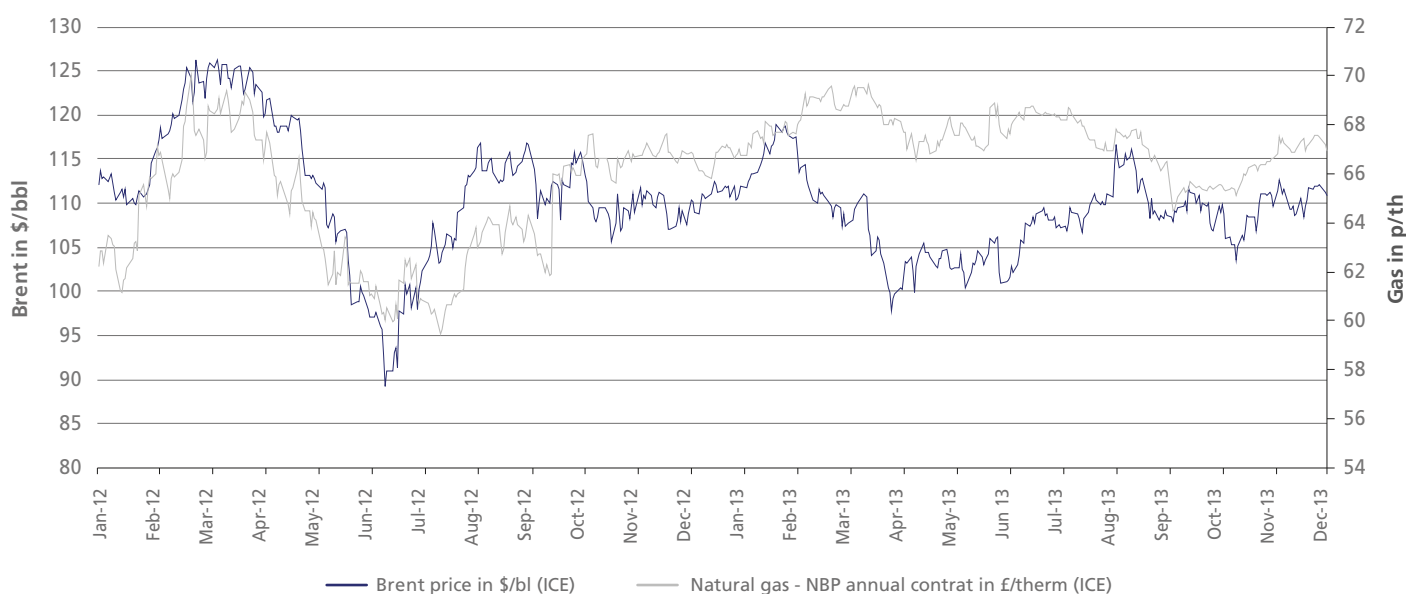
Forward prices for coal saw an average decline from 2012 levels attributable to the plentiful supply. In the short term, the supply-demand balance remained very relaxed, largely because of cheap coal imports from Russia, the US and Colombia and low demand from electricity operators. This led to high stocks, which kept up downward pressure on forward prices, and the price per tonne of coal for delivery in 2014 ended the year at around USD 82.

Oil prices were lower than in 2012 as the still-sluggish macro-economic environment encouraged actors to regularly adjust their forecast consumption downwards. However, this decrease was limited by fears over supplies given the political tensions in Libya and Syria, and uncertainties over the development of diplomatic relations with Iran.

Natural gas prices under the United Kingdom's annual contract were higher than in 2012.

The low temperatures recorded in the United Kingdom between January and April caused extensive use of long-term stocks to ensure good supply-demand balance and by mid-April, storage capacities were empty. Traditionally, stocks are largely replenished in the summer months, but in 2013, given the exceptionally low early summer stock levels and the time needed to build them up, storage capacities only returned to nearly-full levels at the end of October. Furthermore, it was announced that Norway's export capacity would be reduced for one year. These factors caused a marked rise in prices for the winter of 2013-2014, and to a lesser extent for summer 2014. Since 1 October, the contract concerns the gas year running from 1 October 2014 to 30 September 2015. As the supply tension is expected to be lower for those dates, the price is lower than for the 2013 gas year, helping to limit the rise in gas prices from one calendar year to the next.

### Natural gas and oil prices



1. **Coal:** Average ICE prices for delivery in Europe (CIF ARA) for the next calendar year (\$/t);  
**Oil:** Brent first reference crude oil barrel, ICE index (front month) (\$/barrel);  
**Natural gas:** Average ICE OTC prices, for delivery starting from October of the following year for the UK (NBP) (pence/therm).

### 9.2.1.2 Electricity<sup>1</sup> and gas<sup>2</sup> consumption

Overall electricity consumption in **France** in 2013 was 1.12% higher than in 2012. This slight rise mostly concerned the first half-year, when temperatures were below normal (-2°C on average) across every month of the period; in the second half-year, consumption was down very slightly (-0.1%) compared to the second half-year of 2012.

After correction for weather effects and the fact that 2012 was a leap year, consumption in France was stable overall between 2012 and 2013 (-0.5 TWh). The downturn in consumption by large industrial customers is slowing, and is being offset by a rise in consumption by residential and small business customers, which is tending to stabilise (+0.3%).

In the **United Kingdom**, estimated electricity consumption in 2013 by final customers, which is not highly sensitive to temperatures, was down slightly (-0.7%) compared to 2012.

In **Italy**, where there was an economic slowdown, domestic electricity consumption contracted by 3.4% compared to 2012 (-3.1% based on constant number of days).

Natural gas consumption in **France** rose by approximately 1.7% in 2013 compared to 2012. Much of this moderate rise is attributable to weather effects: compared to 2012, the first half-year of 2013 was colder and the second half-year was milder.

Estimated domestic natural gas consumption by end-users showed a slight increase (+1.2%) in the **United Kingdom**, but with contrasting differences from 2012: in the first half-year, consumption was higher than normal due to abnormally low temperatures, but in the second half-year consumption decreased sharply as a result of particularly high temperatures.

Domestic natural gas consumption in **Italy** was down by 6.4%; gas was used less for fossil-fired generation given the decline in demand for electricity and the growing contribution of renewable energies.

### 9.2.1.3 Electricity and natural gas tariffs

In **France**, the French Minister for Ecology, Sustainable Development and Energy published a decision on 31 July 2013 raising the regulated sales tariffs for electricity as follows:

- 5% on average for the “blue” tariffs for households and small business customers, in line with the Government announcement of 9 July 2013;
- 2.7% on average for the “yellow” tariffs (for larger businesses and local authorities).

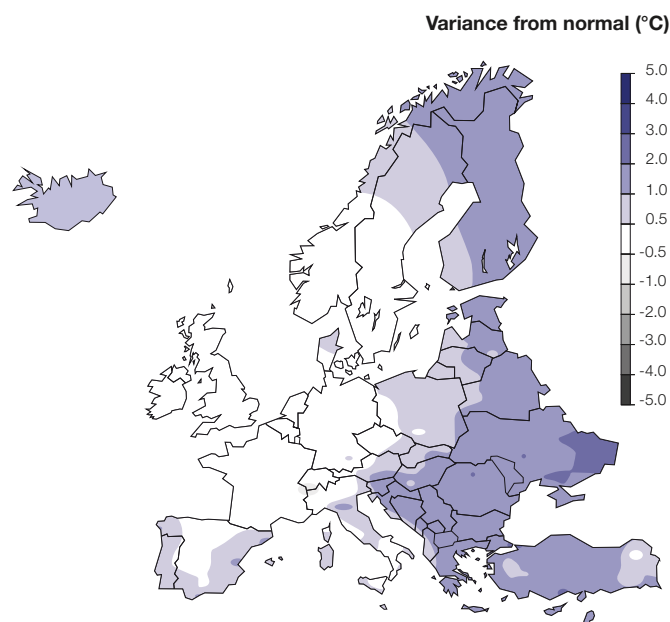
The average change for industrial customers’ tariffs and tariff options is nil.

These increases took effect on 1 August 2013 and provided an opportunity to reform the structure and improve the coherence between the different options, as observed by the French energy regulator CRE<sup>3</sup> in its decision of 25 July 2013.

In the **United Kingdom**, EDF Energy kept its gas and electricity tariffs stable over 2013.

### 9.2.1.4 Weather conditions: temperatures and rainfall

Average temperatures: variance from normal levels, January to December 2013<sup>4</sup>



In France, the combination of surplus rainfall and abnormally cold weather in the first half-year led to unusually high snow coverage, which persisted late into the season in the Alps and the Pyrénées.

In the Pyrénées, 40-year-old records for snow levels were broken. The second fortnight of June brought a significant conjunction between this unusual late snow coverage and heavy rainfall that caused devastating floods in the Garonne sources, and the Gaves and Nestes valleys in south-west France.

1. France: RTE, raw and adjusted for weather effects.

United Kingdom: Department of Energy and Climate Change for the first 3 quarters, local subsidiary estimate for the final quarter.

Italy: raw and adjusted data provided by the national Italian electricity grid Terna.

2. France: Pégase database, source SOeS (Service de l'Observation et des Statistiques), January to November 2013.

United Kingdom: Department of Energy and Climate Change for the first 3 quarters, local subsidiary estimate for the final quarter.

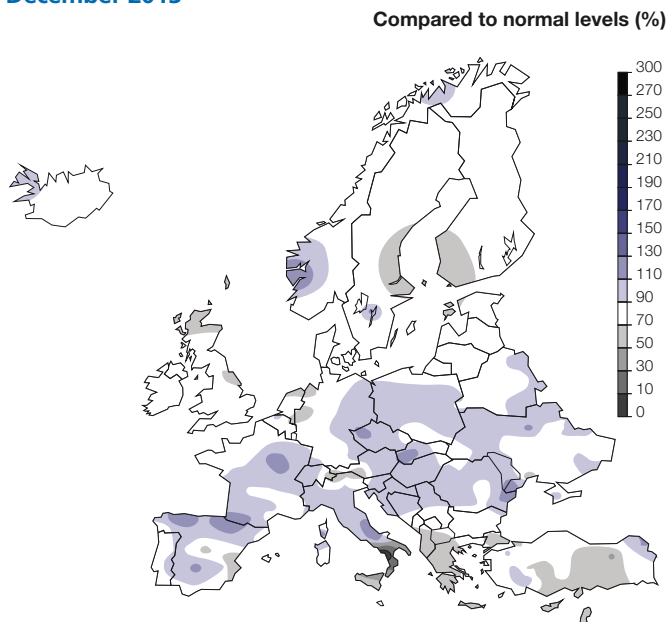
Italy: local subsidiary estimate.

3. French Energy Regulatory Authority.

4. Map comparing average temperatures with normal levels measured over 30 years (1971-2000 for Western Europe and 1961-1990 for Eastern Europe).

Source: Base de Données Climatologiques, Météo France.

### Rainfall: variance from normal annual levels, January to December 2013<sup>1</sup>



2013 was marked by heavy rainfall that exceeded normal levels for a large part of Europe, especially the Iberian peninsula, central Europe and France. Only the northern end (United Kingdom and Scandinavia) and the south-east end (Greece and Turkey) of Europe experienced close to normal or even slightly below-normal precipitation.

Air temperatures varied widely during the first half-year, between:

- unusually cold weather in the west (particularly France, Switzerland and Germany);
- and unusually warm weather in the countries around the Black Sea and the easternmost third of Europe.

In the second half-year, there was a spell of unusually hot weather across all of Europe, which was again more pronounced in the east.

As a result of these weather phenomena, hydropower capacity levels in France were above normal throughout the year (apart from the months of September and December) particularly in April, May and June. The cumulative effect over the year 2013 was a surplus capacity not seen since 2001.

## 9.2.2 Significant events<sup>2,3</sup>

### 9.2.2.1 Strategic developments

#### 9.2.2.1.1 Hinkley Point C nuclear plant project

On 4 February 2013, Centrica announced its decision to end its partnership with EDF for the construction of EPRs in the United Kingdom, by exercising its option to sell EDF Energy its 20% investment in the company formed as a vehicle for 'Nuclear New' Build projects in the UK. EDF thus became the company's sole shareholder.

On 19 March 2013, the British Minister for Energy and Climate change announced that had consented to construction of a new nuclear power plant at Hinkley Point, in Somerset in south-west England.

On 21 October 2013, the EDF group and the British government reached an agreement on the main commercial terms of the Hinkley Point C (HPC) investment contract, notably setting a strike price of £92.5/MWh<sup>4</sup> for the Contract for Difference (CfD) and a duration of 35 years from the plant's date of commissioning. This would give an internal rate of return (IRR) on the project of approximately 10%, in line with the Group's investment criteria.

The project is eligible for the British government's Infrastructure UK (IUK) guarantee scheme; the debt to finance 65% of the total pre-operating construction costs will be underwritten by the UK treasury on terms and conditions that are currently being negotiated.

The EDF group has set up a consortium of industrial partners for the project, which is expected to be structured as follows: 45-50% for EDF, 10% for AREVA, 30 to 40% for China General Nuclear Corporation (CGN) and China National Nuclear Corporation (CNNC). Discussions are also taking place with a shortlist of other interested investors, who could take up to 15%.

These agreements and construction of the power plant still require a final investment decision, which is conditional on completion of certain key stages including agreement of the full investment contract, finalisation of agreements with industrial partners and a decision from the European Commission concerning state aid. On 18 December 2013, the European Commission announced that it had begun an in-depth investigation into the matter and on 31 January 2014 it released an initial assessment, which should soon be published in the *Official Journal* then followed by a one-month consultation period involving all actors.

#### 9.2.2.1.2 Draft agreement on Dalkia between EDF and Veolia Environnement

As part of the Group's strategy of clarifying its industrial partnerships, in October 2013, EDF and Veolia Environnement engaged in advanced discussions with a view to concluding an agreement on their joint subsidiary Dalkia, a global player in energy services. Concomitantly, on 30 September 2013, EDF Group had engaged in an exclusive discussion with Dalkia France through its subsidiary EDF Développement Environnement (EDEV), with a view to buying back Citelum, one of the leading player in the public lighting and urban electrical equipment sector.

The discussions between EDF and Veolia Environnement led to the signing of an agreement on 25 March 2014, under which EDF will take over Dalkia's activities in France while Veolia Environnement will take over the activities of Dalkia International, in accordance with the principles announced on 28 October 2013 (see Section 6.4.1.4 ("Dalkia")).

In view of this transaction, the planned acquisition of Citelum was terminated by EDEV and Dalkia France on the same day, as Citelum and its subsidiaries form part of the scope acquired by the EDF Group.

1. Map comparing average rainfall with normal levels between January and December 2013. Normal rainfall is measured over 30 years (1971-2000 for Western Europe and 1961-1990 for Eastern Europe). Source: Base de Données Climatologiques, Météo France.

2. Significant events related to litigation are described in section 20.

3. The reference document and a full list of press releases are available from the EDF website: [www.edf.com](http://www.edf.com).

4. £89.5/MWh if an investment decision is made for the Sizewell C project. If so, Sizewell C will repay the Hinkley Point C project the equivalent of £3/MWh due to the "series benefit" of not being the first reactor of its kind.

## 9.2.2.2 New investments and partnerships

### 9.2.2.2.1 Financial investments

#### 9.2.2.2.1.1 Formation of EDF Invest

In mid 2013 EDF set up EDF Invest, which is in charge of managing the portfolio of unlisted investments included in EDF's dedicated assets. These unlisted investments comprise three classes of asset: mainly infrastructures, but also real estate and private equity assets.

The EDF group's 20% investment in TIGF described below is EDF Invest's first investment in infrastructures, along with the 50% of RTE shares already included in the dedicated asset portfolio. TIGF and the RTE shares account for some 13% of dedicated assets.

EDF Invest's objective is ultimately to have €5 billion of unlisted investments under management, representing 25% of the total dedicated assets.

#### 9.2.2.2.1.2 Acquisition of TIGF

On 4 April 2013, the consortium made up of Snam, the Italian gas transmission and storage operator (45%), GIC, the Singaporean sovereign fund (35%), and EDF (20%) signed a final agreement with the Total group for the acquisition of its gas transmission and storage subsidiary TIGF (Transport et Infrastructures Gaz France).

The transaction was completed on 30 July 2013. EDF's 20% investment is carried by EDF Invest via a holding company in which the Group's stake at the date of acquisition of TIGF and the finalisation and structuring of its financing was valued at €0.3 billion.

On 28 January 2014, the rating agency Moody's confirmed TIGF's Baa2 rating and its stable outlook. The rating had been under review for potential downgrading since 6 August 2013.

### 9.2.2.2.2 Investments and disposals by EDF Énergies Nouvelles

On 11 February 2013, EDF Énergies Nouvelles announced its acquisition of the French wind power business of Séchilienne Sidec, which has installed capacity of 56.5 MW and five projects in development totalling 60 MW.

In 2013 and in January 2014, EDF Énergies Nouvelles made investments in wind farms under construction in Canada (the 300 MW Blackspring Ridge facility) and the United States (Spinning Spur II and III, Longhorn in Texas, Roosevelt in New Mexico).

On 27 May 2013, EDF Énergies Nouvelles acquired 20% of the 30 wind farms in operation in France from Iberdrola. This investment represents gross capacity of 305 MW.

On 29 November 2013, the European consortium EDF Énergies Nouvelles and wpd offshore announced that it had submitted two bids for the Tréport and Ile d'Yeu / Ile de Noirmoutier projects in France, together with Alstom, its partner for the supply of turbines. These offers are part of the second call for tenders for French offshore wind energy projects, representing total new capacity of 1,000 MW to be installed by 2023.

On 5 December 2013, EDF Énergies Nouvelles and the Indian company ACME Cleantech Solutions Ltd formed a joint venture based in India and positioned in the photovoltaic market: ACME Solar Energy Private Ltd. There are three investors in the joint venture:

- ACME Cleantech Solutions Ltd (50%);
- EDF Énergies Nouvelles (25%);
- EREN, a group specialised in savings in natural resources (25%).

**Disposals in 2013:** The principal sales undertaken in 2013 by EDF Énergies Nouvelles as part of its Development and Sales of Structured Assets (DSSA) activities concerned the remaining 50% of the Lakefield wind farm (102.75 MW), 50% of the Eoliatic Del Istmo facility (82 MW) in Mexico, and 50% of the Saint-Robert-Bellarmin wind farm (40 MW) in Canada. EDF Énergies Nouvelles and EDF Energy also jointly sold 80% of the Fallago Rig wind farm in Scotland.

EDF Énergies Nouvelles sold a further 50% of the French solar power facilities Crucey 1 (36 MWp au total) and Massangis 2 (20 MWp) in France.

### 9.2.2.2.3 Contracts and agreements

#### 9.2.2.2.3.1 Renegotiations of Edison's gas supply contracts

On 23 April 2013, the Court of Arbitration of the International Chamber of Commerce found in favour of Edison in the litigation with Sonatrach (Algeria) initiated in August 2011, concerning the long-term gas price in the Algerian contract.

Edison and Rasgas (Qatar) also signed an agreement in July 2013 amending certain aspects of the long-term gas supply contract (particularly the pricing terms) between the two companies.

The total impact of these operations on the EDF group's EBITDA for 2013 was a positive €813 million, including compensation for previous years.

The second cycle of renegotiations concerning gas supply contracts with Russia and Libya is in process. Arbitration proceedings were still in process at 31 December 2013 regarding the supply contracts with Promgas (Russia) and ENI (Libya).

#### 9.2.2.2.3.2 Agreement with Exelon on CENG

On April 1 2014, after receipt of the approval of the Nuclear Regulatory Commission, the EDF group has finalized its transaction regarding Constellation Energy Nuclear Group (CENG), on terms set forth in the agreement with Exelon dated 29 July 2013.

Under the terms of this agreement, EDF delegates to Exelon, America's leading nuclear operator, operational management of the five nuclear reactors owned by CENG (spread across three sites in the United States and representing a total output of 4.2 GW).

As contemplated by the agreement, CENG has also paid a special dividend of USD 400 million (approximately €300 million) to EDF, which has been financed by Exelon. Exelon has also granted to EDF an option to sell its holding in CENG to Exelon – at market value – between January 2016 and June 2022.

After this deal, EDF will continue to hold 49.99% of CENG, whilst Exelon holds 50.01% and the Board of Directors will continue to comprise equal numbers of Exelon and EDF Board members.

### 9.2.2.2.4 Disposals of investments

#### 9.2.2.2.4.1 Sale of the Group's investment in SSE

On 24 May 2013, EDF and Energetický a průmyslový Holding, a.s. (EPH), a Czech energy company that is a leading player in central and eastern Europe, signed a final agreement for the sale to EPH of a 49% stake in Stredoslovenska Energetika a.s. (SSE), Slovakia's number two electricity distributor and supplier.

On 27 November 2013, this transaction was finalised after it was approved at SSE's General Shareholders' Meeting and SSE had received authorisation from the competition authorities.

The transaction valued EDF's investment in SSE at approximately €400 million.



#### 9.2.2.2.4.2 **Sale of the Group's investment in Veolia Environnement**

On 26 November 2013, the Group announced that it has sold its entire non-strategic investment of 4.01% in Veolia Environnement, which is listed on Euronext and NYSE. The sale took place for the price of €11.90 per share, representing a 2.3% discount on the closing price at 26 November 2013 or a total of €262 million.

### 9.2.2.3 **Investment projects**

#### 9.2.2.3.1 **France**

##### 9.2.2.3.1.1 **Flamanville 3**

Significant construction milestones were reached during 2013:

- placing the dome on the reactor building in July, once the polar crane had been installed;
- installation of the equipment access hatch in the reactor building;
- completion of concreting on the reactor shell for the auxiliary nuclear and fuel buildings;
- filling the drainage basin and the backup reservoir for watertightness tests;
- finalisation of tanking of the cooling pool in the fuel building;
- steam tubing assembly inside the machine room;
- connection of the stepdown transformer via a temporary 400 kV supply;
- ramp-up of mechanical and electric assemblies, with installation and progressive commissioning of electricity supply and the control command cabinets for the nuclear island.

Civil engineering work on the Flamanville EPR project was practically complete at 31 December 2013, and more than 50% of the electro-mechanical equipment is in place.

The first power output is expected in 2016.

##### 9.2.2.3.1.2 **Construction of the new power plant at Bouchain**

In late 2011, EDF and GE Energy entered into a partnership arrangement for joint development of the new generation combined cycle gas (CCG) plant located in Bouchain in north France. Its CCGT will be equipped with new technology that makes it possible to reach maximum capacity in a very short time, while offering augmented output. Construction work began in April 2013. The prototype will be tested for 2 years from 2016 before being transferred to EDF if the test results are satisfactory.

##### 9.2.2.3.1.3 **Commissioning of the second Martigues Combined Cycle Gas (CCG) plant**

The second CCG facility on the Martigues site began industrial operation on 7 June 2013. Martigues is now the largest CCG plant in France, with capacity of 930 MW and an output more than 50% higher than traditional fossil-fired units, which reduces its environmental impact.

##### 9.2.2.3.1.4 **Inauguration of the Rizzanese dam in Corsica**

On 17 June 2013, EDF inaugurated Corsica's 4<sup>th</sup> major dam on the Rizzanese in South Corsica. This new facility with installed capacity of 55 MW raises the share of renewable energies in the island's energy consumption to 30%. It has supplied the Corsican electricity network since February 2013, with the connection of one of the two turbines at the Sainte-Lucie de Tallano plant located downstream. The dam started operations in late 2013.

This hydroelectric facility will reduce Corsica's hydrocarbon consumption and thus prevent the discharge of 60,000 tonnes of CO<sub>2</sub> every year. It is intended to be used in peak periods when electricity consumption is at its highest.

##### 9.2.2.3.1.5 **Launch of the rollout of smart meters**

The rollout of smart meters complies with European and French regulations on electricity metering systems (EU directive 2009-072; French decree of 31 August 2010; the decision on metering of 4 January 2012). It follows a trial conducted by ERDF in 2009-2011 with 300,000 meters: after assessing the results, the CRE recommended generalising the smart meter system in its decision of 7 July 2011.

At the initiative of France's Minister for Ecology, Sustainable Development and Energy, a working party with representatives of all the stakeholders was formed in late 2012. The work done during 2013 led the Prime Minister to announce on 9 July 2013 that ERDF would install 3 million smart meters by 2016.

ERDF thus launched a call for tenders in October 2013 for supply of the first meters.

##### 9.2.2.3.1.6 **Inauguration of the Port Est fossil-fired plant (Reunion island)**

On 11 October 2013, EDF group inaugurated the 210 MW-capacity Port Est fossil-fired plant. This plant runs on fuel oil and was built to replace the Port Ouest facility, which was closed in April 2013. The investment amounted to more than €500 million. The plant is equipped with innovative technologies and offers excellent industrial and environmental efficiency: its new-generation diesel motors, with catalytic devices that reduce gas discharge by 85%, cut fuel consumption by 15%.

#### 9.2.2.3.2 **United Kingdom: commissioning of 3 Combined Cycle Gas turbines (CCGTs) at West Burton B**

The West Burton B CCG power plant in Nottinghamshire consists of three units: the first two were commissioned in the first half-year and the third in the second half-year of 2013. Each unit has a capacity of 437 MW or a combined total of some 1,300 MW. This plant can serve 1.5 million households.

#### 9.2.2.3.3 **Other activities**

##### 9.2.2.3.3.1 **Construction of the Dunkirk methane terminal**

Construction work on the Dunkirk terminal headed by Dunkerque LNG, a subsidiary owned 65% by the EDF group, is continuing and the date for start of operations is scheduled for November 2015. The terminal was more than 50% complete at the end of 2013, with the following achieved:

- completion of work on the harbour by Grand Port Maritime de Dunkerque, and delivery of the land platform to Dunkerque LNG;
- lifting and concreting the domes for the three reservoirs that will store the liquefied natural gas (LNG);
- start of excavation for the tunnel between the terminal and the Gravelines nuclear power plant, as warm water discharge from Gravelines will be used in regasification of the LNG;
- finalisation of installation and connection of gas transmission networks;
- rollout of employment and subcontracting measures to support local development;
- delivery of a 20 hectare wet zone as part of the environmental offset measures.

These last two points are discussed in more detail in section 6.

The two natural gas network managers, Belgian company Fluxys and French company GRTgaz, are continuing to build a new interconnection between France and Belgium, in addition to the work on connection to the French network.

#### 9.2.2.3.3.2 Commissioning of wind and photovoltaic power facilities

Throughout 2013, EDF Énergies Nouvelles proceeded to total and partial commissioning of wind farms in Canada (Massif du Sud and Lac Alfred), Mexico (Bii Stinu and EDP) and Turkey (Geycek).

In the United States, EDF Énergies Nouvelles commissioned the Catalina photovoltaic plant (143 MWp) and the Pinelands Biomass project (35.6 MW). In offshore wind power, first 13 turbines of the Teesside wind power facility in the United Kingdom began operations in June 2013.

### 9.2.2.4 Research and Development

#### 9.2.2.4.1 First stone laid at the Saclay centre

On 10 October 2013, EDF's Chairman and CEO Henri Proglio, alongside French Prime Minister Jean-Marc Ayrault and the Minister for Ecology, Sustainable development and Energy Philippe Martin, laid the first stone for the EDF Lab on the Paris-Saclay campus at Palaiseau close to Paris. This 12-hectare site will combine a global R&D centre and the new EDF Campus, scheduled to open in 2015. The research centre teams will strive to prepare the ground for the technologies of tomorrow, while the teams at the training centre will prime the skills of the company's employees. This centre will foster ties with the academic world of training and research, and the associated universities and top specialist higher education establishments.

#### 9.2.2.4.2 Opening of the first European laboratory dedicated to smart grids

On 13 September 2013, EDF inaugurated the experimental platform Concept Grid, the only one of its kind in the world, established to prepare for and support the transition from traditional electricity grids to "smart grids". Located at the Renardières R&D centre, Concept Grid can conduct complex, full-scale stress tests that would be impossible to carry out on the real grid.

The Group also launched the Smart Electric Lyon project, which aims to conduct full-scale tests of a wide array of solutions based on the latest information and communication technologies. The aims of these solutions are to control electricity consumption, improve the household comfort and increase efficiency for companies and local authorities. Testing has begun in 25,000 households in Lyon and roughly 100 companies and local authorities, at home, work or in their public areas and facilities.

### 9.2.2.5 Regulatory environment

#### 9.2.2.5.1 France

##### 9.2.2.5.1.1 The NOME law and the ARENH system

Supplies of electricity to EDF's competitors under the ARENH scheme for regulated access to nuclear power supplies concern a volume of 64.4 TWh for 2013, up by 3.4 TWh from 2012. The annual volume cannot exceed 100 TWh, and will be progressively increased from 1 January 2014 by the amounts sold to network operators to compensate for their technical losses, according to a timetable set by government decision. The estimated volume for 2014 is approximately 74.2 TWh.

The ARENH price was set at €42/MWh from 1 January 2012, and will subsequently reflect the economic conditions of generation by the existing nuclear fleet. On 22 October 2013, the government announced that the decree stipulating the valuation method for costs making up the ARENH price should be published by the end of the first quarter of 2014. At the date of publication of the present reference document, the decree has not been published.

##### 9.2.2.5.1.2 CSPE

The Contribution to the Public Electricity Service (*Contribution au Service Public de l'Électricité* or CSPE) is intended to compensate for certain public service charges assigned to EDF in particular<sup>1</sup>. The CSPE is based on electricity consumption and collected directly from the end-user. It amounted to €13.5/MWh in 2013 and has since been raised by €3/MWh as of 1 January 2014 to €16.5/MWh.

Under the agreement signed by EDF and the French authorities in early 2013, EDF is to receive reimbursement by 31 December 2018 of the receivable consisting of the CSPE shortfall at 31 December 2012 plus the costs of bearing this shortfall for the Group (giving a total of approximately €4.9 billion).

In early 2013 certain purchase tariffs for photovoltaic power were increased: a 10% premium was applied for panels assembled in Europe, and some tariffs will decrease more slowly for a given volume. This new system is bringing down purchase tariffs for new projects according to the cumulative power of applications for connection. The national objective of connecting 500 MW per year has been doubled to 1,000 MW.

During the first quarter of 2013 the French energy regulator CRE put out several tender offers for new offshore wind farms (1,000 MW) and photovoltaic installations with capacity above 100 kW. These facilities will be eligible for the purchase tariff, and the surplus cost in excess of market prices will be offset by the CSPE.

The law intended to prepare for the transition towards a low-consumption energy system (known as the 'Brottes law') published in France's *Official Journal* on 15 April 2013 allowed for extension of the number of beneficiaries of the Basic Necessity Tariff, which concerned 1.5 million households at 31 December 2013 compared to 1 million one year earlier. The corresponding decree (2013-1031) was published on 16 November 2013. The law also stipulates that a premium paid to load management operators will be covered by the CSPE.

France's amended finance law for 2013 recognises the costs of bearing the shortfall in the CSPE mechanism as a public service expense entitling EDF to compensation through the contribution.

Over 2013, EDF recorded a total €5,103 million in public-service expenses, 8.9% more than in 2012, as the growth in renewable energies and the low market prices had pushed up the cost of renewable energy prices. CSPE-related receipts amounted to €4,652 million, a 40% increase from 2012. The difference for 2013 between the expenses recorded and the income received by EDF under the CSPE system was €451 million.

On 9 October 2013, the CRE published its annual decision on the estimated level of the CSPE for 2014. It estimates the forecasts costs for the mechanism at €6,186 million compared to €5,128 million for 2013. Since the CSPE has been set at €16.5/MWh for 2014, the contributions collected are estimated at €6,187 million, which stabilises the shortfall in 2014 (excluding the costs of bearing that shortfall).

##### 9.2.2.5.1.3 TURPE 3 and TURPE 4 network access tariffs

In a decision of 28 November 2012, the French Council of State cancelled the distribution component of the third generation network access tariffs called TURPE 3 (*Tarifs d'Utilisation des Réseaux Publics d'Électricité*), which had been approved on 5 May 2009 by the Ministers for Energy and the Economy after a proposal from the CRE, and was supposed to apply for the period 1 August 2009 to 31 July 2013. This cancellation has no direct impact on the regulated tariffs for sales to customers. The new version of the TURPE 3 ('TURPE 3 bis') based on the CRE proposal of 29 March 2013 was published in France's *Official Journal* on 26 May 2013. It applies retroactively to the period 2009-2013, replacing the cancelled tariff, and reduces the tariffs for the period 1 June to 31 July 2013 by 2.5%.

On 10 July 2013, the CRE also published its deliberations of 28 May 2013 containing the decision for the period from 1 August 2013 to 31 December 2013 ('TURPE 3 ter'), which results in a 2.1% increase from 1 August 2013 compared to the period 1 June to 31 July 2013.

1. Local distribution companies and Electricité de Mayotte also make contribute small contributions to the system.

On 9 July 2013, the CRE began its consultation on the distribution tariffs due to take effect from 1 January 2014 for a 4-year period ('TURPE 4 HTA-BT').

The CRE's decision of 12 December 2013 setting the distribution tariffs from 1 January 2014 was published in France's *Official Journal* on 20 December 2013. These tariffs rose by an average 3.6% at 1 January 2014, and should then increase in line with inflation on 1 August every year from 2014 to 2017.

The government also announced in a letter dated 12 November 2013 to the President of the CRE that it intended to propose a law shortly with the aim of laying down a secure legal framework for setting the TURPE, so that a normative economic regulation method can be implemented.

For transmission tariffs, the CRE deliberations of 3 April 2013 were published in the *Official Journal* of 30 June 2013. This new tariff ('TURPE 4 HTB') has been applicable since 1 August 2013 for a period of approximately four years. The tariff was raised by 2.4% as of that date, and will subsequently be adjusted annually in accordance with inflation.

#### 9.2.2.5.1.4 CRE report on EDF's generation and supply costs

As part of its mission defined in the French Energy Code to analyse EDF's costs and ensure they are covered through regulated sales tariffs, the CRE published a report on 4 June 2013 on EDF's generation and supply costs.

The CRE's study concerned costs recorded from 2007 to 2012, and estimated costs for 2013 to 2015.

For the period 2007 to 2012, the CRE noted that fixed and variable generation costs rose by 5.1% per year, capital expenses rose by 2.9% per year and sales and marketing costs rose by 6.3% per year.

It also observed that the rising trend in generation and supply costs was confirmed for 2013.

The CRE therefore concluded that the recommended tariff change for summer 2013 to cover the estimated costs should be between 9.6% and 6.8% for the 'blue' tariffs (figures respectively excluding and including an assumption that the accounting useful life of nuclear plants will be extended by 10 years in 2013). The CRE also calculated that the regulated tariffs of 2012 had not covered actual costs of 2012 (a deficit of €1.47 billion).

#### 9.2.2.5.1.5 Pension reforms (law of 20 January 2014)

The French law of 20 January 2014 amended the regulations governing pensions in France. The two principal measures introduced by the law will apply to the special pension system for companies in the electricity and gas sector (IEG). The contribution period required to qualify for a full pension will be progressively extended to 43 years starting with employees born in 1973. This applies to France's standard national pension system and public sector pension system, and should be transposed to the IEG pension system by decree in early 2014. Also, the date for the annual review of pension values is deferred from 1 April to 1 October as of the 2014 financial year.

Since the bill for this law was adopted by Parliament on 18 December 2013, its impact has been taken into account in valuing the Group's pension obligations at 31 December 2013. The effects of the main two measures referred to above, which constitute plan amendments, have a favourable effect of €472 million on the Group's operating profit.

#### 9.2.2.5.2 United Kingdom

On 27 June 2013, as part of the electricity market reforms begun in 2012, the UK's Minister for Energy and Climate change presented details of the

British government's long-term strategy for construction, repair and renewal of major electricity infrastructures in the United Kingdom. The UK's Finance Minister also announced that the future Hinkley Point C power plant would qualify for a government guarantee from the Infrastructure UK department.<sup>1</sup>

After examination by the House of Lords throughout 2013, the proposed law on the reform of the electricity market received royal assent on 18 December 2013.

#### 9.2.2.5.3 Belgium

After substantial changes in 2012, the regulatory environment continued to evolve in 2013.

The nuclear tax levied on operators and owners of nuclear power-generating installations in Belgium was raised from €250 million in 2011 to €550 million in 2012, then reduced to €481 million in 2013. In late June 2013 EDF Luminus and EDF Belgium filed an appeal against this tax before Belgium's Constitutional court.

In late 2011 the national electricity and gas regulator CREG<sup>2</sup> approved the new tariffs for the period 2012-2015 to be applied by Elia, the electricity transmission network operator. These tariffs include a grid injection tariff that is now borne by generators. They were revised downwards in 2013 following legal action against the decision by generators in the Appeal Court.

The law of 18 December 2013 amending the law of 2003 on the timetable for withdrawal from nuclear energy laid down the principles of a three-party agreement between Electrabel, EDF and the Belgian government defining the terms for extension of operation by Tihange 1 to 2025, particularly the fees due by the owners to the State.

The electricity market conditions were tougher in 2013 in this context, and EDF Luminus notified the Belgian government of a temporary shutdown on the Seraing fossil-fired plant from mid-2014.

The Belgian government is preparing a strategic reserve through a call for tenders from fossil-fired power plants that have announced their temporary or permanent shutdown, to secure the country's energy supply during the winter periods. Industrial operators who agree to reduce consumption during peak consumption periods could also take part in this tender procedure. The most attractive proposals will be selected after approval by the CREG as to the reasonable nature of the prices. The plants included in this reserve will then receive payment to cover their fixed costs.

An agreement to protect consumers was signed by the Belgian government and all electricity and gas suppliers in Belgium, stipulating new contractual obligations or re-emphasising certain legal obligations incumbent on the suppliers.

Also, during the summer of 2012, inspections detected micro-cracks in the core tanks at the Doel 3 and Tihange 2 plants, which were shut down pending additional analyses by the Federal Nuclear Control Agency (AFCN) and Electrabel. On 17 May 2013 the AFCN gave its authorisation for both nuclear reactors to restart operation, and this took effect on 3 June for Doel 3 and 7 June for Tihange 2.

#### 9.2.2.5.4 Hungary

In early 2013 the regulator announced a 10% reduction in regulated tariffs for supplies of gas, electricity and heat to domestic customers for the period 2013-2016. The Hungarian government also introduced a new network tax of HUF 125 per metre of network (approximately €0.45/m).

1. Infrastructure UK: a department of the British Finance Ministry in charge of infrastructure investment matters.

2. CREG: Commission de Régulation de l'Électricité et du Gaz.

### 9.3 Analysis of the business and the consolidated income statements for 2012 and 2013

Presentation and analysis of the consolidated income statements for 2012 and 2013 is presented on two levels for sales and EBITDA: a first focusing on the Group, then a second examining the different business segments (France, United Kingdom, Italy, Other international and Other activities). EBIT (operating profit) and net income are analyzed from a more general standpoint.

The comparative figures for 2012 have been restated to reflect the impact of retrospective application of IAS 19 revised (-€41 million impact on EDF net income) and the change in presentation of EDF Énergies Nouvelles' Development and Sales of Structured Assets (DSSA) activity, which has no impact on Group EBITDA (a €551 million decrease in Sales, a €369 million decrease in Other external expenses and a €182 million increase in Other income and expenses).

<i>(in millions of Euros)</i>	<b>2013</b>	2012 restated
<b>Sales</b>	<b>75,594</b>	<b>72,178</b>
Fuel and energy purchases	(39,683)	(37,098)
Other external expenses	(9,027)	(9,718)
Personnel expenses	(11,879)	(11,710)
Taxes other than income taxes	(3,533)	(3,287)
Other operating income and expenses	5,293	5,633
<b>Operating profit before depreciation and amortisation (EBITDA)</b>	<b>16,765</b>	<b>15,998</b>
Net changes in fair value on Energy and Commodity derivatives, excluding trading activities	14	(69)
Net depreciation and amortisation	(7,516)	(6,849)
Net increases in provisions for renewal of property, plant and equipment operated under concessions	(228)	(164)
(Impairment) / Reversals	(1,012)	(752)
Other income and expenses	388	(5)
<b>Operating profit (EBIT)</b>	<b>8,411</b>	<b>8,159</b>
<b>Financial result</b>	<b>(3,089)</b>	<b>(3,334)</b>
<b>Income before taxes of consolidated companies</b>	<b>5,322</b>	<b>4,825</b>
Income taxes	(1,942)	(1,573)
Share in income of associates	375	261
<b>GROUP NET INCOME</b>	<b>3,755</b>	<b>3,513</b>
<b>EDF net income</b>	<b>3,517</b>	<b>3,275</b>
Net income attributable to non-controlling interests	238	238
<b>EARNINGS PER SHARE (IN EUROS)</b>		
Earnings per share	1.84	1.77
Diluted earnings per share	1.84	1.77

#### 9.3.1 Sales

Consolidated sales rose by 4.7%, with organic growth of 2.9%.

##### 9.3.1.1 Change in Group sales

<i>(in millions of Euros)</i>	<b>2013</b>	2012 restated	Variation	Variation (%)	Organic growth (%)
<b>Sales</b>	<b>75,594</b>	<b>72,178</b>	<b>3,416</b>	<b>+4.7</b>	<b>+2.9</b>

Sales amounted to €75,594 million in 2013, an increase of €3,416 million (+4.7%) from 2012. Excluding the effects of exchange rates (-€591 million), principally reflecting the pound sterling's decline against the Euro, and excluding changes in the scope of consolidation (€1,907 million) essentially relating to the takeover of Edison, organic growth stood at +2.9%.



### 9.3.1.2 Change in sales by segment

(in millions of Euros)	2013	2012 restated	Variation	Variation (%)	Organic growth (%)
<b>France</b>	<b>40,210</b>	<b>39,120</b>	<b>1,090</b>	<b>+2.8</b>	<b>+2.8</b>
United Kingdom	9,782	9,739	43	+0.4	+5.1
Italy	12,875	10,098	2,777	+27.5	+2.6
Other International	7,841	7,976	(135)	-1.7	+0.2
Other activities	4,886	5,245	(359)	-6.8	+4.4
<b>Total excluding France</b>	<b>35,384</b>	<b>33,058</b>	<b>2,326</b>	<b>+7.0</b>	<b>+3.1</b>
<b>GROUP SALES</b>	<b>75,594</b>	<b>72,178</b>	<b>3,416</b>	<b>+4.7</b>	<b>+2.9</b>

Sales outside France represented 46.8% of total consolidated sales in 2013, compared to 45.8% in 2012.

#### 9.3.1.2.1 France

##### Change in sales in the "France" segment

France's contribution to Group sales amounted to €40,210 million, corresponding to an organic rise of 2.8% compared to 2012.

This sales growth mainly results from the higher volumes sold to final customers, boosted by weather effects (+8.0 TWh) with an impact of €602 million and the increase in electricity tariffs in July 2012) and August 2013, which had an impact of €780 million. Sales of gas to final customers rose by €123 million.

At 31 December 2013, EDF's share of the electricity market for all final customers was 79.7%, 0.3 points lower than at 31 December 2012. EDF's share of the natural gas market was 4.4%, up by 0.1 points from 2012.

##### Breakdown of sales for the "France" segment between Generation and Supply (deregulated activities)<sup>1</sup>, network activities<sup>2</sup> and island activities<sup>3</sup>

(in millions of Euros)	2013	2012 restated	Variation	Variation (%)
<b>Sales</b>	<b>40,210</b>	<b>39,120</b>	<b>1,090</b>	<b>+2.8</b>
Generation and Supply (deregulated activities)	38,007	37,001	1,006	+2.7
Network activities	13,807	13,309	498	+3.7
Island activities	931	907	24	+2.6
Eliminations	(12,535)	(12,097)	(438)	

The 2.7% increase in sales by the Generation and Supply (deregulated) activities is attributable both to the favourable impact of the increase in volumes, chiefly resulting from weather conditions, and to tariff increases.

Sales by the network activities rose by 3.7% due to the combined effect of the rise in tariffs and the higher volumes sold, since the winter weather was harsher in 2013 than 2012.

1. Generation, Supply and Optimisation in mainland France, and sales of engineering and consulting services.

2. Network activities now only include Distribution, as a result of application of the equity method to the Transmission activity from 31 December 2010. In mainland France, network activities are regulated via the network access tariff TURPE (Tarifs d'Utilisation des Réseaux Publics d'Électricité). Sales for the regulated activities include the delivery cost included in integrated tariffs.

3. EDF's generation, supply and distribution activities in the island energy systems (IES and IEG).

## Electricity generation

Nuclear generation produced 403.7 TWh in 2013, compared to 404.9 TWh for 2012, down by 1.2 TWh. This slight downturn is explained by a more extensive programme of scheduled outages than in 2012. The availability coefficient was 78.0% in 2013, lower than in 2012 (79.7%).

Hydropower output stood at 42.6 TWh, an improvement from 2012 (+8.0 TWh) due to the favourable conditions (for details of weather conditions see section 9.2.1.4).

Fossil-fired generation produced 15.6 TWh, 0.7 TWh more than in 2012. This rise is mainly attributable to the differential between electricity and fossil fuel prices, which was more favourable for fossil-fired generation.

Sales volumes to final customers (a market segment that includes Eurodif and local distribution companies) were up by +2.7 TWh, including +8.0 TWh attributable to temperature differentials. Due to the end of the VPP<sup>1</sup>, auction system initiated in 2012, VPP sales were down by 18 TWh from 2012. A volume of 64.4 TWh of electricity was supplied under the NOME law.

After being a net purchaser of 25.4 TWh on the wholesale markets in 2012, EDF moved to a net seller's position in 2013 to the extent of 2.4 TWh.

### 9.3.1.2.2 United Kingdom

The **United Kingdom's** contribution to Group sales amounted to €9,782 million in 2013, stable compared to 2012 with organic growth at 5.1%. Compared to 2012 sales, this includes an unfavourable exchange effect of €437 million.

The increase in sales principally results from positive price effects driven by rising wholesale prices, and higher nuclear power output (up by 0.5 TWh from 2012).

Electricity sales volumes on the wholesale markets increased in application of the commitment made to the European Commission<sup>2</sup>. These effects were partly counterbalanced by a decline in structured sales following expiry of the legacy contracts transferred from British Energy.

### 9.3.1.2.3 Italy

**Italy**<sup>3</sup> contributed €12,875 million to consolidated sales, up by 27.5% with organic growth of 2.6%.

Edison's sales stood at €12,451 million, a rise of €2,834 million from 2012 that includes a scope effect due to takeover of exclusive control of Edison. Although demand for electricity and gas contracted on the Italian market, sales on a like-for-like basis (identical group structure and exchange rates) progressed by €320 million.

In the electricity business, sales growth benefited from the higher sales volumes on the wholesale markets.

In the hydrocarbon business, sales were stable in terms of organic growth, reflecting the contraction in average sales prices and fossil fuel consumption for electricity generation, offset by an increase in sales volumes to residential and industrial customers and on the wholesale market.

Fenice registered sales of €424 million, an organic decline of 11.3% or -€54 million from 2012, in line with its business levels in Italy.

### 9.3.1.2.4 Other International

The **Other international** segment principally covers operations in Europe excluding the United Kingdom and Italy, and operations in the United States, Brazil and Asia (China, Vietnam and Laos).

This segment contributed €7,841 million to Group sales in 2013, €135 million or -1.7% less than in 2012. Excluding scope effects (-€36 million) and foreign exchange effects (-€111 million), sales was stable in terms of organic growth (+0.2% compared to 2012).

This stability is the result of contrasting developments in different countries.

In **Brazil**, sales amounted to €415 million, reflecting organic growth of 16.3% largely resulting from the annual tariff revision. In the **United States**, sales stood at €589 million; the 8.2% organic growth relates to higher generation levels, as there were fewer shutdowns than in 2012.

However, sales in **Poland** showed an organic decline of 5.9% due to lower prices for electricity and green certificates (related to biomass activities). In **Austria**, the 10.2% organic decline in sales is explained by the strong customer portfolio optimisation activity in 2012.

### 9.3.1.2.5 Other activities

**Other activities** comprise, among other entities, EDF Énergies Nouvelles, EDF Trading, Électricité de Strasbourg and the investment in Dalkia.

The contribution by the **Other activities** segment to Group sales in 2013 was €4,886 million, down by €359 million or 6.8%, with organic growth of 4.4% compared to 2012. The scope effect was a negative €548 million or 10.4% since in application of IFRS 5, the 2013 sales of Dalkia group subsidiaries due to be sold are included for 10 months.

**EDF Énergies Nouvelles'** contribution to Group sales showed organic growth of 28.1% from 2012. This growth primarily reflects the impact of full-year consolidation of power plant commissioned in late 2012, particularly in the United States and Canada.

**EDF Trading's**<sup>4</sup> sales were stable compared to 2012.

There was 4.5% organic growth in sales by **Électricité de Strasbourg** compared to 2012, largely driven by a volume effect on electricity sales.

**Dalkia's** contribution to sales was stable compared to 2012 on a like-for-like basis.

1. Virtual Power Plant capacity auction system, generating deliveries for periods ranging from a few months to 3 years.

2. In application of commitments made following the European Commission merger regulation: sales of between 5 and 10 TWh of electricity on the wholesale British market over the period 2012 to 2015.

3. The Edison and Fenice groups.

4. EDF Trading sales consist of trading margins.

### 9.3.2 Operating profit before depreciation and amortisation (EBITDA)

EBITDA rose by 4.8%, with organic growth of 5.5%.

(in millions of Euros)	2013	2012 restated	Variation	Variation (%)	Organic growth (%)
<b>Sales</b>	<b>75,594</b>	<b>72,178</b>	<b>3,416</b>	<b>+4.7</b>	<b>+2.9</b>
Fuel and energy purchases	(39,683)	(37,098)	(2,585)	+7.0	+2.3
Other external expenses	(9,027)	(9,718)	691	-7.1	-5.5
Personnel expenses	(11,879)	(11,710)	(169)	+1.4	+2.6
Taxes other than income taxes	(3,533)	(3,287)	(246)	+7.5	+7.8
Other operating income and expenses	5,293	5,633	(340)	-6.0	-5.9
<b>EBITDA</b>	<b>16,765</b>	<b>15,998</b>	<b>767</b>	<b>+4.8</b>	<b>+5.5</b>

#### 9.3.2.1 Change in consolidated EBITDA and analysis

Consolidated **EBITDA** for 2013 amounted to €16,765 million, up by 4.8% from 2012. After adjustment for the positive €17 million scope effect and unfavourable foreign exchange effects of -€134 million, mainly resulting from the fall in the pound sterling against the Euro, organic growth was +5.5%.

The Group's **fuel and energy purchases** amounted to €39,683 million in 2013, an increase of €2,585 million (+7.0%) compared to 2012, with organic growth at 2.3%.

In **France**, as the cost of nuclear fuel was slightly higher than in 2012 and the organic increase of €279 million (+1.7%) is essentially explained by:

- a €208 million increase in the provision for long-term radioactive waste management to reflect the Andra's new financing requirements in connection with the studies concerning geological storage plans;
- the end of free allocations of CO<sub>2</sub> emission rights.

In the **United Kingdom**, the organic growth of €334 million (+6.3%) is essentially explained by the end of free allocations of CO<sub>2</sub> emission rights, as well as the higher energy costs and transmission tariffs.

In **Italy**, fuel and energy purchases registered organic growth of €203 million (+2.4%), associated with the rise in sales volumes by Edison.

The Group's **other external expenses** amounted to €9,027 million, down by €691 million (-7.1%) from 2012, corresponding to negative organic growth of €530 million (-5.5%) due to the decrease in **France**, particularly after introduction of a reinforced management plan for nuclear units improved monitoring of normal maintenance expenditure and scheduled regular checks.

The Group's **personnel expenses** totalled €11,879 million, €169 million higher than in 2012, with organic growth of 2.6%. This change essentially related to **France**, where personnel expenses totalled €9,024 million, corresponding to organic growth of 3.1% since 2012, principally as a result of the increase in the workforce.

**Taxes other than income taxes** stood at €3,533 million for 2013, up by €246 million from 2012 (+7.5%, or 7.8% in organic growth). This rise includes the effect of higher taxes for the Generation activity in **France**.

**Other operating income and expenses** generated net income of €5,293 million for 2013, €340 million lower than in 2012, or an organic variation of -5.9%. In **France**, other operating income and expenses showed a slight variation of +1.8%. In the **United Kingdom**, they registered an organic decline of €60 million due mainly to the unfavourable effect of the fair value adjustment of electricity sale contracts when EDF took over British Energy. In 2012, other operating income and expenses for the **Other activities** segment included the favourable effect of real estate operations and insurance contract renegotiations that had no equivalent in 2013.

#### 9.3.2.2 Consolidated EBITDA and analysis by segment

(in millions of Euros)	2013	2012 restated	Variation	Variation (%)	Organic growth (%)
<b>France</b>	<b>10,778</b>	<b>9,853</b>	<b>925</b>	<b>+9.4</b>	<b>+9.4</b>
United Kingdom	1,992	2,047	(55)	-2.7	+2.0
Italy	1,098	1,019	79	+7.8	-5.8
Other International	1,128	1,066	62	+5.8	+9.8
Other activities	1,769	2,013	(244)	-12.1	-6.3
<b>Total excluding France</b>	<b>5,987</b>	<b>6,145</b>	<b>(158)</b>	<b>-2.6</b>	<b>-0.7</b>
<b>GROUP EBITDA</b>	<b>16,765</b>	<b>15,998</b>	<b>767</b>	<b>+4.8</b>	<b>+5.5</b>

### 9.3.2.2.1 France

#### Change in EBITDA for the "France" segment

France contributed €10,778 million of consolidated EBITDA for 2013, 9.4% higher than in 2012 both at face value and in terms of organic growth. This contribution accounted for 64.3% of Group EBITDA in 2013 against 61.6% in 2012.

#### Breakdown<sup>1</sup> of EBITDA for the "France" segment between Generation and Supply (deregulated activities), network activities and island activities

(in millions of Euros)	2013	2012 restated	Variation	Variation (%)
<b>EBE</b>	<b>10,778</b>	<b>9,853</b>	<b>925</b>	<b>+9.4%</b>
Generation and Supply (deregulated activities)	6,705	6,155	550	+8.9%
Network activities	3,641	3,428	213	+6.2%
Island activities	432	270	162	+60.0%

EBITDA for Generation and Supply (deregulated activities) rose by +8.9%.

This increase essentially reflects the following favourable factors: improved hydropower output (€367 million), a favourable weather effect (224 million) compared to 2012, essentially due to the cold spell of February 2012 which caused a peak in demand that was met at high cost, and the rise in the non-delivery portion of energy costs in the regulated sales tariffs (+€688 million). These effects were partly offset by a less favourable programme for scheduled shutdowns of nuclear power plants (-€244 million), the end of free allocations of CO<sub>2</sub> emissions rights (-€164 million) and the increase in the workforce (-€125 million).

EBITDA for the network activities registered a 6.2% increase resulting from favourable weather effects and the lower market prices for electricity purchased to compensate for network losses.

EBITDA for the island activities was up by €162 million (+60.0%) due to the rise in gross margin as several power plants were commissioned in 2013, and the stability of operating expenses.

### 9.3.2.2.2 United Kingdom

The **United Kingdom's** contribution to Group EBITDA for 2013, including the impact of fair value adjustment of British Energy's initial balance sheet, was €1,992 million, down by 2.7% from 2012 due to an unfavourable foreign exchange effect of -€92 million. Organic growth was 2.0%.

Excluding the unfavourable impact of fair value adjustment of British Energy's initial balance sheet (particularly electricity sale contracts), EBITDA showed organic growth of 4.1%.

EBITDA in the UK benefited from favourable margin effects driven by higher sales prices on the wholesale markets than in 2012, the good operating performance with improved year-on-year nuclear output levels (60.5 TWh compared to 60.0 TWh), and stable coal-fired power output compared to 2012. EBITDA also reflects the unfavourable effect of the end of free allocations of CO<sub>2</sub> emissions rights in 2013.

### 9.3.2.2.3 Italy

The **Italy** segment contributed €1,098 million to the Group's consolidated EBITDA, 7.8% higher than in 2012 (negative organic growth of 5.8%).

**Edison's** contribution to Group EBITDA stood at €1,007 million in 2013, against €918 million in 2012, corresponding to an organic decline of €49 million or -5.3%.

EBITDA for the electricity activities increased thanks to favourable water levels and good use of power plants' potential for flexibility in energy management activities.

Despite the favourable outcome of the arbitration on revision of the Algerian gas contract price in April 2013 and the agreements signed in July 2013 concerning the Qatari and Algerian contracts, the hydrocarbon activities' contribution to EBITDA was lower than in 2012. This decline reflects the ongoing strong depression on European gas prices, and the downturn on exploration and production activity which reached a record peak in 2012. Edison is continuing renegotiations with gas suppliers where agreements have not yet been reached, in order to restore its margin levels.

Fenice contributed €91 million to Group EBITDA in 2013, an organic decline of €10 million in line with the decrease in sales.

### 9.3.2.2.4 Other International

EBITDA for the **Other International** segment stood at €1,128 million in 2013, up by 5.8% from 2012 corresponding to organic growth of 9.8%.

EBITDA in **Belgium** registered an organic decline of €52 million, reflecting the unfavourable effects of cuts in electricity and gas tariffs in response to aggressive positioning by the competition, which were partly offset by the lower level of operating expenses.

EBITDA in the **United States** showed organic growth of €62 million compared to 2012, essentially due to the higher volumes of nuclear power generated as the number of days of scheduled outages was lower.

This segment's contribution also includes the favourable effect of the gain on sale of SSE.

1. Further details of this breakdown can be found in section 9.3.1.2.1.



In **Poland**, EBITDA showed organic growth of €57 million due to costs related to the Rybnik supercritical coal-fired plant project, which had no equivalent in 2013.

#### 9.3.2.2.5 Other activities

**Other activities** contributed €1,769 million to Group EBITDA for 2013, corresponding to an organic decline of -6.3%.

**EDF Énergies Nouvelles'** contribution to consolidated EBITDA totalled €773 million. The organic increase of 23.3% from 2012 was driven by the Generation activity, principally due to new plants commissioned in 2013 and the impact of full-year consolidation of plants commissioned in 2012,

essentially located in the North America. The DSSA activity was steady in 2013 although lower than the unusually high level of 2012.

EBITDA at **EDF Trading** was stable compared to 2012, due to the stability of the trading margin as explained in section 9.3.1.2.5.

**Dalkia's** EBITDA was €35 million lower than in 2012; the organic growth was offset by a scope effect following reclassification as "Assets held for sale" from 28 October 2013 (see section 9.2.2.1.2).

The organic decline in EBITDA in the Other activities segment is explained by income on real estate operations and renegotiations of insurance contracts recorded in 2012, for which there was no equivalent in 2013.

## 9.3.3 Operating profit (EBIT)

EBIT rose by 3.1%.

(in millions of Euros)	2013	2012 restated	Variation	Variation (%)
<b>EBITDA</b>	<b>16,765</b>	<b>15,998</b>	<b>767</b>	<b>+4.8</b>
Net changes in fair value on Energy and Commodity derivatives, excluding trading activities	14	(69)	83	-120.3
Net depreciation and amortisation	(7,516)	(6,849)	(667)	+9.7
Net increases in provisions for renewal of property, plant and equipment operated under concessions	(228)	(164)	(64)	+39.0
(Impairment)/reversals	(1,012)	(752)	(260)	+34.6
Other income and expenses	388	(5)	393	n.s.
<b>OPERATING PROFIT (EBIT)</b>	<b>8,411</b>	<b>8,159</b>	<b>252</b>	<b>+3.1</b>

The Group's consolidated **EBIT** amounted to €8,411 million for 2013, €252 million higher than in 2012. The main factors in this increase were the growth in EBITDA and the lower level of other income and expenses, which were partly counterbalanced by higher net depreciation and amortisation and impairment.

#### 9.3.3.1 Net changes in fair value on energy and commodity derivatives, excluding trading activities

The net changes in fair value on Energy and Commodity derivatives, excluding trading activities, rose from -€69 million in 2012 to +€14 million in 2013. Positive changes were mainly located in the **Other activities** segment.

#### 9.3.3.2 Net depreciation and amortisation

Net depreciation and amortisation was up by 9.7% from 2012.

**France** recorded higher net depreciation and amortisation (+€512 million) as major nuclear plant components were replaced, new investments were made for plants in operation, and other investments were made in distribution.

In the **United Kingdom**, net depreciation and amortisation was stable.

In **Italy**, the rise in net depreciation and amortisation (+€96 million) is mainly due to a scope effect related to the takeover of Edison in 2012.

At **EDF Énergies Nouvelles**, commissioning of new generation facilities led to a €60 million increase in net depreciation and amortisation.

### 9.3.3.3 Net increases in provisions for renewal of property, plant and equipment operated under concessions

The €64 million rise in net increases in provisions for renewal of property, plant and equipment operated under concessions between 2012 and 2013 is mainly attributable to ERDF.

### 9.3.3.4 Impairment/reversals

In 2012, impairment of €752 million was recorded, chiefly concerning CENG in the United States (**Other international** segment: €396 million) due to the less favourable outlook for forward electricity prices, the **United Kingdom** (€234 million) for fossil-fired plants, and Edison in **Italy** (€44 million).

In 2013, impairment amounted to €1,012 million and essentially concerned Belgium (€229 million for an EDF Luminus fossil-fired generation plant), the Sloe power plant in the Netherlands (€174 million in view of the long-term deterioration in the spark spread<sup>1</sup>), CENG (€146 million due largely to a further decline in the outlook for forward electricity prices in the United States) and Poland (€125 million following suspension of the supercritical coal-fired power plant project).

### 9.3.3.5 Other income and expenses

Other income and expenses generated net income of €388 million in 2013 compared to a net expense of €5 million in 2012.

In 2012, the main components of other income and expenses were:

- a net expense of €(70) million resulting from upward revision of the estimated costs for decommissioning permanently shut-down nuclear power plants in France (UNGG power plants, Creys-Malville, Brennilis and Chooz A), and the revision of certain costs related to interim storage of spent fuel;
- income of €160 million concerning ERDF, resulting from reversal of a provision for renewal following a change in estimate for the useful life of high/low voltage transformers (extended from 30 years to 40 years);
- also, application of IFRS 3 (revised) led to recognition of the following items in Other income and expenses in connection with the takeover of Edison:
  - a loss of €1,090 million on the previously-held investment,
  - negative goodwill of €1,023 million.

In 2013, the main components of other income and expenses were:

- income of €472 million related to the favourable effect of the pension reform in France, presented in section 9.2.2.5.1.5;
- restructuring expenses amounting to €60 million for the Group's activities in Belgium, the United States and certain central European countries.

## 9.3.4 Financial result

(in millions of Euros)	2013	2012 restated	Variation	Variation (%)
Cost of gross financial indebtedness	(2,403)	(2,443)	40	-1.6
Discount effect	(2,982)	(3,261)	279	-8.6
Other financial income and expenses	2,296	2,370	(74)	-3.1
<b>FINANCIAL RESULT</b>	<b>(3,089)</b>	<b>(3,334)</b>	<b>245</b>	<b>-7.3</b>

The financial result for 2013 is a financial expense of €3,089 million, up by €245 million from 2012 as a result of the following:

- cost of gross financial indebtedness: the 1.6% decrease is related to the reduction in the Group's average gross debt;
- discount effect: the €279 million decrease in discount expenses is mainly explained by revision in 2012 of the discount rate used for nuclear provisions in France, which had no equivalent in 2013;
- other financial income and expenses: the unfavourable change essentially derives from the 2012 financial income of €629 million in compensation for the cost of bearing the accumulated shortfall in the CSPE system, which had no equivalent in 2013, partly offset by a rise in gains on sales of dedicated assets.

1. The difference between the market price of electricity and the cost price of a plant; the Sloe plant runs on natural gas.

### 9.3.5 Income taxes

Income taxes amounted to €1,942 million in 2013, corresponding to an effective tax rate of 36.5%, against 32.6% in 2012.

This effective tax rate is driven up by impairment: after adjustment for this factor, it was 33.7% in 2013 and 29.1% for 2012.

The main causes of the rise in the effective tax rate between 2012 and 2013 are the unfavourable impacts of French finance laws in both years, which led to a rise in the tax rate to 38.0%, from 36.1% in 2012.

### 9.3.6 Share in income of associates

The Group's share in income of associates was a positive €375 million in 2013, compared to €261 million for 2012. This increase is mainly explained by the growth in RTE's net income compared to 2012.

### 9.3.7 Net income attributable to non-controlling interests

Net income attributable to non-controlling interests (formerly called minority interests) amounted to €238 million in 2013, stable since 2012. It mainly concerns Centrica's investment in existing nuclear activities in the United Kingdom.

### 9.3.8 EDF net income

EDF net income totalled €3,517 million for 2013, an increase of €242 million or 7.4% compared to 2012.

### 9.3.9 Net income excluding non-recurring items

The Group's net income excluding non-recurring items<sup>1</sup> stood at €4,117 million for 2013, down by 1.4% from 2012.

1. Group net after-tax income excluding non-recurring items and net changes in fair value on Energy and Commodity derivatives, excluding trading activities, net of tax. Non-recurring items and net changes in fair value on Energy and Commodity derivatives, excluding trading activities, net of tax in 2013 (-€600 million) comprised:

- -€615 million for impairment and reversals from provisions;
- +€15 million of net changes in fair value on Energy and Commodity derivatives, excluding trading activities.

Non-recurring items and net changes in fair value on Energy and Commodity derivatives, excluding trading activities, net of tax in 2012 amounted to -€900 million.

## 9.4 Cash flows and net indebtedness

### 9.4.1 Cash flows

(in millions of Euros)	2013	2012 restated	Variation	Variation (%)
Net cash flow from operating activities	11,189	9,924	1,265	+12.7
Net cash flow used in investing activities	(12,275)	(14,410)	2,135	-14.8
Net cash flow from financing activities	1,011	4,657	(3,646)	n.a.
<b>NET INCREASE/(DECREASE) IN CASH AND CASH EQUIVALENTS</b>	<b>(75)</b>	<b>171</b>	<b>(246)</b>	<b>n.a.</b>
Cash and cash equivalents – opening balance	5,874	5,743	131	+2.3
Effect of currency fluctuations	4	(44)	48	n.a.
Financial income on cash and cash equivalents	23	38	(15)	-39.5
Effect of reclassifications	(367)	(34)	(333)	n.a.
<b>CASH AND CASH EQUIVALENTS – CLOSING BALANCE</b>	<b>5,459</b>	<b>5,874</b>	<b>(415)</b>	<b>-7.1</b>

n.a.= not applicable.

#### 9.4.1.1 Net cash flow from operating activities

(in millions of Euros)	2013	2012 restated	Variation	Variation (%)
Income before taxes of consolidated companies	5,322	4,825	497	+10.3
(Impairment)/Reversals	1,012	752	260	+34.6
Accumulated depreciation and amortisation, provisions and changes in fair value	9,445	9,255	190	+2.1
Financial income and expenses	1,587	944	643	+68.1
Dividends received from associates	266	201	65	+32.3
Capital gains/losses	(882)	(443)	(439)	+99.1
Change in working capital	(1,783)	(2,390)	607	-25.4
<b>Net cash flow from operations</b>	<b>14,967</b>	<b>13,144</b>	<b>1,823</b>	<b>+13.9</b>
Net financial expenses disbursed	(1,799)	(1,634)	(165)	+10.1
Income taxes paid	(1,979)	(1,586)	(393)	+24.8
<b>NET CASH FLOW FROM OPERATING ACTIVITIES</b>	<b>11,189</b>	<b>9,924</b>	<b>1,265</b>	<b>+12.7</b>

The net cash flow from operating activities amounted to €11,189 million in 2013, a €1,265 million increase from 2012.

This change primarily reflects a €1,823 million increase in the net cash flow from operations, explained by the following factors:

- the income before taxes from consolidated companies after adjustment for impairment (reversals), depreciation and amortisation, provisions and changes in fair value, which amounted to a total €15,779 million in 2013 compared to €14,832 million in 2012 (a €947 million increase);
- to a lesser extent, the effect of net financial expenses on operating activities, which were higher in 2013 than in 2012, when they benefited

from the income received as compensation for bearing the shortfall in the CSPE receivable;

- the change in working capital, which was 25.4% smaller than in 2012, when it was affected by the rise in the CSPE receivable.

These effects are partly counterbalanced by the higher capital gains on disposals of dedicated assets in 2013 than in 2012.

The variation in the net cash flow from operating activities also reflects the higher amount of income taxes paid (€393 million), particularly in France, due to the higher taxable income and the impact of new finance laws for 2012 and 2013.



### 9.4.1.2 Net cash flow used in investing activities

Net cash outflows for investing activities amounted to €12,275 million in 2013, compared to €14,410 million in 2012.

The following table sets forth the breakdown of the net cash flow used in investing activities between purchases and disposals of property, plant and equipment and intangible assets, acquisitions and disposals of companies net of cash acquired/transferred, and the change in financial assets:

<i>(in millions of Euros)</i>	2013	2012 restated	Variation	Variation (%)
Investments in intangible assets and property, plant and equipment	(13,327)	(13,386)	59	-0.4
Net proceeds from sale of intangible assets and property, plant and equipment	240	748	(508)	-67.9
<b>Net Capex</b>	<b>(13,087)</b>	<b>(12,638)</b>	<b>(449)</b>	<b>+3.6</b>
Acquisitions / disposals of equity investments, net of cash acquired/transferred	648	20	628	n.a.
Changes in financial assets	164	(1,792)	1,956	n.a.
<b>NET CASH FLOW USED IN INVESTING ACTIVITIES</b>	<b>(12,275)</b>	<b>(14,410)</b>	<b>2,135</b>	<b>-14.8</b>

n.a.= not applicable.

### Net Capex

Net capital expenditure amounted to €13,087 million in 2013, €449 million more than in 2012 (+3.6%).

Changes in the Group's net capital expenditure over the period were as follows:

<i>(in millions of Euros)</i>	2013	2012 restated	Variation	Variation (%)
Generation and Supply (deregulated activities)	5,340	4,342	998	+23.0
Network activities	3,215	3,063	152	+5.0
Island activities	438	779	(341)	-43.8
<b>France</b>	<b>8,993</b>	<b>8,184</b>	<b>809</b>	<b>+9.9</b>
United Kingdom	1,338	1,642	(304)	-18.5
Italy	337	428	(91)	-21.3
Other International	511	485	26	+5.4
<b>Total International</b>	<b>2,186</b>	<b>2,555</b>	<b>(369)</b>	<b>-14.4</b>
<b>Total Other activities</b>	<b>1,908</b>	<b>1,899</b>	<b>9</b>	<b>+0.5</b>
<b>NET CAPEX</b>	<b>13,087</b>	<b>12,638</b>	<b>449</b>	<b>+3.6</b>

Net capital expenditure in **France** rose by €809 million or 9.9%.

For the **Generation and Supply (deregulated) activities**, the increase was concentrated in nuclear maintenance (+€989 million), principally for asset maintenance operations. This increase is attributable to expenditure to enhance the nuclear units' performance, and the reinforced management plan that improved monitoring of normal maintenance expenditure and scheduled regular checks, which qualify as major inspections and are capitalised accordingly.

In the **network activities**, net capital expenditure increased by €152 million, mainly for user connections and smart grid investments.

The slowdown in net capital expenditure for the **island activities** is explained by the fact that several new fossil-fired plants were commissioned in 2013 or are due to be commissioned in 2014.

In the **United Kingdom**, net capital expenditure was down by €304 million (-18.5%), mainly as a result of the lower investments in intangible assets and property, plant and equipment for renewable energies (down by €138 million) and the commissioning of the West Burton B fossil-fired plant (-€61 million).

In **Italy**, the €91 million decrease in net capital expenditure (-21.3%) is principally explained by the lower investments in gas exploration and production (-€52 million) and electricity generation (-€52 million).

In the **Other International** segment, net capital expenditure was €26 million higher in 2013 than in 2012.

In the **Other activities** segment, it was up by €9 million or +0.5%.

## Acquisitions / disposals of equity investments, net of cash (acquired / transferred)

Net equity investments rose significantly in 2013 to €648 million, chiefly reflecting the sale of the Group's investment in SSE, the sale of the Sutton Bridge plant in the United Kingdom and the partial sale of the Fallago Rig wind farm by EDF Energy and EDF Énergies Nouvelles.

In 2012, this item principally included the income on the sale of the Eggborough plant in the United Kingdom and the acquisition price of Enerest.

## Changes in financial assets

In 2013, the overall change in financial assets was €164 million, which includes the sale of EDF's entire investment in Veolia Environnement for the amount of €262 million.

The change in financial assets in 2012 amounted to -€1,792 million, and was attributable to acquisitions of liquid assets (€1,224 million) and cash allocations to dedicated assets (€737 million).

### 9.4.1.3. Net cash flow from financing activities

(in millions of Euros)	2013	2012 restated	Variation	Variation (%)
Transactions with non-controlling interests	95	(1,038)	1,133	-109.2
Dividends paid by parent company	(2,144)	(2,125)	(19)	+0.9
Dividends paid to non-controlling interests	(318)	(230)	(88)	+38.3
Purchases / sales of treasury shares	4	(15)	19	-126.7
<b>Cash flows with shareholders</b>	<b>(2,363)</b>	<b>(3,408)</b>	<b>1,045</b>	<b>-30.7</b>
Issuance of borrowings	5,746	12,431	(6,685)	-53.8
Repayment of borrowings	(8,654)	(4,869)	(3,785)	+77.7
Issuance of perpetual subordinated bonds	6,125	-	6,125	n.a.
Payments to bearers of perpetual subordinated bonds	(103)	-	(103)	n.a.
Funding contributions received for assets operated under concessions	171	190	(19)	-10.0
Investment subsidies	89	313	(224)	-71.6
<b>Other cash flows from financing activities</b>	<b>3,374</b>	<b>8,065</b>	<b>(4,691)</b>	<b>-58.2</b>
<b>NET CASH FLOW FROM FINANCING ACTIVITIES</b>	<b>1,011</b>	<b>4,657</b>	<b>(3,646)</b>	<b>-78.3</b>

n.a. = not applicable.

Cash flows related to financing activities generated a net inflow of €1,011 million in 2013, €3,646 million less than in 2012. This change primarily reflects:

- a lower level of transactions with non-controlling interests. There were no significant transactions in 2013, while in 2012 additional interests were acquired in the Edison group (€869 million) and ERSA, following EDF's acquisition of EnBW's investment in this Polish subsidiary (€252 million);
- the stable level of dividends paid out in cash by EDF in 2013 compared to 2012;
- issuance of borrowings net of repayment, and issuance of perpetual subordinated bonds, which were €4,345 million lower than in 2012, a year that saw significant investments and the takeover of Edison.

### 9.4.2 Net indebtedness

Net indebtedness comprises total loans and financial liabilities, less cash and cash equivalents and liquid assets. Liquid assets are financial assets consisting of funds or securities with initial maturity of over three months that are readily convertible into cash and are managed according to a liquidity-oriented policy. Net indebtedness also includes the Group's loans to RTE and to joint ventures.

The Group changed its analysis of changes in net indebtedness in 2013. In the course of its business the Group carries out investments and sales concerning tangible assets, intangible assets and securities. All these transactions are managed as a whole and their impact on the Group's business portfolio is identified as "net operating investments". Operations related to changes in the Group's business portfolio are identified as "net investments in strategic operations". Allocations to and withdrawals from dedicated assets are also a key component of the change in net indebtedness, and are therefore analysed separately. The new analysis format thus shows an intermediate total named "cash flow before dividends" which includes net investments, together with allocations to and withdrawals from dedicated assets.

Changes in the Group's net indebtedness were as follows:

(in millions of Euros)	2013	2012 restated <sup>(5)</sup>	Variation	Variation (%)
<b>Operating profit before depreciation and amortisation (EBITDA)</b>	<b>16,765</b>	<b>15,998</b>	<b>767</b>	<b>+4.8</b>
Cancellation of non-monetary items included in EBITDA	(263)	(629)	366	
Net financial expenses disbursed	(1,799)	(1,634)	(165)	
Income taxes paid	(1,979)	(1,586)	(393)	
Other items, including dividends received from associates	249	165	84	
<b>Operating cash flow<sup>(1)</sup></b>	<b>12,973</b>	<b>12,314</b>	<b>659</b>	<b>+5.4</b>
Change in working capital	(1,783)	(2,390)	607	
Net operating investments <sup>(2)</sup>	(12,268)	(11,808)	(460)	
<b>Cash flow after net investments excluding strategic operations and change in working capital</b>	<b>(1,078)</b>	<b>(1,884)</b>	<b>806</b>	
Net investments in strategic operations <sup>(3)</sup>	834	(3,040)	3,874	
Dedicated assets	2,443	(683)	3,126	
<b>Cash flow before dividends<sup>(4)</sup></b>	<b>2,199</b>	<b>(5,607)</b>	<b>7,806</b>	
Dividends paid in cash	(2,565)	(2,355)	(210)	
<b>Cash flow after dividends</b>	<b>(366)</b>	<b>(7,962)</b>	<b>7,596</b>	
Issuance of perpetual subordinated bonds	6,125	-	6,125	
Effect of other monetary changes	(96)	(119)	23	
<b>(Increase)/Decrease in net indebtedness excluding foreign exchange effect</b>	<b>5,663</b>	<b>(8,081)</b>	<b>13,744</b>	
Effect of change in exchange rates	406	(137)	543	
Effect of other non-monetary changes	44	(72)	116	
<b>(Increase)/Decrease in net indebtedness</b>	<b>6,113</b>	<b>(8,290)</b>	<b>14,403</b>	
<b>NET INDEBTEDNESS AT BEGINNING OF PERIOD</b>	<b>41,575</b>	<b>33,285</b>		
<b>NET INDEBTEDNESS AT END OF PERIOD</b>	<b>35,462</b>	<b>41,575</b>		

(1) Operating cash flow is not an aggregate defined by IFRS as a measure of financial performance, and is not directly comparable with indicators of the same name reported by other companies. This indicator, also known as Funds From Operations (FFO), is equivalent to net cash flow from operating activities excluding changes in working capital after adjustment for the impact of any non-recurring items, less net financial expenses disbursed and income taxes paid.

(2) Net operating investments are operating investments and financial investments for growth, net of disposals. They also include net debts acquired or transferred in acquisitions or disposals of securities, investment subsidies received and non-Group partner investments.

(3) Net investments in strategic operations are operations related to changes in the Group's business portfolio.

(4) Cash flow before dividends is not an aggregate defined by IFRS as a measure of financial performance, and is not directly comparable with indicators of the same name reported by other companies. It is equal to the operating cash flow defined in note (1) after the change in working capital, net operating investments (see note 2), net investments in strategic operations (see note 3) and allocations to and withdrawals from dedicated assets.

(5) Figures for 2012 have been restated to incorporate the change in accounting method for actuarial gains and losses on employee benefits under IAS 19 revised: the restatements to "EBITDA" and "Cancellation of non-monetary items included in EBITDA" amount to -€86 million and +€86 million respectively.

The Group's net indebtedness stood at €35,462 million at 31 December 2013 compared to €41,575 million at 31 December 2012, a decrease of €6,113 million over the year 2013.

**Operating cash flow** was €12,973 million at 31 December 2013 compared to €12,314 million at 31 December 2012, up by €659 million or +5.4%.

The main factor in this change was the rise in EBITDA (+€767 million), which was partly offset by the higher income tax paid (-€393 million) and the increase in net financial expenses disbursed (-€165 million). The decrease in interest expenses (+€125 million) was more than offset by the change in accrued interest not yet due (-€222 million).

**Working capital** increased by €1,783 million over 2013, principally as a result of:

- the increase in inventories (+€690 million), essentially due to a price effect on nuclear fuels;
- acquisition of CO<sub>2</sub> emission rights in the United Kingdom and France (+€336 million) following a change in the legislation in 2013;
- tariffs rises from 1 August 2013, with an effect of €188 million;
- the €148 million decline in trade payables related to purchase obligations, caused essentially by a volume effect.

**Net operating investments** amounted to €12,268 million in 2013, against €11,808 million in 2012, and include:

- net investments in property, plant and equipment and intangible assets totalling €13,087 million in 2013, against €12,638 million in 2012 (see 9.4.1.2 for details of the change);
- net financial investments excluding strategic operations totalling €(819) million in 2013, stable compared to 2012 (€(830) million).

**Net investments in strategic operations** concern changes in the Group's business portfolio.

In 2012, they concerned the takeover of Edison.

In 2013, strategic operations covered the sale of the Sutton Bridge plant for €196 million, in line with the commitment made to the European Commission when the Group purchased British Energy, and sales of assets unrelated to the Group's core businesses: minority interests in SSE in Slovakia for €376 million, and Veolia for €262 million.

In compliance with law 2006-739 of 28 June 2006 on the sustainable management of radioactive waste, EDF has built up a portfolio of **dedicated assets** for secure financing of its long-term nuclear obligations, which amounted to €21,737 million at 31 December 2013.

Changes in dedicated assets reflect:

- allocations to reach full coverage of obligations and reinvestment of the financial income generated by these assets;
- withdrawals of assets, corresponding to the costs incurred over the year in application of long-term nuclear obligations falling within the scope of the law of 28 June 2006;
- exceptional withdrawals proposed to the governance bodies in charge of managing dedicated assets when the value of the portfolio exceeds the amount of the obligations to be financed, and duly validated by those bodies.

In 2012, there was a net inflow of €683 million, mainly corresponding to allocations made during the year.

The change in 2013 principally reflects the exceptional withdrawal of +€2,407 million concurrently with the allocation of the total CSPE receivable

to dedicated assets on 13 February 2013. These two operations brought coverage of EDF's nuclear liabilities concerned by the law of 28 June 2006 to 100%.

Finally, the acquisition of TIGF, the Total group's gas transport and storage subsidiary located in south-west France, was entirely allocated to and funded by dedicated assets, generating a neutral net flow.

After all these factors, the **cash flow before dividends** was positive at €2,199 million in 2013 (compared to -€5,607 million in 2012).

**Dividends** paid in cash (€2,565 million) comprise:

- the balance of the 2012 dividends (€1,085 million);
- the interim dividend for 2013 (€1,059 million) decided by the Board of Directors at their meeting on 26 November 2013 and paid out on 17 December 2013 at the rate of €0.57 per share;
- dividends paid by Group subsidiaries to their minority shareholders (€318 million);
- payments made to the bearers of perpetual subordinated bonds (€103 million).

In 2012, dividends paid in cash amounted to €2,355 million.

In January 2013, the Group issued a **"hybrid bond"** for a total of €6,125 million (net of transaction costs) in several tranches and several currencies:

- US\$ 3,000 million at 5.25% coupon with a 10-year first call date;
- £1,250 million at 6% with a 13-year first call date;
- €1,250 million at 4.25% with a 7-year first call date;
- €1,250 million at 5.375% with a 12-year first call date.

The **foreign exchange effect** (essentially the pound sterling's decline against the Euro<sup>1</sup>) had a favourable impact of €406 million on the Group's net indebtedness at 31 December 2013.

1. The pound sterling fell by 2.0% against the Euro, from €1.2253/£1 at 31 December 2012 to €1.995/£1 at 31 December 2013.  
The US dollar fell by 4.0% against the Euro, from €0.7579/\$1 at 31 December 2012 to €0.7251/\$1 at 31 December 2013.

## 9.5 Management and control of market risks

### 9.5.1 Management and control of financial risks

This chapter sets forth the policies and principles for management of the Group's financial risks defined in the Financial Management Framework (liquidity, interest rate, foreign exchange rate and equity risks), and the Group counterparty risk management policy set up by the EDF group. These principles apply only to EDF and operationally controlled subsidiaries or subsidiaries that do not benefit by law from specific guarantees of independent management such as ERDF. In compliance with IFRS 7, the following paragraphs describe the nature of risks resulting from financial instruments, based on analyses of sensitivities and credit (counterparty) risks.

In view of the Group's international development, a dedicated body was formed at the beginning of 2002 – the Financial Risks Control department (*département Contrôle des Risques Financiers et Investissements – CRFI*) – to control financial risks at Group level by ensuring correct application of the principles of the Financial Management Framework. This department, which reports to the Group's Risk Control Division, is an independent unit that also has the task of carrying out a second-level check (methodology and organisation) of EDF entities and operationally controlled Group subsidiaries (excluding ERDF, and a first-level check of financing activities at parent company level, including Trading room activities.

The CRFI issues daily monitoring reports of risk indicators relevant to activities in EDF's Trading room.

Regular internal audits are carried out to ensure controls are actually applied and are effective.

#### 9.5.1.1 Liquidity position and management of liquidity risks

##### 9.5.1.1.1 Liquidity position

At 31 December 2013, the Group's liquidities, consisting of liquid assets, cash and cash equivalents, totalled €18,007 million and available credit lines amounted to €10,390 million.

For 2014, the Group's scheduled debt repayments (principal and interest) are forecast at €12,262 million at 31 December 2013, including €7,743 million for bonds.

At 31 December 2013, no Group company was in default on any borrowing

##### 9.5.1.1.2 Management of liquidity risk

As part of its policy to manage liquidity, finance its operating investment and external growth programme and reinforce long-term debt, the Group undertook bond issues during 2013 (for details see note 38.2.1 to the consolidated financial statements at 31 December 2013, "Changes in loans and other financial liabilities"). These bonds were issued either as part of EMTN (Euro Medium Term Note) programmes, or as stand-alone issues, for the total amount of €1,770 million (including €1,400 million of Green bonds), 1,000 million Norwegian kroner and 1,216 million Hong Kong dollars.

EDF also issued hybrid bonds in three currencies, for the equivalent of €6,125 million (net of transaction costs). The Euro and sterling tranches were negotiated on 22 January 2013. The US dollar tranche was negotiated on 23 January 2013. These bonds have perpetual maturity but include a redemption option at face value at the issuer's initiative, exercisable at the coupon payment dates after a certain contractual period. The tranches are as follows:

- £1,250 million with a 6% semi-annual coupon, with a 13-year first call date and subsequently at each coupon date;
- US\$3,000 million with a 5.250% semi-annual coupon, with a 10-year first call date and subsequently at each coupon date;
- €1,250 million with a 4.250% annual coupon with a 7-year first call date and subsequently at each coupon date;
- €1,250 million with a 5.375% annual coupon with a 12-year first call date and subsequently at each coupon date.

On 20 November 2013, EDF undertook its first "Green Bond" issue totalling €1,400 million, with 2.25% annual coupon and maturity of 7.5 years.

The average maturity of Group debt was thus 8.9 years at 31 December 2013, compared to 8.5 years at 31 December 2012. For EDF SA, the average maturity of debt was 9.9 years against 9.6 years at 31 December 2012.

At 31 December 2013, the residual maturities of financial liabilities (including interest payments) are as follows under IAS 39 (values based on exchange and interest rates at 31 December 2013):

	Debt	Hedging instruments <sup>(1)</sup>		Guarantees given on bonds
		Interest rate swaps	Currency swaps	
31 December 2013 (in millions of Euros)				
2014	12,262	(170)	52	48
2015 - 2018	16,708	(333)	160	36
2019 and later	48,253	197	79	181
<b>TOTAL</b>	<b>77,223</b>	<b>(307)</b>	<b>292</b>	<b>265</b>
Debt repayment	52,046			
Interest expense	25,177			

(1) Data on hedging instruments include both assets and liabilities.



The EDF group was able to meet its financing needs by conservative liquidity management, and obtained financing on satisfactory terms.

A range of specific levers are used to manage the Group's liquidity risk:

- the Group's cash pooling system, which centralises cash management for controlled subsidiaries. The subsidiaries' cash balances are made available to EDF SA in return for interest, so as to optimise the Group's cash management and provide subsidiaries with a system that guarantees them market-equivalent financial terms;
- centralisation of financing for controlled subsidiaries at the level of the Group's cash management department. Changes in subsidiaries' working capital are financed by this department in the form of stand-by credit lines provided for subsidiaries, which may also receive revolving credit from the Group. The investment subsidiary EDF Investissements Groupe (EDF IG), set up in partnership with the bank Natixis Belgique Investissements, also provides medium and long-term financing for EDF group operations outside France, arranged independently by EDF IG. The company sets its own terms, which are the same as the subsidiary would have in an arm's-length market transaction;

- active management and diversification of financing sources used by the Group: the Group has access to short-term resources on various markets through programmes for French commercial paper (*billets de trésorerie*), US commercial paper and Euro market commercial paper. For EDF SA, the ceilings for these programmes are €6 billion for its French commercial paper, \$10 billion for its US commercial paper and \$1.5 billion for its Euro market commercial paper.

At 31 December 2013 the amount of commercial paper outstanding was €270 million for French commercial paper, and \$4,775 million for US commercial paper. No Euro market commercial paper was outstanding. EDF has access to the world's main capital markets: the Euro markets through its EMTN (Euro Medium Term Note) programme, which currently has a ceiling of €30 billion, particularly for Euro and sterling issues; and the domestic markets used for stand-alone issues in US dollars (144A), yen (samurai bonds) and Swiss francs.

The table below sets forth the Group's borrowings of more than €750 million or the equivalent value in other currencies by maturity at 31 December 2013:

Entity	Issue date <sup>(1)</sup>	Maturity	Nominal amount (in millions of currency units)	Currency	Rate
EDF	01/2009	01/2014	1,250	USD	5.5%
EDF	07/2009	07/2014	3,269	EUR	4.5%
EDF	01/2009	01/2015	2,000	EUR	5.1%
EDF	10/2001	10/2016	1,100	EUR	5.5%
EDF	02/2008	02/2018	1,500	EUR	5.0%
EDF	01/2009	01/2019	2,000	USD	6.5%
EDF	01/2010	01/2020	1,400	USD	4.6%
EDF	05/2008	05/2020	1,200	EUR	5.4%
EDF	01/2009	01/2021	2,000	EUR	6.3%
EDF	11/2013 <sup>(2)</sup>	04/2021	1,400	EUR	2.25%
EDF	01/2012	01/2022	2,000	EUR	3.9%
EDF	09/2012	03/2023	2,000	EUR	2.8%
EDF	09/2009	09/2024	2,500	EUR	4.6%
EDF	11/2010	11/2025	750	EUR	4.0%
EDF	03/2012	03/2027	1,000	EUR	4.1%
EDF	04/2010	04/2030	1,500	EUR	4.6%
EDF	07/2001	07/2031	650	GBP	5.9%
EDF	02/2003	02/2033	850	EUR	5.6%
EDF	06/2009	06/2034	1,500	GBP	6.1%
EDF	01/2009	01/2039	1,750	USD	7.0%
EDF	11/2010	11/2040	750	EUR	4.5%
EDF	10/2011	10/2041	1,250	GBP	5.5%
EDF	09/2010	09/2050	1,000	GBP	5.1%

(1) Date funds were received.

(2) Green Bond.

EDF has an overall amount of €9,568 million in available credit facilities (syndicated credit and bilateral lines). On 16 December 2013, EDF signed an amendment agreement to its € 4 billion 5-year syndicated loan facility of 22 November 2010 with a group of 23 European and international banks, extending the maturity of the facility to November 2018 (with two additional extension options, each for one year) while improving the financial terms (notably reducing the spread from 35 to 20 base points). Credit lines represent an available amount of €5,568 million, with expiry dates between January 2015 and September 2018. The level of credit facilities is regularly reviewed to ensure that the Group has sufficient back-up facilities. No drawings had been made on the syndicated credit at 31 December 2013.

The €500 million credit line with the European Investment Bank was totally drawn at 31 December 2012 (drawings of €100 million in 2010, €350 million in 2011, and €50 million in 2012).

EDF Energy has a credit line from the EDF group that did not change over the year, and the credit lines for EDF Energy UK Ltd were not renewed during the period.

At 31 December 2013 Edison has credit lines with the EDF group that can be used in the event of liquidity difficulties, and in July 2013 it subscribed a new €500 million credit line with a pool of banks (with maturities between 1 and 5 years).

## 9.5.1.2. Credit ratings

The financial ratings agencies Standard & Poor's, Moody's and Fitch Ratings attributed the following long-term and short-term ratings to EDF group entities at 31 December 2013.

Company	Agency	Long-term rating (LT)	Short-term rating (CT)
EDF	Standard & Poor's Moody's Fitch Ratings	A+, stable outlook Aa3, negative outlook A+, negative outlook <sup>(1)</sup>	A-1 P-1 F1
EDF Trading	Moody's	A3, negative outlook	n.a
EDF Energy	Standard & Poor's Moody's	A, negative outlook n.a <sup>(2)</sup>	A-1 n.a
Edison	Standard & Poor's Moody's Fitch Ratings	BBB+, stable outlook Baa3, stable outlook <sup>(3)</sup> n.a <sup>(4)</sup>	A-2 n.a n.a

(1) Fitch Ratings placed EDF on negative outlook on 1 July 2013 (as the electricity tariff rises were considered too low to maintain a level of indebtedness consistent with an A+ rating).

(2) Moody's stopped rating EDF Energy (LT and ST) on 17 April 2013.

(3) Moody's placed Edison on stable outlook on 26 September 2013.

(4) Fitch Ratings stopped rating Edison on 20 February 2013.

n.a : non applicable.

## 9.5.1.3 Management of foreign exchange risk

Due to the diversification of its activities and geographical locations, the Group is exposed to the risk of exchange rate fluctuations, which may have an impact on the translation differences affecting balance sheet items, Group financial expenses, equity and net income.

To limit exposure to foreign exchange risks, the Group has introduced the following management principles:

- local currency financing: To the extent possible given the local financial markets' capacities, each entity finances its activities in its own accounting currency. When financing is contracted in other currencies, derivatives may be used to limit foreign exchange risks;
- association of assets and liabilities: the net assets of subsidiaries located outside the Euro zone expose the Group to a foreign exchange risk. The foreign exchange risk in the consolidated balance sheet is managed either

by matching with liabilities for acquisitions in the same currency, or by market hedging involving use of financial derivatives. Hedging of net assets in foreign currencies complies with risk / return targets, and the hedging rate varies from 54% to 93% depending on the currency. If no hedging instruments are available, or if hedging costs are prohibitive, the foreign exchange positions remain open and the risk on such positions is monitored by sensitivity calculation;

- hedging of operating cash flows in foreign currencies: In general, the operating cash flows of EDF and its subsidiaries are in the relevant local currencies, with the exception of flows related to fuel purchases which are primarily in US dollars, and certain flows related to purchases of equipment, which concern lower amounts. Under the principles of the financial management framework, EDF and the main subsidiaries concerned by foreign exchange risks (EDF Energy, EDF Trading, Edison, EDF Énergies Nouvelles) are required to hedge firm or highly probable commitments related to these future operating cash flows.

After taking into account the financing and foreign exchange risk hedging policy, the Group's gross debt at 31 December 2013 breaks down as follows by currency after hedging:

## Gross debt structure at 31 December 2013, by currency, before and after hedging

31 December 2013 (in millions of Euros)	Initial debt structure	Impact of hedging instruments <sup>(1)</sup>	Debt structure after hedging	% of debt
EUR	33,035	(472)	32,563	61%
USD	10,258	(4,786)	5,472	10%
GBP	7,959	5,116	13,075	25%
Other currencies	2,061	142	2,203	4%
<b>TOTAL</b>	<b>53,313</b>	<b>-</b>	<b>53,313</b>	<b>100%</b>

(1) Hedges of liabilities and net assets of foreign subsidiaries.

The table below presents the impact on equity of an unfavourable variation in exchange rates on the Group's gross debt at 31 December 2013.

## Sensitivity of the Group's gross debt to foreign exchange rate risks

31 December 2013 (in millions of Euros)	Debt after hedging instruments converted into Euros	Impact of a 10% unfavourable variation in exchange rates	Debt after a 10% unfavourable variation in exchange rates
EUR	32,563	-	32,563
USD	5,472	547	6,019
GBP	13,075	1,308	14,383
Other currencies	2,203	220	2,423
<b>TOTAL</b>	<b>53,313</b>	<b>2,075</b>	<b>55,388</b>

Due to the Group's foreign exchange risk hedging policy for liabilities, the income statement for companies controlled by the Group is marginally exposed to foreign exchange rate risk.

The table below sets forth the foreign exchange position relating to net assets in foreign currencies of the Group's subsidiaries.

## Net asset position

31 December 2013 <sup>(1)</sup> (In millions of currency units)	Net assets	Bonds	Derivatives	Net assets after management
USD	5,003	4,000	670	333
CHF (Switzerland)	1,408	760		648
HUF (Hungary)	125,622		92,594	33,028
PLN (Poland)	3,615		2,595	1,020
GBP (United Kingdom)	14,624	6,035	4,042	4,547
BRL (Brazil)	717			717
CNY (China)	7,019			7,019

(1) Net assets as at 30 September 2013; Derivatives and bonds as at 31 December 2013.

The above table shows the assets of the Group's foreign subsidiaries in foreign currencies, adjusted for changes in the fair value of cash flow hedges and available-for-sale financial assets recorded in equity, and changes in the fair value of financial instruments recorded in income.

The following table sets forth the risk of foreign exchange loss in equity on net assets in foreign currencies of the Group's principal subsidiaries at 31 December 2013, assuming unfavourable, uniform exchange rate variations of 10% against the Euro. Net assets are converted at the closing rate and impacts are reported in absolute value.

## Sensitivity of net assets to exchange rate risks

	31 December 2013 <sup>(1)</sup>			31 December 2012		
	Net assets after management, in currency	Net assets after management, converted into Euros	Impact on equity of a 10% variation in exchange rates	Net assets after management, in currency	Net assets after management, converted into Euros	Impact on equity of a 10% variation in exchange rates
<i>(In millions)</i>						
USD	333	242	24	430	326	32
CHF (Switzerland)	648	528	53	473	392	39
HUF (Hungary)	33,028	111	11	34,758	119	12
PLN (Poland)	1,020	246	25	869	213	21
GBP (United Kingdom)	4,547	5,454	545	3,189	3,908	391
BRL (Brazil)	717	220	22	626	232	23
CNY (China)	7,019	841	84	5,870	714	71

(1) Net assets as at 30 September 2013.

The foreign exchange risk on available-for-sale securities is mostly concentrated in EDF SA's dedicated asset portfolio, which is discussed in section 9.5.1.6., "Management of financial risk on EDF's dedicated asset portfolio".

The foreign exchange risk associated with short-term investments and operating liabilities in foreign currencies remains restricted for the Group at 31 December 2013.

### 9.5.1.4 Management of interest rate risk

The exposure of the Group's cash positions to interest rate fluctuations covers two types of risk: a risk of change in the value of fixed-rate financial assets and liabilities, and a risk of change in the cash flows related to floating-rate financial assets and liabilities.

To limit exposure to interest rate risk, the Group (apart from entities it does not control operationally) fixes principles as part of its general risk management policy, designed to limit the risk of change in the value of

assets invested or possible increases in financial expenses. Some of the debt is variabilised and the distribution of exposure between fixed and floating rates is monitored with reference to asset / liability management criteria and expected fluctuations in interest rates. This distribution may involve the use of interest rate derivatives for hedging purposes.

The Group's debt after hedging instruments at 31 December 2013 comprised 75.8% at fixed rates and 24.2% at floating rates.

A 1% uniform annual rise in interest rates would generate an approximate €129 million increase in financial expenses at 31 December 2013, based on gross floating-rate debt after hedging.

The average cost of Group debt (weighted interest rate on outstanding amounts) was 3.8% in 2013.

The table below sets forth the structure of Group debt and the impact of a 1% variation in interest rates at 31 December 2013. The impact of interest rate fluctuations remains stable compared to 2012.

## Group debt structure and sensitivity to interest rate

31 December 2013 <i>(in millions of Euros)</i>	Initial debt structure	Impact of hedging instruments	Debt structure after hedging	Impact on income of a 1% variation in interest rates
Fixed rate	47,826	(7,375)	40,451	-
Floating rate	5,487	7,375	12,862	129
<b>TOTAL</b>	<b>53,313</b>	<b>-</b>	<b>53,313</b>	<b>129</b>

Interest rate variations on fixed-rate debt have no accounting impact.

Concerning financial assets, the table below presents the interest rate risk on floating-rate bonds and negotiable debt securities at EDF SA, and their sensitivity to interest rate risks (impact on net income).

## Sensitivity to interest rates of floating-rate instruments

31 December 2013 (in millions of Euros)	Value	Impact on income of a 1% variation in interest rates	Value after a 1% variation in interest rates
<b>FLOATING-RATE SECURITIES</b>	<b>2,774</b>	<b>(28)</b>	<b>2,746</b>

### 9.5.1.5 Management of equity risks

The equity risk is concentrated in the following areas:

#### Coverage of EDF's nuclear obligations

Analysis of the equity risk is presented in section 9.5.1.6, "Management of financial risk on EDF's dedicated asset portfolio".

#### Coverage of employee benefit commitments for EDF SA, EDF Energy and British Energy

Assets covering EDF's employee benefit liabilities are partly invested on the international and European equities markets. Market trends therefore affect the value of these assets, and a downturn in equity prices would lead to a rise in balance sheet provisions.

31.2% of the assets covering EDF's employee benefit liabilities were invested in equities at 31 December 2013, amounting to €2.6 billion.

At 31 December 2013, the two pension funds sponsored by EDF Energy (EDF Energy Pension Scheme and EDF Energy Group Electricity Supply Pension Scheme) were invested to the extent of 44.5% in equities and equity funds, representing an amount of £421 million of equities.

At 31 December 2013, the British Energy pension funds were invested to the extent of 32.7% in equities, and equity funds, representing an amount of £1,413 million of equities.

#### CENG fund

CENG is exposed to equity risks in the management of its funds established to cover nuclear and employee benefit obligations.

#### EDF's long-term cash management

As part of its long-term cash management policy, EDF has continued its strategy to reduce the portion of equity-correlated investments, resulting in a non-significant position well below €1 million at 31 December 2013.

#### Direct investments

At 31 December 2013, EDF no longer held a position in Veolia Environnement. EDF sold its entire investment in Veolia Environnement on 26 November 2013 for €262.1 million.

At 31 December 2013, EDF's investment in AREVA amounted to €162.8 million, with estimated volatility of 42.01% (annualised volatility of monthly returns observed over three years).

### 9.5.1.6 Management of financial risk on EDF's dedicated asset portfolio

The dedicated assets have been built up progressively by EDF since 1999 to secure financing of its long-term nuclear commitments. The law of 28 June 2006 and its implementing regulations defined provisions not related to the operating cycle, which must therefore be covered by dedicated assets; they are listed in note 48 to the consolidated financial statements at 31 December 2013.

The dedicated asset portfolio is managed under the supervision of the Board of Directors and its advisory committees (Nuclear commitments monitoring committee, Audit committee).

The **Nuclear Commitments Monitoring Committee (CSEN)** is a specialised Committee set up by EDF's Board of Directors in 2007.

A **Nuclear Commitments Financial Expertise Committee (CEFEN)** exists to assist the company and its governance bodies on questions of association of assets and liabilities and asset management. The members of this Committee are independent of EDF. They are selected for their skills and diversity of experience, particularly in the fields of asset / liability management, economic and financial research, and asset management.

#### Governance and management principles

The governance principles setting forth the structure, decision-making process and management of dedicated assets are validated by EDF's Board of Directors. These principles also lay down rules for the asset portfolio's structure, selection of financial managers, and the legal, accounting and tax structure of the fund.

**Strategic asset allocation** is based on asset / liability reviews carried out to define the most appropriate target portfolio for financing long-term nuclear expenses. Strategic allocation is reviewed every three years unless circumstances require otherwise.

In 2013, to continue the diversification into real assets begun on 2010 with the shares of RTE, the Board of Directors approved a new strategic allocation for dedicated assets. Under this new allocation, a real assets portfolio has been set up alongside the diversified equity and bond investments. This portfolio is managed by EDF Invest which was formed in July 2013 following the decree of 24 July 2013 on secure funding for nuclear expenses (see section 9.2.2.2.1.1).

EDF Invest's objective is ultimately to have €5 billion of unlisted investments under management, representing approximately a quarter of the total dedicated assets, including 50% of shares in RTE which represent €2,567 million at 31 December 2013.

The financial portfolio contains principally two sub-portfolios, "equities" and "bonds", themselves divided into "secondary asset classes" or "pockets" that correspond to specific markets. The strategic allocation of the financial portfolio is 49% to international equities and 51% to bonds. A benchmark index is set for monitoring performance and controlling the risk on the financial portfolio.

A third "cash" sub-portfolio exists to provide secure coverage for the disbursements related to the purpose of the asset covered, and may be reinforced tactically, particularly when a prudent approach is required in the event of a market crisis.

Finally, the CSPE receivable was allocated to dedicated assets on 13 February 2013.

**Tactical asset management** is organised around several themes:

- monitoring of exposure between the "equities" and "bonds" sub-portfolios;
- within each sub-portfolio, allocation by "class of secondary assets";
- selection of investment funds, aiming for diversification:
  - by style (growth securities, unlisted securities, high-return securities),
  - by capitalisation (major stocks, medium and small stocks),
  - by investment process (macroeconomic and sector-based approach, selection of securities on a "quantitative" basis, etc.),
  - by investment vehicle (for compliance with maximum investment ratios).



- for bonds, a choice of securities held directly, through brokers, or via investment funds incorporating the aim for diversification:
  - by type of issue (fixed income, indexed income),
  - by type of instrument (government or supranational bonds, covered bonds and similar, corporate bonds),
  - by issuer and by maturity.

The allocation policy for the financial portfolio was developed by the Operational Management Committee<sup>1</sup> on the basis of the economic and financial outlook for each market and geographical area, a review of market appreciation in different markets and market segments, and risk analyses produced by the CRFI.

## Changes in the portfolio during 2013

In September 2013 EDF Invest's real assets portfolio incorporated the 20% investment in TIGF, a gas transport and storage subsidiary located in south-west France acquired from Total through a consortium formed with Snam, the Italian gas transport and storage operator (45%) and GIC, the Singaporean sovereign fund (35%).

In application of the decree of 23 February 2007, on 8 February 2013 the French government authorised allocation of the CSPE receivable held by EDF to the dedicated assets for secure financing of long-term nuclear expenses. In view of this authorisation, the positive opinion of the Nuclear Commitments Monitoring Committee and the deliberations of the Board of Directors at its meeting of 13 February 2013, EDF decided to allocate the total receivable, which represents the accumulated shortfall in CSPE compensation at 31 December 2012, to dedicated assets. As a result, the objective of 100% coverage of long-term nuclear provisions was reached in advance of the legal deadline of June 2016 set by the "NOME" law on the new electricity market organisation.

The **total net allocation** to dedicated assets for 2013 amounts to €2,591 million, resulting from allocation of the CSPE receivable (€4,978 million at 13 February 2013 including accrued interest after revaluation by the CRE), net of withdrawals during the year (€2,407 million) and a €20 million cash allocation.

**Disbursements** relating to decommissioning expenses incurred in 2013 were financed by the dedicated asset portfolio to the extent of €326 million, compared to €350 million in 2012.

## Content and performance of EDF's dedicated asset portfolio

### Breakdown of the portfolio

	31 December 2013	31 December 2012
Equities sub-portfolio	36.4%	41.6%
Bonds sub-portfolio	23.7%	39.3%
Cash sub-portfolio	3.7%	5.4%
CSPE after funding	23.2%	-
Real assets (EDF Invest)	13.0%	13.7%
<b>TOTAL</b>	<b>100%</b>	<b>100%</b>

At 31 December 2013, the total value of the portfolio was €21,737 million compared to €17,642 million in 2012 (pro forma figures for RTE share valuations following application of IAS 19 revised).

The distribution of the financial portfolio is also presented in note 48 to the consolidated financial statements at 31 December 2013.

1. A permanent internal committee for evaluation, consultation and operational decision-making for management of dedicated assets.

## Portfolio content under the classification from Article 4, decree 2007-243 of 23 February 2007

Categories (in millions of Euros)	31 December 2013		31 December 2012	
	Book value <sup>(1)</sup>	Realisable value	Book value	Realisable value
OECD government bonds and similar	2,643	2,828	4,205	4,564
OECD corporate (non-government) bonds	808	841	550	642
Funds investing in the above two categories	2,144	2,308	2,499	2,758
Equities traded on a recognised market	-	-	60	60
Funds not exclusively invested in OECD bonds	6,398	7,873	6,550	7,194
Loans, deposits and similar	5	5	-	15
<b>TOTAL FINANCIAL PRODUCT PORTFOLIO</b>	<b>11,998</b>	<b>13,855</b>	<b>13,864</b>	<b>15,233</b>
CSPE after funding	5,049	5,049	-	-
RTE (50% of the Group's investment)	2,015	2,567	2,015	2,409
Other unlisted securities and real estate assets	266	266	-	-
Adjustments on unlisted securities	8	-	-	-
<b>TOTAL DEDICATED ASSETS</b>	<b>19,336</b>	<b>21,737</b>	<b>15,879</b>	<b>17,642</b>

(1) See note 38 to EDF SA's corporate financial statements at 31 December 2013.

## Performance of EDF's dedicated asset portfolio

The table below presents the performance by portfolio at 31 December 2013 and 31 December 2012:

(in millions of Euros)	31/12/2013 Stock market or realisable value	Performance for 2013		31/12/2012 Stock market or realisable value	Performance for 2012	
		Portfolio	Benchmark index <sup>(1)</sup>		Portfolio	Benchmark index <sup>(2)</sup>
Equities sub-portfolio	7,918	21.1%	20.5%	7,343	13.8%	14.4%
Bonds sub-portfolio	5,147	1.0%	2.2%	6,937	10.3%	10.6%
<b>TOTAL FINANCIAL PORTFOLIO</b>	<b>13,065</b>	<b>11.6%</b>	<b>10.9%</b>	<b>14,280</b>	<b>12.0%</b>	<b>12.6%</b>
Cash sub-portfolio	790	0.7%	0.1%	953	1.1%	0.2%
<b>TOTAL FINANCIAL PORTFOLIO AND CASH</b>	<b>13,855</b>	<b>11.1%</b>	<b>10.9%</b>	<b>15,233</b>	<b>11.1%</b>	<b>12.6%</b>
CSPE after funding	5,049	1.4%				
Real assets (EDF Invest)	2,833	11.1%		2,409	6.7%	
<b>TOTAL DEDICATED ASSETS</b>	<b>21,737</b>	<b>9.4%</b>		<b>17,642</b>	<b>10.4%</b>	

(1) Benchmark index in 2013: MSCI World AC DN hedged in Euros 50% (excluding emerging country currencies) for the equities sub-portfolio, Citigroup EGBI for the bonds sub-portfolio, Eonia Capitalisé for the cash sub-portfolio, 49% equities index + 51% bonds index for the total financial portfolio.

(2) Benchmark index in 2012: 50% MSCI World DN EUR hedged in Euros for the equities sub-portfolio, Citigroup EGBI for the bonds sub-portfolio, Eonia Capitalisé for the cash sub-portfolio, 50% equities index + 50% bonds index for the total financial portfolio.

2013 saw a continuation of the trends begun at the end of the first half of 2012. The equity markets progressed well as investors gradually gained confidence in the American and European economies. The Euro zone came out of the recession caused by the crisis in the Euro. In the United States, the sequesters of the early part of the year and the federal government shutdown in the autumn had few consequences apart from reorienting the Fed's monetary policy as announced in June and initiated in December, which was to gradually cut back its asset purchase programme. This reorientation drove American 10-year rates up by 1.76% to 3.03% in line with movements

in French rates (from 2% to 2.56%) and German rates (1.32% to 1.93%). In contrast, Spanish and Italian rates fell, continuing the normalisation trend begun in 2012. Against this background, the investment policy consisted of keeping a fairly short bond portfolio which was being repositioned in Italy and Spain. In the financial portfolio, the equities sub-portfolio grew in proportion, principally because of a very pronounced market effect, as the equity markets rose sharply while the increase in risk-free rates made matters difficult on the bond markets.

In 2013, dedicated assets achieved a performance of +9.4%, with the financial portfolio registering +11.6%. The difference compared to the benchmark index performance (+10.9%) is explained by the large proportion of equities throughout the year, and favourable fund selection. The volatility of the equities and bonds sub-portfolios was below the benchmark index volatility. RTE shares registered a very sound performance.

Against this background, the overall after-tax performance of dedicated assets (impact on reserves and net income) was +€1,240 million: +€926 million on the financial portfolio and cash (+1,493 million before tax), and +€56 million for the CSPE receivable after funding (+€83 million before tax) and +€262 million for the RTE shares allocated to dedicated assets.

## Dedicated assets' exposure to risks

EDF is exposed to equity risks, interest rate risks and foreign exchange risks through its dedicated asset portfolio.

The market value of the "equities" sub-portfolio in EDF's dedicated asset portfolio was €7,918 million at 31 December 2013. The volatility of the "equities" sub-portfolio can be estimated on the basis of the volatility of its benchmark index, the MSCI World AC index, which at 31 December 2013 was 10.1% based on 52 weekly performances, compared to 10.2% at 31 December 2012. Applying this volatility to the value of equity assets at the same date, the Group estimates the annual volatility of the equities portion of dedicated assets at €800 million. This volatility is likely to affect the Group's equity.

At 31 December 2013, the sensitivity of the bond" sub-portfolio (€5,147 million) was 4.70, i.e. a uniform 100 base point rise in interest

rates would result in a €242 million decline in market value which would be recorded in consolidated equity. While this sensitivity was lower than in 2012 (5.06), it remained well below the sensitivity of the benchmark index (6.44).

## 9.5.1.7 Management of counterparty / credit risk

Counterparty risk is defined as the total loss that the EDF group would sustain on its business and market transactions if a counterparty defaulted and failed to perform its contractual obligations.

The Group has a counterparty risk management policy which applies to the parent company and all operationally controlled subsidiaries. This policy defines the organisation of counterparty risk management and monitoring, and reporting procedures and circuits. It involves monthly consolidation of the exposures on financial and energy markets and half-yearly consolidation for all activities. The policy also includes close supervision of Group counterparties (daily review of alerts, special cautionary measures for certain counterparties).

These supervision procedures proved their robustness during the 2008 financial crisis, when the Group moved to a more frequent (quarterly) consolidation of all counterparty risks. Risk calculation methodologies were revised in June 2013<sup>1</sup> to better reflect the losses the Group could bear, and this led to a substantial decline in exposure related to insurance activities. The figures for 31 March and 30 September 2013 shown in the following tables are proforma figures that incorporate the new rules.

The table below gives details, by rating, of the EDF group's consolidated exposure to counterparty risk. At 30 September 2013, 86% of Group exposure concerned "investment grade" counterparties:

	AAA	AA	A	BBB	BB	B	CCC/C	Unrated	Total
30/09/2013	6%	20%	39%	21%	3%	0%	1%	10%	100%
31/03/2013	7%	21%	36%	23%	3%	1%	0%	9%	100%

The exposure to counterparty risk by nature of activity is distributed as follows:

	Purchases	Insurance	Distribution and sales	Cash and asset management	Fuel purchase and energy trading	Total
30/09/2013	4%	0% <sup>(1)</sup>	10%	72%	14%	100%
31/03/2013	4%	0% <sup>(1)</sup>	9%	70%	17%	100%

(1) 0.47% and 0.61% respectively at 31 March and 30 September 2013.

Exposure in the energy trading activities is concentrated at EDF Trading. Each counterparty of this subsidiary is assigned a limit, depending on its financial robustness. A range of means are used to reduce counterparty risk at EDF Trading, primarily position netting agreements, cash-collateral agreements and establishment of guarantees from banks or affiliates.

For counterparties dealing with EDF's Trading room, the CRFI has drawn up a framework specifying counterparty authorisation procedures and the methodology for calculation of allocated limits (which must correspond to requirements). The level of exposure can be consulted in real time and is

systematically monitored on a daily basis. The suitability of limits is reviewed without delay in the event of an alert or unfavourable development concerning a counterparty.

In the context of the Euro zone's financial crisis, EDF continued to apply a prudent management policy for its cash investments in countries neighbouring France. Excluding dedicated assets, purchases of sovereign debt are restricted to Italy (no exposure in Portugal, Greece, Cyprus, Spain, etc) for maturities of less than one year. Only "investment grade" banking counterparts are authorised, for limited amounts and maturities.

1. Regarding the insurance activity, the exposition integrates existing debts and the contract annual premium (and not anymore the value of property insured), because the premium reflects the estimate of the claims expectation made by the insurer.

## 9.5.2 Management and control of energy market risk

### 9.5.2.1 Framework for management and control of energy market risk

In conjunction with the opening of the final customer market, development of the wholesale markets and on the international scene, the EDF group is exposed to price variations on the energy market which can significantly affect its financial statements.

Consequently, the Group has an "energy markets" risk policy for all energy commodities, applicable to EDF and entities over which it has operational control.

This policy aims to:

- define the general framework for management of risks on the energy markets where the various Group entities carry out their asset portfolio management (energy generation, optimisation and sale, and trading for EDF Trading);
- define the responsibilities of asset managers and traders and the various levels of control of activities;
- implement a coordinated Group-wide hedging policy that is coherent with the Group's financial commitments;
- consolidate the exposure of the various entities controlled by EDF on the structured energy-related markets.

At Edison, which has been operationally controlled by EDF since 2012, application of the energy market risk policy began in 2012 with consolidation of Edison's positions in the Group's risk profile, and continues as Edison is integrated into the EDF group's risk policy.

At entities not operationally controlled by EDF, the risk management framework is reviewed by the governance bodies.

### 9.5.2.2 Organisation of risk control

The process for controlling energy market risks for entities operationally controlled by the Group is based on:

- a governance and market risk exposure measurement system, clearly separating management and risk control responsibilities;
- an express delegation to each entity, defining hedging strategies and establishing the associated risk limits. This enables the Group's Executive Committee (Comex) to set an annual Group risk profile consistent with the financial objectives, and thus direct operational management of energy market risks within the Group, generally over a 3-year market horizon.

Given its close interaction with the decisions made within the generation and supply businesses, this process involves Group management and is based on a risk indicator and measurement system incorporating escalation procedures in the event risk limits are exceeded.

The Group's exposure to energy market risks through operationally controlled entities is reported to the Comex on a quarterly basis. The control processes are regularly evaluated and audited.

### 9.5.2.3 Principles for operational management and control of energy market risk

The principles for operational management and control of energy market risks for operationally controlled entities are based on clearly-defined responsibilities for managing those risks, distinguishing between management of assets (generation and supply) and trading.

Managers of generation and supply assets are responsible for implementing a risk management strategy that minimizes the impact of energy market risks on the variability of their financial statements (the accounting classifications of these hedges are described in note 41 to the 2013 consolidated financial statements). However, a residual risk remains that cannot be hedged on the market due to factors such as insufficient liquidity or market depth, uncertainty over volumes, etc.

For operationally controlled entities in the Group, positions on the energy markets are taken predominantly by EDF Trading, the Group's trading entity, which operates on the markets on behalf of other Group entities and for the purposes of its own trading activity associated with the Group's industrial assets. Consequently, EDF Trading is subject to a strict governance and control framework, particularly the European regulations on trading companies.

EDF Trading trades on organised or OTC markets in derivatives such as futures, forwards, swaps and options (regardless of the accounting classification applied at Group level). Its exposure on the energy markets is strictly controlled through daily limit monitoring overseen by the subsidiary's management and by the division in charge of energy market risk control at Group level. Automatic escalation procedures also exist to inform members of EDF Trading's Board of Directors of any breach of risk limits (value at risk limit) or loss limits (stop-loss limits). Value At Risk (VaR) is a statistical measure of the company's potential maximum loss in market value on a portfolio in the event of unfavourable market movements, over a given time horizon and with a given confidence interval<sup>1</sup>. The stop-loss limit stipulates the acceptable risk for the trading business by setting a maximum level of loss over a rolling three-month period. If the limit is exceeded, EDF Trading's Board of Directors takes appropriate action, which may include closing certain positions.

In 2013, EDF Trading's commitment on the markets was subject to a daily VaR limit of €45 million (with a daily confidence interval of 97.5%), and a stop-loss limit of €225 million<sup>2</sup>.

The VaR and stop-loss limits were not exceeded in 2013, and EDF Trading's risks remained within the limits of the mandate from EDF at all times. The stop-loss has never been triggered since its introduction.

At Edison, for operational purposes net exposure<sup>3</sup> is calculated based on its entire portfolio of assets and contracts (industrial portfolio), and on assets and contracts related to its trading business for the company's own purposes (trading portfolio). The level of economic capital engaged in the markets, expressed in terms of Profit at Risk (PaR)<sup>4</sup> is then determined using this net exposure. Edison also complies with the accounting obligations laid down in IFRS 7.

For an analysis of the fair value of the Group's commodity hedging derivatives, see notes 41.4.3 and 41.5 to the 2013 consolidated financial statements. For details of commodity contracts not classified as hedges by the Group, see note 42.3 to the same consolidated financial statements.

1. EDF Trading assesses VaR by the Monte Carlo method, which refers to historical volatilities and correlations estimated on the basis of market prices observed over the 40 previous trading days. The VaR limit applies to EDF Trading's overall portfolio.

2. Five times the VaR, i.e. €225 million.

3. Net exposure is the residual exposure after using all natural hedging options provided by vertical and horizontal integration of the various techniques.

4. Profit at Risk or PaR is a statistical measure of the maximum potential decline, related to unfavourable market movements, in the margin compared to budget for a given time horizon and confidence interval.

## 9.5.3 Management of insurable risk

The EDF group has an extensive insurance programme that covers EDF SA and controlled subsidiaries as they are integrated, including ERDF and Edison, which was integrated into the Group's main programmes in 2012 and 2013. The coverage, exclusions, excesses and limits are appropriate to each business and the subsidiaries' specificities.

The main insurance programmes cover:

- **conventional damage to Group property:** EDF is a member of the international mutual insurance company OIL<sup>1</sup>. Additional insurance coverage is provided by EDF's captive insurance subsidiary Wagram Insurance Company Ltd<sup>2</sup>, other insurers and reinsurers;
- **damage to the EDF group's nuclear facilities:** In addition to coverage through EDF's membership of OIL, physical damage (including following a nuclear accident) to EDF's nuclear installations in France and EDF Energy's nuclear facilities in the United Kingdom, and nuclear decontamination costs are covered by a Group insurance policy involving the French nuclear pool (Assuratome), the British atomic pool National Risk Insurers (NRI) and the European Mutual Association for Nuclear Insurance (EMANI). In connection with CENG's operations in the United States, EDF Inc is a member of NEIL (Nuclear Electric Insurance Limited);
- **damage to merchandise transported;**
- **nuclear operator's civil liability:** EDF's current insurance policies comply with French law n° 68-943 of 31 October 1968, as amended by law n° 90-488 of 16 June 1990, which codified the civil liability obligations imposed on nuclear facility operators by the Paris Convention. To guarantee availability of the funds required to meet such obligations, EDF opted to use insurance policies. The cover provided by EDF's policies with Allianz and the European Liability Insurance for the Nuclear Industry (ELINI) is equal to the limits of liability set by law in the event of an accident, whether at a nuclear facility or during transport. For onsite accidents, total cover is €91.5 million per nuclear accident, for a maximum of two occasions per site within a three-year period. In accordance with the law, these insurance policies purchased do not include an excess amount. However, Oceane Re, a Group reinsurance company, shares this risk through reinsurance agreements entered into with Allianz and ELINI. In the United Kingdom, where EDF Energy operates nuclear plants, the liability scheme applicable to operators of nuclear facilities is similar to

that in France. EDF Energy is insured to the extent of £140 million, the current limit for civil liability applicable to nuclear plant operators in the United Kingdom. Since 1 January 2014, this insurance has been provided by ELINI and Wagram Insurance Company Ltd. Oceane Re is associated with this risk via the reinsurance contract issued to the benefit of Wagram Insurance Company Ltd.

In the United States, the specific Price-Anderson Act regime would apply in the event of a significant nuclear accident (above \$300 million);

- **general civil liability:** this programme covers the Group against the possible financial consequences for third parties of the (non-nuclear) risks inherent to the EDF group's businesses;
- **civil liability of directors and senior executives:** EDF's insurance programme covers the Group's directors and chief executive officers;
- **construction risks:** For these risks, EDF takes out insurance policies covering specific worksite risks (general worksite risks / general assembly risks). These policies are not part of a Group programme but are purchased on an ad hoc basis for major projects such as the Flamanville EPR, or construction of combined cycle power plants, dams, combustion turbines, etc. This cover is recorded as an investment in the EDF SA financial statements;
- **exploration and Production:** Edison had a specific insurance policy providing Damage and Civil Liability coverage for these assets worth €2.2 billion, both onshore and offshore. Through optimised use of EDF's membership of OIL, Edison was able to construct a new specific "Exploration and Production" programme from 1 January 2013;
- on 11 August 2011, ERDF took out a policy with Natixis/Swiss-Re for **coverage of ERDF's overhead distribution network** against the consequences of exceptional events such as storms and gales. This "cat-bond" provides maximum cover of €150 million, with payouts based on a parametric index dependent on wind speed. On 27 December 2011, additional €40 million coverage was subscribed for a four-year period, to reduce the excess.

The total value of premiums for all types of coverage provided by EDF's insurance programmes and Group programmes managed by EDF Assurances was €125 million in 2013, including integration of Edison (impact of €11.3 million), of which €62 million was borne by EDF (excluding investments) and €18 million was for coverage of ERDF's overhead networks.

1. Oil Insurance Limited.

2. An Irish insurance company fully-owned by EDF.





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# 10 Cash flows and capital

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For information pertaining to capital and cash flows, see section 9.4 (“Cash Flows and financial debt”) in this reference document.

For information on to the issuer’s financing structure, see section 9.5.1.1 (“Liquidity position and management of liquidity risk”) in this reference document.



# 11 Research and development, patents and licenses

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The main goals of the EDF group's Research and Development ("R&D") Division are to contribute to the improvement in the performance of the operational units, to identify and prepare mid and long-term growth vectors and to anticipate the major challenges facing the Group in the global energy context. Aspects of this context include, in particular:

- fossil fuels and global warming, prompting reflection and regulations on the rate of greenhouse gas emissions;
- water uses and management of the environment;
- the rapid development of emerging countries and the subsequent shift in areas of consumption;
- the significant development of information technologies in the energy sector, offering new opportunities in electricity generation; and
- customers: individual and collective consumers who are also becoming producers, who want to use energy more efficiently and live in more energy self-sufficient buildings, neighbourhoods and towns.

In this context, R&D has a crucial role in finding solutions to all of these challenges. Its research areas focus on three major priorities:

- to consolidate a carbon-free energy mix by improving the safety and performance of the current nuclear fleet and extending its life span, by developing new reactors on the basis of lessons learned from the

Fukushima accident, by increasing the operational safety and performance of hydropower stations run by EDF, and by fine-tuning means and methods designed to support the development of renewable energy;

- to develop flexible low-carbon energy demand through better demand awareness, increased customer energy efficiency, the promotion of new, efficient uses for electricity often associated with renewable energy (heat pumps, electrical mobility, etc.), the development of technical and economic modelling to engineer buildings, industry and sustainable cities, and the further integration of uses and consumption into the electricity network via *smart grids* and tariffs;
- to adapt the electricity network by improving network asset management, optimisation models and *economic* scenarios for new transmission infrastructure projects, integrating intermittent energy and developing *smart grids*.

This approach is part of the "3x20<sup>1</sup>" commitment by 2020, defined by the European Union through its *Strategic Energy Technology Plan* which gives a road map of the developments and uses of key technologies concerning, in particular, solar energy, carbon capture and storage, energy efficiency and sustainable cities. To achieve this goal, it depends on public and private academic and industrial partnerships in which EDF actively participates to share the risks.

## 11.1 R&D organisation and key figures

EDF's R&D is integrated and multidisciplinary in order to facilitate synergies and transfers of processes between business lines and between companies of the Group.

In 2013, EDF's total research and development budget was €543 million. It is one of the highest R&D budgets among the big electricity players. About 70% of the budget is allocated to annual programmes developed with EDF operational departments and subsidiaries. The remaining 30% is dedicated to medium- and long-term anticipatory programmes aligned with the Group's R&D priorities.

In 2013, around 20% of this budget was dedicated to environmental protection. These expenses specifically cover research on energy efficiency, the uses of electricity as a substitute for fossil energy, renewable energy and its integration within the electricity network, sustainable cities, the local impacts of global warming and other environmental issues such as biodiversity, water quality or reduction of pollution.

EDF's R&D has more than 2,000 employees, 80% of which are managers and approximately 150 are PhD candidates. There are 200 researchers teaching in universities and major graduate schools. Each year, it hires about 100 people and regularly places personnel in other entities within the EDF group. The R&D Division has 15 departments. Its expertise covers all of the Group's fields of activity: renewables, networks, nuclear generation, thermal, hydropower, energy management, trade, Information Systems, environment. They represent disciplines, businesses, projects and are integrated over major systems. The development of skills and staff is managed over a rolling three-year period.

EDF's R&D manages an internal training organisation, the Institute of Technology Transfer ("ITech"), tasked with sharing R&D practices, know-how and innovations with the EDF group as a whole. A catalogue of about a hundred training courses is updated each year and has been incorporated

into the Skills Academies (see section 17.1.4 ("Training and skill development: priorities for the Group")).

R&D is currently organised around several sites: three are located in the Paris region, one in Germany, one in the United Kingdom, one in Poland, one in China and one in Italy. The Chatou and Renardières centres near Fontainebleau have around 500 people each. The Clamart centre has nearly 1,000 people.

In November 2010, EDF's Board of Directors approved the plan to move EDF's main R&D centre, currently in Clamart, to the campus at Paris-Saclay. This centre is intended to accommodate up to 1,500 people, including Group researchers, doctoral candidates and interns. EDF is thus taking its R&D to the next level and putting innovation and scientific and industrial research at the heart of its priorities. A new EDF training centre will be established locally. The EDF Paris-Saclay Lab will bring the research and training centres together in one place. The foundation stone laying ceremony for the site took place on 10 October 2013 with the French Prime Minister in attendance. This positions EDF as a leading player on the Paris-Saclay campus and will allow it to profit from a dynamic and enhanced cooperation with higher education institutions and public and private research centres established nearby. As a result, several partnerships have been formalised since 2012 through contracts with institutions located at the Paris-Saclay site:

- SEIDO, a joint research laboratory between EDF and Telecom Paris Tech, was launched to study the Internet of things and cybersecurity for electricity networks. Its challenge is to prepare for and facilitate the rollout of energy efficiency and energy demand management services based on communicating, interoperable energy devices (heating, air conditioning, white and brown goods, electric vehicles, etc.), and thus help ensure the cohesion of the entire system, as well as its safety (security, confidentiality, etc.);

1. A 20% reduction in greenhouse gas emissions, 20% increase in energy efficiency and a 20% portion of renewable energy in energy consumption by 2020.



- the joint *Rise Grid* laboratory with Supelec on *smart grid* modelling and simulation;
- the SEISM institute for earthquake modelling from fault to structure, comprising EDF, CEA, Ecole Centrale Paris, ENS Cachan and CNRS;
- the Gaspard Monge Programme for Optimisation and Operations Research, in conjunction with the Jacques Hadamard Mathematical Foundation, which was made possible by sponsorship from EDF's R&D Division;
- the Mechanical Laboratory of Industrial Sustainable Structures, in which EDF, the CNRS and the CEA Saclay already participate, which will host the ENSTA starting in 2014;
- the joint Finance and Energy Markets Laboratory with Dauphine, the ENSAE and the Ecole Polytechnique, which was renewed in 2012.

The R&D sites house two combined CNRS research units: the Mechanical Laboratory of Industrial Sustainable Structures ("LaMSID") and the Research and Development Institute on Photovoltaic Energy ("IRDEP"), and two international R&D centres: the *Materials Ageing Institute* ("MAI") and the *European Center Laboratories for Energy Efficiency Research* ("ECLEER").

In the United States, energy is an important part of R&D, especially with regard to the environment, energy independence and supply security. Its development is protected by US law. With regard to electricity, the *Electric Power Research Institute* ("EPRI") is a key R&D partner. It supplies technologies and economic and strategic analyses to its members, which represent more than 90% of the electricity generated in the United States and bring together around 40 countries. For several years now, a team of R&D researchers travels to the United States and works in close collaboration with the EPRI and EDF Inc., the US subsidiary of EDF. The partnership with the EPRI covers multiple domains such as nuclear energy, renewable energy, smart grids, energy efficiency, and the capture and storage of CO<sub>2</sub>.

In order to achieve its goals, EDF continues to invest in powerful and reliable digital simulation equipment. It develops calculation codes and leading calculation methods. Accordingly, in 2013, EDF purchased a supercomputer with a minimum capacity of 1,000 Teraflops.

Furthermore, the Group has unique experimental resources, such as specific analytical loops (chemistry-corrosion, rupture, aero-acoustics, etc.), loops centred on components or processes, on-site trials of response resources, or resources means dedicated to the characterisation of materials and their aging. In 2013, EDF inaugurated new means of testing:

- the LEMEDS laboratory for the study of the degradation mechanisms of the solvents used for the capture of CO<sub>2</sub>;
- "*Concept Grid*": Concept Grid is a small-scale electricity network whose purpose is to test the integration of the innovative equipment

and "smart" systems that make up a *smart grid* before installing them on the network. Concept Grid aims to prepare for changes in the distribution network, by studying the integration of new components and equipment derived from information and communication technologies and facilitating demand management. It also aims to facilitate the integration of decentralised generation by studying how generation methods affect the electricity network and by conducting research into electricity storage applications. Concept Grid is the missing link between a traditional research laboratory, in which innovations are tested under quasi-real-world conditions, and the actual network, on which the need for quality service limits experimentation. The Concept Grid platform was inaugurated in September 2013.

- In 2013, EDF launched the construction of a model reactor building for studying double-walled enclosures.

EDF and RTE, under the CRE's supervision and pursuant to the provisions of the Third Energy Package, have agreed to modify the contractual arrangements for the studies and testing conducted by EDF's R&D for RTE. As a result of this change, in December 2013, EDF's R&D will acquire the laboratories owned by RTE at the Renardières site.

R&D also reinforces its ability to industrialise and promote internal innovation and develop an opening for external innovation. It aims to integrate the innovations in the industrial processes of the Group. The approach is organised around two actions:

- to better use internal innovation and speed up the *time to business* through initiatives in collaboration with the business lines to expedite and promote the industrialisation phase. Thus, a dedicated team helps to protect and use EDF R&D's intellectual property and expertise potential and to accelerate the transfer and industrialisation of innovations;
- to develop an opening on external innovations, and, as needed, demonstrate external innovations.

EDF is the lead investor in Electranova Capital, a venture capital fund for *start-ups* specialising in *clean technology*, launched in May 2012 with support from Allianz and in partnership with Idinvest Partners and joined by Caisse des Dépôts. The Electranova Capital fund has a minimum investment capacity of €60 million and the mission of promoting the emergence of innovative projects in new technologies to meet the challenge of a low-carbon energy model. In 2012, Electranova Capital made its first two investments, in Actility, a French company specialising in *smart grids*, and in the Norwegian company Seatower, which has developed an innovative gravity-based foundation solution for offshore wind farms. In 2013, Electranova invested in two companies: Forsee in the field of batteries, and Enlighted in the field of the energy optimisation of buildings.

## 11.2 R&D priorities

EDF's R&D works for all the businesses of the Group. It provides technological solutions or innovative and economic business models that improve the performance of the businesses and prepares the long-term future of the Group through medium and long-term anticipatory programmes. It contributes to making EDF a worldwide industrial group of carbon-free electricity networks.

The ambition of EDF's R&D in the deeply changing field of energy can be seen in three major areas: consolidating and developing a carbon-free energy mix, developing a flexible demand for low-carbon energy and adapting the electricity network to these new challenges.

R&D also conducts research in the Information Technologies in support of these three areas. Efforts in this area serve a twofold purpose:

- improving business performance through advanced simulation technologies; and
- creating new opportunities for businesses with the innovative use of new Information and Communication Technologies.



### 11.2.1 Consolidate and develop a carbon-free energy mix

In nuclear power generation, Hydropower and fossil-fuel fired power, EDF's R&D develops tools and methods to improve the safety of generation methods, to optimise their operating life and to increase their generation and environmental performance. Three major goals are priorities: to perpetuate the Group's nuclear power advantage, develop renewable energy sources, and study the industrial feasibility of carbon capture and storage.

In order to reinforce and perpetuate the Group's nuclear power advantage, R&D works to protect EDF's assets by incorporating its actions into the safety improvement process for the facilities, with the aim of enhancing their generation and environmental performance and extending their operating life. In 2013, for example, R&D worked on the development of preventive monitoring solutions for the Nuclear Fleet's plant and the non-destructive inspection of the Nuclear Fleet's components. Actions in the area of nuclear power also deal with difficulties linked to the fuel cycle and lead to assessments of the design of new power plants, in particular fourth-generation plants and *small modular reactors* ("SMRs"). Lastly, R&D's actions help EDF understand and manage the impact of the facilities on the environment and in parallel to take account of environmental risks on industrial tools. R&D therefore studies the outlook for the availability of water resources linked to climate change and changing regions. R&D's work thus offers insight into the possible risks and consequences for the generation fleet (availability of the cooling source, modulation capacity, placement optimisation).

The questions posed by the above topics require a sound understanding of the phenomena in play. In support of these programmes, R&D thus develops digital simulation tools and experimental test methods, as well as the tools capable of managing the new challenges faced by the growth in mass of digital data, computer security and new information and communication technologies.

The events at Fukushima in 2011 have led to intensified research on safety, the environment (external attacks) and life span, as well as to interest in new fields such as the rehabilitation of an inhabited area that is evacuated after a nuclear accident. EDF's R&D, in conjunction with other European nuclear power players, spearheaded NUGENIA, an international non-profit association formed in March 2012 whose objective is to become the single framework for R&D cooperation in Europe for Generation II and III nuclear plants within the *European Sustainable Nuclear Energy Technology Platform* ("SNETP"). The association brings together 80 members from 20 countries from industry, research entities, safety authorities and so on. EDF holds the presidency of the association, which will facilitate the creation of synergies and joint projects between members or with national R&D programmes in the following areas: safety and risk analysis, serious accidents, reactor core and performance, component integrity and aging, fuels, waste and dismantling, "Generation III innovative design", as well as cross-functional challenges regarding the harmonisation of safety and other practices and non-destructive checks and assessments. In 2013, NUGENIA released its roadmap, which displays the key issues and priorities for nuclear R&D in Europe and also implemented an open innovation portal for the emergence and installation of new projects. Finally, the NUGENIA+ project was accepted as part of Framework Programme 7 of the European Commission, to launch and coordinate research projects.

EDF also provided the impetus for the launch in 2012 of the "Connexion" project relating to future digital nuclear instrumentation and control systems, as part of the French government's "Investment in the Future" programme<sup>1</sup>.

This project brings together industrial partners and academics in the French nuclear industry to work on an ambitious research programme to develop future methods for designing, qualifying and upgrading power plants' digital instrumentation and control facilities. This initiative also meets the challenge of harmonising industrial solutions within the sector.

The second priority is support for the development of renewable energies. These play a growing role in the European energy landscape and EDF, an already significant participant, wants to continue to grow its positions in this domain.

R&D's objective for renewable energy is to identify technological breakthroughs with significant competitive implications and contribute to the development of the most promising technologies, in partnership with the academic and industrial world. EDF is studying several types of renewable energy: hydropower, photovoltaic, onshore and offshore wind power, thermodynamic solar, biomass, marine energy and geothermal projects.

R&D is also working on the development of tools and methods to enhance the operating performance and optimise the project costs of EDF's renewable energy-based electricity generation systems, in order to:

- reduce investment risks – for instance, EDF's R&D is lending its expertise to EDF's offshore wind power projects, with particular regard to turbine system and wind turbine foundation design, turbine certification, and generation capability evaluation methods. R&D is also preparing for the future by studying technologies for floating offshore wind turbines and supporting EDF EN in the development of the Provence Grand Large project;
- improve operating performance – for example, R&D has developed a means of forecasting the remaining life of the gearbox, a vital component in wind turbines. This forecasting tool helps to optimise maintenance (by scheduling it during periods of low wind);
- manage technical and economic impacts on the electricity network and ensure a balance in the electricity network while integrating renewable energy. The works deal with the definition of integration methods for renewable energies in the electricity network. This will require various solutions to integrate intermittent renewable energy and assess the limits and costs of integration in large networks to be analysed: storage, *super grids*, *smart grids*, demand management, etc.

The third priority is carbon capture and storage and limiting the CO<sub>2</sub> emissions of power plants (see section 6.2.1.1.5 ("Fossil-fuel fired generation")). Cost, the impact on the facility's yield and the deadlines for implementing such processes are all important issues.

For the existing power plants, the capture of CO<sub>2</sub> by processing exhaust gases now appears to be the best solution. The work of R&D is intended to give a clear vision of the technical and economic maturity of technologies to inform the future development of the Group's thermal power plants (coal and gas). With the support of the ADEME and its partners, EDF is installing a CO<sub>2</sub> capture research test unit on the EDF carbon electricity generation power plant in Le Havre. The technology, tested on the CO<sub>2</sub> present in the exhaust gases coming from carbon combustion, is known as "post combustion amine capture". The purpose of this research test unit, which was inaugurated on 11 October 2013, is to verify the performance of this technology in an industrial environment and analyse its flexibility in operation. This test unit is an indispensable step in the development of more efficient industrial energy solutions. EDF's R&D is also investigating new ways to prepare for the emergence of a second generation of CO<sub>2</sub> capture and storage technologies, with a lower energy penalty.

1. "Investment in the Future" is a loan issued by the French State to fund innovative research activities relevant to the economic development of France.

## 11.2.2 Promote flexible low-carbon energy demand

The development of energy efficiency and distributed renewable energy, regulatory and technological (digitisation) changes, as well as the opening up to market competition, are causing profound changes in the relationship between energy utilities and their customers. They allow customers to actively consume or produce energy at the individual or regional level.

In this context, the EDF Group's marketers face multiple challenges:

- changes to rate-price trajectories;
- demand side management: with the Green Deal in the UK and Energy Savings Certificates in France, suppliers must assume increasing obligations;
- the development of smart technologies: the arrival of "smart meters" will, for the general public, mean access to new services enabled by smart technologies (monitoring, more personalised offers, etc.);
- the increasing digitisation of customer relationships and the subsequent, inevitable shift and rise in customer expectations. However, this modernised relationship should not overshadow the parallel rise in energy poverty impacting customers in need of an adequate service from their energy company;
- increased local influence: Local governments, which are already active in the areas of urban planning and public distribution of energy, want an increasing say over their energy destiny. The concept of regional sustainability, combining aspects of development (green neighbourhoods) and mobility (electric vehicles), will structure local policies. Where the development of smart technologies and the increasing influence of local communities meet, there are new fields of services to be explored;

In order to meet these challenges, EDF's R&D is organising its efforts around several priorities:

- develop load curve methods and models for a better understanding of demand and new tariff approaches, thus encouraging dynamic management of demand to meet new requirements in terms of the flexibility of the electricity network (upstream-downstream optimisation and intermittent nature of renewable energies);
- innovate to develop new uses of electricity (heat pumps for buildings and industry, electric vehicles) in order to boost future electricity demand;
- propose efficient energy solutions for all customer segments in accordance with the new regulatory frameworks;
- develop methods and tools to modernise customer relationships through new information technologies and related data processing, experiment with smart grids downstream from meters in connection with the development of Linky, and prepare the way for Linky-ready services and equipment in buildings;
- develop the technical building blocks of a service offering for regional and urban sustainability.

As a result, work on new uses for electricity, such as electric vehicles, heat pumps and more fuel-efficient buildings has been carried out. R&D has developed a prototype of an industrial high-temperature heat pump enabling the free heat from customer processes to be recovered. The deployment of this technology in a service offering to customers is currently underway. Innovations that will reduce the costs of building heat pumps have also been developed. Finally, innovations to intelligent energy management of

thermal electricity uses were carried out, in particular on residential heat pumps and on upgrading buffer tanks so as to make them compatible with innovative monitoring methods such as solar off-peak hours.

These works are specifically carried out on the ground via *smart grid test units*, such as *Nice grid* or *Smart Electric Lyon*, in which R&D examines new models surrounding the aggregation of different types of flexible demand (disruption, shift in consumption, own consumption, renewable energies, energy planning and local management). R&D has also launched an experimental industrial interruptibility project based on the remote monitoring of processes.

Regarding customer relationships, in order for residential customers to determine how much electricity they are consuming between two bills, EDF has designed and developed a prototype range of services compatible with smart metering, such as a module for smartphones and computers that allows customers to estimate their bill by taking into account factors such as their seasonal electricity consumption and past consumption. EDF's R&D is also working on research to fight energy poverty, for example, by designing personalised customer relationship services and tools.

With regard to Regional Sustainability, in order to meet the needs of towns wanting to optimise infrastructures and infrastructure management at the local level (transport, waste treatment, buildings, energy production, networks) and be *smart cities* or "sustainable cities", R&D is developing city engineering tools for EDF marketers in France, such as the study conducted for the Nice metropolitan area. EDF is also investing in a partnership with the city of Singapore to develop a city planning decision support project. As a result, a development agreement for the City of the Future was signed in June 2013 between EDF and the Housing Development Board of Singapore, the leading builder of city housing, to develop an innovative urban modelling software tool. Through this tool, this collaboration with the Singapore authorities covers the following areas: energy efficiency of buildings and their air conditioning systems, as well as the collection of household waste. It also makes it possible to deal with issues relating to the integration of photovoltaics into buildings, green roofs and local water recycling. This modelling is combined with innovative tools for 3D visualisation, at the building and neighbourhood level, of the impacts of the planning choices, for example, on greenhouse gas emissions. The Singapore experience will be a showcase for the project.

Electric vehicles are an important dimension of the sustainable city: Electrical transportation constitutes a profound change of outlook regarding modes of transport. Battery storage is the key technology in electrical transportation. R&D action in this area consists firstly of characterising battery security and performance in the laboratory and secondly, of innovating in terms of breakthrough technology that may highly improve their autonomy or cost reductions. R&D also studies the stationary applications of these battery technologies (coupling with renewable energy, system services, etc.).

More generally, the objectives of R&D activities in the field of electric vehicles ("EV") and plug-in hybrid electric vehicles ("PHEV") are as follows:

- support the development of this new use (monitoring of initial experiments, standardisation, innovations likely to remove market barriers (wireless charging));
- control integration into the electrical system (smart charging, sizing and location of recharging stations);
- develop mobility service tools (fleet supervision platform, software for the operation of recharging stations, tools for mobility consulting for local communities).

## 11.2.3 Adapt the electricity network to these new challenges

The transition toward a carbon-free energy economy in Europe implies meeting new challenges: how to better manage the intermittent nature of renewable energy generation sources; how to integrate new electricity uses by optimising means of production and network requirements; how to develop local, regional, national and supra-national energy management systems, where to develop network infrastructures and how to optimise electricity flows in Europe. More generally, with due regard to the public interest and competitive pricing, the question is how to optimise the economic balance of the electricity network (generation investments, investments in grids and the costs and benefits of energy and environmental efficiency solutions) without significant increase in customer bills or added complexity, while also maintaining the quality and reliability of the electricity network.

The shift toward smarter electricity networks, known as *smart grids*, is one of the pivotal points of the transition to a carbon-free energy economy in Europe. The major challenges are technical, economic and regulatory. Apart from integrating renewable energy and new uses, they are tied to the management of information for different network users and the need to control costs.

In order to meet these challenges, R&D has set several priorities. First, to anticipate the arrival of new technologies and changes in the energy landscape, it establishes forward-looking *scenarios*, modelling and optimising energy savings (global macro-economic environment and energy policies, competitive and regulatory environment). In order to anticipate the consequences of the development of new generation resources or new uses, it is developing models of the energy system that provide better management of the balance between supply and demand. To obtain an objective assessment of the costs and benefits of the different options, it implements and proposes harmonised methods of analysis to the different stakeholders.

The second priority is to improve the performance of electrical networks. The work carried out by R&D in this field aims to:

- improve the management of active networks in France and abroad by working on equipment lifetimes and network availability;
- increase the automation of distribution networks to optimise the quality of supply and reduce operating costs.

The third priority is to prepare the transformation of the electrical system towards smart grids, notably through the following objectives:

- support the development of the Linky project and anticipate new smart metering architectures and associated services;
- prepare and assist smart grid experiments;
- insert intermittent and decentralised production in networks, develop new system services and prepare for future balances at the local level.

EDF's R&D thus contributes to the development of new functionalities for grid management and operations, and of new solutions for new communicating meters such as ERDF's Linky project. For example, R&D has developed and tested a new functionality for managing the distribution network when generation is decentralised. With this innovative method of management, it is possible, using an estimate of the condition of the network, to keep the voltage on the HVA network within the contractual range, even in the case of decentralised generation.

R&D is also testing electricity use management systems based on the Linky infrastructure. This testing has in particular shown the feasibility of load disruption, such as electric heating, to reduce peak consumption periods.

It develops tools to improve forecasts of losses on the network and develop energy assessment forecasts at the local level (source substations).

It contributes its expertise to every aspect of the Linky project, including the drafting of specifications and equipment qualification.

Finally, R&D also covers electrical systems and the *super grids, the direct-current networks that could emerge with the insertion of renewables* that alter the technical and economic fundamentals of electrical systems.

To find solutions to these new challenges, a cooperative approach is being taken to developing a number of smart electrical test units in France and Europe. R&D is closely involved (NiceGrid, Smart Electric, Lyon, Millener, Premio, Venteea, Une Bretagne d'avance, etc.), with the aim of shedding light on the issues associated with the transition of the electricity network, learning technical, economic, social and environmental lessons, and considering business models and regulation. In September 2013, EDF also inaugurated the Concept Grid Project, the smart grid research laboratory at the Les Renardières site. These projects also provide an opportunity for discussion and innovation with the electricity sectors and new information and communication technologies ("NICT") to best adapt the equipment to the flexibility requirements of the electricity network of the future. Numerous tests are therefore under way to explore the full potential of smart metering, the first link in the smart electricity network chain.

## 11.3 International and partnerships

To conduct its research and development programmes, EDF's R&D develops numerous partnerships in the world. These partnerships aim to maintain its expertise at the highest level, worldwide, in the disciplines at the heart of EDF's challenges and to complete its internal areas of expertise. The partnership policy of R&D takes various forms both nationally and internationally.

Several years ago, in France, R&D set up 14 joint laboratories with academic partners and technical or industrial centres and participates with them in collaborative research projects financed by national agencies like the National Research Agency, the ADEME or the *Fonds Unique Interministériel* through

competitiveness zones. Each joint laboratory is an opportunity to create a joint team around a shared scientific and technical problem, in order to create value, expertise and knowledge for all the partners, and constitutes an asset for participating in cooperative projects. R&D also supports four targeted teaching and research chairs through the EDF Foundation.

In the field of nuclear R&D, the tripartite CEA, EDF and Areva agreement that was set to expire in 2012 has been extended to 2013. Discussions on the follow-up to the agreement were finalised in late 2013. A new agreement based on the establishment of a tripartite nuclear R&D institute should be in place by early 2014.

This new agreement aims to increase the coordination of R&D programmes between partners (CEA, EDF and Areva) and its practical effects should be:

- the establishment of a tripartite programme team in charge of the supervision and coordination of programmes;
- the organisation of these programmes into projects monitored by the team;
- the implementation of these programmes in the existing joint laboratories.

At the same time, the tripartite R&D agreement between ECA, IRSN and EDF, initially set to expire in 2012 and extended to 2013, is under discussion, with the aim of implementing a four-party ECA-IRSN-EDF-Areva agreement and stepping up coordination with the “*Institut*” initiative in 2014.

R&D has also submitted projects to qualify as an Institute of Excellence in Low-carbon Energy (“IEED”), since renamed Energy Transition Institute (“ITE”), as part of Investment in the Future. In March 2012, the French government announced the winners of this call for projects. EDF is involved in several of them:

- the *Institut Photovoltaïque Île-de-France* (“IPVF”): this institute, of which EDF is a founding member, targets technological breakthroughs to make photovoltaic energy competitive in the market. The Institute will ultimately bring together 180 researchers from different partners at a state-of-the-art facility in Saclay;
- France Énergies Marines, for marine energy and offshore wind;
- *Paris-Saclay Efficacité Énergétique* (“PS2E”), for energy efficiency of industrial processes and energy control in industrial zones;
- SuperGrid, dedicated to major transmission networks to connect remote renewable energy generation sites;
- Vedecom, for electric vehicles;
- efficacy for energy efficiency and sustainable cities; and
- INEF 4 in the field of building rehabilitation and sustainable construction.

In October 2013, agreements with the ANR were signed for the IPVF, PS2E, Efficacité and INEF 4 institutes.

EDF also provided the impetus for the launch in 2012 of the “Connexion” project relating to future digital nuclear instrumentation and control systems, as part of the French government’s Investment in the Future programme (see section 11.2.1 (“Consolidate and develop a carbon-free energy mix”). In Europe, R&D is participating in about thirty projects and has established a relationship with the *Joint Research Center*, a European Union energy and transport research centre whose objective is to collaborate on low-carbon technologies and on electricity storage in particular. Through collaboration with the *Energy Technology Institute*, the *Engineering and Physical Sciences Research Council*, and various British universities, it is expanding its presence in the British research partnership.

Since 2010, research activity has been strengthened internationally around several centres in Poland, the United Kingdom, China and Italy.

The British centre consolidates the Group’s positions in the British research ecosystem. It is particularly involved in tidal wind energy and nuclear power in the United Kingdom. In 2012, this research centre was transformed into an independent legal entity named EDF Energy R&D UK Centre Ltd. This subsidiary is part of EDF Energy. Its new status increases EDF’s visibility and the research capabilities in Great Britain in keeping with the Group’s development strategy.

The research team within EDF Polska is dedicated to carbon thermal questions and biomass co-combustion. The Krakow R&D centre, for example, conducts laboratory tests of different types of biomass and coal blends to determine the optimal ratio of biomass to coal in terms of quality, safety, process reliability and performance.

The centre based in Beijing facilitates participation in large-scale Chinese test units focusing on smart grids, smart cities and some renewable energy technologies. This centre is also being used to support the implementation of the nuclear contract in China. The creation of the centre is accompanied by development focusing on academic and industrial partnerships in China. For example, EDF has signed a joint research programme in China on solar thermal power. The cooperation with the *Institute of Electrical Engineering of the Chinese Academy of Sciences* mainly concerns research and innovation work carried out on a testing platform dedicated to solar thermal power technologies located in Badaling. One of EDF’s challenges is to develop its modelling capabilities by using the measurements taken during tests conducted on this platform.

The Edison R&D team in Italy is tasked with the oversight of all gas research programmes for the EDF group.

In the United States, the R&D and innovation sector is one of the largest and most dynamic in the world. This sector has some 1.3 million researchers. In addition to a partnership with MIT (Massachusetts Institute of Technology) in the United States, EDF has had an R&D and Innovation team located for several years on the premises of the *Electric Power Research Institute* (“EPRI”). Its objectives are to optimise collaboration between EDF and the EPRI in multiple areas such as nuclear energy, renewables, smart grids, energy efficiency and the capture and storage of carbon; to establish collaborative efforts between the EDF Group and US research bodies (universities, laboratories, industry, etc.) selected for their expertise or equipment; and to assess opportunities for new business models in the United States.

Furthermore, to pave the way for the future, R&D participates in two *Knowledge and Innovation Communities* (“KIC 2”). The specific fields covered by the first, called “KIC Climate” are climate change, smart cities, water management and carbon-free generation. Those of the second, called “KIC InnoEnergy” are based on smart grids and storage, bio-fuels, renewable energy, CO<sub>2</sub> capture and storage, and nuclear power.

1. The Electric Power Research Institute is one of the key R&D players in the field of electricity in the United States. This non-profit body provides technologies and economic analyses and develops strategies for its funding members, who account for over 90% of the electricity generated in the United States.

2. The KICs are European initiatives to set up European university training and research/innovation projects responding to the needs of the market both in skills and innovation through the filing of patents and the creation of start-ups.

## 11.4 Intellectual property policy

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Industrial property plays a major role in protecting the EDF group's technologies and know-how against competition, as well as in the capitalisation of these assets through licensing.

EDF wants to strengthen its intellectual property portfolio intended to make the most of its capacities for innovation and its technological expertise. This portfolio is made up of patents, trademarked software and formalised know-how.

### Patents

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At the end of 2013, EDF's portfolio included 497 patented inventions protected by 1,608 intellectual property titles in France and abroad.

Strengthening of the patent portfolio is a top priority. It is intended to facilitate R&D cooperation, to provide protection in the development of EDF's activities, to contribute to the external image of EDF, to reinforce researchers' motivation and to focus fully on inventions.

In 2013, EDF lodged 54 patent applications, compared with 53 in 2012.

### Trademarks

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"EDF" is a trademark registered in more than 80 countries. The Group's name is an essential element of its image and its heritage. The EDF trademark, internet domain names and logos are thus monitored constantly to protect them against any fraudulent use that could jeopardise the Group's image. In addition, following the works of branding EDF, the Company set up licensing agreements with subsidiaries using the EDF brand.

The Group has also registered various other trademarks, in particular, those related to the business of its various subsidiaries.

The trademark portfolio of the EDF group at the end of 2013 included some 425 names protected by over 1,350 intellectual property titles.





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# 12 Informations on trends

## 12.1 Subsequent events

This chapter describes the material events that occurred between 12 February 2014, when the Board of Directors closed the financial statements, and the filing date of this reference document (see note 51 of the Appendix to the consolidated financial statements for the fiscal year ended 31 December 2013).

### EDF and Veolia Environnement conclude the agreement regarding Dalkia

On 25 March 2014, EDF and Veolia Environnement announced the finalisation of discussions started in October 2013 regarding their joint subsidiary Dalkia, a major global player in the energy services market. The agreement was concluded following a consultation process with employee representative bodies and with the approval of the Boards of Directors of both groups, in accordance with the principles announced on 28 October 2013. This operation means that EDF will take over all the business activities of the Dalkia group in France, whereas Veolia Environnement will take over the activities of Dalkia International. It will be carried out subject to authorisation by the relevant competition authorities.

### EDF and Exelon finalise the agreement regarding CENG

On 1 April 2014, following approval from the Nuclear Regulatory Commission (American nuclear safety authority), EDF finalised the transaction provided for in the agreement signed with Exelon on 29 July 2013 regarding Constellation Energy Nuclear Group ("CENG").

According to this agreement, EDF entrusts Exelon – the leading American nuclear operator – with the operational management of the five nuclear reactors owned by CENG (divided between three plants in the US and representing a total capacity of 4.2 GW).

In accordance with the agreement, EDF received payment of an exceptional dividend by CENG of US \$400 million (c. €300 million), with Exelon financing the payment. EDF was also granted a put option to sell its stake in CENG to Exelon, at its fair value, which may be exercised between January 2016 and June 2022.

Following this transaction, CENG is still 49.99% owned by EDF and 50.01% owned by Exelon, with a Board of Directors comprising an equal number of directors appointed by Exelon and EDF.

### Extension of a series of agreements with Chinese industrial partners

In March 2014, during the visit of the President of the People's Republic of China in France, EDF concluded a series of agreements with its Chinese partners.

EDF strengthened its agreements with its partners in the nuclear sector: with CGN regarding their «global partnership agreement» (GPA), and with CNNC regarding their strengthened cooperation, in particular in terms of engineering, operations and maintenance.

EDF and Datang concluded a joint venture agreement for a new thermal power plant in China.

## 12.2 Changes in market prices in France in January and February 2014

The price of a barrel of Brent was down slightly from January and February 2013 (\$107.90/bbl on average, a decrease of \$6.2/bbl). Geopolitical tensions, especially in Iran and Libya, had a moderate effect on prices. Prices changed as economic statistics were published.

The price of gas on the French PEG Nord market was €25.2/MWh on average in January and February 2014, down by €2/MWh over the comparable period last year. This can be explained by very mild temperatures over the January-February 2014 period, which were between 1°C and 2°C above normal for the season. Under these conditions, storage and imports by pipelines were amply sufficient to meet demand.

CO<sub>2</sub> prices were up from last year (€5.8/t compared with €5/t for the same period). This increase is explained by the decision of the Council of the European Union to accelerate the implementation of the quota backloading plan, with 400Mt withdrawn from the market in 2014 to be offered at a later date, thus helping to support prices on close maturities.

Delivered coal prices in Europe dropped sharply compared to last year. They amounted to \$83.4/t on average, a decline of 16.4% from early 2013. The abundance of Colombian and US coal available for export, as well as lower demand forecasts for emerging countries such as India, caused world prices to fall considerably.

The average baseload spot price for electricity in January and February 2014 was €38.9/MWh (down by €13.6/MWh compared to the first two months of 2013), €31.5/MWh in Germany (down by €12.4/MWh) and €55.6/MWh in England (down by €3.2/MWh). This decline can be explained by very mild weather during the beginning of 2014, which resulted in a sharp fall in electricity demand for heating compared to last year. In England, electricity prices followed gas prices and fell slightly.



Photo credit © EDF – Frederick Jacob

# 13 Financial outlook

2013 was a year of high stakes for EDF, with the success of a number of structural transactions to ensure the Group's future. These included allocating the CSPE receivable to dedicated assets, clarifying the pricing schedule in France, the success of the Spark savings plan and, lastly, an agreement on the main commercial terms of the investment agreement relating to the Hinkley Point C ("HPC") project in the United Kingdom.

Furthermore, the discussions entered into with Veolia Environnement in October 2013 regarding the acquisition of all the business activities and assets of the Dalkia group in France (including Citelum and its subsidiaries) resulted in an agreement concluded on 25 March 2014. This agreement will allow the EDF Group to significantly expand its operations in energy services, particularly to local authorities and will also offer a significant synergies potential due to the complementarity between the EDF Group and Dalkia business lines and expertise (see section 6.4.1.4 ("Dalkia")).

In 2014, there are a number of priorities to be dealt with. These relate firstly to distribution tariffs (TURPE 4) with the aim of improving visibility on the regulation model. In this regard, the Group would like to point to the fact that the government, in a letter to the chairman of the CRE sent on 12 November last, stated its desire to present a bill to secure the legal framework for determining distribution tariffs in the near future. Secondly, the government announced the publication of a decree on ARENH price changes by the end of the first quarter of 2014. At the date of the publication of this reference document, the decree has not been published.

With this in mind, the Group has set the following financial targets for 2014:

- organic growth target<sup>1</sup> for EBITDA excluding Edison of at least 3%;
- Edison: recurrent EBITDA outlook of €1 billion before the effect of gas supply contracts renegotiations;
- a dividend distribution rate of between 55% and 65% of net income from ordinary activities<sup>2</sup>;
- a net indebtedness/EBITDA ratio of between 2x and 2.5x.

In France in 2014, EDF intends to step up the action plan initiated in 2013 which aims to control the duration of outages more efficiently. Thus, with the volume of planned outages equivalent to that in 2013, the Group is aiming for nuclear generation of 410 to 415TWh in 2014. Similarly, in the UK, the Group would like to repeat its 2013 operational performance.

In 2014, the Group plans to invest €13-13.5 billion. It essentially covers the generation fleet in France and the industrial maintenance required in order to sustain its level of performance in the long-term, as well as investments to maintain and renew distribution. The other components of this programme are the investments to develop new generation capacities that generate EBITDA and operating cash flows once the capacities are commissioned (see section 6.1.4 ("Investment Policy")).

## 2014–2018 outlook

Over the 2014-2018 period, the Group will deliver major industrial projects, some of which are well under way, such as the Dunkirk LNG methane terminal expected for 2015 and the Flamanville 3 EPR for 2016. The Group also plans to continue its investments in its distribution networks in France as well as in renewable energies, in line with its integrated electricity operator strategy.

In parallel, the Group continues to manage and contain costs more efficiently. In 2011, EDF had set up a Group Synergies and Transformation programme ("STG") focusing on performance enhancement levers, such as purchasing or developing synergies within the Group with the aim of making more than €2.5 billion in savings in 2015 compared to 2010. These efforts continued through the Spark programme launched in 2013, which resulted in €1.3 billion in savings from 2013, well above target. In future, the Group

intends to establish long-term the efficiency and best practices undertaken in the last three years. In particular, a new Operational Management Control programme will be set up to strengthen monitoring and cost optimisation methods and processes.

Thus, the Group now foresees a peak in net investments in 2015, at €14 billion. As projects are commissioned, in particular the Dunkirk terminal and the Flamanville 3 EPR, investments should gradually be reduced and reach in 2018 a level comparable to 2013 of approximately €12 billion.

In the view of the implementation of the action plans mentioned above, the Group expects to achieve a positive cash-flow after dividends and excluding Linky in 2018.

1. On a like-for-like basis.

2. Net income from ordinary activities adjusted to take account of hybrid emissions recognised in equity.

These objectives are based on data, assumptions and estimates believed to be reasonable. They may, however, change or be modified due to uncertainties related in particular to the economic, financial, competitive, regulatory or climatic environment. In addition, the realisation of certain risks described in chapter 4 ("Risk factors") of this reference document would have an impact on the Group's activities and its ability to achieve its objectives.

The achievement of the objectives also assumes the successful implementation of the strategy presented in section 6.1 ("Strategy") of this reference document. Thus, EDF makes no commitment or guarantee as to the achievement of the objectives, and the forward-looking information in this chapter may not be used to establish forecasts of results.



# 14 Administrative, management and supervisory bodies and Executive Management

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## 14.1 Board of Directors

### 14.1.1 Members of the Board of Directors

In accordance with Article 6 of Law no. 83-675 of 26 July 1983 relating to the democratisation of the public sector, the Company's Board of Directors is comprised of eighteen members, one third of whom are elected by the employees and two-thirds appointed by the Shareholders' Meeting on

recommendation from the Board of Directors, with the exception of the French state representatives who are appointed by decree.

The Board of Directors accordingly consists of six Directors appointed by the Shareholders' Meeting, six Directors representing the French state and six Directors elected by employees.

Since 1 January 2013 and until the date of filing of this reference document, the following modifications were made to the membership of the Board of Directors:

Director's first name, surname	Category	Date of appointment	Replacing
Mr. Bruno LÉCHEVIN	Director representing the French state	Decree of 6 May, 2013	Mr. François LOOS
Mr. Olivier APPERT	Director representing the French state	Decree of 17 June 2013	Mr. Yannick D'ESCATHA
Mr. Denis MORIN	Director representing the French state	Decree of 14 December 2013	Mr. Julien DUBERTRET
Mrs. Sidonie DELALANDE	Director elected by employees	1 February 2014	Mr. Philippe MAÏSSA

The table below shows on 31 March 2014 the names of the members of the Board, their dates of birth, principal positions held within or outside the Company, as well as the offices held and expired outside the Company over the past five years.

#### Directors appointed by the Shareholders' Meeting

First name, surname, date of birth, office or position held within the Company	Current offices / Principal position held outside the Company	Expired offices held outside the Company over the past five years
<b>Henri PROGLIO</b> Born 29 June 1949  Chairman and Chief Executive Officer since 25 November 2009  Director since 23 November 2004 <sup>(1)</sup>  Last re-elected: 23 November 2009  Term expires: 22 November 2014  Chairman of the Strategy Committee	Chairman of the Board of Directors of Edison Chairman of the Board of Directors of EDF Energy Holdings Chairman of the Board of Directors of Fondation EDF Director of EDF Energies Nouvelles Director of EDF International (SAS) Director of South Stream Transport BV Director of Fomento di Construcciones y Contratas Director of Natixis Director of Dassault Aviation Deputy Chairman of the Board of Directors of Eurelectric Deputy Chairman of the Strategic Nuclear Energy Committee Member of the Atomic Energy Committee Member of the High Committee for Transparency and Information on Nuclear Safety Member of the National Committee on Sectors of Vital Importance	Chairman of the Board of Directors of the Electra association Chairman of the Board of Directors of Transalpina di Energia Chairman of the Board of Directors of EDF Energy UK Director of EDF International (SA)  Chairman of the Board of Directors of Veolia Transport Chairman of the Board of Directors of Veolia Propreté Chairman of the Board of Directors of Veolia Environnement Chairman and Chief Executive of Veolia Environnement Chairman of the Supervisory Board of Eolfi Chairman of the Supervisory Board of Dalkia France Chairman of the Board of Directors of Veolia Water Director of CNP Assurances Director of South Stream Transport AG Director of the <i>Fondation européenne pour les énergies de demain</i> (European Foundation for Tomorrow's Energies) Member of the Supervisory Board of Veolia Eau Director of Veolia Environnement Director of Veolia Propreté Director of Veolia Environnement North America Operations Director of Société des Eaux de Marseille Director of Veolia Environmental Services UK Director of Veolia Transport Northern Europe Manager of Veolia Eau Director of Veolia Transport Australasia Director of Veolia Environmental Services Australia Director of Veolia Environmental Services North America Member of the Supervisory Boards A and B of Dalkia Director of Dalkia International Director of Siram Director of SARP Industries Member of the Supervisory Board of Lagardère Member of the Supervisory Board of Natixis Non-voting member ( <i>censeur</i> ) of the Supervisory Board of Caisse Nationale des Caisses d'Épargne Director of Casino Guichard Perrachon

(1) Henri Proglgio had been Director of the French state-owned industrial and commercial institution (établissement public industriel et commercial – "EPIC") EDF since 14 September 2004.

First name, surname, date of birth, office or position held within the Company	Current offices / Principal position held outside the Company	Expired offices held outside the Company over the past five years
<b>Philippe CROUZET</b> Born 18 October 1956  Director since 23 November 2009  Term expires: 22 November 2014  Chairman of the Nuclear Commitments Monitoring Committee	<b>Principal position held outside the Company:</b> Chairman of the Management Board of Vallourec  <b>Other offices and positions held:</b>  <i>In France:</i> Chairman of Vallourec Tubes (formerly Vallourec & Mannesmann Tubes) Director of the Théâtre National de l'Opéra-Comique and the Théâtre de la Ville (Paris).  <i>Abroad:</i> Director of Vallourec Tubos do Brasil S.A. (formerly V & M do Brasil)	Chairman and member of the Supervisory Board of V & M Director of VMOG Director of Finalourec Member of the Supervisory Board of Vallourec Chairman of Saint-Gobain Distribution Bâtiment Chairman of the Supervisory Board of Point P Chairman of the Supervisory Board of Lapeyre Chairman of Aquamondo Chairman of Partidis Chairman of Projeo Chairman of Saint-Gobain Distribution Chair of Saint-Gobain Distribution Nordic Chairman of the Board of Directors of Dahl International Member of the Supervisory Board of Raab Karcher Baustoffe Director of Saint-Gobain Cristaleria Director of Norandex Distribution Director of Saint-Gobain Building Distribution Director of Jewson Director of Meyer Overseas Investment
<b>Mireille FAUGÈRE</b> Born 12 August 1956  Director since 23 November 2009  Term expires: 22 November 2014  Chair of the Ethics Committee	<b>Principal position held outside the Company:</b> Professional administrator  <b>Other offices and positions held:</b>  <i>In France:</i> Director of Essilor International Director of Fondation L'Oréal Chair of the HEC Alumni association Deputy Chair of the Fondation HEC	Chief Executive Officer of Assistance Publique-Hôpitaux de Paris Deputy Chair of the Board of the HEC Association Chair of SNCF-Voyages Développement Chair of Voyages-SNCF.com Chief Executive Officer of SNCF Voyages Director of SNCF Participations
<b>Michael JAY</b> Born 19 June 1946  Director since 23 November 2009  Term expires: 22 November 2014  Member of the Strategy Committee and the Nominations and Compensation Committee	<b>Principal position held outside the Company:</b> Crossbench member of the British House of Lords  <b>Other offices and positions held:</b>  <i>In France:</i> Director of Valeo  <i>Abroad:</i> Director of Thomson Reuters Founders Share Company Director of Candover Investments Director of Associated British Foods	Chairman of the British House of Lords' Nominations Committee Member of the Foreign Affairs, Defence and Development Sub-Committee of the House of Lords' European Union Committee Chairman of Merlin (international medical NGO) Director of Crédit Agricole SA
<b>Bruno LAFONT</b> Born 8 June 1956  Director since 20 May 2008  Last re-elected: 23 November 2009  Term expires: 22 November 2014  Chairman of the Nominations and Compensation Committee	<b>Principal position held outside the Company:</b> Chairman and Chief Executive Officer of Lafarge  <b>Other offices and positions held:</b>  <i>In France:</i> Chairman of the Medef Sustainable Development Commission  <i>Abroad:</i> Director of ArcelorMittal Director of Lafarge Shui on Cement Chairman of the European Round Table's "Energy and Climate" group Member of the Executive Committee of the World Business Council of Sustainable Development (WBCSD)	Chairman of the <i>Entreprises pour l'Environnement</i> ("EPE") association  Member of HEC Advisory Board

First name, surname, date of birth, office or position held within the Company	Current offices / Principal position held outside the Company	Expired offices held outside the Company over the past five years
<b>Pierre MARIANI</b> Born 6 April 1956  Director since 23 November 2004  Term expires: 26 November 2012  Chairman of the Audit Committee	<b>Principal position held outside the Company:</b> Managing Director and Chief Executive Officer of Pierre Mariani Consulting  <b>Other offices and positions held:</b>  <i>In France:</i> Director of the Établissement Public de la Réunion des Musées Nationaux et du Grand Palais  <i>Abroad:</i> Director of Hellenic Financial Stability Fund (HFSF) Director of Inverewe Holding Director of Inverewe Capital London Ltd.	Chairman of the Board of Directors of Dexia Asset Management Deputy Director and Chairman of the Management Board of Dexia Chairman of the Board of Directors of DenizBank Director of Dexia Crédit Local Director of Dexia Banque Internationale in Luxembourg Director of Dexia Banque Belgique

## Directors representing the French state

First name, surname, date of birth, office or position held within the Company	Current offices / Principal position held outside the Company	Expired offices held outside the Company over the past five years
<b>Olivier APPERT</b> Born 19 April 1949  Director since 17 June 2013  Term expires: 22 November 2014  Member of the Audit Committee, Nuclear Commitments Monitoring Committee	<b>Principal position held outside the Company:</b> Chairman and Chief Executive Officer of IFP Energies Nouvelles  <b>Other offices and positions held:</b>  <i>In France:</i> Chairman of the French Energy Board ( <i>Conseil Français de l'Énergie</i> ) Member of the Academy of Technologies Director of Technip Director of CGG	Director of Storengy Director of the <i>Institut de Physique du Globe de Paris</i> (IPGP)
<b>David AZÉMA</b> Born 22 November 1960  Director since 9 November 2012  Term expires: 22 November 2014  Member of the Audit Committee, Strategy Committee and Nominations and Compensation Committee	<b>Principal position held outside the Company:</b> Commissioner to State holdings, reporting to the Minister for the Economy and Finance and the Minister for Industry  <b>Other offices and positions held:</b>  <i>In France:</i> Director of Thales Director of Bpifrance Director of Bpifrance Participations (formerly the Fonds Stratégique d'Investissement) Director of Bpifrance Investissement Director of Renault Member of the Scientific Board of La Fabrique de la Cité	Chairman and Chief Executive of Keolis Chairman and Chief Executive Officer of SNCF Participations Chairman of the Management Board of Keolis group Chairman of SNCF Participations (SAS) Senior Executive Vice President of the SNCF group Chairman of the Supervisory Board of Seafrance Member of the Supervisory Board of Areva SA Director of Air France-KLM Director of Geodis

First name, surname, date of birth, office or position held within the Company	Current offices / Principal position held outside the Company	Expired offices held outside the Company over the past five years
<b>Bruno LÉCHEVIN</b> Born 27 January 1952  Director since 6 May 2013  Term expires: 22 November 2014	<b>Principal position held outside the Company:</b> Chairman and Chief Executive Officer of the French Environment and Energy Management Agency (ADEME)  <b>Other offices and positions held:</b>  <i>In France:</i> Deputy Chairman of Electriciens sans Frontières	General Delegate to the national mediator Special advisor to the Chairman of the Energy Regulation Commission ("CRE")
<b>Marie-Christine LEPETIT</b> Born 27 August 1961  Director since 7 May 2012  Term expires: 22 November 2014  Member of the Nuclear Commitments Monitoring Committee, Strategy Committee and Ethics Committee	<b>Principal position held outside the Company:</b> Head of the Inspectorate General of Finance at the Ministry for the Economy and Finance  <b>Other offices and positions held:</b>  <i>In France:</i> Director of the National Foundation of Political Science	None
<b>Denis MORIN</b> Born 15 December 1955  Director since 14 December 2013  Term expires: 22 November 2014	<b>Principal position held outside the Company:</b> Budget Director reporting to the Minister for Economy and Finance, in charge of the budget matters  <b>Other offices and positions held:</b>  <i>In France:</i> Director of SNCF Member of the Atomic Energy Committee	None
<b>Pierre SELLAL</b> Born 13 February 1952  Director since 1 April 2009  Last re-elected: 23 November 2009  Term expires: 22 November 2014  Member of the Strategy Committee	<b>Principal position held outside the Company:</b> General Secretary at the Ministry for Foreign Affairs  <b>Other offices and positions held:</b>  <i>In France:</i> Member of the Supervisory Board of Areva Member of the Atomic Energy Committee Member of the High Council of the <i>Institut du Monde Arabe</i> (Arab World Institute) Director of the Ecole Nationale d'Administration Director of France Médias Monde (formerly Audiovisuel Extérieur de la France) Director of the Institut Français Director of the <i>Agence Nationale des Titres Sécurisés</i> (French national secure identity document agency) Director of the Commission for the Verification of the Registration of Works of Art ( <i>Commission de récolement des dépôts d'œuvres d'art</i> ) Director of the <i>Établissement de préparation et de réponse aux urgences sanitaires</i> (Organisation for preparing for and responding to health emergencies)	Permanent representative of France in Brussels to the European Union

## Directors elected by employees

First name, surname, date of birth, office or position held within the Company	Current offices / Principal position held outside the Company	Expired offices held outside the Company over the past five years
<b>Christine CHABAUTY</b> Born 19 July 1971  Commercial attaché to the Major Accounts at EDF's Sales Division  Director since 23 November 2009  Term expires: 22 November 2014  Member of the Ethics Committee	Member of an elected industrial tribunal ( <i>conseiller prud'homal</i> )	None
<b>Sidonie DELALANDE</b> Born on 26 September 1977  Communications Manager at the CCAS ( <i>Caisse Centrale d'Activités Sociales</i> – Central Social Activities Fund) for employees in the Electricity and Gas Industries, Dauphiné-Drôme-Ardèche region  Director since 1 February 2014  Term expires: 22 November 2014	None	None
<b>Alexandre GRILLAT</b> Born 8 December 1971  Representative of the Manager of ERDF in Alsace – Franche-Comté  Director since 23 November 2004 <sup>(1)</sup>  Last re-elected: 23 November 2009  Term expires: 22 November 2014  Member of the Audit Committee and the Strategy Committee	None	None
<b>Marie-Hélène MEYLING</b> Born 30 October 1960  Senior Engineer at the EDF Upstream/ Downstream Optimisation and Trading Division  Director since 1 September 2011  Term expires: 22 November 2014  Member of the Audit Committee, Nuclear Commitments Monitoring Committee, Strategy Committee and Ethics Committee	Substitute member of the Higher Energy Board ("CSE" – <i>Conseil Supérieur de</i> <i>l'Énergie</i> ) as representative of employees in the Electricity and Gas Industries for the CFDT union	None

(1) Alexandre Grillat had been a Director of the French state-owned industrial and commercial institution (établissement public industriel et commercial – "EPIC") EDF since 14 September 2004.



First name, surname, date of birth, office or position held within the Company	Current offices / Principal position held outside the Company	Expired offices held outside the Company over the past five years
<b>Jean-Paul RIGNAC</b> Born 13 May 1962  Research Engineer at the EDF Research and Development Division  Director since 7 November 2007  Last re-elected: 23 November 2009  Term expires: 22 November 2014  Member of the Strategy Committee	None	None
<b>Maxime VILLOTA</b> Born 25 November 1959  Purchase policy coordinator at EDF's Finance and Industrial relations mission, Tricastin nuclear electricity generation centre  Director since 13 December 2006  Last re-elected: 23 November 2009  Term expires: 22 November 2014  Member of the Audit Committee and the Nuclear Commitments Monitoring Committee and the Nominations and Compensation Committee	None	None

## 14.1.2 Personal information on members of the Board of Directors

### Directors appointed by the Shareholders' Meeting

**Henri Proglio.** Born on 29 June 1949 in Antibes (France), Henri Proglio is a graduate of the *École des Hautes Études Commerciales* ("HEC"). He joined Compagnie Générale des Eaux in 1972 and was appointed Chairman and Chief Executive Officer of Compagnie Générale d'Entreprises Automobiles ("CGEA") in 1990. In 1999, he was appointed Vice President of Vivendi, Manager of Compagnie Générale des Eaux and Chief Executive Officer of Vivendi Water. He became Chairman of the Management Board of Veolia Environnement in 2000, then Chairman and Chief Executive Officer from 2003 to November 2009. Henri Proglio has been Chairman and Chief Executive Officer of EDF since 25 November 2009. He was appointed Director of EDF in September 2004. Within the EDF group, he is Chairman of the Boards of Directors of Edison, EDF Energy Holdings and Fondation EDF and Director of EDF Energies Nouvelles and EDF International (SAS). He has also been Director of Dassault Aviation since 2008, Natixis since 2009, Fomento de Construcciones y Contratas since 2010 and South Stream Transport BV (Netherlands) since 2012. He is also Deputy Chairman of the Strategic Nuclear Energy Committee and the Board of Directors of Eurelectric, member of the Atomic Energy Committee, High Council for Transparency and Information on Safety and the National Board on Sectors of Vital Importance.

**Philippe Crouzet.** Born on 18 October 1956 in Neuilly-sur-Seine (France), Philippe Crouzet is a graduate of the *Institut d'Études Politiques* ("IEP" – Institute of Political Studies) in Paris and a former student of the *École Nationale d'Administration* ("ENA" – National School of Administration). A former Counsel (*Maître des Requêtes*) at the French Council of State, he spent most of his career at Saint-Gobain, the world leader in construction materials, which he joined in 1986. He served successively as Head of Corporate Planning, Chief Executive Officer of Papeteries de Condat, General Manager for Spain and Portugal and Head of the Industrial Ceramics Branch. From 2000 to 2004, he held the position of Vice President for Finance, Information Systems and Purchasing. He was Group Vice President in charge of the Building Distribution Division before joining Vallourec. He has been a member of the Supervisory Board of Vallourec since April 2008 and became Chairman of the Group Management Board in April 2009. With the Vallourec group, he is Chairman of the Management Board of Vallourec Tubes France and Director of Vallourec Tubos do Brasil. He is also a Director of the Théâtre National de l'Opéra-Comique and the Théâtre de la Ville (Paris). He has been a Director of EDF since November 2009.

**Mireille Faugère.** Born on 12 August 1956 in Tulle (France), Mireille Faugère is a graduate of the *École des Hautes Études Commerciales* ("HEC"). She began her career at SNCF in 1979, where she first held a range of railway operational positions before joining the Research Department (*Direction des études*). In 1987, she was entrusted with the mission of developing the TGV Méditerranée railway network. In 1991, she was appointed Manager of the Montparnasse railway station in Paris. In 1993, Mireille Faugère was appointed manager of the Strategy Department at the Economy, Strategy and Investment Division. From 1996 until 2001, she served as head of the sales and marketing department at the Mainline Division. From 2001 until 2003, she was Chief Executive Officer of SNCF Participations and Head of the Mergers & Acquisitions Department of the Finance Division. From 2003 until 2010, she was a member of the Executive Committee of SNCF and Chief Executive Officer of the SNCF Voyages branch. From 2010 to 2013, Mireille Faugère was Chief Executive Officer of Assistance Publique-Hôpitaux de Paris. Director of Essilor International since 2010 and the Fondation L'Oréal since 2012, she has also been Chair of the HEC Alumni association and Deputy Chair of the HEC Foundation since 2013. She has been a Director of EDF since November 2009.

**Michael Jay.** Born on 19 June 1946 in Shawford (United Kingdom), Michael Jay is a graduate of the University of Oxford (Magdalen College) and the School of Oriental and African Studies at the University of London ("SOAS"). Following a career with the Foreign Office (British Ministry of Foreign Affairs), he served as British Ambassador in Paris from 1996 to 2001, Permanent Under-Secretary at the Foreign Office and Head of the Diplomatic Service

from 2002 to 2006. He was the British Prime Minister's representative at the G8 in 2005 and 2006. He has been a Crossbench Member of the House of Lords since 2006. He was Chairman of the House of Lords Appointments Commission from 2008 to 2013. He has been a Director of Associated British Foods since 2006, Valeo since 2007 as well as Candover Investments since 2008 and Thomson Reuters Founders Share Company since 2013. He was Chairman of Merlin (international medical NGO) from 2007 to 2013. He has been a Director of EDF since November 2009.

**Bruno Lafont.** Born on 8 June 1956 in Boulogne-Billancourt (France), Bruno Lafont is a graduate of the *École des Hautes Études Commerciales* ("HEC") and a former student of the *École Nationale d'Administration* ("ENA" – National School of Administration). He began his career with the Lafarge Group in 1983, serving in several positions in the Corporate Finance Division and internationally. In 1995, he became Group Vice President Finance and joined the Executive Committee. In 1998, he became Chairman of the plaster business. In 2003 he was appointed Group Deputy Chief Executive Officer and then Director in 2005. Appointed Chief Executive Officer in 2006, he became Chairman and Chief Executive Officer of Lafarge in 2007. He has been a Director of ArcelorMittal since 2011. He has been a member of the Executive Committee of the World Business Council for Sustainable Development since November 2013 and Chairman of the MEDEF Sustainable Development Committee since January 2014. He has been a Director of EDF since May 2008.

**Pierre Mariani.** Born on 6 April 1956 in Rabat (Morocco), Pierre Mariani is a graduate of the *École des Hautes Études Commerciales* ("HEC") and a former student of the *École Nationale d'Administration* ("ENA" – National School of Administration), as well as a graduate in law. From 1982 until 1986, he was Financial Inspector at the Ministry for the Economy and Finance's Inspectorate General of Finance. From 1986 until 1988, he was responsible for the transportation sector at the Budget Office of the Ministry for the Economy and Finance and then, from 1988 until 1992, Head of the Department for Synthesis and Budget Policy at the Ministry for the Economy and Finance. From 1992 to 1993, he was Deputy Manager of the labour, employment, health and social security department at the Ministry for the Economy and Finance. From 1993 until 1995, he was Private Secretary to Nicolas Sarkozy, then the Budget Minister, and Government spokesman, head of communication. From 1995 until 1996, he was Chief Executive Officer of Société Française d'Investissements Immobiliers et de Gestion ("SEFIMEG"). From 1996 to 1997, he was Chief Executive Officer and member of the Management Board of Banque pour l'Expansion Industrielle ("Banexi"). He was Chairman of this Management Board from 1997 to 1999. From 1999 to 2003, he was Manager of the International Retail Banking Department of the BNP Paribas Group. From 2003 to 2008, he was Manager of the International Retail Banking and Financial Services Department. Early in 2008, he was appointed Deputy Chief Executive Officer and Deputy Manager of Retail Banking, in charge of the International Retail Banking Services Department of BNP Paribas. In 2008, he was appointed executive Director and Chairman of the Management Committee of Dexia. He is currently Managing Director and Chief Executive Officer of Pierre Mariani Consulting. He has been Director of the Etablissement Public de la Réunion des Musées Nationaux et du Grand Palais since 2011, the Hellenic Financial Stability Fund since 2013 and INVEREWE Holding and INVEREWE CAPITAL LONDON since February 2014. He has been a Director of EDF since November 2009.

### Directors appointed by the French state

**Olivier Appert.** Born on 19 April 1949 in Paris (France), Olivier Appert is a former student of the *École Polytechnique* and a *Corps des Mines* engineer. He began his career at the Services des Mines in Lyon. After having held a range of positions at the Ministry for Industry and the Prime Minister's office, he was then appointed Deputy Director of the office of the Minister for Industry from 1984 to 1986. In 1987 he became Director of strategy at Télécommunications Radioélectriques et Téléphoniques ("TRT"). Appointed in 1989 as Director of Hydrocarbons at the Ministry for Industry, in 1994 Olivier Appert joined the General Directorate of IFP where he was in charge

of research and development. In 1998, he became Chief Executive of Isis, a technological holding whose majority shareholder was IFP Énergies Nouvelles ("IFPEN"). In 1999, he became Director of Long-term Cooperation and analysis of energy policies at the International Energy Agency (IEA). Since 2003, he was appointed Chairman and Chief Executive Officer of IFP in 2003. IFP changed its name to IFP Énergies Nouvelles (IFPEN) in July 2010. He has also held a seat on the boards of Directors of Technip and CGG since 2003. He is Chairman of the French Energy Board (*Conseil Français de l'Énergie*) and became a member of the Academy of Technologies (*Académie des technologies*) in 2013. He was appointed to the Board of EDF on 17 June 2013.

**David Azéma.** Born on 22 November 1960 in Neuilly-sur-Seine (France), David Azéma is a graduate in law, graduate from the *Institut d'Études Politiques* ("IEP" – Institute of Political Studies) in Paris and a former student of the *École Nationale d'Administration* ("ENA" – National School of Administration). He began his career in 1987 as auditor at the French National Audit Office, then public auditor. From 1991 to 1993, he was Senior Auditor to the Executive Management of the French National Police Force then served in different posts at the office of the Minister for Labour, Employment and Vocational Training, Martine Aubry. In 1993, he joined SNCF, where he worked as project Director for the Strategy Division, then became advisor to the Chairman and SNCF Group Subsidiaries and Shareholdings Manager. In 1998, he served in the United Kingdom as Chairman and Chief Executive Officer of Eurostar Group, a joint subsidiary of SNCF, SNCB and Eurostar UK. In 2002, he joined the Vinci Group as Chief Executive Officer of Vinci Concessions then the Executive Board of the Vinci Group in 2006. In 2008, David Azéma returned to SNCF as Senior Executive Vice President, Strategy & Finance before being appointed Senior Executive Vice President of the SNCF Group in October 2011. In 2012, he was appointed Chairman of the Management Board of the Kéolis group, a SNCF subsidiary specialised in public transport of passengers in France, Europe and worldwide. Since September 2012, he has been Commissioner to State holdings, reporting to the Minister for the Economy and Finance and the Minister for Industry. He has been an Director of the Boards of Directors of Bpifrance, Bpifrance Investissement, Bpifrance Participations and Renault since 2012 and Thalès since 2013. He has been a Director of EDF since November 2012.

**Bruno Léchevin.** Born on 27 January 1952 in Sallaumines (France), he is holder of a postgraduate degree from the *Institut d'Études Politiques* ("IEP" – Institute of Political Studies) in Paris. He began his career at EDF and subsequently held various union roles. Federal secretary of the CFDT Gaz-Électricité federation from 1983 to 1988, he was then its General Secretary in 1988 and member of the national board of the CFDT confederation from 1988 to 1997 then Federal Secretary of the Chimie-Énergie federation (1997-1999). At the same time, he was member of the Haut Conseil du Secteur Public (High Council of the Public Sector) from 1992 to 1999. Appointed in 2000, for two years, commissioner of the French Energy Regulation Committee, his term of office was extended for six years. General Delegate of the national energy mediator from March 2008 to March 2013, he was simultaneously special advisor to the Chairman of the Energy Regulation Committee. Bruno Léchevin is also Deputy Chairman, founder member of *Electriciens Sans Frontières* (Electricians without borders), an organisation that works to provide access to energy and water in developing countries. Its principal areas of intervention are energy markets, regulation, energy efficiency and protecting energy consumers. Appointed as an administrator of the Board of Directors of the French Environment and Energy Management Agency (ADEME) in February 2013, he became its Chairman in March 2013. He has been a Director of EDF since 6 May 2013.

**Marie-Christine Lepetit.** Born on 27 August 1961 in Morlaix (France), Marie-Christine Lepetit is a former student of the *École Polytechnique* and the *École Nationale d'Administration* ("ENA" – National School of Administration). In 1987, she joined the Inspectorate General of Finance, where she held auditing and advisory positions. Then in 1991, she was recruited by Jean Lemierre to the Directorate General for Tax in order to introduce management control. She was in charge of synthesis work at the tax law department in 1995 before joining the office of the Prime Minister, Alain Juppé, as technical advisor in tax matters and macroeconomic studies then taxation and SMEs from 1995 to 1997. She continued her career at the General Directorate for Tax, working to improve service quality (pre-filled tax

returns, remote procedures, certification). She was appointed Director of Tax Law at the Ministry for the Economy and Finance in 2004 and used this role to push through tax reforms from 2004 to 2012. At the same time, she co-chaired the working group on reform of the financing of social welfare in 2006 and co-signed the report by the conference of experts on the "energy-climate contribution" chaired by Michel Rocard. She also sat on the Local Authorities Reform Committee chaired by Edouard Balladur as co-director and was a member of the Public Life Renewal and Ethics Committee chaired by Lionel Jospin. She has been Head of the Inspectorate General of Finance at the Ministry for the Economy and Finance since March 2012. She has been a Director of EDF since May 2012.

**Denis Morin.** Born on 15 December 1955 in Paris (France), Denis Morin is a graduate of the *École des Hautes Études Commerciales* ("HEC") and the *Institut d'Études Politiques* ("IEP" – Institute of Political Studies) in Paris and a former student of the *École Nationale d'Administration* ("ENA" – National School of Administration). He began his career at the Budget Office in 1983, then continued as technical advisor to the budget minister (Michel Charasse) in 1988 then as Deputy Director at the office of the budget minister (Martin Malvy) in 1992. In 1993, he was appointed deputy Director for employment, training and social security at the Budget Office. From 1997 to 2000, he was Private Secretary to Martine Aubry and Christian Sautter then assistant secretary to Dominique Strauss-Kahn and finally advisor to Elisabeth Guigou. From 2001 to 2007, he joined the French National Audit Office as Chief Advisor to the 6<sup>th</sup> chamber in charge of social security. From 2007 to 2009, he successively served as assistant to the General Delegate to the *Centre technique des institutions de prévoyance* (technical centre for providence societies), chief advisor to the 1<sup>st</sup> chamber of the French National Audit Office, then representative to the General Secretary for social ministries. In 2009, he became Director Designate then Chief Executive Officer of the Rhône-Alpes Regional Health Agency. In 2011, he was appointed Divisional President at the 1<sup>st</sup> chamber of the French National Audit Office, rapporteur général for interchamber training, in charge of public finance. In 2012, he was appointed General Secretary of the social ministries before joining the office of Marisol Touraine as Private Secretary. On 27 November 2013, Denis Morin was appointed Budget Director reporting to the Deputy Minister in charge of budget matters at the Ministry of Economy and Finance. He is a member of the Atomic Energy Committee and has sat on the Board of SNCF since 2013. He was appointed to the Board of EDF on 14 December 2013.

**Pierre Sellal.** Born on 13 February 1952 in Mulhouse (France), Pierre Sellal is a graduate of the Faculty of Law and Economic Sciences in Strasbourg and a former student of the *École Nationale d'Administration* ("ENA" – National School of Administration). He began his career with the Ministry for Foreign Affairs at the Directorate of the United Nations from 1977 to 1980, then became technical advisor to the Office of the Minister for External Trade from 1980 to 1981. Adviser to the Permanent Representative of France to the European Communities in Brussels from 1981 to 1984, he then served as Head of International Relations at the Ministry of Industrial Redeployment and External Trade (Oil Directorate) until 1985. At that time, he was appointed by the Prime Minister as Deputy Secretary General of the Inter-Ministerial Committee ("SGCI") for issues of European economic cooperation, a position he held until 1990. A member of the working group entrusted with developing a future outlook for all the consequences of introducing the European single market from 1988 to 1990, he became Minister-Counsellor at the French Embassy in Rome in 1990, then Minister-Counsellor, Deputy Permanent Representative of France to the European Union in Brussels from 1992 to 1997. In 1997, he was appointed Director of European Cooperation at the Ministry for Foreign Affairs before being appointed Private Secretary to the Minister for Foreign Affairs from 1997 to 2002. As Ambassador and Permanent Representative of France to the European Union in Brussels from 2002 to 2009, he was named Ambassador of France in 2008. Pierre Sellal has been the Secretary General of the Ministry for Foreign Affairs since April 2009. He is a member of the Atomic Energy Committee, the Supervisory Board of Areva and the High Council of the *Institut du Monde Arabe*. Pierre Sellal is also a Director of France Médias Monde (formerly Audiovisuel Extérieur de la France – "AEF"), the *École Nationale d'Administration* and the *Institut Français*. He has been a Director of EDF since April 2009.

## Directors elected by employees

**Christine Chabauty.** Born on 19 July 1971 in Maisons-Laffitte (France), Christine Chabauty is a graduate in law. She gained professional experience in a legal environment and in 2000 joined EDF's Trading Department as commercial attaché to the Key Accounts department. She now works for the Key Accounts Division's Marketing and Trading Department. Since December 2008, she has also served as a member of an elected industrial tribunal (*conseiller prud'homal*). Sponsored by the CGT union, elected in May 2009, she has been a Director of EDF since November 2009.

**Sidonie Delalande.** Born on 26 September 1977 in Fontenay-aux-Roses (France), Sidonie Delalande joined EDF GDF Agence de La Courneuve in 1995 as an apprentice for four years, where she obtained a vocational training certificate in electrical engineering. She held positions as Engineering project manager, Trainer at the Training BU and finally investigator at ERDF Auvergne. Since January 2014, she has been Communications Manager at CCAS (Caisse Centrale d'Activités Sociales – Central Social Activities Fund) for the Dauphiné/Drôme/Ardèche region. Sponsored by the CGT union, elected in May 2009, she has been a Director of EDF since 1 February 2014.

**Alexandre Grillat.** Born on 8 December 1971 in Béthune (France), Alexandre Grillat is a graduate of the *École Supérieure d'Électricité* and is the holder of an advanced degree (*diplôme d'études approfondies*) in electrical engineering. He began his career at EDF in 1996, first at EDF Gaz de France Distribution, where he held various technical management, customer relations and sales positions, and then at the Strategy Division of the EDF group. He then joined the office of the Senior Executive Vice President of Électricité de Strasbourg before becoming Director of Research for the Networks Department of EDF Strategy Division. Alexandre Grillat is now representative (*chargé de mission*) of the Manager of ERDF in the Alsace Franche-Comté region. Sponsored by the CFE-CGC union, re-elected in May 2009, he has

been a Director of EDF since September 2004, when EDF was still a French state-owned industrial and commercial institution (EPIC).

**Marie-Hélène Meyling.** Born on 30 October 1960 in Fontainebleau (France), Marie-Hélène Meyling is a graduate in communication (Université Paris V). She joined EDF in 1982 where she has held a range of communication positions. She then focused on activities relating to the opening of the electricity market as well as support for renewable energy. She is currently Senior Engineer at the EDF Upstream/Downstream Optimisation and Trading Division. In November 2012, Marie-Hélène Meyling obtained the Company Director Certificate jointly issued by the *Institut d'Études Politiques* ("IEP" – Institute of Political Studies) in Paris and the *Institut Français des Administrateurs* (French Institute of Directors). Having sat for four years on the EDF SA Central Works Council, she has been a Director of EDF, sponsored by the CFDT union, since September 2011.

**Jean-Paul Rignac.** Born on 13 May 1962 in Rodez (France), Jean-Paul Rignac is the holder of a doctorate in energy from the Institut National Polytechnique in Toulouse. He served as secretary of EDF Research and Development's joint generation committee for five years. Since March 1991, he has been a research engineer at EDF's Research and Development Division (Renardières Centre), and currently works on energy efficiency in industrial buildings. Sponsored by the CGT union, re-elected in May 2009, he has been a Director of EDF since November 2007.

**Maxime Villota.** Born on 25 November 1959 in Jœuf (France), Maxime Villota joined EDF in 1981. He began his career at the Dampierre-en-Burly nuclear power plant, before joining the Tricastin nuclear power plant in 1987, where he is currently purchasing policy coordinator. He is a member of the Fédération CGT Mines Énergie trade union. Sponsored by the CGT union, re-elected in May 2009, he has been a Director of EDF since December 2006.

## 14.2 Executive Committee

### 14.2.1 Members of the Executive Committee

The Chairman and Chief Executive Officer chose to surround himself with an Executive Committee within which all the Group's lines of business are represented, as are finance, legal affairs and human resources (see section 16.3 ("Bodies created by Executive Management")).

On the filing date of this reference document, the members of the Executive Committee were as follows:

Names	Position
Henri Proglia	Chairman and Chief Executive Officer
Marianne Laigneau	EDF Group Senior Executive Vice President, Human Resources
Henri Lafontaine	Group Senior Executive Vice President, Commerce, Optimisation, Trading and Island Energy Systems
Pierre Lederer	Special advisor to the Chairman
Hervé Machenaud	Group Senior Executive Vice President, Generation and Engineering
Thomas Piquemal	Group Senior Executive Vice President, Finance
Vincent de Rivaz	Chief Executive Officer of EDF Energy
Alain Tchernonog	General Secretary

Denis Lépée, Advisor to the Chairman, is Secretary of the Executive Committee.



## 14.2.2 Personal information on members of the Executive Committee

**Marianne Laigneau**, 49 years old, a former student of *École Normale Supérieure de Sèvres* and of the ENA, holder of the Agrégation degree in classics and a graduate of IEP in Paris. Marianne Laigneau is a member of the French Council of State. After leaving ENA, Marianne Laigneau joined the French Council of State and served, amongst other roles, as a legal advisor to the Ministry for Cooperation, project Director for international cooperation at the State Reform Commission and a member of the United Nations electoral mission to Mozambique and the EU electoral mission to Gaza. In 1997, she was assigned to the Ministry for Foreign Affairs and served as First Councillor to the French Embassy in Tunis, where she was in charge of negotiations, political, community and legal affairs and communications. From 2000 to 2002, as a member of the French Council of State, she was, amongst other roles, project Director assisting the Director of ENA, legal advisor to the Ministry for Culture, and senior lecturer in public law at ENA. In 2003, Marianne Laigneau joined Gaz de France as Head of the Institutional Affairs Department at Headquarters, and then in September 2004 became Representative for Public Affairs. She joined the EDF Group in 2005 as Legal Counsel, then served as Deputy General Secretary, and in 2007 became General Secretary and member of the Executive Committee. Marianne Laigneau has been EDF Group Executive Vice President, Human Resources since 1 December 2010.

**Henri Lafontaine**, 57 years old, a graduate of the Supélec Engineering School with a Master's in Mathematics. Henri Lafontaine joined EDF in 1983 where he had a wide range of responsibilities in the Distribution Division. In 1997, he became Deputy Executive Vice President of EDF GDF Services Corse, then Director of EDF GDF Services Marseille in 2000. In 2002, he was appointed as Chief Executive Officer of EDENOR, the largest distributor of electricity in Argentina with 25% of the market. EDENOR was one of the EDF group's main international subsidiaries. In 2005, he went on to become Director of the project to create a subsidiary for Distribution, which led to the creation of ERDF, then Director of EDF Island Power Systems in 2007, before being made Director of EDF Entreprises in the Commerce Division in 2010. In December 2011, Henri Lafontaine was appointed as the Director responsible for coordinating the EDF group's activities in Commerce, Optimisation/Trading and mainland Europe. Since September 2012, Henri Lafontaine has held the post of Senior Executive Vice President responsible for Commerce, Optimisation/Trading and Island Energy Systems. He is also on the board of several companies, namely EDFI, EDF Energy, Fenice, EDF Luminus and Electricité de Strasbourg.

**Pierre Lederer**, 65 years old, graduate in Mathematics. Pierre Lederer joined EDF in 1974, where he has held a variety of positions in the General Economic Studies Department, the Energy Transmission Department and the Fossil Fuel Generation Department. He was appointed Head of the General Economic Studies Department in 1993, Head of Corporate Strategy at EDF in 1996 and then Head of Strategy-Valuation-Optimisation at the Group's Industry Branch in 1999. In 2000, he joined the Executive Board of EnBW, the third largest German energy company, then 45% owned by EDF, was appointed Chief Operating Officer in 2003 and Deputy Chairman of the Management Board in 2007. In February 2009, Pierre Lederer was appointed Senior Executive Vice President of EDF S.A., in charge of Commerce, and member of the EDF Group's Executive Committee. In 2010, he was appointed Group Senior Executive Vice President, Commerce, Optimisation and Trading. At the end of 2010, he was also entrusted with supervising the Group's business in Continental Europe. Pierre Lederer is currently special advisor to the Chairman and Chief Executive Officer.

**Hervé Machenaud**, 66 years old, a former student of the *École Polytechnique* (1968), engineer of the *École des Ponts et Chaussées* (civil engineering school) and a graduate of the *Institut d'Études Politiques* in Paris (1973). Hervé Machenaud began his career as Director of the Urban Planning Division at the Ivory Coast Ministry of Planning in 1973, and then undertook a variety of assignments on the African continent for the World Bank before returning to France in 1978 as a civil engineer in Ile-et-Vilaine. Hervé Machenaud joined the EDF group in 1982 as Deputy Director of Development at the Paluel nuclear power plant. From 1984 to 1989, he took charge of the Group's expansion into China, in particular the construction and commissioning of the Daya Bay nuclear power plant. Between 1990 and 1995, Hervé Machenaud held the position of Director of the French National Nuclear Infrastructure Centre (CNEN), responsible for the Group's French and international nuclear programs. In this post, he coordinated the design, construction and commissioning of the N4 series (nuclear plants in Chooz and Civaux), currently the world's most advanced reactors, equipped with a computer-assisted control system which remains unique. From 1995 to 1998, he was EDF's Deputy Director of Infrastructure, responsible for Resources, Management and International Development. From 1998 to 2002, he served as EDF's Director of Generation and Transmission, then Deputy Director of the Industry Branch. From 2002 to 2010, he was based in Beijing as EDF's Executive Vice President, Asia-Pacific, where his role was to enhance the Group's industrial expertise, particularly nuclear, and to ensure it had access to technological innovations in China, Japan, India and the Great Mekong region. In particular, he spearheaded the joint venture projects in the following sectors: nuclear (Taishan), thermal (Sanmenxia), hydraulic and wind generation in China, Vietnam (Phu My plant) and Laos (Nam Theun dam). Hervé Machenaud is currently Group Senior Executive Vice President, Generation and Engineering and Director, Asia-Pacific.

**Thomas Piquemal**, 44 years old, graduate of the *École Supérieure des Sciences Économiques et Commerciales* (ESSEC). Thomas Piquemal began his career in 1991 with audit firm Arthur Andersen, where he specialised in restructuring companies in difficulty. In 1995, he joined the Mergers & Acquisitions Department of Lazard Frères bank, becoming executive Director five years later. In this role, he was involved in several major financial and strategic transactions in the utilities, distribution, financial services and real estate sectors, including capital restructuring, privatisation and IPOs. In 2008, he took over responsibility in London for the strategic partnership signed between Lazard and the American investment fund Apollo for investment in Europe. In January 2009, Thomas Piquemal joined Veolia Environnement as Senior Executive Vice President in charge of Finance and joined the Group's Executive Committee. In this post, he devoted his efforts to debt reduction, in particular through an asset disposal program. Committed to the fight against social exclusion, in 2008, together with three-time world boxing champion Christophe Tiozzo, Thomas Piquemal founded the "Académie Christophe Tiozzo", whose mission is to promote the social and professional integration of young people from deprived areas. Thomas Piquemal is currently Group Senior Executive Vice President Finance and Director, North America.

**Vincent de Rivaz**, 60 years old, graduate in Engineering from the *École Nationale Supérieure d'Hydraulique* in Grenoble. Vincent de Rivaz began his career with the EDF Group in 1977 as hydraulic engineer in the External Engineering Department, participating in the building of hydroelectric works in Africa, Guyana and New Caledonia. From 1985 to 1991 he was responsible for the Far East Region at the International Division and contributed to the Group's development in China in the nuclear, thermal, hydraulic and distribution sectors. From 1991 to 1994 he was Director of the EDF National Centre for Hydraulic Equipment, responsible for engineering on the EDF Group's hydraulic projects, in France and abroad, and specifically managed the launch of the Nam Theun II project in Laos. In 1995 he was appointed Deputy Director of the International Division, and then became Director of Major Projects. In this capacity, he contributed to the development of EDF's investment projects in IPPs, specifically in China, Egypt, Mexico, Vietnam



# 14 | Administrative, management and supervisory bodies and Executive Management

Absence of family ties, convictions and conflicts of interest among members

and Laos, as well as acquisitions of companies in Poland, Switzerland and England, including London Electricity in 1998. In 1999, Vincent de Rivaz was appointed Vice President of the Corporate Finance Division and in 2000 became Director of Strategy and Financial Operations. Appointed Chairman and Chief Executive Officer of LE Group in England in February 2002, he directed the acquisition and integration operations of Seaboard, with the former London Electricity and the grids of eastern England, creating EDF Energy in 2003. Since 2007, he has led the development of the new EDF nuclear plant in Great Britain. In 2008 and 2009, the acquisition then integration of British Energy, the largest British nuclear plant operator, made EDF Energy the leader in the British electricity market. In 2010, he managed the implementation of the disposal of EDF Energy's distribution network activity. Vincent de Rivaz is currently Chief Executive Officer of EDF Energy.

**Alain Tchernonog**, 69 years old, holder of a PhD in law, is a graduate of the *Institut d'Administration d'Entreprises*. Alain Tchernonog started his career in 1972 as a lawyer specialising in international law at the *Centre National d'Etudes Spatiales* (French national space agency) before becoming head of the Legal Department of ANVAR (French national technology transfer

agency) in 1974. From 1979 to 1990, he was Director of the Contracts Department at Roussel-UCLAF. From 1990, he held the position of General Counsel for the Pierre Fabre Group (1990-1995), then *Compagnie Générale d'Entreprises Automobiles* (1995-2000). In 2001, he joined the Veolia Environnement Group as General Counsel then became General Secretary in January 2007. Alain Tchernonog is currently Group General Secretary.

**Denis Lépée**, 45 years old, graduate from the *Institut d'Études Politiques* in Paris, graduate in history. Denis Lépée served as advisor to the Secretary General of the *Rassemblement Pour la République* political party from 1995 to 1997, then as Private Secretary to the President of the General Council of the Oise département from 1998 to 2003. He then joined Veolia Environnement before becoming in 2007 special advisor to Henri Proglio, Chairman and Chief Executive Officer. Denis Lépée joined EDF on 25 November 2009 as advisor to the Chairman. He is also the author of four novels and several biographies. Denis Lépée is currently Advisor to the Chairman and Secretary of the Group Executive Committee. In this capacity he also oversees the International Development Department, the Group's business in Continental Europe and regional activities in France.

## 14.3 Absence of family ties, convictions and conflicts of interest among members of the administrative bodies and Executive Management

### 14.3.1 Absence of family ties

To EDF's knowledge, there are no family relationships among members of the administrative bodies or Executive Management.

### 14.3.2 Absence of convictions for fraud

To EDF's knowledge, within at least the past five years, no member of the EDF Board of Directors or Executive Management has been subject to: (i) a conviction for fraud, (ii) bankruptcy, receivership or liquidation, or (iii) conviction and/or official public sanction issued by the statutory or regulatory authorities.

Moreover, to EDF's knowledge, no member of the EDF Board of Directors or Executive Management has been prevented by a court from serving as a member of an administrative, management or supervisory body of an issuer or from participating in the management or direction of an issuer's affairs during the past five years.

### 14.3.3 Conflicts of interest

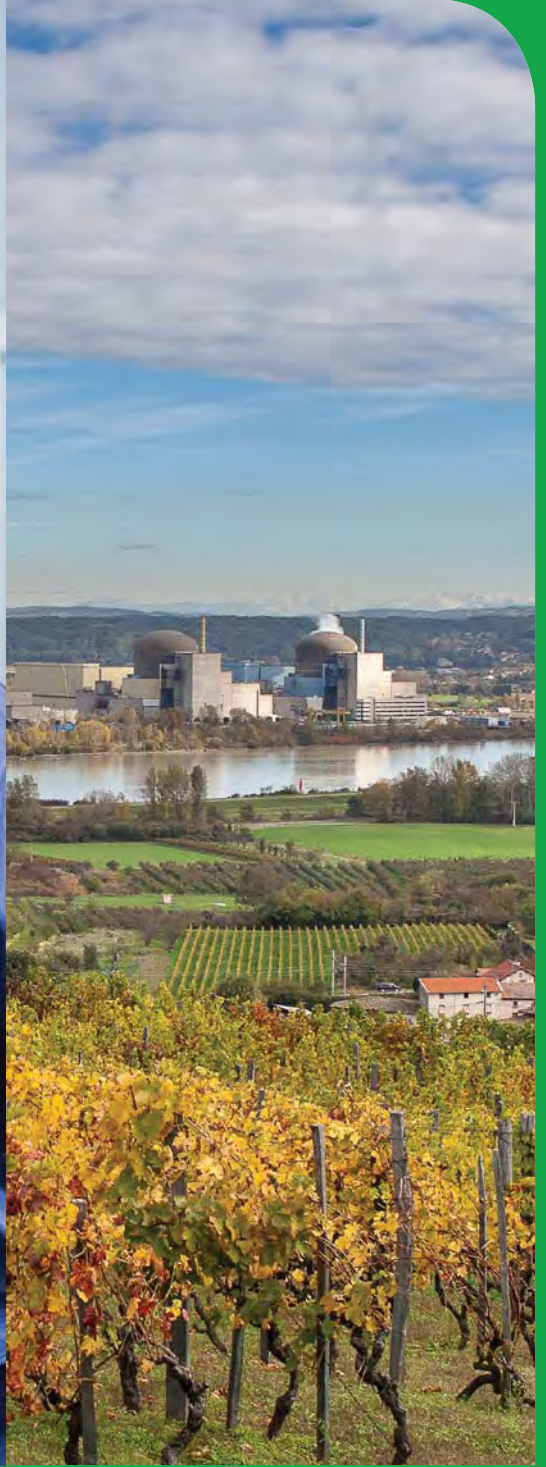
To the Company's knowledge, on the date of filing of this reference document, there are no potential conflicts of interest involving EDF between the duties of the members of the Company's Board of Directors and Executive Management and their private interests or other duties.

Subject to the specific legal and regulatory provisions applicable to the members of the Company's Board of Directors (see section 16.2.1.1 ("Members of the Board")), to the Company's knowledge, no arrangements or agreements have been entered into with shareholders, clients, suppliers or others under which a member of the Board of Directors or Executive Management has been appointed in this capacity.

To the Company's knowledge, no member of the Board of Directors has agreed to restrict for a fixed period of time his/her ability to sell his/her holdings in the Company's capital, except for the restrictions resulting from the EDF Stock Exchange Ethics Code (see section 16.5 ("Stock Exchange Ethics Code")).

In addition, corporate officers holding shares in mutual funds through an EDF Group Company Savings Plan invested in EDF shares, or who has acquired shares from the French state within the legal framework of the privatisation, are subject to the lock-in and non-transferability rules resulting from the provisions applicable to these transactions.





# 15 Compensation and benefits

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## 15.1 Compensation of corporate officers

The compensation and benefits of all kinds paid in the 2013 fiscal year to corporate officers by the Company and the companies it controls are listed below.

The tables below were drawn up in accordance with the format recommended by the AFEP-MEDEF Consolidated Code of Corporate Governance and the AMF Recommendation of 22 December 2008.

### 15.1.1 Total compensation of the Chairman and Chief Executive Officer

The table below presents the summary of the compensation of all kinds owed to the Chairman and Chief Executive Officer for the 2012 and 2013 fiscal years.

As stated in section 15.3, the Chairman and Chief Executive Officer receives no stock options or performance stock.

#### Summary table of compensation and options and shares awarded to the Chairman and Chief Executive Officer<sup>(1)</sup>

(in euros)	2013 fiscal year	2012 fiscal year
<b>Henri Proglio, Chairman and Chief Executive Officer</b>		
Compensation due for the fiscal year	457,696	1,291,257
Valuation of options awarded during the fiscal year	none	none
Valuation of performance stock awarded during the fiscal year	none	none
<b>TOTAL</b>	<b>457,696</b>	<b>1,291,257</b>

(1) Table no. 1 of the AMF Recommendation of 22 December 2008.

The table below presents the compensation of all kinds owed and paid to the Chairman and Chief Executive Officer for the 2012 and 2013 fiscal years.

#### Summary table of the compensation of the Chairman and Chief Executive Officer<sup>(1)</sup>

(in euros)	2013 fiscal year		2012 fiscal year	
	Amounts due for the fiscal year	Amounts paid during the fiscal year	Amounts due for the fiscal year	Amounts paid during the fiscal year
<b>Henri Proglio, Chairman and Chief Executive Officer</b>				
Fixed compensation	450,000	450,000	862,500 <sup>(2)</sup>	1,000,000
Variable compensation	0	286,250 <sup>(3)</sup>	423,750 <sup>(4)</sup>	588,000 <sup>(5)</sup>
Exceptional compensation	none	none	none	none
Directors' fees	none	none	none	none
Benefits in kind <sup>(6)</sup>	7,696	7,696	5,007	5,007
<b>TOTAL</b>	<b>457,696</b>	<b>743,946</b>	<b>1,291,257</b>	<b>1,593,007</b>

(1) Table no. 2 of the AMF Recommendation of 22 December 2008.

(2) Amount due after retroactive adjustment: the fixed portion of the compensation for 2012, which had been set at €1 million by the Board of Directors on 5 April 2012, was adjusted from 1 October 2012 retroactively as a result of the implementation of Decree no. 2012-915 of 26 July 2012. See sections 15.1.1.1 and 15.1.1.2, below.

(3) i.e. the remainder of the variable portion due for the 2012 fiscal year paid during 2013, taking account of the sums already paid during the 2012 fiscal year. See section 15.1.1.2, below.

(4) Amount due after retroactive adjustment: the variable portion of the compensation for 2012, limited to 60% of the amount of fixed compensation for 2012 in accordance with the decision of the Board of Directors of 5 April 2012, was adjusted to be applied to the fixed portion of the compensation paid from only January to September 2012 as a result of the implementation of Decree no. 2012-915 of 26 July 2012. See sections 15.1.1.1 and 15.1.1.2, below.

(5) i.e. variable portion due for the 2011 fiscal year paid during 2012.

(6) The benefits in kind consist of a company car and the energy benefit in kind.



## 15.1.1.1 Terms and conditions for the setting of the compensation of the Chairman and Chief Executive Officer

In accordance with Article 3 of Decree no. 53-707 of 9 August 1953 and Article L. 225-47 of the French Commercial Code, the components of Mr. Henri Proglio's compensation are set by the Company's Board of Directors, on proposal from the Nominations and Compensation Committee, as approved by the Minister for the Economy and the Minister for Energy.

Decree no. 2012-915 of 26 July 2012 modified the Decree of 9 August 1953 and introduced a limit of €450,000 on compensation payable to corporate officers of public companies to which this decree is applicable.

## 15.1.1.2 Setting of compensation for the 2012 and 2013 fiscal years

### Compensation for the 2012 fiscal year

On proposal from the Nominations and Compensation Committee on 12 March 2012 as approved by the Minister for the Economy and the Minister for Energy by letter dated 23 March 2012, in accordance with the Decree of 9 August 1953, the Board of Directors, meeting on 5 April 2012, set the fixed portion of the Chairman and Chief Executive Officer's gross annual compensation at €1 million for the 2012 fiscal year.

A variable portion may be added to this fixed portion, capped at 60% of the fixed amount, consisting of a quantitative portion of 70% and a qualitative portion of 30%, subject to the meeting of objectives set by the Board of Directors. The Board of Directors, meeting on 5 April 2012, had decided to make the quantitative portion of the variable portion of the Chairman and Chief Executive Officer's compensation contingent on the meeting of quantitative objectives based specifically on EBITDA, free cash flow, net debt/EBITDA ratio and the nuclear fleet availability factor (Kd), according to the weightings set by the Board of Directors.

On proposal from the Nominations and Compensation Committee of 13 March 2013, the EDF Board of Directors, meeting on 3 April 2013, acknowledged the implementation of the Decree of 26 July 2012 from 1 October 2012 and decided consequently:

- to set the Chairman and Chief Executive Officer's compensation, from 1 October 2012 retroactively, to the ceiling level laid down by Decree dated 26 July 2012 i.e. a fixed annual compensation of €450,000, leaving the variable portion of the compensation from that date;
- to set the variable portion of the Chairman and Chief Executive Officer's compensation due for the period from January to September 2012, at €423,750, representing 56.5% of the fixed compensation over this period, and
- acknowledged that, given the sums already paid during the 2012 fiscal year to the Chairman and Chief Executive Officer, the amount of the variable portion of the compensation for 2012 fiscal year, to be paid in 2013, amounts to €286,250.

### Compensation for the 2013 fiscal year

On proposal from the Nominations and Compensation Committee, EDF's Board of Directors, meeting on 3 April 2013 decided to set, from 1 October 2012, the Chairman and Chief Executive Officer's compensation at the limit introduced by Decree no. 2012-915 of 26 July 2012, i.e. fixed annual remuneration of €450,000 without a variable portion.

## 15.1.1.3 Other items of compensation

Henri Proglio does not receive any Directors' fees for his duties as Chairman of the Board of Directors and Director of EDF. He also does not receive any Directors' fees for the positions held in companies controlled by EDF, or any compensation of any kind whatsoever from the companies controlled.

The Company allocated no stock options to the Chairman and Chief Executive Officer in 2013 and he exercised no options during the fiscal year. Similarly, no performance stock was allocated to the Chairman and Chief Executive Officer during the past fiscal year, and no performance stock became available.

## Employment contract, specific pension plans, severance payments and non-competition clause

Mr. Henri Proglio has no special EDF pension plan, has received no hiring bonus and does not benefit from any severance payment for the termination of his duties within the Company. Mr. Henri Proglio has no employment contract with the Company.

Chairman and Chief Executive Officer <sup>(1)</sup>	Employment contract	Supplemental pension plan	Compensation or benefits due or liable to be due for termination or modification of duties	Non-competition clause compensation
Henri Proglio, Chairman and Chief Executive Officer	none	none	none	none

(1) Table no. 10 of the AMF Recommendation of 22 December 2008.

## 15.1.2 Total compensation of Directors

No exceptional compensation in return for their duties was paid to Directors during the 2013 fiscal year.

The table, below, shows the amount of Directors' fees paid in 2012 and 2013 to the members of the Board of Directors.

The amounts paid during the fiscal year correspond to the Directors' fees allocated for the first half of that fiscal year (50% of the fixed portion) and for the second half of the previous fiscal year (50% of the fixed portion and 100% of the variable portion).

### Table of Directors' fees paid to Directors

(in euros)	2013 <sup>(1)</sup>	2012 <sup>(2)</sup>
Philippe Crouzet	36,783	39,355
Mireille Faugère	47,972	46,452
Michael Jay	38,182	36,129
Bruno Lafont	34,685	41,290
Pierre Mariani	42,378	36,774
Henri Proglio	n.a.	n.a.
<b>TOTAL</b>	<b>200,000</b>	<b>200,000</b>

n.a.: not applicable

(1) For the second half of 2012 and the first half of 2013.

(2) For the second half of 2011 and the first half of 2012.

### Budget and distributions of Directors' fees

The Directors representing the French State as well as those representing the employees hold office without fees in accordance with Law no. 83-675 of 26 July 1983 concerning the democratisation of the public sector, and the Chairman of the Board of Directors receives no Directors' fees

Upon recommendation of the Nominations and Compensation Committee and approval by the Minister for the Economy and the Minister for Energy in accordance with Article 3 of Decree no. 53-707 of 9 August 1953, the Board of Directors submits for the approval of the Shareholders' Meeting the budget for the Directors' fees to be allocated to Directors based on the allocation approved by the Board of Directors. The Shareholders' Meeting held on 24 May 2011, on proposal of the Board of Directors, approved the amount of €200,000 for the annual budget for the Directors' fees for the 2011 fiscal year and the subsequent fiscal years, until a new decision is made by the Meeting.

The terms and conditions for the allocation of the annual budget for Directors' fees applicable from the 2011 fiscal year were adopted by the Board of Directors on 22 June 2011, on proposal from the Nominations and Compensation Committee. The total budget is divided into a fixed portion and a variable portion of €100,000 each, distributed as follows:

- the fixed portion of €100,000 is shared in equal parts between the eligible Directors, i.e. the sum of €20,000 each;
- the distribution of the variable portion of €100,000 between the Directors is set by applying a coefficient varying based on the type of meetings (Board or Committee) and based on the specific positions held by each Director (Committee member or chairman): a coefficient of 2 for presence at a meeting of the Board of Directors, a coefficient of 2 for the presence of a Chairman at a Committee meeting and, finally, a coefficient of 1 for the presence of a Director as a member at a Committee meeting. The variable portion is divided by the total of the coefficients for the fiscal year in order to set the unit value of the coefficient.

## 15.2 Provisions for pensions, retirement and other benefits

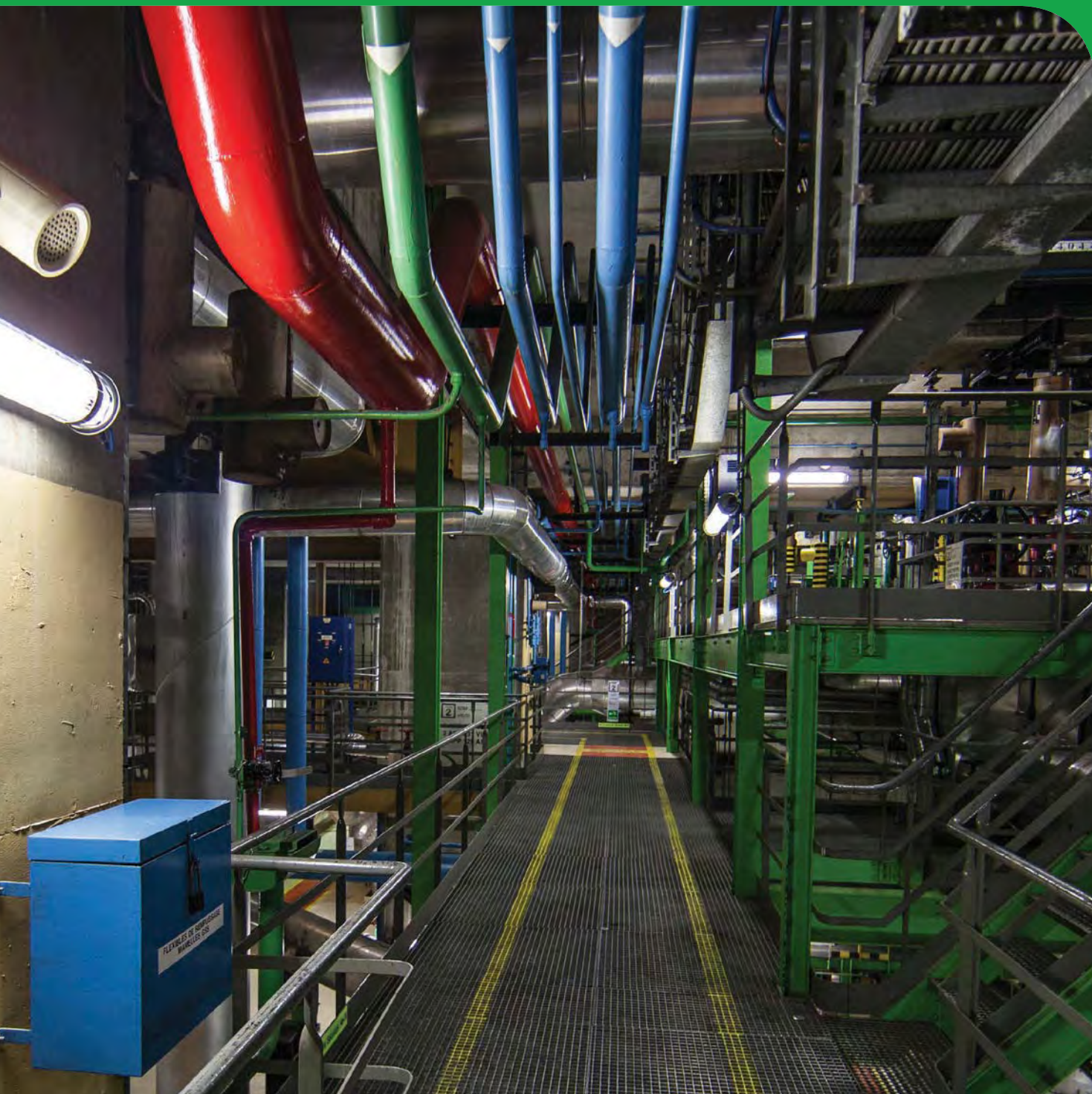
The Company's corporate officers as well as members of the Executive Committee do not benefit from a special pension plan.

## 15.3 Stock options – Bonus shares

The Company has not implemented any stock options plans and the corporate officers receive no allocation of bonus shares <sup>1</sup> (or "performance stock").

1. With the exception of any Directors elected by the employees who may benefit from the systems implemented by the Company for the benefit of all its employees.







# 16 Functioning of administrative and management bodies

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## 16.1 Corporate Governance Code

EDF has signed up to the consolidated AFEP-MEDEF Code, revised in June 2013, which is the Corporate Governance Code to which the Company refers, in accordance with Article L. 225-37 of the French Commercial Code<sup>1</sup>, subject to the specific laws and regulations applicable to EDF.

These specific laws and regulations, which result from EDF's status as a state-owned company and in particular the application to the Company of French Law no. 83-675 of 26 July 1983 relating to the democratisation of the public sector and Decree no. 53-707 of 9 August 1953, are specified in this reference document relate specifically to the terms and conditions for

the setting of the compensation of the Chairman and Chief Executive Officer (see section 15.1.1.1 ("Terms and conditions for the setting of compensation of the Chairman and Chief Executive Officer")), or otherwise the method of executive management (see section 16.2.1.4 ("Method of Executive Management and powers of the Chairman and Chief Executive Officer")).

In addition to the aforementioned specific laws and regulations, the table below sets out the AFEP-MEDEF code recommendations that are not applied by the Company and the related explanations:

Issue addressed by AFEP-MEDEF code recommendation	Company's position	Explanation	Relevant section of reference document
Members of the Board of Directors	The members of the EDF Board of Directors are divided into three categories: it consists of six directors appointed by the Shareholders' Meeting, six directors representing the French state and six directors elected by employees.	These three categories are the result of the implementation of Law no. 83-675 of 26 July 1983 relating to the democratisation of the public sector	See sections 14.1.1 ("Members of the Board of Directors") and 16.2.1.1 ("Members of the Board")
Proportion of women on the Board of Directors	The EDF Board of Directors includes five women: one is a director appointed by the Shareholders' Meeting, the second is a director representing the French state and the other three are directors elected by the employees. This represents a proportion of 27.8% women on the entire Board and 16.6% women out of the members of the Board taken into account to calculate this percentage in accordance with the AFEP-MEDEF code (i.e. not including directors representing the employees)	The EDF Board of Directors is appointed for 5 years and re-elected as a whole in accordance with the Law of 26 July 1983. The Board was last re-elected in November 2009 and shall next be re-elected in November 2014. The AFEP-MEDEF code recommendations as well as the obligations resulting from Law no. 2011-103 of 27 January 2011 relating to balanced representation of women and men on Boards of Directors and Supervisory Boards and equal access to employment shall be taken into account for the next re-elections of the Board of Directors.	See section 16.2.1.1 ("Members of the Board")
Proportion of independent directors on the Audit Committee	The Audit Committee has one independent director out of the three taken into account to calculate the proportion of independent directors (i.e. not including directors representing employees).	The members of the Audit Committee reflect the specific requirements regarding membership of the Board resulting from the Law of 26 July 1983 which make it difficult to achieve a proportion of two-thirds independent directors on the Committee. The Company considers that, although the Committee does not have two-thirds independent directors, its current membership does not affect the skills of the Committee or its ability to effectively fulfil the duties entrusted to it by law and the internal rules of procedure of the Board of Directors	See section 16.2.3.1 ("Audit Committee")
Term of office of directors	The term of office of the directors is 5 years and the Board is re-elected as a whole after 5 years	The term of office and terms and conditions for the re-election of the Board result from Article 11 of the Law of 26 July 1983 relating to the democratisation of the public sector	See section 16.2.1.2 ("Term of office of directors")
Terms and conditions for the appointment of the Chairman-Chief Executive of EDF	The Chairman-Chief Executive of EDF is appointed by decree of the President of the Republic of France upon recommendation from the Board of Directors, after interviewing of the candidates and based on the opinion of the permanent committees of the French National Assembly and Senate	The terms and conditions for the appointment of EDF's Chairman & Chief Executive are based on the Law of 26 July 1983 and Article 13 of the Constitution	See section 16.2.1.4 ("Method of Executive Management and powers of the Chairman and Chief Executive Officer")

1. After having considered the AFEP-MEDEF recommendations of October 2008 on the compensation of corporate officers and directors of companies, the Company's Board of Directors met as soon as 17 December 2008 to approve these recommendations, deeming that they are in line with EDF's corporate governance approach, and that they had already been implemented by the Company.

Issue addressed by AFEP-MEDEF code recommendation	Company's position	Explanation	Relevant section of reference document
Holding of Company shares by directors	The Company's articles of association and the Board's internal rules of procedures do not specify that directors must possess a relatively high number of shares in relation to the Directors' fees paid	In accordance with the Law of 26 July 1983 the directors representing the French state as well as those representing the employees receive no Directors' fees. The Chairman of the Board of Directors also does not receive any Directors' fees. For these reasons, a special rule applicable solely to directors receiving Directors' fees (i.e. 5 out of a total of 18) has not been adopted. Each director must also act in the Company's best interests, irrespective of the number of Company shares he/she holds	See section 17.5 ("Shareholding by directors and trading in EDF securities by corporate officers and executives")
Rules for the payment of the Directors' fee	A significant but not "preponderant" share of the Directors' fees is dependent upon actual attendance by the directors of the Board and Committee meetings	Only the directors appointed by the Shareholders' Meeting, except the Chairman & Chief Executive, receive Directors' fees. Special allocation rules, specific to these directors (i.e. 5 out of a total of 18) were adopted, which take account of the level of responsibilities and the time spent by the directors on their duties Though the variable portion of the compensation paid in Directors' fees is not preponderant, the Company considers that it is nonetheless significant and appropriate since the total budget for Directors' fees is divided between a fixed portion and a variable portion (each 50% of the total budget) divided as follows: (i) the fixed portion is shared equally between the eligible directors, and (ii) the variable portion is divided between these directors by applying a variable coefficient depending on the type of meetings and the specific positions held by each of them	See section 15.1.2 ("Total compensation of directors")

The AFEP-MEDEF code, revised in June 2013, states that a Chairman and Chief Executive Officer must not hold more than two other positions as director of listed companies outside his/her group, including foreign listed companies. In accordance with the AFEP-MEDEF implementation guide published by the French High Committee of Corporate Governance in

January 2014, this recommendation applies to the appointment or next re-election of the director or executive in question. Mr. Henri Proglio's position shall be examined in light of these recommendations based on the implementation deadlines recommended in the code and the implementation guide.

## 16.2 Functioning of the Board of Directors

The Board's internal rules of procedure set the principles of its functioning and the terms and conditions according to which the Board and its specialised committees fulfil their duties. It also defines the role and powers of the Chairman and Chief Executive Officer. These internal rules of procedure are reviewed, as needed, in particular to take account of legal and regulatory changes.

### 16.2.1 Composition and functioning of the Board of Directors

#### 16.2.1.1 Members of the Board

In accordance with Article 6 of Law no. 83-675 of 26 July 1983 relating to the democratisation of the public sector, the Company's Board of Directors is comprised of eighteen members, one third of whom are elected by the

employees and two-thirds appointed by the Shareholders' Meeting on recommendation from the Board of Directors, with the exception of the French state representatives who are appointed by decree.

On the filing date of this reference document, the Board of Directors consists of six directors elected by employees, six directors representing the French state and six directors appointed by the Shareholders' Meeting.

The list of directors and their personal information appear in section 14.1 ("Board of Directors").

#### Balanced representation of men and women on Boards of Directors

In accordance with Law no. 2011-103 of 27 January 2011 relating to the balanced representation of women and men on Boards of Directors and Supervisory Boards, and equal access to employment, EDF, as a French public limited company ("*société anonyme*") listed on the stock exchange and a state-owned company, is subject (a) to the provisions applicable to

listed companies (with regard to directors appointed by the Shareholders' Meeting) and (b) to the provisions applicable to state-owned companies (for the directors appointed by decree).

In accordance with the aforementioned law, the proportion of directors of each gender appointed by the Shareholders' Meeting may not be less than 20% from 2014, then 40% from 2017.

Moreover, the proportion of directors of each gender appointed by decree shall not be less than 20% after the first re-election of the Board of Directors following publication of the law, i.e., in November 2014 for EDF, and shall not be less than 40% after the second re-election of the Board of Directors, i.e., in November 2019.

On the date of filing of this reference document, the EDF Board of Directors includes five women: one is a Director appointed by the Shareholders' Meeting, one was appointed by decree and the other three are Directors elected by employees i.e. a proportion of 27.8% women compared to the Board as a whole and 16.6% women compared to the members of the Board taken into account in order to calculate this percentage in accordance with the AFEP-MEDEF code.

Finally, the Government Commissioner<sup>1</sup> and Head of the French State General Economic and Financial Supervisory Mission to the Company<sup>2</sup> and the Secretary of the Central Works Council attend the meetings of the Board of Directors, but are not entitled to vote.

### 16.2.1.2 Term of office of directors

In accordance with Article 11 of the Law of 26 July 1983 relating to the democratisation of the public sector, the term of office of members of the Board of Directors is five years. They remain in office until the first meeting of the new Board of Directors. The Board is re-elected as a whole after 5 years. The terms of office of the current directors will expire on 22 November 2014 at midnight. Accordingly, the Board is re-elected as a whole in the course of the 2014 fiscal year.

In the event of vacancy of the seat of a member of the Board of Directors for any reason whatsoever, his/her replacement will hold office only for the remaining duration of the term until the re-election of the full Board of Directors.

In accordance with Article 12 of the Law on the democratisation of the public sector, directors representing the French state may be dismissed at any time by decree, directors appointed by the Shareholders' Meeting may be dismissed at any time by the Shareholder's Meeting and, finally, directors elected by employees may be dismissed individually for serious negligence in the performance of their duties upon decision of the President of the District Court, delivered in the form of an emergency ruling at the request of the majority of members of the Board.

### 16.2.1.3 Obligations and duties of directors

The internal rules of procedure of the Board of Directors state that its members are subject to obligations such as: acting in the corporate interest of the Company, informing the Board of situations of conflict of interest, and refraining from voting on any decision in which there might be a conflict of interest, fulfilling the obligation of confidentiality and complying with the EDF Stock Exchange Ethics Charter. Members of the Board and the Chairman and Chief Executive Officer are required to immediately inform the Board of any agreement entered into by the Company in which they hold a direct or indirect interest, or which might be entered into through an intermediary.

Each director receives a Directors' guide, which is regularly updated and specifically contains the following documents: the Company's articles of association, the internal rules of procedure of the Board of Directors and its Committees, the Stock Exchange Ethics Code (see section 16.5 ("Stock Exchange Ethics Code"), below), Group Ethics Charter, Group

CSR undertakings and the AFEP-MEDEF listed company code of corporate governance.

### 16.2.1.4 Method of Executive Management and powers of the Chairman and Chief Executive Officer

The EDF articles of association state that the Chairman of the Board of Directors is the Executive Manager of the Company and holds the title of Chairman and Chief Executive Officer. The "non-separated" executive management structure is therefore set out in the Company's articles of association. The Board's internal rules of procedure, and in particular the limitations it applies to the powers of the Chief Executive Officer, are intended to ensure a balance between the Chairman and Chief Executive Officer and the Board of Directors, whilst preserving the flexibility and responsiveness necessary in the administration and management of the Company.

EDF's Chairman and Chief Executive Officer is appointed by decree of the President of the Republic, upon proposal from the Board of Directors. He may be dismissed by decree in accordance with Article 10 of the Law on democratisation of the public sector.

In accordance with the provisions of Article 13 of the Constitution, the Chairman is appointed based on the candidates' interviews and the opinion of the permanent committees of the French National Assembly and Senate. Mr. Henri Proglio was appointed EDF Chairman and Chief Executive Officer by Decree of 25 November 2009.

Subject to the specific legal provisions governing public sector companies and the powers specifically reserved by law or by the articles of association to the Board of Directors or to Shareholders' Meetings, and the limits to the powers of the Chairman and Chief Executive Officer provided for by the internal rules of procedure of the Board of Directors as internal rules (see section 16.2.1.5 ("Powers and duties of the Board of Directors") below), the Chairman and Chief Executive Officer is vested with the most extensive powers to act on behalf of the Company under all circumstances, within the limits of the corporate purpose. The Chairman and Chief Executive Officer organises and supervises the work of the Board of Directors and reports to the Shareholders' Meeting. He oversees the proper running of the bodies of the Company and, in particular, ensures that the directors are in a position to fulfil their duties.

### 16.2.1.5 Powers and duties of the Board of Directors

In accordance with the law, the Board of Directors sets the strategies for the Company's activities and oversees their implementation. Subject to powers expressly attributed to the Shareholders' Meetings and as limited by the Company's corporate purpose, the Board may consider any question relating to the proper running of the Company and acts, through its deliberations, on any such issue.

Moreover, in accordance with Article 7 of the French law on the democratisation of the public sector, the Board deliberates on all strategic, economic, financial and technological strategies of the Company and the Group and on the matters specifically assigned to the Board by law, or which the Board retains.

In accordance with its internal rules of procedure, the Board of Directors alone is competent to authorise the following transactions:

- transactions of external or internal growth or disposals involving a financial exposure for the Company exceeding €200 million; this threshold falls to €50 million for acquisitions not in line with the Company's strategic objectives;
- real estate transactions exceeding €200 million;

1. Decree no. 2012-406 of 23 March 2012 and order of 15 June 2012.

2. It exercises the French State's economic and financial supervisory mission with regard to EDF, in accordance with Decree no. 55-733 of 26 May 1955. It is vested with broad supervisory powers.

- certain financial transactions, whenever their amount exceeds a value set each year by special decision of the Board; for the 2013 fiscal year, the Board set: (i) at €1.5 billion, the total authorised budget for sureties, endorsements or guarantees (the Chairman and Chief Executive Officer reports to the Board on any transaction of this kind that exceeds €100 million, granted on behalf of the Company or by a company controlled by the Company) and (ii) at €5 billion, the individual unit amount of certain financial transactions. For 2014, the Board of Directors decided to retain the same level of delegations;
- contracts (supplies, work or services with or without financial commitment) involving amounts, including any necessary subsequent amendments signed during the same year, equal to or exceeding €200 million, or between €100 million and €200 million if these contracts relate to a new strategic direction or a new business line for the Group;
- long-term contracts for the purchase or sale of energy, CO2 emission credits and quotas, by the Company or by a company it exclusively controls, for annual volumes or amounts in excess of: 10 TWh for electricity, 20 TWh for gas (detailed information must also be provided on long-term gas purchase or sale agreements greater than 5 TWh and less than 20 TWh at the meeting of the Board of Directors following their signing) and €250 million for coal and carbon dioxide;
- strategies relating to upstream and downstream operations of the nuclear fuel cycle;
- operations involving the transfer of obligations relating to decommissioning or downstream processes of the nuclear fuel cycle.

The Board of Directors sets the framework of the policy for the collection and management of assets for hedging nuclear commitments, specifically ruling on asset/liability management, asset allocation strategy, asset quality and the method of selecting any financial intermediaries. If the Nuclear Commitments Monitoring Committee does not approve a plan for investment in unlisted assets for dedicated assets, the Board of Directors has sole authority to authorise the aforementioned plan (see section 16.2.3.2 ("Nuclear Commitments Monitoring Committee")). It set limits on market, counterparty and liquidity risks.

Finally, in accordance with Law no. 2011-103 of 27 January 2011 relating to the balanced representation of women and men on Boards of Directors and Supervisory Boards and equal access to employment, the Board of Directors must annually approve the Company's policy with regard to equal access to employment and equal pay.

### 16.2.1.6 Evaluation of director independence

The AFEP-MEDEF Corporate Governance Code, revised in June 2013, recommends that, in companies with a controlling shareholder, the proportion of independent Directors should be at least one third of the Board of Directors and specifies that directors representing employees are not taken into account to calculate the proportion of independent directors.

Given the specific legal framework applicable the Company, the Board of Directors has, out of a total of eighteen members, six directors representing the French state and who therefore cannot meet the independence criteria defined by the AFEP-MEDEF code and six directors representing employees who are not taken into account to calculate the proportion of independent directors.

At a joint meeting on 16 January 2014, the Ethics Committee and Nominations and Compensation Committee examined the individual situations of directors. Based on the opinion of these Committees, the Board of Directors, meeting on 12 February 2014, conducted the annual assessment of director independence based on the criteria set in the AFEP-MEDEF corporate governance code and confirmed the independence of Mrs. Mireille Faugère and Messrs. Philippe Crouzet, Michael Jay, Bruno Lafont and Pierre Mariani, the Board having deemed that these directors have no relations with the Company, its Group or its Management that might compromise the exercise of their freedom of judgment.

The Company's Board of Directors therefore has five independent directors out of a total of twelve that could be deemed independent based on the revised AFEP-MEDEF code, i.e. a proportion of independent directors of 41.7%.

### 16.2.1.7 Evaluation of the functioning of the Board of Directors

In accordance with the provisions of the AFEP-MEDEF code, the Board's internal rules of procedure state that the Ethics Committee will report annually on the functioning of the Board of Directors and propose areas for improvement. Once a year, therefore, the Board dedicates one point on its agenda to this evaluation and holds a discussion on its functioning in order to improve its efficiency and ensure that important issues are appropriately prepared and discussed by the Board. Furthermore, every three years, this evaluation is conducted by an external consultant under the supervision of the Ethics Committee.

As the last evaluation conducted by a specialist external consultant was in 2010, a specialist external consultant was appointed to conduct this evaluation for 2013, via in-depth interviews with each of the directors, held during the last quarter of the 2013 fiscal year. The results examined by the Ethics Committee on 16 January 2014 and presented to the Board of Directors on 12 February 2014 reveal that this year again the opening of the Strategy Committee to all members of the Board was widely praised and the directors consider that this extension is not detrimental to proper coordination between the Board of Directors and the Strategy Committee. The information was deemed exhaustive and detailed by the directors who underlined the quality of the reports submitted to the Board and its Committees. They appreciate the widespread use of the executive summary and underlined the usefulness of the various information documents issued to them (Directors' guide, "News" document, monthly media analysis, etc.).

### 16.2.1.8 Information and training of directors

Under the terms of the Board's internal rules of procedure, the Board periodically receives information on the financial, treasury and commitments position of the Company and the Group, as well as information such as the financial balance sheet for agreements approved by the Company for the purchase of nuclear fuels, a performance review of the Company's principal subsidiaries on the occasion of the presentation of the annual and semi-annual financial statements, sales policy, purchasing and subcontracting policy and human resources policy.

A document reviewing the Group's current major sectors of business and the market trends, as well as the economic, financial and institutional context is prepared for each meeting of the Board of Directors.

The principal events relating to the Company occurring between two meetings of the Board as well as the monitoring of the decisions taken by the Board of Directors are reported to the directors.

The directors can add to this information by meeting with the principal managers of the Company or Group.

In addition, information meetings are organised on complex matters and major strategic importance issues, together with any training requested by members.

### 16.2.1.9 Compensation

The principles and rules adopted by the Board of Directors in order to set the compensation of the Chairman & Chief Executive Officer and the terms and conditions for the distribution of the Directors' fees, as well as the amounts paid to directors in 2012 and 2013, appear in section 15 of this reference document.



### 16.2.2 Activities of the Board of Directors in 2013

The Board of Directors meets as often as the interest of the Company requires in accordance with applicable legislative and regulatory provisions.

Over the 2013 fiscal year, the Board of Directors met eleven times and twenty-five Committee meetings were held to prepare for these meetings. Board meetings lasted an average of two hours and forty minutes, allowing for an in-depth review and discussion of the items on the agenda.

The average attendance rate for directors at the meetings of the Board was 87.8% for 2013.

In 2013, the Board of Directors reviewed and authorised, in addition to numerous issues relating to the Company's current activity, issues such as the investment necessary to extend the life of the Tihange 1 nuclear power station (Belgium), jointly-owned with Electrabel, by ten years, the sale by EDF of its 4% holding in Veolia Environnement, the plan for EDF's takeover of Dalkia's businesses in France, the EDF equal access to employment and equal pay policy, the signing of an agreement between the Group and the British government on the main commercial terms of the investment agreement for the planned construction of two EPR reactors in the United Kingdom (Hinkley Point), EDF Énergies Nouvelles development projects (South Africa, Canada, United States, France) as well as the planned sale of a 80% shareholding by EDF Energy and EDF Énergies Nouvelles in the Fallago Rig wind farm (Scotland), the acquisition by EDF of a 20% share in the company Transport & Infrastructures Gaz France ("TIGF") with a view to its allocation to dedicated assets, the setting up of a joint venture between EDF International and Global Energy Holding Company ("GEHC") in Saudi Arabia in connection with the development of the Saudi nuclear programme as well as EDF International's decision to invest (15%) in the construction of the underwater section of the "South Stream" gas pipeline by the company South Stream Transport BV and the Board of Directors was informed of the progress of the agreements between the EDF and Exelon groups regarding the Constellation Energy Nuclear Group (United States).

### 16.2.3 Board of Directors' Committees

To perform its duties, the Board of Directors has created five committees to review and prepare certain projects before they are presented to the whole Board. These specialised Committees are: the Audit Committee, the Nuclear Commitments Monitoring Committee, the Strategy Committee, the Ethics Committee and the Nominations and Compensation Committee.

The members, functioning and duties of the committees are governed by the internal rules of procedure of the Board of Directors.

Directors who are members of these Committees are appointed by the Board of Directors. The Chair of each committee is appointed by the Board on proposal from the members of the Committee.

The Chairs of the Board Committees are:

- Mr. Pierre Mariani for the Audit Committee;
- Mr. Philippe Crouzet for the Nuclear Commitments Monitoring Committee;
- Mr. Henri Proglio for the Strategy Committee;
- Mrs. Mireille Faugère for the Ethics Committee;
- Mr. Bruno Lafont for the Nominations and Compensation Committee.

The composition of each Committee on 31 March 2014 is described below.

The Government Commissioner and the Head of the French State General Economic and Financial Supervisory Mission to the Company attend the meetings of these Committees but are not entitled to vote.

The work of the Committees is organised within a program prepared for the year. Meetings are recorded in the form of written minutes and reports, which are submitted by the Committee Chairman to the Board of Directors. Their length allows for an in-depth review and discussion of the items on the agenda.

#### 16.2.3.1 Audit Committee

##### Functioning and members

The Audit Committee performs the duties assigned to it in accordance with the provisions of order no. 2008-1278 of 8 December 2008, which transposed into French law the Eighth European Directive of 17 May 2006 on statutory audits of accounts.

Article L. 823-19 of the French Commercial Code states that at least one member of the Committee must have specific skills in financial or accounting matters and be independent based on the criteria defined and made public by the Board of Directors.

At a joint meeting held on 14 January 2011, the Ethics Committee and the Nominations and Compensation Committee reviewed the situation of Mr. Pierre Mariani and issued a notice to the Board of Directors. The Board of Directors, meeting on 21 January 2011, found that Mr. Pierre Mariani has the specific financial and accounting skills based on the criteria recommended by the AMF in its report on the Audit Committee dated 22 July 2010. On 12 February 2014, the Board of Directors confirmed Mr. Pierre Mariani's capacity as an independent Director (see section 16.2.1.6 above). He therefore meets the criteria of both expertise and independence in accordance with the Article L. 823-19 of the French Commercial Code.

More generally, each of the members of the Audit Committee contributes, via their experience and skills, to the quality of the Committee's discussions and work.

The Audit Committee is chaired by Mr. Pierre Mariani, an independent director appointed by the Shareholders' Meeting and an individual outside the EDF group. The other members of the Committee are Messrs. Olivier Appert and David Azéma, directors representing the French state, as well as Mrs. Marie-Hélène Meyling and Messrs. Alexandre Grillat and Maxime Villota, directors elected by the employees.

Mr. Olivier Appert was appointed by the Board of Directors on 25 June 2013 as member of the Audit Committee, replacing Mr. Yannick d'Escatha.

The Chairman and Chief Executive Officer attends the Committee meetings intended to examine the annual and half-yearly financial statements, as well as the medium-term plan and the budget.

The Audit Committee met seven times in 2013. The average attendance rate for its members was 92.4%.

##### Duties

The Committee reviews and gives its opinion, before examination by the Board, on:

- the Company's financial position;
- the medium-term plan and the budget;
- the preliminary financial reports prepared by the Corporate Finance Division (Company financial statements and the Group's consolidated financial statements and management report);
- the monitoring of the Company's risks (specifically, the review every six months of the Group's risk mapping and risk management methods);
- audit and internal control: organisation, deployment and evaluation of the system of internal controls, annual audit programs, main findings and the resulting corrective actions, monitoring of their implementation, as well as the preliminary annual report by the Chairman of the Board of



Directors on corporate governance, internal control and risk management procedures;

- insurance strategy;
- the choice of Statutory Auditors, ensuring their independence, and the fees paid to them,
- the financial aspects of external growth or disposal activities that are particularly significant (see section 16.2.1.5 ("Powers and duties of the Board of Directors")).
- changes to how the Group is viewed by analysts;
- energy market risk policy.

For the purposes of its work, the Committee regularly meets with the Statutory Auditors, Executive Management, Corporate Finance, Group Risk Management and Internal Auditing.

### Activity in 2013

In 2013, the Audit Committee, amongst other tasks, examines the half-yearly and annual financial statements as well as the related press releases, the presentation by the Auditors of the key points of the results of their work on the annual and half-yearly financial statements, releases on quarterly sales, risk mapping, internal audit summaries and the audit programme. It was also informed, at the joint meeting with the Nuclear Commitments Monitoring Committee, of changes to the treatment of the receivable due to the shortfall in compensation of electricity public service expenses (CSPE receivable) and examined the plan to allocate this receivable to dedicated assets.

## 16.2.3.2 Nuclear Commitments Monitoring Committee

### Functioning and members

The Nuclear Commitments Monitoring Committee ("NMC"), set up in accordance with Article 9 of the Decree of 23 February 2007, is chaired by Mr. Philippe Crouzet, an independent director appointed by the Shareholders' Meeting and an individual outside the Group. The other members of the committee are Mrs. Marie-Christine Lepetit and Mr. Olivier Appert, directors representing the French state, as well as Mrs. Marie-Hélène Meyling and Mr. Maxime Villota, directors elected by the employees.

Mr. Olivier Appert was appointed by the Board of Directors on 25 June 2013 as member of the Nuclear Commitments Monitoring Committee, replacing Mr. Yannick d'Escatha.

The Nuclear Commitments Monitoring Committee met five times in 2013. The average attendance rate for its members was 92%.

### Duties

The Nuclear Commitments Monitoring Committee is tasked with monitoring changes in nuclear provisions, issuing an opinion on issues relating to governance of dedicated assets, the rules for asset-liability matching and on strategic allocation, as well as ensuring the compliance of the management of the assets constituted by EDF in accordance with the policy for constituting and managing the dedicated assets. For this purpose, it may be supported by the Nuclear Commitments Financial Expertise Committee ("NCFEC") which is comprised of six independent<sup>1</sup> experts, whose duty it is to assist the Company and its corporate bodies in such matters.

Finally, the Committee gives an opinion prior to any investment in unlisted assets for any project exceeding a unit amount of €400 million as well as for any project (excl. real estate) exceeding a unit amount of €200 million resulting in full consolidation of the target investment by the Company. In case the Committee does not approve an investment plan, the Board of Directors has sole authority to authorise the aforementioned plan.

### Activity in 2013

In 2013, the Committee reviewed, among other issues, the framework of the policy for constituting and managing dedicated assets, the state of progress of the planned industrial geological storage centre for long-life medium- and high-activity waste, the 2013 three-yearly report on the securing of the financing of nuclear expenses, the nuclear commitments discount rate, the governance of unlisted assets in dedicated assets as well as the prospects for investment in this class of assets, and the re-election of the Nuclear Commitments Financial Expertise Committee. It was also informed, at a joint meeting with the Audit Committee, of changes to the treatment of the receivable due to the shortfall in compensation of electricity public service expenses (CSPE receivable) and examined the plan to allocate this receivable to dedicated assets.

## 16.2.3.3 Strategy Committee

### Functioning and members

The Strategy Committee is chaired by Mr. Henri Proglio, Chairman and Chief Executive Officer. The other members of the committee are Mr. Michael Jay, an independent Director appointed by the Shareholders' Meeting and an individual outside the EDF group, Mrs. Marie-Christine Lepetit and Messrs. David Azéma and Pierre Sellal, Directors representing the French State, as well as Mrs. Marie-Hélène Meyling and Messrs. Alexandre Grillat and Jean-Paul Rignac, directors elected by the employees.

Since 2010, the Chairman has invited non-member directors to meetings of the Strategy Committee, in order to increase the involvement of the Board of Directors in the strategic discussion.

The Strategy Committee met six times in 2013. The average attendance rate for its members was 89.6%.

### Duties

The Strategy Committee issues an opinion to the Board of Directors on the Company's major strategic decisions and, specifically, the strategic referencing system, industrial and commercial policy, the public service contract, strategic agreements, alliances and partnerships, research and development policy, and internal and external growth or disposals projects requiring approval from the Board of Directors.

### Activity in 2013

In 2013, the Committee examined, among other issues, the challenges facing EDF over the debate on the energy transition, the issue of the pricing and finance equation of business in France, the main achievements in terms of research, development and innovation, the progress of the Flamanville 3 project and the plan to develop the new nuclear reactor in the UK (Hinkley Point), as well as the strategic objectives for gas.

## 16.2.3.4 Ethics Committee

### Functioning and members

The Ethics Committee is chaired by Mrs. Mireille Faugère, an independent director appointed by the Shareholders' Meeting and an individual outside the EDF group. The other members of the Committee are Mrs. Marie-Christine Lepetit, director representing the French state, Mrs. Christine Chabauty and Mrs. Marie-Hélène Meyling, directors elected by the employees.

The Board of Directors officially accepted on 29 July 2013 the resignation from the Ethics Committee of Mr. Alexandre Grillat, director elected by the employees.

The Ethics Committee met five times in 2013. The average attendance rate for its members was 86%.

1. Appointed on 26 November 2013 by the Board of Directors for 3 years.

## Duties

The Ethics Committee ensures that ethical considerations are taken into account in the work of the Board of Directors and in the management of the Company. It reviews the reports from the Mediator, the Inspector General for nuclear safety and radiation protection as well as the Inspector for hydraulic safety.

Moreover, each year the Ethics Committee conducts an assessment of the running of the Board and its committees, and every three years oversees a formal assessment of the work of the Board and its committees entrusted to a specialist external consultant (see section 16.2.1.7 ("Assessment of the functioning of the Board of Directors") above).

In addition, the Committee regularly visits operating sites in order to understand the issues involved in its duties.

## Activity in 2013

In 2013, the Ethics Committees examined, among other issues, the commitments relating to the Group's corporate responsibility, EDF's equal access to employment and equal pay policy and EDF's service provider policy. The Committee visited a nuclear power site in order to examine the implementation of the sub-contracting policy in this line of business.

### 16.2.3.5 Nominations and Compensation Committee

#### Functioning and members

The Nominations and Compensation Committee is chaired by Mr. Bruno Lafont, an independent director appointed by the Shareholders' Meeting and an individual outside the EDF group. The other members of the Committee are Mr. Michael Jay, an independent director appointed by the Shareholders' Meeting and an individual outside the EDF Group, Mr. David Azéma, a director representing the French state and Mr. Maxime Villota, director elected by the employees.

Mr. Maxime Villota was appointed by the Board of Directors on 25 June 2013 as a member of the Nominations and Compensation Committee. He was appointed following modification of Article 16 of the Company's articles of association, adopted by the Shareholders' Meeting held on 30 May 2013, which specifies that the Committees of the Board of Directors must have at least one member who is an employee.

The Nominations and Compensation Committee met twice in 2013. The average attendance rate for its members was 83.3%.

## Duties

In accordance with the internal rules of procedure, the Nominations and Compensation Committee submits proposals to the Board of Directors regarding the appointment of directors by the Shareholders' Meeting. It submits for approval, to the Minister for the Economy and the Minister for Energy, an opinion on the compensation of the Chairman and Chief Executive Officer regarding the salary, variable portion (including the criteria for the setting of the variable portion and assessment of the results achieved based on the objectives set) and peripheral compensation of the Chairman and Chief Executive Officer. It also submits this opinion to the Board of Directors for deliberation and the setting of this compensation. The Committee prepares its proposals within the limits specified by Decree no. 2012-915 of 26 July 2012 relating to French state control of the compensation of the executives of public companies, in accordance with which the Chairman & Chief Executive's annual compensation must not exceed the gross sum of €450,000.

The Committee examines, if applicable, the compensation of the Deputy Chief Executive Officers. It submits its proposals and its opinion for approval to the Minister for the Economy and the Minister for Energy, and also submits it to the Board of Directors for deliberation and setting of this compensation.

The Committee submits to the Board of Directors its opinion on the terms and conditions for the setting of the compensation of the principal managers (fixed and variable portions, calculation method and indexing), as well as the amount and terms and conditions for the distribution of the Directors' fees. It ensures the existence of succession plan charts for Executive Committee positions.

## Activity in 2013

In 2013, the Nominations and Compensation Committee submitted proposals to the Board of Directors regarding the implementation from 1 October 2012 of Decree no. 2012-915 of 26 July 2012 limiting to €450,000 the compensation of the Chairman & Chief Executive Officer and regarding the setting of the variable portion of the compensation of the Chairman and Chief Executive Officer due for the period from January to September 2012. It also examined the bonus criteria for calculating the variable portion of the compensation of the Group's executives (see section 15.1.1 ("Total compensation of the Chairman and Chief Executive Officer")).

## 16.3 Bodies created by Executive Management

The Chairman and Chief Executive Officer chose to surround himself with an Executive Committee within which all the Group's lines of business are represented, as are finance, legal affairs and human resources.

This Committee is a body enabling study, strategic discussion and cooperation in the Group's cross-disciplinary activities. It examines all the Group's significant underlying and current issues, tracks the operating objectives and results and contributes to the management and forecasting of the EDF group's major challenges. It reviews and authorises significant projects, specifically the Group's investment or disinvestment projects for amounts which exceed certain thresholds. The Executive Committee meets each week.

To further strengthen the examination and monitoring of projects, a Commitments Committee under the Executive Committee was created by the Chairman and Chief Executive Officer, which conducts an in-depth review

of projects being positively considered by the Executive Committee before the Executive Committee makes a final decision. No investment project by the Company may be proposed for review by the Board of Directors without having first been approved by this committee.

On the date of filing of this reference document, the Executive Committee had eight members and a Secretary. The list of members and their personal information appears in section 14.2 ("Executive Committee").

The organisation of the Executive Management is supplemented by a Management Committee comprised of the members of the Executive Committee, as well as the Group's senior international executives and managers of the geographic regions, as well as the Company's operating officers.

## 16.4 Group Ethics and Compliance Commission

Group Management's decision to renew and adapt its ethics-related reference documents led to the drafting and approval in 2012 of the Group Ethics Charter (hereinafter, the "Charter") by the Group Management Committee (Comité Directeur) and the Board of Directors of EDF.

This Charter exists alongside national and international laws, rules and agreements, and sets out the values, main procedures and codes of conduct that should be followed within each company and by all employees of the Group.

The Charter provides that any Group employee can make use of the whistleblower procedure to report issues to his manager or a dedicated ethics officer within his unit or company, in complete confidentiality and without any risk. As a last resort, employees can also refer concerns to the Group Ethics and Compliance Commission (hereinafter, the "Commission"), which was created in 2013.

The Commission's missions are:

- to ensure that any reported or observed conduct or attitude that is contrary to the provisions of the Charter is examined and handled appropriately, at all times in compliance with Group rules and applicable national laws;
- to advise and assist Group Management on any issues relating to the application and implementation of the Charter; and
- to promote, update and expand the Charter.

The Commission is composed of:

- a chairman appointed by EDF's Chairman and Chief Executive Officer for a non-renewable five-year term;
- five voting members who are Group managers appointed by EDF's General Secretary on the basis of proposals by the Chairman for a three-year term, renewable once only;
- three advisory members who do not vote (the Group Senior Executive Vice President, Human Resources, the Group Senior Executive Vice President, Risk Management and the Legal Counsel.)

The principles of gender equality and geographic diversity (France/other countries) are respected when appointing members of the Commission with voting rights.

Working with the Commission Chairman, the Secretary (EDF's Ethics and Compliance Officer) is responsible for ensuring reported issues are examined.

The Commission Chairman reports on its activities to the Group Management Committee and the Board of Directors' Ethics Committee every year.

At its first meeting on 30 October 2013, the Commission adopted its operating rules and issued two opinions, the first on the legal nature of recommendations contained in the Charter, and the second on employees' freedom of expression with regard to the Charter.

## 16.5 Stock Exchange Ethics Code

In 2006, the EDF group adopted a set of principles and rules applicable to trades in shares in EDF or listed EDF group subsidiaries. These rules were combined into an Ethics Code, updated in March 2011, in order to take account of the AMF recommendations of November 2010 and presented to EDF's Executive Committee on 4 April 2011. At the same time as this Charter was distributed, awareness campaigns on stock exchange rules were launched for Group employees, specifically regarding precautions and obligations relating to the holding of inside information and the black-out periods during which permanent insiders and Group staff with precise

knowledge of the Company's financial statements prior to publication are required to abstain from trading Company securities.

The Code also notes the obligations imposed on executives to declare to the AMF and to the Company trades in EDF securities (see section 17.5 ("Shareholding by directors and trading of EDF securities by corporate officers and executives")).

## 16.6 Report prepared by the Chairman of the Board of Directors in accordance with Article L. 225-37 of the French Commercial Code

In accordance with the provisions of Article L. 225-37 of the French Commercial Code, the Chairman of the Board of Directors must describe, in a report attached to the management report, the members, conditions of preparation and organisation of the work of the Board, as well as the internal control and risk management procedures implemented by the Company. This report is provided in Appendix A of this reference document.

The Auditor's report drawn up in accordance with the final paragraph of Article L. 225-235 of the French Commercial Code on the report prepared by the Chairman of the Board of Directors of EDF, regarding the internal control procedures for the preparation and treatment of accounting and financial information, is provided in Appendix B.





# 17 Employees – Human Resources

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The social and human dimensions are pillars of the EDF group's strategy, as are its financial, economic and industrial ambitions. This strategic support is provided via an ambitious human project – "Vision RH 2020" (2020 HR Vision) – whose implementation has begun and will continue until 2020. This project embodies the EDF group's employer model and provides a frame of reference for all the Group's companies. It is based around the four following key points:

- men and women playing a key role in the Group's performance;
- being a flagship employer in terms of employee engagement and social performance;
- having both a strong local presence and an international profile;
- managing change smoothly and accountably.

The employer model that the EDF group has chosen to embody aspires to place individuals at the heart of the industrial project and re-launch the social elevator through a dynamic hiring and training policy, build a group that is based, in France and worldwide, on a solid existing social basis, set a benchmark in terms of social innovation by encouraging a participative approach and making it easier to exchange good practices, genuine vectors for commitment by everyone to sustainable performance. In support of this employer model, HR is coordinated and managed at Group level particularly via the Group HR Steering Committee.

Accordingly, the EDF group wants to confirm its position as a flagship employer, in key areas such as hiring, training, health and safety or employee social welfare, and further its exemplary record in terms of diversity and the fight against discrimination, by increasing overall awareness and training managers.

This model is implemented via three commitments made in terms of employers' responsibility out of the eleven commitments to be respected by Group companies as responsible companies:

- maintaining the professional excellence and performance of its teams through training and promoting diversity;
- resolutely reducing occupational accidents amongst its employees and sub-contractors;
- not tolerating any violation of human rights, fraud or corruption, for all EDF companies and for their suppliers.

These commitments are systematically linked to specific, measurable objectives developed below, in the different fields in question: employment and skill development, health and safety, diversity and respect of human rights.

## 17.1 Employment and Skill development

### 17.1.1 Group workforce

The EDF group's consolidated workforce totalled 158,467 staff on 31 December 2013, including 109,754 for EDF and ERDF<sup>1</sup> and 48,713 for the Group's other subsidiaries and shareholdings, which are included in the consolidation scope.

The table, below, shows the breakdown of Group employees in France (Group share for the subsidiaries in France) during the last three fiscal years:

	2013	2012	2011
<b>EDF – deregulated sector:</b>	<b>71,088</b>	<b>69,122</b>	<b>67,184</b>
Generation and Engineering	40,268	38,417	36,569
Retail	11,731	11,685	11,633
Corporate	11,475	11,559	11,624
Island Energy Systems	3,086	3,177	3,183
CDI (open ended contract) and CDD (temporary contract) not employed under EGI status	4,528	4,284	4,175
<b>ERDF – regulated sector</b>	<b>38,666</b>	<b>38,211</b>	<b>36,770</b>
<b>Other subsidiaries in France:</b>	<b>19,738</b>	<b>21,995</b>	<b>23,312</b>
Électricité de Strasbourg, Tiru, EDF EN, SOCODEI, CHAM, EDF PEI, EDF Optimal Solutions (in 2012 and 2013)	6,682	6,031	5,331
Dalkia International	13,056	15,964	17,981
<b>TOTAL FRANCE</b>	<b>129,492</b>	<b>129,328</b>	<b>127,266</b>

### Group workforce in France

For the Group's two principal companies in France (EDF and ERDF), overall workforces stabilised in 2010, following a down-turn since the start of the '90s. From 2011, workforces began to grow significantly and this trend gathered pace in 2012. This increase in staff numbers was supported by a high level of hiring, far exceeding the number of retirements; with more than 6,000 recruitments and 3,500 retirements in 2013.

1. The workforces of EDF and ERDF include employees not employed under EGI status by EDF and ERDF. ERDF's workforces include, in addition to its own employees, those whose services are shared, including 100% electricity employees (34,859), and a proportion of employees assigned to combined gas and electricity activities (3,807), divided between electricity/gas on an approx. 76/24 basis.

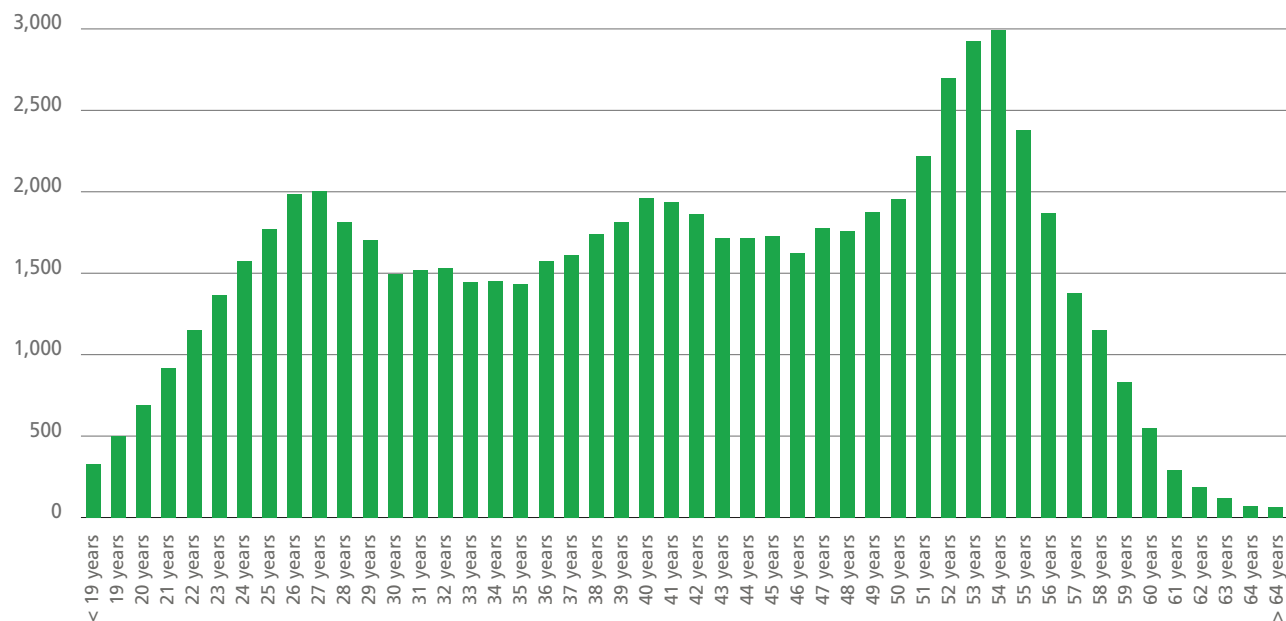
## International Group workforces (consolidated subsidiaries)

The table, below, shows the breakdown of the workforces (Group share) in the international subsidiaries and shareholdings included in the consolidation scope during the last three fiscal years:

	2013	2012	2011
EDF Energy (United Kingdom)	15,162	15,153	15,536
EDF Trading (United Kingdom)	1,028	1,025	904
Edison (Italy) <sup>(1)</sup>	3,240	3,248	1,843
Other foreign subsidiaries:	9,545	10,986	10,619
Eastern Europe	4,699	6,015	5,606
Western Europe and Mediterranean-Africa	3,350	3,450	3,518
Asia Pacific	74	75	75
Americas	1,422	1,446	1,420
<b>INTERNATIONAL TOTAL</b>	<b>28,975</b>	<b>30,412</b>	<b>28,902</b>

(1) Edison has been fully consolidated since 1 June 2012.

The graph, below, presents EDF's age structure on 31 December 2013:



### 17.1.2 Forward-looking management of jobs and enhanced skills

EDF's internal and external environment has been marked for several years by a wide range of significant changes: demographic, regulatory, technological, societal, etc. The company therefore wanted to equip itself with a more agile system to anticipate and develop its needs in terms of employment and skills in order to meet its strategic challenges, which led it, in particular, to sign in 2013 an agreement on forward-looking management of jobs and skills for the period 2013-2015.

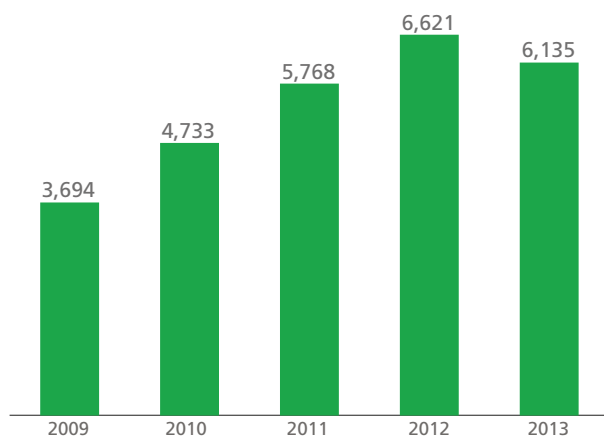
Directly in line with this agreement on forward-looking management of jobs and skills, and for the first time in 2013, the occupational prospects for the next three years in the generation and engineering fields, as well as distribution in island areas, were presented to the Central Works Council, accordingly illustrating the company's commitment to extending social dialogue on medium-term job prospects.

Furthermore, in 2013 EDF launched the "Horizon Compétences" project with the aim of harmonising and optimising the company's existing forward-looking management of jobs and skills procedures.

### 17.1.3 Dynamic recruitment policy confirmed in 2013 in France

In order to face up to the current and future challenges facing the EDF Group in France in terms of employment, it has implemented a dynamic recruitment policy over a number of years. EDF and ERDF have recruited nearly 27,000 employees in 5 years.

## EDF and ERDF recruitments since 2009



These challenges are:

- the resumption of industrial investments in all generation and engineering sectors (see section 6.6.2.2.1 ("Nuclear safety")):
  - existing nuclear facilities with the preparation of the Major Refit programme and the objective of extending the operating lives of power stations,
  - new nuclear facilities with progress on projects relating to the preparation of the renovation of the fleet,
  - conventional fossil-fired power with the set-up of new means of generation and the closure of certain sites;
- retirements that have remained at a high level (3.4% of the workforce in 2013), including a high proportion of maintenance and operating staff in generation, engineering and distribution activities;
- the lines of business are evolving, together with the technological, economic and environmental challenges in the energy sector, and with the EDF group's growth ambitions in France and abroad.

These challenges require adaptation and anticipation of these changes, particularly via the renewal of the workforce in order to make up for the expected loss in skills (retirements), by increasing them and by acquiring new skills.

EDF and ERDF recruited more than 6,000 staff in 2013. This dynamic policy, introduced in 2010, will continue in 2014. From 2015, skills renewal needs should stabilise. The level of hiring in 2013 will have enabled the creation of more than 2,500 net jobs.

Staff were hired in the Group's technical lines of business; most were in the fields of electrical engineering, generation and distribution, as well as in sales and research and development. Undergraduates represented 45% of recruitments; the remainder were equally shared between Master's graduates and secondary-school leavers. Newly-hired employees are above all young graduates (approx. 65% of overall volume), but EDF also recruits more experienced staff.

Key areas for recruitment include: operating staff and technicians, as well as electrical, mechanical, boiler & plumbing, automation, maintenance technicians/engineers and customer support staff. More than elsewhere in the Group, the generation and engineering lines run a risk of losing key skills given the high levels of retirements. This risk has been flagged for several years and social dialogue on this issue is ongoing. The level of hiring allows a replacement rate of at least 140% over the period from 2013 to 2015, meeting the terms of the EDF Generation & Engineering Division's recent social dialogue agreement. Against this backdrop, the transfer of know-how between generations is a key issue. It must make it possible to maintain and improve the level of skills in the long-term.

The nuclear field accordingly remains the principal recruiter with more than 2,000 staff hired in 2013. Conventional fossil-fired power took on a hundred or so staff and hydraulics more than 300, without forgetting industrial generation support roles (324). These figures should be compared with retirements which have remained high for several years: 1,329 experienced staff left the Generation & Engineering Division in 2013.

In order to effectively organise the transfer of skills between these generations, action plans were set up, such as MANIOC and RACINES in engineering. Based on intergenerational solidarity, these programmes have several objectives: offering employees tools to share and transfer skills, as well as promoting both each generation's specific skills and everybody's experience.

## The EDF Group: an attractive employer

Against this backdrop of high recruitment, EDF's attractiveness remains a key advantage. Accordingly, the Group continued in 2013 its work to promote the Group and its lines of business and launched new schemes in order to consolidate its employer brand both in France and abroad.

EDF attracts young graduates, who account for 70% of its management hirings. This year, the Group is positioned at the head of the rankings of future engineers, reaching 1<sup>st</sup> place in the TNS Sofrès table, 5th place for Universum (+1 place on 2012) and 4<sup>th</sup> place for Trendence. EDF also won a special award for the highest progress in terms of business school graduates. It was also recognised as the leading employer in the energy industry at the 2012 Randstad Awards.

The schemes organised included EDF reinforcing its dynamic web presence based around the "www.edfrecrute.com" recruitment site with nearly 4 million visits (+25% on 2012) and 600,000 applications submitted on line in 2013 (+20% on 2012), as well as its presence on social networks. This employer site was ranked in 5th position in the rankings published by PotentialPark. Having made all its job offers accessible on Twitter and on the EDF Facebook page, the Group increased its visibility on smartphones, and a dedicated LinkedIn page was created on which 25 highly-targeted job offers are published at all times. EDF also decided in 2013 to widen its range of communication media and to help Pôle Emploi with its public service role and its objective to improve transparency on the job market.

EDF also does extensive work with target schools and universities and develops its partnerships mainly with engineering schools, particularly via the EDF Graduates network. EDF also works to raise awareness of its lines of business and make them attractive to secondary-school pupils and students, and particularly women in order to help them get to know the Group's lines of business better, particularly in the technical field. Accordingly, the company works with associations such as "Elles Bougent", which promotes technical and scientific careers for female secondary-school pupils and students or "WIN France" with which it organises the Fem'Energia Prize, which promotes and recognises the careers of young female students or women involved in the nuclear industry each year.

In 2013, the EDF group attended 43 fairs and shows in France as well as several international fairs (Brussels, London, Milan and Madrid). EDF organised its 7th ENERGY DAY, with 400 staff welcoming more than 2,000 students looking for placements or jobs.

## Organised and enhanced integration of new employees

Against a backdrop of high skill renewal on a competitive job market, integrating and ensuring the loyalty of new recruits is essential for the EDF Group. A common integration policy was therefore introduced at Group level by putting in place improved shared tools, for management staff with 3-4 years' seniority and two Group integration days focusing on strategic issues: 2days2gether. In France, the integration programme is organised over 4 years: integration into the unit, then at business line level (particularly

via the Functional Academies), followed by regional and cross-disciplinary integration to encourage openness to other professional environments and finally internationally for management staff.

### 17.1.4 Training and skill development: Group priorities

The Group's objectives in terms of training are focused in 3 areas:

- forecasting and managing changes to the EDF Group's lines of business;
- making training a vector for Group performance;
- preparing and managing the progress of employees in their current and future duties, and promoting their mobility and ability to take on a new job.

Accordingly, the EDF Group invests significantly in the development of its staff's skills: in 2013, 85% of Group employees attended at least one training course in the year, lasting an average of 64 hours. Access for all, all career long, to training courses is a commitment the Group makes as a responsible company with an objective of 75% of employees attending at least one training course every year.

In 2013, the Group allocated a significant budget of €630 million to training its employees. To implement its training programmes, EDF has a network of 35 skills campuses or training sites and nearly 1,300 instructors and course planners in France.

In addition to physical training sites, EDF also invests in distance-learning schemes: e-learning, serious games<sup>1</sup>, virtual simulators.

The high need for skill renewal leads EDF to take action in several areas:

- being present from initial training, via partnerships with *grandes écoles* and universities, both in France and abroad (creation of a Nuclear Energy Masters in English, 12 university research chairs);
- guaranteeing the integration and assisting new staff with settling in with appropriate training for the Group's specific lines of business (as it is the case for management of nuclear facilities, which requires 2 to 3 years of training);
- providing continuous training courses all career long to perfect, improve or extend their skills portfolios (changes in the line of business, proficiency in using new tools, etc.);
- developing skill transfer policies, particularly from more experienced staff who are set to retire to the youngest employees.

In France, the Training Challenge agreement, unanimously signed in 2010 with the union organisations represented at EDF, ERDF and RTE has contributed since its signing to bringing fresh impetus to the Group's training policy.

In order to forecast and manage changes to lines of business and make training a vector for performance, the EDF group has created 14 technical and multi-disciplinary functional academies and a Group Management University ("GMU") which embody the EDF group's ambition in terms of development, renewal and creation of skills.

Each functional academy provides professional training courses meeting insofar as possible the business lines' current and future needs.

The GMU, created in 2010, is intended to train 12,000 Group managers. It is one of the 17 major global group corporate universities with international CLIP (Corporate Learning Improvement Process) accreditation, which places it among the best corporate universities.

The GMU contributes to the EDF Group's integration and internationalisation. It helps to develop the Group's managers' skills in terms of leadership, management, change management and strategic thinking using proven training courses, and modern teaching tools (e-learning, coaching, mentoring). Today, the GMU provides professional training for managers in practically all the geographical areas where the Group operates: Asia-Pacific, UK, Italy, France and Central Europe.

In 2013, the GMU extended access to the Group's e-learning platform with 14,500 French, Hungarian, Italian, Belgian, Polish, Chinese, etc. employees earning qualifications (including the 12,000 Group managers). In 2013, this platform helped to provide more than 9,000 hours of training (i.e. an increase of more than 230% on 2012). In addition to e-learning, the GMU proposes 40 courses and trained 1,530 managers in 2013. In accordance with the objectives targeted by the Group, new training schemes were developed with Asia Pacific and Edison. The GMU also proposes programmes aimed at Group talent and executives. In 2013, at least 140 managers and 360 talents went on these training courses.

### Promotional training courses re-launch the "social elevator" at all levels

These genuine performance-boosting tools, which offer an original way to fast-track careers, were created in order to help employees to develop, progressing from operator, to supervisor, then to manager. They promote the development of career paths and increase EDF's attractiveness.

More than 40% of the EDF Group's 35,000 current managers in France (EDF, ERDF) became managers over the course of their careers. The Training Challenge agreement helps to boost training-based internal promotions via several schemes:

- employee assistance making it easier for them to settle into a higher-category job (*Pass cadre* and *Pass maîtrise*). These training courses have been attended by more than 1,700 Group employees since 2010;
- promotion of long-term qualifying training schemes (2-4 years):
  - schemes (*Cap Initiative Cadre*, *Cap Initiative Maîtrise*) promoting equal opportunities and diversity within the Group,
  - a training scheme (*Cap Exécution Cadre*) with the Institut Vaucanson and the Conservatoire National des Arts et Métiers (CNAM), currently in the experimental phase and intended to help employees in operating positions to progress to positions with management responsibilities.

Since 2011, these "career boost" training schemes have overall assisted more than 400 employees.

1. Software that combines a "serious" aim – education, information, training – with an element of fun.

## Group employee training campuses

The Group has a campus network featuring 35 sites, including one in the UK:

- three corporate campuses open to all the Group's divisions and companies, based in Les Mureaux, Chatou and Lyon;
- functional campuses dedicated to training for electrical generation and distribution activities;
- a campus currently being set up in the UK, which shall open in 2014 on the Cannington site, near Bristol, close to the future EPR reactor at Hinkley Point.

The current Les Mureaux Campus shall be transferred in 2016 to the new EDF site in Saclay. With an investment of more than €380 million, this site shall combine in one location the future EDF Group Campus and its new EDF Lab Research and Development site. The site shall be a key integration and exchange tool for the Group's 160,000 employees, from apprentices to managers, from all business lines and of all nationalities, helping to develop a common culture. It shall have a full-time staff of nearly 1,500 researchers and 20,000 trainees.

Its proximity to the new EDF R&D centre shall promote synergies between innovation and skills and between research and training and shall benefit from the latest technological innovations in terms of teaching. It shall accordingly be able to offer resource-heavy technical courses using equipment specific to EDF's lines of business:

- a next-generation power plant management simulator and on-site training for generation courses;
- operating and management simulators and above- and underground teaching grids for electrical distribution courses.

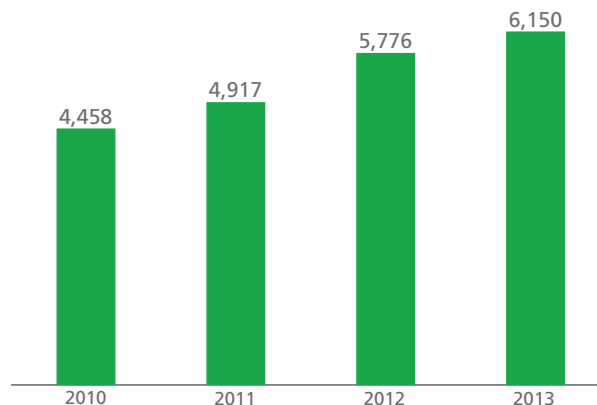
## Work-study programmes: a societal commitment and recruitment vector

EDF has a long-term commitment to work-study programmes. In the early 90s, EDF set up an Apprentice Training Centre to boost learning within the company.

There are two major reasons for the development of work-study programmes within the Group:

- as there is a need for mass replacement of employees set to retire by 2020, work-study programmes are an essential vector for recruitment for the Group in France, driving excellence and promoting the transfer of skills and diversity of experience and origins;
- work-study programmes are also a means for the Group to affirm, on top of its recruitment needs, its strong societal commitment to the qualification and occupational integration of young or unemployed people (for further details see section 17.4.2 ("Contributing to the development of territories via occupational integration" – "The Group's commitment to occupational integration"))).

## Change in number of work-study trainees in EDF and ERDF since 2010



In France, the objectives EDF set itself in the 2010 Training Challenge agreement have overall been achieved:

- EDF and ERDF now have more than 6,000 work-study trainees under contract (i.e. 5.9% of the workforce, up by more than 35% on the last three years) and more than 6,800 worldwide;
- a significant proportion of open-ended contract hirings are reserved for work-study trainees (28% in the supervisory and operating categories and 11% for the management category);
- the Group strives to propose work-study offers at all levels of qualification, from vocational training certificates to postgraduate degrees (for further details see section 17.4.2 ("Contributing to the development of territories via occupational integration" – The Group's commitment to occupational integration"))).

Work-study trainees are taken on by all the Group's lines of business. Most of them are trained in generation, distribution and customer relations activities.

More than 5,000 qualified and trained tutors, in accordance with the "Group tutoring guidelines" are tasked with assisting work-study trainees, whose welcoming and integration are also covered by specific measures, particularly regarding pay, transport or housing allowances, which are more generous than the minimum legal requirements.

The EDF Group pays great attention to the quality of the courses attended by its work-study trainees. "Skills/diploma" guidelines are drawn up with schools, in order to define, for the main diplomas prepared, the professional activities that must be proposed within the Group for work-study trainees to successfully complete their training. It also has an Apprentice Training Centre specific to its lines of business. Based in the Ile-de-France region, it makes it possible to both directly manage the quality of the training courses attended by nearly 200 work-study trainees, and to develop a close connection with the world of teaching. Work-study programmes must help to make occupational integration easier, and the Group ensures this is the case by monitoring its work-study trainees after the end of their contract (see section 17.4.2 ("Contributing to the development of territories via occupational integration" – The Group's commitment to occupational integration"))).



## 17.1.5 Career management

### Management of talent and managers

The EDF Group has developed a flagship talent-spotting system. A Group policy was adopted in 2011 and has been deployed throughout the entire Group.

Furthermore, the Management of Managers' career paths is organised with Group-level supervision. People reviews by line of business and by area are organised in order to ensure the career progress of executives and their appointment to appropriate positions. Supervisory bodies were created such as the Managers' Committee which features the members of the Executive Committee and to which the main nominations, compensation principles and development programmes are submitted.

### Employee career path management

The annual interviews held with 73%<sup>1</sup> of Group employees in 2013 enabled employees to discuss their career plans and training requirements with their managers.

In addition, for Group employees, the company continues its measures focusing on two main objectives:

- facilitating access to information on lines of business and career paths;
- providing the resources to assist employees with their plans.

In France, these objectives are achieved via several measures: the "Mon parcours professionnel" (My career path) site, to which new tools were added in 2013, career progress interviews, customised assistance with a career plan via "career path" advisors. A community, launched in 2013, is dedicated to them and is open to international Group companies (EDISON, EDF Polska, EDF Energy, EDF Luminus).

### Age management

In France, extended working life is a genuine challenge for the EDF group, particularly in terms of motivating and ensuring the loyalty of older employees. The issue arises: firstly, the mass arrival of young people, and secondly employees increasingly planning on working beyond the age of

60, and who today still spend their whole career at EDF, has led us to put in place age management measures:

- reactivation of new employee welcoming policies and new employee integration schemes;
- work on the integration of apprentices and tutoring;
- work on career paths and forward-looking management of jobs and skills;
- introduction of mid-career interviews including training of human resources representatives and employee awareness campaigns;
- work on populations via successive action plans.

Accordingly, in 2013 two major complementary and coordinated schemes were implemented.

Firstly, the "age management" project that was launched in 2012 with all EDF's lines of business. In the long term, it aims to change cultural representations and both human resources and managerial practices based on the basic principles of the Diversity policy.

Several measures were taken in 2013:

- an employment demographics analysis policy and tools inspired by the "Tempo" (*Travail EMPloi POPulation* – i.e., work, employment, population) scheme created by the French National Agency for the Improvement of Working Conditions ("ANACT");
- training or apprenticeship schemes adapted to all ages and promoting the transfer of knowledge and skills between generations (tutoring, buddy system, knowledge or practice communities, reverse mentoring, etc.);
- awareness campaigns such as an "age management" serious game with CNAM and other companies. This serious game is part of a series focusing on Corporate Social Responsibility on themes such as disability, equal access to employment and cultural diversity;
- campaigns helping to make the connection between the extended working life and protecting the health of employees all career long.

Secondly, a "2013-2015 Generation Contract" action plan was drawn up in conjunction with 88 EDF group companies in France. Via this ambitious action plan, the Group in France has committed by 2015 to recruiting 10,000 young people on open-ended contracts aged 28 or less in 3 years and 300 employees aged over 50, and to continue to employ 13,000 employees aged 55 and over.

## 17.2 Protecting health and safety

### 17.2.1 Health and safety conditions at work

The Group operates in a high-technology, high-risk sector. The health and safety of its employees and its external service providers is therefore a major imperative for the company. It is essential to have very high standards in terms of health and safety as a company that is responsible both to its employees and those of its service providers.

Since 2008, six common health and safety indicators have been shared by all of the Group's companies. The results are examined in a France Group Committee report.

Group-wide, a review of health and safety results is submitted on an annual basis to the EDF Executive Committee for analysis and discussion.

### In 2013, the Group took the next step

The Chairman & CEO decided at the end of 2013 to introduce a Group health and safety policy. The aim of this policy is to enable teams to do their work under the best possible working conditions and in the best possible working environment, with the target of zero accidents and zero impact on health.

This policy is based on 4 principles: accountability, stakeholder engagement, continuous improvement and sharing.

1. Does not include Dalkia International's scope.

The management of the policy's implementation shall be based on regular tracking and monitoring of results:

- quantified objectives regarding accidents and absenteeism (see below);
- each company shall be liable for the implementation, as its level, of this policy and a monitoring scheme shall be organised at Group level;
- an annual Group review shall be submitted to the Executive Committee which shall also examine the quarterly results<sup>1</sup> relating to the number of deadly accidents, the rate of occurrence of occupational accidents, the number of employees declaring an occupational disease, the number of days of absence for health reasons and employees' view of health and safety, working conditions and well-being via the in-house "My EDF" commitment survey;
- managers shall be made accountable for these results via a social performance indicator taken into account in determining their variable pay.

## Halving the rate of occurrence of occupational accidents by 2017

Via this Group policy, EDF has committed to halving the rate of occurrence of occupational accidents involving its employees by 2017 (CR commitment).

10 years of prevention and training efforts had already made it possible to significantly reduce the number of accidents in the work place that result in absence from work at both EDF and the Group's companies. The Group has recorded a progressive improvement in the occurrence rate (number of accidents at work having resulted in more than one day of absence from work, recorded over the current year and per million hours worked), which fell from 4.5 in 2010 to 3.1 in 2013.

(Group Data)	2013	2012	2011	2010
Group occurrence rate	3.1	3.8	3.9	4.5

Regarding the gravity ratio (number of days absence from work following accidents at work per thousands of hours worked<sup>1</sup>), EDF recorded a rate of 0.16 in 2013, compared with 0.16 in 2012, 0.14 in 2011 and 0.16 in 2010.

(Group Data)	2013	2012
Group gravity ratio	0.16	0.16

The development of a Group-wide system to share the causes of the risk of high falls, electrical risk and road risk, as well as the issuing of frequent accident prevention tools, partially contributed to improving results.

From 2014, any deadly accidents must be immediately reported to the Chairman & CEO and an in-depth analysis submitted systematically to the Executive Committee.

A regular fall in deadly accidents has been observed since 2011:

(Group Data)	2013	2012	2011	2010
Number of deadly accidents <sup>(1)</sup>	13	21	27	26

(1) The number of deadly accidents includes deadly accidents involving staff and sub-contractors occurring not only at but also on the way to/from work.

The adoption, in 2014, of a set of "life-saving" rules, in all Group companies and lines of business, will be a significant step to reinforce preventive measures in the field.

To continue to develop a "safety culture", the following measures were taken or continued in 2013: release to managers of a e-learning training tool designed by INRS, viewing of feedback videos following serious accidents (UK, Poland), creation of dedicated 2.0 communities (e.g. doctors community, etc.), inclusion of a "safety" message at the start of meetings. Finally, EDF, by creating its "Group Health and Safety Week" strengthened its support for the campaign developed by the European Agency for Health and Safety at Work (OSHA Week). Accordingly in 2013, the theme of "development of cooperation to reinforce prevention" was addressed by more than 40,000 employees.

## Group health and safety policy aims to improve results in terms of absenteeism for health reasons

The Group set itself the objective of reducing to 8 the number of days of absence for health reasons per year and per employee by the end of 2015. The targeted areas for improvement include: preventing stress and musculoskeletal disorders, which shall be addressed Group-wide in 2014 and 2015.

(Group Data)	2013	2012
Number of days of absence for health reasons per Group employee and per year <sup>(1)</sup>	8.8	9

(1) The number of days of absence for health reasons for the Group per Group employee and per year includes diseases and long-term diseases.

1. List of indicators (EDIFIS) and objectives in appendix.

2. The days of leave are linked to the year they are taken even if the accident occurred the previous year.

## Occupational diseases

The annual data published by the Group's French companies (particularly EDF and ERDF) gives as the main causes of occupational diseases: asbestos (pleurisy, pleural plaques, primary cancer of the lung), movements and positions (shoulder condition, tendinitis, carpal canal), conditions caused by ionising radiation, silica (pneumonconiosis) and noise hazards (deafness).

A Group-specific indicator will enable monitoring from 2014 of the number of employees affected by a disease of this type and to define new preventive measures.

### Asbestos

In the past, the EDF group has used products, materials and facilities containing asbestos. In accordance with current regulations in France, the replacement of materials containing asbestos in EDF establishments and facilities began in the late 1980s, with all materials containing asbestos being treated, and EDF set up reporting measures and procedures to protect employees and third parties working at the company.

In July 1998, EDF signed an agreement (revised in June 2002) with all trade union federations, for the prevention of and compensation for exposure to asbestos. Following this agreement, EDF introduced an early retirement plan for workers who are duly recognised as suffering from an occupational disease associated with asbestos, established voluntary financial assistance and a pension supplement both financed by EDF and provided social assistance to sick workers and their families with information and support during the compensation process. See section 20.5 ("Legal proceedings and arbitration"), below, for a description of current procedures.

### Ionising radiation

Mobilisation of on-site actors has achieved ongoing improvement in the protection of personnel against ionising radiation. In France, the average annual collective dose of all workers, employees of both EDF and outside companies working in the power plants, was halved in less than 10 years. In the United Kingdom it was reduced mainly through optimised governance of maintenance and repair work. In both France and the United Kingdom, no employee or contractor exceeded the regulatory threshold (individual dose over a rolling 12-month period) in 2013.

In France, in 2013, the average collective dose was 0.79 person-sieverts per reactor (0.67 person-sieverts per reactor in 2012). This increase is mainly due to the carrying out of new maintenance activities, extended stoppages and incidents in certain areas.

In the UK, in 2013, the average collective dose was 0.386 person-sieverts for the PWR reactor (it was 0.037 in 2012 and 0.54 in 2011) and 0.034 person-sieverts per reactor for the AGR (0.063 in 2012 and 0.08 in 2011).

The current level is comparable to the average figures recorded by pressurized-water reactor operators. EDF is proactively implementing a ALARA (As Low as Reasonably Achievable) policy to limit the collective dose in view of the volume of work induced by the industrial park project in operation in the coming years.

In coming years, given the levels already reached, efforts should focus on plants whose dosage results need to be brought in line with the best.

## 17.2.2 Social dialogue and health at work

There is social dialogue on health at work at 3 levels:

- at European level, the preventive measures are presented on an annual basis to the Health and Safety Commission of the European Works Council. This Committee was consulted in December 2013 about the Group Health & Safety policy;
- at Group France level, in 2013, major health & safety issues such as health at work policy and key health at work figures were presented to the France Group Committee, which features representatives of the staff of the main French companies;
- at EDF level, a collective bargaining agreement on social dialogue on health at work signed in 2010 led to the creation in 2011 of a National Health at Work Group.

This multidisciplinary group created four workgroups respectively devoted to reforming occupational medicine and its impact on the organisation of health services at work, the health of service providers, addictive practices and the link between health and longer working life. The work of these groups will lead to the issuing of recommendations to the company's departments.

The secretaries of the Health, Safety and Working Conditions Committee now meet on an annual basis in order to help make it easier to discuss the working of these bodies, training requirements, legal matters and topical issues (unique document, reform of occupational medicine, etc.). Since 2011, one meeting per year of the Central Works Council (CWC) has been exclusively devoted to the issue of health and safety, putting into practice the multi-disciplinary approach to health issues.

Internationally, social dialogue on issues of health and safety at work either covers the direct implementation of legislation specific to each country, or an agreement between social partners.

In 2013, EDF Energy and union organisations reached agreement to work jointly on the implementation of the employee representative safety charter by developing and coordinating a set of key indicators. Furthermore, joint work was carried out in order to put in place a strategic plan on health and well-being at work.

In November 2013, EDF Energy and the GMB and Unite unions reached a major agreement for the employees set to work on the construction of the future Hinkley Point nuclear power plant. These agreements contribute to EDF Energy's commitment to work with union organisations and contractors in order to create a favourable climate for an industry simultaneously concerned with safety, quality and productivity.

At Edison, dialogue between employees and management on health and safety issues is continuous: several meetings are scheduled over the year involving a large number of employees. This dialogue also resulted in a specific agreement on health and safety, signed by the union organisations on 20 May 2013.

At Demasz, health and safety issues are discussed regularly by the joint health and safety committee. Furthermore, management regularly consults employees on the implementation of its Health action plan.

## 17.2.3 Organisation and quality of life in the workplace

### Quality of life in the workplace

Quality of Life in the Workplace (QLW) covers the organisation of work, relations at work, professional development, working environments and work-life balance.

In order to go to the next level in taking account of all these vectors within the Group, a National Observatory of quality of life in the workplace was put in place, combining managers, union organisations, doctors and external experts. It monitors working conditions, commissions studies and makes recommendations such as, for example, the introduction of a set of combined health/work indicators, promoting working environments favouring professional development at all ages or a method to manage change within the company.

At Group-level, measures taken to improve the quality of life in the workplace and health have included the introduction of feedback sessions, data comparison, studies and observation of practices at business lines or companies (Health and Safety Group community, learning expeditions in France, the UK, Poland and the Netherlands). Three studies conducted with the Group's main companies made it possible to cast light on changes at work: these focused on (a) links between organisation and absenteeism for health reasons, (b) work-life balance and its impact on performance and (c) use of collaborative tools. An Innovation for better work group reports on and shares good practices in terms of quality of life in the workplace.

### Psychosocial risks

Given the transformation of work and people's changing expectations, work has been done with social partners, resulting in the introduction in France of measures or schemes to prevent or deal with situations of ill-being at work:

- appointment of ethics officers, and set-up of a national toll-free number accessible to all employees in case of serious difficulties at work;
- organisation of full-time support from doctors specialised in management in case of traumatic events;
- in accordance with the "Preventing psychosocial risks and improving quality of life at work" agreement, 70 multi-disciplinary groups (MDG) have been created.

A positive initial assessment of the MDGs shows that they renew the conditions for social dialogue, that they make it possible to examine individual

and collective cases, that they play in certain cases a role in managing change and accordingly make it possible to better join the dots between health issues and economic performance.

In 2013, EDF Energy added a new dimension based on well-being to its health & safety policy that takes account of the mental aspects of health. Edison, with its "Edison per te" programme has offered its employees comprehensive medicals on a voluntary basis since 2008.

In Poland, the management regularly consults employees in connection with stress prevention.

### Organisation and working hours

Since 1 October 1999, the duration of the working week in France has been 35 hours, with services available for a minimum of five days.

In addition, in order to ensure the continuous operation of EDF and ERDF's facilities or to re-establish electricity supply in the shortest time possible in the event of a technical failure, a portion of EDF's personnel provides a continuous service 365 days-a-year and another portion is on call outside of regular working hours.

In 2013, EDF initiated discussions on the organisation of working time to meet the needs of its major projects and industrial challenges over the coming years. Indeed, the lack of flexibility in the organisation of working time to implement EDF's major industrial projects, the impact of this working time on the Group's competitiveness, the findings of the French National Audit Office on working time and pay of all employees and finally the measures taken by labour inspectors, mainly on nuclear generation centres, require a comprehensive approach to be taken on this issue in order to have sufficient room for manoeuvre in the organisation of activities to tackle medium-term industrial challenges.

There was an initial assessment of the situation in 2013 and measures will accordingly be introduced in 2014, including a management staff working time negotiation calendar.

## 17.3 Compensation and social welfare

Total compensation is a key component in recognising the contribution of every staff member to the Group's performance. It contributes to employee engagement, increases the loyalty of talent and adds to the Group's attractiveness.

Accordingly, the Group is committed to offering its employees fair and competitive compensation, while paying great attention to the quality and level of social welfare it proposes, particularly in terms of cover against the major risks of life. The Group accordingly formally introduced a total compensation and fringe benefits policy in 2013. It covers all employees of the main companies controlled by the Group.

### 17.3.1 A fair and competitive total compensation policy

The total compensation policy is guided by three principles:

- competitiveness with the external market;
- consistency and internal equity;
- financial sustainability.

It aims to recognise:

- the level of responsibility and characteristics of the job done within the organisation;
- the professionalism of the employee and the skills used to obtain results;
- individual and/or collective performance, with a balance set locally.

It is based on fixed compensation and individual and/or collective variable compensation which serves to recognise the achievement of objectives, linked to the companies' economic results. The priority is to establish a direct and visible link between the employee's contribution and the related compensation.

The Group's companies guarantee the meeting of the minimum legal or professional requirements in each country and the absence of discrimination. They report to employees on their rules and systems of compensation with the highest possible level of transparency in accordance with the aforementioned principles. Each EDF group employee must have visibility on their total compensation. Accordingly, in France, EDF and ERDF have offered each of their employees a full individual review of their annual compensation and its components. They are also issued an educational information booklet on the employee savings plan. The manager, along with the Human Resources department, is a key contact, particularly for the annual reviews.

## A few pointers on compensation in 2013

In addition to organic growth due to the change in staff numbers and pay rises, the progress in personnel expenses is accounted for by variations in scope and particularly the takeover of Edison in 2012 and the reclassing of Dalkia International in 2013. For further details on total gross compensation, see note 10.1 of the appendix to the consolidated financial statements. For further details on Dalkia International's reclassing, see 9.2.2.1.2 of the 2013 Management Report.

On 1 January 2014, the lowest level of starting salary at EDF was nearly 19% higher than the French standard minimum wage.

## Variable compensation plans to boost performance

Within the Group, most employees have individual or collective performance-related variable compensation.

At EDF, all management staff are eligible for individual performance-related compensation. With an average bonus of 8% the annual salary per manager, the company is on a par with other major French companies. Furthermore, EDF decided to introduce an individual variable compensation scheme for all its non-management employees, which represented in 2013 approx. 2% of their annual salary.

EDF and ERDF pay particular attention to the professional training of their managers on issues of compensation so that they fully understand the compensation policy.

## Three-year profit-sharing agreements

In France, EDF and ERDF's employees benefit from a profit-sharing scheme, introduced more than 20 years ago in the case of EDF and for ERDF when it became a subsidiary. Most of the Group's European subsidiaries have similar schemes. EDF and ERDF employees can choose either to receive payment and/or to invest it into either the Group Corporate Savings Plan or the Group Collective Retirement Saving Plan.

The EDF and ERDF profit-sharing agreements are three-yearly and require the profit-sharing amount to be paid to be set based on the meeting of national objectives reflecting the different components of the companies' performances (economic, lines of business, social and environmental). For EDF, its latest agreement took account of five national performance criteria: Group EBITDA, power generation, customer satisfaction rate, employee training rate and reprocessed waste percentage.

In 2013, these agreements saw the payment to EDF and ERDF employees of a total of €186 million (ERDF figure pending) for the 2012 fiscal year, i.e. an average of €1,780 per beneficiary.

EDF and ERDF are not eligible for the shareholding scheme.

## A comprehensive corporate savings policy

### Group Savings Plan (GSP)

It is open to employees of EDF and of the Group's French companies in which EDF owns directly or indirectly at least 40% of the share capital and which have signed up for the Group Corporate Savings Plan.

Six varied mutual funds, including a socially-responsible investment fund, a solidarity mutual fund and the "EDF Share" fund, are open to subscriptions. In 2009, employees were able to subscribe to the bond issue launched by EDF via the 2014 Bond Fund created for this purpose.

The EDF Group Corporate Savings Plan totalled €4.128 billion at the end of 2013.

Profit-sharing, as well as individual payments and transfers from the Time Savings Accounts that employees make to the Group Corporate Savings

Plan, are matched by the company under conditions negotiated within each company.

In 2013, the total gross amount contributed to the Group Corporate Savings Plan by EDF and ERDF was €113.3 million, i.e. an average of €584 per saver for ERDF and €497 for EDF.

### Collective Retirement Savings Plan

The EDF Group Collective Retirement Savings Plan is open to employees of EDF and the Group's French companies in which EDF owns directly or indirectly at least 40% of the share capital and which have signed up for the Group Collective Retirement Savings Plan.

Two mutual investment funds are offered to employees: a solidarity mutual fund and the "Cap Horizons" umbrella fund, offering targeted management of the savings invested depending on retirement age.

The Collective Retirement Savings Plan totalled approximately €402.5 million for EDF and ERDF at the end of 2013. Profit-sharing, as well as individual payments and transfers from the Time Savings Account that employees make to the Collective Retirement Savings Plan, are matched by the company under conditions negotiated within each company.

For 2013, the total gross amount paid by EDF and ERDF to the Collective Retirement Savings Plan was approximately €35 million, i.e. an average of €580 per saver for ERDF and €349 for EDF.

### Time Savings Account

Time Savings Account agreements have been signed within the Group's principal French companies, specifically EDF and ERDF.

On 31 December 2013, the total number of hours saved in the time savings account by employees of EDF and ERDF was €636 million.

This negotiated system allows employees wishing to take leave to claim compensatory leave corresponding to time saved. The currently applicable Time Savings Accounts agreement also provides for individual payments corresponding to time saved and for transfers to the Group Savings Plan and the Collective Retirement Savings Plan.

## An employee shareholding policy in place since 2005

In 2005, at the time of the Company's public offering in the framework of the Offering Reserved to Employees in accordance with Law no. 2004-803 of 9 August 2004 and Law no. 86-912 of 6 August 1986, 130,000 current and retired employees of the Group became shareholders of the Company.

In connection with the sale of 2.5% of EDF's capital on 3 December 2007, in accordance with the aforementioned laws, a new Offering Reserved to Current and Former Employees was proposed in 2008. There have been no new reserved offerings since 2008.

As at 31 December 2013, current employees and former employees of the EDF group held a total of 33,493,009 EDF shares, representing 1.8% of share capital. 28,430,375 of the shares (representing 1.53% of the capital), are held under employee shareholding schemes within the meaning of Article L. 225-102 of the French Commercial Code (shares held by current and former EDF employees through the 'Actions EDF' employee investment funds, the EDF Group Savings Plan and the EDF International Group Savings Plan). In addition, almost 5.1 million of these shares, representing 0.27% of the capital, are held by current or former employees as direct registered or administered registered shares, without any lock-up period or for which the lock-up period has expired. Most of the shares held by employees are held through the Group Savings Plan.

The Company has not implemented any stock option plan.

However, the bonus stock allotment plan implemented in August 2007, known as "ACT 2007", involved the allotment of 2,883,183 shares to all Group employees<sup>1</sup>, with approximately 150,000 beneficiaries in 22 countries.

1. With the exception of Edison and EnBW employees mainly.



More than 2.7 million shares were issued to beneficiary employees on 31 August 2009. The registered shares became available on 30 August 2011. The shares held via the Group Corporate Savings Plan will become available on 30 August 2014.

### 17.3.2 Social welfare policy

The Group fringe benefits policy is guided by three principles:

- A principle of responsibility which covers three requirements:
  - guaranteed social cover, in terms of health, welfare and pensions: company cover tops up, if necessary, the level provided by social security if it is deemed insufficient. When such company coverage is put in place against the major risks of living, i.e. disease and death, it must be available to all employees,
  - non-discrimination: access to health cover must not be dependent on the employee's state of health; maternity cover contributes to gender equality at work,
  - regulatory compliance: the fringe benefits policy complies with current local regulations, whether in terms of financing or implementation of compulsory schemes, or rules governing optional schemes...;
- A balance between competitiveness and sustainability is sought:
  - the combined level of compensation and fringe benefits meets the need for the Group's companies to be attractive on their local markets,
  - fringe benefits must be able to be maintained over time and accordingly be financially sustainable in the long-term both for employees and the employer. A sustainable balance between income and expenditure must be addressed from the introduction of the coverage. The Group ensures cost control for social welfare commitments;
- A principle of appropriation by beneficiaries:
  - employees are informed of the content of the fringe benefits in order to make it easier for them to understand and actually receive them; sharing of information on fringe benefit schemes must be organised with employee representatives.

### Status of employees in the Electricity & Gas Industries ("EGI"): a specific social welfare plan

In France, the vast majority of the Group's workforce are employed by companies descended from "historic operators" (EDF, ERDF, PEI) which have electricity and gas industry status. This is also the case, in particular, of part of the Tiru group and the main components of Electricité de Strasbourg.

Fringe benefits at these "historic operators" were mainly introduced by the law organising the monopoly on electrical generation and distribution of electricity (Law of 8 April 1946) and the maintaining of a special social security plan linked to the professional status of employees in the EGI branch (Decree of 22 June 1946). Today still, the main fringe benefits that set EDF apart from other major groups are based on these legislative or regulatory texts: special pension plan, special health insurance plan including an additional mandatory part also covering retired employees, centralised social activities in the professional branch, financed by 1% of sales and managed independently by the unions.

In addition to these schemes, which have remained very stable over the last few decades, is a benefit in kind historically based on a company decision which covers gas and electricity supplied by historic operators to employees and is maintained for retired employees.

Significant changes have been made over the last decade.

- EDF's IPO and the application of international accounting standards required the valuation and provisioning of commitments to retired employees. The maintaining of the industry's special pension and health insurance plans faced with this requirement was made possible by the

overhaul of their financing: affiliation with standard mandatory plans for pensions and strengthening of affiliation between current and retired employee plans for complementary health insurance cover;

- The special pension plan has also, like other public sector special pension plans, been increasingly affected by efforts to reform mandatory pension plans launched by successive governments. Except for the pension calculation method (specific rate, applied to a salary at the end of career, with a reduced base), the main parameters (retirement age, required contribution period, etc.) are currently being brought into line with the standard compulsory plan; a number of other less wide-ranging rules remain specific. The definition of active service, enabling earlier retirements, has also been revised and how it is taken into account significantly overhauled for newly-hired employees, via the creation of a Retirement Days Savings Account;
- Finally, unlike other historic benefits, the level of employee health, disability and life cover appeared significantly less generous than that offered by other major groups, which led from 2008 to the introduction, in agreement with the professional branch, of complementary cover in these three areas.

### The special pension plan and its recent changes

The EGI pension plan is a special social security plan, which has been managed by the Caisse Nationale des Industries Électriques et Gazières ("CNIEG" – French National Fund for the Electricity and Gas Industries) since 1 January 2005. The Law of 9 August 2004, which created CNIEG, provided for the financial affiliation of the special plan with CNAV and ARRCO-AGIRC:

- 1/ CNIEG pays to CNAV and ARRCO-AGIRC the contributions that should be paid by employees and employers in the EGI branch in accordance with the regulations specific to these plans.
- 2/ In exchange, CNIEG receives from CNAV and ARRCO-AGIRC the benefits that they would have paid to former employees of EGI companies if they had been affiliated with these plans.
- 3/ Pension rights specific to the special pension plan are financed via the CTA levy (*Contribution Tarifaire d'Acheminement*, i.e. routing rate contribution) received from gas and electricity transmission and distribution services and the remainder, corresponding to specific rights acquired before 2005 for the unregulated sector (generation and distribution) and specific EGI pension rights acquired after 2005, is financed by employers.

The reform of the financing of pensions instituted by the Law of 9 August 2004 has had no effect at all on the standard mandatory plans, energy consumers or the French state budget. It is transparent for EGI retired employees, who benefit from a single payment of their pension rights based on the special plan rules by CNIEG, which is their sole contact in terms of their pension.

The special pension plan was significantly overhauled over the last few years, as were all the pension plans:

- 1/ In 2008, with the transposition to the special pension plans of the main measures introduced by the Law of 21 August 2003 for the standard plan and public sector plan: progressive extension of the insurance period to obtain a full-rate pension and setting up of contribution reduction and increase system. The 2008 reform also provided for revaluation of retirement pensions based on inflation rather than salaries, as was previously the case.
- 2/ As the 2008 reform abolished service credits for difficult working conditions for employees hired under EGI status from 1 January 2009, the way in which this issue is taken into account has changed. A sector-wide agreement signed on 16 April 2010 created for these newly-hired employees a Pension Time Banking Account ("CEJR" – *Compte Épargne Jours Retraite*) provisioned with days of leave allocated for the periods worked by these employees in jobs classed as active service. The criteria and terms and conditions for the allocation of active services were also updated by Decree of 23 September 2011 via rules to take account of difficult working conditions linked to the characteristics of the positions held.

3/ The Decree of 18 March 2011, following on from the Law of 9 November 2010, increased by two years the ages for pension entitlement and cancellation of the pension reduction, with a calendar adapted from the standard plan and public sector plan (with a retirement entitlement age increased to 62 years old in 2024, the contribution discount cancellation age to 67 years old in 2029).

4/ The extension of retirement options aged 60, introduced by the Decree of 2 July 2012, shall apply to EGI pensions from 2017.

Finally, the public authorities announced that the pension reform carried out in 2013 and implemented by the Law of 20 January 2014 and which particularly provides for an extension to 43 years from the generation of 1973 of the insurance period to obtain full rate, increases in pension contributions and postponement from 1 April to 1 October of the annual pension revaluation date is also intended to be applied to the EGI pension plan and to all the special plans.

### The EGI special health insurance plan

The IEG health and maternity plan is a legal and mandatory social security plan which covers current and retired employees. Its benefits include a base portion equivalent to the standard plan and a complementary portion and are managed by CAMIEG.

The complementary portion mainly covers the co-payment, a limited portion of excess fees and benefits generally not refunded by social security. The financing of this complementary portion was reformed in 2005 due to the impact of international accounting standards. This led to the introduction of two distinct and separate accounting sections for current and retired employees and the creation of a fixed solidarity contribution by current employees for the financing of the retired employee section. The rules on income and benefits covered are set by the public authorities.

### Complementary social welfare (in addition to mandatory plans)

Since 2008, employees with EGI status working for the Group's companies in France have benefited from supplemental social welfare measures including:

- the disability supplement (EGI industry agreement of 24 April 2008), applicable since 1 July 2008;

- provident coverage: death and education allowances (EGI-wide agreement dated 27 November 2008), applicable since 1 January 2009; amendment, signed on 8 October 2013, taking account of the coverage balance, improved benefits from 1 January 2014 and reduced contributions with a view to the long-term balance of the plan;
- the supplemental pension plan (EGI agreement of 21 February 2008 and Group agreement of 12 December 2008), supplemented by company provisions, applicable since 1 January 2009 (for ERDF, 1 October 2010);
- supplemental health cover (EGI agreement of 4 June 2010), applicable since 1 January 2011, which supplements the special health plan coverage.

### Other Group employees' social welfare

The Group's other employees in France are covered by different collective bargaining agreements and can have fringe benefits provided by their own employer. Each employer must therefore ensure the consistency of the benefits offered with the Group policy presented above. This issue is regularly discussed with Group Human Resources.

The same applies to Group companies based outside France, for which the regulatory context specific to each country should also be taken into account.

### Central Social Activities Fund (*Caisse Centrale d'Activités Sociales* – "CCAS")

Unlike the common practice in French law, the management of social and cultural activities is delegated to specific organisations in the EGI sector.

The CCAS, CASs (Social Activities Funds) and CAS Coordination Committee are legal entities and are fully independent. The CCAS is administered exclusively by employee representatives and is supervised by the public authorities.

Upon request from the public authorities to employers in the IEG sector, consultation with social partners on the question of financing, control and governance of social activities is ongoing.

## 17.4 Other social commitments

These other commitments focus on the relations of Group companies with their sub-contractors, with representatives of their employees, with populations as a contributor to the development of territories and with their employees in promoting diversity and respect of human rights.

### 17.4.1 Responsible sub-contracting

The EDF group's sub-contracting policy focuses on three major themes:

- providing service providers with visibility and having long-term supply partners;
- helping the Group improve its sub-contracting practices by defining criteria to support decision-making in terms of strategy, economics, skills and social impact;

- developing socially-responsible sub-contracting practices, including the signing or extension of EDF Group CSR or Socially-Responsible Sub-Contracting (SRSC) agreements.

### Requirements

EDF Group companies systematically ensure that the sub-contractors they employ provide high-quality work in accordance with the law and current international standards (e.g. ban on child labour). They strive to enable sub-contractors and their employees to work on their account under the highest working and health and safety conditions in the industry and country in question.

The Group's requirements particularly focus on:

- abiding by the law;

- employee health and safety;
- ethical behaviour with clients, particularly respect for people and integrity;
- respect for the environment.

Appropriate sub-contractor selection and assessment procedures meeting these requirements have been put in place. In case of any serious breach, unresolved when the issue is raised, of legislation, employee health and safety rules, principles governing relations with clients, and current environmental regulations, relations with the sub-contractor are suspended in accordance with the contractual obligations.

Furthermore, the sub-contractor must ensure the meeting by any sub-contractors with which it has signed an agreement, for the mission in question, of the requirements that the EDF group has set it.

## Areas of sub-contracting

In 2013, at EDF, the major areas in which work was sub-contracted included industrial and commercial activities, as well as Information Systems.

### In the industrial field

Work was begun in 2012 by the French Strategic Nuclear Power Committee (CSFN - Comité Stratégique de la Filière Nucléaire), which included civil nuclear operators, union organisations, professional organisations, administrative authorities and service providers, as well as the French Nuclear Safety Authority, as an observer. The results of this work were used to draw up social specifications and to develop proposals to change regulations.

The social specifications, which operators can include in their calls for tenders for all service or construction activities on basic nuclear facilities (*Installations Nucléaires de Base – INB*), include transparent rules applicable to all firms in the nuclear industry. They consist of a set of coherent and structuring measures that cover all the fields relating to the conditions for sub-contracting: transparent employment of service providers, sub-contractor skill development and professionalism, conditions for the use of temporary staff by sub-contractors, purchasing policy and process, management of radiation protection, prevention of occupational risks, medical monitoring, working conditions and living conditions around nuclear sites, hosting of foreign workers in terms of radiation protection, safety and medical monitoring, concerted measures to promote continued employment, respect for fundamental rights and the promotion of diversity.

### In the field of Information Systems

An in-depth overhaul of sub-contracting policy in the field of information systems is ongoing. In order to meet the strategic objectives adopted for the period 2013-2015 regarding EDF's Information Systems, the following sub-contracting guidelines were set:

- reduction of the number of engineering service and resource agreements reflecting the changes to the internal ICT operator service provision model;
- streamlining of the number of service providers;
- increasing use of cloud computing and more generally packaged services.

### In the commercial field

Sub-contracting is used to meet increasing customer demand. The use of outsourcing for marketing activities provides the flexibility required to meet variations in the level of customer demand, stabilise internal workload, cover the full hours during which domestic customers can contact customer service (particularly in the evening and on Saturdays) and help deal with any technical issues. All EDF's customer relations centres, both internal and external, are located in mainland France.

## The “service provider” survey

A “service provider” survey was introduced in 2007. This is assessed and a targeted action plan introduced. With more than 2,600 questionnaires filled in in 2013, the survey results are used to measure the effectiveness of the measures taken. Accordingly, it was decided to take a range of measures in 2013 such as installing women's changing rooms in Le Havre, managing access using the Cordemais website or otherwise replacing the changing rooms, toilets and cafeteria in Porcheville.

More generally, the survey is used to assess employees' opinions in a certain number of areas: welcome, comfort of accommodation, catering, cleanliness of shared site facilities, communication, disruption of work, lost time, etc. For the last 3 years, results have tended to improve in all areas. Vigilance must be maintained over the perceived difference in treatment between service providers and EDF employees, particularly regarding logistics.

## 17.4.2 Contributing to local development via occupational integration

### The Group's commitment to occupational integration

As an industrial firm with close local links, the EDF Group has made a long-term commitment to serving the public interest and has invested, over a number of years now, in occupational integration.

The Group's work in favour of occupational integration is based on four main factors:

- 1- **The Group maintains an ambitious work-study scheme, whose role as a “social elevator” is continuously underlined.**

EDF considers work-study programmes as a key tool to develop the occupational integration of young or unemployed people, and to enable them to acquire or finish a qualification.

More than 100 work-study offers are specifically reserved each year for vocational work-study trainees, with the promise of hiring. Partnerships are formed with local and regional employment and training organisations (*Mission Locale, École de la Deuxième Chance, AFPA, Compagnons du Devoir*, etc.) in order to encourage young people, particularly from deprived areas, to train for promising lines of business.

Certain work-study offers are specifically proposed to young people in major social difficulty, in conjunction with occupational integration organisations. These offers prepare them to obtain a qualification corresponding to at least the first level of professional qualification.

EDF and ERDF also hire a significant proportion of the work-study trainees that they train (nearly 50% in 2013), and accompany the ones that are not hired, particularly via jobseeking workshops organised in partnership with Pôle Emploi (more than 80 workshops were held in 2013, featuring more than 850 participants). They are also given the option of being put in touch with hiring partner companies. A survey is conducted 6 months after the work-study trainees leave, in order to track their progress and assess their access to employment: 90% of work-study trainees who left in 2012, are in a job or are continuing their training, a result which, given the current environment, really shows the value of committing to this kind of occupational integration scheme.

**2- The EDF Fonds Agir Pour l'Emploi ("FAPE" – "Action for Work" fund) provides financial assistance for organisations supporting integration via economic activity (integration schemes, intermediate associations, temporary work integration enterprises, integration enterprises, neighbourhood development centres, etc.) and features among the foremost occupational integration patrons in France.**

The EDF FAPE is a social initiative by Group companies, the Fondation EDF and union organisations. It is jointly managed and financed initially via donations from 13,700 EDF Group employees and retired employees (these donations trigger a 200% contribution by the companies). Nearly 118 projects for the integration and employment of persons in difficulty were supported in 2013 (i.e. €1.6 million of grants, helping to create and consolidate nearly 3,000 jobs).

**3- As a regional industrial stakeholder, the EDF Group supports local integration stakeholders.**

EDF regularly favours using integration scheme staff for its projects, and develops partnerships to support organisations dedicated to occupational integration. EDF actively contributes to the development of the *Ecoles de la 2ème Chance* network, which helps young people who have left the school system without a diploma and without qualifications, in danger of social and occupational exclusion.

In the field of distribution, ERDF works with neighbourhood development centres to improve the local living environment (particularly via the renovation and improvement of the external appearance of public distribution substations), develop local services (by informing inhabitants about the electricity market and about preventing electrical accidents) and support the occupational integration of neighbourhood development centre employees.

**4- EDF encourages solidarity purchasing schemes, by including integration clauses in its contracts and purchasing from integration enterprises.**

Integration clauses may be added to contracts signed with suppliers and sub-contractors, in order to develop with them measures enabling people with particular social or occupational difficulties to get into or back to work.

The Group also sets itself every year objectives for purchasing services from integration organisations, and accordingly contributes to increasing their sales by several million euros. This scheme promotes the integration of disabled people, and supports the sector helping the integration of the long-term unemployed. It is a major component of the EDF agreement for equal opportunities and occupational integration for disabled people, with an objective of 500 Beneficiary Units equivalent to 500 external jobs by the end of 2015: for example, a contract has been signed with APF (Association des Paralysés de France - French association for victims of paralysis). This contract represents, thanks to the purchasing by EDF of supplies of remanufactured or adaptable laser-printing consumables, 4-8 "job equivalents" varying from year to year.

This scheme is backed up by awareness campaigns aimed at purchasers and suppliers via training courses that introduce the principles mentioned above, the "Responsible Purchasing" guide, which encourages purchasers to work with companies that employ only disabled people and provide them with special facilities and support, as well as a short film aiming to fight preconceptions about services provided by companies in this sector (see section 6.6.3.3.3 ("Responsible sub-contracting and purchasing")).

## 17.4.3 Human rights

For several years, the EDF group has supported the UN's international commitments to protect and defend human rights: the Universal Declaration of Human Rights, Declaration on the Elimination of Discrimination Against Women as well as the Declaration of the Rights of the Child. It also follows the OECD guidelines for multinational enterprises.

The Group also regularly reaffirms, particularly via the latest version of the Code of Ethics - its support for the 10 Principles of the United Nations Global Compact. In accordance with the CSR agreement, the Group accordingly commits to ensuring that all companies it controls abide by the ILO's Basic Principles. All these commitments were included by the Group's companies in their own CSR and sustainable development commitments.

Certain Group companies took additional measures. Edison, for example, has a specific policy on human rights and has defined a procedure for the assessment and monitoring of respect of human rights, applicable to all its sites. In 2013, EDF Energy reinforced its code of ethics with themes relating to the prevention of discrimination, psychological harassment and to integrity.

Furthermore, as part of its commitments in terms of corporate responsibility, in the "responsible employer" section, the Group committed to "Not tolerating any breach of human rights, fraud and corruption, for Group companies and for their suppliers". Accordingly, 13 Group companies should obtain - by 2017 - the advanced level of the Global Compact.

The current measures in place to monitor and verify the respect of human rights appear sufficient for most EDF group companies. In addition to the standard points of contact (management, HR department, employee representatives), whistleblower procedures have been put in place by most companies for employees facing difficulties (ethics officer, Ombudsman, ethics committee, toll-free numbers, etc.).

## 17.4.4 Diversity

The EDF group is committed to promoting diversity as a vector for performance in order to:

- better understand the diversity of clients and meet their expectations as best as possible;
- better reflect the society in which it operates;
- allow women and men to express their talents to the best of their ability.

To this end, the company has made commitments on this issue on several occasions, starting in 2005 with the Group Social Responsibility Agreement, which devotes several articles to the fight against discrimination, respect for diversity and promoting equal opportunities. This, along with the Code of Ethics, is the main frame of reference for the Group's companies. Promoting diversity is one of the 11 Group Corporate Responsibility commitments published in 2013: "Maintaining the professional excellence and performance of its teams through training and promoting diversity". This commitment includes an objective: reaching a proportion of 30% women by 2015 in the future executive managers category. It was 25% in 2013 (24.1% in 2012).

The results of the Group-wide internal "MyEDF" commitment survey (see section 17.4.6 ("Social dialogue")) showed in 2013 a 60% positive response rate to the question "management acts in favour of Diversity in the working environment".

The level and formalisation of more specific commitments on a local basis vary depending on the applicable legal framework. For instance, EDF Demasz has had an equal opportunities action plan since 2010, whereas work by French companies has focused strongly on gender equality, disability and age diversity agreements. In November 2012, EDF Energy was also awarded the Diversity Works for London Gold Standard, in recognition of its work in favour of equality and diversity. The UK subsidiary continued its work and developed its strategy to promote inclusion "to create an environment in which employees share a sense of belonging, mutual respect, and support from others so that they can do their best work" as well as a specific guide for suppliers.

In 2013, Fenice and EDF Polska respectively signed the Italian and Polish diversity charter, accordingly following in the footsteps of the French companies (EDF, ERDF, ES), which signed the diversity charter in 2006. EDF Luminus paid particular attention to diversity in its initial sustainable development report (by introducing a range of indicators: proportion of women, number of disabled employees, number of nationalities represented).



The Group has taken a range of measures, including organising a Group-wide Diversity Day in the form of events to promote diversity, increase awareness of stereotypes and accordingly help to prevent discrimination. In May 2013, all the Group's companies examined the theme of diversity as a source of innovation and progress.

In France, EDF's commitments on diversity have led to the creation of a training program for managers, HR managers and employees on the images and stereotypes linked to diversity. More than 7,000 staff have been trained since 2007.

Other companies, such as EDF Energy, have also set up training schemes for management (400 managers trained) and stereotype awareness campaigns for employees.

To reduce the risk of discrimination, EDF regularly conducts surveys. In 2013 in France, EDF accordingly supported a multi-company "Stereotypes and Origins" survey conducted by the *Institut du Mécénat de Solidarité*. EDF also conducted tests on recruiting work-study trainees and a survey on employees' view of equal opportunities.

The Group international diversity community, launched in 2012, continued in 2013 the exchanges intended to facilitate the implementation of actions in favour of diversity and to share good practices between Group companies.

EDF also formalised its partnership by signing an agreement with the "L'Autre Cercle" association, which fights against discrimination based on sexual orientation and homophobia at work: self-diagnosis, specific communication for the International Day Against Homophobia, training for occupational physicians and management, etc.

Promoting diversity also involves supporting schemes organised by employee networks. EDF Energy also promotes its different networks, which are regularly highlighted in its internal memos: ethnic minority network, women's network, disabled network, gay & lesbian network. More than 3,200 employees are involved in these networks. The ethnic minority employee network was recognised for its mentoring work in 2013.

These networks, which are particularly active, continued to provide new opportunities for discussion and training regarding these issues in 2013, with some of them also developing mentoring schemes.

In France, Energay, the LGBT association for EDF and the Electricity & Gas Industries, has received financial and logistical support from EDF since 2012.

## Gender equality

Equal access to employment for men and women is a powerful tool for organisations to change and modernise. It's a key component of the Group's diversity policy.

EDF and ERDF extended their agreements on equal access to employment for men and women in 2012 signed unanimously by the union organisations represented. These company agreements mark a switch towards setting target results rather than just target methods and monitoring measures. EDF's business line divisions were tasked with drawing up and implementing 56 action plans, which also provided the opportunity to enrich social dialogue and share best practices at the different levels of the company.

Overall, equal pay is in place for main pay and performance-related pay and EDF still has the Equality Label, awarded in 2006 and again in 2008, then 2011. Work was done in 2013 and continues on issues of additional pay, training and career paths.

Work also continued in 2013 on the Central Works Council (CWC) equal access to employment committee, in order to improve the indicators and the presentation of the comparative progress report. This made it possible,

thanks to technical changes to the information system, to increase the reliability and standardise data transfers, and improve the transparency policy.

EDF is now also recognised outside the Group as a company committed to equal access to employment. Upon request from the Minister for Women's Rights, EDF signed, with other companies, a framework agreement in April 2013, in which it committed to contributing to experiments to make it easier to take account of equal access to employment in VSEs and SMEs.

Based on the parenthood charter signed by EDF, measures have been taken to make it easier to establish a good work-life balance with the issuing of a concierge service guide, a nursery place framework agreement and the tailoring of training programmes to better meet personal and family requirements.

Furthermore, a new gender-based Group indicator shall be introduced for 2014 and shall now make it possible to monitor the rate of occurrence of occupational accidents and their variation for men and women.

EDF Energies Nouvelles introduced an action plan aiming to promote gender mix in all lines of business, to maintain equal pay for men and women with equivalent skills, particularly focused on working conditions.

Edison monitors indicators on the gender mix in its workforces and the wage differential between men and women with equivalent responsibilities. They are published in its sustainable development report.

The Group also promotes gender mix in each line of business by taking pre-recruitment measures. (for further details, see section (17.1.3 "Dynamic recruitment policy confirmed in 2013 in France").

For its part, EDF Energy organises targeted recruitment campaigns to attract more young female engineers and trainees to its lines of business.

In 2013, the Asia Pacific division and EDF Polska created their women's network, following in the footsteps of the French and British networks. EDF Luminus organises events for female managers as part of International Women's Day.

## Measures taken in favour of the employment and integration of disabled people

The year 2013 was marked by the negotiation of new disability agreements for EDF and ERDF, both signed unanimously. Based on the experienced gained, the new agreements that have been signed set out even more ambitious and meaningful objectives on integration and assistance of the 3,000 disabled employees at EDF and ERDF.

The ERDF agreement signed for 2013-2016 provides, for example, for an increase of 1 point in the employment rate with the objective of increasing it to 5.09% by the end of 2016; it stood at 4.09% at the end of 2012. Disabled employees are placed at the heart of the agreement's measures and focus is placed on their career path, their accessibility to the company's different lines of business and on the training courses it proposes. Several practical and innovative schemes were put in place in 2013 following the deployment of this new agreement. Meetings with managers were organised all throughout 2013 by ERDF in order to enable people to share their experience, discuss and improve practices in order to help managers in dealing with new situations (including disability). Innovative digital tools were also developed in order to make the daily life of disabled employees (dyspraxia) easier and are currently being deployed to assist in other cases of disability.

The new 2013-2015 EDF agreement also marks the next step in taking account of disability. It particularly insists on the creation of conditions liable to promote equal opportunities at every stage of employees' careers,



particularly in terms of professional development and continued employment. The target employment rate is 4.4% by the end of 2015 (it was 3.8% at the end of 2012). The focus is also placed on helping to change mentalities, communication to simplify access to rights and professional training for employees including, in particular, from 2013, an overhaul and extension of training of disability officers and union organisations and the completion of ongoing work on the training of managers. A set of communications materials was also produced (agreement implementation video featuring the signatories, disability officer help guide, “make yourself known” brochure, etc.).

In line with the “facilitating access to employment” section of the EDF agreement, partnerships were extended or introduced (Arpejeh, Université Pierre & Marie Curie, etc.) both nationally and regionally, in order to promote meetings with candidates or accompany the training of disabled people.

The business line action plans required by the plan are monitored and discussed by management and employees at the divisions and units.

### 17.4.5 Forecasting and controlled management of reorganisation and restructuring

The Group, which is aware of the need for organisations to adapt to changes in the economic and social environment, both in France and abroad, introduced a policy in 2003 and signed an agreement in 2005 on corporate social responsibility. In addition, 2020 HR Vision, published in 2013, confirmed that the issue of managing change is one of the Group's key challenges. The involvement of management and the particular focus placed on Dialogue with employees and their representatives are key vectors. These principles were respected during the Group's restructuring operations in 2013. For example, in the course of the sale of SSE, the staff representative bodies were informed in advance of the type of operation and agreement was sought in order to define the social guarantees applicable to the affected employees.

### 17.4.6 Social dialogue

Throughout EDF, there are currently 56 works councils, one Central Works Council and 104 employee representative councils.

As the employee representatives' terms of office last three years in the Electricity & Gas Industries branch, they were re-elected on 21 November 2013.

#### In France

Social dialogue with employee representatives and union organisations is a key component of EDF's human resources policy. One of EDF's priorities is to continue to observe a long tradition of social dialogue and consultation, managing the company's industrial changes and contributing to the development of its employees.

In 2013, significant negotiations on the themes of forward-looking management of jobs and skills, diversity and social dialogue ended in the signing of agreements in the first half of the year. The second half of the year was marked by the holding of professional elections. At the end of November 2013, the main agreements signed were as follows:

- the collective bargaining agreement on 2013-2015 EDF forward-looking management of jobs and skills unanimously signed on 19 February 2013;
- EDF 2013-2015 agreement for equal opportunities and occupational integration of disabled people signed unanimously on 13 May 2013;
- 2013 amendment to the 2011-2013 EDF profit-sharing agreement signed on 21 May 2013 by three representative union organisations.

Further issues were examined via social dialogue in certain EDF lines of business: Generation & Engineering Division 2013-2015 social dialogue framework agreement, “quality of life and recognition of employees for customer service and technical lines of business” framework agreement in the Insular Energy Systems Division, “working time” agreement at the Shared Services and Commerce Divisions, “support for change” at the Research & Development Division as well as the Group Real-Estate Division.

The main agreements signed by ERDF in 2013 particularly included the agreement for the prevention and compensation of exposure to asbestos risk and the 2013-2016 agreement for occupational integration, continued employment and career progress of disabled people.

#### France Group Committee

An agreement on the creation of the France Group Committee was unanimously signed on 1 September 2008. In order to re-elect the body, an agreement on the configuration of the EDF France Group was signed by three union organisations (CFDT, CGT, CGT-FO) on 6 March 2012. Comprised of 28 elected members from the group's main companies (EDF, ERDF, Tiru, CHAM, etc.), this Committee is a forum for discussions to be held in France. The France Group Committee met 3 times in 2013.

#### International

##### European Works Council

At the end of 2001, the Group created a European Works Council (EWC), which is consulted on the Group's major policies. Through its working groups, the EWC initiated numerous discussions on human resources policies at an international level, notably concerning health and safety within the Group's different companies in Europe or covering the opening of negotiations on the EDF Group's social responsibility agreement.

The EDF group's EWC has now been expanded and is informed of the Group's economic, financial and social strategies. As set out in the agreement, the members of the EWC elected a new secretary of the Council in May 2011, and more than half of its members were renewed at this time. The EWC met 4 times during the past fiscal year. During these meetings, the issues examined included the Group's industrial development strategy in the United Kingdom and the changes to the Group's assets in Central Europe.

##### Corporate Social Responsibility Dialogue Committee (CSRDC)

The CSRDC was created in accordance with the CSR framework agreement signed in 2005 by all the employee representatives and union organisations of the Group's principal companies, as well as the international trade union federations for the industry. The commitments made at the time have been backed up with the signing of a new agreement in 2009, particularly covering issues such as sub-contracting, the fight against climate change and biodiversity.

These agreements govern social dialogue on the issue of CSR. They have enabled the Group to put in place a set of basic shared commitments and common objectives that contribute to the renewal and extension of social dialogue issues.

Furthermore, in 2013, a CSR discussion seminar was held in order to share the changes to global Corporate Social Responsibility/Sustainable Development issues and to consider possible changes to the agreement. It was attended by all the signatories of the agreement.

#### Social dialogue issues at Group companies and internationally

At the Group's main companies, social dialogue mainly focused on:

- the merger of EDF Polska, EDF Energia and EDF Wybrzeże;

- pay (EDF Demász, EDF Polska);
- the signing of an agreement between EDF Energy union organisations and management governs social dialogue on the Hinkley Point project in conjunction with sub-contractors;
- the renegotiation at national level (Italy) of the collective bargaining agreement in the electricity industry, which covers 1,700 Edison employees;
- the renegotiation at national level (Italy) of the collective bargaining agreement in the energy and oil industry, which covers 300 Edison employees;
- the renegotiation for the industrial sector (Hungary) of the collective bargaining agreement;
- the social implications of the sale of SSE;
- restructuring and management of restructuring (EDF Luminus, SSE, EDISON Group).

### “My EDF” commitment survey

At the end of the first “My EDF” commitment intern survey conducted in November 2012 involving all Group employees, a plan to issue results to employees was implemented and companies drew up action plans to increase or introduce improvement measures based on the results observed within their scope. The Executive Committee also decided, in July 2013, to implement an action plan for the whole Group in order to mainly meet the expectations of employees regarding knowledge and understanding of the Group’s strategy.

The survey was held for the second time in October 2013. Employee participation (64.3%) was slightly up on the first year (63.8%), confirming their interest in this tool which enables them to express their level of support for the Group’s strategic objectives in general, their appreciation of management practices, and their opinions on the many aspects of their professional situation, particularly regarding their career paths and training, pay and quality of life at work. The results of the 2nd survey confirm the high level of pride employees have in belonging to the Group, their engagement and their motivation and demonstrate the real progress in their level of satisfaction in 2013, accordingly showing the impact of the Group action plan and company action plans.

## 17.5 Shareholding by directors and trading in EDF securities by corporate officers and executives

### 17.5.1 Shareholding by directors

On 31 December 2013, the members of the Company’s Board of Directors held a total of 887 shares. The table, below, breaks down the number of EDF shares held individually by directors on 31 December 2013 and 31 December 2012:

	Number of EDF shares held on 31/12/2013	Number of EDF shares held on 31/12/2012
Henri PROGLIO <sup>(1)</sup>	51	51
Christine CHABAUTY <sup>(2)</sup>	23	55
Philippe CROUZET <sup>(1)</sup>	200	200
Mireille FAUGÈRE <sup>(1)</sup>	106	106
Alexandre GRILLAT <sup>(2)</sup>	59	355
Michael JAY <sup>(1)</sup>	200	200
Bruno LAFONT <sup>(1)</sup>	150	150
Philippe MAÏSSA <sup>(1) (3)</sup>	39	39
Pierre MARIANI <sup>(1)</sup>	1	1
Marie-Hélène MEYLING <sup>(1)</sup>	28	28
Maxime VILLOTA <sup>(2)</sup>	30	28
<b>TOTAL</b>	<b>887</b>	<b>1,213</b>

(1) Shares held directly.

(2) Shares held through a mutual fund.

(3) Director until 31 January 2014.

Mrs. Lepetit, Messrs. Appert, Azéma, Léchevin, Morin, Rignac and Sellal did not hold any EDF shares on 31 December 2013.

### 17.5.2 Trading in Company securities

Under the terms of Article L. 621-18-2 of the French Monetary and Financial Code, the executives of companies with shares listed for trading on a regulated market must declare trades in company securities to the AMF and to the company within five trading days of their completion.

The AMF General Regulations<sup>1</sup> also state that the EDF Board of Directors must mention in its annual report to the Ordinary General Meeting of Shareholders trades that have been declared by executives and similar employees<sup>2</sup> during the past fiscal year.

No trades involving EDF shares were declared to the AMF or to the Company during the 2013 fiscal year by members of the Company's Board of Directors and Executive Committee.

1. Article 223-26 of the AMF General Regulations.

2. EDF's staff "similar to executives" are the members of the Company's Executive Committee.



Photo credit © EDF – Stéphanie Jayet

# 18 Major Shareholders

## 18.1 Breakdown of share capital and voting rights

During the last three fiscal years, the breakdown of EDF's share capital as of 31 December was as follows:

	Position as of 31/12/2013			Position as of 31/12/2012			Position as of 31/12/2011		
	Number of shares	% of share capital	% voting rights	Number of shares	% of share capital	% voting rights	Number of shares	% of share capital	% voting rights
French State	1,571,433,448	84.49	84.56	1,561,222,705	84.44	84.54	1,561,222,705	84.44	84.50
Institutions and individuals	253,337,995	13.62	13.64	251,350,774	13.59	13.61	252,420,651	13.65	13.66
Employee	33,493,009 <sup>(1)</sup>	1.80	1.80	34,131,850 <sup>(2)</sup>	1.85	1.85	34,047,712 <sup>(3)</sup>	1.84	1.84
Treasury shares	1,744,016	0.09	–	2,161,333	0.12	–	1,175,594	0.07	–
<b>TOTAL</b>	<b>1,860,008,468</b>	<b>100.00</b>	<b>100.00</b>	<b>1,848,866,662</b>	<b>100.00</b>	<b>100.00</b>	<b>1,848,866,662</b>	<b>100.00</b>	<b>100.00</b>

(1) This figure includes 28,430,375 shares (representing 1.53% of capital) on the basis of the definition of employee share ownership as defined by Article L. 225-102 of the French Commercial Code (including shares owned by EDF's current and former employees through the "Actions EDF" FCPE of the EDF group savings plan and EDF International group savings plan). This figure also includes 5.1 million shares representing 0.27% of the capital held in direct registered form or administered, without a lock-in period or after lock-in periods, by current employee shareholders and former employees.

(2) This figure includes 29,042,964 shares (representing 1.57% of capital) on the basis of the definition of employee share ownership as defined by Article L. 225-102 of the French Commercial Code (including shares owned by EDF's current and former employees through the "Actions EDF" FCPE of the EDF group savings plan and EDF International group savings plan). This figure also includes 5.1 million shares representing 0.28% of the capital held in direct registered form or administered, without a lock-in period or after lock-in periods, by current employee shareholders and former employees.

(3) This figure includes 28,785,426 shares (representing 1.56% of capital) on the basis of the definition of employee share ownership as defined by Article L. 225-102 of the French Commercial Code (including shares owned by EDF's current and former employees through the "Actions EDF" FCPE of the EDF group savings plan and EDF International group savings plan). This figure also includes 5.3 million shares representing 0.28% of the capital held in direct registered form or administered, without a lock-in period or after lock-in periods, by current employee shareholders and former employees.

To EDF's knowledge, no shareholder other than the French State holds directly or indirectly more than 5% of a capital and voting rights.

The Company has completed a study on the identifiable holders of bearer shares as of 31 December 2013, which has been used to analyse the distribution of the share capital and its breakdown by geographical area. The table, below, shows this repartition at 31 December 2013 and at 31 December 2012:

	31 December 2013		31 December 2012	
	Number of shares held	% of capital	Number of shares held	% of capital
French government	1,571,433,448	84.49	1,561,222,705	84.44
Institutional investors Europe excluding France	78,132,604	4.20	73,587,074	3.98
Institutional investors rest of the world	67,789,555	3.64	64,380,889	3.48
Institutional investors France	54,033,528	2.91	53,297,374	2.88
Retail investors	53,382,308	2.87	60,085,437	3.25
Employee shareholding	33,493,009	1.80	34,131,850	1.85
Treasury shares	1,744,016	0.09	2,161,333	0.12
<b>TOTAL</b>	<b>1,860,008,468</b>	<b>100.00</b>	<b>1,848,866,662</b>	<b>100.00</b>

## 18.2 Agreements which could lead to a change of control

To EDF's knowledge, there is no agreement which could subsequently lead to a change of control.

In accordance with Article L. 111-67 of the French Energy Code, the French State cannot hold less than 70% in EDF.





Photo credit © EDF – Marc Didier

# 19 Related party transactions

In addition to the information set out below, the details of the transactions concluded by the Company with related parties, as defined by the IFRS, in respect of the 2013 financial year, are contained in note 49 to the consolidated financial statements for the financial year ended 31 December 2013.

The information on the regulated agreements and commitments referred to in Article L. 225-38 of the French Commercial Code is contained in the Statutory Auditors' special report, which is reproduced in Appendix C to this reference document.

## Relations with the French State

As of 31 December 2013, the French State held 84.49% of the share capital and 84.57% of the voting rights in EDF. Pursuant to the Article L. 111-67 of the French Energy Code, the state must remain the owner of at least 70% of its capital. The French State thus has the option, as the majority shareholder, of reviewing corporate decisions that require the approval of the shareholders and, in particular, of determining the result of the shareholders' vote for all issues over which General Meetings have authority.

The regulations applicable to EDF, as a result of its majority ownership by the French State, are described in section 6.5 ("Legislative and regulatory environment").

The relations with the French State are also described in note 49 to the consolidated financial statements for the financial year ended 31 December 2013.

## Relations with GDF SUEZ

The Law of 7 December 2006 on the energy sector required the creation of a service, which does not exist as a legal entity in its own right, that is common to the two subsidiaries of the EDF and Gaz de France groups, which are respectively tasked with the distribution of electricity and gas. In accordance

with this legal framework, the two subsidiaries of EDF and GDF SUEZ, ERDF and GrDF, share a common service for which the organisational and functional rules are described in section 6.2.2.2.1 ("Organisation of ERDF").

## Relations with the AREVA group

Relations with the AREVA group are primarily described in sections 4.3 ("Dependency factors"), 6.2.1.1.3.4 ("The nuclear fuel cycle and related issues"), 6.2.1.1.3.5 ("Preparing for the future of nuclear fleet in France" – "Operating life of the EDF's PWR fleet" and "An update

on the Flamanville 3 EPR (European Pressurized water Reactor) project"), 6.2.1.1.3.6 ("Decommissioning of nuclear power plants") and in note 49 to the consolidated financial statements for the financial year ended 31 December 2013.

## Relations with other companies in the consolidation scope

The transactions entered into with RTE (associate since 31 December 2010) are described in note 23 to the consolidated financial statements for the financial year ended 31 December 2013.

The other transactions with companies that are proportionally consolidated and affiliated companies are comprised of energy purchases and sales.





# 20 Financial information concerning the net worth, financial position and performance of the issuer

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## 20.1 Historical financial information

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Pursuant to article 28 of the European Commission Regulation 809/2004, the following information is included by reference in this reference document:

- the consolidated financial statements of the EDF group for the year ended 31 December 2012 (prepared in accordance with international accounting standards), as well as the associated Statutory Auditors' reports, set forth respectively in section 20.1 (pages 267 to 365) and section 20.2 (pages 366 and 367) of the EDF group's 2012 reference document;
- the consolidated financial statements of the EDF group for the year ended 31 December 2011 (prepared in accordance with international accounting standards), as well as the associated Statutory Auditors' reports, set forth respectively in section 20.1 (pages 285 to 381) and section 20.2 (pages 382 and 383) of the EDF group's 2011 reference document.

The consolidated financial statements at 31 December 2013, established under IAS-IFRS standards, are set forth below. These financial statements will be submitted for approval by the Shareholders' Meeting of 15 May 2014.

## Consolidated income statements

(in millions of Euros)	Notes	2013	2012 <sup>(1)</sup>
Sales	7	75,594	72,178
Fuel and energy purchases	8	(39,683)	(37,098)
Other external expenses	9	(9,027)	(9,718)
Personnel expenses	10	(11,879)	(11,710)
Taxes other than income taxes	11	(3,533)	(3,287)
Other operating income and expenses	12	5,293	5,633
<b>Operating profit before depreciation and amortisation</b>		<b>16,765</b>	<b>15,998</b>
Net changes in fair value on Energy and Commodity derivatives, excluding trading activities		14	(69)
Net depreciation and amortisation		(7,516)	(6,849)
Net increases in provisions for renewal of property, plant and equipment operated under concessions		(228)	(164)
(Impairment) / reversals	13	(1,012)	(752)
Other income and expenses	14	388	(5)
<b>Operating profit</b>		<b>8,411</b>	<b>8,159</b>
Cost of gross financial indebtedness	15.1	(2,403)	(2,443)
Discount effect	15.2	(2,982)	(3,261)
Other financial income and expenses	15.3	2,296	2,370
<b>Financial result</b>	<b>15</b>	<b>(3,089)</b>	<b>(3,334)</b>
<b>Income before taxes of consolidated companies</b>		<b>5,322</b>	<b>4,825</b>
Income taxes	16	(1,942)	(1,573)
Share in income of associates	23	375	261
<b>GROUP NET INCOME</b>		<b>3,755</b>	<b>3,513</b>
<b>EDF net income</b>		<b>3,517</b>	<b>3,275</b>
<b>Net income attributable to non-controlling interests</b>		<b>238</b>	<b>238</b>
<b>Earnings per share (EDF share) in Euros:</b>	<b>17</b>		
Earnings per share		1.84	1.77
Diluted earnings per share		1.84	1.77

(1) Figures for 2012 have been restated for the impact of retrospective application of IAS 19 revised and the change in presentation of disposals of generation assets by EDF Énergies Nouvelles as part of its Development and Sale of Structured Assets (DSSA) business (see note 2).

## Statements of net income and gains and losses recorded directly in equity

	Notes	2013			2012 <sup>(1)</sup>		
		EDF net income	Net income attributable to non-controlling interests	Total	EDF net income	Net income attributable to non-controlling interests	Total
<i>(in millions of Euros)</i>							
Group net income		3,517	238	3,755	3,275	238	3,513
Gross change in fair value of available-for-sale financial assets <sup>(2)</sup>		762	-	762	954	-	954
Related tax effect		(245)	-	(245)	(354)	-	(354)
Associates' share of fair value of available-for-sale financial assets		(2)	-	(2)	(14)	-	(14)
<i>Change in fair value of available-for-sale financial assets</i>	36.2.2	515	-	515	586	-	586
Gross change in fair value of hedging instruments <sup>(2)</sup>		845	8	853	(780)	20	(760)
Related tax effect		(205)	(2)	(207)	160	(9)	151
Associates' share of fair value of hedging instruments		16	-	16	(2)	-	(2)
<i>Change in fair value of hedging instruments</i>	41.4	656	6	662	(622)	11	(611)
Translation adjustments – controlled entities		(719)	(83)	(802)	424	82	506
Translation adjustments – associates		(27)	-	(27)	22	-	22
<i>Translation adjustments</i>		(746)	(83)	(829)	446	82	528
Gains and losses recorded directly in equity that will be reclassified subsequently to profit or loss		425	(77)	348	410	93	503
Gross change in actuarial gains and losses on post-employment benefits		122	(17)	105	(4,657)	57	(4,600)
Related tax effect		(74)	3	(71)	577	(13)	564
Associates' share of change in actuarial gains and losses on post-employment benefits		5	-	5	(108)	-	(108)
<i>Actuarial gains and losses on post-employment benefits</i>		53	(14)	39	(4,188)	44	(4,144)
Gains and losses recorded directly in equity that will not be reclassified subsequently to profit or loss		53	(14)	39	(4,188)	44	(4,144)
Total gains and losses recorded directly in equity		478	(91)	387	(3,778)	137	(3,641)
NET INCOME AND GAINS AND LOSSES RECORDED DIRECTLY IN EQUITY		3,995	147	4,142	(503)	375	(128)

(1) The figures published for 2012 have been restated for the impact of retrospective application of IAS 19 revised (see note 2).

(2) Gross changes in fair value transferred to income in respect of available-for-sale financial assets and hedging instruments are presented in notes 36.2.2 and 41.4 respectively.

## Consolidated balance sheets

### ASSETS

<i>(in millions of Euros)</i>	Notes	31/12/2013	31/12/2012 <sup>(1)</sup>
Goodwill	18	9,206	10,412
Other intangible assets	19	7,976	7,625
Property, plant and equipment operated under French public electricity distribution concessions	20	48,796	47,222
Property, plant and equipment operated under concessions for other activities	21	7,518	7,182
Property, plant and equipment used in generation and other tangible assets owned by the Group	22	69,013	67,838
Investments in associates	23	7,813	7,587
Non-current financial assets	36	30,324	30,471
Deferred tax assets	16.3	2,839	3,421
<b>Non-current assets</b>		<b>183,485</b>	<b>181,758</b>
Inventories	24	14,550	14,213
Trade receivables	25	22,137	22,497
Current financial assets	36	17,770	16,433
Current tax assets		560	582
Other receivables	26	9,221	8,486
Cash and cash equivalents	37	5,459	5,874
<b>Current assets</b>		<b>69,697</b>	<b>68,085</b>
Assets classified as held for sale	46	3,619	241
<b>TOTAL ASSETS</b>		<b>256,801</b>	<b>250,084</b>

(1) The figures published for 2012 have been restated for the impact of retrospective application of IAS 19 revised (see note 2).

## EQUITY AND LIABILITIES

<i>(in millions of Euros)</i>	Notes	31/12/2013	31/12/2012 <sup>(1)</sup>
Capital	27	930	924
EDF net income and consolidated reserves		33,277	25,333
<b>Equity (EDF share)</b>		<b>34,207</b>	<b>26,257</b>
Equity (non-controlling interests)		4,663	4,854
<b>Total equity</b>	<b>27</b>	<b>38,870</b>	<b>31,111</b>
Provisions related to nuclear generation – Back-end nuclear cycle, plant decommissioning and last cores	29	40,985	39,185
Provisions for decommissioning of non-nuclear facilities	30	1,193	1,090
Provisions for employee benefits	31	18,542	19,119
Other provisions	32	1,755	1,873
<b>Non-current provisions</b>	<b>28</b>	<b>62,475</b>	<b>61,267</b>
Special French public electricity distribution concession liabilities	33	43,454	42,551
Non-current financial liabilities	38	42,877	46,980
Other non-current liabilities	35	3,955	4,218
Deferred tax liabilities	16.3	5,004	5,601
<b>Non-current liabilities</b>		<b>157,765</b>	<b>160,617</b>
Current provisions	28	4,848	3,882
Trade payables	34	14,312	14,643
Current financial liabilities	38	14,912	17,521
Current tax liabilities		1,348	1,224
Other current liabilities	35	22,457	21,037
<b>Current liabilities</b>		<b>57,877</b>	<b>58,307</b>
<b>Liabilities related to assets classified as held for sale</b>	<b>46</b>	<b>2,289</b>	<b>49</b>
<b>TOTAL EQUITY AND LIABILITIES</b>		<b>256,801</b>	<b>250,084</b>

(1) The figures published for 2012 have been restated for the impact of retrospective application of IAS 19 revised (see note 2).



## Consolidated cash flow statements

(in millions of Euros)	Notes	2013	2012 <sup>(1)</sup>
<b>Operating activities:</b>			
Income before taxes of consolidated companies		5,322	4,825
Impairment (reversals)		1,012	752
Accumulated depreciation and amortisation, provisions and changes in fair value		9,445	9,255
Financial income and expenses		1,587	944
Dividends received from associates		266	201
Capital gains/losses		(882)	(443)
Change in working capital	43.1	(1,783)	(2,390)
<b>Net cash flow from operations</b>		<b>14,967</b>	<b>13,144</b>
Net financial expenses disbursed		(1,799)	(1,634)
Income taxes paid		(1,979)	(1,586)
<b>Net cash flow from operating activities</b>		<b>11,189</b>	<b>9,924</b>
<b>Investing activities:</b>			
Acquisitions / disposals of equity investments, net of cash (acquired/transferred)		648	20
Investments in intangible assets and property, plant and equipment	43.2	(13,327)	(13,386)
Net proceeds from sale of intangible assets and property, plant and equipment		240	748
Changes in financial assets		164	(1,792)
<b>Net cash flow used in investing activities</b>		<b>(12,275)</b>	<b>(14,410)</b>
<b>Financing activities:</b>			
Transactions with non-controlling interests <sup>(2)</sup>		95	(1,038)
Dividends paid by parent company	27.3	(2,144)	(2,125)
Dividends paid to non-controlling interests		(318)	(230)
Purchases / sales of treasury shares		4	(15)
<b>Cash flows with shareholders</b>		<b>(2,363)</b>	<b>(3,408)</b>
Issuance of borrowings		5,746	12,431
Repayment of borrowings		(8,654)	(4,869)
Issuance of perpetual subordinated bonds	27.4	6,125	-
Payments to bearers of perpetual subordinated bonds	27.4	(103)	-
Funding contributions received for assets operated under concessions		171	190
Investment subsidies		89	313
<b>Other cash flows from financing activities</b>		<b>3,374</b>	<b>8,065</b>
<b>Net cash flow from financing activities</b>		<b>1,011</b>	<b>4,657</b>
<b>Net increase/(decrease) in cash and cash equivalents</b>		<b>(75)</b>	<b>171</b>
<b>CASH AND CASH EQUIVALENTS - OPENING BALANCE</b>		<b>5,874</b>	<b>5,743</b>
Net increase/(decrease) in cash and cash equivalents		(75)	171
Effect of currency fluctuations		4	(44)
Financial income on cash and cash equivalents		23	38
Effect of reclassifications <sup>(3)</sup>		(367)	(34)
<b>CASH AND CASH EQUIVALENTS - CLOSING BALANCE</b>	<b>37</b>	<b>5,459</b>	<b>5,874</b>

(1) The figures published for 2012 have been restated for the impact of retrospective application of IAS 19 revised (see note 2).

(2) Contributions via capital increases or reductions and acquisitions of additional interests in controlled companies.

In 2012, payments made for transactions with non-controlling interests include the acquisition of additional interests in the Edison group following the mandatory public offer finalised on 6 September 2012 for €(869) million, and in ERSA following the acquisition of EnBW's investment in that subsidiary on 16 February 2012 for €(252) million.

(3) In 2013, the effect of reclassifications includes €(338) million resulting from reclassification of Dalkia International's cash and cash equivalents as "Assets held for sale".

## Changes in consolidated equity

	Capital	Treasury shares	Translation adjustments	Impact of fair value adjustment of financial instruments <sup>(1)</sup>	Other consolidated reserves and net income	Equity (EDF share)	Equity (share attributable to non-controlling interests)	Total equity
<i>(in millions of Euros)</i>								
<b>Equity at 31/12/2011</b>	<b>924</b>	<b>(26)</b>	<b>1,147</b>	<b>(1,073)</b>	<b>27,511</b>	<b>28,483</b>	<b>4,189</b>	<b>32,672</b>
Restatements due to change of method <sup>(2)</sup>	-	-	-	-	333	333	-	333
<b>Equity at 31/12/2011 (restated)</b>	<b>924</b>	<b>(26)</b>	<b>1,147</b>	<b>(1,073)</b>	<b>27,844</b>	<b>28,816</b>	<b>4,189</b>	<b>33,005</b>
Gains and losses recorded directly in equity	-	-	446	(36)	(4,188)	(3,778)	137	(3,641)
Net income	-	-	-	-	3,275	3,275	238	3,513
<b>Net income and gains and losses recorded directly in equity</b>	<b>-</b>	<b>-</b>	<b>446</b>	<b>(36)</b>	<b>(913)</b>	<b>(503)</b>	<b>375</b>	<b>(128)</b>
Dividends paid	-	-	-	-	(2,125)	(2,125)	(231)	(2,356)
Purchases / sales of treasury shares	-	(7)	-	-	-	(7)	-	(7)
Other changes <sup>(3)</sup>	-	-	-	-	76	76	521	597
<b>Equity at 31/12/12 (restated)</b>	<b>924</b>	<b>(33)</b>	<b>1,593</b>	<b>(1,109)</b>	<b>24,882</b>	<b>26,257</b>	<b>4,854</b>	<b>31,111</b>
Gains and losses recorded directly in equity	-	-	(746)	1,171	53	478	(91)	387
Net income	-	-	-	-	3,517	3,517	238	3,755
<b>Net income and gains and losses recorded directly in equity</b>	<b>-</b>	<b>-</b>	<b>(746)</b>	<b>1,171</b>	<b>3,570</b>	<b>3,995</b>	<b>147</b>	<b>4,142</b>
Issuance of perpetual subordinated bonds <sup>(4)</sup>	-	-	-	-	6,125	6,125	-	6,125
Payments on perpetual subordinated bonds	-	-	-	-	(103)	(103)	-	(103)
Dividends paid	-	-	-	-	(2,315)	(2,315)	(314)	(2,629)
Purchases / sales of treasury shares	-	(14)	-	-	-	(14)	-	(14)
Capital increase by EDF <sup>(5)</sup>	6	-	-	-	165	171	-	171
Other changes <sup>(6)</sup>	-	-	-	-	91	91	(24)	67
<b>EQUITY AT 31/12/13</b>	<b>930</b>	<b>(47)</b>	<b>847</b>	<b>62</b>	<b>32,415</b>	<b>34,207</b>	<b>4,663</b>	<b>38,870</b>

(1) These changes correspond to the effects of fair value adjustment of available-for-sale financial assets and amounts transferred to income following changes in their fair value, and the effects of fair value adjustment of financial instruments hedging cash flows and net foreign investments and amounts transferred to income in respect of terminated contracts. For details see the statement of net income and gains and losses recorded directly in equity.

(2) Figures at 31 December 2012 and 31 December 2011 have been restated for the impact of retrospective application of IAS 19 revised (see note 2).

(3) In 2012, other changes attributable to non-controlling interests include €406 million corresponding to the effects of the takeover of Edison and the mandatory public offer, of which €266 million are indirect non-controlling interests.

(4) In January 2013 the Group issued perpetual subordinated bonds totalling €6,125 million net of transaction costs (see note 3.1.1).

(5) In 2013, the capital increase and issue premium, totalling €171 million, relate to the payment in shares of some of the balance of 2012 dividends (see note 27.3).

(6) Other changes in 2013 (EDF's share) include the €228 million effects of the acquisition of Centrica's 20% investment in Nuclear New Build Holdings (see note 3.3.2).

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## Notes to the consolidated financial statements

Électricité de France (EDF or the "Company") is a French *société anonyme* governed by French Law, and registered in France.

The Company's consolidated financial statements include the accounts of companies directly or indirectly under the exclusive control of the Company and its subsidiaries, which are fully consolidated, the accounts of jointly-controlled companies (joint ventures), which are proportionally consolidated, and the accounts of companies in which the Company exercises significant influence (associates), which are accounted for under the equity method. All these economic entities are collectively referred to as the "Group".

The Group is an integrated energy operator engaged in all aspects of the energy business: generation, transmission, distribution, supply and trading of energies.

The Group's consolidated financial statements at 31 December 2013 were prepared under the responsibility of the Board of Directors and approved by the Directors at the Board meeting held on 12 February 2014. They will become final after approval at the General Shareholders' Meeting to be held on 15 May 2014.



## ➤ Note 1 Group accounting standards

### 1.1 Declaration of conformity and Group accounting policies

Pursuant to European regulation 1606/2002 of 19 July 2002 on the adoption of international accounting standards, the EDF group's consolidated financial statements for the year ended 31 December 2013 are prepared under the international accounting standards published by the IASB and approved by the European Union for application at 31 December 2013. These international standards are IAS (International Accounting Standards), IFRS (International Financial Reporting Standards), and SIC and IFRIC interpretations.

The comparative figures for 2012 presented in the notes to these condensed consolidated financial statements have been restated for the impact of retrospective application of IAS 19 revised and the change in presentation of disposals of generation assets by EDF Énergies Nouvelles as part of its Development and Sale of Structured Assets business (see note 2).

### 1.2 Changes in accounting methods at 31 December 2013

Apart from the changes indicated below, the accounting and valuation methods applied by the Group in the consolidated financial statements for the year ended 31 December 2013 are identical to those used in the consolidated financial statements for the year ended 31 December 2012.

#### 1.2.1 Accounting changes introduced in the consolidated financial statements at 31 December 2013

##### Change in accounting method – First application of IAS 19 revised

IAS 19 was revised in June 2011. The new version, which became mandatory on 1 January 2013, introduces the following changes for valuation and recognition of the EDF group's provisions for employee benefits:

- immediate recognition of the unvested past service cost;
- inclusion of the administrative and financial costs of employee benefit plans in the current service cost, with a corresponding reversal from the provisions previously established for those costs;
- inclusion in the financial result of a "net interest expense", equivalent to the interest expense on obligations net of income from fund assets, which is now determined using the same discount rate as the rate applied to measure obligations. The differential between the discount rate for obligations and the actual rate of return on fund assets is recorded directly in equity.

The Group decided in 2012 to stop using the "corridor" method and now recognises all actuarial gains and losses in full under the "SoRIE" method.

In compliance with IAS 8, this change of method is applied retrospectively. The resulting impacts on the Group's consolidated financial statements are presented in note 2.

##### Other standards and interpretations

The following standards, amendments and interpretations are also applied for the first time by the EDF group from 1 January 2013:

- IFRS 13 "Fair value measurement", which chiefly concerns the valuation of financial instruments at Group level, defining the methods for calculating the fair value of financial assets and liabilities incorporating the credit risk when valuing derivatives. Application of IFRS 13 did not have a significant impact on the Group's financial statements;
- the amendments to IAS 1 entitled "Presentation of items of other comprehensive income (OCI)". In the statement of net income and gains and losses recognised directly in equity, the Group now makes a distinction between:
  - components of gains and losses recognised directly in equity that will later be reclassified to profit and loss;
  - components of gains and losses recognised directly in equity that will not later be reclassified to profit and loss (this only concerns the actuarial gains and losses on post-employment benefits);
  - the associates' share of each of these types of gains and losses recognised directly in equity.
- amendments to IFRS 7 "Disclosures – Offsetting Financial Assets and Financial Liabilities", adopted by the European Union in 2012: Information relevant for assessing the current or potential impact of offsetting agreements is now disclosed in the notes to the consolidated financial statements.

The following amendments and interpretation became mandatory from 1 January 2013 and have had no impact on the Group's consolidated financial statements:

- amendment to IAS 12 "Deferred tax: recovery of underlying assets";
- amendments to IFRS 1 entitled "Severe hyperinflation and removal of fixed dates for first-time adopters" and "Government loans";
- IFRIC 20 "Stripping Costs in the Production Phase of a Surface Mine";
- annual improvements to IFRS (2009-2011).

#### 1.2.2 Standards and amendments adopted by the European Union but not yet mandatory in 2013 and not applied early by the Group

##### 1.2.2.1 IFRS 10, IFRS 11 and IFRS 12

In May 2011 the IASB (International Accounting Standards Board) published three new standards concerning consolidation, which were endorsed by the European Union in 2012:

- IFRS 10 "Consolidated financial statements";
- IFRS 11 "Joint arrangements";
- IFRS 12 "Disclosure of interests in other entities".

These standards were also supplemented by amendments to the following existing standards:

- IAS 27 (2011) "Separate financial statements";
- IAS 28 (2011) "Investments in associates and joint ventures".

In 2012, "Transition guidance" amendments were issued for IFRS 10, 11 and 12 and "Investment entities" amendments were issued for IFRS 10, IFRS 12 and IAS 27.

These new standards and amendments introduce a certain number of changes: a new, broader definition of control that can lead groups to broaden the scope of consolidation by including entities that were not previously consolidated, elimination of the possibility of proportional consolidation for joint ventures, and qualitative and quantitative changes in disclosures.

The main expected impacts of the new standards for the EDF group are as follows:

- the new definition of control laid down by IFRS 10 should not result in any significant changes in the Group's scope of consolidation;
- application of IFRS 11 should lead to the EDF group's joint arrangements being considered as joint ventures and therefore accounted for under the equity method, except for a few non-significant entities which are expected to be considered as joint operations (consolidation of the share of assets and liabilities).

Based on studies using 2013 data, the impacts on the main items of the Group's consolidated financial statements are expected to be as follows:

- in the income statement:
  - a decrease of around €0.7 billion in Operating profit before depreciation and amortisation;
  - no significant impact on EDF net income.
- in the balance sheet:
  - no significant impact on Equity (EDF share);
  - a decrease of around €2.1 billion in net financial indebtedness.

### 1.2.2.2 Standards and amendments adopted by the European Union but not yet mandatory

The other amendments adopted by the European Union but not mandatory in 2013 are the following:

- amendments to IAS 32 entitled "Offsetting Financial Assets and Financial Liabilities";
- amendments to IAS 39 entitled "Novation of derivatives and continuation of hedge accounting";
- amendments to IAS 36 entitled "Impairment of assets - Recoverable amount disclosures for non-financial assets".

Based on the analyses conducted to date, the Group considers that application of the above amendments will not have any significant impact on the consolidated financial statements.

### 1.2.3 Other standards and interpretations published by the IASB but not yet approved by the European Union

The following IASB publications applied specifically by the Group have not yet been approved by the European Union:

- IFRIC 21 "Levies";
- IFRS 9 phase III "Hedge accounting";
- Amendments to IAS 19 entitled "Employee benefits" on defined-benefit plans.

Based on the analyses conducted to date, the Group considers that future application of IFRIC 21 should not have a significant impact on the annual consolidated financial statements. However, in the half-year consolidated financial statements it is expected to result in a significant increase in the

balance sheet tax liabilities concerned by the interpretation (mainly energy-related taxes and real estate taxes for the France segment).

The potential impact of these amendments is currently being evaluated by the Group.

## 1.3 Summary of the principal accounting and valuation methods

The following accounting methods have been applied consistently through all the periods presented in the consolidated financial statements.

### 1.3.1 Valuation

The consolidated financial statements are based on historical cost valuation, with the exception of certain assets acquired and liabilities assumed through business combinations, and certain financial instruments, which are stated at fair value.

### 1.3.2 Management judgments and estimates

The preparation of the financial statements requires the use of judgments, best estimates and assumptions in determining the value of assets and liabilities, income and expenses recorded for the period, considering positive and negative contingencies existing at year-end. The figures in the Group's future financial statements could differ significantly from current estimates due to changes in these assumptions or economic conditions.

The EDF group's industrial strategy is to continue operation of the French nuclear power plants beyond their current accounting depreciation period of 40 years, in optimum conditions as regards safety and efficiency.

The Group has been making preparations for extending the useful life of its power plants for several years, and is now making the necessary investments under the major industrial overhaul programme called "*grand carénage*".

The adjustment of the accounting useful life of the French nuclear power plants to bring it into line with this industrial strategy will be reflected in the Group's consolidated financial statements as soon as all the required technical, economic and governance conditions are in place.

The other principal sensitive accounting methods involving use of estimates and judgments are described below. In a context characterised by financial market volatility, the parameters used to prepare estimates are based on macro-economic assumptions appropriate to the very long-term cycle of Group assets.

#### 1.3.2.1 Nuclear provisions

The measurement of provisions for the back-end of the nuclear cycle, decommissioning and last cores is sensitive to assumptions concerning costs, inflation rate, long-term discount rate, and disbursement schedules. A revised estimate is therefore established at each closing date to ensure that the amounts accrued correspond to the best estimate of the costs eventually to be borne by the Group. Any significant differences resulting from these revised estimates could entail changes in the amounts accrued.

The main assumptions and sensitivity analyses are presented in note 29.1.5.2.

#### 1.3.2.2 Pensions and other long-term and post-employment benefits

The value of pensions and other long-term and post-employment benefit obligations is based on actuarial valuations that are sensitive to all the

actuarial assumptions used, particularly concerning discount rates and wage increase rates.

The principal actuarial assumptions used to calculate these post-employment and long-term benefits at 31 December 2013 are presented in note 31. These assumptions are updated annually. The Group considers the actuarial assumptions used at 31 December 2013 appropriate and well-founded, but future changes in these assumptions could have a significant effect on the amount of the obligations and the Group's equity and net income. Sensitivity analyses are therefore presented in note 31.

### 1.3.2.3 Impairment of goodwill and long-term assets

Impairment tests on goodwill and long-term assets are sensitive to the macro-economic and segment assumptions used - particularly concerning energy price movements - and medium-term financial forecasts. The Group therefore revises the underlying estimates and assumptions based on regularly updated information.

These assumptions, which are specific to the Group, are presented in note 13.

### 1.3.2.4 Financial instruments

In measuring the fair value of unlisted financial instruments (essentially energy contracts), the Group uses valuation models based on a certain number of assumptions subject to unforeseeable developments.

### 1.3.2.5 Energy supplied but not yet measured and billed

As explained in note 1.3.7, the quantities of energy supplied but not yet measured and billed are calculated at the reporting date based on consumption statistics and selling price estimates. Determination of the unbilled portion of sales revenues at the year-end is sensitive to the assumptions used to prepare these statistics and estimates.

### 1.3.2.6 Obligations concerning French public distribution concession assets to be replaced

In view of the specific nature of French public electricity distribution concessions, the Group has opted to present its obligation to renew concession assets in the balance sheet at a value based on the amount of contractual commitments as calculated and disclosed to the grantors in the annual business reports (see note 1.3.13.2.1). An alternative approach would be to value the obligations based on the present value of future payments necessary to replace these assets at the end of their industrial useful life. The impacts this alternative approach would have had on the accounts are shown in note 1.3.24 for information. Whatever valuation method is used, measurement of the concession liability concerning assets to be replaced is notably subject to unforeseeable developments in terms of costs, useful life and disbursement dates.

### 1.3.2.7 Deferred tax assets

The use of estimates and assumptions over recovery horizons is particularly important in the recognition of deferred tax assets.

### 1.3.2.8 Other judgments

When there is no standard or interpretation applicable to a specific transaction, the Group exercises judgment to define and apply accounting methods that supply relevant and reliable information for preparation of its financial statements.

## 1.3.3 Consolidation methods

Subsidiaries are companies in which the Group has exclusive control and are fully consolidated. Exclusive control means the power to govern a company's financial and operating policies either directly or indirectly so as to obtain benefit from its activities. Exclusive control is presumed when EDF directly or indirectly holds more than 50% of the voting rights. Voting rights that are potentially exercisable at the closing date, even by another party, are taken into consideration in determining the level of control over a subsidiary.

Joint ventures are companies that the Group jointly controls, and are proportionally consolidated on the basis of the Group's percentage interest. Joint control is the contractually agreed sharing of control over a company run jointly by a limited number of partners or shareholders, such that the financial and operating policies require their unanimous consent.

Associates are entities in which the Group exercises significant influence over financial and operating policies, without having exclusive or joint control. The Group is considered to exercise significant influence when it holds at least 20% of the consolidated company. Associates are accounted for under the equity method. They are carried in the balance sheet at historical cost adjusted for the share of net assets generated after acquisition, less any impairment. The Group's share in net income for the period is reported under the income statement heading "Share in income of associates".

All internal transactions between consolidated companies, including realised internal profits, are eliminated.

A list of the main subsidiaries, joint ventures and associates is presented in note 52.

## 1.3.4 Financial statement presentation rules

Assets and liabilities of dissimilar natures or functions are disclosed separately.

Assets and liabilities contributing to working capital used in the entity's normal operating cycle are classified as current. Other assets and liabilities are classified as current if they mature within one year of the closing date, and non-current if they mature more than one year after the closing date.

Commitments given by the Group to purchase minority interests in Group-controlled companies are included in liabilities. For commitments of this kind given since 1 January 2010, the differential between the value of the minority interests and the liability corresponding to the commitment is recorded in equity.

The income statement presents items by nature. The heading "Other income and expenses" presented below the operating profit before depreciation and amortisation comprises items of an unusual nature or amount.

In the cash flow statements, cash flows related to operating activities are presented under the indirect method.

## 1.3.5 Translation methods

### 1.3.5.1 Reporting currency

The parent company's functional currency is the Euro. The Group's financial statements are presented in millions of Euros.

### 1.3.5.2 Functional currency

An entity's functional currency is the currency of the economic environment in which it primarily operates. In most cases, the local currency is the functional currency, but for some entities, a functional currency other than the local currency may be used provided it reflects the currency used in the principal transactions.

### 1.3.5.3 Translation of the financial statements of foreign companies whose functional currency is not the Euro

The financial statements of foreign companies whose functional currency is not the Euro are translated as follows:

- balance sheets are translated into Euros at the closing rate;
- income statements and cash flows are translated at the average rate for the period;
- resulting differences are recognised in equity under the heading "Translation adjustments".

Translation adjustments affecting a monetary item that is an integral part of the Group's net investment in a consolidated foreign company are included in consolidated equity until the disposal or liquidation of the net investment, at which date they are recognised as income or expenses in the income statement, in the same way as other exchange differences concerning the company.

### 1.3.5.4 Translation of transactions in foreign currencies

In application of IAS 21, transactions expressed in foreign currencies are initially translated and recorded in the functional currency of the entity concerned, using the rate in force at the transaction date.

At each reporting date, monetary assets and liabilities expressed in foreign currencies are translated at the closing rate. The resulting foreign exchange differences are taken to the income statement.

## 1.3.6 Related parties

Related parties include the French State, companies in which the State holds majority ownership and certain of their subsidiaries, and companies in which the EDF group exercises joint control or significant influence. They also include members of the Group's management and governance bodies.

## 1.3.7 Sales

Sales essentially comprise income from energy sales (to final customers and as part of trading activities), connections and other services, which mainly include energy transmission and distribution, and capacity and interconnection auctions.

The Group accounts for sales when:

- there is a proven contractual relationship;
- delivery has taken place (or the service has been completed);
- a quantifiable price has been established or can be determined;
- and the receivables are likely to be recovered.

Delivery takes place when the risks and benefits associated with ownership are transferred to the buyer.

Energy supplied but not yet measured and billed is calculated based on consumption statistics and selling price estimates.

Sales of goods and revenues on services not completed at the balance sheet date are valued by reference to the stage of completion at that date.

Energy trading operations are recognised net of purchases.

## 1.3.8 Income taxes

Income taxes include the current tax expense (income) and the deferred tax expense (income), calculated under the tax legislation in force in the countries where earnings are taxable.

Current and deferred taxes are generally recorded in the income statement or in equity symmetrically to the underlying operation. The tax effects regarding taxation of dividends and payments on perpetual subordinated bonds are included in the current year net income.

The current tax expense (income) is the estimated amount of tax due on the taxable income for the period, calculated using the tax rates adopted at the year-end.

Deferred taxes result from temporary differences between the book value of assets and liabilities and their tax basis. No deferred taxes are recognised for temporary differences generated by:

- goodwill which is not tax deductible;
- the initial recognition of an asset or liability in a transaction which is not a business combination and does not affect the accounting profit or taxable profit (tax loss) at the transaction date;
- investments in subsidiaries, joint ventures and associates, when the Group controls the timing of reversal of the temporary differences, and it is probable that the temporary differences will not reverse in the foreseeable future.

Deferred tax assets and liabilities are valued at the expected tax rate for the period in which the asset will be realised or the liability settled, based on tax rates adopted at the year-end. If the tax rate changes, deferred taxes are adjusted to the new rate and the adjustment is recorded in the income statement, unless it relates to an underlying for which changes in value are recorded in equity, for example in accounting for actuarial gains and losses or fair value on hedging instruments and available-for-sale financial assets.

Deferred taxes are reviewed at each closing date, to take into account changes in tax legislation and the prospects for recovery of deductible temporary differences. Deferred tax assets are only recognised when it is probable that the Group will have sufficient taxable profit to utilise the benefit of the asset in the foreseeable future, or beyond that horizon, if there are deferred tax liabilities with the same maturity.

## 1.3.9 Earnings per share and diluted earnings per share

Earnings per share is calculated by dividing the Group's share of net income by the weighted average number of shares outstanding over the period. This weighted average number of shares outstanding is the number of ordinary shares at the start of the year, adjusted by the number of shares redeemed or issued during the year.

This number, and the earnings per share, are adjusted whenever necessary to reflect the impact of translation or exercise of dilutive potential shares (options, subscription warrants and convertible bonds issued, etc.).

In compliance with IAS 33, earnings per share and diluted earnings per share are based on the net income after deduction of payments to bearers of perpetual subordinated bonds.

## 1.3.10 Business combinations

In application of IFRS 3 business combinations arising since 1 January 2010 are measured and recognised under the following principles.

At the date of acquisition, the identifiable assets acquired and liabilities assumed, measured at fair value, and any non-controlling interests in the company acquired (minority interests) are recorded separately from goodwill.

Non-controlling interests may be valued either at fair value (total goodwill method) or their share in the fair value of the net assets of the acquired company (partial goodwill method). The decision is made individually for each transaction.

Any acquisition or disposal of an investment that does not affect control and takes place after the business combination is considered as a transaction between shareholders and must be recorded directly in equity in application of IAS 27.

If additional interests in an associate are acquired without resulting in acquisition of control, the value of previously acquired assets and liabilities remains unchanged in the consolidated accounts.

If control is acquired in stages, the cost of the business combination includes the fair value, at the date control is acquired, of the purchaser's previously-held interest in the acquired company.

Related costs directly attributable to an acquisition leading to control are treated as expenses for the periods in which they were incurred, except for issuance costs for debt securities or equity instruments, which must be recorded in compliance with IAS 32 and IAS 39.

IFRS 3 does not apply to common control business combinations, which are examined on a case-by-case basis to determine the appropriate accounting treatment.

## 1.3.11 Goodwill and other intangible assets

### 1.3.11.1 Goodwill

#### 1.3.11.1.1 Determination of goodwill

In application of IFRS 3, "Business combinations", goodwill is the difference between:

- the sum of the following items:
  - the acquisition-date fair value of the price paid to acquire control;
  - the value of non-controlling interests in the entity acquired;
  - and for acquisitions achieved in stages, the acquisition-date fair value of the Group's share in the acquired entity before it acquired control;
- and the net value of the assets acquired and liabilities assumed, measured at fair value at the acquisition date.

When this difference is negative it is immediately included in net income.

The fair values of assets and liabilities and the resulting goodwill are finalised within twelve months of the acquisition.

#### 1.3.11.1.2 Measurement and presentation of goodwill

Goodwill on acquisition of subsidiaries or joint ventures is disclosed separately in the balance sheet. Impairment on this goodwill is reported under the heading "Impairment" in the income statement.

Goodwill on acquisition of associates is included in the investment's net book value. Impairment on this goodwill is included under the heading "Share in income of associates".

Goodwill is not amortised, but impairment tests are carried out as soon as there is an indication of possible loss of value, and at least annually, as described in note 1.3.15.

After initial recognition, goodwill is carried at cost less any impairment recognised.

### 1.3.11.2 Other intangible assets

#### 1.3.11.2.1 Research and development expenses

Research expenses are recognised as expenses in the financial period incurred.

Project development expenses are capitalised when the Group can demonstrate:

- the technical feasibility of making the intangible asset ready for commissioning or sale;
- its intention to complete the intangible asset and use or sell it;
- its ability to use or sell the intangible asset;
- how the intangible asset will generate likely future economic benefits;
- the availability of the appropriate resources (technical, financial or other) to complete development and use or sell the intangible asset;
- and its ability to provide a reliable estimate of expenses attributable to the intangible asset during its development.

Capitalised development costs are amortised on a straight-line basis over their foreseeable useful life.

#### 1.3.11.2.2 Other self-produced or purchased intangible assets

Other intangible assets mainly comprise:

- software, which is amortised on a straight-line basis over its useful life;
- purchased brands with an indefinite useful life, or amortised on a straight-line basis over their useful life;
- operating or usage rights for power plants, which are amortised on a straight-line basis over the useful life of the underlying asset;
- rights or licenses relating to hydrocarbon concessions, which are amortised under the Unit Of Production (UOP) method, and exploration expenses amortised over the year (see note 1.3.11.2.3);
- intangible assets related to environmental regulations (greenhouse gas emission rights and renewable energy certificates acquired for a consideration – see note 1.3.27);
- the positive value of energy purchase/sale contracts stated at fair value as part of a business combination governed by IFRS 3: this value is amortised as the contractual deliveries take place.

#### 1.3.11.2.3 Hydrocarbon prospecting, exploration and generation

The Group applies IFRS 6, "Exploration for and Evaluation of Mineral Resources".

Prospection and exploration costs and costs incurred in connection with geological surveys, exploration tests, geological and geophysical mapping and exploratory drilling are recognised as intangible assets and fully amortised in the year they are incurred.

Development costs related to commercially viable mineral wells and investments in facilities to extract and store hydrocarbons are recognised as "Property, plant and equipment used in generation and other tangible assets owned by the Group" or "Property, plant and equipment operated under concessions for other activities" as appropriate.

They are amortised under the UOP method.



## 1.3.12 Concession assets, generation assets and other property, plant and equipment

The Group's property, plant and equipment is reported under three balance sheet headings, as appropriate to the business and contractual circumstances of their use:

- property, plant and equipment operated under French public electricity distribution concessions;
- property, plant and equipment operated under concessions for other activities;
- property, plant and equipment used in generation and other tangible assets owned by the Group.

### 1.3.12.1 Initial measurement

Property, plant and equipment is recorded at acquisition or production cost.

The cost of facilities developed in-house includes all labour and materials costs, and all other production costs attributable to the construction of the asset.

The Group capitalises safety expenses incurred as a result of legal and regulatory obligations sanctioning non-compliance by an administrative ban from operation.

The cost of property, plant and equipment also includes decommissioning costs for generation plants, and last core costs for nuclear facilities. These assets are associated with the provisions recorded to cover these obligations. At the date of commissioning, they are measured and recorded in the same way as the corresponding provision (see note 1.3.21).

When some of the decommissioning costs for a plant are to be borne by a partner, the expected reimbursement is recognised as accrued income in the assets. The difference between the provision and the accrued income is recorded as a tangible asset, and subsequent payments by the partner are deducted from the accrued income.

The following components are thus included in the balance sheet value of property, plant and equipment:

- the discounted cost of decommissioning the facilities;
- and for nuclear facilities, the discounted cost of last core nuclear fuel, including:
  - the cost of the loss on reactor fuel that will not be fully irradiated when production shuts down and cannot be reused because of technical and regulatory constraints;
  - the cost of processing this fuel;
  - and the cost of removing and storing waste resulting from these operations.

Strategic safety spare parts for nuclear facilities are treated as property, plant and equipment, and depreciated over the residual useful life of the installations.

When a part of an asset has a different useful life from the overall asset's useful life, it is identified as an asset component and depreciated over a specific period.

This mainly concerns the costs of major inspections, which are amortised over a period corresponding to the time elapsing between two inspections.

Borrowing costs attributable to the financing of an asset incurred during the construction period are included in the value of the asset provided it is a "qualifying asset" as defined by IAS 23.

### 1.3.12.2 Depreciation

Items of property, plant and equipment are depreciated on a straight-line basis over their useful life, defined as the period during which the Group expects to draw future economic benefits from their use.

Depending on each country's specific regulations and contractual arrangements, the expected useful lives for the main facilities are as follows:

- hydroelectric dams: 75 years
- electromechanical equipment used in hydropower plants: 50 years
- fossil-fired power plants: 25 to 45 years
- nuclear generation facilities:
  - in France: 40 years
  - outside France: 35 to 60 years
- transmission and distribution installations (lines, substations): 20 to 50 years
- wind farm and photovoltaic facilities: 20 to 25 years

## 1.3.13 Concession agreements

### 1.3.13.1 Accounting treatment

The accounting treatment of public and private agreements depends on the nature of the agreements and their specific contractual features.

For most of its concessions, the Group considers that in substance the grantors do not have the characteristic features of control over infrastructures as defined in IFRIC 12.

### 1.3.13.2 French concessions

In France, the Group is the operator for three types of public service concessions:

- public electricity distribution concessions in which the grantors are local authorities (municipalities or syndicated municipalities);
- hydropower concessions with the State as grantor;
- the public transmission network operated under concession from the State.

#### 1.3.13.2.1 Public electricity distribution concessions

##### General background

Since the enactment of the French Law of 8 April 1946, the EDF group has by law been the sole operator for the main public distribution concessions in France.

The accounting treatment of concessions is based on the concession agreements, with particular reference to their special clauses. It takes into consideration the possibility that the EDF group may one day lose its status as the sole authorised State concession operator.

These agreements generally cover terms of between 20 and 30 years, and use standard concession rules deriving from the 1992 Framework Contract (updated in 2007) negotiated with the National Federation of Licensing Authorities (*Fédération Nationale des Collectivités Concédantes et Régies - FNCCR*) and approved by the public authorities.

##### Recognition of assets as property, plant and equipment operated under French public electricity distribution concessions

All assets used by the EDF group in public electricity distribution concessions in France, whether they are owned by the grantor or the operator, are reported together on a specific line in the balance sheet assets at acquisition cost, or their estimated value at the transfer date when supplied by the grantor.

#### 1.3.13.2.2 Hydropower concessions

Hydropower concessions in France follow standard rules approved by decree. Assets attributed to the hydropower concessions comprise hydropower generation equipment (dams, pipes, turbines, etc) and, in the case of recently-renewed concessions, electricity generation and switching facilities (alternators, etc).

Assets used in these concessions are recorded under "Property, plant and equipment operated under concessions for other activities" at acquisition cost. As a result of changes in the regulations following removal of the

outgoing operator's preferential right when a concession is renewed, the Group has shortened the depreciation periods used for certain assets.

### 1.3.13.2.3 Public transmission concession

Under French law, assets assigned to the public transmission concession belong to RTE (Réseau de Transport d'Électricité). Following the Group's loss of control over RTE from 31 December 2010, these assets are included in calculating the equity value of RTE in the consolidated balance sheet.

### 1.3.13.3 Foreign concessions

Foreign concessions are governed by a range of contracts and national laws. Most assets operated under foreign concessions are recorded under "Property, plant and equipment operated under concessions for other activities". Foreign concessions essentially concern Edison in Italy, which operates hydrocarbon generation sites, gas storage sites, local gas distribution networks and hydropower generating plants under concessions. Edison owns all the assets except for some items of property, plant and equipment on the hydropower generation sites, which will be returned to the grantor for nil consideration or with an indemnity when the concession ends. In compliance with IFRIC 12, certain concession agreements are recorded as intangible assets.

Hydropower generation assets which will be returned for nil consideration at the end of the concession are depreciated over the duration of the concession. Hydrocarbon generation sites are recorded in compliance with the rules applicable to the sector (see note 1.3.11).

## 1.3.14 Leases

In the course of its business the Group uses assets made available to it, or makes assets available to lessees, under lease contracts. These contracts are analysed in the light of the situations described and indicators supplied in IAS 17 in order to determine whether they are finance leases or operating leases.

### 1.3.14.1 Finance leases

Contracts that effectively transfer substantially to the lessee all risks and benefits inherent to ownership of the leased item are classified as finance leases. The main criteria examined in determining whether substantially all the risks and benefits are transferred by an agreement are the following:

- the ratio of the duration of the lease to the leased assets useful life;
- total discounted future payments as a ratio of the fair value of the financed asset;
- whether ownership is transferred at the end of the lease;
- whether the purchase option is attractive;
- the features specific to the leased asset.

Assets used under finance leases are derecognised from the lessor's balance sheet and included in the relevant category of property, plant and equipment in the lessee's accounts. Such assets are depreciated over their useful life, or the term of the lease contract when this is shorter.

A corresponding financial liability is booked by the lessee, and a financial asset by the lessor.

If the Group performs a sale and leaseback operation resulting in a finance lease agreement, this is recognised in accordance with the principles described above. If the transfer price is higher than the asset's book value, the surplus is deferred and recognised as income progressively over the term of the lease.

### 1.3.14.2 Operating leases

Lease agreements that do not qualify as finance leases are classified and recognised as operating leases. Rental charges are spread over the duration of the lease agreement on a straight-line basis.

### 1.3.14.2 Arrangements containing a lease

In compliance with IFRIC 4, the Group identifies arrangements that do not have the legal form of a lease contract but nonetheless convey the right to control the use of an asset or group of specific assets to the purchaser.

Such arrangements are treated as leases, and analysed with reference to IAS 17 for classification as either finance or operating leases.

## 1.3.15 Impairment of goodwill, intangible assets and property, plant and equipment

At the year-end and at each interim reporting date, in application of IAS 36, the Group assesses whether there is an indication that an asset could have been significantly impaired. An impairment test is also carried out at least once a year on cash-generating units (CGUs) or groups of CGUs including goodwill or any intangible asset with an indefinite useful life.

For CGUs including goodwill or another non-amortisable intangible asset, or when there is evidence of loss of value, an impairment test is carried out as follows:

- the Group measures any long-term asset impairment by comparing the carrying value of these assets and goodwill, grouped into CGUs where necessary, and their recoverable amount;
- CGUs are groups of homogeneous assets that generate identifiable independent cash flows. The Group's CGUs are subgroups or legal entities, broken down where necessary by activity (generation and supply, distribution, transmission, other). Goodwill is allocated to the CGUs that benefit from synergies resulting from the acquisition;
- the recoverable value of these units is the higher of fair value net of disposal costs, and value in use. When this recoverable value is lower than the carrying amount in the balance sheet, an amount equal to the difference is booked under the heading "Impairment". The loss is allocated first to goodwill, and any surplus to the other assets of the CGU concerned;
- value in use is calculated based on projected future cash flows:
  - over a horizon that is coherent with the asset's useful life and/or operating life,
  - excluding development projects other than those that have been decided at the valuation date,
  - and discounted at a rate that reflects the risk profile of the asset or CGU.
- market value (or fair value) is calculated as the asset's potential sale price less the costs necessary for its sale;
- the discount rates used are based on the weighted average cost of capital (WACC) for each asset or group of assets concerned, determined by geographical area and by business segment under the CAPM. WACC is calculated after taxes;
- future cash flows are calculated on the basis of the best available information at the valuation date:
  - for the first few years, the flows correspond to the Medium-Term Plan (MTP) approved by the Management. Over the MTP horizon, energy prices are determined based on available forward prices;
  - beyond the MTP horizon, flows are estimated based on long-term assumptions prepared by the Management for each country and each energy.

These calculations may be influenced by several variables:

- changes in tariff regulations and market prices,
- changes in interest rates and market risk premiums,
- market levels and the Group's market share,
- the useful lives of facilities, and the plan for concession renewal,
- the growth rates used beyond the medium-term plans and the terminal values taken into consideration.

Impairment of goodwill is irreversible.

## 1.3.16 Financial assets and liabilities

Financial assets include available-for-sale assets (non-consolidated investments, investment securities and certain dedicated assets), loans and receivables at amortised cost, including trade receivables, and the positive fair value of derivatives.

Available-for-sale securities allocated to dedicated assets are presented in note 48.

Financial liabilities comprise loans and other financial liabilities, trade payables, bank credit and the negative fair value of financial derivatives.

Financial assets and liabilities are recorded in the balance sheet as current if they mature within one year and non-current if they mature after one year, apart from derivatives held for trading, which are all classified as current.

Operating debts and receivables, and cash and cash equivalents, are governed by IAS 39 and reported separately in the balance sheet.

### 1.3.16.1 Classification and valuation methods for financial assets and liabilities

Financial instruments are classified as follows under IFRS 7:

- financial assets and liabilities carried at fair value with changes in fair value included in income;
- held-to-maturity financial assets;
- loans and financial receivables;
- available-for-sale financial assets;
- trade receivables;
- cash and cash equivalents;
- financial debts and operating debts;
- derivatives.

Fair value is the price that would be received to sell an asset or paid to transfer a liability in an orderly transaction on the principal or the most advantageous market at the measurement date.

In application of IFRS 13, the hierarchy of fair values reflecting the importance of data used in valuations comprises the following levels:

- level 1 (unadjusted quoted prices): prices accessible to the entity at the measurement date on active markets, for identical assets or liabilities;
- level 2 (observable data): data concerning the asset or liability, other than the market prices included in initial level 1 input, which are directly observable (such as a price) or indirectly observable (i.e. deducted from observable prices);
- level 3 (non-observable data): data that are not observable on a market, including observable data that have been significantly adjusted (e.g. extrapolation of interest rate curves over long non-observable periods). In the EDF group this chiefly concerns certain non-consolidated investments.

#### 1.3.16.1.1 Financial assets and liabilities carried at fair value with changes in fair value included in income

Financial assets carried at fair value with changes in fair value included in the income statement are classified as such at the inception of the operation if:

- they were acquired from the outset with the intention of resale in the short term;
- they are derivatives not classified as hedges (derivatives held for trading);
- the Group has elected to include them in this category under the option allowed by IAS 39.

These assets are recorded at the transaction date at fair value, which is generally equal to the amount of cash paid out. Transaction costs directly attributable to the acquisition are recorded in the income statement. At each subsequent reporting date they are adjusted to fair value, based on quoted prices available from external sources for listed financial instruments, or using recognised valuation techniques such as the discounted cash flow method or reference to external sources for other financial instruments.

Changes in fair value other than those concerning commodity contracts are recorded in the income statement under the heading "Other financial income and expenses".

Dividends and interest received on assets carried at fair value are recorded in the income statement under "Other financial income".

Changes in the fair value of commodity trading contracts are recorded in the income statement under "Sales".

Changes in the fair value of non-trading commodity transactions are reported separately on a specific line of the income statement, "Net changes in fair value on Energy and Commodity derivatives, excluding trading activities" below the operating profit before depreciation and amortisation. These are transactions that come under the scope of IAS 39, which for accounting purposes are not eligible for hedge accounting or the IAS 39 "own use" exemption (see note 1.3.16.1.6).

Regarding the fair value option, the Group classifies an asset or liability "at fair value with changes in fair value included in income" in the three following circumstances:

- when using fair value eliminates or significantly reduces an inconsistency in the measurement of assets and liabilities;
- when the performance of a group of financial assets or financial liabilities is managed on a fair value basis, in accordance with documented strategies and the reporting to management;
- when a contract contains one or more embedded derivatives. In such cases the fair value option may be applied to the hybrid instrument, unless:
  - the embedded derivative does not substantially affect the cash flows of the contract,
  - analysis of the host contract and the embedded derivative does not lead to separation of this embedded derivative.

#### 1.3.16.1.2 Held-to-maturity financial assets

This category covers fixed-term investments which the Group acquires with the intent and ability to hold to maturity. They are recorded at amortised cost at the transaction date. Interest is calculated at the effective interest rate and recorded in the income statement under the heading "Other financial income and expenses".

#### 1.3.16.1.3 Loans and financial receivables

Loans and financial receivables are valued and recorded at the transaction date, at amortised cost less any impairment.

Interest is calculated at the effective interest rate and recorded in the income statement under the heading "Other financial income and expenses".

### 1.3.16.1.4 Available-for-sale financial assets

Available-for-sale financial assets comprise non-consolidated investments, investment securities, reserved funds and certain dedicated assets.

On initial recognition, available-for-sale financial assets are recorded at fair value plus transaction costs attributable to their acquisition. They are subsequently readjusted to fair value at each reporting date.

Fair value measurement is based on quoted prices and market data available from external sources for instruments listed on an active market, and on the discounted cash flow method for other financial instruments. Shares not listed on an active market for which fair value cannot be reliably estimated are recorded at acquisition cost.

Unrealised gains or losses on these assets are recorded in equity, unless there is evidence of a realised loss, in which case impairment is recognised in the financial result (see note 1.3.16.2.2).

For available-for-sale financial assets represented by debt securities, interest income is calculated at the effective interest rate and credited to the income statement under the heading "Other financial income and expenses".

### 1.3.16.1.5 Financial liabilities

Financial liabilities are recorded at amortised cost, with separation of embedded derivatives where applicable. Interest expenses are calculated at the effective interest rate and recorded in the income statement under the heading "Cost of gross financial indebtedness" over the duration of the financial liability.

### 1.3.16.1.6 Derivatives

#### Scope

The scope of derivatives applied by the Group corresponds to the principles set out in IAS 39.

In particular, forward purchases and sales for physical delivery of energy or commodities are considered to fall outside the scope of application of IAS 39 when the contract concerned is considered to have been entered into as part of the Group's normal business activity ("own use"). This is demonstrated to be the case when all the following conditions are fulfilled:

- a physical delivery takes place under all such contracts;
- the volumes purchased or sold under the contracts correspond to the Group's operating requirements;
- the contracts cannot be considered as options as defined by the standard. In the specific case of electricity sale contracts, the contract is equivalent to a firm forward sale or can be considered as a capacity sale.

The Group considers that transactions negotiated with a view to balancing the volumes between electricity purchase and sale commitments are part of its business as an integrated electricity operator, and are outside the scope of IAS 39.

In compliance with IAS 39, the Group analyses all its contracts, of both a financial and non-financial nature, to identify the existence of any "embedded" derivatives. Any component of a contract that affects the cash flows of that contract in the same way as a stand-alone derivative corresponds to the definition of an embedded derivative.

If they meet the conditions set out by IAS 39, embedded derivatives are accounted for separately from the host contract at inception date.

#### Measurement and recognition

Derivatives are initially recorded at fair value, based on quoted prices and market data available from external sources. If no quoted prices are available, the Group may refer to recent comparable transactions or if no such transactions exist base its valuation on internal models that are recognised by market participants, giving priority to information directly derived from observable data, such as over-the-counter listings.

Changes in the fair value of these derivatives are recorded in the income statement, unless they are classified as hedges for a cash flow or net investment. Changes in the fair value of such hedging instruments are recorded directly in equity, excluding the ineffective portion of the hedge.

In the specific case of financial instruments entered into as part of the trading business, realised and unrealised gains and losses are reported net under the heading "Sales".

In application of IFRS 13, the fair value of derivatives incorporates the counterparty credit risk for derivative assets and the own credit risk for derivative liabilities. The probabilities of default used to calculate these credit risks are based on historical data.

#### Derivatives classified as hedges

The EDF group uses derivatives to hedge its foreign exchange and interest rate risks, as well as risks related to certain commodity contracts.

The Group applies the criteria defined by IAS 39 in classifying derivatives as hedges:

- the instrument must hedge changes in fair value or cash flows attributable to the risk hedged, and the effectiveness of the hedge (i.e. the degree to which changes in the value of the hedging instrument offset changes in the value of the hedged item or future transaction) must be between 80% and 125%;
- in the case of cash flow hedges, the future transaction being hedged must be highly probable;
- reliable measurement of the effectiveness of the hedge must be possible;
- the hedge must be supported by appropriate documentation from its inception.

The hedging relationship ends when:

- a derivative ceases to be an effective hedging instrument;
- a derivative expires, or is sold, terminated or exercised;
- the hedged item expires, is sold or redeemed;
- a future transaction ceases to be considered as highly probable.

Only derivatives external to the Group, and internal derivatives that are matched with similar transactions external to the Group, qualify for hedge accounting.

The Group uses the following categories for hedges:

#### (A) Fair value hedges

These instruments hedge the exposure to changes in the fair value of an asset or liability recorded in the balance sheet, or a firm commitment to purchase or sell an asset. Changes in the fair value of the hedged item attributable to the hedged component of that item are recorded in the income statement and offset by corresponding variations in the fair value of the hedging instrument. Only the ineffective portion of the hedge has an impact on income.

#### (B) Cash flow hedges

These instruments hedge highly probable future transactions: the variability in cash flows generated by the hedged transaction is offset by changes in the value of the hedging instrument.

The effective portion of accumulated changes in the hedge's fair value is recorded in equity, and the ineffective portion (i.e. changes in the fair value of the hedging instrument in excess of changes in the fair value of the hedged item) is recorded in the income statement.

When the hedged cash flows materialise, the amounts previously recognised in equity are transferred to the income statement in the same way as for the hedged item.



## (C) Hedges of a net investment

These instruments hedge exposure to the foreign exchange risk related to a net investment in an entity which does not have the same functional currency as the Group. The effective portion of accumulated changes in the hedge's fair value is recorded in equity until the disposal or liquidation of the net investment, when it is included in the gain or loss on disposal. The ineffective portion (defined in the same way as for cash flow hedges) is recorded directly in the income statement.

The Group records the change in fair value resulting from the interest rate effect of derivatives hedging a net investment in a foreign operation in equity in the same way as the change in value resulting from foreign exchange differences.

### 1.3.16.2 Impairment of financial assets

At the year-end and at each interim reporting date, the Group assesses whether there is any objective evidence that an asset could have been significantly impaired. If so, the Group estimates the asset's recoverable value and records any necessary impairment as appropriate for the category of asset concerned.

#### 1.3.16.2.1 Impairment of financial assets recorded at amortised cost

Impairment is equal to the difference between the asset's net book value and the discounted value of expected future cash flows, using the original effective interest rate of the financial instrument. The impairment is included in the income statement under the heading "Other financial income and expenses". If the impairment loss decreases in a subsequent period, the amount of the decrease is reversed and transferred to the income statement.

#### 1.3.16.2.2 Impairment of available-for-sale financial assets

If there is a substantial, long-term decline in the fair value of available-for-sale assets, the unrealised loss is reclassified from equity to income. For debt instruments, impairment is only recorded in income when there is an indication of impairment associated with the counterparty. If the fair value of an available-for-sale financial asset rises in a subsequent period, the increase in value is included in equity when it concerns equity instruments, and leads to a reversal from previously-recorded impairment when it concerns debt instruments.

Different criteria for impairment apply to different types of available-for-sale financial assets.

For available-for-sale financial assets (other than dedicated assets) held by controlled companies, the Group generally uses the following criteria to assess impairment:

- 3 years as the threshold for assessment of long-term loss of value;
- a 50% decline from historical cost as indication of a significant loss of value.

For available-for-sale financial assets held as part of EDF's dedicated asset portfolio, the Group uses the following criteria to assess impairment:

- a 5-year period as the threshold for assessment of a long-term loss of value;
- a 40% decline from historical portfolio value as indication of a significant loss of value.

In assessing impairment of dedicated assets, the Group takes into consideration factors specific to their nature: legal and regulatory obligations associated with the funds concerned, the timing of the payments they are to finance, and long-term management of the funds.

### 1.3.16.3 Derecognition of financial assets and liabilities

The Group derecognises a financial asset when:

- the contractual rights to the cash flows generated by the asset expire, or;
- the Group transfers the rights to receive contractual cash flows related to the financial asset through the transfer of substantially all of the risks and benefits associated with ownership of the asset.

Any interest created or retained by the Group in transferred financial assets is recorded as a separate asset or liability.

The Group derecognises a financial liability when its contractual obligations are extinguished, cancelled or expire. When a debt is renegotiated with a lender on substantially different terms, a new liability is recognised.

### 1.3.16.4 Securitisation operations

When it can be demonstrated that the Group has transferred substantially all the risks and benefits related to transfers of receivables, particularly the credit risk, the items concerned are derecognised.

Otherwise, the operation is considered as a financing operation, and the receivables remain in the balance sheet assets, with recognition of a corresponding financial liability.

### 1.3.16.5 Offsetting financial assets and liabilities

The Group offsets financial assets and liabilities when:

- there is a legally enforceable right to set off the recognised amounts, and;
- the intent is either to settle on a net basis, or to realise the asset and settle the liability simultaneously.

In application of IFRS 7, disclosures are provided in the notes to the consolidated financial statements to indicate the actual or potential impact of the offsetting agreement.

## 1.3.17 Inventories

Inventories are recognised at the lower of acquisition cost or net realisable value, except for inventories held for trading activities, which are carried at market value. Inventories consumed are generally valued by the weighted average unit cost method.

Cost includes all direct material costs, labour costs, and a share of indirect production costs.

### 1.3.17.1 Nuclear fuel and materials

Inventory accounts include:

- nuclear materials, whatever their form during the fuel production cycle;
- fuel components in the warehouse or in the reactor.

The stated value of nuclear fuel and materials and work-in-progress is determined based on direct processing costs including materials, labour and subcontracted services (e.g. fluorination, enrichment, production, etc.).

In accordance with regulatory obligations specific to each country, inventories of fuel (new or not entirely consumed) may also comprise expenses for spent fuel management and long-term radioactive waste management, with corresponding provisions or debts in the liabilities, or full and final payments made when the fuel is loaded.



In compliance with IAS 23, interest expenses incurred in financing inventories of nuclear fuels are charged to expenses for the period provided these inventories are manufactured in large quantities on a repetitive basis.

Nuclear fuel consumption is determined as a proportion of the expected output when the fuel is loaded in the reactor. These quantities are valued at weighted average cost of inventories. Inventories are periodically corrected in view of forecast spent quantities based on neutronic measurements and physical inventories.

### 1.3.17.2 Other operating inventories

Other operating inventories comprise:

- fossil fuels required for operation of fossil-fired power plants;
- operating materials and equipment such as spare parts supplied under a maintenance programme (excluding capitalised strategic safety spare parts);
- certificates issued under the various environmental schemes (see note 1.3.27);
- gas stocks.

Other non-trading operating inventories are generally valued at weighted average cost including direct and indirect purchasing costs.

Impairment of spare parts depends on the turnover of these parts and the useful lives of the generation units.

Inventories held for trading purposes are stated at market value.

### 1.3.18 Trade receivables

Trade receivables are initially recognised at the fair value of the consideration received or receivable. Impairment is recorded when, based on the probability of recovery assessed according to the type of receivable, their carrying amount falls below their book value. Depending on the nature of the receivable, the risk associated with doubtful receivables is assessed individually or by experience-based statistical methods.

Trade receivables also include the value of unbilled receivables for energy already supplied.

### 1.3.19 Cash and cash equivalents

Cash and cash equivalents comprise very liquid assets and very short-term investments, usually maturing within three months or less of the acquisition date, and with negligible risk of fluctuation in value.

Securities held short-term and classified as "Cash equivalents" are recorded at fair value, with changes in fair value included in the heading "Other financial income and expenses".

### 1.3.20 Equity

#### 1.3.20.1 Fair value adjustment of financial instruments

The fair value adjustment of financial instruments results from the restatement to fair value of available-for-sale financial assets and certain hedging instruments.

#### 1.3.20.2 Share issue expenses

Share issue expenses correspond exclusively to external costs expressly related to the capital increase. They are charged against the issue premium at their net-of-tax value.

Other expenses are classified as expenses of the period.

#### 1.3.20.3 Treasury shares

Treasury shares are shares issued by the consolidating company and held either by that company or by other entities in the consolidated Group. They are valued at acquisition cost and deducted from equity until the date of disposal. Net gains or losses on disposals of treasury shares are directly included in equity and do not affect net income.

#### 1.3.20.4 Perpetual subordinated bonds

Perpetual subordinated bonds in Euros and other currencies are recorded in compliance with IAS 32 as appropriate to their specific characteristics. They are recorded in equity at historical cost when there is an unconditional right to avoid paying cash or another financial asset in the form of a capital reimbursement or interest or similar payment.

### 1.3.21 Provisions other than employee benefit provisions

The Group recognises provisions if the following three conditions are met:

- the Group has a present obligation (legal or constructive) towards a third party that arises from an event prior to the closing date;
- it is probable that an outflow of resources embodying economic benefits will be required to settle the obligation;
- the obligation amount can be estimated reliably.

Provisions are determined based on the Group's estimate of the expected cost necessary to settle the obligation. Estimates are based on management data from the information system, assumptions adopted by the Group, and if necessary experience of similar transactions, or in some cases based on independent expert reports or contractor quotes. The various assumptions are reviewed for each closing of the accounts.

Provisions mainly cover the following:

- back-end nuclear cycle expenses: provisions for spent fuel management and long-term radioactive waste management are established in accordance with the obligations and final contributions specific to each country;
- costs for decommissioning power plants and losses relating to fuel in the reactor when the reactor is shut down (provision for last cores);
- future losses relating to multi-year agreements for the purchase and sale of energy:
  - losses on energy purchase agreements are measured by comparing the acquisition cost under the contractual terms with the forecast market price,
  - losses on energy sale agreements are measured by comparing the estimated income under the contractual terms with the cost of the energy to be supplied.

Provisions to cover back-end nuclear cycle expenses, expenses related to the decommissioning of power plants and last cores, and future losses relating to multi-year energy purchase and sale agreements are estimated based on discounted future cash flows.

The rate of inflation and the discount rate are based on the economic and regulatory parameters of the country where the economic entity is located.

The discount effect generated at each closing to reflect the passage of time is recorded under "Discount effect" in financial expenses.

Changes in provisions resulting from a change in discount rates, a change in the disbursement schedule or a change in contractor quote are recorded:

- as an increase or decrease in the corresponding assets, up to the net book value, if the provision was initially covered by balance sheet assets (decommissioning of plants still in operation, long-term management of the radioactive waste resulting from such decommissioning, and last cores);
- in the income statement in all other cases.

In extremely rare cases, description of a specific litigation covered by a provision may be omitted from the notes to the financial statements if such disclosure could cause serious prejudice to the Group.

If it is anticipated that all or part of the expenses covered by a provision will be reimbursed, the reimbursement is recognised under receivables if and only if the Group is virtually certain of receiving it.

In extremely rare situations, a provision cannot be booked due to lack of a reliable estimate. In such unusual cases, the obligation is mentioned in the notes as a contingent liability, unless there is little likelihood of an outflow of resources.

## 1.3.22 Provisions for employee benefits

The Group grants its employees post-employment benefits (pension plans, retirement indemnities, etc) and other long-term benefits (e.g. long-service awards) in compliance with the specific laws and measures in force in each country where it does business.

### 1.3.22.1 Calculation and recognition of employee benefits

Obligations under defined-benefit plans are calculated by the projected unit credit method, which determines the present value of entitlements earned by employees at year-end under all types of plan, taking into consideration the prospects for wage increases and each country's specific economic conditions.

Post-employment benefit obligations are valued mainly using the following methods and assumptions:

- retirement age, determined on the basis of the applicable rules for each plan, and the requirements to qualify for a full pension;
- career-end salary levels, with reference to employee seniority, projected salary levels at the time of retirement based on the expected effects of career advancement, and estimated trends in pension levels;
- forecast numbers of pensioners, determined based on employee turnover rates and mortality data available in each country;
- reversion pensions where relevant, taking into account both the life expectancy of the employee and his/her spouse and the marriage rate;
- a discount rate that depends on the geographical zone and the duration of the obligations, determined at the year-end date by reference to the market yield on high-quality corporate bonds or the rate on government bonds whose duration is coherent with EDF group's commitments to employees.

The amount of the provision corresponds to the value of obligations less the fair value of the fund assets that cover those obligations.

The net expense booked during the year for employee benefit obligations includes:

- in the income statement:
  - the current service cost, corresponding to additional benefit entitlements earned during the year,
  - the net interest expense, corresponding to interest on obligations net of the return on fund assets, which is now calculated using the same discount rate as for the obligations,
  - the past service cost, including the income or expense related to amendments or settlements of benefit plans or introduction of new plans,
  - the actuarial gains and losses relating to long-term benefits.
- in the statement of net income and gains and losses recorded directly in equity:
  - the actuarial gains and losses relating to post-employment benefits,
  - the effect of the limitation to the asset ceiling if any.

### 1.3.22.2 Post-employment benefit obligations

When they retire, Group employees benefit from pensions determined under local rules. They may also be entitled to benefits directly paid by the companies, and additional benefits prescribed by the relevant regulations.

#### 1.3.22.2.1 French entities covered by the IEG system

Entities belonging to the specific IEG (electricity and gas) sector system, namely EDF, ERDF, RTE Réseau de Transport d'Électricité, Électricité de Strasbourg, PEI and certain subsidiaries of the TIRU subgroup, are Group companies where almost all employees benefit from the IEG statutes, including the special pension system and other statutory benefits.

Since the financing reform for the IEG sector system took effect on 1 January 2005, the CNIIEG (*Caisse Nationale des IEG*, the sector's specific pension body) has managed not only the special IEG pension system, but also the industrial accident, invalidity and death insurance system for the sector.

The CNIIEG is a social security body governed by private law, formed by the law of 9 August 2004. It has legal entity status and reports to the French government, operating under the joint supervision of France's ministers for the Budget, Social Security and Energy. Under the funding arrangements introduced by the law, IEG companies establish pension provisions to cover entitlements not funded by France's standard systems (CNAV, AGIRC and ARRCO), to which the IEG system is affiliated, or by the CTA (*Contribution Tarifaire d'Acheminement*) levy on gas and electricity transmission and distribution services. As a result of this funding mechanism, any change (whether favourable or unfavourable to employees) in the standard French pension system that is not passed on to the IEG pension system is likely to cause a variation in the amount of the provisions recorded by the Group to cover its obligations.

The obligations concerned by the pensions and for which a provision is recorded thus include:

- specific benefits of employees in the deregulated or competitive activities;
- specific benefits earned by employees from 1 January 2005 for the regulated activities (transmission and distribution) (benefits earned prior to that date are financed by the CTA levy);
- specific benefits of employees benefiting from early retirement before the standard legal retirement age.

In addition to pensions, other benefits are granted to IEG status former employees (not currently in active service), as detailed below:

- benefits in kind: article 28 of the IEG national statutes entitles such employees and current employees to benefits in kind in the form of supplies of electricity or gas at preferential prices. The obligation for supplies of energy to employees of the EDF group and GDF Suez corresponds to the probable present value of kWh to be supplied to beneficiaries or their dependants during their retirement, valued on the basis of the unit cost. It also includes the payment made under the energy exchange agreement with GDF Suez;
- retirement gratuities: these are paid upon retirement to employees due to receive the statutory old-age pension, or to their dependants if the employee dies before reaching retirement. These obligations are almost totally covered by an insurance policy;
- bereavement benefit: this is paid out upon the death of an inactive or disabled employee, in order to provide financial assistance for the expenses incurred at such a time (article 26 - § 5 of the National Statutes). It is paid to the deceased's principal dependants (statutory indemnity equal to three months' pension) or to a third party that has paid funeral costs (discretionary indemnity equal to the costs incurred);
- bonus pre-retirement paid leave: all employees eligible to benefit immediately from the statutory old-age pension and aged at least 55 at their retirement date are entitled to 18 days of bonus paid leave during the last twelve months of their employment;
- other benefits include help with the cost of studies, additional retirement indemnities, time banking for pre-retirement leave, and pensions for personnel sent on secondment to subsidiaries not covered by the IEG system.

### 1.3.22.2 French and foreign subsidiaries not covered by the special IEG system

Pension obligations principally relate to the British, US and Belgian companies and are mostly covered by defined-benefit plans.

In the United Kingdom, EDF Energy has two principal defined-benefit pension plans:

- the British Energy Generation Group ("BEGG") plan affiliated to the Electricity Supply Pension Scheme ("ESPS"), of which the majority of members are employees in Nuclear Generation. The BEGG plan was closed to new members in August 2012;
- the EDF Energy Generation and Supply Group ("EEGSG") plan, also affiliated to the ESPS, which was established in December 2010 for the employees remaining with EDF Energy following the transfer of the former Group plan to UK Power Networks as part of the sale of the Networks. The EEGSG plan is closed to new members.

New employees hired by EDF Energy join the EEPS (EDF Energy Pension Scheme) plan. This third plan (which is currently less significant) was established in March 2004 and includes a number of legacy pension schemes from London Electricity and Seeboard. Membership of EEPS is open to all employees.

Each pension plan is financially independent of the others. The BEGG and EEGSG plans are part of the industry-wide ESPS which is one of the largest private-sector pension schemes in the United Kingdom.

The plans affiliated to the ESPS are externally managed by separate trusts whose trustees are appointed by the firm and the plan participants to manage the funds in their exclusive interests. The trustees carry out an actuarial review of plan management every three years, defining the funding level, the necessary employer and employee contributions and the payment schedules. The trustees are responsible for defining the plans' investment strategy, in agreement with the firm.

### 1.3.22.3 Other long-term benefit obligations

These benefits concern employees currently in service, and are earned according to local regulations, particularly the statutory regulations for the electricity and gas sector for EDF and French subsidiaries covered by the IEG regime. They include:

- annuities following incapacity, invalidity, industrial accident or work-related illness; like their counterparts in the general national system, IEG employees are entitled to financial support in the event of industrial accident or work-related illness, and invalidity and incapacity annuities and benefits. The obligation is measured as the probable present value of future benefits payable to current beneficiaries, including any possible reversions;
- long-service awards;
- specific benefits for employees who have been in contact with asbestos.

### 1.3.23 Share-based payments

Under existing legislation in France, employees of a French group may benefit from attribution of shares. When the State sells some of the capital of a public company, article 11 of the French privatisation law of 1986 and article 26 of the law of 9 August 2004 require a share offer to be reserved for current and retired employees of the company. The company being privatised may also set up free share plans.

In the light of IFRS 2, these benefits granted to employees and former employees must be treated by the company as personnel expenses in the same way as additional remuneration, and recognised as such with a corresponding adjustment in equity.

Valuation of the benefit granted through a share offer reserved for current and former employees is based on the difference between the share subscription price and the share price at the grant date, with actuarial valuation of the impact, if any, of the payment terms, the minimum holding period, and the fact that no dividends were received during the vesting period for the free shares.

In the case of free shares, the value of the benefit is based on the share price at the grant date, depending on the number of shares granted and the fact that no dividends were received during the vesting period. The expense is spread over the vesting period.

### 1.3.24 Special concession liabilities

These liabilities represent the contractual obligations specific to the concession rules for public electricity distribution concessions in France, recognised in the liabilities as:

- rights in existing assets: these correspond to the grantor's right to recover all assets for nil consideration. This right comprises the value in kind of the facilities - the net book value of assets operated under concession - less any as yet unamortised financing provided by the operator;
- rights in assets to be replaced: these correspond to the operator's obligation to contribute to the financing of assets due for replacement. These non-financial liabilities comprise:
  - depreciation recorded on the portion of assets financed by the grantor,
  - the provision for renewal, exclusively for assets due for renewal before the end of the concession.

When assets are replaced, the provision and amortisation of the grantor's financing recorded in respect of the replaced item are eliminated and transferred to the rights in existing assets, since they are considered as the grantor's financing for the new asset. Any excess provision is taken to income.

During the concession, the grantor's rights in assets to be replaced are thus transferred upon the asset's renewal to become the grantor's rights in existing assets, with no outflow of cash to the benefit of the grantor.

In general, the value of special concession liabilities is determined as follows:

- the grantor's rights in existing assets, representing the share deemed to be held by the grantor in the concession assets, are valued on the basis of the assets recorded in the balance sheet;
- the obligations relating to assets to be replaced are valued on the basis of the estimated value of the relevant assets, measured at each year-end taking into consideration wear and tear on the asset at that date:
  - based on the difference between the asset's replacement value as assessed at year-end and the historical cost for calculation of the provision for renewal. Annual allocations to the provision are based on this difference, less any existing provisions, with the net amount spread over the residual useful life of the assets. Consequently, the expenses recognised for a given item increase over time,
  - based on the share of the asset's historical cost financed by the grantor for amortisation of the grantor's financing.

The Group considers that the obligations related to assets to be replaced are to be valued on the basis of the special clauses contained in the concession agreements. Under this approach, these obligations are stated at the value of the contractual obligations as calculated and reported annually in the reports to the grantors. This contractual value also reflects the possibility that the EDF group may one day lose its status as the concession operator.

If no such clauses existed, an alternative approach would be to state contractual obligations at the present value of future payments required for replacement of assets operated under concession at the end of their industrial useful life.

For information, the Group reports below the impacts of this alternative approach, i.e. the discounting of the future obligation to contribute to financing of assets to be replaced.

The principal assumptions used in preparing this simulation are as follows:

- the basis for calculation of the provision for renewal is the estimated replacement value at the end of the asset's useful life, applying a forecast annual inflation rate of 1.9%, less the asset's historical value. This amount is based on the wear and tear on the asset and discounted at a rate of 4.5%;
- amortisation of the grantor's financing is also discounted at the rate of 4.5%.

The following table shows the impacts of this simulation for EDF and ERDF in 2013:

## ■ Impacts on the income statement

<i>(in millions of Euros and before taxes)</i>	<b>2013</b>
Operating profit	570
Financial result	(875)
Income before taxes of consolidated companies	(305)

## ■ Impacts on the balance sheet - equity

<i>(in millions of Euros and before taxes)</i>	<b>2013</b>
At opening date	2,320
At closing date	2,015

Valuation of concession liabilities under this method is subject to uncertainty over costs and disbursements, and is also sensitive to inflation and discount rates.

## 1.3.25 Investment subsidies

Investment subsidies received by Group companies are included in liabilities under the heading "Other current liabilities" and transferred to income as and when the economic benefits of the corresponding assets are utilised.

## 1.3.26 Assets classified as held for sale and associated liabilities, and discontinued operations

Assets that qualify as held for sale and associated liabilities are disclosed separately from other assets and liabilities in the balance sheet.

All income from discontinued operations is disclosed in a single net amount after taxes in the income statement. In the cash flow statement, net changes in cash and cash equivalents of discontinued activities are also reported separately on a specific line.

Impairment is booked when the realisable value is lower than the net book value.

## 1.3.27 Environment

### 1.3.27.1 Greenhouse gas emission rights

The third phase of the Kyoto protocol began on 1 January 2013, introducing changes to the methods for allocation of greenhouse gas emission rights which in some countries (including France) put an end to free allocation of emission rights for electricity generating companies.

The accounting treatment of emission rights depends on the holding intention. There are two economic models, both of which coexist in the EDF group.

Rights held under the "Trading" model are included in inventories at fair value. The change in fair value observed over the year is recorded in the income statement.

Rights held to comply with regulatory requirements on greenhouse gas emissions (the "Generation" model) are recorded in intangible assets:

- at acquisition cost when purchased on the market;
- at nil value when allocated free of charge (in countries that still have a free allocation system).

When the estimated emissions by a Group entity over a given period are higher than the rights allocated for the period less any allocated rights sold on the spot or forward market, a provision is established to cover the excess emissions. This provision is equal to the shortfall in rights held (difference between actual emissions and allocated rights held at the closing date).

If no emission rights are allocated free of charge, a provision is systematically recorded equivalent to the actual emissions at the closing date.

In either case, the provision is equivalent to the acquisition cost up to the amount of rights acquired on the spot or forward markets, and based on market prices for the balance. It is cancelled when the rights are surrendered to the State.

At the closing date, the portfolio of emission rights and the obligation to surrender rights for the emissions of the year are presented gross, without netting.

If the number of purchased emission rights recorded as intangible assets at the end of the year and not subject to forward sale is higher than the number of purchased rights that will be surrendered to the State for the year's emissions, an impairment test must be applied to the excess. If there is a significant negative differential on the purchased rights held, impairment must be booked, or partly or totally reversed where relevant.

### 1.3.27.2 Renewable energy certificate

In application of EU Directive 2009/28/EC (amending and repealing Directive 2001/77/EC) on the promotion of the use of energy from renewable sources, every EU member state has set national targets for consumption of electricity from renewable sources.

There are two ways for States to meet these targets:

- incorporating the costs of generating such electricity into the sale price for electricity (this is the approach taken in France and Germany);
- introducing a renewable energy certificate system (as is the case in the United Kingdom, Italy, Poland and Belgium).

The renewable energy certificate system may apply to:

- non-obligated electricity producers when the obligation applies to energy sales (Poland, EDF Énergies Nouvelles);
- obligated electricity producers when the obligation applies to generation;
- producers who are also sellers of electricity when the obligation applies to energy sales (EDF Energy, Edison, EDF Luminus, Fenice).

The EDF group applies the following accounting treatments:

- for non-obligated electricity producers, certificates obtained based on generation output are recorded in "Other inventories" until they are sold on to suppliers;
- for obligated producers and an entity that both produces and supplies energy and is under an obligation to sell a specified quantity of renewable energy, the Group uses the following accounting treatments for certificates obtained based on generation output:
  - up to the level of the obligation, these certificates are not recognised,
  - certificates in excess of the obligation are recorded in "Other inventories",
  - in the specific situation when an entity is not in a position to meet its obligation at the year-end, the Group applies the following accounting treatment:
    - certificates acquired for a consideration in order to meet the obligation are recorded in intangible assets at acquisition cost; and
    - a provision is established equivalent to the shortfall in certificates compared to the obligation at the year-end. The value of this provision is based on the acquisition price of certificates already purchased on the spot or forward market, and market prices or penalty prices for the balance. The provision is cancelled when the certificates are surrendered to the State.

Forward purchases/sales of certificates related to trading activities are recorded in accordance with IAS 39, stated at fair value at the balance sheet date. The change in fair value is recorded in the income statement.

### 1.3.27.3 Energy savings certificate

In the general framework of an energy savings certificate system (of the kind introduced by the French law of 13 July 2005) the EDF group fulfils its obligations either by taking measures regarding its assets or action with its final customers in order to receive energy savings certificates from the State, or by purchasing energy savings certificates directly.

Expenses incurred to meet a cumulative energy savings obligation are treated as:

- property, plant and equipment if the action taken by the entity concerns its own assets and the expenses qualify for recognition as an asset;
- expenses for the year incurred, if they do not meet the requirements for capitalisation or if the action taken is to encourage third parties to save energy.

Expenses incurred in excess of the accumulated obligation at the year-end are included in inventories until they are used to cover EDF's obligation.

### 1.3.27.4 Environmental expenses

Environmental expenses are identifiable expenses incurred to prevent, reduce or repair damage to the environment that has been or may be caused by the Group as a result of its activities. These expenses are treated as follows:

- they are capitalised if they are incurred to prevent or reduce future damage or protect resources;
- they are booked as environmental liabilities and increases to provisions for environmental risks if they correspond to an obligation that exists at the year-end and it is probable or certain at the reporting date that they will lead to an outflow of resources;
- they are recognised as expenses if they are operating expenses for the bodies in charge of environmental concerns, environmental supervision, environmental duties and taxes, processing of liquid and gas effluents and non-radioactive waste, or research unrelated to an investment.



## ➤ Note 2 Comparability

### 2.1 Changes in accounting methods and presentation

#### 2.1.1 IAS 19 revised "Employee benefits"

The revised IAS 19 became mandatory on 1 January 2013, with retrospective application to all periods presented (see note 1.2.1).

The impacts of application of IAS 19 revised on EDF's share of net income for 2012 and EDF's share of equity at 1 January 2012 amount to €(41) million and €333 million respectively, and principally concern France.

#### 2.1.2 Change in presentation of disposal of generation assets by EDF Énergies Nouvelles as part of its Development and Sale of Structured Assets (DSSA) business

From 2013 and for the comparative periods presented, disposals of generation assets by EDF Énergies Nouvelles are now recorded at net value (sale price less the associated cost of construction) in "Other operating income and expenses". Previously, the proceeds of these sales were included in sales revenues and the construction costs were included in "Other external expenses".

This change in presentation has the effect of reducing "Sales" and "Other external expenses" for 2012 by €(551) million and €369 million respectively, and increasing "Other operating income and expenses" by €182 million (with no impact on the Group's operating profit before depreciation and amortisation, or net income).

This change standardises the presentation used in the Group's income statement for asset disposal operations by EDF Énergies Nouvelles (facilities under construction and facilities in operation).

## 2.2 Impact on the income statement for 2012

<i>(in millions of Euros)</i>	2012 as published	Impacts of IAS 19 revised	Impacts of change in DSSA presentation	2012 restated
Sales	72,729	-	(551)	72,178
Fuel and energy purchases	(37,098)	-	-	(37,098)
Other external expenses	(10,087)	-	369	(9,718)
Personnel expenses	(11,624)	(86)	-	(11,710)
Taxes other than income taxes	(3,287)	-	-	(3,287)
Other operating income and expenses	5,451	-	182	5,633
<b>Operating profit before depreciation and amortisation</b>	<b>16,084</b>	<b>(86)</b>	<b>-</b>	<b>15,998</b>
Net changes in fair value on energy and commodity derivatives, excluding trading activities	(69)	-	-	(69)
Net depreciation and amortisation	(6,849)	-	-	(6,849)
Net increases in provisions for renewal of property, plant and equipment operated under concessions	(164)	-	-	(164)
(Impairment) / reversals	(752)	-	-	(752)
Other income and expenses	(5)	-	-	(5)
<b>Operating profit</b>	<b>8,245</b>	<b>(86)</b>	<b>-</b>	<b>8,159</b>
Cost of gross financial indebtedness	(2,443)	-	-	(2,443)
Discount effect	(3,285)	24	-	(3,261)
Other financial income and expenses	2,366	4	-	2,370
<b>Financial result</b>	<b>(3,362)</b>	<b>28</b>	<b>-</b>	<b>(3,334)</b>
<b>Income before taxes of consolidated companies</b>	<b>4,883</b>	<b>(58)</b>	<b>-</b>	<b>4,825</b>
Income taxes	(1,586)	13	-	(1,573)
Share in income of associates	260	1	-	261
<b>GROUP NET INCOME</b>	<b>3,557</b>	<b>(44)</b>	<b>-</b>	<b>3,513</b>
<b>EDF net income</b>	<b>3,316</b>	<b>(41)</b>	<b>-</b>	<b>3,275</b>
<b>Net income attributable to non-controlling interests</b>	<b>241</b>	<b>(3)</b>	<b>-</b>	<b>238</b>

## 2.3 Impact on the statement of net income and gains and losses recorded directly in equity for 2012

<i>(in millions of Euros)</i>	2012 as published	Impacts of IAS 19 revised	2012 restated
<b>Group net income</b>	<b>3,557</b>	<b>(44)</b>	<b>3,513</b>
Change in fair value of available-for-sale financial assets	586	-	586
Change in fair value of hedging instruments	(611)	-	(611)
Translation adjustments	528	-	528
<b>Gains and losses recorded directly in equity that will be reclassified subsequently to profit or loss</b>	<b>503</b>	<b>-</b>	<b>503</b>
Actuarial gains and losses on post-employment benefits	(4,254)	110	(4,144)
<b>Gains and losses recorded directly in equity that will not be reclassified subsequently to profit or loss</b>	<b>(4,254)</b>	<b>110</b>	<b>(4,144)</b>
<b>Total gains and losses recorded directly in equity</b>	<b>(3,751)</b>	<b>110</b>	<b>(3,641)</b>
<b>NET INCOME AND GAINS AND LOSSES RECORDED DIRECTLY IN EQUITY</b>	<b>(194)</b>	<b>66</b>	<b>(128)</b>

## 2.4 Impact on the balance sheet at 31 December 2012

### ASSETS

<i>(in millions of Euros)</i>	31/12/2012 as published	Impacts of IAS 19 revised	31/12/2012 restated
Goodwill	10,412	-	10,412
Other intangible assets	7,625	-	7,625
Property, plant and equipment operated under French public electricity distribution concessions	47,222	-	47,222
Property, plant and equipment operated under concessions for other activities	7,182	-	7,182
Property, plant and equipment used in generation and other tangible assets owned by the Group	67,838	-	67,838
Investments in associates	7,555	32	7,587
Non-current financial assets	30,471	-	30,471
Deferred tax assets	3,487	(66)	3,421
<b>Non-current assets</b>	<b>181,792</b>	<b>(34)</b>	<b>181,758</b>
Inventories	14,213	-	14,213
Trade receivables	22,497	-	22,497
Current financial assets	16,433	-	16,433
Current tax assets	582	-	582
Other receivables	8,486	-	8,486
Cash and cash equivalents	5,874	-	5,874
<b>Current assets</b>	<b>68,085</b>	<b>-</b>	<b>68,085</b>
Assets classified as held for sale	241	-	241
<b>TOTAL ASSETS</b>	<b>250,118</b>	<b>(34)</b>	<b>250,084</b>

### EQUITY AND LIABILITIES

<i>(in millions of Euros)</i>	31/12/2012 as published	Impacts of IAS 19 revised	31/12/2012 restated
Capital	924	-	924
EDF net income and consolidated reserves	24,934	399	25,333
<b>Equity (EDF share)</b>	<b>25,858</b>	<b>399</b>	<b>26,257</b>
Equity (non-controlling interests)	4,854	-	4,854
<b>Total equity</b>	<b>30,712</b>	<b>399</b>	<b>31,111</b>
Provisions related to nuclear generation – Back-end nuclear cycle, plant decommissioning and last cores	39,185	-	39,185
<b>Provisions for decommissioning of non-nuclear facilities</b>	<b>1,090</b>	<b>-</b>	<b>1,090</b>
Provisions for employee benefits	19,540	(421)	19,119
Other provisions	1,873	-	1,873
<b>Non-current provisions</b>	<b>61,688</b>	<b>(421)</b>	<b>61,267</b>
Special French public electricity distribution concession liabilities	42,551	-	42,551
Non-current financial liabilities	46,980	-	46,980
Other non-current liabilities	4,218	-	4,218
Deferred tax liabilities	5,601	-	5,601
<b>Non-current liabilities</b>	<b>161,038</b>	<b>(421)</b>	<b>160,617</b>
Current provisions	3,894	(12)	3,882
Trade payables	14,643	-	14,643
Current financial liabilities	17,521	-	17,521
Current tax liabilities	1,224	-	1,224
Other current liabilities	21,037	-	21,037
<b>Current liabilities</b>	<b>58,319</b>	<b>(12)</b>	<b>58,307</b>
Liabilities related to assets classified as held for sale	49	-	49
<b>TOTAL EQUITY AND LIABILITIES</b>	<b>250,118</b>	<b>(34)</b>	<b>250,084</b>

## 2.5 Impact on the balance sheet at 31 December 2011

### ASSETS

(in millions of Euros)	31/12/2011 as published <sup>(1)</sup>	Impacts of IAS 19 revised	31/12/2011 restated
Goodwill	11,648	-	11,648
Other intangible assets	4,702	-	4,702
Property, plant and equipment operated under French public electricity distribution concessions	45,501	-	45,501
Property, plant and equipment operated under concessions for other activities	6,022	-	6,022
Property, plant and equipment used in generation and other tangible assets owned by the Group	60,445	-	60,445
Investments in associates	7,544	24	7,568
Non-current financial assets	24,260	-	24,260
Deferred tax assets	3,159	(57)	3,102
<b>Non-current assets</b>	<b>163,281</b>	<b>(33)</b>	<b>163,248</b>
Inventories	13,581	-	13,581
Trade receivables	20,908	-	20,908
Current financial assets	16,980	-	16,980
Current tax assets	459	-	459
Other receivables	10,309	-	10,309
Cash and cash equivalents	5,743	-	5,743
<b>Current assets</b>	<b>67,980</b>	<b>-</b>	<b>67,980</b>
<b>Assets classified as held for sale</b>	<b>701</b>	<b>-</b>	<b>701</b>
<b>TOTAL ASSETS</b>	<b>231,962</b>	<b>(33)</b>	<b>231,929</b>

### EQUITY AND LIABILITIES

(in millions of Euros)	31/12/2011 as published <sup>(1)</sup>	Impacts of IAS 19 revised	31/12/2011 restated
Capital	924	-	924
EDF net income and consolidated reserves	27,559	333	27,892
<b>Equity (EDF share)</b>	<b>28,483</b>	<b>333</b>	<b>28,816</b>
Equity (non-controlling interests)	4,189	-	4,189
<b>Total equity</b>	<b>32,672</b>	<b>333</b>	<b>33,005</b>
Provisions related to nuclear generation – Back-end nuclear cycle, plant decommissioning and last cores	37,198	-	37,198
Provisions for decommissioning of non-nuclear facilities	809	-	809
Provisions for employee benefits	14,611	(355)	14,256
Other provisions	1,338	-	1,338
<b>Non-current provisions</b>	<b>53,956</b>	<b>(355)</b>	<b>53,601</b>
Special French public electricity distribution concession liabilities	41,769	-	41,769
Non-current financial liabilities	42,688	-	42,688
Other non-current liabilities	4,989	-	4,989
Deferred tax liabilities	4,479	-	4,479
<b>Non-current liabilities</b>	<b>147,881</b>	<b>(355)</b>	<b>147,526</b>
Current provisions	4,062	(11)	4,051
Trade payables	13,681	-	13,681
Current financial liabilities	12,789	-	12,789
Current tax liabilities	571	-	571
Other current liabilities	19,900	-	19,900
<b>Current liabilities</b>	<b>51,003</b>	<b>(11)</b>	<b>50,992</b>
<b>Liabilities related to assets classified as held for sale</b>	<b>406</b>	<b>-</b>	<b>406</b>
<b>TOTAL EQUITY AND LIABILITIES</b>	<b>231,962</b>	<b>(33)</b>	<b>231,929</b>

(1) Figures published in 2012, corresponding to 2011 published figures adjusted for the impact of the change in accounting method for actuarial gains and losses on post-employment benefits.

## 2.6 Impact on the statement of cash flows for 2012

<i>(in millions of Euros)</i>	2012 as published	Impacts of IAS 19 revised	2012 restated
<b>Operating activities:</b>			
Income before taxes of consolidated companies	4,883	(58)	4,825
Impairment / (reversals)	752	-	752
Accumulated depreciation and amortisation, provisions and change in fair value	9,197	58	9,255
Financial income and expenses	944	-	944
Dividends received from associates	201	-	201
Capital gains / losses	(443)	-	(443)
Change in working capital	(2,390)	-	(2,390)
<b>Net cash flow from operations</b>	<b>13,144</b>	<b>-</b>	<b>13,144</b>
Net financial expenses disbursed	(1,634)	-	(1,634)
Income taxes paid	(1,586)	-	(1,586)
<b>Net cash flow from operating activities</b>	<b>9,924</b>	<b>-</b>	<b>9,924</b>
<b>Investing activities:</b>			
Acquisitions / disposals of equity investments, net of cash (acquired / transferred)	20	-	20
Investments in intangible assets and property, plant and equipment	(13,386)	-	(13,386)
Net proceeds from sale of intangible assets and property, plant and equipment	748	-	748
Changes in financial assets	(1,792)	-	(1,792)
<b>Net cash flow used in investing activities</b>	<b>(14,410)</b>	<b>-</b>	<b>(14,410)</b>
<b>Financing activities:</b>			
Transactions with non-controlling interests	(1,038)	-	(1,038)
Dividends paid by parent company	(2,125)	-	(2,125)
Dividends paid to non-controlling interests	(230)	-	(230)
Purchases / sales of treasury shares	(15)	-	(15)
<b>Cash flows with shareholders</b>	<b>(3,408)</b>	<b>-</b>	<b>(3,408)</b>
Issuance of borrowings	12,431	-	12,431
Repayment of borrowings	(4,869)	-	(4,869)
Funding contributions received for assets operated under concessions	190	-	190
Investment subsidies	313	-	313
<b>Other cash flows from financing activities</b>	<b>8,065</b>	<b>-</b>	<b>8,065</b>
<b>Net cash flow used in financing activities</b>	<b>4,657</b>	<b>-</b>	<b>4,657</b>
<b>Net increase / (decrease) in cash and cash equivalents</b>	<b>171</b>	<b>-</b>	<b>171</b>
<b>CASH AND CASH EQUIVALENTS - OPENING BALANCE</b>	<b>5,743</b>	<b>-</b>	<b>5,743</b>
Net increase / (decrease) in cash and cash equivalents	171	-	171
Effect of currency fluctuations	(44)	-	(44)
Financial income on cash and cash equivalents	38	-	38
Effect of reclassifications	(34)	-	(34)
<b>CASH AND CASH EQUIVALENTS - CLOSING BALANCE</b>	<b>5,874</b>	<b>-</b>	<b>5,874</b>



## ➤ Note 3 Significant events and transactions

### 3.1 Financing operations

#### 3.1.1 Issuance of perpetual subordinated bonds

On 22 January 2013 EDF launched several tranches of a perpetual subordinated bond in Euros and sterling (a "hybrid" bond):

- €1.25 billion at 4.25% coupon for the tranche with a 7-year first call date;
- €1.25 billion at 5.375% coupon for the tranche with a 12-year first call date;
- £1.25 billion at 6% coupon for the tranche with a 13-year first call date.

On 24 January 2013 EDF also launched a US\$ 3 billion perpetual subordinated bond at 5.25% coupon and a 10-year first call date.

Given their characteristics, in compliance with IAS 32 (see note 1.3.20.4), these issues are recorded in equity from reception of funds (29 January 2013) at the amount of €6,125 million (net of transaction costs).

An amount of €103 million was paid out on these bonds in 2013; this amount is charged to equity.

#### 3.1.2 Issuance of a Green Bond

On 27 November 2013, EDF received the funds from its first "Green Bond", the first such issue by a large corporate, totalling €1.4 billion, and maturing in April 2021 at 2.25% annual coupon.

The funds raised will be entirely used to finance future renewable energy projects by EDF Énergies Nouvelles.

### 3.2 Edison

#### 3.2.1 Renegotiation of gas contracts

On 23 April 2013, the Court of Arbitration of the International Chamber of Commerce found in favour of Edison in the litigation concerning revision of the price in the long-term gas supply contract with Sonatrach (Algeria).

An agreement was also signed by Edison and Rasgas (Qatar) on July 2013 amending certain aspects of the long-term gas supply contract (particularly the pricing terms) between the two companies.

This results in a total positive impact of €813 million on the EDF group's operating profit before depreciation and amortisation in 2013 (including compensation for previous years).

The arbitration rulings issued in the second half-year of 2012 concerning the long-term gas supply contracts with Rasgas (Qatar) and (ENI Libya) were reflected in a positive impact of €680 million on the Group's operating profit before depreciation and amortisation for 2012.

Arbitration proceedings were still in process at 31 December 2013 regarding the supply contracts with Promgas (Russia) and ENI (Libya).

#### 3.2.2 Finalisation of the opening balance sheet following the takeover on 24 May 2012

All identifiable assets, liabilities and contingent liabilities of the Edison group that qualified for recognition under IFRS 3 were included in the opening balance sheet at their fair value at the date the EDF group took over control (24 May 2012).

In compliance with IFRS 3, these values were provisionally determined at 31 December 2012 and the Group had 12 months to finalise allocation of the acquisition price and harmonise valuation methods and rules.

Finalisation is now complete, and no change has been made in 2013 to the opening balance sheet for Edison presented in note 3.1.4 to the 2012 consolidated financial statements.

### 3.3 EDF Energy

#### 3.3.1 Agreements for construction of two EPRs at Hinkley Point

On 21 October 2013 the EDF Group and the British Government announced an agreement on the key commercial terms of an investment contract for the construction of two EPRs at Hinkley Point.

The British government also confirmed that the project is eligible for the Infrastructure UK (IUK) guarantees scheme. Once IUK has completed due diligence, the UK treasury will issue a guarantee covering 65% of the debt corresponding to pre-operation construction costs. The terms and conditions of this guarantee are being finalised.

In parallel, letters of intent have been signed by EDF, Areva, CGN (China General Nuclear Corporation) and CNNC (China National Nuclear Corporation), defining the framework for a strategic and industrial partnership for the project.

The expected ownership structure is as follows:

■ EDF group	45-50%
■ AREVA	10%
■ CGN/CNNC	30-40%

Discussions are also in progress with a selection of investors interested in the project, who could hold up to 15%.

The risk associated with constructing the power station to budget and on schedule will be shared by the EDF Group and its partners.

These agreements and construction of the power plant still require a final investment decision, which is conditional on completion of certain key stages including agreement of the full investment contract, finalisation of agreements with industrial partners and a decision from the European Commission concerning State aid. On 18 December 2013, the European Commission announced that it had begun an in-depth investigation into the matter and on 31 January 2014 it released an initial assessment, which should soon be published in the *Official Journal* then followed by a one-month consultation period involving all actors.

#### 3.3.2 Acquisition of CENTRICA'S investment in Nuclear New Build Holdings

On 4 February 2013, Centrica announced its decision to end its partnership with EDF for the construction of EPRs in the United Kingdom, by exercising its option to sell EDF Energy its 20% investment in Nuclear New Build Holdings (NNBH),

a company formed as a vehicle for “Nuclear New Build” projects in the UK. Since EDF already owned 80% of NNBH via EDF Energy, it now holds 100% of the company.

The acquisition of Centrica’s holding generated a positive impact of €228 million on equity (EDF’s share), resulting from the positive difference between the share of assets received and the price paid after the option was exercised.

Centrica will continue to work with EDF through its 20% interest in existing nuclear facilities in the United Kingdom, and retains its commercial electricity purchase contracts with the EDF group.

## 3.4 Developments concerning the CSPE

The Contribution to the Public Electricity Service (*Contribution au Service Public de l’Électricité* or CSPE) is a contribution set by the French State and collected directly from the end-user of electricity to compensate for certain public service charges borne by the EDF Group. It is intended to finance the rise in renewable energies, social tariffs and tariff equalisation.

Since 2007, the amount of CSPE collected has been unable to cover these charges, despite a system of regular rises in the CSPE introduced by the French finance law of 2011, and the resulting shortfall was affecting Group indebtedness.

Under the agreement reached with the French authorities and announced on 14 January 2013, EDF is to receive reimbursement of the receivable consisting of the CSPE shortfall at 31 December 2012 (€4.3 billion) and the costs of bearing this shortfall for the Group (€0.6 billion).

A progressive reimbursement schedule for this €4.9 billion receivable was validated in the agreement. It runs until 2018, and bears interest at market rates (1.72%) which is included in financial income in the Group’s consolidated financial statements.

Following conclusion of this agreement, the Group recognised financial income of €0.6 billion in the consolidated financial statements for the year ended 31 December 2012 and transferred the CSPE receivable from “Other receivables” to “Financial loans and receivables” at an amount of €4.3 billion.

In application of the decree of 23 February 2007, on 8 February 2013 the French government authorised allocation of CSPE receivable held by EDF to the dedicated assets for secure financing of long-term nuclear expenses. In view of this authorisation, the positive opinion of the Nuclear Commitments Monitoring Committee and the deliberations of the Board of Directors at its meeting of 13 February 2013, EDF has allocated the total receivable, which represents the accumulated shortfall in CSPE compensation at 31 December 2012 and amounts to €4.9 billion (including the associated financing costs), to dedicated assets. This allocation is concurrent with a withdrawal of financial assets from the portfolio (diversified bond and equity investments) totalling €2.4 billion. As a result of the net €2.5 billion allocation to dedicated assets, the objective of 100% coverage of long-term nuclear provisions was reached in advance of the legal deadline of June 2016 ‘set by the “NOME” law on the new electricity market organisation.

Withdrawals of financial assets from the dedicated asset portfolio during 2013 are reflected in a €2.4 billion reduction in the Group’s net indebtedness.

France’s amended finance law for 2013 recognises the costs of bearing the shortfall in the CSPE mechanism as a public service expense entitling EDF to compensation through the contribution.

## 3.5 Dalkia

### 3.5.1 Agreement with Veolia Environnement over Dalkia

The EDF group and Veolia Environnement (VE) announced on 28 October 2013 that they had entered into advanced discussions for the conclusion of an agreement on their joint subsidiary Dalkia, a specialist provider of energy services.

The agreement would enable the EDF group to significantly develop its energy services operations. It would offer good potential for synergies due to the complementarities between the expertise and business lines of the EDF group and Dalkia.

Once the ongoing discussions are completed, the EDF group would acquire all the Dalkia group’s activities in France, while VE would acquire the activities of Dalkia International. Under this arrangement, VE would make a cash payment of €550 million to the EDF group to compensate for the difference in value between the stakes owned by the two shareholders in the various entities of the Dalkia group.

The operation would lead to a takeover of control over Dalkia’s activities in France and a sale of the Group’s investment in Dalkia International.

In application of IFRS 5, based on the financial terms of the draft agreement, the assets and liabilities of Dalkia International at 28 October 2013 are presented in the Group’s consolidated balance sheet as assets held for sale and related liabilities. Based on the net consolidated value of Dalkia International in the consolidated financial statements at 31 December 2013 and the sale price stated in the draft agreement, no impairment is booked in 2013 in connection with this operation.

If the agreement is finalised, the transaction will require approval by the companies’ Boards of Directors and the competent competition authorities. It will be finalised in the middle of 2014 by the earliest.

### 3.5.2 Proposed acquisition of Citelum

On 30 September 2013 the EDF group, through its wholly-owned subsidiary EDEV (EDF Développement Environnement), entered into exclusive negotiations with Dalkia France with a view to acquiring Citelum, one of the major players in the international public lighting and urban electrical equipment industry.

This transaction will enable the Group to enhance the services it offers to local authorities and to work with them more effectively to safeguard their energy future, a vital key to local development. The EDF group will be able to offer new responses to its local authority customers in the field of public lighting to serve environmentally-friendly neighbourhoods.

On 25 November 2013, Dalkia France and EDEV agreed to extend the exclusive negotiation period to 31 March 2014 due to ongoing discussions between the EDF groups and VE concerning the joint subsidiary Dalkia (see 3.5.1).

## 3.6 Agreement with Exelon on CENG

The EDF and Exelon groups signed an agreement on 29 July 2013 concerning CENG, an entity held 49.99% by the EDF group and 50.01% by the Exelon group. CENG operates 5 nuclear reactors in the United States with total power of 3.9 GW. Under the terms of this agreement, the EDF group will delegate operational management of these reactors to Exelon. The agreement also stipulates that the Group will receive an exceptional dividend of USD 400 million (approximately €300 million) and will benefit from an option to sell its holding in CENG at fair value to Exelon, which can be exercised between January 2016 and June 2022.

This agreement requires the approval of the Nuclear Regulatory Commission and the relevant competition authorities. It should be finalised during 2014.

### 3.7 Significant events and transactions of 2012

#### 3.7.1 Edison – Takeover by the EDF group

Once the conditions were fulfilled, on 24 May 2012 the EDF group and its Italian partners finalised the takeover of the energy group Edison.

The Group thus took control of Edison on 24 May 2012 by purchasing Delmi's entire investment (50%) in Transalpina di Energia (TdE) for a total of €784 million, corresponding to the negotiated price of €0.89 per Edison share.

At the same time as the EDF group took control of Edison, Delmi took control of Edipower by purchasing the investments in Edipower held by Edison (50%) and Alpiq (20%) for the total consideration of €884 million.

Edison and Edipower also signed a long-term (6-year) gas supply contract to cover 50% of Edipower's gas requirements.

In compliance with Italian stock market regulations, on 2 July 2012 the EDF Group launched a mandatory tender offer for the remaining Edison shares, at the price of €0.89 per ordinary share. No offer was made for non-voting shares.

976,306,145 ordinary shares, corresponding to a total of €869 million, were tendered to the offer by minority shareholders by the closing date of 6 September 2012.

Between 2 and 30 November 2012, an offer was also made to Edison minority shareholders to convert their "saving shares", which carry no voting rights, into ordinary shares. As a result of this offer, 437,573 non-voting shares were converted into ordinary shares.

After the mandatory tender offer and the conversion offer for non-voting shares, the EDF group holds 97.40% of the capital and 99.48% of the voting rights of Edison at 31 December 2012.

Italian stock market regulations do not require the EDF group to buy the remaining Edison shares still held by minority shareholders after the mandatory tender offer.

#### 3.7.2 Termination of the industrial nuclear partnership between EDF and ENEL

In November 2007, EDF and ENEL signed a series of agreements governing cooperation for nuclear operations, under the terms of which ENEL took a 12.5% stake in the Flamanville EPR project.

Given the changes in the economic environment and the project itself, as well as the discontinuation of the Italian nuclear revival programme following the June 2011 referendum, ENEL and EDF announced on 4 December 2012 that they were ending their cooperation. They consequently waived their respective options in each other's programmes, and ENEL withdrew from the Flamanville EPR project. EDF therefore reimbursed ENEL's investment in the project, totalling €658 million including penalties. In return, EDF will have full rights to the electricity generated by Flamanville 3.

## ➤ Note 4 Regulatory events in France

### 4.1 Pension reform – law of 20 January 2014

The French law of 20 January 2014 amended the regulations governing pensions in France. The two principal measures introduced by the law will apply to the special pension system for companies in the electricity and gas sector (IEG). The contribution period required to qualify for a full pension will be progressively extended to 43 years starting with employees born in 1973. This applies to France's standard national pension system and public sector pension system, and should be transposed to the IEG pension system by decree in early 2014. Also, the date for the annual review of pension values is deferred from 1 April to 1 October as of the 2014 financial year.

Since the bill for this law was adopted by Parliament on 18 December 2013, its impact has been taken into account in valuing the Group's pension obligations at 31 December 2013. The effects of the main two measures referred to above constitute plan amendments and have been recorded in the income statement at the pre-tax amount of €472 million, in "Other income and expenses".

### 4.2 TURPE 3 and TURPE 4 Network Access Tariffs

In a decision of 28 November 2012, the French Council of State cancelled the distribution component of the third generation network access tariffs TURPE 3 (*Tarifs d'Utilisation des Réseaux Publics d'Électricité*) which had been approved on 5 May 2009 by the ministers for energy and the economy after a proposal from the CRE, and was supposed to apply for the period

1 August 2009 to 31 July 2013. This cancellation had no direct impact on the regulated tariffs for sales to customers. The new version of the TURPE 3 ("TURPE 3 bis") based on the CRE proposal of 29 March 2013 was published in France's *Official Journal* on 26 May 2013. It applied retroactively to the period 2009-2013, replacing the cancelled tariff, and reduced the tariffs for the period 1 June to 31 July 2013 by 2.5%.

On 10 July 2013 the CRE also published its deliberations of 28 May 2013 containing the decision for the period from 1 August 2013 to 31 December 2013 ("TURPE 3 ter"), which resulted in a 2.1% increase in distribution tariffs from 1 August 2013 compared to the period 1 June to 31 July 2013.

On 9 July 2013, the CRE began its consultation on the distribution tariffs due to take effect from 1 January 2014 for a 4-year period ("TURPE 4"). After this consultation, on 13 November the CRE published its decision on distribution tariffs, which should lead to a 3.6% increase in the delivery tariff as of 1 January 2014, with subsequent adjustment in line with inflation.

The government also announced in a letter dated 12 November 2013 to the President of the CRE that it intended to propose a law shortly with the aim of laying down a secure legal framework for setting the TURPE, so that a normative economic regulation method can be implemented.

The CRE's decision of 12 December 2013 setting the distribution tariffs from 1 January 2014 was published in France's *Official Journal* on 20 December 2013.

For transmission tariffs, the CRE deliberations of 3 April 2013 were published in the *Official Journal* of 30 June 2013. This new tariff ("TURPE 4 HTB") has been applicable since 1 August 2013 for a period of approximately four years. The tariff was raised by 2.4% as of that date, and will subsequently be adjusted annually in accordance with inflation.

## 4.3 “NOME” law

Supplies of electricity to EDF's competitors under the ARENH scheme for regulated access to historic nuclear power supplies concern a volume of 64.4 TWh for 2013. The annual volume cannot exceed 100 TWh, and will be progressively increased from 1 January 2014 by the amounts sold to network operators to compensate for their technical losses, according to a timetable set by government decision. The estimated volume for 2014 is 74.2 TWh, this volume may be adjusted under certain conditions at 1 July 2014.

The ARENH price was set at €42/MWh from 1 January 2012, and will subsequently reflect the economic conditions of generation by the existing nuclear fleet. On 22 October 2013, the French government announced that the decree stipulating the valuation method for costs making up the ARENH price should be published by the end of the first quarter of 2014.

## ➤ Note 5 Changes in the scope of consolidation

Apart from the Group's acquisition of Centrica's investment in Nuclear New Build Holdings described in note 3.3.2, the main changes in the scope of consolidation during 2013 concern the following entities.

### 5.1 Sale of the Group's investment in SSE

On 24 May 2013, the EDF group received an irrevocable offer from the Czech energy company Energetický a Průmyslový Holding, a.s. (EPH), which is a leading player in central and eastern Europe, for the acquisition of EDF's 49% minority stake in Stredoslovenska Energetika a.s. (SSE), Slovakia's number two electricity distributor and supplier.

The transaction was finalised on 27 November 2013 after authorisation by the competition authorities based on valuation of the Group's investment at €400 million. A pre-tax gain of €54 million on the sale was recorded in “Other operating income and expenses”.

### 5.2 Merger in Poland

In 2013, EDF Polska Cuw, EDF Polska Centrala, EDF Krakow and ERSA merged to form a new entity EDF Polska SA, owned 96.5% by the EDF group.

This merger has no impact on the Group's consolidated financial statements.

### 5.3 Changes in the scope of consolidation in 2012

In addition to the EDF group's takeover of Edison as described in note 3.7.1, the main changes in the scope of consolidation during 2012 concerned:

- the purchase of EnBW's investments in subsidiaries ERSA, Kogeneracja and EDF Polska (Poland);
- acquisition by Électricité de Strasbourg of 100% of Enerest, the longstanding gas supplier to the economic region of Strasbourg.

## ➤ Note 6 Segment reporting

### 6.1 Reporting by operating segment

Segment reporting presentation complies with IFRS 8, “Operating segments”.

Segment reporting is determined before inter-segment eliminations. Inter-segment transactions take place at market prices.

In accordance with IFRS 8, the breakdown used by the EDF group corresponds to the operating segments as regularly reviewed by the Management Committee. The Group uses the following segments:

- **“France”**: EDF, RTE Réseau de Transport d'Électricité and ERDF, mainly comprising Generation and Supply (deregulated activities), the network activities (Distribution and Transmission) and island activities;

- **“United Kingdom”**: the entities of the EDF Energy subgroup including EDF Energy Nuclear Generation Ltd and EDF Development Company Ltd;
- **“Italy”**: all the entities located in Italy, principally the Edison subgroup, TdE and Fenice;
- **“Other international”**: EDF International and the other gas and electricity entities located in continental Europe, the US, Latin America and Asia;
- **“Other activities”**: all the Group's other investments, including EDF Trading, EDF Énergies Nouvelles, Dalkia, Tiru, Électricité de Strasbourg and EDF Investissements Groupe.

No segments have been merged.

### 6.1.1 At 31 December 2013

#### Income statements

(in millions of Euros)	France	United Kingdom	Italy	Other international	Other activities	Inter-segment eliminations	Total
External sales	40,210	9,782	12,875	7,841	4,886	-	75,594
Inter-segment sales	762	-	2	244	1,023	(2,031)	-
<b>TOTAL SALES</b>	<b>40,972</b>	<b>9,782</b>	<b>12,877</b>	<b>8,085</b>	<b>5,909</b>	<b>(2,031)</b>	<b>75,594</b>
<b>OPERATING PROFIT BEFORE DEPRECIATION AND AMORTISATION</b>	<b>10,778</b>	<b>1,992</b>	<b>1,098</b>	<b>1,128</b>	<b>1,769</b>	<b>-</b>	<b>16,765</b>
<b>OPERATING PROFIT</b>	<b>6,229</b>	<b>1,021</b>	<b>258</b>	<b>(228)</b>	<b>1,131</b>	<b>-</b>	<b>8,411</b>

#### Balance sheet:

Intangible assets and property, plant and equipment	91,702	13,286	9,579	7,532	11,204	-	133,303
Investments in associates	5,134	47	51	2,009	572	-	7,813
Goodwill	-	8,140	-	449	617	-	9,206
Other segment assets <sup>(1)</sup>	29,443	4,560	3,962	1,597	6,346	-	45,908
Assets classified as held for sale	-	-	-	-	3,619	-	3,619
Other non-allocated assets	-	-	-	-	-	-	56,952
<b>TOTAL ASSETS</b>	<b>126,279</b>	<b>26,033</b>	<b>13,592</b>	<b>11,587</b>	<b>22,358</b>	<b>-</b>	<b>256,801</b>

#### Other information:

Investments in intangible assets and property, plant and equipment	9,015	1,339	348	514	2,111	-	13,327
Net depreciation and amortisation	(4,698)	(903)	(740)	(593)	(582)	-	(7,516)
Impairment	(71)	(7)	(88)	(707)	(139)	-	(1,012)

(1) Other segment assets include inventories, trade receivables and other receivables.

### 6.1.2 At 31 December 2012

#### Income statements

(in millions of Euros)	France	United Kingdom	Italy	Other international	Other activities	Inter-segment eliminations	Total
External sales	39,120	9,739	10,098	7,976	5,245	-	72,178
Inter-segment sales	585	-	-	212	632	(1,429)	-
<b>TOTAL SALES</b>	<b>39,705</b>	<b>9,739</b>	<b>10,098</b>	<b>8,188</b>	<b>5,877</b>	<b>(1,429)</b>	<b>72,178</b>
<b>OPERATING PROFIT BEFORE DEPRECIATION AND AMORTISATION</b>	<b>9,853</b>	<b>2,047</b>	<b>1,019</b>	<b>1,066</b>	<b>2,013</b>	<b>-</b>	<b>15,998</b>
<b>OPERATING PROFIT</b>	<b>5,489</b>	<b>965</b>	<b>266</b>	<b>84</b>	<b>1,355</b>	<b>-</b>	<b>8,159</b>

#### Balance sheet:

Intangible assets and property, plant and equipment	86,077	13,206	10,017	8,784	11,783	-	129,867
Investments in associates	4,818	25	51	2,111	582	-	7,587
Goodwill	-	8,339	-	605	1,468	-	10,412
Other segment assets <sup>(1)</sup>	27,627	4,332	4,102	1,825	7,310	-	45,196
Assets classified as held for sale	-	240	1	-	-	-	241
Other non-allocated assets	-	-	-	-	-	-	56,781
<b>TOTAL ASSETS</b>	<b>118,522</b>	<b>26,142</b>	<b>14,171</b>	<b>13,325</b>	<b>21,143</b>	<b>-</b>	<b>250,084</b>

#### Other information:

Investments in intangible assets and property, plant and equipment	8,235	1,643	438	490	2,580	-	13,386
Net depreciation and amortisation	(4,186)	(888)	(644)	(590)	(541)	-	(6,849)
Impairment	-	(234)	(44)	(389)	(85)	-	(752)

(1) Other segment assets include inventories, trade receivables and other receivables.



## 6.2 Sales to external customers, by product and service group

The Group's sales are broken down by product and service group as follows:

- **"Generation/Supply"**: energy generation and energy sales to industry, local authorities, small businesses and residential consumers. This segment also includes commodity trading activities;
- **"Distribution"**: management of the low and medium-voltage public distribution network;
- **"Transmission"**: operation, maintenance and development of the high-voltage and very-high-voltage electricity transmission network;
- **"Other"**: energy services (district heating, thermal energy services, etc.) for industry and local authorities, and new businesses mainly aimed at boosting electricity generation through cogeneration and renewable energy sources (e.g. wind turbines, photovoltaic panels, etc.).

<i>(in millions of Euros)</i>	Generation/ Supply	Distribution	Transmission	Other	Eliminations	Total
<b>At 31 December 2013:</b>						
External sales:						
– France	25,789	14,699	-	310	(588)	40,210
– Rest of the world	30,485	1,152	219	3,528	-	35,384
<b>TOTAL SALES</b>	<b>56,274</b>	<b>15,851</b>	<b>219</b>	<b>3,838</b>	<b>(588)</b>	<b>75,594</b>
<b>At 31 December 2012:</b>						
External sales:						
– France	25,330	14,194	-	159	(563)	39,120
– Rest of the world	29,264	431	-	3,363	-	33,058
<b>TOTAL SALES</b>	<b>54,594</b>	<b>14,625</b>	<b>-</b>	<b>3,522</b>	<b>(563)</b>	<b>72,178</b>

## Income Statements

### ➤ Note 7 Sales

Sales are comprised of:

<i>(in millions of Euros)</i>	2013	2012
Sales of energy and energy-related services	71,512	67,538
Other sales of goods and services	3,235	3,837
Trading	847	803
<b>SALES</b>	<b>75,594</b>	<b>72,178</b>

As well as the organic growth resulting from price and volume effects, the sales growth of 2013 was the effect of changes in the scope of consolidation (chiefly Edison).

### ➤ Note 8 Fuel and energy purchases

Fuel and energy purchases comprise:

<i>(in millions of Euros)</i>	2013	2012
Fuel purchases used - power generation	(13,428)	(13,815)
Energy purchases	(16,547)	(15,279)
Transmission and delivery expenses	(9,268)	(8,191)
Gain / loss on hedge accounting	(123)	73
(Increase) / decrease in provisions related to nuclear fuels and energy purchases	(317)	114
<b>FUEL AND ENERGY PURCHASES</b>	<b>(39,683)</b>	<b>(37,098)</b>

Fuel purchases used include costs relating to raw materials for energy generation (coal, biomass, oil, propane, fissile materials, nuclear fuels and gas), purchases of services related to the nuclear fuel cycle, and costs associated with environmental schemes (mainly greenhouse gas emission rights and renewable energy certificates).

Energy purchases include energy generated by third parties, including energy derived from cogeneration intended for resale.

The rise in fuel and energy purchases in 2013 is explained by the same factors as the rise in sales.

### ➤ Note 9 Other external expenses

Other external expenses comprise:

<i>(in millions of Euros)</i>	2013	2012
External services	(11,069)	(11,948)
Other purchases (excluding external services, fuel and energy)	(2,465)	(3,223)
Change in inventories and capitalised production	4,296	5,233
(Increase) / decrease in provisions on other external expenses	211	220
<b>OTHER EXTERNAL EXPENSES</b>	<b>(9,027)</b>	<b>(9,718)</b>

## ➤ Note 10 Personnel expenses

### 10.1 Personnel expenses

Personnel expenses comprise:

<i>(in millions of Euros)</i>	2013	2012
Wages and salaries	(7,493)	(7,423)
Social contributions	(1,769)	(1,641)
Employee profit sharing	(245)	(211)
Other contributions related to personnel	(388)	(372)
Other expenses linked to short-term benefits	(99)	(229)
<b>Short-term benefits</b>	<b>(9,994)</b>	<b>(9,876)</b>
Expenses under defined-contribution plans	(802)	(795)
Expenses under defined-benefit plans	(948)	(755)
<b>Post-employment benefits</b>	<b>(1,750)</b>	<b>(1,550)</b>
Other long-term expenses	(123)	(282)
Termination payments	(12)	(2)
<b>Other personnel expenses</b>	<b>(135)</b>	<b>(284)</b>
<b>PERSONNEL EXPENSES</b>	<b>(11,879)</b>	<b>(11,710)</b>

### 10.2 Average workforce

	2013	2012
IEG status	101,732	98,783
Other	53,209	55,947
<b>AVERAGE WORKFORCE</b>	<b>154,941</b>	<b>154,730</b>

Average workforce numbers are reported on a full-time equivalent basis.

Personnel corresponding to proportionally consolidated companies included pro rata with the Group's percentage interest represent the equivalent of 14,843 full-time employees at 31 December 2013 (18,967 full-time equivalent employees at 31 December 2012).

## ➤ Note 11 Taxes other than income taxes

Taxes other than income taxes break down as follows:

<i>(in millions of Euros)</i>	2013	2012
Payroll taxes	(236)	(221)
Energy taxes	(1,476)	(1,435)
Other non-income taxes	(1,821)	(1,631)
<b>TAXES OTHER THAN INCOME TAXES</b>	<b>(3,533)</b>	<b>(3,287)</b>

## ➤ Note 12 Other operating income and expenses

Other operating income and expenses comprise:

(in millions of Euros)	Notes	2013	2012
Operating subsidies	12.1	5,312	4,824
Net income / (expense) associated with the TaRTAM transition tariff system		-	93
Net income on deconsolidation	12.2	298	75
Gains on disposal of property, plant and equipment	12.2	(98)	298
Net increase in provisions on current assets		(203)	(235)
Net increase in provisions for operating contingencies and losses	12.3	(123)	119
Other items	12.4	107	459
<b>OTHER OPERATING INCOME AND EXPENSES</b>		<b>5,293</b>	<b>5,633</b>

### 12.1 Operating subsidies

This item mainly comprises the subsidy received or receivable by EDF in respect of the CSPE, reflected in the financial statements through recognition of income of €5,103 million for 2013 (€4,687 million for 2012). The difference is largely attributable to the decline in electricity prices on the market, which had the effect of increasing the subsidy receivable for purchase obligations in mainland France, and the rise in energy purchase volumes in non-interconnected zones.

### 12.2 Net income on deconsolidation and gains on disposal of property, plant and equipment

In 2013, net income on deconsolidation and gains on disposal of property, plant and equipment included:

- gains on sales of real estate assets in France, amounting to €62 million (€270 million for 2012);
- gains on sales of EDF Énergies Nouvelles' generation assets as part of the DSSA activities, amounting to €186 million (€281 million for 2012);
- a €54 million gain on sale of the Group's investment in SSE.

### 12.3 Net increase in provisions for operating contingencies and losses

In 2013, the net increase in provisions for operating contingencies and losses includes €5 million corresponding to reversals of fair value on British Energy sales contracts recognised at the acquisition date of 5 January 2009, following their settlement (€139 million in 2012).

### 12.4 Other items

Other items in 2012 and 2013 include the effects, relating to previous years, of renegotiations in favour of Edison in the litigations over price revisions for the long-term gas supply contracts.

## ➤ Note 13 Impairment / reversals

### 13.1 Impairment by category of asset

Details of impairment recognised and reversed are as follows:

(in millions of Euros)	Notes	2013	2012
Impairment of goodwill	18	(194)	(52)
Impairment of other intangible assets	19	(56)	(27)
Impairment of tangible assets and discontinued operations <sup>(1)</sup>	21-22-46	(762)	(727)
Reversal of the provision in respect of operations in Italy		-	54
<b>IMPAIRMENT NET OF REVERSALS</b>		<b>(1,012)</b>	<b>(752)</b>

(1) Including €(74) million for discontinued operations in 2012.

In 2012, the €(752) million of impairment recorded principally related to CENG (€(396) million in connection with the downturn in long-term electricity prices) and EDF Energy (€(234) million of impairment on the West Burton and Sutton Bridge fossil-fired generation assets).

In 2013, impairment amounts to €(1,012) million. Details are given below.

### 13.2 Impairment tests on goodwill and other assets and recognition of impairment

The following tables give details of impairment tests carried out on the main goodwill, intangible assets with indefinite useful lives and other Group assets in 2013, and the key assumptions used.

#### Impairment tests on goodwill and intangible assets with indefinite useful lives

Operating segment	Cash-Generating Unit or asset	WACC after tax	Growth rate to infinity	Impairment 2013 (in millions of Euros)
United Kingdom	EDF Energy	6.8%	-	-
Italy	Edison brand	7.8 – 10.5%	2%	-
Other international	EDF Luminus	6.6%	2%	(102)
Other activities	Dalkia Investissement	6.8%	-	(49)
Other activities	EDF Énergies Nouvelles CGUs	5% – 11.3%	-	(5)
Other impairment of goodwill				(38)
<b>IMPAIRMENT OF GOODWILL AND INTANGIBLE ASSETS WITH INDEFINITE USEFUL LIVES</b>				<b>(194)</b>



## Impairment of other intangible and tangible assets

Operating segment	Cash-Generating Unit or asset	Impairment indicators	WACC after tax	Impairment 2013 (in millions of Euros)
Italy	Edison assets	Decline in volumes	6.8 – 9.6%	(89)
Other international	SLOE power plant in the Netherlands	Narrowing of the spark spreads	6.1%	(174)
Other international	CENG power plants	Decline in electricity prices	6.2%	(146)
Other international	Supercritical coal-fired power plant project in Poland	Suspension of the project	-	(125)
Other international	EDF Luminus plants In Belgium	Notification of mothballing	6.6%	(127)
Other activities	EDF Énergies Nouvelles CGUs	New regulations	5% – 11.3%	(89)
Other impairment of assets				(68)
<b>IMPAIRMENT OF OTHER INTANGIBLE AND TANGIBLE ASSETS</b>				<b>(818)</b>

### Basic assumptions

The methodology for calculating WACC is identical to 2012, but the WACC figures used in 2013 were lower than in 2012 due to the decrease in risk-free rates.

For price curves, the basic macro-economic trends are unchanged from 2012 but the levels are lower, since the European markets have varying surplus capacities, and regulatory constraints are growing more stringent in certain countries.

### United Kingdom – EDF Energy

EDF Energy's goodwill amounted to €8,140 million at 31 December 2013 and resulted from acquisition by the EDF group between 1998 and 2009 of various businesses currently operating in the United Kingdom.

Until 2012, goodwill was allocated at two levels:

- Energy Sourcing and Customer Supply (ESCS), including development of the West Burton plant;
- Nuclear Generation: nuclear activities including power plants in operation and plans to develop new EPRs.

In 2013, EDF Energy reorganised its operating businesses to bring the organisation structure into line with its integrated generator/supplier model and strengthen overall governance. The Group's analysis following this reorganisation concluded the cash-generating units (ESCS and Nuclear Generation) should be grouped together for the purposes of impairment testing.

The recoverable value of EDF Energy is estimated based on discounted future net cash flows from the generation units over their estimated useful

life, taking into consideration the expected extension of the useful lives of existing nuclear reactors and the commissioning of four new EPRs with a 60-year useful life.

The recoverable value of existing generation facilities is sensitive to assumptions regarding long-term movements in electricity prices in the United Kingdom. The assumptions used take into consideration the gradual reduction of current surplus capacities, especially given that retirement of existing coal-fired plants has led to a need for new generation facilities.

The sale prices of electricity generated by the future EPRs are based on the Contract for Difference (CfD) between the Group and the British government. The CfD sets stable, predictable prices for EDF Energy: if market prices fall below the CfD exercise price, EDF Energy will receive an additional payment.

A half-point increase in the WACC would not lead to any impairment. Also, if the assumed number of EPRs built was reduced from 4 to 2, the recoverable value of EDF Energy would still be higher than its book value.

### Italy – Edison

As an intangible asset with an indefinite useful life, the Edison brand, recorded in the Group's consolidated financial statements at the value of €945 million, was subjected to an impairment test that did not lead to recognition of any impairment. The test used the relief from royalty method.

For other Edison assets that showed signs of loss of value, the tests indicated €(89) million of impairment, slightly more than half of which concerned customer relations, which were valued in May 2012 when EDF took over control of Edison (accelerated attrition rate on the customer portfolio).

## Other international

### **SLOE**

SLOE is a 870 MW combined cycle gas plant in the south-west Netherlands, owned 50/50 by the EDF group and Delta.

The Group applied impairment testing to this asset following the narrowing of spark spreads. The test takes account of cash flows based on the medium-term plan, and beyond that horizon incorporates the firm's long-term assumptions regarding spark spreads to the end of the plant's useful life in 2034.

Based on a 6.1% discount rate, the impairment test indicated impairment of €(174) million.

### **CENG**

The recoverable value of CENG's assets is estimated based on future cash flows over the estimated useful life of generation facilities. The impairment test is based on the medium-term plan approved by CENG's Board of Directors and takes into consideration synergies resulting from the agreement of 29 July 2013 with Exelon (see note 3.6).

Forward and long-term prices for electricity in the United States declined again in 2013. This deterioration in electricity prices has led to recognition of impairment of €(146) million at 31 December 2013.

### **EDF Luminus**

Electricity market conditions in Belgium grew tougher in 2013 (prices dropped, competitive pressure was high, additional regulatory constraints were introduced). As a result the market price assumptions used in impairment testing are lower in 2013 than in 2012 as regards electricity and short and medium-term clean spark spreads.

In this context, in March 2013 EDF Luminus notified the Belgian government of a temporary shutdown on the Seraing fossil-fired plant from mid-2014. As a result of this decision, an impairment test was conducted and the plant was fully depreciated in 2013 (€(112) million).

Additional impairment of €(15) million was also recorded in respect of small plants for which decisions have been made to notify temporary or permanent shutdowns.

The lower assumptions for market prices also led to recognition of €(102) million of impairment on EDF Luminus goodwill. At 31 December 2013, EDF Luminus goodwill amounted to €281 million after impairment.

### **EDF Polska**

A plan to build a 900 MW supercritical coal-fired power plant at the Rybnik site in Poland was launched in September 2011, with a view to replacing four older plants.

Changes in the economic and regulatory conditions in Poland have affected the expected rate of return on the project such that it was impossible to continue the project on the original terms, and it has been suspended.

At 31 December 2013, the total amount of investments specific to this project was €160 million. This includes €35 million that will be reused on the Rybnik site, and consequently impairment of €(125) million was recorded in 2013.

## Other activities

### **EDF Énergies Nouvelles**

At 31 December 2013, impairment of €(94) million was recorded in respect of the various CGUs of EDF Énergies Nouvelles, including €(5) million for goodwill.

This impairment concerns projects for which indications of impairment have been noted (legislative and tax measures, transition to market prices), particularly in the United States and Europe (Greece, Spain).

### **Dalkia Investissement**

In 2013, the slowdown in Dalkia Investissements' business (operating cogeneration plants) and the fall in clean spark spreads led to impairment testing. The test was based on the assets' values in use taken from the 5-year medium-term plan and a terminal value, and showed that the recoverable value of the assets was lower than the book value.

Consequently, the goodwill was fully written down by recognition of impairment of €(49) million.

## ➤ Note 14 Other income and expenses

Other income and expenses in 2013 comprise:

- income of €472 million relating to the favourable effect of the pension reform in France (see note 4.1);
- €(60) million of restructuring expenses for the Group's activities in Belgium, the United States and certain central European countries.

Other income and expenses in 2012 included:

- income of €160 million concerning ERDF, resulting from reversal of a provision for renewal following a change in estimate for the useful life of high / low voltage transformers (extended from 30 years to 40 years);
- the effects of the Group's takeover of Edison, amounting to €(58) million;
- a net expense of €(70) million associated with revision of the estimated costs for decommissioning permanently shut-down nuclear power plants in France (UNGG power plants, Creys-Malville, Brennilis and Chooz A), and the revision of certain costs associated with interim storage of spent fuel.

## ➤ Note 15 Financial result

### 15.1 Cost of gross financial indebtedness

Details of the components of the cost of gross financial indebtedness are as follows:

<i>(in millions of Euros)</i>	2013	2012
Interest expenses on financing operations	(2,406)	(2,538)
Change in the fair value of derivatives and hedges of liabilities	(2)	39
Transfer to income of changes in the fair value of cash flow hedges	11	(39)
Net foreign exchange gain on indebtedness	(6)	95
<b>COST OF GROSS FINANCIAL INDEBTEDNESS</b>	<b>(2,403)</b>	<b>(2,443)</b>

### 15.2 Discount effect

The discount effect primarily concerns provisions for the back-end nuclear cycle, decommissioning and last cores, and long-term and post-employment employee benefits.

Details of this expense are as follows:

<i>(in millions of Euros)</i>	2013	2012
Provisions for long-term and post-employment employee benefits	(1,255)	(1,368)
Provisions for back-end nuclear cycle, decommissioning and last cores	(1,619)	(1,889)
Other provisions and advances	(108)	(4)
<b>DISCOUNT EFFECT</b>	<b>(2,982)</b>	<b>(3,261)</b>

The discount effect in 2012 on provisions for back-end nuclear cycle, decommissioning and last cores included a €(244) million expense related to revision of the discount rate for France.

## 15.3 Other financial income and expenses

Other financial income and expenses comprise:

<i>(in millions of Euros)</i>	2013	2012
Financial income on cash and cash equivalents	23	38
Gains (losses) on available-for-sale financial assets	1,081	708
Gains (losses) on other financial assets	375	968
Changes in financial instruments carried at fair value with changes in fair value included in income	120	(70)
Other financial expenses	(256)	(245)
Foreign exchange gain / loss on financial items other than debts	(99)	(93)
Return on hedging assets	565	639
Capitalised borrowing costs	487	425
<b>OTHER FINANCIAL INCOME AND EXPENSES</b>	<b>2,296</b>	<b>2,370</b>

Gains net of expenses on available-for-sale financial assets include gains on disposals, interest income, and dividends.

In 2013, gains and losses on available-for-sale financial assets include net gains on sales of EDF's dedicated assets, amounting to €714 million (€260 million in 2012).

Also in 2013, gains on other financial assets include income of €83 million corresponding to costs borne in connection with the CSPE deficit at 31 December 2012. In 2012, income of €629 million was recorded in this item in connection with the accumulated previous costs of bearing this shortfall - see note 3.4.

## ➤ Note 16 Income taxes

### 16.1 Breakdown of tax expense

Details are as follows:

<i>(in millions of Euros)</i>	2013	2012
Current tax expense	(2,111)	(1,619)
Deferred taxes	169	46
<b>TOTAL</b>	<b>(1,942)</b>	<b>(1,573)</b>

In 2013, €(1,557) million of the current tax expense relates to EDF's tax consolidated group in France, and €(554) million relates to other subsidiaries (€(1,058) million and €(561) million respectively in 2012).

### 16.2 Reconciliation of the theoretical and effective tax expense (tax proof)

<i>(in millions of Euros)</i>	2013	2012
Income of consolidated companies before tax	5,322	4,825
Income tax rate applicable to the parent company	38.00%	36.10%
<b>Theoretical tax expense</b>	<b>(2,022)</b>	<b>(1,742)</b>
Differences in tax rate	366	346
Permanent differences	(112)	(62)
Taxes without basis	(131)	49
Unrecognised deferred tax assets	(43)	(172)
Other	-	8
<b>ACTUAL TAX EXPENSE</b>	<b>(1,942)</b>	<b>(1,573)</b>
<b>EFFECTIVE TAX RATE</b>	<b>36.50%</b>	<b>32.60%</b>

The effective tax rate for 2013 and 2012 was driven up by impairment. After adjustment for this factor, the effective tax rate is 33.7% and 29.1% respectively for 2013 and 2012.

The main factors explaining the difference between the theoretical tax rate and the effective rate are:

- 2013:
  - the positive impact of differences in tax rates applicable to foreign subsidiaries (€366 million), including €254 million related to the 3-point drop in tax rates in the UK,
  - the €(135) million negative impact of the French finance laws of 2012 and 2013 (excluding the effect of the increase in the tax rate to 38%), mainly corresponding to the dividend tax and limitation of deductibility for financial interest.

- 2012:

the positive impact of differences in tax rates applicable to foreign subsidiaries (€346 million), including €177 million related to the 2-point drop in tax rates in the UK.



## 16.3 Change in deferred tax assets and liabilities

<i>(in millions of Euros)</i>	2013	2012
Deferred tax assets	3,421	3,102
Deferred tax liabilities	(5,601)	(4,479)
<b>NET DEFERRED TAXES AT 1 JANUARY</b>	<b>(2,180)</b>	<b>(1,377)</b>
Change in net income	169	46
Change in equity	(233)	485
Translation adjustments	68	(53)
Changes in scope of consolidation	46	(1,357)
Other movements	(35)	76
<b>NET DEFERRED TAXES AT 31 DECEMBER</b>	<b>(2,165)</b>	<b>(2,180)</b>
Deferred tax assets	2,839	3,421
Deferred tax liabilities	(5,004)	(5,601)

€(117) million of the change in 2013 in deferred tax assets included in equity results from the actuarial gains and losses on post-employment benefits (€528 million in 2012).

## 16.4 Breakdown of deferred tax assets and liabilities by nature

<i>(in millions of Euros)</i>	31/12/2013	31/12/2012
<b>Deferred tax assets:</b>		
Differences between depreciation recorded for accounting and tax purposes	241	185
Non-deductible provisions for pension obligations	6,062	6,168
Other non-deductible provisions	941	731
Other deductible temporary differences	1,409	1,257
Revaluations, revaluation surplus and elimination of intercompany profit	613	656
Tax losses and unused tax credits	710	872
Netting of deferred tax assets and liabilities	(4,651)	(3,793)
<b>Deferred tax assets</b>	<b>5,325</b>	<b>6,076</b>
Unrecognised deferred tax assets	(2,486)	(2,655)
<b>Deferred tax assets in balance sheet</b>	<b>2,839</b>	<b>3,421</b>
<b>Deferred tax liabilities:</b>		
Differences between depreciation recorded for accounting and tax purposes	(5,680)	(5,570)
Other taxable temporary differences	(1,152)	(849)
Revaluations, revaluation surplus and elimination of intercompany profit	(2,823)	(2,975)
Netting of deferred tax assets and liabilities	4,651	3,793
<b>Deferred tax liabilities in balance sheet</b>	<b>(5,004)</b>	<b>(5,601)</b>
<b>NET DEFERRED TAXES</b>	<b>(2,165)</b>	<b>(2,180)</b>

At 31 December 2013, unrecognised deferred tax assets represent a potential tax saving of €2,486 million (€2,655 million at 31 December 2012). Of the potential tax saving in 2013, €1,747 million relates to deferred tax assets, mainly on employee benefits in France (€1,747 million in 2012).

## ➤ Note 17 Basic earnings per share and diluted earnings per share

The diluted earnings per share is calculated by dividing the Group's share of net income, corrected for dilutive instruments and the payments made during the year to bearers of perpetual subordinated bonds, by the weighted average number of potential shares outstanding over the period after elimination of treasury shares.

The following table shows the reconciliation of the basic and diluted earnings used to calculate earnings per share (basic and diluted), and the variation in the weighted average number of shares used in calculating basic and diluted earnings per share:

<i>(in millions of Euros)</i>	<b>2013</b>	2012
Net income attributable to ordinary shares	3,517	3,275
Payments on perpetual subordinated bonds	(103)	-
Effect of dilutive instruments	-	-
<b>Net income used to calculated earnings per share</b>	<b>3,414</b>	<b>3,275</b>
Average weighted number of ordinary shares outstanding during the year	1,852,523,933	1,847,342,956
Average weighted number of diluted shares outstanding during the year	1,852,523,933	1,847,342,956
Earnings per share (in Euros):		
<b>EARNINGS PER SHARE</b>	<b>1.84</b>	<b>1.77</b>
<b>DILUTED EARNINGS PER SHARE</b>	<b>1.84</b>	<b>1.77</b>

## OPERATING ASSETS AND LIABILITIES, EQUITY

### ➤ Note 18 Goodwill

#### 18.1 Changes in goodwill

Goodwill on consolidated entities comprises the following:

<i>(in millions of Euros)</i>	31/12/2013	31/12/2012
<b>Net book value at opening date</b>	<b>10,412</b>	<b>11,648</b>
Acquisitions	6	129
Disposals	(38)	-
Impairment (note 13)	(194)	(52)
Translation adjustments	(191)	209
Changes in scope of consolidation and other	(789)	(1,522)
<b>NET BOOK VALUE AT CLOSING DATE</b>	<b>9,206</b>	<b>10,412</b>
Gross value at closing date	9,938	11,079
Accumulated impairment at closing date	(732)	(667)

The changes in goodwill in 2013 primarily relate to:

- translation adjustments of €(191) million, largely due to the pound sterling's fall against the Euro;
- impairment of €(194) million, including €(102) million for EDF Luminus goodwill and €(49) million for Dalkia Investissements goodwill;
- changes in the scope of consolidation, including €(789) million for the effect of reclassification of goodwill associated with Dalkia International as "assets held for sale".

The changes in goodwill in 2012 primarily related to:

- acquisitions, including €89 million recognised after the takeover of Enerest by Électricité de Strasbourg;
- translation adjustments of €209 million, largely due to the rise of the Pound sterling against the Euro;
- changes in the scope of consolidation, including €(1,400) million for the derecognition of Edison's historical goodwill following determination of the fair value of the assets acquired and liabilities assumed in the takeover operation of 24 May 2012.

#### 18.2 Goodwill by operating segment

The breakdown of goodwill is as follows:

<i>(in millions of Euros)</i>	31/12/2013	31/12/2012
EDF Energy	8,140	8,339
<b>Total United Kingdom</b>	<b>8,140</b>	<b>8,339</b>
EDF Luminus (Belgium)	281	383
ESTAG (Austria)	112	112
Other	56	110
<b>Total Other International</b>	<b>449</b>	<b>605</b>
Dalkia International	-	800
EDF Énergies Nouvelles	189	195
Other	428	473
<b>Total Other activities</b>	<b>617</b>	<b>1,468</b>
<b>GROUP TOTAL</b>	<b>9,206</b>	<b>10,412</b>

## ➤ Note 19 Other intangible assets

The net value of other intangible assets breaks down as follows:

At 31 December 2013 <i>(in millions of Euros)</i>	31/12/2012	Acquisitions	Disposals	Translation adjustments	Changes in scope	Other movements	31/12/2013
Software	1,772	565	(121)	(14)	(62)	(13)	2,127
Positive fair value of commodity contracts acquired in a business combination	873	-	-	(2)	-	(24)	847
Greenhouse gas emission rights – green certificates	516	1,053	(739)	(1)	-	(3)	826
Other intangible assets	5,032	226	(9)	(13)	(302)	(4)	4,930
Intangible assets in development	1,771	175	-	(3)	(4)	49	1,988
<b>Gross values</b>	<b>9,964</b>	<b>2,019</b>	<b>(869)</b>	<b>(33)</b>	<b>(368)</b>	<b>5</b>	<b>10,718</b>
Accumulated amortisation and impairment	(2,339)	(789)	135	22	201	28	(2,742)
<b>NET VALUES</b>	<b>7,625</b>	<b>1,230</b>	<b>(734)</b>	<b>(11)</b>	<b>(167)</b>	<b>33</b>	<b>7,976</b>

The gross value of other intangible assets at 31 December 2013 includes the Edison brand and intangible assets related to Edison's hydropower concessions, for amounts of €945 million and €1,165 million respectively (unchanged from 2012).

Impairment of €(56) million was recorded in respect of other intangible assets in 2013.

EDF's research and development expenses recorded in the income statement total €543 million for 2013.

At 31 December 2012 <i>(in millions of Euros)</i>	31/12/2011	Acquisitions	Disposals	Translation adjustments	Changes in scope	Other movements	31/12/2012
<b>Gross values</b>	<b>6,964</b>	<b>1,509</b>	<b>(784)</b>	<b>32</b>	<b>1,947</b>	<b>296</b>	<b>9,964</b>
Accumulated amortisation and impairment	(2,262)	(659)	160	(6)	626	(198)	(2,339)
<b>NET VALUES</b>	<b>4,702</b>	<b>850</b>	<b>(624)</b>	<b>26</b>	<b>2,573</b>	<b>98</b>	<b>7,625</b>

Changes in scope mainly concern the effects of the takeover of the Edison group.

Impairment of €(27) million was recorded in respect of other intangible assets in 2012.

EDF's research and development expenses recorded in the income statement total €527 million for 2012.

## ➤ Note 20 Property, plant and equipment operated under French public electricity distribution concessions

### 20.1 Net value of property, plant and equipment operated under French public electricity distribution concessions

(in millions of Euros)	31/12/2013	31/12/2012
Property, plant and equipment	47,425	45,919
Property, plant and equipment in progress	1,371	1,303
<b>PROPERTY, PLANT AND EQUIPMENT OPERATED UNDER FRENCH PUBLIC ELECTRICITY DISTRIBUTION CONCESSIONS</b>	<b>48,796</b>	<b>47,222</b>

### 20.2 Movements in property, plant and equipment operated under French public electricity distribution concessions (excluding assets in progress)

(in millions of Euros)	Land and buildings	Networks	Other installations, plant, machinery, equipment & other	Total
<b>Gross value at 31/12/2012</b>	<b>2,214</b>	<b>75,367</b>	<b>3,331</b>	<b>80,912</b>
Increases <sup>(1)</sup>	77	3,488	338	3,903
Decreases	(35)	(477)	(182)	(694)
Other movements	-	(7)	1	(6)
<b>Gross value at 31/12/2013</b>	<b>2,256</b>	<b>78,371</b>	<b>3,488</b>	<b>84,115</b>
<b>Depreciation and impairment at 31/12/2012</b>	<b>(1,191)</b>	<b>(31,642)</b>	<b>(2,160)</b>	<b>(34,993)</b>
Net depreciation	(39)	(191)	(143)	(373)
Disposals	30	387	180	597
Other movements <sup>(2)</sup>	(9)	(1,819)	(93)	(1,921)
<b>Depreciation and impairment at 31/12/2013</b>	<b>(1,209)</b>	<b>(33,265)</b>	<b>(2,216)</b>	<b>(36,690)</b>
<b>Net value at 31/12/2012</b>	<b>1,023</b>	<b>43,725</b>	<b>1,171</b>	<b>45,919</b>
<b>NET VALUE AT 31/12/2013</b>	<b>1,047</b>	<b>45,106</b>	<b>1,272</b>	<b>47,425</b>

(1) Increases also include facilities provided by the concession grantors.

(2) Other movements mainly concern depreciation of assets operated under concessions, booked against amortisation recorded in the special concession liabilities.

## ➤ Note 21 Property, plant and equipment operated under concessions for other activities

### 21.1 Net value of property, plant and equipment operated under concessions for other activities

The net value of property, plant and equipment operated under concessions for other activities breaks down as follows:

(in millions of Euros)	31/12/2013	31/12/2012
Property, plant and equipment	6,488	6,256
Property, plant and equipment in progress	1,030	926
<b>PROPERTY, PLANT AND EQUIPMENT OPERATED UNDER CONCESSIONS FOR OTHER ACTIVITIES</b>	<b>7,518</b>	<b>7,182</b>



## 21.2 Movements in property, plant and equipment operated under concessions for other activities (excluding assets in progress)

	Land and buildings	Fossil-fired & hydropower plants	Networks	Other installations, plant, machinery, equipment & other	Total
<i>(in millions of Euros)</i>					
Gross value at 31/12/2012	1,322	9,666	594	1,223	12,805
Increases	186	585	21	41	833
Decreases	(3)	(17)	(5)	(9)	(34)
Translation adjustments	2	(13)	(9)	(18)	(38)
Changes in the scope of consolidation	-	-	-	-	-
Other movements	(11)	69	1	(389)	(330)
<b>Gross value at 31/12/2013</b>	<b>1,496</b>	<b>10,290</b>	<b>602</b>	<b>848</b>	<b>13,236</b>
Depreciation and impairment at 31/12/2012	(794)	(4,709)	(294)	(752)	(6,549)
Net depreciation	(29)	(292)	(17)	(48)	(386)
Impairment net of reversals	-	(4)	-	-	(4)
Disposals	2	14	5	8	29
Translation adjustments	-	6	5	14	25
Changes in the scope of consolidation	-	-	-	-	-
Other movements	3	5	-	129	137
<b>Depreciation and impairment at 31/12/2013</b>	<b>(818)</b>	<b>(4,980)</b>	<b>(301)</b>	<b>(649)</b>	<b>(6,748)</b>
Net value at 31/12/2012	528	4,957	300	471	6,256
<b>NET VALUE AT 31/12/2013</b>	<b>678</b>	<b>5,310</b>	<b>301</b>	<b>199</b>	<b>6,488</b>

At 31 December 2013, property, plant and equipment operated under concessions other than French public electricity distribution concessions comprise concession facilities mainly located in France (hydropower) and Italy.

## ➤ Note 22 Property, plant and equipment used in generation and other tangible assets owned by the Group

### 22.1 Net value of property, plant and equipment used in generation and other tangible assets owned by the Group

The net value of property, plant and equipment used in generation and other tangible assets owned by the Group breaks down as follows:

<i>(in millions of Euros)</i>	31/12/2013	31/12/2012
Property, plant and equipment	52,055	51,392
Property, plant and equipment in progress	16,655	16,130
Finance-leased property, plant and equipment	303	316
<b>PROPERTY, PLANT AND EQUIPMENT USED IN GENERATION AND OTHER TANGIBLE ASSETS OWNED BY THE GROUP</b>	<b>69,013</b>	<b>67,838</b>

At 31 December 2013, property, plant and equipment in progress primarily concern EPR construction projects in France and the United Kingdom.

Impairment of €(214) million was also recorded in 2013 in respect of property, plant and equipment in progress, including €(125) million for the supercritical coal-fired power plant project in Poland.

In 2012, impairment of property, plant and equipment in progress amounted to €(10) million.

## 22.2 Movements in property, plant and equipment used in generation and other tangible assets owned by the Group (excluding assets in progress and finance-leased assets)

	Land and buildings	Nuclear power plants	Fossil-fired & hydropower plants	Networks	Other installations, plant, machinery, equipment & other	Total
<i>(in millions of Euros)</i>						
<b>Gross value at 31/12/2012</b>	<b>11,928</b>	<b>64,204</b>	<b>17,869</b>	<b>867</b>	<b>14,907</b>	<b>109,775</b>
Increases	594	2,383	2,502	30	2,569	8,078
Decreases	(116)	(702)	(330)	(8)	(391)	(1,547)
Translation adjustments	(46)	(395)	(58)	-	(415)	(914)
Changes in the scope of consolidation	(481)	-	(7)	(320)	(2,279)	(3,087)
Other movements	89	(166)	(16)	3	10	(80)
<b>Gross value at 31/12/2013</b>	<b>11,968</b>	<b>65,324</b>	<b>19,960</b>	<b>572</b>	<b>14,401</b>	<b>112,225</b>
<b>Depreciation and impairment at 31/12/2012</b>	<b>(6,500)</b>	<b>(37,038)</b>	<b>(8,647)</b>	<b>(449)</b>	<b>(5,749)</b>	<b>(58,383)</b>
Net depreciation	(345)	(2,298)	(875)	(29)	(931)	(4,478)
Impairment net of reversals	(3)	(146)	(344)	-	(51)	(544)
Disposals	83	561	322	7	312	1,285
Translation adjustments	13	102	48	-	98	261
Changes in the scope of consolidation	178	-	4	160	1,046	1,388
Other movements	(9)	71	10	1	228	301
<b>Depreciation and impairment at 31/12/2013</b>	<b>(6,583)</b>	<b>(38,748)</b>	<b>(9,482)</b>	<b>(310)</b>	<b>(5,047)</b>	<b>(60,170)</b>
<b>Net value at 31/12/2012</b>	<b>5,428</b>	<b>27,166</b>	<b>9,222</b>	<b>418</b>	<b>9,158</b>	<b>51,392</b>
<b>NET VALUE AT 31/12/2013</b>	<b>5,385</b>	<b>26,576</b>	<b>10,478</b>	<b>262</b>	<b>9,354</b>	<b>52,055</b>

## 22.3 Finance lease contracts

		31/12/2013			31/12/2012
	Total	Maturity			Total
(in millions of Euros)		< 1 year	1 - 5 years	> 5 years	
Future minimum lease payments receivable as lessor	120	17	58	45	58
Future minimum lease payments payable as lessee	767	59	233	475	478

The Group is the lessor in agreements classified as finance leases under IFRIC 4 and IAS 17, which account for almost all of its finance lease commitments as lessor.

The Group is bound as lessee by irrevocable finance lease contracts for premises, equipment and vehicles used in the course of its business. The corresponding payments are subject to renegotiation at intervals defined in the contracts.

## ➤ Note 23 Investments in associates

Investments in associates are as follows:

(in millions of Euros)	Principal activity <sup>(1)</sup>	31/12/2013			31/12/2012	
		Ownership %	Share of net equity	Share of net income	Share of net equity	Share of net income
RTE Réseau de Transport d'Électricité	T	100.00	5,134	494	4,818	408
Alpiq	G,D,O,T	25.00	947	(214)	1,203	(201)
Taishan	G	30.00	810	-	693	-
Dalkia Holding	O	34.00	363	22	422	(1)
NTPC	G	40.00	144	32	123	27
Other investments in associates			415	41	328	28
<b>INVESTMENTS IN ASSOCIATES</b>			<b>7,813</b>	<b>375</b>	<b>7,587</b>	<b>261</b>

(1) G = generation, D = distribution, T = transmission, O = other.

### 23.1 RTE Réseau de Transport d'Électricité (RTE)

#### 23.1.1 RTE - financial indicators

The key financial indicators for RTE for 2013 are as follows:

(in millions of Euros)	
2013 Operating profit before depreciation and amortisation	1,788
2013 Net income	494
Equity at 31 December 2013	5,134
Balance sheet total at 31 December 2013	16,581
Net indebtedness at 31 December 2013	7,459

#### 23.1.2 Transactions between the EDF group and RTE

At 31 December 2013 the main transactions between the EDF group and RTE are as follows:

##### Sales

ERDF uses RTE's high-voltage and very high-voltage networks to convey energy from its point of generation to the distribution network. This service generated €3,357 million in sales revenues for RTE from ERDF over 2013.

In executing its responsibility to ensure balance in the electricity system, during 2013 RTE also undertook:

- energy purchases and sales with EDF and ERDF, amounting to €140 million and €209 million respectively;
- system service purchases from EDF amounting to €296 million.

##### Other transactions

The EDF group contributes to financing of RTE through loans amounting to a total of €670 million at 31 December 2013 (€1,174 million at 31 December 2012). RTE recorded a total of €56 million in interest expenses on this loan in 2013.

RTE is also included in the EDF group tax consolidation, under a tax consolidation agreement between the two companies.

### 23.2 Alpiq

On 25 April 2013, the main Swiss shareholders of Alpiq subscribed to a hybrid loan of CHF 366.5 million. Following this first step, on 2 May 2013 Alpiq placed a public hybrid bond amounting to CHF 650 million, with 5% coupon and a redemption option after five and a half years at the earliest.

Due to their characteristics, in compliance with IAS 32, the hybrid loan from shareholders and the public hybrid bond were recorded in equity in Alpiq's consolidated financial statements from the date of reception of the funds. Since the EDF group did not subscribe to the operation, it has no impact on the value of the investment in Alpiq reported in "Investments in associates".

#### 23.2.1 Published financial indicators

The main published indicators by the Alpiq group for 2012 were as follows:

(in millions of Euros)	
2012 Sales	10,553
2012 Net income	(902)
Equity at 31 December 2012	4,150
Balance sheet total at 31 December 2012	12,247

#### 23.2.2 Impairment

In 2013, impairment of €(284) million was recorded in respect of the Group's investment in Alpiq. This reflects further impairment of assets amounting to €(91) million booked by Alpiq, and impairment of goodwill and certain assets at EDF group level amounting to €(193) million. The impairment recorded results from the less favourable energy business environment in Switzerland, particularly a fall in forward prices over the year. Alpiq is still in a phase of general reorganisation.

In 2012, Alpiq announced that further adjustments would be necessary in view of the difficult market conditions and significant changes in the European energy environment, leading it to step up its cost-cutting programme and recognise impairment of €(248) million (EDF's share). This impairment was recorded by Alpiq and particularly concerned assets in Switzerland and Italy.

## ➤ Note 24 Inventories

The carrying value of inventories, broken down by nature, is as follows:

(in millions of Euros)	31/12/2013			31/12/2012		
	Gross value	Provisions	Net value	Gross value	Provisions	Net value
Nuclear fuel	10,779	(14)	10,765	10,297	(15)	10,282
Other fuel	2,023	(4)	2,019	2,104	(4)	2,100
Other raw materials	1,354	(254)	1,100	1,298	(217)	1,081
Work-in-progress for production of goods and services	92	(24)	68	216	(30)	186
Other inventories	618	(20)	598	625	(61)	564
<b>TOTAL INVENTORIES</b>	<b>14,866</b>	<b>(316)</b>	<b>14,550</b>	<b>14,540</b>	<b>(327)</b>	<b>14,213</b>

The long-term portion (more than one year) mainly concerns nuclear fuel inventories amounting to €7,973 million at 31 December 2013 (€7,591 million at 31 December 2012).

The value of EDF Trading's inventories stated at market value is €686 million at 31 December 2013 (€764 million at 31 December 2012).

## ➤ Note 25 Trade receivables

Details of net trade receivables are as follows:

(in millions of Euros)	31/12/2013	31/12/2012
Trade receivables, gross value – excluding EDF Trading	19,869	20,518
Trade receivables, gross value – EDF Trading	3,313	2,927
Impairment	(1,045)	(948)
<b>TRADE RECEIVABLES, NET VALUE</b>	<b>22,137</b>	<b>22,497</b>

Most trade receivables mature within one year.

## 25.1 Trade receivables due and not yet due

The credit risk on trade receivables is shown below:

(in millions of Euros)	31/12/2013			31/12/2012		
	Gross value	Provisions	Net value	Gross value	Provisions	Net value
<b>TRADE RECEIVABLES</b>	<b>23,182</b>	<b>(1,045)</b>	<b>22,137</b>	<b>23,445</b>	<b>(948)</b>	<b>22,497</b>
overdue by up to 6 months	1,810	(265)	1,545	2,144	(251)	1,893
overdue by 6-12 months	626	(172)	454	688	(211)	477
overdue by more than 12 months	1,125	(539)	586	1,046	(408)	638
Trade receivables due	3,561	(976)	2,585	3,878	(870)	3,008
Trade receivables not yet due	19,621	(69)	19,552	19,567	(78)	19,489

## 25.2 Securitisation operations

(in millions of Euros)	31/12/2013
Trade receivables assigned and wholly retained in the balance sheet	11
Trade receivables assigned and partly retained in the balance sheet	-
Trade receivables assigned and wholly derecognised	1,151

The Group undertook securitisation of trade receivables for a total of €1,151 million at 31 December 2013, including €710 million by the Edison group (€1,185 million at 31 December 2012, including €774 million by the Edison group).

As most securitisation operations are carried out on a recurrent, without-recourse basis, the corresponding receivables are not carried in the Group's consolidated balance sheet.

## ➤ Note 26 Other receivables

Details of other receivables are as follows:

(in millions of Euros)	31/12/2013	31/12/2012
Prepaid expenses	1,451	1,621
CSPE	1,357	997
VAT receivables	2,278	2,001
Other tax receivables	699	678
Other operating receivables	3,436	3,189
<b>OTHER RECEIVABLES</b>	<b>9,221</b>	<b>8,486</b>
Gross value	9,306	8,583
Impairment	(85)	(97)

Most other receivables mature within one year.

The CSPE receivable corresponds to the amount receivable at 31 December 2013, except for the portion relating to the shortfall generated before 31 December 2012 and the associated costs, which are included in financial assets (see note 3.4)



## ➤ Note 27 Equity

### 27.1 Share capital

At 31 December 2013, the share capital amounted to €930,004,234, comprising 1,860,008,468 fully subscribed and paid-up shares with nominal value of €0.50 each, owned 84.5% by the French State, 13.6% by the public (institutional and private investors) and 1.8% by current and retired Group employees, with 0.1% held by EDF as treasury shares.

In 2013, payment of part of the 2012 dividends in the form of shares resulted in a €6 million increase in the share capital, corresponding to issuance of 11,141,806 new shares.

Under article L. 111-67 of the French Energy Code, the French State must hold more than 70% of the capital of EDF at all times.

### 27.2 Treasury shares

A share repurchase program authorised by the General Shareholders' Meeting of 9 June 2006 was implemented by the Board of Directors, within the limit of 10% of the total number of shares making up the Company's capital. The initial duration of the program was 18 months, renewed for 12 months then by tacit agreement every year.

A liquidity contract exists for this programme, as required by the French market regulator AMF (*Autorité des Marchés Financiers*).

At 31 December 2013, treasury shares deducted from consolidated equity represent 1,752,759 shares with total value of €47 million.

### 27.3 Dividends

The General Shareholders' Meeting of 30 May 2013 decided to distribute a dividend of €1.25 per share in circulation in respect of 2012. As interim dividends of €0.57 per share had been paid out on 17 December 2012, the balance payable for 2012 amounted to €0.68 per share.

The General Shareholders' Meeting also decided to offer each shareholder the option to receive payment of the outstanding dividends in the form of new EDF shares on a basis of €0.10 per share.

The balance of 2012 dividends, amounting to a total of €1,256 million, was paid out on 8 July 2013.

- Payment of dividends in shares resulted in a €6 million increase in the capital, corresponding to issuance of 11,141,806 shares with nominal value of €0.50 each, plus an issuance premium of €165 million (net of issuance expenses);
- Payment of dividends in cash amounted to €1,085 million.

On 26 November 2013, EDF's Board of Directors decided to distribute an interim dividend of €0.57 per share or a total of €1,059 million for 2013, paid out in cash on 17 December 2013.

In keeping with the amendment to the company's articles of association proposed at the General Shareholders' Meeting of 24 May 2011, shareholders who have held their shares continuously for at least 2 years at the year-end date and still hold them at the dividend distribution date are entitled to a 10% increase in their dividends.

The number of shares eligible for this increase cannot be more than 0.5% of the company's capital for a single shareholder. This amendment will take effect for the payment in 2014 of the dividend for the year 2013.

### 27.4 Issuance of perpetual subordinated bonds

In January 2013 EDF issued perpetual subordinated bonds totalling €6,125 million (net of transaction costs). Details of the operation are given in note 3.1.1.

In 2013, an amount of €103 million was paid out to the bearers of perpetual subordinated bonds.

## ➤ Note 28 Provisions

The breakdown between current and non-current provisions is as follows:

(in millions of Euros)	Notes	31/12/2013			31/12/2012		
		Current	Non-current	Total	Current	Non-current	Total
Provisions for back-end nuclear cycle		1,447	19,100	20,547	1,094	18,431	19,525
Provisions for decommissioning and last cores		265	21,885	22,150	225	20,754	20,979
Provisions related to nuclear generation	29	1,712	40,985	42,697	1,319	39,185	40,504
Provisions for decommissioning of non-nuclear facilities	30	51	1,193	1,244	45	1,090	1,135
Provisions for employee benefits	31	950	18,542	19,492	900	19,119	20,019
Other provisions	32	2,135	1,755	3,890	1,618	1,873	3,491
<b>TOTAL PROVISIONS</b>		<b>4,848</b>	<b>62,475</b>	<b>67,323</b>	<b>3,882</b>	<b>61,267</b>	<b>65,149</b>

## ➤ Note 29 Provisions related to nuclear generation – back-end nuclear cycle, plant decommissioning and last cores

Provisions related to nuclear generation comprise provisions for back-end nuclear cycle expenses (management of spent fuel and radioactive waste), provisions for plant decommissioning and provisions for last cores.

Provisions are estimated under the principles presented in note 1.3.21.

Obligations can vary noticeably depending on each country's legislation and regulations, and the technologies and industrial practices used in each company. The movement in provisions for back-end nuclear cycle, provisions for decommissioning and provisions for last cores breaks down as follows:

(in millions of Euros)	31/12/2012	Increases	Decreases		Other movements	31/12/2013
			Utilizations	Reversals		
Provisions for spent nuclear fuel management	11,817	871	(634)	(3)	(97)	11,954
Provisions for long-term radioactive waste management	7,708	567	(138)	-	456	8,593
Provisions for back-end nuclear cycle	19,525	1,438	(772)	(3)	359	20,547
Provisions for nuclear plant decommissioning	17,428	656	(193)	(1)	712	18,602
Provisions for last cores	3,551	171	-	-	(174)	3,548
Provisions for decommissioning and last cores	20,979	827	(193)	(1)	538	22,150
<b>PROVISIONS RELATED TO NUCLEAR GENERATION</b>	<b>40,504</b>	<b>2,265</b>	<b>(965)</b>	<b>(4)</b>	<b>897</b>	<b>42,697</b>

Other changes in provisions related to nuclear generation include €1,038 million of changes in EDF Energy's nuclear liabilities, with a corresponding variation in the amounts reimbursable by the NLF (Nuclear Liabilities Fund) and the British government for coverage of the company's long-term nuclear obligations (see note 36.4). €1,173 million of this change results from revision in 2013 of the assumptions used to calculate nuclear liabilities.

The breakdown of provisions by company is shown below:

	EDF	EDF Energy	CENG	Other entities	Total
(in millions of Euros)	Note 29.1	Note 29.2	Note 29.3	Note 29.4	
Provisions for spent fuel management	9,779	2,175	-	-	11,954
Provisions for long-term radioactive waste management	7,542	1,049	-	2	8,593
<b>PROVISIONS FOR BACK-END NUCLEAR CYCLE AT 31/12/2013</b>	<b>17,321</b>	<b>3,224</b>	<b>-</b>	<b>2</b>	<b>20,547</b>
Provisions for back-end nuclear cycle at 31/12/2012	16,611	2,913	-	1	19,525
Provisions for nuclear plant decommissioning	13,024	4,882	508	188	18,602
Provisions for last cores	2,313	1,185	50	-	3,548
<b>PROVISIONS FOR DECOMMISSIONING AND LAST CORES AT 31/12/2013</b>	<b>15,337</b>	<b>6,067</b>	<b>558</b>	<b>188</b>	<b>22,150</b>
Provisions for decommissioning and last cores at 31/12/2012	14,771	5,489	547	172	20,979

## 29.1 Nuclear provisions in France

In France, EDF's provisions are calculated in accordance with the instructions of the law of 28 June 2006 and its implementing provisions.

In compliance with the regulation on secure financing of nuclear expenses:

- EDF books provisions to cover all obligations related to the nuclear facilities it operates;
- EDF has a portfolio of dedicated assets for secure financing of long-term obligations (see note 48).

The relevant expenses are estimated based on the economic conditions of the year-end, then spread over a forecast disbursement schedule and adjusted to Euros of the year of payment through application of a forecast long-term inflation rate. To determine the provisions, these amounts are discounted to present value using a nominal discount rate.

### 29.1.1 Provisions for spent fuel management

These provisions cover services in connection with the following:

- removal of spent fuel from EDF's generation centres, as well as reception and interim storage;
- processing, including conditioning and storage of recyclable matter and waste resulting from this processing.

Processing expenses exclusively concern spent fuel that can be recycled in existing facilities, including the portion in reactors but not yet irradiated.

Expenses are calculated based on forecast physical flows at the closing date. Valuation is based on the contracts signed with AREVA.

### 29.1.2 Provisions for long-term radioactive waste management

This includes future expenses for:

- removal and storage of radioactive waste resulting from decommissioning of regulated nuclear installations operated by EDF;

- removal and storage of radioactive waste packages resulting from spent fuel processing at La Hague;
- long-term and direct storage of spent fuel that cannot be recycled on an industrial scale in existing installations: plutonium or uranium fuel derived from enriched processing, fuel from Creys Malville and Brennilis;
- EDF's share of the costs of studies, coverage, shutdown and surveillance of storage centres:
  - existing centres, for very low-level waste, and low and medium-level waste,
  - new centres to be opened, for long-life low-level waste and long-life medium and high-level waste.

The volumes of waste concerned by provisions include existing packages of waste and all waste to be conditioned, resulting from plant decommissioning or spent fuel processing at La Hague (based on all fuel in reactors at 31 December irradiated or otherwise). These volumes are regularly reviewed, in keeping with the data declared for the purposes of the national waste inventory undertaken by the French agency for radioactive waste management ANDRA (*Agence nationale pour la gestion des déchets radioactifs*).

The provision for long-life medium and high-level waste is the largest component of the provisions for long-term radioactive waste management. The French Law of 28 June 2006 on the sustainable management of radioactive materials and waste has confirmed the assumption of geological storage used by EDF in calculating these provisions.

Since 2005, the gross value and disbursement schedules for forecast expenses have been based on a scenario of industrial geological waste storage, following conclusions presented in the first half of 2005 by the task force set up by the French department for Energy and Raw Materials (*Direction Générale de l'Énergie et des Matières Premières* – DGEMP, which has since become the French department for Energy and Climate – *Direction Générale de l'Énergie et du Climat* or DGEC) comprising members representing the relevant government departments (DGEC, the State investment agency (APE) and the Budget Department), ANDRA and the producers of waste (EDF, AREVA, CEA). The approach applied by EDF to the working group's conclusions is reasonable and coherent with information available internationally.

In 2011 ANDRA and waste producers set up a partnership aiming to facilitate completion of the geological storage project by leveraging on all the skills of the French nuclear industry. This partnership encompasses joint studies on

targeted issues and an interface between the ANDRA project team and nuclear operators to help them make well-informed, relevant contributions to governance of the project. ANDRA conducted preliminary conceptual studies in 2012 and 2013, taking into consideration design options proposed by the waste producers. It is currently studying the technical optimisations identified in conjunction with the producers, and should be able to propose an estimate of storage costs based on that information by mid-2014 at the earliest, after including the recommendations of the French Nuclear Safety Authority (*Autorité de Sûreté Nucléaire* or ASN), the National Evaluation Commission (*Commission Nationale d'Évaluation* or CNE) and the public debate. After consulting waste producers and the ASN, France's minister for Energy is due to decide on the value of these costs and make a public announcement.

Regarding the provision for long-life low-level waste, the search for a storage site has resumed, mainly through geological reconnaissance surveys in the Soulaines area. The calculation method for storage of long-life low-level waste has been revised to incorporate the new technical and schedule assumptions, with no significant adjustment to the provision.

In 2013, a €208 million increase was booked for the provision for long-term radioactive waste management, to reflect the ANDRA's new financing requirements in connection with the studies concerning geological storage plans. In the income statement, this change is reflected in an expense included in the "Operating profit before depreciation and amortisation".

### 29.1.3 Decommissioning provisions for nuclear power plants

These provisions concern the decommissioning of pressurised water reactor (PWR) nuclear power plants currently in operation, and nuclear power plants that have been permanently shut down.

They are estimated on the assumption that once decommissioning is complete, the sites will be returned to their original state and the land reused for industry.

#### For nuclear power plants currently in operation (PWR plants with 900 MW, 1,300 MW and N4 reactors).

Provisions are estimated based on a 1991 study by the French Ministry of Trade and Industry, which set an estimated benchmark cost in €/MW, confirming the assumptions defined in 1979 by the PEON commission. This estimate was confirmed by a further study carried out by EDF in 1999 focusing on a specific site, and a subsequent valuation in 2009 involving the following steps:

- measurement of the decommissioning cost for a PWR plant with four 900 MW units, taking into consideration the most recent developments in regulations, past experience in decommissioning of shut-down plants and recommendations issued by the ASN;
- a review of the schedule for decommissioning operations over time;
- determination of the rules for extrapolation of costs for the entire fleet of PWR plants in operation.

International intercomparison studies carried out with a non-Group specialist firm support the results of this study.

The study resulted in a figure for decommissioning costs that confirms the amount of the provision booked to date, and validates the benchmark costs used, expressed in €/MW.

#### For permanently shut-down nuclear power plants (UNGG power plants, Creys-Malville, Brennilis and Chooz A).

The provision is based on contractor quotes for decommissioning, newly updated in 2012.

The valuation is based on the following key assumptions:

- that decommissioning will take place as soon as possible (this is unchanged from the previous quote);
- that long-life medium-level waste will be stored in a packaging and interim storage installation for radioactive waste (ICEDA) now due to open in 2016, until it can be placed in deep underground storage;
- that the facility for storing graphite waste will be available from 2025;
- that the decree for full decommissioning of Brennilis will be obtained by the end of 2018.

### 29.1.4 Provision for last cores

This provision covers the future expenses resulting from scrapping fuel that will only be partially used when the reactor is shut down. It is measured based on:

- the cost of the loss on fuel in the reactor that is not totally spent at the time of final reactor shutdown and cannot be reused due to technical and regulatory constraints;
- the cost of fuel processing, disposal and waste storage operations. These costs are valued in a similar way to provisions for spent fuel management and long-term radioactive waste management.

These unavoidable costs are components of the cost of nuclear reactor shutdown and decommissioning. As such, they are fully covered by provision from the commissioning date and an asset associated with the provision is recognised.

### 29.1.5 Discounting of provisions related to nuclear generation and sensitivity analyses

#### 29.1.5.1 Discount rate

At 31 December 2013, EDF has applied a nominal discount rate of 4.8% to calculate its provisions, together with assumed inflation of 1.9% (these assumptions are unchanged from 31 December 2012).

- Calculation of the discount rate.

The discount rate is determined based on long-series data for a sample of bonds with maturities as close as possible to that of the liability. However, some expenses covered by these provisions will be disbursed over periods significantly longer than the duration of instruments generally traded on the financial markets.

The benchmark used to determine the discount rate is the sliding 10-year average of the return on French treasury bonds over the longest time horizons, plus the spread of corporate bonds rated A to AA, which include EDF.

The assumed inflation rate is determined in line with the forecasts provided by consensus and expected inflation based on the returns on inflation-linked bonds.

The discount rate determined in this way is 4.8% at 31 December 2013.

- Revision of the discount rate and regulatory limit.

The methodology used to determine the discount rate gives priority to long-term trends in rates, in keeping with the long-term horizon for disbursements. The discount rate is therefore revised in response to structural developments in the economy leading to medium and long-term changes.

The discount rate applied must also comply with the two limits laid down by the decree of 23 February 2007 and the decision of 21 March 2007. This means it must be lower than:

- a regulatory maximum "equal to the arithmetic average over the forty-eight most recent months of the constant 30-year rate (TEC 30 years), observed on the last date of the period concerned, plus one point";
- and the expected rate of return on assets covering the liability (dedicated assets).

This ceiling rate was 4.58% at 31 December 2013. In view of ongoing discussions between nuclear operators and the French government concerning a revision of the regulations, the discount rate used at 31 December 2013 is 4.8% (identical to the rate used at 31 December 2012).

## 29.1.5.2 Analyses of sensitivity to macro-economic assumptions

Sensitivity to assumptions concerning costs, inflation rate, long-term discount rate, and disbursement schedules can be estimated through comparison of the gross amount estimated under year-end economic conditions with the present value of the amount.

	31/12/2013		31/12/2012	
	Costs based on year-end economic conditions	Amounts in provisions at present value	Costs based on year-end economic conditions	Amounts in provisions at present value
<i>(in millions of Euros)</i>				
Spent fuel management	15,868	9,779	15,250	9,498
Long-term radioactive waste management	25,578	7,542	24,562	7,113
<b>BACK-END NUCLEAR CYCLE</b>	<b>41,446</b>	<b>17,321</b>	<b>39,812</b>	<b>16,611</b>
Decommissioning provisions for nuclear power plants	22,448	13,024	22,174	12,578
Provisions for last cores	3,979	2,313	3,887	2,193
<b>PROVISION FOR DECOMMISSIONING AND LAST CORES</b>	<b>26,427</b>	<b>15,337</b>	<b>26,061</b>	<b>14,771</b>

This approach can be complemented by estimating the impact of a change in the discount rate on the present value.

In application of article 11 of the decree of 23 February 2007, the following table reports these details for the main components of provisions for the back-end nuclear cycle, decommissioning of nuclear plants and last cores:

### At 31 December 2013

	Amounts in provisions at present value	Sensitivity to discount rate			
		Balance sheet provision		Pre-tax net income	
		+0.20 %	- 0.20 %	+0.20 %	- 0.20 %
<i>(in millions of Euros)</i>					
<b>Back-end nuclear cycle:</b>					
- spent fuel management	9,779	(167)	177	139	(147)
- long-term radioactive waste management	7,542	(374)	417	320	(359)
<b>Decommissioning and last cores:</b>					
- decommissioning of nuclear power plants	13,024	(456)	476	45	(47)
- last cores	2,313	(66)	69	-	-
<b>TOTAL</b>	<b>32,658</b>	<b>(1,063)</b>	<b>1,139</b>	<b>504</b>	<b>(553)</b>



At 31 December 2012

(in millions of Euros)	Amounts in provisions at present value	Sensitivity to discount rate			
		Balance sheet provision		Pre-tax net income	
		+ 0.20 %	- 0.20 %	+ 0.20 %	- 0.20 %
<b>Back-end nuclear cycle:</b>					
- spent fuel management	9,498	(165)	174	138	(145)
- long-term radioactive waste management	7,113	(361)	403	307	(345)
<b>Decommissioning and last cores:</b>					
- decommissioning of nuclear power plants	12,578	(458)	479	47	(49)
- last cores	2,193	(66)	70	-	-
<b>TOTAL</b>	<b>31,382</b>	<b>(1,050)</b>	<b>1,126</b>	<b>492</b>	<b>(539)</b>

## 29.2 EDF Energy's nuclear provisions

The specific financing terms for long-term nuclear obligations related to EDF Energy are reflected as follows in the EDF group's financial statements:

- the obligations are reported in liabilities in the form of provisions amounting to €9,291 million at 31 December 2013;
- in the assets, EDF reports receivables corresponding to the amounts payable under the restructuring agreements by the NLF, for non-contracted obligations or decommissioning obligations, and by the British Government for contracted obligations (or historical liabilities).

These receivables are discounted at the same real rate as the obligations they are intended to finance. They are included in "Financial assets" in the consolidated balance sheet (see note 36.3) at the amount of €7,958 million at 31 December 2013 (€6,920 million at 31 December 2012).

### 29.2.1 Regulatory and contractual framework

Amendments signed with the Nuclear Liabilities Fund (NLF - an independent trust set up by the UK Government as part of the restructuring of British Energy) following the EDF group's acquisition of British Energy have a limited impact on the contractual financing commitments made to British Energy by the UK Secretary of State and the NLF under the "Restructuring Agreements". These agreements were entered into by British Energy on 14 January 2005 as part of the restructuring led by the UK Government from 2005 in order to stabilise British Energy's financial position. British Energy Generation Limited changed its name to EDF Energy Nuclear Generation Limited on 1 July 2011 and replaced British Energy in these agreements and amendments.

Under the terms of the Restructuring Agreements:

- the NLF agreed to fund, to the extent of its assets: (i) qualifying contingent and/or latent nuclear liabilities (including liabilities for management of spent fuel from the Sizewell B power station); and (ii) qualifying decommissioning costs for EDF Energy's existing nuclear power stations;

- the Secretary of State agreed to fund: (i) qualifying contingent and/or latent nuclear liabilities (including liabilities for the management of spent fuel from the Sizewell B power station) and qualifying decommissioning costs related to EDF Energy's existing nuclear power stations, to the extent that they exceed the assets of the NLF; and (ii) subject to a cap of £2,185 million (in December 2002 monetary values, adjusted accordingly), qualifying known existing liabilities for EDF Energy's spent fuel (including liabilities for management of spent fuel from plants other than Sizewell B loaded in reactors prior to 15 January 2005);
- EDF Energy is responsible for funding certain excluded or disqualified liabilities (e.g. those defined as EDF Energy liabilities), and additional liabilities which could be created as a result of failure by EDF Energy to meet minimum performance standards under applicable law. The obligations of EDF Energy to the NLF and the Secretary of State are guaranteed by the assets of the principal members of EDF Energy.

EDF Energy has also undertaken commitments to pay:

- annual decommissioning contributions for a period limited to the useful lives of the plants as at the date of the "restructuring agreements"; the corresponding provision amounts to €170 million at 31 December 2013;
- £150,000 (indexed to inflation) per tonne of uranium loaded in the Sizewell B reactor after the date of the "restructuring agreements".

Furthermore, EDF Energy has entered into a separate contract with the Nuclear Decommissioning Authority (NDA) for management of AGR spent fuel and associated radioactive waste resulting from operation of power plants other than Sizewell B after 15 January 2005, and bears no responsibility for this fuel and waste once it is transferred to the processing site at Sellafield. The corresponding costs of £150,000 (indexed to inflation) per tonne of loaded uranium - plus a rebate / surcharge dependent on market electricity price and electricity generated in the year - are included in inventories (see note 1.3.17.1).

EDF Energy finalised work on updating estimates of nuclear liabilities in 2013. The conclusions led to a €1,173 million revision to the provisions booked in the liabilities, but an equivalent adjustment was also made to the amount receivable from the NLF (or the British government in the event the NLF is unable to meet its obligations). There was therefore no impact on the Group's income statement.

## 29.2.2 Provisions for the back-end nuclear cycle

Spent fuel from the Sizewell B PWR (pressurized water reactor) plant is stored on site. Spent fuel from other plants is transferred to Sellafield for storage and reprocessing.

EDF Energy's provisions for the back-end nuclear cycle concern obligations for reprocessing and storage of spent fuel and long-term storage of radioactive waste, required by the existing regulations in the UK approved by the Nuclear Decommissioning Authority (NDA). Their amount is based on contractual agreements or if this is not possible, on the most recent technical estimates.

	31/12/2013		31/12/2012	
	Costs based on year-end economic conditions	Amounts in provisions at present value	Costs based on year-end economic conditions	Amounts in provisions at present value
<i>(in millions of Euros)</i>				
Spent fuel management	3,228	2,175	3,820	2,319
Long-term radioactive waste management	7,132	1,049	4,188	594
<b>BACK-END NUCLEAR CYCLE</b>	<b>10,360</b>	<b>3,224</b>	<b>8,008</b>	<b>2,913</b>

## 29.2.3 Decommissioning provisions

Provisions for decommissioning of nuclear plants result from management's best estimates. They cover the full cost of decommissioning and are measured on the basis of existing techniques and methods that are most likely to be used for application of current regulations. The current costs are based on Baseline Decommissioning Plans produced in 2012 and approved in 2013 and assume that plants will be decommissioned and the land will ultimately be reused.

	31/12/2013		31/12/2012	
	Costs based on year-end economic conditions	Amounts in provisions at present value	Costs based on year-end economic conditions	Amounts in provisions at present value
<i>(in millions of Euros)</i>				
<b>PLANT DECOMMISSIONING</b>	<b>14,823</b>	<b>4,712</b>	<b>12,887</b>	<b>3,994</b>

The table above only concerns decommissioning obligations excluding the present value of decommissioning contributions payable to the NLF (€170 million, see note 29.2.1).

## 29.3 CENG's nuclear provisions

In the U.S., the obligations concerning spent fuel management, waste disposal and plant decommissioning are governed primarily by the U.S. Nuclear Regulatory Commission (NRC) and the U.S. Department of Energy (DOE). Additionally, certain waste transport obligations are governed by the U.S. Department of Transportation.

### 29.3.1 Provisions for back-end nuclear cycle

In accordance with current regulations, spent fuel is not reprocessed but instead is placed in temporary storage until the DOE takes charge of its final transportation and permanent storage in a national repository. For this service, CENG pays a quarterly fee to the DOE of approximately \$1/MWh of electricity generated.

### 29.3.2 Decommissioning provisions

CENG is obligated to decommission its three nuclear power plants (five nuclear generation units) when they cease operations, in accordance with NRC regulations and relevant state regulations for site restoration (greenfielding requirements). In the U.S., all decommissioning activities are required by the NRC to be completed within 60 years following cessation of plant operations.

Decommissioning provisions mainly comprise decontamination, dismantlement, disposal and site restoration activities. These activities encompass costs such as internal and external personnel expenses, materials and equipment, energy, insurance, property taxes, temporary on-site storage of spent nuclear fuel, transportation, and waste disposal.

Estimated decommissioning costs are calculated individually for each site based on technical studies that are regularly updated.

### 29.3.3 Funding of nuclear obligations

NRC approved funding options provide for the establishment of external investment trust funds reserved for each unit, to cover its decommissioning obligations. These trust funds are currently invested in debt and equity instruments. They are treated as available-for-sale assets, and carried at fair value.

CENG's Investment Committee determines the general investment strategy, including the allocation of investments among asset types. CENG periodically undertakes a comprehensive asset-liability management study to adjust and optimise the asset allocation, given strategic objectives, liability duration, long-term capital market conditions, and the magnitude of such projected obligations. None of the funds are permitted to be invested directly in companies that own nuclear power plants.

The NRC sets minimum funding assurance guidelines to provide for radiological decommissioning activities and requires all plant owners to submit a report biennially in odd-numbered years that demonstrates adequate

funding assurance for each unit. If a shortfall is observed, the NRC may require additional financial assurance measures in the form of cash, letters of credit or parent company guarantees. The financial assurance report that CENG submitted in March 2013 did not indicate any shortfall, and no additional funding assurance was required by the NRC. It is expected that CENG's next financial assurance report will be an off-cycle report to be submitted no later than March 2014 in connection with the expected transfer of the operating licenses from CENG to Exelon under the agreements signed in July 2013 by the Group and Exelon (see note 3.6).

### 29.4 Other subsidiaries' nuclear provisions

Other subsidiaries' provisions for the back-end of the nuclear cycle and decommissioning mostly concern nuclear plants in Belgium.

## ➤ Note 30 Provisions for decommissioning of non-nuclear facilities

The breakdown by company is as follows:

(in millions of Euros)	EDF	EDF Energy	Edison	Other entities	Total
<b>PROVISIONS FOR DECOMMISSIONING OF NON-NUCLEAR FACILITIES AT 31/12/2013</b>	<b>572</b>	<b>66</b>	<b>489</b>	<b>117</b>	<b>1,244</b>
Provisions for decommissioning of non-nuclear facilities at 31/12/2012	522	71	416	126	1,135

Provisions for decommissioning of non-nuclear facilities principally concern fossil-fired power plants and hydropower plants.

The costs of decommissioning fossil-fired power plants are calculated using regularly updated studies based on estimated future costs, measured by reference to the charges recorded on past operations and the most recent estimates for plants still in operation.

The provision recorded at 31 December 2013 reflects the most recent known contractor quotes and commissioning of new generation assets.

## ➤ Note 31 Provisions for employee benefits

### 31.1 EDF Group

(in millions of Euros)	31/12/2013	31/12/2012
Provisions for employee benefits – current portion	950	900
Provisions for employee benefits – non-current portion	18,542	19,119
<b>PROVISIONS FOR EMPLOYEE BENEFITS</b>	<b>19,492</b>	<b>20,019</b>

## 31.1.1 Breakdown of the change in the provision

<i>(in millions of Euros)</i>	Obligations	Fund assets	Provision in the balance sheet
<b>Balance at 31/12/2012</b>	<b>34,427</b>	<b>(14,408)</b>	<b>20,019</b>
Net expense for 2013	1,854	(565)	1,289
Actuarial gains and losses	(14)	(91)	(105)
Employer's contributions to funds	-	(735)	(735)
Employees' contributions to funds	4	(4)	-
Benefits paid	(1,404)	522	(882)
Translation adjustment	(135)	117	(18)
Changes in scope of consolidation	(220)	138	(82)
Other movements	8	(2)	6
<b>BALANCE AT 31/12/2013</b>	<b>34,520</b>	<b>(15,028)</b>	<b>19,492</b>

## 31.1.2 Post-employment and long-term employee benefit expenses

<i>(in millions of Euros)</i>	<b>2013</b>	2012
Current service cost	(965)	(743)
Past service cost	478	(23)
Actuarial gains and losses – long-term benefits	(112)	(271)
<b>Net expenses recorded as operating expenses</b>	<b>(599)</b>	<b>(1,037)</b>
Interest expense (discount effect)	(1,255)	(1,368)
Return on fund assets	565	639
<b>Net interest expense included in financial result</b>	<b>(690)</b>	<b>(729)</b>
<b>EMPLOYEE BENEFIT EXPENSES RECORDED IN THE INCOME STATEMENT</b>	<b>(1,289)</b>	<b>(1,766)</b>
Actuarial gains and losses – post-employment benefits	14	(5,462)
Actuarial gains and losses on fund assets	91	862
<b>Actuarial gains and losses</b>	<b>105</b>	<b>(4,600)</b>
Translation adjustments	18	(32)
<b>GAINS AND LOSSES ON EMPLOYEE BENEFITS RECORDED DIRECTLY IN EQUITY</b>	<b>123</b>	<b>(4,632)</b>

The past service cost for 2013 includes income of €472 million resulting from the positive effect of the pension reform in France (see note 4 .1).

### 31.1.3 Provisions for employee benefits by operating segment

<i>(in millions of Euros)</i>	France	United Kingdom	Italy	Other international	Other activities	Total
<b>Obligations at 31/12/2012</b>	<b>27,264</b>	<b>6,166</b>	<b>50</b>	<b>529</b>	<b>418</b>	<b>34,427</b>
Net expense for 2013	1,324	467	6	41	16	1,854
Actuarial gains and losses	(358)	371	1	(32)	4	(14)
Employees' contributions to funds	-	4	-	-	-	4
Benefits paid	(1,161)	(194)	(5)	(33)	(11)	(1,404)
Translation adjustment	-	(118)	-	(13)	(4)	(135)
Changes in scope of consolidation	-	-	-	(3)	(217)	(220)
Other movements	-	7	-	3	(2)	8
<b>OBLIGATIONS AT 31/12/2013</b>	<b>27,069</b>	<b>6,703</b>	<b>52</b>	<b>492</b>	<b>204</b>	<b>34,520</b>
Fair value of fund assets	(8,458)	(6,313)	-	(227)	(30)	(15,028)
<b>PROVISIONS FOR EMPLOYEE BENEFITS AT 31/12/2013</b>	<b>18,611</b>	<b>390</b>	<b>52</b>	<b>265</b>	<b>174</b>	<b>19,492</b>

<i>(in millions of Euros)</i>	France	United Kingdom	Italy	Other international	Other activities	Total
<b>Obligations at 31/12/2012</b>	<b>27,264</b>	<b>6,166</b>	<b>50</b>	<b>529</b>	<b>418</b>	<b>34,427</b>
Fair value of fund assets	(8,280)	(5,755)	-	(207)	(166)	(14,408)
<b>PROVISIONS FOR EMPLOYEE BENEFITS AT 31/12/2012</b>	<b>18,984</b>	<b>411</b>	<b>50</b>	<b>322</b>	<b>252</b>	<b>20,019</b>

## 31.2 France

The "France" segment mainly comprises EDF SA and ERDF. Almost all of the employees of these companies benefit from IEG status including the special pension system and other IEG benefits, described in note 1.3.22.

### 31.2.1 Details of changes in the provision

<i>(in millions of Euros)</i>	Obligations	Fund assets	Provision in the balance sheet
<b>Balances at 31/12/2012</b>	<b>27,264</b>	<b>(8,280)</b>	<b>18,984</b>
Net expense for 2013	1,324	(295)	1,029
Actuarial gains and losses	(358)	121	(237)
Employer's contributions to funds	-	(314)	(314)
Employees' contributions to funds	-	-	-
Benefits paid	(1,161)	310	(851)
Other movements	-	-	-
<b>BALANCES AT 31/12/2013</b>	<b>27,069</b>	<b>(8,458)</b>	<b>18,611</b>



## 31.2.2 Post-employment and long-term employee benefit expenses

<i>(in millions of Euros)</i>	2013	2012
Current service cost	(732)	(500)
Past service cost	472	(22)
Actuarial gains and losses – long-term benefits	(105)	(266)
<b>Net expenses recorded as operating expenses</b>	<b>(365)</b>	<b>(788)</b>
Interest expense (discount effect)	(959)	(1,045)
Return on fund assets	295	376
<b>Net interest expense included in financial result</b>	<b>(664)</b>	<b>(669)</b>
<b>EMPLOYEE BENEFIT EXPENSES RECORDED IN THE INCOME STATEMENT</b>	<b>(1,029)</b>	<b>(1,457)</b>
Actuarial gains and losses – post-employment benefits	358	(5,647)
Actuarial gains and losses on fund assets	(121)	594
<b>Actuarial gains and losses</b>	<b>237</b>	<b>(5,053)</b>
Translation adjustments	-	-
<b>GAINS AND LOSSES ON EMPLOYEE BENEFITS RECORDED DIRECTLY IN EQUITY</b>	<b>237</b>	<b>(5,053)</b>

The past service cost for 2013 includes income of €472 million resulting from the positive effect of the pension reform in France (see note 4.1).

Actuarial gains and losses on post-employment benefits break down as follows:

<i>(in millions of Euros)</i>	2013
Experience adjustments	(401)
Changes in demographic assumptions	(38)
Changes in financial assumptions <sup>(1)</sup>	692
<b>ACTUARIAL GAINS AND LOSSES ON OBLIGATIONS</b>	<b>253</b>
<b>Including:</b>	
- actuarial gains and losses on post-employment benefits	358
- actuarial gains and losses on long-term benefits	(105)

<sup>(1)</sup> Financial assumptions are mainly the discount rate, inflation rate and wage increase rate.

The actuarial gains and losses generated over 2013 amount to €253 million, and mainly relate to the favourable effect of revised financial assumptions (particularly the lower assumptions for inflation rate and wage increase rate).

In 2012, actuarial gains and losses on obligations amounted to €(5,830 million), mainly caused by the unfavourable effect of revised financial assumptions (particularly the lower discount rate).

### 31.2.3 Provisions for employee benefits by nature

At 31 December 2013:

<i>(in millions of Euros)</i>	Obligations	Fund assets	Provision in the balance sheet
Provisions for post-employment benefits at 31/12/2013	25,756	(8,458)	17,298
Comprising			
Pensions	19,414	(7,810)	11,604
Benefits in kind (electricity/gas)	4,551	-	4,551
Retirement gratuities	853	(635)	218
Other	938	(13)	925
Provisions for other long-term employee benefits at 31/12/2013	1,313	-	1,313
Comprising			
Annuities following work-related accident and illness, and invalidity	1,125	-	1,125
Long service awards	155	-	155
Other	33	-	33
<b>PROVISIONS FOR EMPLOYEE BENEFITS AT 31/12/2013</b>	<b>27,069</b>	<b>(8,458)</b>	<b>18,611</b>

At 31 December 2012:

<i>(in millions of Euros)</i>	Obligations	Fund assets	Provision in the balance sheet
Provisions for post-employment benefits at 31/12/2012	25,976	(8,280)	17,696
Comprising			
Pensions	20,244	(7,668)	12,576
Benefits in kind (electricity/gas)	3,923	-	3,923
Retirement gratuities	861	(598)	263
Other	948	(14)	934
Provisions for other long-term employee benefits at 31/12/2012	1,288	-	1,288
Comprising			
Annuities following work-related accident and illness, and invalidity	1,096	-	1,096
Long service awards	155	-	155
Other	37	-	37
<b>PROVISIONS FOR EMPLOYEE BENEFITS AT 31/12/2012</b>	<b>27,264</b>	<b>(8,280)</b>	<b>18,984</b>

### 31.2.4 Breakdown of obligations by type of beneficiary

*(in millions of Euros)*

	31/12/2013
Current employees	16,530
Retirees	10,539
<b>OBLIGATIONS AT 31/12/2013</b>	<b>27,069</b>

## 31.2.5 Fund assets

For France, these assets amount to €8,458 million at 31 December 2013 (€8,280 million at 31 December 2012) and concern retirement gratuities (with target coverage of 100%) and the specific benefits of the special pension system. They consist of insurance contracts with the following risk profile:

- 70% in a hedging pocket designed to replicate variations in the obligation caused by changes in interest rates, consisting of bonds;
- 30% in a growth asset pocket, consisting of international equities.

These assets break down as follows:

<i>(in millions of Euros)</i>	31/12/2013	31/12/2012
<b>FUND ASSETS</b>	<b>8,458</b>	<b>8,280</b>
<i>Assets funding special pension benefits</i>	<i>7,810</i>	<i>7,668</i>
(%)		
Listed equity instruments (shares)	31%	29%
Listed debt instruments (bonds)	69%	71%
<i>Assets funding retirement gratuities</i>	<i>635</i>	<i>598</i>
(%)		
Listed equity instruments (shares)	32%	31%
Listed debt instruments (bonds)	68%	69%
<i>Other fund assets</i>	<i>13</i>	<i>14</i>

At 31 December 2013, the equities held as part of fund assets are distributed as follows:

- approximately 50% of the total are shares in North American companies;
- approximately 25% of the total are shares in European companies;
- approximately 25% of the total are shares in companies in the Asia-Pacific zone and emerging countries.

This distribution is stable compared to the distribution at 31 December 2012.

At 31 December 2013, the bonds held as part of fund assets are distributed as follows:

- approximately 85% of the total are AAA and AA-rated bonds;
- approximately 15% of the total are bonds with A, BBB and other ratings.

Around 80% of the total bonds are sovereign bonds issued by Euro zone countries, and the balance mainly consists of bonds issued by financial and non-financial firms.

This distribution is stable compared to the distribution at 31 December 2012.

## 31.2.6 Future cash flows

Cash flows related to future employee benefits are as follows:

<i>(in millions of Euros)</i>	Cash flow in year-end economic conditions	Amount covered by provision (present value)
Less than one year	1,344	1,325
One to five years	5,964	5,350
Five to ten years	6,784	5,199
More than ten years	43,116	15,195
<b>CASH FLOWS RELATED TO EMPLOYEE BENEFITS</b>	<b>57,208</b>	<b>27,069</b>

At 31 December 2013, the average duration of employee benefit commitments in France was 15.6 years.

### 31.2.7 Actuarial assumptions

(in %)	31/12/2013	31/12/2012
Discount rate / rate of return on assets	3.50%	3.50%
Inflation rate	1.90%	2.00%
Wage increase rate <sup>(1)</sup>	1.70%	2.00%

(1) Excluding inflation.

In France, the discount rate used for employee benefit obligations is determined by applying the yield rate on high-quality non-financial corporate bonds based on their duration to maturities corresponding to the future disbursements resulting from these obligations.

### 31.2.8 Sensitivity analysis

(in %)	31/12/2013
Impact of a 25bp increase or decrease in the discount rate	
■ on the amount of the obligation	- 3.8% / + 4.1%
■ on the net expense for N+1	- 2.2% / + 2.3%
Impact of a 25bp increase or decrease in the wage increase rate	
■ on the amount of the obligation	+ 2.5% / - 2.5%
■ on the net expense for N+1	+ 6.9% / - 6.8%
Impact of a 25bp increase or decrease in the inflation rate	
■ on the amount of the obligation	+ 4.1% / - 3.9%
■ on the net expense for N+1	+ 6.0% / - 5.6%

## 31.3 United Kingdom

The United Kingdom segment chiefly comprises EDF Energy, whose principal employee benefits are described in note 1.3.22.

### 31.3.1 Details of the change in the provision

(in millions of Euros)	Obligations	Fund assets	Provision in the balance sheet
Balances at 31/12/2012	6,166	(5,755)	411
Net expense for 2013	467	(261)	206
Actuarial gains and losses	371	(198)	173
Employer's contributions to funds	-	(397)	(397)
Employees' contributions to funds	4	(4)	-
Benefits paid	(194)	194	-
Translation adjustment	(118)	108	(10)
Other movements	7	-	7
<b>BALANCES AT 31/12/2013</b>	<b>6,703</b>	<b>(6,313)</b>	<b>390</b>

## 31.3.2 Post-employment benefit and long-term employee benefit expenses

<i>(in millions of Euros)</i>	2013	2012
Current service cost	(196)	(216)
Past service cost	(2)	(2)
Actuarial gains and losses – long-term benefits	-	-
<b>Net expenses recorded as operating expenses</b>	<b>(198)</b>	<b>(218)</b>
Interest expense (discount effect)	(269)	(289)
Return on fund assets	261	246
<b>Net interest expense included in financial result</b>	<b>(8)</b>	<b>(43)</b>
<b>EMPLOYEE BENEFIT EXPENSES RECORDED IN THE INCOME STATEMENT</b>	<b>(206)</b>	<b>(261)</b>
Actuarial gains and losses – post-employment benefits	(371)	309
Actuarial gains and losses on fund assets	198	253
<b>Actuarial gains and losses</b>	<b>(173)</b>	<b>562</b>
Translation adjustments	10	(28)
<b>GAINS AND LOSSES ON EMPLOYEE BENEFITS RECORDED DIRECTLY IN EQUITY</b>	<b>(163)</b>	<b>534</b>

## 31.3.3 Breakdown of obligations by type of beneficiary

<i>(in millions of Euros)</i>	31/12/2013
Current employees	3,980
Retirees	2,723
<b>OBLIGATIONS AT 31/12/2013</b>	<b>6,703</b>

## 31.3.4 Fund assets

Pension obligations in the United Kingdom are partly covered by external funds with a present value of €6,313 million at 31 December 2013 (€5,755 million at 31 December 2012).

The investment strategy applied in these funds is a liability driven investment strategy. The allocation between growth assets and hedging assets is regularly reviewed by the trustees, at least after every actuarial valuation, to ensure that the funds' overall investment strategy remains coherent in order to achieve the target coverage level required.

These assets break down as follows:

<i>(in millions of Euros)</i>	31/12/2013	31/12/2012
BEGG pension fund	5,177	4,770
EEGSG pension fund	732	649
EEPS pension fund	404	336
<b>FUND ASSETS</b>	<b>6,313</b>	<b>5,755</b>
<b>(%)</b>		
Listed equity instruments (shares)	37%	33%
Listed debt instruments (bonds) and money market instruments	48%	49%
Real estate properties	7%	7%
Other	8%	11%



### 31.3.5 Future cash flows

Cash flows related to future employee benefits are as follows.

<i>(in millions of Euros)</i>	Cash flow in year-end economic conditions	Amount covered by provision (present value)
Less than one year	206	206
One to five years	1,130	985
Five to ten years	2,061	1,489
More than ten years	16,540	4,023
<b>CASH FLOWS RELATED TO EMPLOYEE BENEFITS</b>	<b>19,937</b>	<b>6,703</b>

The contribution to funds for 2014 is estimated at approximately €300 million.

The average weighted duration of funds in the United Kingdom is 21.8 years at 31 December 2013.

### 31.3.6 Actuarial assumptions

<i>(in %)</i>	<b>31/12/2013</b>	31/12/2012
Discount rate/rate of return on assets	4.50%	4.50%
Inflation rate	3.50%	3.10%
Wage increase rate	3.50%	3.10%

In the United Kingdom, the discount rate used for employee benefit obligations is determined by applying the yield rate on high-quality non-financial corporate bonds based on their duration to maturities corresponding to the future disbursements resulting from these obligations.

### 31.3.7 Sensitivity analyses

<i>(in %)</i>	<b>31/12/2013</b>
Impact of a 25bp increase or decrease in the discount rate	
■ on the amount of the obligation	- 4.4% / + 4.8%
■ on the net expense for N+1	- 11.8% / + 11.3%
Impact of a 25bp increase or decrease in the wage increase rate	
■ on the amount of the obligation	+ 1.2% / - 1.1%
■ on the net expense for N+1	+ 3.8% / - 3.6%
Impact of a 25bp increase or decrease in the inflation rate	
■ on the amount of the obligation	+ 4.5% / - 4.2%
■ on the net expense for N+1	+ 10.3% / - 10.8%

## ➤ Note 32 Other provisions

Details of changes in other provisions are as follows:

	31/12/2012	Increases	Decreases		Changes in scope	Other changes	31/12/2013
(in millions of Euros)			Utilisations	Reversals			
Provisions for contingencies related to investments	192	51	(2)	-	-	5	246
Provisions for tax liabilities	414	193	(36)	(55)	(10)	1	507
Provisions for litigation <sup>(1)</sup>	604	163	(170)	(61)	(15)	(1)	520
Provisions for onerous contracts	703	48	(147)	(7)	-	(21)	576
Provisions related to environmental schemes <sup>(2)</sup>	581	854	(552)	(11)	-	1	873
Other provisions	997	735	(351)	(143)	(46)	(24)	1,168
<b>TOTAL</b>	<b>3,491</b>	<b>2,044</b>	<b>(1,258)</b>	<b>(277)</b>	<b>(71)</b>	<b>(39)</b>	<b>3,890</b>

(1) Provisions for litigation include a provision relating to a dispute with social security bodies.

(2) Provisions related to environmental schemes include provisions for greenhouse gas emission rights and renewable energy certificates (see note 50).

Provisions for onerous contracts include the acquisition date fair value of CENG long-term sales contracts (2011-2021), amounting to €432 million at 31 December 2013 (€461 million at 31 December 2012). Reversals from provisions relating to these contracts result from the difference over the year between contractualised income and income valued on the basis of market prices at the acquisition date.

## ➤ Note 33 Special French public electricity distribution concession liabilities

The changes in special concession liabilities for existing assets and assets to be replaced are as follows:

(in millions of Euros)	31/12/2013	31/12/2012
Value in kind of assets	43,050	41,702
Unamortised financing by the operator	(21,013)	(20,182)
<b>Rights in existing assets - net value</b>	<b>22,037</b>	<b>21,520</b>
Amortisation of financing by the grantor	11,006	10,453
Provisions for renewal	10,411	10,578
<b>Rights in assets to be replaced</b>	<b>21,417</b>	<b>21,031</b>
<b>SPECIAL FRENCH PUBLIC ELECTRICITY DISTRIBUTION CONCESSION LIABILITIES</b>	<b>43,454</b>	<b>42,551</b>

## ➤ Note 34 Trade payables

<i>(in millions of Euros)</i>	31/12/2013	31/12/2012
Trade payables - excluding EDF Trading	10,491	11,027
Trade payables - EDF Trading	3,821	3,616
<b>TRADE PAYABLES</b>	<b>14,312</b>	<b>14,643</b>

## ➤ Note 35 Other liabilities

Details of other liabilities are as follows:

<i>(in millions of Euros)</i>	31/12/2013	31/12/2012
Advances and progress payments received	6,988	6,491
Liabilities related to property, plant and equipment	3,261	2,699
Tax liabilities	5,402	4,922
Social charges	3,366	3,166
Deferred income on long-term contracts	3,788	4,004
Other deferred income	1,024	996
Other	2,583	2,977
<b>OTHER LIABILITIES</b>	<b>26,412</b>	<b>25,255</b>
Non-current portion	3,955	4,218
Current portion	22,457	21,037

### 35.1 Advances and progress payments received

At 31 December 2013 advances and progress payments received include monthly standing order payments by EDF's residential and business customers amounting to €6,129 million (€5,558 million at 31 December 2012). The increase over 2013 is mainly explained by the growing number of customers that opt to pay their bills this way.

### 35.2 Tax liabilities

At 31 December 2013 tax liabilities mainly include an amount of €984 million for the CSPE income to be collected by EDF on energy supplied but not yet billed (€747 million at 31 December 2012).

### 35.3 Deferred income on long-term contracts

EDF's deferred income on long-term contracts at 31 December 2013 comprises €2,112 million (€2,183 million at 31 December 2012) of partner advances made to EDF under the nuclear plant financing plans.

Deferred incomes on long-term contracts also include an advance paid to the EDF group in 2010 under the agreement with the Exeltium consortium.

## FINANCIAL ASSETS AND LIABILITIES

### ➤ Note 36 Current and non-current financial assets

#### 36.1 Breakdown between current and non-current financial assets

Current and non-current financial assets break down as follows:

(in millions of Euros)	31/12/2013			31/12/2012		
	Current	Non-current	Total	Current	Non-current	Total
Financial assets carried at fair value with changes in fair value included in income	3,031	13	3,044	3,167	12	3,179
Available-for-sale financial assets	12,991	15,520	28,511	11,208	16,045	27,253
Held-to-maturity investments	-	-	-	9	14	23
Positive fair value of hedging derivatives	636	1,047	1,683	825	1,596	2,421
Loans and financial receivables	1,112	13,744	14,856	1,224	12,804	14,028
<b>CURRENT AND NON-CURRENT FINANCIAL ASSETS<sup>(1)</sup></b>	<b>17,770</b>	<b>30,324</b>	<b>48,094</b>	<b>16,433</b>	<b>30,471</b>	<b>46,904</b>

(1) Including impairment of €(295) million at 31 December 2013 (€(756) million at 31 December 2012).

#### 36.2 Details of financial assets

##### 36.2.1 Financial assets carried at fair value with changes in fair value included in income

(in millions of Euros)	31/12/2013	31/12/2012
Derivatives - positive fair value	3,024	3,162
Fair value of derivatives held for trading	7	5
Financial assets carried at fair value under IAS 39 option	13	12
<b>FINANCIAL ASSETS CARRIED AT FAIR VALUE WITH CHANGES IN FAIR VALUE INCLUDED IN INCOME</b>	<b>3,044</b>	<b>3,179</b>

Financial assets carried at fair value with changes in fair value included in income mainly concern EDF Trading.

##### 36.2.2 Available-for-sale financial assets

(in millions of Euros)	31/12/2013			31/12/2012		
	Equities <sup>(1)</sup>	Debt securities	Total	Equities <sup>(1)</sup>	Debt securities	Total
EDF dedicated assets	8,170	5,941	14,111	7,328	7,890	15,218
Liquid assets	3,165	9,383	12,548	3,715	6,574	10,289
Other securities	1,768	84	1,852	1,676	70	1,746
<b>AVAILABLE-FOR-SALE FINANCIAL ASSETS</b>	<b>13,103</b>	<b>15,408</b>	<b>28,511</b>	<b>12,719</b>	<b>14,534</b>	<b>27,253</b>

(1) Equities or investment funds.

Changes in the fair value of available-for-sale financial assets were recorded in equity (EDF share) over the period as follows:

	2013		2012	
	Gross changes in fair value recorded in equity <sup>(1)</sup>	Gross changes in fair value transferred to income <sup>(2)</sup>	Gross changes in fair value recorded in equity <sup>(1)</sup>	Gross changes in fair value transferred to income <sup>(2)</sup>
<i>(in millions of Euros)</i>				
EDF dedicated assets	1,197	579	1,237	236
Liquid assets	30	31	48	28
Other securities	(123)	(266)	(76)	8
<b>AVAILABLE-FOR-SALE FINANCIAL ASSETS</b>	<b>1,104</b>	<b>344</b>	<b>1,209</b>	<b>272</b>

(1) + / (-): increase / (decrease) in equity (EDF's share)

(2) + / (-): increase / (decrease) in income (EDF's share)

Gross changes in fair value included in equity in 2013 (EDF's share) principally concern EDF (€1,000 million, including €1,197 million for dedicated assets).

No significant impairment was recorded in 2013.

Gross changes in fair value in 2012 principally concern EDF (€1,247 million, including €1,237 million for dedicated assets).

### 36.2.2.1 Dedicated assets

Diversified bond investments and equities included in EDF's dedicated assets are recorded as "available-for-sale financial assets". The general management policy for dedicated assets is presented in note 48.

On 30 July 2013, the Consortium made up of SNAM, the Italian gas transport and storage operator (45%), GIC, the Singaporean sovereign fund (35%) and EDF (20%) signed a final agreement with the Total group for acquisition of TIGF (*Transport et Infrastructures Gaz France*), Total's gas transport and storage subsidiary. EDF's 20% investment is financed by its "EDF Invest" dedicated asset fund through the holding company C31. The Group's investment in C31, at the date of acquisition of TIGF and finalisation of its financing structure, is €265 million.

### 36.2.2.2 Liquid assets

Liquid assets are financial assets consisting of funds or interest rate instruments with initial maturity of over three months that are readily convertible into cash, and are managed according to a liquidity-oriented policy.

EDF's monetary investment funds, included in liquid assets, amount to €2,809 million at 31 December 2013 (€3,249 million at 31 December 2012).

### 36.2.2.3 Other securities

At 31 December 2013, other securities mainly include:

- at CENG, €697 million of available-for-sale financial assets related to nuclear decommissioning trust funds (reserved for financing of nuclear plant decommissioning);
- at EDF, shares in AREVA (€163 million) and Trimet France (€130 million).

In 2013 the Group sold all its shares in Veolia Environnement for €262 million. A €74 million pre-tax gain on sale was recorded in the financial result.

EDF also acquired a minority shareholding in Trimet France for the amount of €130 million on 16 December 2013.

## 36.3 Financial assets recorded at amortised cost

<i>(in millions of Euros)</i>	31/12/2013	31/12/2012
Held-to-maturity investments	-	23
Loans and financial receivables - amounts receivable from the NLF	7,958	6,920
Loans and financial receivables - CSPE	5,051	4,879
Loans and financial receivables - other	1,847	2,229
<b>FINANCIAL ASSETS RECORDED AT AMORTISED COST</b>	<b>14,856</b>	<b>14,051</b>



Loans and financial receivables include:

- amounts representing reimbursements receivable from the NLF and the British government for coverage of long-term nuclear obligations, totalling €7,958 million at 31 December 2013 (€6,920 million at 31 December 2012), discounted at the same rate as the provisions they finance;
- the receivable corresponding to the CSPE shortfall at 31 December 2012 and the costs for EDF of bearing this shortfall, amounting to €5,051 million at 31 December 2013. The change since 31 December 2012 mainly reflects the €91 million adjustment of the benchmark shortfall after the CRE officialised its final position in October 2013, and the costs of bearing the CSPE deficit recorded in 2013, amounting to €83 million.

Other loans and financial receivables include EDF's loans to RTE, amounting to €670 million at 31 December 2013 (€1,174 million at 31 December 2012).

## 36.4 Change in financial assets other than derivatives

The variation in financial assets is as follows:

### 36.4.1 At 31 December 2013

(in millions of Euros)	31/12/2012	Net Increases	Changes in fair value	Changes in scope	Other	31/12/2013
Available-for-sale financial assets	27,253	60	1,143	(15)	70	28,511
Held-to-maturity investments	23	(5)	-	(17)	(1)	-
Loans and financial receivables	14,028	(391)	-	89	1,130	14,856

Other changes in loans and financial receivables reflect the change in the receivable representing reimbursements due from the NLF and the British government for coverage of long-term nuclear obligations, totalling €1,038 million.

### 36.4.2 At 31 December 2012

(in millions of Euros)	31/12/2011	Net Increases	Changes in fair value	Changes in scope	Other	31/12/2012
Available-for-sale financial assets	24,328	1,887	937	114	(13)	27,253
Held-to-maturity investments	19	10	-	(6)	-	23
Loans and financial receivables	9,623	330	-	60	4,015	14,028

Other changes in loans and financial receivables reflect the transfer of the receivable corresponding to the CSPE shortfall (€4,250 million), and the change in the receivable representing reimbursements due from the NLF and the British government for coverage of long-term nuclear obligations, totalling €(289) million.

## ➤ Note 37 Cash and cash equivalents

Cash and cash equivalents comprise cash in hand and at bank and investments in money market instruments. Cash and cash equivalents as stated in the cash flow statements include the following amounts recorded in the balance sheet:

(in millions of Euros)	31/12/2013	31/12/2012
Cash	2,742	3,090
Cash equivalents <sup>(1)</sup>	2,496	2,584
Financial current accounts	221	200
<b>CASH AND CASH EQUIVALENTS</b>	<b>5,459</b>	<b>5,874</b>

(1) Items stated at fair value amount to €2,481 million at 31 December 2013 (€2,507 million at 31 December 2012).

## ➤ Note 38 Current and non-current financial liabilities

### 38.1 Breakdown between current and non-current financial liabilities

Current and non-current financial liabilities break down as follows:

	31/12/2013			31/12/2012		
	Non-current	Current	Total	Non-current	Current	Total
<i>(in millions of Euros)</i>						
Loans and other financial liabilities	42,025	11,288	53,313	45,891	14,041	59,932
Negative fair value of derivatives held for trading	-	2,583	2,583	-	2,290	2,290
Negative fair value of hedging derivatives	852	1,041	1,893	1,089	1,190	2,279
<b>FINANCIAL LIABILITIES</b>	<b>42,877</b>	<b>14,912</b>	<b>57,789</b>	<b>46,980</b>	<b>17,521</b>	<b>64,501</b>

### 38.2 Loans and other financial liabilities

#### 38.2.1 Changes in loans and other financial liabilities

	Bonds	Loans from financial institutions	Other financial liabilities	Loans related to finance-leased assets	Accrued Interest	Total
<i>(in millions of Euros)</i>						
<b>Balances at 31/12/2011</b>	<b>37,524</b>	<b>5,481</b>	<b>5,567</b>	<b>371</b>	<b>1,091</b>	<b>50,034</b>
Increases	6,000	1,984	4,400	-	256	12,640
Decreases	(802)	(3,944)	(382)	(17)	(18)	(5,163)
Translation adjustments	126	(5)	(19)	-	-	102
Changes in scope of consolidation	894	1,444	(25)	43	(5)	2,351
Other changes	127	(52)	(153)	30	16	(32)
<b>Balances at 31/12/2012</b>	<b>43,869</b>	<b>4,908</b>	<b>9,388</b>	<b>427</b>	<b>1,340</b>	<b>59,932</b>
Increases	2,089	2,330	1,351	-	84	5,854
Decreases	(3,712)	(2,188)	(3,134)	(26)	(95)	(9,155)
Translation adjustments	(302)	(59)	(79)	-	(4)	(444)
Changes in scope of consolidation	(103)	(212)	(1,406)	27	(17)	(1,711)
Other changes	(955)	56	(238)	15	(41)	(1,163)
<b>BALANCES AT 31/12/2013</b>	<b>40,886</b>	<b>4,835</b>	<b>5,882</b>	<b>443</b>	<b>1,267</b>	<b>53,313</b>

Changes in the scope of consolidation in 2013 mainly relate to the reclassification of the loans and financial debts of Dalkia International as "Liabilities related to assets held for sale".

Other changes in loans and other financial liabilities reflect changes in fair value amounting to €(1,186) million at 31 December 2013 (€86 million at 31 December 2012).

Loans and other financial liabilities of the Group's main entities are as follows:

<i>(in millions of Euros)</i>	31/12/2013	31/12/2012
EDF and other affiliated subsidiaries <sup>(1)</sup>	36,825	42,384
EDF Energy <sup>(2)</sup>	6,665	6,786
EDF Énergies Nouvelles	4,108	3,700
Edison <sup>(3)</sup>	2,911	3,474
Other	2,804	3,588
<b>LOANS AND OTHER FINANCIAL LIABILITIES</b>	<b>53,313</b>	<b>59,932</b>

(1) ERDF, PEI, EDF International, EDF Investissements Groupe

(2) Including holding companies

(3) Edison excluding TdE

At 31 December 2013, none of these entities was in default on any borrowing.

On 27 November 2013, EDF received the funds from its first "Green Bond" issue totalling €1.4 billion, maturing in April 2021 at 2.25% annual coupon.

The Group's principal borrowings at 31 December 2013 are as follows:

Type of borrowing <i>(in millions of currencies)</i>	Entity	Issue <sup>(1)</sup>	Maturity	Issue amount	Currency	Rate
Bond	EDF	01/2009	01/2014	1,250	USD	5.50%
Euro MTN	EDF	07/2009	07/2014	3,269	EUR	4.50%
Euro MTN	EDF	01/2009	01/2015	2,000	EUR	5.10%
Euro MTN	EDF	10/2001	10/2016	1,100	EUR	5.50%
Euro MTN	EDF	02/2008	02/2018	1,500	EUR	5.00%
Bond	EDF	01/2009	01/2019	2,000	USD	6.50%
Bond	EDF	01/2010	01/2020	1,400	USD	4.60%
Euro MTN	EDF	05/2008	05/2020	1,200	EUR	5.40%
Euro MTN	EDF	01/2009	01/2021	2,000	EUR	6.30%
Euro MTN (Green Bond)	EDF	11/2013	04/2021	1,400	EUR	2.25%
Euro MTN	EDF	01/2012	01/2022	2,000	EUR	3.88%
Euro MTN	EDF	09/2012	03/2023	2,000	EUR	2.75%
Euro MTN	EDF	09/2009	09/2024	2,500	EUR	4.60%
Euro MTN	EDF	11/2010	11/2025	750	EUR	4.00%
Euro MTN	EDF	03/2012	03/2027	1,000	EUR	4.13%
Euro MTN	EDF	04/2010	04/2030	1,500	EUR	4.60%
Euro MTN	EDF	07/2001	07/2031	650	GBP	5.88%
Euro MTN	EDF	02/2003	02/2033	850	EUR	5.60%
Euro MTN	EDF	06/2009	06/2034	1,500	GBP	6.10%
Bond	EDF	01/2009	01/2039	1,750	USD	7.00%
Euro MTN	EDF	11/2010	11/2040	750	EUR	4.50%
Euro MTN	EDF	10/2011	10/2041	1,250	GBP	5.50%
Euro MTN	EDF	09/2010	09/2050	1,000	GBP	5.10%

(1) Date funds were received.

### 38.2.2 Maturity of loans and other financial liabilities

At 31 December 2013:

(in millions of Euros)	Bonds	Loans from financial institutions	Other financial liabilities	Loans related to finance-leased assets	Accrued Interest	Total
Less than one year	5,770	1,321	2,997	39	1,161	11,288
From one to five years	6,063	1,549	2,054	141	14	9,821
More than five years	29,053	1,965	831	263	92	32,204
<b>LOANS AND OTHER FINANCIAL LIABILITIES AT 31/12/2013</b>	<b>40,886</b>	<b>4,835</b>	<b>5,882</b>	<b>443</b>	<b>1,267</b>	<b>53,313</b>

At 31 December 2012:

(in millions of Euros)	Bonds	Loans from financial institutions	Other financial liabilities	Loans related to finance-leased assets	Accrued Interest	Total
Less than one year	3,848	1,940	6,998	37	1,218	14,041
From one to five years	10,590	791	1,627	126	61	13,195
More than five years	29,431	2,177	763	264	61	32,696
<b>LOANS AND OTHER FINANCIAL LIABILITIES AT 31/12/2012</b>	<b>43,869</b>	<b>4,908</b>	<b>9,388</b>	<b>427</b>	<b>1,340</b>	<b>59,932</b>

### 38.2.3 Breakdown of loans and other financial liabilities by currency

(in millions of Euros)	31/12/2013			31/12/2012		
	Initial debt structure	Impact of hedging instruments <sup>(1)</sup>	Debt structure after hedging	Initial debt structure	Impact of hedging instruments <sup>(1)</sup>	Debt structure after hedging
Euro (EUR)	33,035	(472)	32,563	35,709	1,485	37,194
American dollar (USD)	10,258	(4,786)	5,472	11,621	(6,240)	5,381
Pound sterling (GBP)	7,959	5,116	13,075	7,927	5,773	13,700
Other	2,061	142	2,203	4,675	(1,018)	3,657
<b>LOANS AND OTHER FINANCIAL LIABILITIES</b>	<b>53,313</b>	<b>-</b>	<b>53,313</b>	<b>59,932</b>	<b>-</b>	<b>59,932</b>

(1) Hedges of liabilities and net assets of foreign subsidiaries

### 38.2.4 Breakdown of loans and other financial liabilities by type of interest rate

(in millions of Euros)	31/12/2013			31/12/2012		
	Initial debt structure	Impact of derivatives	Final debt structure	Initial debt structure	Impact of derivatives	Final debt structure
Fixed rates	47,826	(7,375)	40,451	52,306	(4,844)	47,462
Floating rates	5,487	7,375	12,862	7,626	4,844	12,470
<b>LOANS AND OTHER FINANCIAL LIABILITIES</b>	<b>53,313</b>	<b>-</b>	<b>53,313</b>	<b>59,932</b>	<b>-</b>	<b>59,932</b>

The breakdown of loans and financial liabilities by interest rate includes the impact of all derivatives classified as hedges in accordance with IAS 39.

## 38.2.5 Credit lines

At 31 December 2013, the Group has unused credit lines with various banks totalling €10,390 million (€8,598 million at 31 December 2012).

(in millions of Euros)	Total	31/12/2013			31/12/2012
		Maturity			Total
		< 1 year	1 - 5 years	> 5 years	
<b>CONFIRMED CREDIT LINES</b>	<b>10,390</b>	<b>306</b>	<b>10,084</b>	<b>-</b>	<b>8,598</b>

The increase in credit lines observed in 2013 mainly relates to EDF.

On 16 December 2013, EDF and a group of 23 European and international banks signed an amendment to the €4 billion syndicated credit contract of 22 November 2010, enabling the Group to extend the maturity of this credit to November 2018 (with two options for further extensions, each for one year) and improve the financial terms.

## 38.2.6 Early repayment clauses

Project financing loans to EDF Énergies Nouvelles from non-Group parties generally include early repayment clauses, mainly applicable when the borrower fails to maintain a minimum Debt Service Coverage Ratio (DSCR). In general, early repayment clauses are activated when this ratio falls below 1.

No early repayment took place in 2013 as a result of any Group entity's failure to comply with contractual clauses concerning loans.

## 38.3 Net indebtedness

Net indebtedness is not defined in the accounting standards and is not directly presented in the consolidated balance sheet. It comprises total loans and financial liabilities, less cash and cash equivalents and liquid assets. Liquid assets are financial assets consisting of funds or interest rate instruments with initial maturity of over three months that are readily convertible into cash regardless of their maturity and are managed according to a liquidity-oriented policy.

Net indebtedness includes loans by the Group to RTE, which has been accounted for under the equity method since 31 December 2010, and loans to joint ventures for which contra entries are recognised in loans and other financial liabilities.

(in millions of Euros)	Notes	31/12/2013	31/12/2012
Loans and other financial liabilities	38.2.1	53,313	59,932
Derivatives used to hedge liabilities		176	(797)
Cash and cash equivalents	37	(5,459)	(5,874)
Available-for-sale financial assets - Liquid assets	36.2.2	(12,548)	(10,289)
Loan to RTE and joint ventures <sup>(1)</sup>		(1,005)	(1,397)
Net indebtedness of assets held for sale <sup>(2)</sup>		985	-
<b>NET INDEBTEDNESS</b>		<b>35,462</b>	<b>41,575</b>

(1) Including €670 million of loans to RTE and €150 million of loans to Dalkia International at 31 December 2013.

(2) Corresponding to the net indebtedness of Dalkia International in the consolidated financial statements at 31 December 2013.

The decrease in the net indebtedness over 2013 is largely explained by the effects of the perpetual subordinated bond issue amounting to €6.1 billion (see note 3.1) and allocation of the CSPE receivable to dedicated assets, which enabled the Group to transfer assets from the dedicated asset portfolio to liquid assets in the amount of €2.4 billion (see note 3.4).



## ➤ Note 39 Other information on financial assets and liabilities

### 39.1 Fair value of financial instruments

The following tables show the breakdown of financial assets and liabilities in the balance sheet, by level.

#### 39.1.1 At 31 December 2013

<i>(in millions of Euros)</i>	Balance sheet value	Fair value	Level 1 Unadjusted quoted prices	Level 2 Observable data	Level 3 Non- observable data
Financial assets carried at fair value with changes in fair value included in income <sup>(1)</sup>	3,044	3,044	26	2,846	172
Available-for-sale financial assets	28,511	28,511	1,907	25,592	1,012
Positive fair value of hedging derivatives	1,683	1,683	-	1,683	-
Cash equivalents carried at fair value	2,481	2,481	-	2,481	-
<b>FINANCIAL ASSETS CARRIED AT FAIR VALUE IN THE BALANCE SHEET</b>	<b>35,719</b>	<b>35,719</b>	<b>1,933</b>	<b>32,602</b>	<b>1,184</b>
Held-to-maturity investments	-	-	-	-	-
Loans and financial receivable – Assets receivable from the NLF	7,958	7,958	-	7,958	-
Loans and financial receivable – CSPE	5,051	5,051	-	5,051	-
Other loans and financial receivable	1,847	1,959	-	1,959	-
<b>FINANCIAL ASSETS RECORDED AT AMORTISED COST</b>	<b>14,856</b>	<b>14,968</b>	<b>-</b>	<b>14,968</b>	<b>-</b>
Negative fair value of hedging derivatives	1,893	1,893	6	1,887	-
Negative fair value of trading derivatives	2,583	2,583	21	2,402	160
<b>FINANCIAL LIABILITIES CARRIED AT FAIR VALUE IN THE BALANCE SHEET</b>	<b>4,476</b>	<b>4,476</b>	<b>27</b>	<b>4,289</b>	<b>160</b>
Loans and other financial liabilities	53,313	58,303	-	58,303	-
<b>FINANCIAL LIABILITIES RECORDED AT AMORTISED COST</b>	<b>53,313</b>	<b>58,303</b>	<b>-</b>	<b>58,303</b>	<b>-</b>

*(1) Including €3,024 million for the positive fair value of trading derivatives.*

Level 3 available-for-sale financial assets are principally non-consolidated investments carried at historical value.

Cash equivalents, which principally take the form of negotiable debt instruments and short-term investments, are generally valued using rate curves, and therefore observable market data.

## 39.1.2 At 31 December 2012

	Balance sheet value	Fair value	Level 1 Unadjusted quoted prices	Level 2 Observable data	Level 3 Non- observable data
<i>(in millions of Euros)</i>					
Financial assets carried at fair value with changes in fair value included in income <sup>(1)</sup>	3,179	3,179	16	2,942	221
Available-for-sale financial assets	27,253	27,253	4,363	22,275	615
Positive fair value of hedging derivatives	2,421	2,421	-	2,421	-
Cash equivalents carried at fair value	2,507	2,507	-	2,507	-
<b>FINANCIAL ASSETS CARRIED AT FAIR VALUE IN THE BALANCE SHEET</b>	<b>35,360</b>	<b>35,360</b>	<b>4,379</b>	<b>30,145</b>	<b>836</b>
Held-to-maturity investments	23	23	-	23	-
Loans and financial receivable – Assets receivable from the NLF	6,920	6,920	-	6,920	-
Loans and financial receivable – CSPE	4,879	4,879	-	4,879	-
Other loans and financial receivable	2,229	2,368	-	2,368	-
<b>FINANCIAL ASSETS RECORDED AT AMORTISED COST</b>	<b>14,051</b>	<b>14,190</b>	<b>-</b>	<b>14,190</b>	<b>-</b>
Negative fair value of hedging derivatives	2,279	2,279	9	2,269	1
Negative fair value of trading derivatives	2,290	2,290	11	2,093	186
<b>FINANCIAL LIABILITIES CARRIED AT FAIR VALUE IN THE BALANCE SHEET</b>	<b>4,569</b>	<b>4,569</b>	<b>20</b>	<b>4,362</b>	<b>187</b>
Loans and other financial liabilities	59,932	66,251	-	66,251	-
<b>FINANCIAL LIABILITIES RECORDED AT AMORTISED COST</b>	<b>59,932</b>	<b>66,251</b>	<b>-</b>	<b>66,251</b>	<b>-</b>

(1) Including €3,162 million for the positive fair value of trading derivatives.

## 39.2 Offsetting of financial assets and liabilities

### 39.2.1 At 31 December 2013

<i>(in millions of Euros)</i>	As reported in balance sheet	Balance without offsetting	Balance with offsetting under IAS 32		Net amount recognised after offsetting under IAS 32	Amounts covered by a general offsetting agreement but not offset under IAS 32		
			Gross amount recognised (before offsetting)	Gross amount set off under IAS 32		Financial instruments	Fair value of financial collateral	Net amount
Fair value of derivatives – assets	4,707	1,125	6,469	(2,887)	3,582	(998)	(332)	2,252
Fair value of derivatives – liabilities	(4,476)	(1,266)	(6,097)	2,887	(3,210)	998	36	(2,176)

### 39.2.2 At 31 December 2012

	As reported in balance sheet	Balance without offsetting	Balance with offsetting under IAS 32		Amounts covered by a general offsetting agreement but not offset under IAS 32			
			Gross amount recognised (before offsetting)	Gross amount set off under IAS 32	Net amount recognised after offsetting under IAS 32	Financial instruments	Fair value of financial collateral	Net amount
<i>(in millions of Euros)</i>								
Fair value of derivatives – assets	5,583	456	11,729	(6,602)	5,127	(1,226)	(576)	3,325
Fair value of derivatives – liabilities	(4,569)	(765)	(10,406)	6,602	(3,804)	1,226	100	(2,478)

## ➤ Note 40 Management of financial risks

As an operator in the energy sector worldwide, the EDF group is exposed to financial market risks, energy market risks and counterparty risks. All these risks could generate volatility in the financial statements.

### Financial market risks

The main financial market risks to which the Group is exposed are the liquidity risk, the foreign exchange risk, the interest rate risk and the equity risk.

The objective of the Group's liquidity risk management is to seek resources at optimum cost and ensure their constant accessibility.

The foreign exchange risk relates to the diversification of the Group's businesses and geographical locations, and results from exposure to the risk of exchange rate fluctuations. These fluctuations can affect the Group's translation differences, balance sheet items, financial expenses, equity and net income.

The interest rate risk results from exposure to the risk of rate fluctuations in interest rates that can affect the value of assets invested by the Group, the value of the liabilities covered by provision, or its financial expenses.

The Group is exposed to equity risks, particularly through its dedicated asset portfolio held for secure financing of long-term nuclear commitments, through external pension funds, and to a lesser extent through its cash assets and directly-held investments.

A more detailed description of these risks can be found in chapter 9.5.1 of the operating and financial review.

### Energy market risks

With the opening of the end customer market, development of the wholesale markets and international business expansion, the EDF group is exposed to price variations on the energy market which can have a significant impact on its financial statements.

A more detailed description of these risks can be found in chapter 9.5.2 of the operating and financial review.

### Counterparty risks

Counterparty risk is defined as the total loss that the EDF group would sustain on its business and market transactions if a counterparty defaulted and failed to perform its contractual obligations.

A more detailed description of these risks can be found in sections 9.5.1.7 of the operating and financial review.

Regarding the risk of customer default, which is another component of the counterparty risk, a statement of receivables not yet due and overdue is shown in note 25.

The sensitivity analyses required by IFRS 7 are presented in the operating and financial review:

- Foreign exchange risks: section 9.5.1.3;
- Interest rate risks on financing issued and financial assets: section 9.5.1.4;
- Equity risk on financial assets: sections 9.5.1.5 and 9.5.1.6.

The principal information on financial assets and liabilities is described by theme in the following notes and sections:

- Liquidity risks:
  - maturity of loans and other financial liabilities: note 38.2.2 to the consolidated financial statements,
  - credit lines: note 38.2.5 to the consolidated financial statements,
  - early repayment clauses for borrowings: note 38.2.6 to the consolidated financial statements,
  - off-balance sheet commitments: note 44 to the consolidated financial statements;
- Foreign exchange risks:
  - breakdown of loans by currency and interest rate: notes 38.2.3 and 38.2.4 to the consolidated financial statements;
- Equity risks (in the operating and financial review – sections 9.5.1.5 and 9.5.1.6):
  - coverage of nuclear obligations: note 48 and 29.1.5 to the consolidated financial statements,
  - coverage of social obligations: note 31.2.5 and 31.3.4 to the consolidated financial statements,
  - long-term cash management,
  - direct investments;

- Interest rate risks:
  - discount rate for nuclear provisions: calculation method and sensitivity: note 29.1.5.1 to the consolidated financial statements,
  - discount rate used for employee benefits: notes 31.2.7 and 31.3.6 to the consolidated financial statements,
  - breakdown of loans by currency and interest rate: notes 38.2.3 and 38.2.4 to the consolidated financial statements;
- Balance sheet treatment of financial and market risks:
  - derivatives and hedge accounting: note 41 to the consolidated financial statements, and the statement of changes in equity,
  - derivatives not classified as hedges: note 42 to the consolidated financial statements.

## ➤ Note 41 Derivatives and hedge accounting

Hedge accounting is applied in compliance with IAS 39, and concerns interest rate derivatives used to hedge long-term indebtedness, currency derivatives used to hedge net foreign investments and debts in foreign currencies, and currency and commodity derivatives used to hedge future cash flows.

The fair value of hedging derivatives reported in the balance sheet breaks down as follows:

<i>(in millions of Euros)</i>	Notes	31/12/2013	31/12/2012
Positive fair value of hedging derivatives	36.1	1,683	2,421
Negative fair value of hedging derivatives	38.1	(1,893)	(2,279)
<b>FAIR VALUE OF HEDGING DERIVATIVES</b>		<b>(210)</b>	<b>142</b>
Interest rate hedging derivatives	41.4.1	364	675
Exchange rate hedges	41.4.2	(490)	(80)
Commodity-related cash flow hedges	41.4.3	(124)	(431)
Commodity-related fair value hedges	41.5	40	(22)

### 41.1 Fair value hedges

The EDF group hedges the exposure to changes in the fair value of fixed-rate debts. The derivatives used for this hedging are fixed / floating interest rate swaps and cross currency swaps, with changes in fair value recorded in the income statement. Fair value hedges also include currency hedging instruments on certain firm purchase commitments.

In 2013, the ineffective portion of fair value hedges represents a loss of €(3) million (gain of €41 million in 2012), included in the financial result.

### 41.2 Cash flow hedges

The EDF group uses cash flow hedging principally for the following purposes:

- to hedge its floating-rate debt, using interest-rate swaps (floating / fixed rate);
- to hedge the exchange rate risk related to debts contracted in foreign currencies, using cross currency swaps;

- to hedge future cash flows related to expected sales and purchases of electricity, gas, and coal, using futures, forwards and swaps.

The EDF group also hedges the currency risk associated with fuel and commodity purchases.

In 2013, the ineffective portion of cash flow hedges represents a gain of €1 million (loss of €(1) million in 2012).

### 41.3 Hedges of net investments in foreign entities

Hedging of net foreign investment is used for protection against exposure to the exchange rate risk related to net investments in the Group's foreign entities.

This risk is hedged at Group level either by contracting debts for investments in the same currency, or through the markets, in which case the Group uses currency swaps and forward exchange contracts.

## 41.4 Impact of hedging derivatives on equity

Changes during the period in the fair value of hedging instruments included in equity (EDF share) are detailed below:

	2013			2012		
	Gross changes in fair value recorded in equity <sup>(1)</sup>	Gross changes in fair value transferred to income – Recycling <sup>(2)</sup>	Gross changes in fair value transferred to income – Ineffectiveness	Gross changes in fair value recorded in equity <sup>(1)</sup>	Gross changes in fair value transferred to income – Recycling <sup>(2)</sup>	Gross changes in fair value transferred to income – Ineffectiveness
<i>(in millions of Euros)</i>						
Interest rate hedging	121	-	-	(42)	4	-
Exchange rate hedging	(502)	(462)	1	(608)	(264)	7
Net foreign investment hedging	551	(5)	5	(420)	-	-
Commodity hedging	(468)	(692)	-	(538)	(566)	-
<b>HEDGING DERIVATIVES</b>	<b>(298)</b>	<b>(1,159)</b>	<b>6</b>	<b>(1,608)</b>	<b>(826)</b>	<b>7</b>

(1) + / (-): increase / (decrease) in equity (EDF's share)

(2) + / (-): increase / (decrease) in income (EDF's share)

### 41.4.1 Interest rate hedging derivatives

Interest rate hedging derivatives break down as follows:

	Notional at 31/12/2013				Notional at 31/12/2012		Fair value
(in millions of Euros)	< 1 year	1 to 5 years	> 5 years	Total	Total	31/12/2013	31/12/2012
Purchases of CAP contracts	20	-	-	20	70	-	-
Purchases of options	25	-	-	25	70	-	(1)
Interest rate transactions	45	-	-	45	140	-	(1)
Fixed rate payer / floating rate receiver	375	1,237	1,108	2,720	2,963	(194)	(342)
Floating rate payer / fixed rate receiver	833	922	7,972	9,727	8,017	566	1,172
Variable / variable	68	1,300	1,028	2,396	1,487	(2)	-
Fixed / Fixed	2,292	1,150	4,472	7,914	9,157	(6)	(154)
Interest rate swaps	3,568	4,609	14,580	22,757	21,624	364	676
INTEREST RATE HEDGING DERIVATIVES	3,613	4,609	14,580	22,802	21,764	364	675

The fair value of interest rate / exchange rate cross-currency swaps comprises the interest rate effect only.

The notional value of cross-currency swaps is included both in this note and the note on Exchange rate hedging derivatives (41.4.2).

### 41.4.2 Exchange rate hedging derivatives

Exchange rate hedging derivatives break down as follows:

At 31 December 2013

	Notional amount to be received at 31/12/2013				Notional amount to be given at 31/12/2013				Fair value
(in millions of Euros)	< 1 years	1 to 5 years	> 5 years	Total	< 1 year	1 to 5 years	> 5 years	Total	31/12/2013
Forward exchange transactions	2,966	769	-	3,735	3,002	784	-	3,786	(45)
Swaps	13,687	5,441	5,604	24,732	13,961	5,352	5,884	25,197	(445)
EXCHANGE RATE HEDGING DERIVATIVES	16,653	6,210	5,604	28,467	16,963	6,136	5,884	28,983	(490)



## At 31 December 2012

(in millions of Euros)	Notional amount to be received at 31/12/2012				Notional amount to be given at 31/12/2012				Fair value 31/12/2012
	< 1 year	1 to 5 years	> 5 years	Total	< 1 year	1 to 5 years	> 5 years	Total	
Forward exchange transactions	3,415	1,341	-	4,756	3,428	1,356	-	4,784	(22)
Swaps	14,617	5,875	4,690	25,182	14,603	5,694	4,956	25,253	(58)
<b>EXCHANGE RATE HEDGING DERIVATIVES</b>	<b>18,032</b>	<b>7,216</b>	<b>4,690</b>	<b>29,938</b>	<b>18,031</b>	<b>7,050</b>	<b>4,956</b>	<b>30,037</b>	<b>(80)</b>

The notional value of cross-currency swaps shown in this note is also included in the note on interest rate hedging derivatives (note 41.4.1).

## 41.4.3 Commodity-related cash flow hedges

For commodities, changes in fair value are mainly explained by:

(in millions of Euros)	31/12/2013	31/12/2012
Electricity hedging contracts	(178)	(142)
Gas hedging contracts	(27)	(73)
Coal hedging contracts	(395)	(371)
Oil product hedging contracts	93	104
CO <sub>2</sub> emission rights hedging contracts	39	(56)
<b>CHANGES IN FAIR VALUE BEFORE TAXES</b>	<b>(468)</b>	<b>(538)</b>

The main components of the amount transferred to income in respect of commodity hedges terminated during the year are:

(in millions of Euros)	31/12/2013	31/12/2012
Electricity hedging contracts	(177)	(296)
Gas hedging contracts	(79)	12
Coal hedging contracts	(420)	(280)
Oil product hedging contracts	24	35
CO <sub>2</sub> emission rights hedging contracts	(40)	(37)
<b>CHANGES IN FAIR VALUE BEFORE TAXES</b>	<b>(692)</b>	<b>(566)</b>

Details of commodity-related cash flow hedges are as follows:

(in millions of Euros)	Units of measure	31/12/2013				31/12/2012	
		Net notional				Fair value	Net notional
		< 1 year	1 to 5 years	> 5 years	Total		
Forwards/futures		1	(12)	-	(11)	(16)	-
<b>Electricity</b>	<b>TWh</b>	<b>1</b>	<b>(12)</b>	<b>-</b>	<b>(11)</b>	<b>(16)</b>	<b>-</b>
Swaps		(354)	15	-	(339)	6	(288)
Forwards/futures		1,042	1,211	-	2,253	4	1,967
<b>Gas</b>	<b>Millions of therms</b>	<b>688</b>	<b>1,226</b>	<b>-</b>	<b>1,914</b>	<b>10</b>	<b>1,679</b>
Swaps		25,574	14,269	-	39,843	123	27,708
<b>Oil products</b>	<b>Thousands of barrels</b>	<b>25,574</b>	<b>14,269</b>	<b>-</b>	<b>39,843</b>	<b>123</b>	<b>27,708</b>
Swaps		8	3	-	11	(179)	14
<b>Coal</b>	<b>Millions of tonnes</b>	<b>8</b>	<b>3</b>	<b>-</b>	<b>11</b>	<b>(179)</b>	<b>14</b>
Forwards/futures		23,824	14,748	-	38,572	(62)	36,721
<b>CO<sub>2</sub></b>	<b>Thousands of tonnes</b>	<b>23,824</b>	<b>14,748</b>	<b>-</b>	<b>38,572</b>	<b>(62)</b>	<b>36,721</b>
<b>COMMODITY-RELATED CASH FLOW HEDGES</b>						<b>(124)</b>	<b>(431)</b>

## 41.5 Commodity-related fair value hedges

Details of commodity-related fair value hedges are as follows:

(in millions of Euros)	Units of measure	31/12/2013		31/12/2012	
		Net notional	Fair value	Net notional	Fair value
Gas (swaps)	Millions of therms	2	-	49	-
Coal and freight	Millions of tonnes	(42)	40	(32)	(22)
<b>COMMODITY-RELATED FAIR VALUE HEDGES</b>			<b>40</b>		<b>(22)</b>

## ➤ Note 42 Derivatives not classified as hedges

Details of the fair value of trading derivatives reported in the balance sheet are as follows:

(in millions of Euros)	Notes	31/12/2013	31/12/2012
Positive fair value of trading derivatives	36.2	3,024	3,162
Negative fair value of trading derivatives	38.1	(2,583)	(2,290)
<b>FAIR VALUE OF TRADING DERIVATIVES</b>		<b>441</b>	<b>872</b>
Interest rate derivatives held for trading	42.1	(46)	(92)
Currency derivatives held for trading	42.2	18	(21)
Non-hedging commodity derivatives	42.3	469	985

## 42.1 Interest rate derivatives held for trading

Interest rate derivatives held for trading break down as follows:

	Notional at 31/12/2013				Notional at 31/12/2012	Fair value	
(in millions of Euros)	< 1 year	1 to 5 years	> 5 years	Total	Total	31/12/2013	31/12/2012
Fixed rate payer / floating rate receiver	2,039	966	483	3,488	3,846	(160)	(248)
Floating rate payer / fixed rate receiver	415	846	294	1,555	3,912	126	182
Variable / variable	500	225	-	725	925	(12)	(26)
<b>INTEREST RATE DERIVATIVES HELD FOR TRADING</b>	<b>2,954</b>	<b>2,037</b>	<b>777</b>	<b>5,768</b>	<b>8,683</b>	<b>(46)</b>	<b>(92)</b>

## 42.2 Currency derivatives held for trading

Currency derivatives held for trading break down as follows:

### At 31 December 2013

	Notional amount to be received at 31/12/2013				Notional amount to be given at 31/12/2013				Fair value
(in millions of Euros)	< 1 year	1 to 5 years	> 5 years	Total	< 1 year	1 to 5 years	> 5 years	Total	31/12/2013
Forward transactions	2,243	308	22	2,573	2,264	312	25	2,601	(25)
Swaps	7,956	184	-	8,140	7,913	186	-	8,099	43
<b>CURRENCY DERIVATIVES HELD FOR TRADING</b>	<b>10,199</b>	<b>492</b>	<b>22</b>	<b>10,713</b>	<b>10,177</b>	<b>498</b>	<b>25</b>	<b>10,700</b>	<b>18</b>

### At 31 December 2012

	Notional amount to be received at 31/12/2012				Notional amount to be given at 31/12/2012				Fair value
(in millions of Euros)	< 1 year	1 to 5 years	> 5 years	Total	< 1 year	1 to 5 years	> 5 years	Total	31/12/2012
Forward transactions	4,060	425	49	4,534	4,085	433	52	4,570	(32)
Swaps	6,446	131	-	6,577	6,435	133	-	6,568	11
<b>CURRENCY DERIVATIVES HELD FOR TRADING</b>	<b>10,506</b>	<b>556</b>	<b>49</b>	<b>11,111</b>	<b>10,520</b>	<b>566</b>	<b>52</b>	<b>11,138</b>	<b>(21)</b>

## 42.3 Non-hedging commodity derivatives

Details of commodity derivatives not classified as hedges are as follows:

(in millions of Euros)	Units of measure	31/12/2013		31/12/2012	
		Net notional	Fair value	Net notional	Fair value
Swaps		(95)	431	3	715
Options		91	(24)	76	53
Forwards/futures		10	332	(42)	250
<b>Electricity</b>	<b>TWh</b>	<b>6</b>	<b>739</b>	<b>37</b>	<b>1,018</b>
Swaps		2,156	(90)	4,023	(10)
Options		22,204	47	25,118	-
Forwards/futures		(1,033)	(527)	(2,002)	(363)
<b>Gas</b>	<b>Millions of therms</b>	<b>23,327</b>	<b>(570)</b>	<b>27,139</b>	<b>(373)</b>
Swaps		2,927	11	64	10
Options		218	1	(187)	(1)
Forwards/futures		(258)	-	(218)	(1)
<b>Oil products</b>	<b>Thousands of barrels</b>	<b>2,887</b>	<b>12</b>	<b>(341)</b>	<b>8</b>
Swaps		(27)	113	(45)	(170)
Forwards/futures		101	(8)	123	110
Freight		42	87	31	157
<b>Coal and freight</b>	<b>Millions of tonnes</b>	<b>116</b>	<b>192</b>	<b>109</b>	<b>97</b>
Swaps		(156)	23	(386)	27
Options		168	-	(546)	(2)
Forwards/futures		(9,288)	69	49,117	212
<b>CO<sub>2</sub></b>	<b>Thousands of tonnes</b>	<b>(9,276)</b>	<b>92</b>	<b>48,185</b>	<b>237</b>
Swaps		-	-	-	(6)
<b>Other</b>		-	-	-	(6)
<b>Embedded commodity derivatives</b>			<b>4</b>		<b>4</b>
<b>NON-HEDGING COMMODITY DERIVATIVES</b>			<b>469</b>		<b>985</b>

These mainly include contracts included in EDF Trading's portfolio.

## CASH FLOWS AND OTHER INFORMATION

### ➤ Note 43 Cash flows

#### 43.1 Change in working capital

<i>(in millions of Euros)</i>	2013	2012
Change in inventories	(690)	(508)
Change in the CSPE receivable	(360)	(1,426)
Change in trade receivables	(443)	(510)
Change in trade payables	114	(27)
Change in other receivables and payable (excluding CSPE)	(404)	81
<b>CHANGE IN WORKING CAPITAL</b>	<b>(1,783)</b>	<b>(2,390)</b>

#### 43.2 Investments in intangible assets and property, plant and equipment

<i>(in millions of Euros)</i>	2013	2012
Acquisitions of intangible assets	(964)	(817)
Acquisitions of tangible assets	(12,927)	(12,798)
Change in payables to suppliers of fixed assets	564	229
<b>INVESTMENTS IN INTANGIBLE ASSETS AND PROPERTY, PLANT AND EQUIPMENT</b>	<b>(13,327)</b>	<b>(13,386)</b>

### ➤ Note 44 Off-balance sheet commitments

This note presents off-balance sheet commitments given and received by the Group at 31 December 2013. The amounts of commitments correspond to non-discounted contractual values.

#### 44.1 Commitments given

The table below shows off-balance sheet commitments given by the Group that have been valued at 31 December 2013. Other commitments are described separately in the detailed notes.

<i>(in millions of Euros)</i>	Notes	31/12/2013	31/12/2012
Operating commitments given	44.1.1	40,933	43,559
Investment commitments given	44.1.2	14,667	12,024
Financing commitments given	44.1.3	6,284	5,449
<b>TOTAL COMMITMENTS GIVEN</b>		<b>61,884</b>	<b>61,032</b>

In almost all cases, these are reciprocal commitments, and the third parties concerned are under a contractual obligation to supply to the Group's assets or services related to operating, investment and financing activities.



#### 44.1.1 Operating commitments given

Operating commitments given by the Group at 31 December 2013 are as follows:

<i>(in millions of Euros)</i>	31/12/2013	31/12/2012
Fuel and Energy purchase commitments <sup>(1)</sup>	29,463	30,931
Operating contract performance commitments given	7,709	8,463
Operating lease commitments as lessee	3,761	4,165
<b>TOTAL OPERATING COMMITMENTS GIVEN</b>	<b>40,933</b>	<b>43,559</b>

(1) Excluding gas purchases

##### 44.1.1.1 Fuel and energy purchase commitments

In the course of its ordinary generation and supply activities, the Group has entered into long-term contracts for purchases of electricity, gas, other energies and commodities, as well as nuclear fuels, for periods of up to 20 years.

The Group has also entered into long-term purchase contracts with a certain number of electricity producers, by contributing to the financing of power plants.

At 31 December 2013, fuel and energy purchase commitments mature as follows:

<i>(in millions of Euros)</i>	Total	31/12/2013				31/12/2012
		Maturities				Total
		< 1 year	1 - 5 years	5 - 10 years	> 10 years	
Electricity purchases and related services	8,727	2,277	2,982	1,427	2,041	7,676
Other energy and commodity purchases <sup>(1)</sup>	1,187	566	562	59	-	1,458
Nuclear fuel purchases	19,549	2,025	7,050	6,217	4,257	21,797
<b>FUEL AND ENERGY PURCHASE COMMITMENTS</b>	<b>29,463</b>	<b>4,868</b>	<b>10,594</b>	<b>7,703</b>	<b>6,298</b>	<b>30,931</b>

(1) Excluding gas purchases

Most of the changes result from the decrease in commitments to purchase nuclear fuel, partially offset by the rise in electricity purchase contracts (especially at EDF Energy).

##### 44.1.1.1.1 Electricity purchases and related services

Electricity purchase commitments mainly concern EDF, ERDF and EDF Energy. In the case of EDF they are borne by the Island Energy Systems (IES), which have made commitments to purchase the electricity generated using bagasse and coal.

In addition to the obligations reported above and under article 10 of the Law of 10 February 2000, in mainland France EDF is obliged, at the producer's request and subject to compliance with certain technical features, to purchase the power produced by co-generation plants and renewable energy generation units (wind turbines and small hydro-electric plants, photovoltaic power, etc). The additional costs generated by this obligation are offset, after validation by the CRE, by the CSPE. These purchase obligations total 34 TWh for 2013 (36 TWh for 2012), including 7 TWh for co-generation (10 TWh for 2012), 15 TWh for wind power (14 TWh for 2012), 4 TWh for photovoltaic power (4 TWh for 2012) and 3 TWh for hydropower (3 TWh for 2012).

##### 44.1.1.1.2 Other energy and commodity purchases

Purchase commitments for other energies and commodities mainly concern coal and oil used to operate the fossil-fired plants.

##### 44.1.1.1.3 Nuclear fuel purchases

Commitments for purchases of nuclear fuel arise from supply contracts for the nuclear plants intended to cover the EDF group's needs for uranium and fluorination, enrichment and fuel assembly production services.

The decrease in these commitments is principally explained by the services executed in 2013 under the contracts concerned.

## 44.1.1.1.4 Gas purchases and related services

Gas purchase commitments are principally undertaken by Edison and EDF. The volumes concerned for both entities at 31 December 2013 are as follows:

(in billions of m³)	Total	Maturities		
		< 1 year	1 - 5 years	> 5 years
Edison	202	11	51	140
EDF	57	2	8	47

Edison has entered into agreements to import natural gas from Russia, Libya, Algeria and Qatar, for a total maximum volume of 14.4 billion m³ per year. These contracts contain "take-or-pay" clauses committing the buyer to pay for a minimum volume of gas every year, whether or not it actually takes delivery of that volume. At 31 December 2013, there are no off-balance sheet commitments under Edison's take-or-pay clauses corresponding to the value of the volumes of gas not withdrawn at that date and for which delivery is deferred to a subsequent period.

Under the contract with Terminale GNL Adriatico, a gas liquefaction unit in operation since October 2009 in which Edison has a 7.3% holding, Edison also benefits from approximately 80% of the terminal's regasification capacities until 2034, for an annual premium of approximately €100 million.

Gas purchase commitments have also been given by EDF in connection with its expanding gas supply business.

In connection with the South Stream project, EDF and Gazprom signed an agreement in 2013 defining the essential conditions of a gas supply contract.

Gas purchase commitments are also borne by subsidiaries, through commitments generally covered by electricity sale agreements which include "pass-through" clauses allowing almost all fluctuations in supply source costs to be passed on to the customer.

## 44.1.1.2 Operating contract performance commitments given

At 31 December 2013, these commitments mature as follows:

(in millions of Euros)	Total	31/12/2013			31/12/2012
		Maturities			Total
		< 1 year	1 - 5 years	> 5 years	
Satisfactory performance, completion and bid guarantees	131	41	41	49	486
Operating purchase commitments <sup>(1)</sup>	4,514	2,528	1,535	451	4,379
Other operating commitments	3,064	1,269	1,083	712	3,598
<b>OPERATING CONTRACT PERFORMANCE COMMITMENTS GIVEN</b>	<b>7,709</b>	<b>3,838</b>	<b>2,659</b>	<b>1,212</b>	<b>8,463</b>

(1) Excluding fuel and energy

In the course of its business, the Group provides contract performance guarantees, generally through the intermediary of banks.

Satisfactory performance, completion and bid guarantees at 31 December 2013 mainly consist of guarantees given by EDF, and by EDF Énergies Nouvelles in connection with its development projects.

Operating purchase commitments break down as follows:

(in millions of Euros)	31/12/2013	31/12/2012
EDF	2,539	2,420
ERDF	414	426
EDF Énergies Nouvelles	318	611
EDF Energy	668	622
Other entities	575	300
<b>TOTAL</b>	<b>4,514</b>	<b>4,379</b>

Other operating commitments mainly concern Edison (€1,349 million in 2013 and €1,292 million in 2012) and EDF (€922 million in 2013 and €1,017 million in 2012).

#### 44.1.1.3 Operating lease commitments as lessee

At 31 December 2013, operating lease commitments as lessee break down as follows:

	Total	31/12/2013			31/12/2012
		Maturities			Total
		< 1 year	1 - 5 years	> 5 years	
(in millions of Euros)					
<b>OPERATING LEASE COMMITMENTS AS LESSEE</b>	<b>3,761</b>	<b>525</b>	<b>1,607</b>	<b>1,629</b>	<b>4,165</b>

The Group is bound as lessee by irrevocable operating lease contracts, principally for premises, equipment and vehicles used in the course of its business and maritime freight contracts for trading activities. The corresponding rents are subject to renegotiation at intervals defined in the contracts. Operating leases mainly concern EDF, EDF Énergies Nouvelles, ERDF and EDF Trading.

#### 44.1.2 Investment commitments given

At 31 December 2013, details of investment commitments are as follows:

	Total	31/12/2013			31/12/2012
		Maturities			Total
		< 1 year	1 - 5 years	> 5 years	
(in millions of Euros)					
Commitments related to acquisition of fixed assets	13,465	6,889	6,107	469	11,657
Share purchase commitments	1,004	223	771	10	333
Other commitments related to investments	198	7	190	1	34
<b>TOTAL INVESTMENT COMMITMENTS GIVEN</b>	<b>14,667</b>	<b>7,119</b>	<b>7,068</b>	<b>480</b>	<b>12,024</b>

##### 44.1.2.1 Commitments related to acquisition of fixed assets

At 31 December 2013, commitments related to acquisition of fixed assets are as follows:

(in millions of Euros)	31/12/2013	31/12/2012
EDF	8,856	7,908
ERDF	1,129	930
EDF Énergies Nouvelles	1,540	600
EDF Energy	455	603
PEI <sup>(1)</sup>	400	414
Dunkerque LNG <sup>(2)</sup>	352	656
Other entities	733	546
<b>TOTAL</b>	<b>13,465</b>	<b>11,657</b>

(1) These commitments mainly concern construction of fossil-fired power plants.

(2) These commitments mainly concern construction of the Dunkirk methane terminal.

The higher level of orders for fixed assets at EDF Énergies Nouvelles essentially concerns orders for turbines, particularly in the United States and Canada.

## 44.1.2.2 Share purchase commitments

Commitments to purchase shares and assets mainly concern EDF International and EDEV at 31 December 2013.

In its partnership with Gazprom, EDF International has made a commitment to take a 15% stake in construction and operation of the undersea section of the South Stream gas pipeline, partly in the form of capital contributions or shareholder advances.

The share purchase commitments borne by EDEV chiefly concern the proposed acquisition of Citelum (see note 3.5.2).

The main share purchase commitments that cannot be valued are the following.

- Agreement with Veolia Environnement:  
Veolia Environnement (VE) has granted EDF a call option on all its Dalkia shares in the event that a competitor of EDF takes control over VE. EDF has also granted VE a call option over all its Dalkia shares in the event that the status of EDF should change and a competitor of VE, individually or with other parties, should take control over EDF. If the parties fail to agree on the sale price of the shares, it is to be fixed by an independent expert.  
EDF and VE also announced on 28 October 2013 that they had entered advanced discussions to reach an agreement concerning their joint

subsidiary Dalkia (see note 3.5). No off-balance sheet commitment is recognised in this respect at 31 December 2013.

- Liquidity commitment to minority shareholders of EDF Luminus.  
The shareholder agreement signed on 16 April 2010 defines a liquidity commitment for the shares held by EDF Luminus' minority shareholders which could result in the Group buying their shares at the 5th anniversary date of the agreement (16 April 2015), subject to certain conditions, at a price made up of variable components. In view of these characteristics, it is not possible to value this commitment, which concerns 36.5% of the capital of EDF Luminus, at 31 December 2013.
- In connection with the formation of EDF Investissements Groupe, C3 (a wholly-owned EDF subsidiary) signed unilateral promises with NBI (Natixis Belgique Investissement, a subsidiary of the Natixis group) to buy and sell shares in investments held respectively by NBI and C3. NBI thus allows C3 to purchase NBI's investment at any time until 2030, based on the net asset value of EDF Investissements Groupe.

## 44.1.2.3 Other commitments related to investments

The Group had not given any significant commitments of this kind at 31 December 2013.

## 44.1.3 Financing commitments given

Financing commitments given by the Group at 31 December 2013 comprise the following:

	Total	31/12/2013			31/12/2012
		Maturities			Total
		< 1 year	1 - 5 years	> 5 years	
(in millions of Euros)					
Security interests in real property	5,678	178	1,233	4,267	4,906
Guarantees related to borrowings	265	48	36	181	218
Other financing commitments	341	208	70	63	325
<b>TOTAL FINANCING COMMITMENTS GIVEN</b>	<b>6,284</b>	<b>434</b>	<b>1,339</b>	<b>4,511</b>	<b>5,449</b>

Security interests and assets provided as guarantees mainly concern pledges or mortgages of tangible assets and shares representing investments in consolidated subsidiaries which own property, plant and equipment, for EDF Énergies Nouvelles. The rise in these commitments at 31 December 2013 essentially concerns financing for the new fleets of power plants in the United States and France.

## 44.2 Commitments received

The table below shows off-balance sheet commitments received by the Group that have been valued at 31 December 2013. Other commitments are described separately in the detailed notes.

(in millions of Euros)	Notes	31/12/2013	31/12/2012
Operating commitments received <sup>(1)</sup>	44.2.1	2,839	2,936
Investment commitments received	44.2.2	24	17
Financing commitments received	44.2.3	130	129
<b>TOTAL COMMITMENTS RECEIVED <sup>(2)</sup></b>		<b>2,993</b>	<b>3,082</b>

(1) Electricity supply commitments are described in note 44.2.1.3

(2) Excluding commitments related to credit lines, which are described in note 38.2.5.

### 44.2.1 OPERATING COMMITMENTS RECEIVED

Operating commitments received by the Group at 31 December 2013 comprise the following:

(in millions of Euros)	31/12/2013	Maturities			31/12/2012
		< 1 year	1 - 5 years	> 5 years	
Operating lease commitments received as lessor	1,358	260	547	551	1,379
Other operating commitments received	1,481	1,068	331	82	1,557
<b>OPERATING COMMITMENTS RECEIVED</b>	<b>2,839</b>	<b>1,328</b>	<b>878</b>	<b>633</b>	<b>2,936</b>

#### 44.2.1.1 Operating lease commitments received as lessor

The Group benefits from commitments as lessor in operating leases amounting to €1,358 million.

Most of these commitments derive from contracts classified as operating leases under IFRIC 4, "Determining whether an arrangement contains a lease". They mainly concern the Asian Independent Power Projects (IPPs) and real estates leases.

#### 44.2.1.2 Other operating commitments received

Operating commitments received primarily concern EDF and relate to guarantees received from suppliers, notably in connection with deliveries under the ARENH scheme.

#### 44.2.1.3 Electricity supply commitments

In the course of its business, the EDF group has signed long-term contracts to supply electricity as follows:

- long-term contracts with a number of European electricity operators, for a specific plant or for a defined group of plants in the French nuclear generation fleet, corresponding to installed power capacity of 3.5 GW;
- in execution of France's NOME law on organisation of the French electricity market, EDF has a commitment to sell some of the energy generated by its "traditional" nuclear power plants to other suppliers. This covers volumes of up to 100 TWh each year until 31 December 2025;
- in the United Kingdom, EDF made a commitment in 2009 to supply an additional 18 TWh of electricity to Centrica at market prices for a 5-year period starting in 2011. This relates to an obligation to put certain volumes of electricity on the market between 2012 and 2015, required by the European Commission on 22 December 2008 as a condition for the EDF group's acquisition of British Energy. The residual commitment at 31 December 2013 concerns a volume of 4.9 TWh;
- EDF is still committed to supplying the residual volumes of around 12 TWh by March 2015, in application of the rights acquired at VPP or Virtual Power Plant capacity auctions, which ended in 2011.



## 44.2.2 Investment commitments received

(in millions of Euros)	31/12/2013	Maturities			31/12/2012
		< 1 year	1 - 5 years	> 5 years	
<b>INVESTMENT COMMITMENTS RECEIVED</b>	<b>24</b>	<b>10</b>	<b>14</b>	<b>-</b>	<b>17</b>

No significant investment commitment received exists at 31 December 2013.

## 44.2.3 Financing commitments received

(in millions of Euros)	31/12/2013	Maturities			31/12/2012
		< 1 year	1 - 5 years	> 5 years	
<b>FINANCING COMMITMENTS RECEIVED</b>	<b>130</b>	<b>20</b>	<b>109</b>	<b>1</b>	<b>129</b>

No significant financing commitment received exists at 31 December 2013.

## ➤ Note 45 Contingent liabilities

### 45.1 Proceedings by the Baden-Württemberg region / EnBW

In February 2012 EDF International received a request for arbitration filed with the International Chamber of Commerce by the German company Neckarpri GmbH, the vehicle for the Baden-Württemberg region's acquisition of the EDF group's stake in EnBW, which was agreed on 6 December 2010 and completed on 17 February 2011.

Neckarpri claims that the price paid for the EDF group's investment in EnBW was excessive and therefore constitutes illegal State aid. On those grounds, it is claiming reimbursement of the allegedly excess portion of the price. This was initially estimated at €2 billion in the request for arbitration, but was re-estimated at €834 million in July 2012 in an independent report on the valuation of EnBW commissioned by Baden-Württemberg. As an alternative, Neckarpri is seeking cancellation of the sale of the EDF group's stake in EnBW.

The arbitration procedure is currently in process. EDF considers this claim unfounded and a misuse of law, and intends to sue for damages for all the kinds of prejudices caused by this action. The ruling is expected to be issued during the first half of 2014.

### 45.2 General Network – rejection of the European Commission's appeal

On 15 December 2009 the European Union Court cancelled the European Commission's decision of 16 December 2003 that had classified the tax treatment of provisions created for the renewal of the General Network at the time of EDF's capital increase in 1997 as state aid, and ordered repayment to the French State of the updated value, i.e. €1,224 million (paid by EDF in February 2004). The State therefore reimbursed this amount to EDF on 30 December 2009, then in February 2010 the European Commission filed an appeal before the Court of Justice of the European Union.

On 5 June 2012, the Court of Justice of the European Union issued a decision rejecting the European Commission's appeal and upheld the European Union Court's decision of 15 December 2009.

The European Commission then decided in May 2013 to reopen the proceedings. As a result, a further adversarial exchange of positions has begun between the French state and the Commission.

### 45.3 Tax inspections

#### EDF

EDF has been subject to inspections of its accounts covering the years 2004 to 2010, and the Company has received proposed tax reassessments for those years. EDF is contesting most of these proposals.

One of the main grounds for reassessment concerns the tax-deductibility of the provision for annuities following work-related accidents and illness; as this is an issue that relates to the special gas and electricity (IEG) statutes, it also concerns RTE, ERDF and Électricité de Strasbourg. The Group is contesting the tax authorities' position on this question. In late 2013 the National Commission of direct taxes and sales taxes issued several opinions that were favourable to RTE. RTE also received a favourable ruling by Montreuil

Administrative Court. If the outcome of this dispute is unfavourable, the financial risk for the Group (payment of back income taxes) could amount to some €250 million.

EDF was notified in late 2011 of a proposed rectification for 2008, particularly concerning deductibility of certain long-term liabilities. During 2013, EDF received a letter from the tax administration accepting some of its arguments, which reduces the risk to €600 million. The Company considers it is likely to win this dispute, and no provision has been recorded in connection with this matter.

The tax administration has also proposed a reassessment concerning an interest-free advance made by EDF to its indirect subsidiary Lake Acquisitions Ltd in connection with the acquisition of British Energy. EDF is contesting this reassessment.

#### EDF International

The tax inspection of EDF International for the years 2008 to 2011 led to proposed rectifications received in late 2011 and late 2013. Two main reassessments amounting to some €265 million concerned the amount of the loss on the contribution of CEG shares to the American subsidiary EDF Inc., which arose in late 2009 and was deducted from EDF International's income, and the valuation of the bond convertible into shares issued to refinance the acquisition of British Energy. In 2012 EDF International contested these reassessments, and considers it has good chances of winning the dispute. In late 2012 EDF International began amicable proceedings, involving France and the USA and based on the US-France tax treaty concerning the valuation of CEG shares at the time of the contribution.

### 45.4 Labour litigation

EDF is party to a number of labour lawsuits with employees and employment inspectors, primarily regarding calculation and implementation of legislation regarding working hours. EDF estimates that none of these lawsuits, individually, is likely to have a significant impact on its profits and financial position. However, because they concern situations likely to concern a large number of EDF's employees in France, any increase in such litigations could present a risk with a potentially significant, negative impact on the Group's financial results. The number of these litigation cases is nonetheless small at the time of preparing this report.

### 45.5 ERDF – litigation with photovoltaic producers

Announcements made during 2010 of lower tariffs for purchases of photovoltaic electricity caused an upsurge in the number of applications for connection received by ERDF's units from photovoltaic operators, particularly in August 2010 (at the time, the applicable tariff depended on the application filing date). Three months later, the "moratorium decree" of 9 December 2010 suspended conclusion of new contracts for a three-month period and stipulated that applications for which the technical and financial proposals had not been adopted by 2 December 2010 would have to be resubmitted after that three-month period.

When the moratorium ended, new arrangements for electricity purchases were introduced. A system of tender offers developed, and a further decision set the new tariff for compulsory purchases of photovoltaic power.

This decision was issued on 4 March 2011 and significantly reduced the purchase price for photovoltaic electricity.

A Council of State decision of 16 November 2011 rejecting appeals against the moratorium decree of December 2010 generated a large volume of legal proceedings against ERDF in November and December 2011, and also, although at a slower pace, throughout 2012. New proceedings were also notified to EDF in 2013. Most actions were initiated by generators who found themselves forced to abandon their projects because the new electricity purchase tariffs made operating conditions less favourable; they consider ERDF responsible for this situation since it did not issue the technical and financial connection proposals in time for them to benefit from more advantageous electricity purchase terms. ERDF considers that it cannot be held liable, and has lodged appeals against the small number of first instance rulings against it issued in 2011 and 2012.

The Conflict Tribunal ruled on 8 July 2013 that the ordinary judicial courts were competent to handle litigations between ERDF and electricity generators concerning delays in issuing technical and financial proposals.

## 45.6 EDF Énergies Nouvelles – Silpro

Silpro (Silicium de Provence) entered court-ordered liquidation on 4 August 2009. The EDF ENR group held a 30% minority interest in Silpro alongside the principal shareholder, the German company Sol Holding. On 30 May 2011, the liquidator ordered the shareholders and managers of Silpro to jointly repay the shortfall in assets resulting from Silpro's liquidation, which amounts to €101 million.

In a ruling of 17 December 2013, the Commercial court of Manosque ordered the EDF ENR group to contribute €120,000 to repayment of the shortfall in Silpro's assets. The principal shareholder (Sol Holding) and the former managers were ordered to contribute €200,000 and €110,000 respectively.

The court-appointed liquidator has appealed against this ruling.

## ➤ Note 46 Assets held-for-sale and related liabilities

(in millions of Euros)	31/12/2013	31/12/2012
<b>ASSETS HELD FOR SALE</b>	<b>3,619</b>	<b>241</b>
<b>LIABILITIES RELATED TO ASSETS HELD FOR SALE</b>	<b>2,289</b>	<b>49</b>

At 31 December 2013, assets held for sale and the related liabilities consist of the Group's investment in Dalkia International (see note 3.5).

## ➤ Note 47 Contribution of joint ventures

The joint ventures' contributions to the consolidated balance sheet and income statement are as follows:

### At 31 December 2013

	% of ownership	Current assets	Non-current assets	Current liabilities	Non-current liabilities	Sales	Operating profit before depreciation and amortisation
(in millions of Euros)							
CENG	49.99%	433	4,140	79	1,730	585	188
Dalkia International	50.00%	-	-	-	-	1,801	175
Other		747	877	732	457	952	140
<b>TOTAL</b>		<b>1,180</b>	<b>5,017</b>	<b>811</b>	<b>2,187</b>	<b>3,338</b>	<b>503</b>

At 31 December 2013, the assets and liabilities of Dalkia International are reported as assets held for sale and liabilities related to assets held for sale (see note 46).

### At 31 December 2012

	% of ownership	Current assets	Non-current assets	Current liabilities	Non-current liabilities	Sales	Operating profit before depreciation and amortisation
(in millions of Euros)							
CENG	49.99%	458	4,537	104	1,789	552	155
Dalkia International	50.00%	1,490	2,589	1,701	710	2,439	195
Other		1,056	1,373	258	503	1,050	312
<b>TOTAL</b>		<b>3,004</b>	<b>8,499</b>	<b>2,063</b>	<b>3,002</b>	<b>4,041</b>	<b>662</b>

## ➤ Note 48 Dedicated assets

### 48.1 Regulations

The French law of 28 June 2006 and the implementing regulations require assets (dedicated assets) to be set aside for secure financing of nuclear plant decommissioning expenses and long-term storage expenses for radioactive waste (spent fuel and fuel recovered from decommissioning). The regulations govern the way dedicated assets are built up, and the management and governance of the funds themselves. These assets are clearly identified and managed separately from the company's other financial assets and investments. They are also subject to specific monitoring and control by the Board of Directors and the administrative authorities.

The initial aim of these laws and regulations was to cover the full discounted cost of long-term nuclear obligations by 29 June 2011. The NOME law enacted in 2010 introduced a 5-year extension, subject to certain conditions, of the deadline for constitution of dedicated assets.

The decree of 29 December 2010 made RTE shares eligible for inclusion in dedicated assets subject to certain conditions and administrative authorisation. The decree of 24 July 2013 revised the list of eligible assets by reference to the insurance code, and unlisted securities are also now eligible subject to certain conditions.

### 48.2 Portfolio contents and measurement

Given the applicable regulations, these dedicated assets are a highly specific category of assets.

The portfolio is structured and managed according to a strategic allocation defined by the Board of Directors and reported to the administrative authorities. The strategic allocation is designed to meet the overall objective of long-term coverage of obligations, and determines the structure and management of the portfolio as a whole. It takes into account regulatory constraints concerning the nature and liquidity of the dedicated assets, the financial outlook for the equity and bond markets, and the diversifying contribution of unlisted assets.

As part of the strategic allocation review process and in order to pursue the diversification into real assets begun in 2010 with the shares in RTE, the Board of Directors approved a new strategic allocation for dedicated assets.

Under this new allocation, a real asset portfolio has been set up alongside the diversified equity and bond investments. This portfolio is managed by EDF Invest, which was formed in 2013 following the decree of 24 July 2013 on secure funding for nuclear expenses. EDF Invest has three target asset classes: principally infrastructures, and also real estate and private equity. EDF Invest's objective is ultimately to have some €5 billion of unlisted investments under management, representing approximately a quarter of the total dedicated assets.

Following the French government's authorisation issued on 8 February 2013, and the approval of the Nuclear Commitments Monitoring Committee and the Board of Directors' decision of 13 February 2013, EDF allocated the entire receivable representing the accumulated shortfall in CSPE financing at 31 December 2012 to its dedicated assets. This financial asset is considered as a risk-free asset expected to be repaid by late 2018.

#### 48.2.1 Diversified equity and bond investments

Certain dedicated assets take the form of bonds held directly by EDF. The rest comprise specialised collective investment funds on leading international markets, managed by independent asset management companies. They take the form of open-end funds and "reserved" funds established solely for the use of the Group (which does not participate in the fund management).

These investments are structured and managed in line with the strategic allocation, which takes into consideration international stock market cycles, for which the statistical inversion generally observed between equity market

cycles and bond market cycles – as well as between geographical areas – has led the Group to define an overall composite benchmark indicator that can guarantee continuation of the long-term investment policy.

As a result, for accounting purposes the portfolio is evaluated as a whole, all funds combined, treating the cash flows generated as a group of financial assets. This ensures consistency with the specificities of the dedicated asset portfolio, in particular the legal matching with the liability and the distant timing of significant payments – the first important due date is not until 2021, and payments continue until 2117 for the plants currently in operation.

At the year-end, dedicated assets are presented in available-for-sale financial assets in the balance sheet, at their liquidation value. In view of the specific financial characteristics of the portfolio of dedicated assets, the Group exercises judgment in determining whether indicators of impairment appropriate to the structure of the portfolio should be taken into consideration.

The Group thus takes a 5-year period as the basis for assessment of prolonged decline compared to historical value. This period is at the low end of the range of statistical estimates concerning stock markets. Also, based on statistical observations of the asset / liability management model used for this portfolio, the Group considers impairment of dedicated assets to be significant when the value is 40% or more below the portfolio's historical value.

In parallel to these general criteria for impairment, in the course of operational asset monitoring the Group exercises judgment through long-term, specific management rules defined and supervised by its governance bodies (maximum investment ratios, volatility analyses and assessment of individual fund manager quality).

#### 48.2.2 Real assets (EDF Invest)

Real assets managed by EDF Invest consist of unlisted securities related to investments in infrastructures and shares in investment funds.

At 31 December 2013, infrastructure assets include 50% of the Group's investment in RTE, and since September 2013 the shares in C31, the holding company that carries the Group's investment in TIGF.

The value of the RTE shares allocated to dedicated assets is €2,567 million at 31 December 2013 (€2,409 million at 31 December 2012). This value is the net consolidated value of 50% of the Group's investment in RTE, presented in investments in associates in the consolidated balance sheet.

The other assets in the real asset portfolio are shared in an investment fund.

## 48.3 Valuation of EDF's dedicated asset portfolio

Dedicated assets are included in the EDF group's consolidated financial statements at the following values:

(in millions of Euros)	Balance sheet presentation	31/12/2013	31/12/2012
Equities		7,904	7,328
Debt instruments		5,147	6,937
Cash portfolio		790	953
<b>Dedicated assets – equities and debt instruments</b>	Available-for-sale financial assets	<b>13,841</b>	<b>15,218</b>
Derivatives	Fair value of derivatives	10	13
Other		4	2
<b>Diversified equity and bond investments</b>		<b>13,855</b>	<b>15,233</b>
CSPE receivable	Loans and financial receivables	5,051	-
Derivatives	Fair value of derivatives	(2)	-
<b>CSPE receivable after derivatives</b>		<b>5,049</b>	<b>-</b>
RTE (50% of the investment held by the Group) <sup>(1)</sup>	Investments in associates	2,567	2,409
Other unlisted assets	Available-for-sale financial assets	266	-
<b>Real assets (EDF Invest)</b>		<b>2,833</b>	<b>2,409</b>
<b>TOTAL DEDICATED ASSETS</b>		<b>21,737</b>	<b>17,642</b>

(1) The value of the RTE shares allocated to dedicated assets at 31 December 2012 has been adjusted for the €16 million impact of retrospective application of IAS 19 revised.

## 48.4 Changes in the dedicated asset portfolio in 2013

With the allocation of the CSPE receivable to dedicated assets in 2013, the objective of 100% coverage of long-term nuclear provisions was achieved ahead of the legal June 2016 deadline (set by the "NOME" law).

The total allocation to dedicated assets for 2013 amounts to €2,591 million, resulting from a €20 million cash allocation and allocation of the CSPE receivable (€4,978 million after revaluation by the CRE including accrued interest), net of withdrawals during the year (€2,407 million).

Since September 2013 real assets have included the shares of C31, the holding company carrying the Group's 20% investment in TIGF.

Withdrawals totalled €326 million, equivalent to payments made in respect of the long-term nuclear obligations to be covered in 2013 (€350 million in 2012).

In view of the economic and institutional changes observed in Europe, the Group reinforced the proportion of Italian and Spanish sovereign bonds during the year, to the detriment of other sovereign bonds offering less attractive yields.

The Group's assessment of the value of the dedicated asset portfolio did not lead to recognition of any impairment in 2013.

A total of €714 million in net gains on disposals was recorded in the financial result in 2013 (€260 million in 2012).

The difference between the fair value and acquisition cost of diversified bond and equity investments included in equity is a positive €1,839 million before taxes at 31 December 2013 (€1,221 million at 31 December 2012).

## 48.5 Present cost of long-term nuclear obligations

The Group's long-term nuclear obligations in France concerned by the regulations for dedicated assets are included in EDF's consolidated financial statements at the following values:

(in millions of Euros)	31/12/2013	31/12/2012
Provisions for long-term radioactive waste management	7,542	7,113
Provisions for nuclear plant decommissioning	13,024	12,578
Provisions for last cores – portion for future long-term radioactive waste management	454	434
<b>PRESENT COST OF LONG-TERM NUCLEAR OBLIGATIONS</b>	<b>21,020</b>	<b>20,125</b>



## ➤ Note 49 Related parties

Details of transactions with related parties are as follows:

	Proportionally consolidated companies		Associates		French State or State-owned entities		Group Total	
(in millions of Euros)	31/12/2013	31/12/2012	31/12/2013	31/12/2012	31/12/2013	31/12/2012	31/12/2013	31/12/2012
Sales	-	-	638	738	867	917	1,505	1,655
Fuel and energy purchases	71	118	3,858	3,739	2,051	1,827	5,980	5,684
Other external purchases	2	29	6	11	1,197	1,093	1,205	1,133
Financial assets	1	48	670	1,176	84	181	755	1,405
Other assets	1	12	565	607	639	608	1,205	1,227
Financial liabilities	536	486	-	-	-	-	536	486
Other liabilities	16	13	1,209	1,253	1,509	1,212	2,734	2,478

### 49.1 Transactions with entities included in the scope of consolidation

Transactions with RTE (classified as an associate since 31 December 2010) are presented in note 23.1.

Transactions with other joint ventures and associates concern sales and purchases of energy.

### 49.2 Relations with the french state and state-owned entities

#### 49.2.1 Relations with the French State

The French State holds 84.49% of the capital of EDF at 31 December 2013, and is thus entitled in the same way as any majority shareholder to control decisions that require approval by the shareholders.

In accordance with the legislation applicable to all companies having the French State as their majority shareholder, the EDF group is subject to certain inspection procedures, in particular economic and financial inspections by the State, audits by the French Court of Auditors (*Cour des Comptes*) or Parliament, and verifications by the French General Finance Inspectorate (*Inspection Générale des Finances*).

Under an agreement entered into by the French State and the EDF group on 27 July 2001 concerning the monitoring of external investments, procedures exist for prior approval by the French State or notification (advance or otherwise) of the State in respect of certain planned investments, additional investments or disposals by the Group. This agreement also introduced a procedure for monitoring the results of external growth operations.

The public service contract between the French State and EDF was signed on 24 October 2005. This contract is intended to form the framework for public service missions assigned to EDF by the lawmaker for an unlimited period. The law of 9 August 2004 does not stipulate the duration of the contract.

EDF, like other electricity producers, also participates in the multi-annual generation investment program defined by the minister in charge of energy, which sets objectives for the allocation of generation capacity.

Finally, the French State intervenes through the regulation of electricity and gas markets, particularly for authorization to build and operate generation facilities, establishment of sales tariffs for customers that have stayed on the regulated tariffs, transmission and distribution tariffs, and also determination of the ARENH price in accordance with the NOME law, and the level of the Contribution to the Public Electricity Service.

#### 49.2.2 Relations with GDF SUEZ

Since the distribution network management businesses were transferred to subsidiaries – ERDF, a subsidiary of EDF, has managed electricity distribution since 1 January 2007 and GRDF, a subsidiary of GDF SUEZ, has managed gas distribution since 1 January 2008 – the agreement of 18 April 2005 (amended on 20 December 2007) defining relations between EDF and GDF in respect of the common operator was transferred to the two new companies, and has been executed by them since that date. The common network operator's activities for the distribution sector cover network construction, network operation and maintenance, and metering.

#### 49.2.3 Relations with public sector entities

The Group's relations with public sector entities mainly concern AREVA.

Transactions with AREVA concern uranium purchases, uranium enrichment, nuclear fuel purchases, plant maintenance operations, equipment purchases, and transportation, storage, processing and recycling services for spent fuel.

On 15 December 2008 EDF and AREVA signed an agreement for uranium enrichment services to cover the period 2013-2032.

On 19 December 2008 EDF and AREVA signed a framework agreement for spent fuel management contracts concerning periods after 2007. In execution of this agreement, EDF and AREVA signed two contracts on 12 July 2010 entitled the "EDF-AREVA NC Processing-Recycling agreement" and the "Protocol for recovery and conditioning of EDF waste, and the final shutdown and decommissioning of the AREVA NC plant at La Hague". On 28 December 2012, EDF and AREVA signed a transitional agreement for the year 2013, following on from the 2008-2012 processing and recycling agreement. Transportation, reprocessing of spent fuel, oxidation and storage of reprocessed uranium and production of MOX continued under this agreement during 2013 until a contract for 2013-2017 could be signed. On 7 November 2013, EDF and AREVA signed an agreement on the result of 2008-2012 investments and early processing of spent fuel.

On 31 July 2012 EDF and AREVA Mines also signed two contracts for supplies of natural uranium concentrate, covering the period 2014-2035.

EDF and AREVA have signed the following contracts for 1,300 MW nuclear power plants:

- a contract for supply of 32 steam generators and a contract for renewal of the control/command systems in 2011;
- a contract for services related to replacement operations for the first steam generators, in August 2012.

In 2013 EDF and AREVA signed two amendments to the initial 2007 contract for the Flamanville EPR boiler, covering the period from development studies to industrial commissioning.

As part of the plan to construct two EPRs in the United Kingdom (Hinkley Point 1 and 2), EDF and AREVA signed a letter of intent on 21 October 2013 defining the term for supplies of fuel (components: uranium, fluorination, enrichment and production). This letter of intent will be applied through several contracts (one for each component) which are currently being signed.

The Group also holds shares in AREVA, as stated in note 36.2.2.3.

## 49.3 Management compensation

The Company's key management and governance personnel are the Chairman of the Board of Directors, the members of the COMEX (Executive Committee) throughout the year or since their date of appointment if they joined the COMEX during the year, and the members of the Board of Directors appointed by the General Shareholders' Meeting.

The total compensation paid by EDF and controlled companies to the Group's key management and governance personnel amounted to €10 million in 2013 (€12.5 million in 2012). This amount covered short-term benefits (basic salaries, performance-related salary, profit share and benefits in kind), special IEG post-employment benefits where relevant, and the corresponding employer contributions, plus director's fees. The change observed in 2013 is mostly attributable to the effect of decree 2012-915 of 26 July 2012, which sets a ceiling of €450,000 for the total annual gross remuneration paid to the Chairman and CEO, as it was effective over the full year in 2013. Another factor was the retirement of certain COMEX members during 2012.

Other than the benefits reported above, key management and governance personnel benefit from no other special pension system, starting bonus or severance payment entitlement except by contractual arrangement.

## ➤ Note 50 Environment

### 50.1 Greenhouse gas emission rights

In application of the Kyoto protocol, the EU Directive aiming to reduce greenhouse gas emission levels by attributing emission rights came into effect in 2005, for an initial three-year period followed by a second period from 2008 to 2012, with progressive reduction of the emission rights allocated.

One of the main features of the third phase, running from 2013 to 2020, is the discontinuation of free allocation of emission rights in certain countries, including France and United Kingdom.

In the EDF group, the entities subject to this Directive are EDF, EDF Energy, Edison, Fenice, Dalkia International and Dalkia Investissement, Bert, Kogeneracja, Zielona Gora, EDF Polska, EC Wybrzeze, EDF Luminus and ESTAG.

In 2013, the Group surrendered 72 million tonnes in respect of emissions generated in 2012. In 2012, the Group surrendered 69 million tonnes in respect of emissions generated in 2011.

The Group's total emission rights allocation for 2013 recorded in the national registers is 10 million tonnes (72 million tonnes for 2012).

The volume of emissions at 31 December 2013 stood at 66 million tonnes. The provision resulting from over-quota emissions amounts to €356 million and covers the shortfall in quotas at 31 December 2013 (€152 million at 31 December 2012).

### 50.2 Energy savings certificates

In all its subsidiaries, the Group is engaged in a process to control energy consumption through various measures developed by national legislations, in application of European Union Directives.

The French Law of 13 July 2005, for example, introduced a system of energy savings certificates. Companies selling electricity, gas, heat or cold to end-users with sales above a certain level are subject to energy savings obligations for a three-year period. They fulfill these obligations by making direct or indirect energy savings rewarded by certificates, or by purchasing energy savings certificates. At the end of the three years, the entities concerned must provide evidence of compliance with obligations by surrendering the certificates, or pay a fine to the Treasury.

In the second period, which began on 1 January 2011 and runs until 31 December 2014, the system was extended to new obligated actors (fuel distributors) and applies stricter requirements for obtaining energy savings certificates. EDF is well-placed to meet its obligation thanks to energy-efficient offers for each market segment: residential customers, business customers, local authorities and organizations funding social projects.

EDF's obligation will be calculated retrospectively, based on gas and electricity sales to households and service sector businesses for the period 2010-2013. The volumes of certificates obtained between the two periods will count towards achievement of the obligation for the second period.

### 50.3 Renewable energy certificates

Through the renewable energy certificate scheme, the EDF group has an obligation to surrender renewable energy certificates, particularly in the United Kingdom, Italy and Belgium (see note 1.3.27.2).

At 31 December 2013, a provision of €517 million was booked, essentially by EDF Energy (United Kingdom) and EDF Luminus (Belgium) to cover the shortfall in renewable energy certificates compared to the assigned obligations.

## ➤ Note 51 Subsequent events

### Senior bond issues

On 13 January 2014 EDF issued several tranches of a senior bond in US dollars:

- \$750 million with 3-year maturity at floating rate;
- \$1 billion with 3-year maturity and coupon of 1.15%;
- \$1.25 billion with 5-year maturity and coupon of 2.15%;
- \$1 billion with 30-year maturity and coupon of 4.875%;
- \$700 million with 100-year maturity and coupon of 6%.

On 17 January 2014, EDF also issued a £1,350 million bond with 100-year maturity and coupon of 6%.

These issues enable the Group to prepare for redemption of bonds maturing in 2014, and take advantage of good market conditions to pursue its financing policy aim of extending the average maturity of debt to bring it closer to the useful life of its long-term industrial assets.

### Issuance of perpetual subordinated bonds

On 15 January 2014 EDF launched several tranches of a perpetual subordinated bond in Euros, US dollars, and sterling (hybrid bond):

- \$1.5 billion at 5.625% coupon for the tranche with a 10-year first call date;
- €1 billion at 4.125% coupon for the tranche with a 8-year first call date;
- €1 billion at 5% coupon for the tranche with a 12-year first call date;
- £750 million at 5.875% coupon for the tranche with a 15-year first call date.

This bond is the second issue in the financing programme launched in January 2013, with the aim of building up an amount of subordinated instruments coherent with the portfolio of industrial assets in development.

### Payments to bearers of perpetual subordinated bonds

On 29 January 2014, EDF paid a total of €223 million to the bearers of the perpetual subordinated bonds issued in January 2013. In compliance with IAS 32, the contra entry for the cash disbursement is a charge to Group equity.

## ➤ Note 52 Scope of consolidation

### 52.1 Fully consolidated subsidiaries at 31 December 2013

		Percentage of ownership at 31/12/2013	Percentage of ownership at 31/12/2012	Business sector
<b>FRANCE</b>				
Électricité de France – Parent Company		100.00	100.00	G,D,O
Électricité Réseau Distribution France (ERDF)		100.00	100.00	D
EDF Production Électrique Insulaire (PEI)		100.00	100.00	G
<b>UNITED KINGDOM</b>				
EDF Energy Plc (EDF Energy)		100.00	100.00	G,O
EDF Energy UK Ltd		100.00	100.00	O
EDF Development Company Ltd		100.00	100.00	O
<b>ITALY</b>				
Edison SpA (Edison)		97.40	97.40	G,D,O
Transalpina Di Energia SRL (TdE)		100.00	100.00	O
MNTC Holding SRL <sup>(1)</sup>		-	100.00	O
WGRM Holding 4 SpA		100.00	100.00	O
Fenice Qualita' Per L'Ambiente SpA (Fenice)		100.00	100.00	G,O
<b>OTHER INTERNATIONAL</b>				
EDF International SAS	France	100.00	100.00	O
EDF Belgium SA	Belgium	100.00	100.00	G
EDF Luminus SA	Belgium	63.53	63.53	G
EDF Norte Fluminense SA	Brazil	90.00	90.00	G
Ute Paracambi SA	Brazil	100.00	100.00	G
French Investment Guangxi Laibin Electric Power Co, Ltd	China	100.00	100.00	G
EDF Inc.	USA	100.00	100.00	O
Unistar Nuclear Energy LLC	USA	100.00	100.00	G
Budapesti Erömu ZRt (BERT)	Hungary	95.62	95.62	G
EDF DÉMÁSZ Zrt.	Hungary	100.00	100.00	G,D,O
EDF Kraków S.A. <sup>(2)</sup>	Poland	-	94.31	G
EDF Wybrzeze S.A.	Poland	99.87	99.77	G
EDF Polska Cuw <sup>(2)</sup>	Poland	-	100.00	O
EDF Polska Centrala Spolka Z Ograniczona Odpowiedzialnoscia <sup>(2)</sup>	Poland	-	100.00	O
EDF Paliwa Sp. z o.o. (Energokrak)	Poland	96.93	90.59	O
EDF Rybnik S.A. (ERSA) <sup>(2)</sup>	Poland	-	97.32	G
EDF Polska S.A. <sup>(2)</sup>	Poland	96.51	-	G
Zec Kogeneracja SA (Kogeneracja)	Poland	49.38	48.99	G,D
Elektrociepłownia Zielona Gora SA (Zielona Gora)	Poland	48.59	48.21	G,D
EDF Alpes Investissements SARL	Switzerland	100.00	100.00	O
Mekong Energy Company Ltd (Meco)	Vietnam	56.25	56.25	G

(1) After transfer of the Edison shares held by MNTC to Wagram 4, MNTC was liquidated during 2013.

(2) EDF Polska Cuw, EDF Polska Centrala, EDF Kraków and ERSA were merged in 2013 to form the new entity EDF Polska S.A.

Business segments: G = Generation, D = Distribution, T = Transmission, O = Other

		Percentage of ownership at 31/12/2013	Percentage of ownership at 31/12/2012	Business sector
<b>OTHER ACTIVITIES</b>				
EDF Développement Environnement SA	France	100.00	100.00	O
Société pour le Conditionnement des Déchets et Effluents Industriels (SOCODEI)	France	100.00	100.00	O
Cie Financière de Valorisation pour l'Ingénierie (COFIVA)	France	100.00	100.00	O
Société Française d'Ingénierie Electronucléaire et d'Assistance (SOFINEL)	France	55.00	55.00	O
Électricité de Strasbourg	France	88.64	88.64	D
TIRU SA – Traitement Industriel des Résidus Urbains	France	51.00	51.00	O
Dunkerque LNG	France	65.00	65.00	O
EDF Énergies Nouvelles	France	100.00	100.00	G,O
EDF IMMO and real estate subsidiaries	France	100.00	100.00	O
EDF Optimal Solutions SAS	France	100.00	100.00	O
Société C2	France	100.00	100.00	O
Société C3	France	100.00	100.00	O
EDF Holding SAS	France	100.00	100.00	O
CHAM SAS	France	100.00	100.00	O
EDF Trading Limited	UK	100.00	100.00	O
EDF Production UK Ltd	UK	100.00	100.00	O
EDF DIN UK LTD	UK	100.00	100.00	O
Wagram Insurance Company Ltd	Ireland	100.00	100.00	O
Océane Ré	Luxembourg	99.98	99.98	O
EDF Gas Deutschland GmbH	Germany	100.00	100.00	O

Business segments: G = Generation, D = Distribution, T = Transmission, O = Other

## 52.2 Proportionally consolidated subsidiaries at 31 December 2013

		Percentage of ownership at 31/12/2013	Percentage of ownership at 31/12/2012	Business sector
<b>OTHER INTERNATIONAL</b>				
Energie Steiermark Holding AG (Estag)	Austria	25.00	25.00	G,O
Constellation Energy Nuclear Group LLC (CENG)	USA	49.99	49.99	G
SLOE Centrale Holding BV	Netherlands	50.00	50.00	G
Stredoslovenska Energetika a.s. (SSE)	Slovakia	-	49.00	G,D
<b>OTHER ACTIVITIES</b>				
Dalkia International <sup>(1)</sup>	France	-	50.00	O
Dalkia Investissement	France	67.00	67.00	O
EDF Investissements Groupe SA	Belgium	95.51	94.80	O
Friedeburger Speicherbetriebsgesellschaft GmbH (Crystal)	Germany	50.00	50.00	O

(1) Following the provisional agreement between EDF and Veolia Environnement and in application of IFRS 5, Dalkia International is considered excluded from the scope of consolidation at 31 December 2013, although the Group's percentage of ownership in Dalkia International at that date is still 50%.

Business segments: G = Generation, D = Distribution, T = Transmission, O = Other



## 52.3 Subsidiaries accounted for by the equity method at 31 December 2013

		Percentage of ownership at 31/12/2013	Percentage of ownership at 31/12/2012	Business sector
<b>FRANCE</b>				
RTE Réseau de Transport d'Électricité		100.00	100.00	T
<b>OTHER INTERNATIONAL</b>				
Shandong Zhonghua Power Company, Ltd	China	19.60	19.60	G
Datang Sanmenxia Power Generation Co., Ltd	China	35.00	35.00	G
Taishan Nuclear Power Joint Venture Company Ltd	China	30.00	30.00	G
Nam Theun 2 Power Company	Laos	40.00	40.00	G
ALPIQ	Switzerland	25.00	25.00	G,D,O,T
<b>OTHER ACTIVITIES</b>				
Dalkia Holding	France	34.00	34.00	O
Domofinance SA	France	45.00	45.00	O
South Stream Transport BV	Netherlands	15.00	15.00	T

Business segments: G = Generation, D = Distribution, T = Transmission, O = Other.

## 52.4 Companies in which the EDF Group's voting rights differ from its percentage of ownership at 31 December 2013

At 31 December 2013 the percentage of voting rights, which is decisive for assessing control, differs from the Group's percentage ownership for the following entities:

	Percentage of ownership at 31/12/2013	Percentage voting rights at 31/12/2013
<b>COMPANY</b>		
Edison SpA	97.40	99.48
EDF Wybrzeze S.A.	99.87	99.77
EDF Polska S.A.	96.51	97.36
Zec Kogeneracja SA (Kogeneracja)	49.38	50.00
Elektrociepłownia Zielona Gora SA (Zielona Gora)	48.59	98.40
EDF Paliwa Sp. z o.o.	96.93	100.00
Dalkia International	50.00	24.14
Dalkia Investissement	67.00	50.00
SOFINEL Société Française d'Ingénierie Electronucléaire et d'Assistance	55.00	54.98
EDF Investissements Groupe SA	95.51	50.00

## 20.2 Statutory Auditors' Report on the consolidated financial statements

*This is a free translation into English of the Statutory Auditors' report on the consolidated financial statements issued in French and is provided solely for the convenience of English speaking readers.*

*This Statutory Auditors' report includes information specifically required by French law in such reports, whether qualified or not. This information is presented below the audit opinion on the consolidated financial statements and includes an explanatory paragraph discussing the auditor's assessments of certain significant accounting and auditing matters. These assessments were considered for the purpose of issuing an audit opinion on the consolidated financial statements taken as a whole and not to provide separate assurance on individual account balances transactions, or disclosures.*

*The report also includes information relating to the specific verification of information given in the Group's management report.*

*This report should be read in conjunction with, and is construed in accordance with, French law and professional auditing standards applicable in France.*

### Electricité de France S.A.

22 – 30, avenue de Wagram – 75008 Paris

### Year ended December 31, 2013

To the Shareholders,

Following our appointment as Statutory Auditors by your General Meeting, we hereby report to you, for the year ended December 31, 2013 on:

- the audit of the accompanying consolidated financial statements of Electricité de France S.A. ("the Group");
- the justification of our assessments;
- the specific verification required by law.

The consolidated financial statements have been approved by the Board of Directors. Our role is to express an opinion on these consolidated financial statements based on our audit.

### 1. Opinion on the consolidated financial statements

We conducted our audit in accordance with professional standards applicable in France; those standards require that we plan and perform the audit to obtain reasonable assurance about whether the consolidated financial statements are free of material misstatement. An audit includes examining, using sample testing techniques or other selection methods, evidence supporting the amounts and disclosures in the consolidated financial statements. An audit also includes assessing the accounting policies used and significant accounting estimates made, as well as the overall presentation of the consolidated financial statements. We believe that the audit evidence we have obtained is sufficient and appropriate to provide a basis for our opinion.

In our opinion, the consolidated financial statements give a true and fair view of the assets and liabilities, and of the financial position of the Group as of December 31, 2013 and of the results of its operations for the year then ended in accordance with IFRS as adopted by the European Union.

Without qualifying our opinion, we draw your attention to the following matters:

- the change in accounting principle described in notes 1.2.1 and 2 related to the application as of January 1, 2013 of IAS 19 revised *Employee benefits*;
- the valuation of long-term provisions relating to nuclear electricity production, which results from management's best estimates and assumptions as described in notes 1.3.2.1 and 29. This valuation is sensitive to the assumptions made concerning technical processes, costs, inflation rates, long-term discount rates and forecast cash outflows. Changes in these parameters could lead to a material revision of the level of provisioning.

### 2. Justification of assessments

In accordance with the requirements of article L. 823-9 of the French commercial Code, we have made our own assessments which are brought to your attention, in relation to the following matters:

#### Accounting policies

We have verified the appropriateness of the disclosures presented in note 1.3.27.1 with respect to the accounting treatments of greenhouse gas emission quotas, an area which is not mandatory or specifically addressed in IFRS as adopted in the European Union as of December 31, 2013.

#### Management judgments and estimates

Note 1.3.2 to the consolidated financial statements describes the main sensitive accounting policies for which management makes significant estimates and assumptions and exercises judgment, based on macro-economic assumptions appropriate to the very long-term cycle of Group assets. It may be possible that future results could differ from those estimates, which were made in a context of economic and financial crisis and significant market volatility, thus resulting in difficulties to assess the economic outlook in the medium term.

Particularly, the Group describes in the notes to the consolidated financial statements the information related to:

- the methods used to account for the shortfall in the compensation for the Contribution to the Electricity Public Service Costs (*Contribution au Service Public de l'Électricité*) as at December 31, 2012, subsequent to the agreement announced on January 14, 2013 with the French State and the allocation during the period of the related receivable held to the dedicated assets for secure financing of long-term nuclear expenses on February 8, 2013 (notes 3.4, 15.3 and 36.3);
- the main assumptions and indicators used for the purposes of testing goodwill and long-lived assets for impairment as well as the impairment charges recognized during the period (notes 1.3.15 and 13);
- the other provisions and contingent liabilities (notes 32 and 45).

Our procedures consisted in assessing these estimates, the data and assumptions, and as applicable, the legal opinions on which they are based, reviewing, on a test basis, the technical data and calculations performed by the Group, comparing accounting estimates of prior periods with corresponding actual amounts, reviewing the procedures for approving these estimates by management and finally verifying that the notes to the consolidated financial statements provide appropriate disclosures.

### Verification procedures

The procedures we performed in relation to the regulatory framework related to the principle of regulated access to historical nuclear energy (*Accès Régulé à l'Énergie Nucléaire Historique* or ARENH) as established by the NOME Law in France, effective July 1, 2011, are based on the information available from the Group, or released by the Regulatory Energy Commission (*Commission de Régulation de l'Énergie*), and the findings resulting from agreed-upon procedures performed by independent third parties that had access to the underlying transactions.

These assessments were made as part of our audit of the consolidated financial statements taken as a whole and contributed to the opinion we formed which is expressed in the first part of this report.

## 3. Specific verification

As required by law we have also verified, in accordance with professional standards applicable in France, the information relating to the Group, given in the management report.

We have no matters to report as to its fair presentation and its consistency with the consolidated financial statements.

Paris La Défense and Neuilly-sur-Seine, February 12, 2014

### The Statutory Auditors

**KPMG Audit**  
**Department of KPMG S.A.**

Jacques-François Lethu

**Deloitte & Associés**

Alain Pons

Patrick E. Suissa

## 20.3 Fees paid by the Group to Statutory Auditors

The following table sets forth the fees related to the 2013 financial year for EDF and its fully consolidated subsidiaries for services by its Statutory Auditors and their respective affiliates:

	Deloitte		KPMG	
	Amount (taxes excluded)	%	Amount (taxes excluded)	%
<i>(In thousands of Euros)</i>				
<b>Audit:</b>				
Statutory audit, certification, review of company and consolidated accounts				
Issuer	3,781	27.8	3,637	29.9
Fully consolidated subsidiaries	6,354	46.7	6,171	50.8
Other tasks and services directly connected to the Statutory Auditor's mission				
Issuer	623	4.6	1,579	13.0
Fully consolidated subsidiaries	66	0.5	196	1.6
<b>Sub-total</b>	<b>10,824</b>	<b>79.6</b>	<b>11,583</b>	<b>95.3</b>
<b>Other services provided by the auditors' networks to fully integrated subsidiaries:</b>				
Legal, tax, social	1,314	9.7	166	1.4
Other	1,458	10.7	401	3.3
<b>Sub-total</b>	<b>2,772</b>	<b>20.4</b>	<b>567</b>	<b>4.7</b>
<b>TOTAL</b>	<b>13,596</b>	<b>100.0</b>	<b>12,150</b>	<b>100.0</b>

### Information given for the 2012 financial year:

The following table sets forth the fees related to the 2012 financial year for EDF and its fully consolidated subsidiaries for services by its Statutory Auditors and their respective affiliates:

	Deloitte		KPMG	
	Amount (taxes excluded)	%	Amount (taxes excluded)	%
<i>(In thousands of Euros)</i>				
<b>Audit:</b>				
Statutory audit, certification, review of company and consolidated accounts				
Issuer	3,925	27.6	3,654	30.4
Fully consolidated subsidiaries	6,409	45.0	5,128	42.7
Other tasks and services directly connected to the Statutory Auditor's mission				
Issuer	680	4.8	1,734	14.4
Fully consolidated subsidiaries	180	1.3	166	1.4
<b>Sub-total</b>	<b>11,194</b>	<b>78.7</b>	<b>10,682</b>	<b>88.9</b>
<b>Other services provided by the auditors' networks to fully integrated subsidiaries:</b>				
Legal, tax, social	1,649	11.6	250	2.1
Other	1,382	9.7	1,084	9.0
<b>Sub-total</b>	<b>3,031</b>	<b>21.3</b>	<b>1,334</b>	<b>11.1</b>
<b>TOTAL</b>	<b>14,225</b>	<b>100.0</b>	<b>12,016</b>	<b>100.0</b>

## 20.4 Dividend policy

### 20.4.1 Dividends and interim dividends paid within the last three fiscal years

The amount of dividends and interim dividends paid within the last three fiscal years was as follows:

Financial year	Number of shares	Dividend per share (in Euros)	Total dividends paid <sup>(1)</sup> (in Euros)	Dividend payment date
2010	1,848,866,662	1.15	2,122,291,972.68 <sup>(2)</sup>	6 June 2011
2011	1,848,866,662	1.15	2,124,757,978.20 <sup>(3)</sup>	6 June 2012
2012	1,848,866,662	1.25	2,308,912,900.34 <sup>(4)(5)</sup>	8 July 2013

(1) After deduction of treasury shares.

(2) €1,053,574,334.82 of which paid on 17 December 2010 as an interim dividend 2010.

(3) €1,053,169,658.76 of which paid on 16 December 2011 as an interim dividend 2011.

(4) €1,052,601,974.10 of which paid on 17 December 2012 as an interim dividend 2012.

(5) € 170,358,213.74 of which paid on 8 July 2013 in new shares.

On 26 November 2013, the Board of Directors decided, upon authorisation of the Shareholders' Meeting, for the 2013 fiscal year, to pay an interim dividend of €0.57 per share. The total amount of the interim dividend (excluding treasury shares) is €1,059,290,112.42, and was paid on 17 December 2013.

At its meeting of 12 February 2014, the Board of Directors decided to propose to the Shareholders' Meeting of 15 May 2014 the distribution of a dividend to €1.25 per share under the year 2013. Given the interim dividend of €0.57 per share paid on December 2013, a balance of €0.68 per share should be paid.

The remained of the dividend to be paid will be paid on 6 June 2014 (the ex-date being 3 June 2013) regardless of the payment being in shares or on cash.

### 20.4.2 Dividend policy, increased dividend

The dividend distribution policy of EDF, determined by its Board of Directors, will take into account its investment needs, the economic context and all other factors considered to be relevant.

In line with the statutory modification made at the general meeting on 24 May 2011, the first loyalty dividend will be paid in 2014 in regards to financial year 2013. Shareholders having held their shares at nominal value for at least two years are eligible for loyalty dividends. The number of shares giving entitlement to such increase of 10% may not exceed 0.5% of the share capital per shareholder. The first increased dividend will, in accordance with applicable laws, be distributed after the end of the second financial year following the amendment of the bylaws, namely in 2014 for the dividend to be distributed in respect to the 2013 financial year.

### 20.4.3 Prescription

Dividends that are not claimed within five years of the declared date of payment become time barred and are paid to the French State.

## 20.5 Legal proceedings and arbitration

In the ordinary course of business, the Group is involved in certain legal, arbitration and administrative proceedings. Charges that result from such proceedings are only provided for where such charges are likely and can be either quantified or assessed within a reasonable range. In the latter case, the amount of the provision is calculated on a case-by-case basis, based on the best possible estimate. The amounts of any provisions made depend on the case-by-case risk assessments and do not depend primarily on the status of the proceedings; however, developments in the proceedings may nonetheless lead to a reassessment of such risks.

To the knowledge of the Company, except for the proceedings set out below, there are no other administrative, legal or arbitration proceedings (including pending or threatened proceedings), likely to have or having had in the past 12 months a material impact on the financial situation or the profitability of the Company and/or the Group.

### 20.5.1 Legal proceedings concerning EDF

#### French utilities network (Réseau d'alimentation général – "RAG")

In October 2002, the European Commission initiated proceedings against France, claiming that State aid had been granted to EDF when its balance sheet was restructured on 1 January 1997. By a decision dated 16 December 2003, the European Commission set the principal amount of aid to be repaid at €889 million. On 11 February 2004, the French State issued a collection note for €1,224 million, consisting of the principal amount and interest. This amount was paid by EDF. On 27 April 2004, EDF initiated an action before the



European Union General Court, at the time known as the European Court of First Instance, to annul the European Commission's decision. The European Union General Court issued, on 15 December 2009, a ruling annulling the European Commission's decision of 16 December 2003, holding that when making its decision, it should have applied the informed market economy investor test to determine whether or not the action constituted State aid. As this ruling was binding on the parties, the State repaid €1,224 million to EDF on 30 December 2009. On 26 February 2010, the European Commission filed an appeal against the European Union General Court's ruling before the Court of Justice of the European Union. By order dated 5 June 2012, the Court of Justice rejected the appeal by the European Commission and confirmed the order of the General Court of the European Union of 15 December 2009. On 2 May 2013, the European Commission decided to reopen its investigation and will therefore re-examine the question of whether or not the action constituted State aid under the tests established by the European courts. This decision marks a new adversarial exchange between the French State and the European Commission. This does not affect the final decision that will be adopted by the European Commission.

## Asbestos

In the past, EDF has used products containing asbestos. Thus, certain employees, in particular those working in fossil-fired power plant maintenance, may have been exposed to asbestos, principally before such asbestos was replaced or protective measures were implemented by EDF from the late 1970s.

Between 1997 and the end of December 2013, EDF has been party to 607 strict liability (*faute inexcusable*) actions in France in relation to the alleged exposure of its employees to asbestos in their workplace. A finding of liability in such an action could lead to the payment of additional compensation by the employer to victims or their legal successors.

Since June 2004, EDF has decided to no longer appeal, against employees, rulings made by Social Security Case Panels (*Tribunaux des Affaires de Sécurité Sociale* – "TASS") having made findings of liability (*faute inexcusable*) against the employer.

As at the end of December 2013, the cumulative amount of the final judgments against EDF, in relation to litigations relating to the "*faute inexcusable*" of the employer amounted to approximately €24.9 million.

As of 31 December 2013, a financial provision of €30 million was provisioned for in EDF's financial statements for legal proceedings for compensation of asbestos victims.

## Solaire Direct

On 19 May 2008, Solaire Direct filed a complaint and an application for protective measures (*mesures conservatoires*) with France's Competition Council (*Conseil de la concurrence*), alleging that the EDF group had abused its dominant position in the various electricity markets to enter the emerging global services market for shared photovoltaic electricity generation through its subsidiary EDF Énergies Nouvelles Réparties ("EDF ENR"), thereby hindering the entry of new competitors on that market.

The Competition Council met on 26 November 2008 to consider the admissibility of the case on the merits and the application for protective measures. EDF has proposed certain commitments to address concerns over competition expressed by the Competition Council. These commitments were posted on the Council's website as part of a "market test" procedure, in order to allow interested companies to state their opinion.

Early 2009, the Competition Authority decided not to pursue the commitment proposal made by EDF and to order protective measures relating to the methods used by EDF ENR to market global photovoltaic energy services, and commenced proceedings on the merits following a motion by Solaire Direct, which does not in any way affect the outcome of the proceedings. At that stage of the proceeding, the Authority considered that the communication methods used by EDF created conflict between, on the one hand, EDF's role as electricity supplier subject to the regulated

rates, and on the other hand, the competitive activities of its subsidiary. In a ruling of 8 April 2009, the French Competition Authority accordingly ordered EDF (i) to delete from all communication support for the Bleu Ciel® brand, any reference to EDF ENR's activity in the photovoltaic market (ii) to prevent agents responding to the 39 29 hotline (telephone number for individuals and EDF clients) from making any reference to the services offered by EDF ENR, (iii) to stop communicating information obtained through the 39 29 hotline to EDF ENR – this injunction covers not only the making of appointments for EDF ENR but also the transmission of information on people interested in the generation of photovoltaic energy – and finally (iv) to refrain from providing EDF ENR with information EDF possesses as a result of its activities as an electricity services provider subject to regulated rates. EDF complied with these orders within the deadlines set by the Competition Authority.

On 17 December 2013, the Competition Authority fined the EDF group €13.5 million for practices constituting an abuse of a dominant position which the Competition Authority felt allowed it to favour its subsidiaries operating in the photovoltaic sector to the detriment of other market players. The Competition Authority criticised the fact that EDF had made various material and non-material resources available to its subsidiaries which could not be reproduced by competitors (in particular, the "Bleu Ciel" brand, trademark and logo and customer data), thereby creating confusion among customers between its role as an electricity supplier subject to regulated rates and the role of its subsidiaries operating in the photovoltaic sector. EDF lodged an appeal against this decision before the Court of Appeal in Paris.

## SUN'R

On 21 June 2012, SUN'R filed a complaint and an application for protective measures (*mesures conservatoires*) with France's Competition Authority. SUN'R accuses ERDF of delays in the procedure for the connection of its photovoltaic facilities and EDF of delays in the implementation of the purchase obligation contracts and the payment of the related invoices. In addition, according to SUN'R, EDF ENR benefited from special treatment for the connection of its facilities by ERDF and the payment of its invoices by EDF. The *inter partes* proceedings were opened on 16 November 2012. The discussions with the Competition Authority regarding the admissibility of the action and the possible granting of protective measures took place on 23 January 2013.

In a decision of 14 February 2013, the Competition Authority issued a decision rejecting all the applications for protective measures made by SUN'R but the proceedings on the merits are still ongoing. This decision does not in any way affect the outcome of the proceedings. If the Competition Authority's investigation leads to a finding that EDF's practices are anti-competitive, it could, notably, in accordance with Article L. 464-2 of the French Commercial Code, impose a financial sanction, the amount of which would be determined in proportion to the seriousness of the charges made, the significance of the damage made to the economy and to the company's situation, up to a maximum of 10% of the global turnover of the company before taxes.

At the same time, SUN'R filed on 29 August 2012 a petition at an urgent applications hearing for expert assessment and provision before the Administrative Court in Paris including a claim for provisional compensation of €1 million for EDF and €2.5 million for ERDF. By order of 27 November 2012, the urgent applications judge (*juge des référés*) at the Administrative Court in Paris dismissed this petition.

## Evasol

On 26 July 2013, the liquidator of Evasol, a company operating in the energy-saving sector, issued proceedings against EDF SA, EDF EN, EDF ENR and EDF ENR Solaire before the Commercial Court in Lyon.

The allegations made relate to various breaches of competition law by these companies in the French photovoltaic sector, which it is claimed were the direct cause of Evasol's liquidation.

Evasol is claiming damages of €33,010,200 corresponding to the company's debts (€13,010,200) and the value of its business (€20,000,000).

## Labour litigation

EDF is a party to a number of labour lawsuits with employees relating in particular to the working time. EDF does not consider that any of these lawsuits, taken individually, is likely to have a significant impact on its financial results or its financial position. However, as these disputes relate to situations that could involve a significant number of EDF's employees in France, if they were to multiply, they could then have a significant negative impact on the Group's financial results.

## Environmental litigation

Due to its industrial activities, the Group is a party to various environmental lawsuits, in particular, regarding ground decontamination. As of the date of the filing of this reference document, the Group does not believe that any of these lawsuits, individually, is likely, in the event of an unfavourable outcome, to have a material negative impact on the Group's financial results.

## Tax litigation

EDF has been subject to audits of its accounts for the 2004-2010 financial years. The Company has received proposed corrections for these financial years. EDF disputes most of these proposed corrections.

One of the main grounds for adjustment refers to the tax deductibility of the provision for benefits for work-related accidents and sicknesses (*accident du travail et maladies professionnelles* – "AT/MP") which also concerns RTE, ERDF and Électricité de Strasbourg, since this issue is linked to the nature of Electricity and Gas Industry companies. The Group challenged the position of the tax authorities. At the end of 2013, the French national commission on direct taxes and turnover taxes rendered several decisions in favour of RTE. Moreover, a judgment has also been issued in favour of this subsidiary by the Administrative Court in Montreuil. In case of unfavourable outcome, the financial risk for the Group in relation to the payment of corporate income tax amounts to approximately €250 million.

At the end of 2011, EDF received a proposed correction for the 2008 financial year relating, primarily, to the deductibility of certain long-term liabilities. In 2013, EDF received a letter from the authorities accepting part of its arguments, reducing this risk to €600 million. The Company considers it has good chances to be successful in this litigation and no provision has been recorded to cover these claims.

In addition, an adjustment was proposed by the authorities regarding a non-remunerated advance granted by EDF to its indirect subsidiary Lake Acquisition Limited for the purposes of the acquisition of British Energy. EDF contests this adjustment claim.

## Greenpeace

A preliminary investigation was initiated in February 2009 before the Nanterre Criminal Court in relation to a "concealment of invasion of an automated data processing system" (*complicité et recel d'atteinte à un système de traitement automatisé de données*) after a computer expert from a non-Group company stated that he had hacked into the computer used by former Greenpeace spokesman in 2006, Mr Yannick Jadot, at the request of an EDF employee. Said employee and his supervisor were formally placed under investigation (*mis en examen*) on 24 March and 10 June 2009 respectively, and have been subject to disciplinary transfers. EDF was placed under investigation on 26 August 2009. By judgment delivered on 10 November 2011, EDF and the two employees were sentenced by the Nanterre Court.

By order delivered on 6 February 2013, the Court of Appeal in Versailles cleared EDF and the supervisor of the allegations. In terms of the other employee, the Court of Appeal confirmed the judgment of guilt and sentenced him to 6 months in prison. The employee, Greenpeace and Mr Yannick Jadot appealed to the Court of Cassation. On 29 November 2013, the Court of Cassation formally noted that Greenpeace had withdrawn its appeal.

## Fessenheim

On 25 July 2008, an association and individuals petitioned the French ministers in charge of nuclear safety (the Ministers for Energy and Ecology) to order the permanent shutdown and dismantling of the Fessenheim nuclear power plant. The petitioners based their request on Article 34 of French Law no. 2006-686 of 13 June 2006 relating to transparency and safety in nuclear matters, which allows the enactment of a decree adopted in the French Council of State, after consultation with the French Nuclear Safety Authority (*Autorité de Sûreté Nucléaire* – "ASN"), to order the final shutdown and dismantling of a basic nuclear installation that presents serious risks, when no other course of action is possible.

After the dismissal of the petition by the ministers, the petitioners filed an appeal with the Strasbourg Administrative Tribunal on 10 December 2008, which was dismissed in the judgment of 9 March 2011. The petitioners lodged an appeal on 4 May 2011, which was dismissed in a judgment issued by the Administrative Court of Appeal in Nancy on 16 May 2013.

The same petitioners filed an application for review on 18 April 2011, requesting the ministers in charge of nuclear safety and ASN suspend the operation of the Fessenheim power plant. The petitioners base their request on Articles 34 and 35 of the Decree of 2 November 2007 relating to basic nuclear facilities and to the monitoring of nuclear safety and security for the transportation of radioactive substances, which enables ministers or the ASN to suspend the operation of a basic nuclear facilities in case of serious risk. After the refusal of the ministers and the ASN to adhere to their request, the petitioners respectively initiated actions with the Administrative Court in Strasbourg (for the ministers' implied refusal) and French Council of State (for ASN's implied refusal).

By order of 9 March 2012, the President of the Administrative Court in Strasbourg referred to the Council of State the applications regarding the ministers' implied refusal. In a decision issued on 28 June 2013, the Council of State dismissed the applications finding that the existence of serious and imminent risks for the protection of security, health and public health, nature and the environment justifying the suspension of the power plant had not been established.

Finally, by an application for interim measures dated 23 March 2013, several associations including *Réseau Sortir du Nucléaire* applied for the suspension of the works related to the safety review and including the strengthening of the slab. This application was dismissed in an order issued by the Council of State on 10 April 2013.

## Vent de colère

Following an appeal lodged by an association, Vent de Colère, against the order issued on 17 November 2008 fixing the price at which wind-generated electricity is purchased, the Council of State stayed the proceedings and submitted a reference for a preliminary ruling to the European Court of Justice on whether the mechanism for financing the obligation to purchase electricity binding on CSPE (*Contribution au service public de l'électricité* – Contribution to the Public Electricity Service) is to be regarded as an intervention by the State or through State resources within the meaning of and for the application of the provisions of the TEU relating to State aid.

On 11 July 2013, the advocate general to the European Court of Justice issued his opinion, concluding that the mechanism for financing is covered by the concept of intervention by the State or through State resources.

On 19 December 2013, the Court issued its decision and confirmed that "a new mechanism for offsetting in full the additional costs imposed on undertakings because of an obligation to purchase wind-generated electricity at a price higher than the market price that is financed by all final consumers of electricity in the national territory (...) constitutes an intervention through State resources".

The proceedings before the Council of State resumed and it will then issue its final ruling on the appeal lodged by Vent de Colère against the order issued on 17 November 2008 fixing the prices at which wind-generated electricity is purchased.

## Photovoltaic producers litigation

The announcement by the public authorities in autumn 2009 of an upcoming decrease in the photovoltaic electricity purchase prices set by the order of 10 July 2006, triggered a massive increase in requests for purchase contracts, likely to generate a very significant increase in costs to be compensated by the CSPE. Several successive ministerial orders were issued along the lines of this announcement in order to modify both the purchase prices for electricity generated via photovoltaic energy and the terms and conditions for their application. By Decree of 9 December 2010, the Government also provisionally suspended the obligation to purchase photovoltaic electricity for a period of 3 months. An order of 4 March 2011 set the new terms of purchase applicable following the end of this moratorium. In this context, a certain number of producers brought legal proceedings with the aim of being able to benefit from the most favourable price resulting from the previous order of 10 July 2006 or to be exempted from the suspension.

In addition, in Corsica and in the French overseas departments where EDF also operates as a network manager, some producers brought action for compensation with the aim of obtaining compensation for the loss in earnings they consider that they incurred as a result of delays in the connection procedures, which caused them to be affected by the suspension of the purchase obligation.

## Radioactive waste packaging and interim storage facility (ICEDA)

A Decree of 23 April 2010 authorised EDF to set up a regulated nuclear facility, known as a "radioactive waste processing and interim storage facility" in the city of Saint-Vulbas, in the Ain département. Two petitions for cancellation of the decree were filed with the French Council of State in June 2010, one by Roozen, a horticultural company operating near the site, and the other by a group of environmental protection associations, which were both dismissed by the Council of State in a judgment issued on 1 March 2013.

A third petition was filed with the Council of State in April 2012 by the city of Geneva, requesting the cancellation of the decree. At the hearing of 3 March 2014, the public rapporteur advised that the petition should be dismissed. The Council of State is expected to issue a decision at the end of March 2014.

Roozen had also filed a petition on 21 April 2010 seeking cancellation of the building permit. In a judgment dated 13 December 2011, the Administrative Court in Lyon cancelled the building permit for violation of the city's local zoning plan. EDF lodged an appeal with the Administrative Court of Appeal in Lyon. Following confirmation of this decision by the Administrative Court of Appeal in Lyon on 19 June 2012, EDF lodged a further appeal with the French Council of State. At the hearing of 24 March 2014, the Council of State by request of EDF, cancelled the judgment and sent the case in front of the Administrative Court of Appeal in Lyon.

In addition, the town of Saint-Vulbas consulted with stakeholders and reviewed its zoning plan and EDF prepared a new building permit request, which is still pending.

Roozen requested an emergency injunction to suspend the local zoning plan. The urgent applications judge at the Administrative Court in Lyon, by order of 16 January 2013, dismissed this request on grounds of lack of urgency.

On 17 December 2012, Roozen lodged an appeal on the merits against the revised local zoning plan, as did SDN and the Republic and Canton of Geneva on 3 and 5 April 2013. The hearing of these three applications is scheduled to be held on 8 April 2014.

On 21 August 2013, after the close of the public inquiry and the unconditional approval of the inquiry commission, the Prefect of Ain issued a new building permit.

On 22 October 2013, Roozen lodged an appeal against the second building permit issued by the Prefect of Ain. The Republic and Canton of Geneva and a private individual appealed against this building permit before the Administrative Court in Lyon on 20 December 2013.

## Flamanville

On 15 November 2006, EDF filed an application with the ASN to authorise the retention and disposal of liquid and gaseous effluents from the nuclear plant in Flamanville (Manche). This application included the retention and disposal of the two existing reactors on the site (Flamanville 1 and Flamanville 2), as well as those of the future EPR reactor (Flamanville 3) currently under construction.

The ASN decided, on 7 July 2010, to limit EDF disposals in the environment of the liquid and gaseous effluents for the operation of the 3 reactors. This decision was validated by an order of the Ministers in charge of nuclear safety on 15 September 2010.

A local association, CRILAN, initiated proceedings with the Administrative Court in Caen on 23 March 2011 to have this order cancelled.

By order of 20 July 2012, the President of the Administrative Court in Caen referred the case to the French Council of State. The Court deemed that CRILAN's request did not relate to the ministerial approval order but rather to the decision by the ASN of 7 July 2010. However, under the terms of Article R. 351-2 of the French Administrative Justice Code, the French Council of State has jurisdiction over appeals against decisions by ASN. EDF and the French State have filed their statements for the defence.

ASN filed its statement for the defence, claiming that the request should be dismissed.

## Brennilis

After EDF obtained authorisation, by order of 27 July 2011, to partially dismantle the Brennilis nuclear facility, a storage facility for the Monts-d'Arrée nuclear plant, several associations brought an action against this order before the French Council of State on 28 September 2011. In addition, on 16 January 2013, the same associations filed an emergency motion before the Council of State requesting the immediate suspension of the implementation of the decree. By order dated 6 February 2013, the French Council of State rejected the application for suspension and in a decision dated 1st March 2013, dismissed the application for the cancellation of the decree.

## Arbitration following the termination of a gas supply contract

On 2 August 2012, EDF received a demand for arbitration filed with the International Chamber of Commerce by one of its gas suppliers. This supplier is contesting the termination by EDF of a 4-year natural gas supply contract which had one year left to run, and is claiming one hundred million euros in compensation. EDF considers that the conditions required for it to terminate the contract had been met and therefore deems unfounded the amount claimed by the plaintiff. The court of arbitration, which was formed in January 2013, suspended the proceedings in March 2014 at the parties' request, following the supplier's proposal that they resume discussions in order to try and reach a global commercial settlement to bring an end to the dispute. The parties nevertheless reserve the right to reactivate the arbitration proceedings at any time.

## Superphénix

Following the State's decision to abandon the construction of the Superphénix nuclear reactor, AREVA NC considers that EDF should be responsible for providing the preliminary services for the construction of core 3 and cover the cost of processing the manufacturing waste of cores 1 and 2 to extract the excess plutonium. As no amicable agreement could be reached between the companies, AREVA NC issued proceedings against EDF on 19 June 2013 seeking a decision ordering EDF to pay €148 million - to be adjusted (under the original economic conditions). The hearing before the Commercial Court in Paris is scheduled to be held on 5 May 2014. In view of the conclusions made by AREVA, EDF is reasonably confident that the claims made by AREVA are unwarranted.



## Bugey 2 and 4

Following the third safety review of reactors 2 and 4 at the Bugey site to allow their continued operation for a further ten years, ASN adopted decisions establishing additional technical requirements in 2012 (reactor 2) and in 2013 (reactor 4). These requirements apply in addition to other technical requirements, also applicable to reactors 2 and 4, adopted by ASN on 26 June 2012 following the additional safety assessments performed in the wake of the Fukushima accident.

In December 2013, the Republic and Canton of Geneva filed two applications before the Council of State seeking the cancellation of these decisions.

## 20.5.2 Legal proceedings concerning EDF's subsidiaries and holdings

### RTE

#### Sale of high voltage electricity transmission by SNCF

The French Law of 9 August 2004 on the public electricity and gas service and electricity and gas companies had set out that SNCF's high voltage electricity transmission network facilities should be sold to RTE. On 9 July 2009 a specially-formed commission issued its decision on the transfer value of the network, estimating it at €140 million. SNCF filed an appeal against this decision with the French Council of State on 20 August 2009, considering the transfer value of the facilities to be much higher. Until the French Council of State rules on the appeal, SNCF has transferred its electricity facilities to RTE and the sale was agreed on 26 May 2010 for an amount of €140 million, of which only €80 million have been paid by RTE as down-payment.

#### Tax litigation

RTE was subject to an audit of its accounts for the 2005-2011 financial years. One of the main grounds for adjustment refers to the tax deductibility of the provision for benefits for work-related accidents and sicknesses (*accident du travail et maladies professionnelles* – "AT/MP"), which remains contested by the Group. At the end of 2013, the French national commission on direct taxes and turnover taxes rendered several decisions in favour of the company on the deductibility of the provision for benefits for work-related accidents and sicknesses. Moreover, a judgment has also been issued in favour of this company in this respect by the Administrative Court in Montreuil.

### ERDF

#### Tax litigation

EDF received at the end of 2009 a proposed correction related to an accounts audit for the 2004, 2005 and 2006 financial years, including the share connected to the distribution, since consolidated. The adjustment claim relating to the deductibility of the provision for the benefits for work-related accidents and sicknesses remains contested by the Group.

#### Photovoltaic producers litigation

During 2010, owing to the proposals to reduce the price at which electricity is purchased, there was a considerable surge, particularly in August 2010, in the number of connection requests received by ERDF's units (as at that time, the date on which the connection request was filed was used to determine the applicable price). Three months later, the moratorium Decree of 9 December 2010 ordered the suspension of the signing of new contracts for a period of three months and indicated that the applications which had not been accepted before 2 December 2010, as regards the technical and financial connection offers, would need to go through the process again at the end of the three-month period.

At the end of this moratorium, new provisions relating to the purchase of electricity were implemented. Within this framework, the requests for proposals system was developed and a new order was issued fixing the new price at which EDF is required to purchase photovoltaic electricity.

This order, issued on 4 March 2011, generated a significant decrease in the repurchase price of photovoltaic electricity.

The order issued by the French Council of State on 16 November 2011 dismissing the various claims brought against the moratorium decree of December 2010 generated a significant number of claims against ERDF in November and December 2011, which continued throughout the whole of 2012, though at a lower rate. New claims were also filed in 2013 and 2014. These claims were mainly brought by producers who had to abandon their projects because the operational conditions were less favourable than before with the new electricity repurchase prices. These producers consider ERDF responsible for this situation as they claim that ERDF did not deliver the technical and financial offers for connection on time for them to benefit from more advantageous electricity repurchase conditions. EDF considers that it cannot be held liable and particularly lodged an appeal against the few judgments delivered that were not in favour of EDF at *nisi prius* in 2011 and 2012.

On 8 July 2013, the Jurisdiction Court (*Tribunal des Conflits*) held that the ordinary courts had jurisdiction to hear the disputes between ERDF and producers relating to delays in the delivery of technical and financial offers.

#### Claim against the TURPE 3 price decision

By order of 28 November 2012, the French Council of State pronounced the cancellation of the TURPE 3 price decision of 5 May and 5 June 2009, which set the prices for the use of the distribution network for 2010-2013.

The grounds for cancellation were the method used to determine the "average weighted capital cost" ("AWCC"): the Council of State deemed this method "legally incorrect", on the grounds that it does not take into account "the specific accounts of concessions, which correspond to the rights of grantors to recover free of charge the assets belonging to the concession at the end of the contract (...) as well as the provisions for the renewal of long-term assets".

In order to take into account the Council of State's decision, the State approved a TURPE 3bis based on the proposal submitted by the CRE to retroactively cover the period commencing on 1 August 2009 and ending on 31 July 2013. The effective date of TURPE 4 was then put back to 1 January 2014 and a TURPE 3ter was produced to cover the period commencing on 31 July 2013 and ending on 31 December 2013. Finally, on 13 November 2013, the CRE adopted a resolution containing the proposed decision in relation to TURPE 4.

This resolution was published in the French Official Gazette on 20 December 2013. This decision is subject of a claim to the French Conseil of State at the initiative of Direct Energy.

### EDF International

#### Tax disputes

EDF International's tax audit relating to the 2008 to 2011 financial years led to a correction proposal being issued in late 2011 and late 2013. Two main adjustment claims, amounting to an approximate total of €265 million, relate firstly to the loss of value recorded at the end of 2009 and deducted from EDF International's income following the contribution of the CEG shares to its American subsidiary, EDF Inc., and secondly the valuation of the convertible bond created for the refinancing of the acquisition of British Energy. In 2012, EDF International contested these adjustment claims, for which it considers it has good chances to be successful in this litigation. In late 2012, EDF International sought to reach an amicable settlement in both France and the US regarding the valuation of the CEG shares recorded at the time of the contribution, based on the tax agreement to prevent double taxation in both France and the US.

## ICC Arbitration - SOROOF v EDFI

EDF implemented a partnership with SOROOF International ("SOROOF") in 2010, in order to penetrate the Saudi Arabian market and expand its business in the thermal sector. EDF Saudi Arabia ("EDF KSA"), a company incorporated under the laws of Saudi Arabia, 85% owned by EDF International ("EDFI") and SOROOF, was formed on 8 March 2011 for three years.

To date, EDF has not managed to develop projects allowing it to enter the Saudi Arabian market. SOROOF expected to earn an income from this partnership and is today claiming lost earnings.

SOROOF filed a request for arbitration with the International Chamber of Commerce in Paris ("ICC") against EDF International ("EDFI") on 30 September 2013. SOROOF bases its claim on an alleged breach of EDFI's contractual obligations and seeks (i) compensation for the financial loss sustained, (ii) compensation for its non-pecuniary loss (damage to the image and reputation of Prince Bandar, for which no figure has been given) as well as (iii) payment by EDFI of the arbitration costs.

On 5 November 2013, EDFI sent an answer to the request for arbitration, challenging the allegations made by SOROOF and issuing a counterclaim based on SOROOF's breaches of contract, seeking USD 15 million from SOROOF covering (i) the sums incurred by EDFI for this partnership and (ii) the damage sustained to EDF's image.

## EDF Énergies Nouvelles

### Silpro

Silpro (Silicium de Provence) went into court-ordered liquidation on 4 August 2009. EDF ENR group held a 30% minority shareholding in this company along with the main shareholder, the German company Sol Holding. On 30 May 2011, the liquidator brought action against the shareholders and executives of Silpro, with joint and several liability, to make up for the shortfall in assets resulting from Silpro's liquidation, amounting to €101 million.

In its judgment issued on 17 December 2013, the Commercial Court in Manosque ordered, without joint and several liability, the EDF ENR Group to contribute €120,000 to Silpro's shortfall in assets. The main shareholder (Sol Holding) and the former executives were ordered to contribute €200,000 and €110,000 respectively. The court-appointed liquidator lodged an appeal against the judgment.

### SOCODEI

The low-activity waste processing and packaging centre (Centrac) operated by SOCODEI, a subsidiary wholly owned by EDF, is used to process weakly radioactive waste either by smelting or by incineration. On 12 September 2011, the explosion of a waste smelter caused a fire, killing one and injuring four. The accident did not cause any chemical or radioactive discharge. The ASN rated the accident as an INES level-1 accident and decided, on 27 September 2011, to only permit the smelters and incinerators stopped shortly after the accident to be re-started with prior authorisation. On 29 June 2012, ASN authorised SOCODEI to restart the incinerator subject to prior filing with ASN of the full report on the checking operations relating to the compliance of the facilities necessary for the furnace to be safe. The smelting unit, in which the accident occurred, is still shut down.

Following the accident, several investigations were opened. On 16 September 2011, the Public Prosecutor's Department in Nîmes opened an inquiry against X for homicide and involuntary injuries and the inquiry is ongoing. The results of the investigations by the Labour Inspectorate and ASN

were sent to the Public Prosecutor's Department and a court expert was appointed. Once the court-ordered expert assessment operations had been completed, the examining magistrate authorised the removal of the seals on the smelter, which meant that the repairs could commence. Pursuant to its decision 2014-DC-0391 of 14 January 2014, ASN introduced new technical requirements. In accordance with this decision and in order to obtain authorisation to restart the smelting unit, SOCODEI has to provide ASN with detailed documentation describing the technical, social, organisational and human measures it has implemented in order to comply with the new requirements.

## Edison

### Legal action initiated by ACEA SpA concerning Edison's shareholding in Edipower

In May 2006, ACEA SpA ("ACEA"), Rome's municipal utility, addressed a complaint to the Italian government and to Italian regulatory (AEEG) and competition (AGCM) authorities, alleging that the joint takeover of Edison by EDF and A2A S.A. (formerly AEM S.p.A) had crossed the threshold of 30% of the share capital of Edipower held by State corporations (limit set forth by a decree of the President of the Italian Council of Ministers, dated 8 November 2000 defining the rules applicable to the privatisation of companies (called Gencos) then held by Enel SpA).

On 7 July 2006, the AGCM rendered an opinion (*segnalazione*) supporting ACEA's position and officially requiring the Italian government and parliament to take measures to comply with the provisions of the 8 November 2000 Decree.

In August 2006, ACEA initiated an action against EDF, IEB and WGRMH Holding 4 (along with Edison, A2A S.A., Delmi, Edipower, AEM Turin, Atel and TdE) before the Civil Court in Rome.

According to ACEA, crossing this threshold is a violation of the applicable laws and constitutes an act of unfair competition which could adversely affect the competition on the energy market and consumers' interests.

ACEA therefore asked the court to acknowledge the unfair behaviour of EDF and A2A S.A., and force EDF and A2A S.A. to sell their stakes in order to remain under the 30% limit and prohibit them from taking and using energy in excess of the 30% threshold, and, finally, to compensate ACEA for the prejudice suffered that it has not been able to precisely evaluate at this stage, the valuation being subject to distinct proceedings.

ACEA also indicated that it would request the court to take protective measures to protect its interests until the court rules on the merits.

In January 2007, Endesa Italia joined ACEA in its legal action.

The judge has rejected the addition to the file of a note from ACEA (new evidence) which assessed the prejudice that ACEA would have suffered at €800 million.

In December 2010, Endesa Italia, now named E.ON Italia, and EDF signed a settlement agreement in which E.ON Italia undertakes to drop the case and all other claims against EDF in connection with EDF's indirect investment in Edipower. The judge has acknowledged this agreement in an order dated 19 May 2011.

On 19 September 2013, the Civil Court in Rome issued a judgment in favour of EDF, dismissing all of ACEA's claims. The Court excluded all liability under competition or tort law for EDF as all of EDF's acts had been authorised in advance by the relevant regulatory bodies and it had not breached any rules. ACEA has 1 year and 45 days in which to appeal against this judgment.



## Proceedings concerning the sale of Ausimont (Bussi)

Further to a preliminary investigation initiated by the Public Prosecutor of Pescara (Abruzzo region) in relation to a suspected case of water pollution and ecological disaster affecting the river Aterno basin at Bussi sul Tirino, which for more than a century has been the site of an industrial complex belonging to Ausimont SpA that was sold to Solvay Solexis SpA in 2002, the Public Prosecutor of Pescara notified certain former Directors and managers of Solvay Solexis and Edison that the case would go to court on charges of water poisoning, ecological disaster and fraud to the prejudice of the site's purchaser, Solvay Solexis.

On 15 December 2009, the proceedings against Montedison (now Edison) for fraud were abandoned. The proceedings on the matters of environmental disaster and poisoning of water or foodstuffs continued and on 18 April 2013 the judge entertaining jurisdiction decided to bring action against Montedison's former executives before the Assize Court in Chieti. On 2 May 2013, an appeal was lodged with the Court of Cassation against the judge's decision. This appeal was dismissed in a judgment handed down on 5 January 2014.

In this context, a large quantity of industrial waste was found on a plot of land belonging to Edison adjacent to the plant, and an attachment order has been placed on that land, and the President of the Italian Council of Ministers appointed on 4 October 2007 a deputy special commissioner empowered to undertake urgent measures: identification, safety and rehabilitation measures for the land. The commissioner has ordered Edison to prepare a survey of the zone, take urgent measures to make it safe and present proposals for decontamination of the ground and ground water. Edison, which has never used this site for its business, filed an appeal with the Regional Administrative Court in June 2008. The Regional Administrative Court rejected this appeal in March 2011 and Edison challenged this judgment before the Council of State.

## Action by the Public Prosecutor of Alessandria

In 2009, the Public Prosecutor of Alessandria (Italy) sent certain managers and former Directors of Ausimont SpA (now named Solvay Solexis SpA, a company sold by Montedison to the Solvay group in 2002) notification of the conclusion of investigations related to the possible poisoning of water from the spring on the industrial site of Spinetta Marengo and surrounding sites, and the lack of any action for site rehabilitation. The investigation was closed on 16 January 2012.

The judge entertaining jurisdiction decided, on 16 January 2012, to bring action before the assize court in Alessandria against a number of former Montedison executives for behaviour that could constitute environmental and public safety offences.

The trial before the assize court began on 17 October 2012 and is currently in the preliminary hearing stage.

In addition, an administrative decision ordered Solvay Solexis to rehabilitate the Spinetta Marengo site. Edison voluntarily intervened in the proceedings to defend its interests in relation with the claim filed by Solvay Solexis for the cancellation of this administrative decision, notably because the administrative decision doesn't impose any obligation on Edison to rehabilitate the site (this obligation is imposed exclusively on Solvay Solexis).

## Carlo Tassara

The company Carlo Tassara, Edison's main minority shareholder, brought legal proceedings on 12 July 2012 before the Regional Administrative Court in Latium (Rome) requesting on the merits an increase in the price of the mandatory takeover bid launched by the EDF subsidiary Transalpine

di Energia (TDE), following the takeover of Edison on 24 May 2012. The parties against which the plaintiff brought these proceedings are CONSOB, the Italian financial market authority, EDF, as well as its Italian subsidiaries (MNTC, WGRM4 and TDE), Edison, Delmi and A2A. The date of the hearing before the Court has not yet been scheduled. Any decision may be appealed before the Italian Council of State.

At the same time, the plaintiff filed with CONSOB in May 2012 a request to increase the price of the mandatory takeover bid based on practically identical arguments to those filed for the proceedings on merits before the Administrative Court. CONSOB dismissed this request on 25 July 2012. The plaintiff did not appeal against this decision.

## Claims brought by employees concerning exposure to asbestos or other harmful chemical substances

Over the last years, Edison has faced a significant increase in the number of claims for damages arising from the death or illness of employees that were allegedly caused by exposure to several forms of asbestos at factories owned by Montedison, or other judicial cases assumed by Edison as a result of corporate acquisitions.

Furthermore, Edison is involved in several criminal proceedings filed by former employees of companies belonging to the Edison group or their legal successors, arising from exposure to harmful chemical substances emitted by Montedison's facilities (since transferred to Enimont which became Enichem, a subsidiary of ENI).

## Environmental litigation

Edison is involved in several criminal proceedings currently underway concerning damages caused by the operation of Montedison's chemical factories (petrochemical facilities in Porto Marghera, Crotone, Mantua and Cesano Maderno) prior to their sale to Enimont. These criminal proceedings also include actions brought by third parties concerning personal injuries related to the alleged environmental damage.

## BE ZRt

Following a formal investigation based on European regulations on State aid, the European Commission issued a decision on 4 June 2008, requiring the Hungarian government to terminate the long-term electrical energy purchase agreements ("PPAs") existing at the end of 2008 and that the electricity producers refund by April 2009 any amounts of State aid received since 1 May 2004, the date on which Hungary joined the European Union. BE ZRt lodged an appeal against this decision before the European General Court ("EGC") on 4 May 2009.

The Hungarian Government did not challenge the European Commission's decision, and the Hungarian legislature enacted a law on 10 November 2008 terminating all PPAs on 31 December 2008 without compensation. In late April 2010 the European Commission and the Hungarian government accepted the principle of netting stranded costs with the State aid paid. As a result BE ZRt will have no illegal State aid to repay.

By order of 13 February 2012, the EGC dismissed the action for cancellation filed by BE ZRt against the decision. However, insofar as BE ZRt is no longer liable to be required to refund this State aid, and due to the absence of direct impact on the ongoing arbitration (see below), BE ZRt did not appeal against this decision.

In order to pursue its business after the termination of its PPAs, BE ZRt negotiated an 8-year sales contract with MVM, the sole Hungarian buyer owned by the Hungarian State, for half of its electricity output, and benefited

from the "Cogen 1 Decree"<sup>1</sup> for the sale of the other half of its output, for a period due to run until 2013. However, Hungary adopted on 16 March 2011 an amendment to the law on electricity ending any support to cogeneration in Hungary as from July 2011.

EDF International, whose investment in BE ZRt was undertaken after the company's privatisation on specific terms that are now in question, notified the Hungarian State, on 12 May 2009 of an arbitration on the basis of the Energy Charter Treaty (ECT), in accordance with UNCITRAL rules. The arbitration proceedings were suspended until 1 October 2011, further to several successive agreements, and have now resumed. EDF International filed on 30 December 2011, with the permanent arbitration court of The Hague, a statement in reply in order to obtain compensation for the loss of the PPAs. The prejudice with respect to heating prices in 2011 was introduced in this statement for protective purposes. On 2 November 2012, Hungary filed its statements for the defence, both on the merits and in order to contest the Court's jurisdiction.

The European Commission filed its statement, in May 2013, primarily contesting the jurisdiction of the Court. In its statement in reply filed on 1 July 2013, EDF International reassessed the damage (about €290 million) sustained in light of the Heating Decree which now limits BE ZRt's total profits. Moreover, an alternative claim was made by EDF International for reimbursement of the stranded costs (about €300 million). Hungary replied in a rejoinder on 25 October 2013.

The hearings were held in The Hague from 3 to 6 December 2013 and the arbitration award should be issued in 2014, in all likelihood during the second half of the year. Following the hearings, the Court asked the parties to produce two simultaneous post-hearing statements: the first on 28 February and the second on 28 March 2014. The arbitration award should be issued during the second half of 2014.

## EnBW

In February 2012, EDF International received an arbitration request filed with the International Chamber of Commerce by the German company Neckarpri GmbH, acquisition vehicle of the Bade-Wurtemberg State within the scope of the transfer by the EDF group of its shareholding in EnBW, signed on 6 December 2010 and finalised on 17 February 2011.

Neckarpri claims that the level of the price paid for the acquisition of the EDF group's shareholding in EnBW was excessive and thus constituted illegal State aid. On this basis, Neckarpri is mainly seeking the reimbursement of the amount allegedly paid in excess. This amount, initially estimated at €2 billion in the demand for arbitration, was re-estimated in July 2012 in an expert report ordered by Bade-Wurtemberg State at €834 million. In September 2012, Neckarpri confirmed the reduction of its main claim to this amount. Alternatively, Neckarpri requests the cancellation of the sale of the EDF group's shareholding in EnBW.

The arbitration proceedings are ongoing. The first statements have been exchanged by Neckarpri (request) and EDF (answer), including the counterclaim made by EDF for damages for the losses incurred as a result of the proceedings, which EDF considers to be unfounded and unjustified. The sentence should be pronounced at the end of 2014 or at the start to 2015 after an additional exchange between the parties.

## 20.5.3 Litigation having arisen after the closing of the 2013 financial year

None.

## 20.6 Significant change in the Company's financial or trading position

The significant events that took place between the end of the 2013 fiscal year and the date of filing of this reference document are mentioned in note 51 to the consolidated financial statements for the fiscal year ended 31 December 2013 as to events that took place before the financial statements were

drawn up by the Board of Directors on 12 February 2014, and, for events occurring after 12 February 2014, in section 12.1 ("Subsequent events") of this reference document.

1. Decree defining the terms and conditions, including prices, for renewable energy and cogeneration adopted by the Hungarian government on 28 November 2008, known as the "Cogen" Decree.



# 21 Additional information

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## 21.1 General information regarding the Company's capital

### 21.1.1 Share capital amount

On the filing date of this reference document, the details of the Company's share capital are as follows:

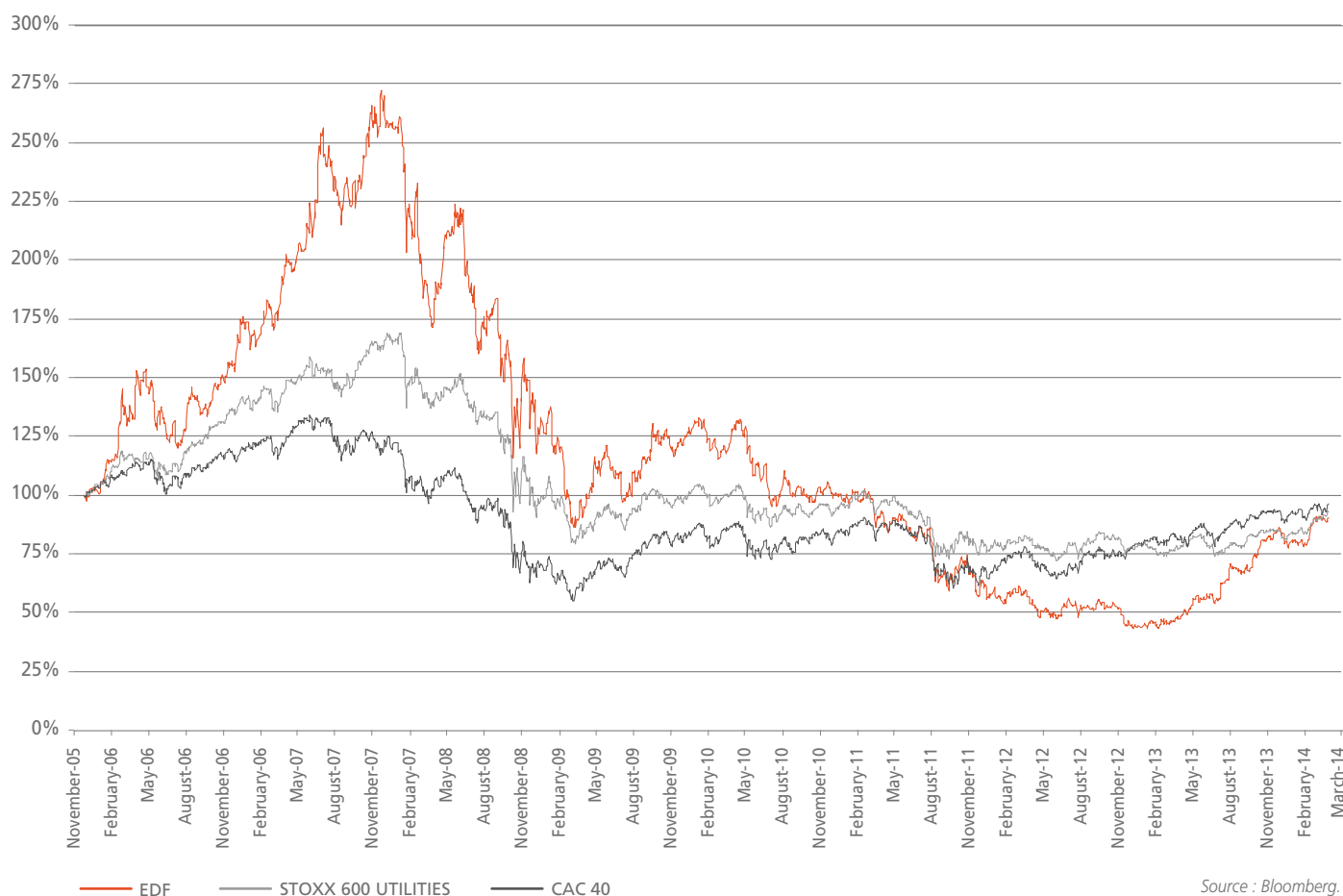
Number of shares issued	1,860,008,468
Par value	€0.50 per share
Type of shares issued	common shares
Share capital amount	€930,004,234

The share capital issued by the Company has been paid up in full. The Company has not issued or authorised any preference shares.

### 21.1.2 Market for the Company's shares

The Company's shares have been listed for trading by Euronext Paris (Compartment A) since 21 November 2005, under ISIN code FR 0010242511, Reuters code (EDF.PA) and Bloomberg code (EDF:FP).

The following graph shows the changes in the Company's share price between 21 November 2005 and 31 March 2014:





The following table shows the share price and volume of EDF shares traded between 1 January 2013 and 31 March 2014 on the Euronext Paris stock market:

	Transactions		Closing price (in euros)	
	(in millions of shares)	(in millions of euros) <sup>(1)</sup>	High	Low
<b>2013</b>				
January 2013	41.38	593.86	14.88	13.66
February 2013	41.14	594.74	14.95	13.73
March 2013	34.29	509.43	15.31	14.34
April 2013	53.31	852.06	16.97	15.29
May 2013	43.28	761.74	18.16	17.19
June 2013	40.04	716.96	18.38	17.16
July 2013	42.59	836.58	22.06	17.42
August 2013	23.03	502.23	22.46	21.10
September 2013	36.39	802.62	23.64	21.22
October 2013	31.88	792.95	25.95	23.34
November 2013	24.56	649.17	27.40	25.71
December 2013	27.75	715.85	27.26	24.65
<b>2014</b>				
January 2014	29.01	735.68	25.77	24.73
February 2014	28.50	770.29	28.815	24.90
March 2014	28.14	802.69	28.905	28.075

(1) The transactions expressed in millions of euros correspond to the monthly sum of the daily number of securities traded, multiplied by the market closing price on the same day (Source: Euronext).

## 2013

In 2013, EDF's share price increased by 80.4%. The French CAC 40 index increased by 18%, while the Euro Stoxx Utility sector index increased by 7.35%.

At 31 December 2013, the closing price of the EDF share was €25.69 (compared to €13.98 at 31 December 2012). Its lowest closing price in 2013 was €13.66 on 11 January 2013, and its highest closing price was €27.40 on 29 November 2013.

At 31 December 2013, EDF's market capitalisation totalled €47.77 billion (compared to €25.85 billion at 31 December 2012).

## 2014

Between the start of 2014 and 31 March inclusive, EDF's share price increased by 11.8%, the CAC 40 index increased by 2.2% and the Euro Stoxx Utility (SX6P) sector index increased by 10.2%.

At 31 March 2014, the closing price of the EDF share was €28.715. Its lowest closing price in 2014, through 31 March inclusive, was €24.73 on 27 January 2014, and its highest closing price was €28.905 on 11 March 2014.

At 31 March 2014, EDF's market capitalisation totalled €53 billion.

## 21.1.3 Treasury shares and share buyback programme

### 21.1.3.1 Share buyback programme in force as of the filing date of the reference document (programme authorised by the Ordinary Shareholder Meeting of 30 May 2013)

After consulting the Board of Directors' report, and in accordance with the provisions of Articles L. 225-209 *et seq.* of the French Commercial Code, the seventh resolution adopted by the General Meeting held on 30 May 2013 authorised the Board of Directors to implement a programme to buy back Company shares, capped at a maximum of 10% of the Company's capital.

This resolution immediately terminated the unused portion of the authorisation to purchase Company shares, which was granted by the fifth resolution adopted by the General Meeting held on 24 May 2012.

The aims of the share buyback programme are as follows: to deliver shares when rights are exercised that are attached to securities that represent debt instruments, which grant immediate or deferred access to the Company's shares by all means, as well as to perform all hedging transactions with respect to the obligations of EDF (or one of its subsidiaries) that are connected with such securities; to retain shares for future delivery in exchange or as payment in the context of external growth or contribution operations; to allocate shares to EDF group employees, in particular, within the framework of any share purchase or bonus share award plans under the terms stipulated

by law and, in particular, by Articles L. 225-197-1 *et seq.* of the French Commercial Code or Articles L. 3332-18 *et seq.* of the French Labour Code; to reduce the Company's capital by cancelling all or part of the shares purchased; and, finally, to ensure the liquidity of EDF shares via an investment services provider, under a liquidity agreement that is consistent with the Code of Ethics recognised by the *Autorité des marchés financiers*.

Purchases of Company shares may involve any number of shares, provided that the number of shares that the Company purchases during the buyback programme does not exceed 10% of the shares that make up the Company's existing share capital on the date of the General Meeting, and provided that the number of shares that the Company holds at any given time does not exceed 10% of the shares that make up the Company's capital.

These shares may be acquired or transferred, under the conditions and within the limits, in particular in terms of volumes and price, provided for by the laws and regulations in force on the date of the relevant transactions, by

any means, such as on the market or over the counter, including via block trades (purchases or sales), by the use of derivative financial instruments or notes or securities that grant access to Company shares, or by implementing option strategies, under the conditions stipulated by the market authorities and at such times as determined by the Board of Directors or any person who is acting on the Board's behalf. This authorisation may be used during public takeover bids, within the limits permitted by the applicable regulations.

The General Meeting has set at €60 the maximum purchase price per share<sup>1</sup> and at €2 billion the maximum amount of funds allocated to the implementation of the programme, and has granted the Board of Directors full powers, with the right of delegation, to use this authorisation.

The authorisation was granted for a maximum of 18 months as from the General Meeting of 30 May 2013, and will therefore end on 30 November 2014, unless the General Meeting of 15 May 2014 adopts the new programme described in paragraph 21.1.3.3 below.

## 21.1.3.2 Summary of the Company's trading in its own shares during the 2013 financial year

Number of treasury shares held at 31 December 2013	1,744,016
Percentage of capital held through treasury shares at 31 December 2013	0.0938%
Carrying value of the portfolio at 31 December 2013 <sup>(1)</sup> (in euros)	46,666,083.53
Market value of the portfolio at 31 December 2013 <sup>(2)</sup> (in euros)	44,795,050.96
Number of shares cancelled over the past 24 months	0

(1) Valued at the purchase price.

(2) Based on the closing price at 31 December 2013, i.e. €25.685.

### Liquidity contract

From 25 July 2012, EDF engaged Oddo Corporate Finance to implement a new liquidity agreement that complies with the Charter of Ethics of the *Association Française des Marchés Financiers* ("AMAFI") as approved by the French market authority AMF. The following assets were allocated to this liquidity contract: 1,350,000 EDF shares transferred from the former liquidity contract and €50 million in cash.

In 2013, EDF paid the following commissions on its liquidity contracts: €80,000 to Oddo Corporate Finance.

### Number of shares bought and sold during the 2013 financial year

During the 2013 financial year, EDF purchased a total of 18,344,449 treasury shares and sold 18,761,766 shares. During the 2013 financial year, the average share purchase price was €19.94 and the average share sale price was €19.73.

### Portfolio breakdown at 31 December 2013

At 31 December 2013, the Company held a total of 1,744,016 treasury shares. 1,693,422 of these shares (or 0.0910% of its share capital) are held under the liquidity agreement, and the remaining 50,594 shares (0.0027% of its share capital), were acquired on the market with a view to being allocated to employees within the framework of the "ACT 2007" bonus share award plan, but were not actually allocated.

On this date, EDF's subsidiaries did not hold any shares, either directly or indirectly.

### Post-closing transactions

Between 1 January 2014 and 31 March 2014, the Company acquired 5,092,771 treasury shares for an average unit value of €26.63, and sold 5,853,493 shares for an average unit value of €26.71.

## 21.1.3.3 Description of the programme submitted to the Combined Shareholders' Meeting of 15 May 2014 for authorisation

As stated above, the authorisation described in section 21.1.3.1 will end on 30 November 2014, unless the General Meeting of 15 May 2014 adopts the resolution described below.

In accordance with the draft resolution prepared by the Board of Directors' meeting of 12 February 2014, the Combined Shareholders' Meeting of 15 May 2014 will be asked to authorise a share buyback programme, the characteristics of which are similar to the programme authorised by the General Meeting of 30 May 2013, in particular with regard to the objectives of this programme, the limits on the number of shares that can be bought back, as well as the maximum purchase price (set at €45) and the maximum amount that may be allocated to the share buyback programme (€2 billion).

1. The Board of Directors may, however, adjust the aforementioned purchase price if premiums, reserves or profits are capitalised, which results either in an increase in the par value of the shares or the creation and award of bonus shares, and in the event of a stock split or reverse stock split, or any other transaction involving the shareholders' equity, in order to take into account the impact of these operations on share value.

## 21.1.4 Capital authorised but not issued

The following table presents a summary of the delegations of authority and authorisations to increase or reduce the share capital that are in force on the filing date of this reference document, which the Board of Directors was granted by the Combined Shareholders' Meeting of 24 May 2012, and the extent to which they have been used at 31 December 2013:

### Status of the authorisations adopted by the Combined Shareholders' Meetings of 24 May 2012

Securities concerned / type of issue	Term <sup>(1)</sup> of the authorisation and expiration	Maximum nominal increase or reduction in capital (in millions of euros)	Use made of the authorisations (in millions of euros)
<b>Delegation of authority to the Board to increase the capital with maintenance of the shareholders' preferential subscription right</b>			
Capital increase, all securities combined	26 months 24 July 2014	45 <sup>(2)</sup>	none
<b>Delegation of authority to the Board to increase the capital with cancellation of the shareholders' preferential subscription right</b>			
Capital increase, all securities combined	26 months 24 July 2014	45 <sup>(2)</sup>	none
<b>Delegation of authority to the Board to make offers for private placements <sup>(3)</sup> with cancellation of the shareholders' preferential subscription right</b>			
Capital increase, all securities combined	26 months 24 July 2014	45 <sup>(2)</sup>	none
<b>Authorisation for the Board to increase the number of securities to be issued in the event of a capital increase, with or without preferential subscription rights</b>			
Capital increase, all securities combined	26 months 24 July 2014	15% of the amount of the initial issue <sup>(2)</sup>	none
<b>Delegation of authority to the Board to increase the capital through the capitalisation of reserves, profits, premiums or otherwise</b>	26 months 24 July 2014	1,000	none
<b>Delegation of authority to the Board to increase the capital as consideration for a public exchange bid initiated by the Company</b>	26 months 24 July 2014	45 <sup>(2)</sup>	none
<b>Authorisation for the Board to increase the capital to compensate in-kind contributions<sup>(4)</sup></b>	26 months 24 July 2014	10% of the Company capital up to a maximum of 45 <sup>(2)</sup>	none
<b>Delegation of powers to the Board to increase the capital for the benefit of savings plan members</b>			
Issues reserved for the personnel	26 months 24 July 2014	10	none
<b>Authorisation for the Board to reduce the capital by cancelling treasury shares</b>	26 months 24 July 2014	10% of the capital by 24-month periods	none

(1) As from 24 May 2012, the date of the Combined Shareholders' Meeting.

(2) The nominal aggregate limit on the share capital increase of €45 million applies to all capital increases, with the exception of capital increases through capitalisation of reserves, premiums, profits or otherwise and capital increases that are reserved for savings plan members.

(3) Offers governed by Article L. 411-2 II of the French Monetary and Financial Code, in that they are exclusively intended for persons who provide investment portfolio management services on behalf of third parties or qualified investors or a restricted circle of investors acting on their own behalf.

(4) Article L. 225-147 of the French Commercial Code.

## Authorisations to be put to the vote at the Combined Shareholders' Meeting of 15 May 2014

The table set out below shows the authorisations that will be put to the vote at the Combined Shareholders' Meeting of 15 May 2014 in accordance with the draft resolutions defined by the Board of Directors on 12 February 2014.

Securities concerned / type of issue	Term <sup>(1)</sup> of the authorisation and expiration	Maximum nominal increase or reduction in capital (in millions of euros)
<b>Delegation of authority to the Board to increase the capital with maintenance of the shareholders' preferential subscription right</b>		
Capital increase, all securities combined	26 months 15 July 2016	45 <sup>(2)</sup>
<b>Delegation of authority to the Board to increase the capital with cancellation of the shareholders' preferential subscription right</b>		
Capital increase, all securities combined	26 months 15 July 2016	45 <sup>(2)</sup>
<b>Delegation of authority to the Board to make offers for private placements <sup>(3)</sup> with cancellation of the shareholders' preferential subscription right</b>		
Capital increase, all securities combined	26 months 15 July 2016	45 <sup>(2)</sup>
<b>Authorisation for the Board to increase the number of securities to be issued in the event of a capital increase, with or without preferential subscription rights</b>		
Capital increase, all securities combined	26 months 15 July 2016	15% of the amount of the initial issue <sup>(2)</sup>
<b>Delegation of authority to the Board to increase the capital through the capitalisation of reserves, profits, premiums or otherwise</b>	26 months 15 July 2016	1,000
<b>Delegation of authority to the Board to increase the capital as consideration for a public exchange bid initiated by the Company</b>	26 months 15 July 2016	45 <sup>(2)</sup>
<b>Authorisation for the Board to increase the capital to compensate in-kind contributions <sup>(4)</sup></b>	26 months 15 July 2016	45 <sup>(2)</sup> up to a maximum of 10% of the Company's capital
<b>Delegation of powers to the Board to increase the capital for the benefit of savings plan members</b>		
Issues reserved for the personnel	26 months 15 July 2016	10
<b>Authorisation for the Board to reduce the capital by cancelling treasury shares</b>	26 months 15 July 2016	10% of the capital by 24-month periods

(1) As from 15 May 2014, the date of the Combined Shareholders' Meeting.

(2) The nominal aggregate limit on the share capital increase of €45 million provided for in the eighth resolution submitted to the General Meeting of 15 May 2014 applies to all capital increases, with the exception of capital increases through capitalisation of reserves, premiums, profits or otherwise and capital increases that are reserved for savings plan members.

(3) Offers governed by Article L. 411-2 II of the French Monetary and Financial Code, in that they are exclusively intended for persons who provide investment portfolio management services on behalf of third parties or qualified investors or a restricted circle of investors acting on their own behalf.

(4) Article L. 225-147 of the French Commercial Code.

### 21.1.5 Other equity securities

On the filing date of this reference document, other than the common shares of Company stock, there are no other securities that grant access to EDF's share capital, either directly or indirectly.

### 21.1.6 Non-equity securities

On 18 April 1996, EDF implemented a programme to issue debt securities in the form of Euro Medium Term Notes (the "EMTN" programme). Since this date, this programme has been renewed each year.

On 17 June 2013, EDF proceeded with an annual update to the debt security issue programme for a maximum amount of €30 billion.

In January 2013, EDF issued the following "hybrid" bonds:

- One billion two hundred and fifty million euros with coupon of 4.25% and an initial redemption option after 7 years;
- One billion two hundred and fifty million euros with coupon of 5.375% and an initial redemption option after 12 years;
- One billion two hundred and fifty million pounds sterling with coupon of 6% and an initial redemption option after 13 years; and
- Three billion US dollars with coupon of 5.25% and an initial redemption option after 10 years.

These instruments are for indefinite periods and are subordinated to any senior debt, which explains the fact that their coupon is higher than standard "senior" bonds. They were recorded as shareholders' equity in the Group's consolidated accounts when the funds were received (end of January 2013).

EDF also issued "standard" bonds in an amount of €1.4 billion with annual coupon of 2.25%, 7.5-year bonds, on 20 November 2013 (Green Bond issue).

The funds raised will be exclusively dedicated to financing future renewable energy projects led by EDF Énergies Nouvelles (see appendix E).

In January 2014, the company issued a series of "standard" and "hybrid" bonds (see note 51. "Subsequent events" in the consolidated financial statements).

These operations will contribute to the financing of the Group's investment strategy and falls within the scope of the policy to extend the maturity of its debt.

A description of the Group's bond debt is provided in note 38 to the consolidated financial statements at 31 December 2013.

## 21.1.7 Changes in the share capital

Pursuant to the Law of 9 August 2004, EDF was converted into a *société anonyme* (joint-stock company) on 20 November 2004 and its capital set at €8,129,000,000, divided into 1,625,800,000 shares with a par value of €5.

The EDF General Meeting of 31 August 2005 granted full powers to the EDF Board of Directors with a view to reducing the capital by a maximum amount of €7,316,100,000, via a reduction in the par value of shares from €5 to a minimum of €0.5. During its meeting of 27 October 2005, the Board of Directors decided to reduce the share capital by €7,316,100,000, via a €4.5 reduction in the par value of shares, which therefore decreased from €5 to €0.5. The share capital was thus reduced to €812,900,000.

During its 18 November 2005 meeting, Board of Directors used the authority granted to it by the Combined Shareholders' Meeting of 10 October 2005, and approved the increases in the Company's share capital in connection with the Open Price Offering and the Guaranteed Global Placement that were performed when the Group was first listed on the stock market. As a result, the Board of Directors increased the share capital to €906,834,514.

On 20 December 2005, Calyon (now Crédit Agricole-CIB) paid EDF the price that corresponded to the exercise of 8,502,062 warrants that the EDF Board issued to Calyon by decision taken on 18 November 2005. Consequently, the share capital was increased to €911,085,545 divided into 1,822,171,090 common shares.

The payment of dividends in shares on 17 December 2009 resulted in an increase in the share capital of €13,347,786 following the issue of

26,695,572 shares. On 21 January 2010 the share capital was thus increased to €924,433,331 divided into 1,848,866,662 common shares.

On 24 June 2011, the capital was increased to €930,406,055 divided into 1,860,812,110 common shares, via the issue of new shares as consideration for the EDF Énergies Nouvelles shares contributed to EDF in exchange for the EDF shares tendered as part of the alternative simplified public purchase or exchange offer involving EDF Énergies Nouvelles shares, which was initiated by EDF (see section 6.4.1.2.2 ("EDF Énergies Nouvelles")). Then, on 28 September 2011, the capital was reduced to €924,433,331 divided into 1,848,866,662 common shares, via the cancellation of the shares purchased as part of the share buyback programme with a view to cancellation, in order to offset the dilution caused by the aforementioned offer.

On 29 July 2013, the capital was increased to €930,004,234, divided into 1,860,008,468 common shares. This increase of capital followed the decision of the EDF General Meeting of 30 May 2013 to offer each shareholder in the company the possibility to elect for the payment in new shares of a fraction of the remaining dividend to be distributed for the financial year ending 31 December 2012.

## 21.1.8 Information on the capital of every Group member that is the subject of a conditional or unconditional agreement

The acquisition and disposal commitments involving securities in subsidiaries are described in note 44 to the consolidated financial statements for the financial year ended 31 December 2013.

With the exception of these commitments to acquire and dispose of securities and any other commitments that are described in section 6 ("Overview of activities") of this reference document, EDF has not made any promises to purchase or sell that would make it possible to acquire or dispose of, as applicable, all or part of the capital of the Company or of any of its subsidiaries, as defined in Article L. 233-1 of the French Commercial Code.

## 21.1.9 Pledge of the Company's securities

To the Company's knowledge, none of the Company's common shares that make up its share capital have been pledged.



## 21.2 Bylaw provisions

### 21.2.1 Corporate purpose

EDF's purpose, both in France and abroad is:

- to ensure the generation, transmission, distribution, supply and trading of electrical energy, and the import and export of said energy;
- to carry out the public service missions assigned to EDF by the laws and regulations, in particular by the French Energy Code, and Article L. 2224-31 of the French Local Authorities Code, as well as by concession agreements, and in particular the mission to develop and operate public electricity grids and the mission to supply energy at regulated rates, and to supply back-up power to electricity producers and customers with the aim of compensating for unforeseen supply failures, and electricity to eligible customers who cannot find a supplier, while contributing to the balanced development of electricity supply by reaching the goals defined by the multi-year generation investments programme defined by the Minister for Energy;
- more generally, to engage in any industrial, commercial or service activity, including research and engineering activities, in the field of energy, for all categories of customer;
- to enhance the value of all the personal and real property assets it holds or uses;
- to create, acquire, rent or lease under a business lease, all personal property, real property, businesses and clientele, to lease, install and operate all establishments, businesses and clientele, plants and workshops relating to any one of the aforementioned purposes;
- to obtain, acquire, operate or sell all processes and patents concerning the activities that are related to any of the aforementioned purposes;
- to take part, directly or indirectly, in all transactions that may be connected to any of the aforementioned purposes, by creating new companies or undertakings, by contributing, subscribing for or purchasing equity or ownership interests, stakes, or through mergers, partnerships or in any other way whatsoever; and
- more generally, to engage in all industrial, commercial, financial transactions, whether in personal or real property, that are directly or indirectly connected, in whole or in part, to any similar or related purposes or even to any purposes that may favour or develop the Company's business.

### 21.2.2 Financial year

Each financial year lasts for 12 months, starting on 1 January and ending on 31 December of each year.

### 21.2.3 Appropriation of profits under the bylaws

The distributable profit consists of the net profit for the financial year, less prior losses carried forward and the various deductions provided for by the law, plus any retained earnings carried forward.

The General Meeting may decide to distribute amounts that are deducted from the reserves that are freely available to it, but must expressly state the reserve items from which the deductions are made.

After approving the financial statements and confirming the existence of distributable amounts (which include the distributable profit and any amounts deducted from the reserves mentioned above), the General Meeting can decide to distribute all or part of such amounts to the shareholders in the form of a dividend, allocate them to reserve items or carry them forward.

The General Meeting has the option of granting the shareholders a choice, for all or part of the dividend or interim dividend paid out, between payment in cash and payment in shares under the conditions laid down by law. Moreover, the General Meeting may decide, for all or part of the dividend, interim dividends, reserves or premiums that are distributed or for any reduction in capital, that said distribution or said reduction will be paid in kind through remittance of the Company's assets.

The Board of Directors has the option of distributing interim dividends prior to the approval of the financial statements for the financial year, under the conditions provided for by law.

The Combined Shareholders' Meeting of 24 May 2011 approved the amendment to EDF's bylaws to insert a provision for the payment of an increased dividend to shareholders who have held their shares in registered form for at least two years (see section 20.4.2 ("Distribution policy, increased dividend"). In accordance with the law, the first increased dividend will be paid after the closure of the second financial year that follows the amendment of the bylaws, i.e. in 2014 for the dividend that will be distributed in respect of the 2013 financial year.

### 21.2.4 Rights attached to shares

Each share entitles its holder to a portion of the Company's profit and corporate assets that is proportional to the percentage of the capital that the share represents. Moreover, each share confers a voting right and the right to be represented at Shareholders' Meeting in accordance with legislative, regulatory and bylaw restrictions.

On the filing date of this reference document, EDF has only issued a single class of shares.

Ownership of a share automatically entails acceptance of the by laws and decisions adopted by General Meetings.

Shareholders are only liable for losses within the limit of their contributions.

Whenever it is necessary to hold more than one share in order to exercise any right whatsoever, in the event of an exchange, reverse stock split or allocation of shares, or due to a capital increase or reduction, a merger or any other corporate transaction, owners of single shares or numbers of shares below that required may only exercise such right if they take personal responsibility for consolidating or, if necessary, purchasing or selling the requisite number of shares.

Shareholders can choose to hold shares in registered or bearer form, subject to compliance with the laws and regulations.

Shares may be registered with an intermediary under the conditions provided for in Articles L. 228-1 *et seq.* of the French Commercial Code.

Intermediaries must declare their status as intermediaries who hold shares for a third party, under the conditions provided for in the laws and regulations. These provisions are also applicable to the other securities issued by the Company.

Under the conditions provided for by the law and regulations in force, the Company is entitled to request from the central custodian of financial instruments, at any time and provided that it pays the required consideration, as applicable, the name or corporate name, the nationality, the year

of birth or the year of incorporation, and the address of the holders of bearer shares that grant an immediate or deferred right to vote at its own Shareholders' Meetings, as well as the quantity of securities held by each of these shareholders and, where applicable, any restrictions to which the securities may be subject. On the basis of the list provided by such custodian, the Company has the option of asking the persons or entities listed that the Company believes may be registered on behalf of third parties, for the information stated above concerning the owners of the securities.

For registered shares that grant immediate or deferred access to the capital, intermediaries that are registered under the conditions provided for in Article L. 228-1 of the French Commercial Code mentioned above, are required, within ten business days as from the request made by the Company or its agent, which may be made at any time, to disclose the identity of the owners of said securities.

## 21.2.5 Assignment and transfer of shares

Shares can be traded without restriction, subject to compliance with the provisions of the law and regulations. They are registered in an account and are transmitted by transfer from one account to another.

## 21.2.6 Changes to the bylaws, the capital and the rights attached to votes

All changes to the bylaws, the capital or the voting rights attached to the securities that make up the capital are subject to the requirements of law, as the bylaws contain no specific provisions regarding such matters.

## 21.2.7 Shareholder's Meetings

### 21.2.7.1 Convening notices to meetings

General Meetings are convened by the Board of Directors or, in the last resort, by the Statutory Auditors or by any person empowered to do so. Meetings are held at the registered office or at any other place stated in the convening notice.

### 21.2.7.2 Participation in meetings and exercise of voting rights

General Meetings may be held by video conference or telecommunication means that allow for shareholders to be identified. The conditions governing the type and use of such means are specified in Articles R. 225-97 to R. 225-99 of the French Commercial Code. In such cases, shareholders who participate in the meeting by such means are deemed to be present for the calculation of the quorum and majority, under the conditions specified by law.

All shareholders can attend General Meetings, regardless of the number of shares they own.

Shareholders can choose between one of the three following methods of participation: attend the meeting in person by requesting an admission card, grant authorisation (a proxy) to the Chairman of the General Meeting or to any individual or legal entity of their choice (Article L. 225-106 of the Commercial Code), or vote by mail.

In accordance with Article R. 225-85 of the Commercial Code, proof of the right to participate in a General Meeting is obtained by the registration of the securities in an account in the name of the shareholder or of the intermediary that is registered on the shareholder's behalf (pursuant to paragraph 7 of Article L. 228-1 of the Commercial Code), on the third day

prior to the meeting, i.e. at midnight, Paris time, or in the registered share accounts held by the Company (or its authorised representative), or in the bearer share accounts held by the accredited intermediary.

In accordance with Article R. 225-85 of the Commercial Code, the entry or registration of the securities in the bearer share accounts held by financial intermediaries is evidenced by a shareholding certificate issued by these intermediaries, where applicable by electronic means under the conditions provided for in Article R. 225-61 of the Commercial Code, as an appendix to the postal voting form, the voting proxy or admission card request made on behalf of a shareholder or on behalf of a shareholder who is represented by the registered intermediary.

All shareholders may grant a proxy to any individual or legal entity of their choice in order to be represented at a General Meeting. Proxies, as well as any proxy revocations, must be evidenced in writing and notified to the Company. Proxies may be revoked in the same forms as those required for the designation of the proxy holder, including by electronic means if need be. The owners of shares that are properly registered in the name of an intermediary under the conditions provided for in Article L. 228-1 of the French Commercial Code may be represented by a registered intermediary under the conditions provided for in said article.

EDF gives its shareholders the possibility of voting online, prior to the General Meeting.

Holders of bearer shares may also use the new online Votaccess platform for the General Meeting of 15 May 2014: this platform allows shareholders to send their voting instructions electronically request an admission card and grant or withdraw a proxy, before the General Meeting is held. Only holders of bearer shares for whom the custodian is affiliated to the Votaccess system and offers them this service for the 15 May 2014 General Meeting can access this platform.

Holders of registered shares may access the online Votaccess platform via the website of the Company's authorised representative.

### 21.2.7.3 Requests for the inclusion of items or draft resolutions on the agenda and written questions to the Board of Directors

The shareholders who meet the conditions provided for in Article R. 225-71 of the Commercial Code may request the inclusion of items or draft resolutions on the General Meeting agenda within 20 calendar days as from the publication of the meeting notice, in accordance with Article R. 225-73 of the Commercial Code.

Requests for the inclusion of items on the agenda must be substantiated. The wording of the draft resolutions, as well as a brief explanation of the reasons, must accompany requests for the inclusion of draft resolutions.

On the date of the request, the authors must provide proof of owning or representing the percentage of the capital required by Article R. 225-71 of the Commercial Code. Requests must be accompanied by proof of entry in an account. Agenda items or draft resolutions that are proposed for inclusion are only reviewed if the authors of the request submit a new certificate proving the registration of the securities in the same accounts on the third day prior to the meeting.

Each shareholder also has the option of sending the Board of Directors written questions of his or her choice. The Board of Directors will answer the questions during the meeting, or, in accordance with Article L. 225-108 of the Commercial Code, the answer is deemed to have been given provided that it is published on the Company's website.

Written questions must be sent to the Company by registered letter with return receipt or by electronic telecommunication at the latest on the fourth business day prior to the date of the General Meeting. In accordance with Article R. 225-84 of the Commercial Code, these questions must be accompanied by a shareholding certificate, in order to be taken into account.

## 21.2.7.4 Temporary disposals during meeting periods

In accordance with the provisions of Article L. 225-126 of the French Commercial Code, any person who holds, alone or together with other persons, in respect of one or more temporary disposals or any transaction that grants the right to or requires the resale or return of said shares to the assignor, a number of shares that represents more than 0.5% of the voting rights in a listed company, must inform the Company and the *Autorité des marchés financiers* no later than midnight, Paris time, on the third business day prior to the General Meeting, and when the contract that arranges this transaction remains in force on this date, said information must include the total number of shares held on a temporary basis. In addition to the number of shares acquired, this declaration must contain the identity of the assignor, the date and the expiration of the contract that organises the transaction and, as applicable, the voting agreement.

If no information is provided to the company and the *Autorité des marchés financiers*, the shares thus acquired are automatically stripped of voting rights for the Shareholders' Meeting concerned and for all Shareholders' Meetings that are held until such shares are resold or returned.

Moreover, the company representative, a shareholder or the *Autorité des marchés financiers* may petition the Commercial Court to order the complete or partial suspension, for a maximum of five years, of the voting rights of any shareholder who fails to provide such information, regardless of whether or not the voting borrowing shareholder has exercised his or her voting rights.

## 21.2.8 Bylaw provisions that delay acquisition of control over the Company

Pursuant to the Article L. 111-67 and the EDF bylaws, changes in share capital cannot result in the French State's shareholding falling below the statutory 70% threshold. With the exception of this restriction, no other provision in the bylaws specifically aims to prevent or delay the takeover of the Company by a third party.

## 21.2.9 Threshold disclosure requirements

Pursuant to the provisions of the French Commercial Code, any individual or legal entity, acting alone or together with other persons or entities, that acquires a number of shares that represents more than 5%, 10%, 15%, 20%, 25%, 30%, 33.3%, 50%, 66.6%, 90% or 95% of the capital or voting rights

must inform the Company, no later than prior to the close of business on the fourth trading day following the day on which the shareholding threshold is exceeded, of the total number of shares or voting rights owned (Article R. 233-1 of the French Commercial Code). Moreover, such individuals or legal entities must also inform the AMF of these acquisitions no later than prior to the close of business on the fourth trading day after exceeding the shareholding threshold (Article 223-14 of the AMF General Regulation). The AMF publishes threshold crossings that are notified to it.

Since 2012, the cash payoff derivative and having a similar economic effect to detention of underlying shares, are taken into account for this calculation of the threshold crossing (Article L. 233-9 I-4° bis of the French Commercial code). Pursuant to AMF General Regulations, holders of these financial instruments must take into account the number of shares that carry this type of agreement and financial instruments for the calculation of their participation in the framework of their reporting obligation, and must precise, when they declare threshold crossing, their intention as to the outcome of this type of agreements and financial instruments they benefit from.

Within the same timeframes and under the same conditions, this information must also be disclosed when the capital or voting rights fall below the thresholds stated above.

Absent a proper declaration, the shares that exceed the fraction which should have been declared in accordance with the provisions of law mentioned above will be stripped of voting rights for all Shareholders' Meetings that are held during a two-year period following the date on which the effective disclosure is made.

Moreover, the Company bylaws provide that any individual or legal entity, acting alone or jointly, who acquires or ceases to hold, directly or indirectly, a number of shares that corresponds to 0.5% of the Company's capital or voting rights, or a multiple of said fraction, is required to inform the Company, by registered letter with return receipt requested, at the latest before the close of business on the fourth trading day following the crossing of such threshold, of the total number of shares, voting rights or equity interests held.

The Combined Shareholders' Meeting of 15 May 2014 will be asked to amend Article 10 of EDF's bylaws to apply the rules for the calculation and assimilation of shareholdings applicable to the statutory thresholds, as well as the obligations to provide information on financial instruments that are not assimilated to shares, covering, in particular, financial instruments carrying a future entitlement to future EDF shares, to the disclosure requirements set out in the bylaws for bylaw thresholds.

Failure to comply with the above provisions is punishable by the loss of voting rights for the shares that exceed the fraction that should have been declared, for all Shareholders' Meetings that are held until the expiration of a two-year period following the date of the effective threshold disclosure provided for above, if the application of this penalty is requested by one or more shareholders who hold at least 1% of the Company's capital. Such requests are recorded in the minutes of General Meetings.



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## 22 Material contracts

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With the exception of any contracts described in chapters 6 and 9 of this reference document, and particularly those listed below, during the two years preceding the date of filing of this document, EDF has not concluded any material contracts other than those entered into in the ordinary course of business:

- on 24 May 2013, EDF and EPH signed a final agreement. On 27 November 2013, this transaction was finalised for the sale to EPH of a 49% stake in Stredoslovenska Energetika a.s. (SSE) (see section 6.3.3.1.1.3 ("Slovakia")) ;

- EDF has finalised its transaction regarding CENG on terms set forth in the agreement with Exelon (see section 6.3.3.2.1 ("Existing nuclear facilities : Constellation Energy Nuclear Group (CENG)")) ;
- EDF group finalised the takeover of the energy group Edison (see note 3.7.1 ("Edison – Takeover by the EDF group") in the consolidated accounts).

For information on the agreements concluded by the Group during the 2013 fiscal year, see notes 44 and 49 to the consolidated financial statements for the year ended December 31, 2013.



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## 23 Third party information, statement by experts and declaration of interests

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None.





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## 24 Documents available to the public

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The Company's releases, annual reports, including historical financial information relating to the Company and any related updates filed with the AMF, are available on the Company's website: <http://finance.edf.com/finance-41326.html>. Copies of these documents may also be obtained at the Company's registered office at 22/30, avenue de Wagram in Paris, France.

All of the regulated information published by the Company, pursuant to Article 221-1 *et seq.*, in the AMF's General Regulation, is available at the following address: <http://finance.edf.com/actualites-et-publications/information-reglementee>.

Finally, the documents and information referred to in Article R. 225-73-1 of the French Energy Code, may be viewed at the Company's registered office.



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# 25 Information on holdings

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For information about the companies in which EDF holds an interest that could have a significant effect on an assessment of its holdings, its financial position or financial results, see Chapters 7 (“Organisational charts”) and 6 (“Overview of activities”) as well as note 52 to the consolidated financial statements for the year ended 31 December 2013.

# Glossary

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## **ANDRA (*Agence nationale pour la gestion des déchets radioactifs*)**

In France, radioactive waste is managed by the National Agency for Radioactive Waste Management (“ANDRA”), a public industrial and commercial institution created under the French law of 30 December 1991. To this end, the agency, which is overseen by the Ministries of Industry, Research and the Environment, commissioned the storage centres in the French department of Aube for the long-term management of short-lived waste.

## **AP913 Procedure**

Standard procedure created by the INPO (Institute of Nuclear Power Operations) to verify equipment reliability and implement equipment health checks. This procedure consists of classifying components according to the consequences of their failure. It enables the development of a maintenance strategy that is adapted to the criticality of each component.

## **Architect-Assembler**

For EDF, the architect-assembler has control over:

- the design and operation of its power plants;
- the organisation of development projects;
- the schedule for completion and costs of construction;
- relations with the French Nuclear Safety Authority; and
- the integration of feedback from operational experience.

EDF's role as architect-assembler ensures control over its industrial policy with respect to the design, construction and operation of its fleet of power plants.

## **ASN (*Autorité de sûreté nucléaire*)**

On behalf of the Government, the Nuclear Safety Authority (“ASN”) supervises nuclear safety and radiation protection in France to protect workers, patients, the public and the environment from the risks related to the use of nuclear power. It is responsible in particular for the external oversight of nuclear facilities in France. The ASN is an independent administrative authority comprised of over 300 people. At the national level, the ASN is represented by the Directorate-General for Nuclear Safety and Radiation Protection (“DGSNR”).

## **Assembly/Fuel**

Nuclear fuel is in the form of an assembly made up of an array of 264 fuel rods, bound together by a rigid structure made of tubes and grids. Each fuel rod consists of a water-tight zirconium tube into which uranium oxide pellets are piled, constituting the fuel. The assemblies are loaded side by side into the reactor vessel – 205 assemblies are required for a 1,500MW reactor – to make up the core of the reactor. During operation, these assemblies are crossed by bottom to top with primary water which heats on contact and carries this energy to the steam generators.

## **Balancing Mechanism**

Created by RTE on 1 April 2003, the balancing mechanism allows it to use power reserves that can be mobilised in the event of an imbalance between supply and demand.

## **Becquerel (Bq)**

International legal unit for measuring radioactivity. The Becquerel (Bq) is equal to one disintegration per second. The activity represented by this unit is so low that multiples of it are used: the MBq (megabecquerel or million Becquerels) and the GBq (gigabecquerel or billion Becquerels).

## **Caisse nationale des IEG**

Administrative management body created in 2004; since 2005, it has been responsible for the retirement and other benefits system for employees in the electricity and gas industry (including risks of old age, work accidents, occupational diseases, disability and death and recovery of contributions owed by employers and employees, etc.).

## **Clean Development Mechanism (“CDM”)**

The CDM is a mechanism defined by the Kyoto Protocol based on projects to reduce emissions or capture greenhouse gases (“GHS”) and sustainable development plans in developing countries. This mechanism provides that any public or private entity in a country on Schedule I (industrialised countries) which makes investments in such projects in a country on Schedule II (developing countries) acquires carbon credits in return. These credits can then be used by those Parties to meet their emission quotas, or they can be sold on the carbon market in International Emissions Trading (“IET”) or the EU emissions quota trading system (“EU ETS”).

The CDM is placed under the authority of the Conference of the Parties acting as a meeting of the parties to the Kyoto Protocol, supervised by an Executive Board, the powers of which were defined by the 2001 Marrakech agreements.

<b>Cogeneration</b>	Generation technique for combined electricity and heat production. The advantage of cogeneration is the ability to capture the heat produced by the fuel whereas in traditional electricity generation this heat is lost. This process also allows the same facility to meet the heating (hot water or steam) and electricity needs of both industrial and local authority customers. This system improves the energy efficiency of the generation process and reduces fuel use by an average of 20%.
<b>Combined-Cycle Gas</b>	The most recent technology for generating electricity in a natural gas-fired plant. A combined cycle is made up of one or more combustion turbines and a steam turbine allowing for an improved yield. The syngas is routed to the combustion turbine, which generates electricity and very hot exhaust gases (effluents). The heat from the exhaust gases is recovered by a boiler, thus producing steam. Part of the steam is then recovered by the steam turbine to generate electricity.
<b>Congestion</b>	Situation in which an interconnection linking the national transmission grids cannot absorb all of the physical flows resulting from international exchanges required by market operators due to a shortage of capacity in the interconnection and/or the national transmission grids involved.
<b>CRE (Commission de Régulation de l'Énergie)</b>	The French Energy Regulatory Commission ("CRE") was created on 30 March 2000 to ensure the proper functioning of the electricity and gas market. The CRE, an independent body, regulates the opening of the French energy market. It ensures that all of the generators and eligible customers have non-discriminatory access to the network. Within its jurisdiction, this body supervises and authorises, settles any disputes and, if required, imposes sanctions. For a detailed description of its powers, see section 6.5.3.2 ("French legislation: Energy Code").
<b>Disruption</b>	Voluntary reduction of electrical power by a customer, in exchange for compensation. It is called "diffused" when it is due to the aggregation of small consumption sites.
<b>Distribution network</b>	Downstream of the transmission network, medium- and low-voltage distribution networks serve end-users (residential, local authorities, SMEs, SMLs, etc.).
<b>DNN</b>	Non-Nationalised Distributor.
<b>Downstream</b>	See "Fuel Cycle" and "Downstream Asset Portfolio".
<b>Downstream Asset Portfolio</b>	All contractual energy disposal commitments involving operators or end users.
<b>EaR (Earning at Risk)</b>	A financial indicator providing a statistical measure of risk of maximum potential loss of a company's income versus its budgeted income in the event of unfavorable market movements over a certain period of time and within a given confidence interval.
<b>EBITDA</b>	Earnings before interest, taxes, depreciation and amortisation, corresponding to gross operating profit.
<b>Effects of changes in the scope of consolidation</b>	Effects of changes in the scope of consolidation, occurring during a given year, including acquisitions, disposals and changes in the Group's scope of consolidation.
<b>Effects of exchange rate variations</b>	The impact of exchange rates recognised in the income statement for a financial year, reflects the fluctuations in average exchange rates between the euro and another operational currency in use by the subsidiaries within the Group's scope of consolidation.
<b>Electric and Gas Industries (IEG) status</b>	Special status instituted in 1946 applicable to active and retired (inactive) electricity and gas industry employees in France, which differs from ordinary law in the following areas: <ul style="list-style-type: none"> <li>■ retirement benefits;</li> <li>■ collective agreements (salary scale, working hours and organisation);</li> <li>■ employee representative institutions;</li> <li>■ social activities.</li> </ul>

<b>Electricity supply</b>	<p>Electricity demand can be broken down into four types of consumption:</p> <ul style="list-style-type: none"> <li>■ the “basic” (or “ribbon”) supply of electricity, which is generated and consumed throughout the year;</li> <li>■ “semi-basic” supply is the electricity generated and consumed over the winter period;</li> <li>■ “peak” supply corresponds to periods of the year when electricity generation or supply is in heavy demand;</li> <li>■ “lace” supply is a complement to “ribbon” supply.</li> </ul>
<b>Electricity Value Chain</b>	The electricity value chain includes both deregulated activities (generation and supply) and regulated activities (transmission and distribution).
<b>Enrichment</b>	Process to increase the fissile content of an element. In its natural state uranium is 0.7% uranium 235 (fissile) and 99.3% uranium 238 (non fissile). To enable its efficient use in a pressurised water reactor, it is enriched with uranium 235 whose proportion is increased to around 4%.
<b>Enriched uranium</b>	Uranium, whose isotope 235 content, the only fissile material, has been increased from its low natural level (0.7%) to approximately 4% for pressurised water reactor fuel.
<b>Entity Responsible for Balance</b>	Entities with which RTE signs a contract for the financing of shortfalls between forecast and actual consumption and the production of a portfolio of users brought together by the balance responsible entity which plays a role of insurer covering the potential losses arising from the many differences between over- and under-supply.
<b>ERU (enriched reprocessed uranium)</b>	To be used in a reactor, reprocessed uranium (RepU), even if containing more fissile uranium than in its natural state, must be further enriched. It is therefore called re-enriched uranium (ERU).
<b>EPR</b>	European Pressurised Reactor. The latest generation of reactors currently under construction (known as generation 3), it is the result of Franco-German cooperation, and offers advanced safety, environmental and technical performance.
<b>Fluorination (conversion)</b>	Also called “conversion”, fluorination allows for the purification of uranium compounds and their transformation into uranium hexafluoride (UF <sub>6</sub> ), allowing their enrichment using current techniques.
<b>FNCCR</b>	French National Federation of Licensors and Local Utilities ( <i>Fédération nationale des collectivités concédantes et régies</i> ).
<b>Fuel</b>	See Assembly/Fuel.
<b>Fuel Cycle</b>	<p>The nuclear fuel cycle encompasses all industrial operations in France and abroad which enable the supply of the fuel to generate energy in a reactor, then to unload and process it. The cycle can be broken down into three stages:</p> <ul style="list-style-type: none"> <li>■ upstream: the processing of concentrates from uranium ore, the conversion, enrichment and production of fuel (which takes more than two years);</li> <li>■ the core of the cycle corresponding to the use of fuel in the reactor: receipt, loading, operation and discharging (which takes three to five years);</li> <li>■ downstream: pool storage, reprocessing of spent fuel in reactors of recoverable material, vitrification of highly radioactive waste, then temporary storage of the waste before storage.</li> </ul>
<b>Generic Hazard</b>	In the nuclear field, an unpredictable technical incident common to a set of nuclear plants.
<b>Greenhouse gases</b>	Gas that retains a portion of the solar radiation in the atmosphere and for which an increase in emissions due to human activity (man-made emissions) causes an increase in the earth’s average temperature and plays an important role in climate change. The Kyoto Protocol covers the seven following principal greenhouse gases: carbon dioxide (CO <sub>2</sub> ), methane (CH <sub>4</sub> ), nitrogen protoxide (N <sub>2</sub> O), hydrofluorocarbons (HFC), perfluorated hydrocarbons (PFC), sulfurhexafluoride (SF <sub>6</sub> ) and, since 2013, nitrogen trifluoride (NF <sub>3</sub> ).
<b>Gross energies margin</b>	Gross energies margin is calculated based on accounting data from the income statement and represents the margin on energy, fuel and transmission costs generated by energy (i.e., electricity and gas) sales.
<b>IAEA</b>	International Atomic Energy Agency based in Vienna (Austria).
<b>Interconnection</b>	Electricity transmission infrastructure that allows for exchanges of energy between different countries, by connecting the transmission network of one country to that of a neighbouring country.



<b>Intermediate Storage</b>	Intermediate stage in the process of managing nuclear waste. It involves placing waste packages in a facility to ensure, for a given period of time, their isolation from contact with man and the environment with the intention of retrieving them for a further stage in the waste management process. Intermediate storage facilities are designed, built and managed by the producers of such waste (EDF, AREVA NC (formerly COGEMA) and CEA) and are close to areas where waste is conditioned.
<b>IPP</b>	An Independent Power Producer, whose operations are not state-regulated. IPP can only refer to projects and/or units developed outside France.
<b>Kyoto Protocol</b>	An international protocol adopted in 1997 to combat climate change. It was ratified in 2002 by the European Union and went into effect on 16 February 2005. Its aim is to reduce greenhouse gas emissions.
<b>LDC</b>	French Local Distribution Companies. Local Distribution Companies sell and deliver electrical energy to end users located in their exclusive service area.
<b>LNG (Liquefied Natural Gas)</b>	Natural gas turned into liquid form by reducing its temperature to -162°C allowing for a reduction by 600 in its volume.
<b>Metering</b>	A system allowing for the recording, at a given network connection point, of the volumes of electricity transmitted or distributed (power, frequency, active and reactive energy).
<b>Midstream</b>	All assets of the gas business, allowing for its availability, transportation and management. These might be infrastructures (gas pipelines, storage facilities, LNG terminals, etc.) or contractual (rights relating to pre-determined capacity, procurement contracts, etc.). The midstream segment includes the trading and negotiating activities.
<b>MOX (Mixed Oxides)</b>	Nuclear fuel based on a mixture of uranium oxides (natural or depleted) and plutonium.
<b>MW/MWh</b>	<p>The MWh is the energy unit generated by a facility and is equal to the facilities' power, expressed in MW, multiplied by the duration of operations in hours.</p> <p>1MW = 1,000 kilowatts = 1 million watts</p> <p>1MWh = 1MW generated in one hour = 1 megawatthour</p> <p>1GW = 1,000MW = 1 billion watts</p> <p>1TW = 1,000GW</p>
<b>MWh cumac</b>	The MWh cumac is the certificate energy unit of counting which corresponds to the cumulative energy savings aggregated on the operations' lifetime.
<b>National Quota Allocation Plan</b>	This plan defines the total quantity of greenhouse gas emission quotas that the French government plans to grant for the quotas exchange system for each multi-year period (NAP 1: 2005-2007, NAP 2: 2008-2012) and the allocation method used to allocate quotas to the industrial facilities in question.
<b>Non-interconnected zones</b>	Zones in France which are not connected to metropolitan France (Corsica and overseas departments).
<b>Nuclear safety</b>	Nuclear safety includes all of the technical, organisational and human measures which are intended to prevent accident risks and to limit the effects of an accident, and which are taken at every stage of the life of a nuclear power plant (from design to operation and finally to decommissioning).
<b>Nuclear tranche</b>	Electrical production unit consisting of a nuclear boiler and a turbo-alternator generator. A nuclear tranche essentially consists of its reactor type and the power of its turbo-alternator generator. EDF nuclear plants include two or four tranches, and occasionally six.
<b>PCB</b>	Polychlorobiphenyls.

<b>PCT</b>	Polychloroterphenyls.
<b>Plant availability</b>	Fraction of power available, out of theoretical maximum energy, counting only technical non-availability. The availability coefficient (Kd) is defined as the ratio between annual actual generation capacity (or amount producible annually) and maximum theoretical generation capacity, where maximum theoretical generation capacity = installed capacity × 8,760h. The Kd, which counts only technical non-availability, i.e., scheduled shutdowns, unplanned outages and testing periods, characterises a plant's industrial performance. For EDF's nuclear fleet in France, the maximum theoretical generation capacity is of 553 TWh (63.1GW × 8,760h).
<b>Plutonium (Pu)</b>	Element with the atomic number of 94 (number of neutrons) and no naturally occurring isotopes (elements whose atoms possess the same number of electrons and protons – thus the same chemical properties – but a different number of neutrons). Plutonium 239, a fissile isotope, is produced in nuclear reactors from uranium 238.
<b>Post-employment benefits</b>	<p>Specific benefits acquired due to electricity and gas industry ("IEG") status, in addition to ordinary French law, recognized according to IAS 19 and related primarily to:</p> <ul style="list-style-type: none"> <li>■ specific supplementary retirement benefits;</li> <li>■ end-of-service awards and exceptional supplementary retirement benefits;</li> <li>■ energy benefits in kind (gas and electricity) and compensatory payments for education expenses;</li> <li>■ asbestos-related benefits and annuities for accidents at work or occupational diseases for inactive agents;</li> <li>■ exceptional leave benefits;</li> <li>■ bereavement benefits.</li> </ul> <p>These specific benefits are not covered by ordinary law arrangements but through an asset fund (insurance policies) and provisions recognised by EDF.</p>
<b>PPA</b>	A power purchase agreement. This type of long-term contract generally forms the basis for an IPP project (see above).
<b>Producible hydropower generation</b>	Maximum energy that hydropower facilities may produce using contributions under normal hydraulicity conditions. However, generation from hydroelectric facilities does vary, sometimes markedly, from one year to the next depending on hydraulicity (rainfall and snowfall). In dry years, the generation index may vary by 20% or more from the standard level.
<b>Profit at Risk ("PaR")</b>	The Profit at Risk ("PaR") is, for a given confidence interval, the maximum decline of the expected value of a portfolio ("MtM") on a yearly time horizon.
<b>Radiation protection (Dosimetry - Dose)</b>	At a power plant, ionising radiation sources are numerous: the fuel itself, equipment activated by neutron flux (particularly that which is close to the core, such as tanks or lids) and particles from corrosion of the primary circuit of reactors and carried by the primary fluid. The level of exposure of a person is quantified by the dose equivalent in Sieverts (Sv). The total dose equivalents, called dosimetry and expressed in man-sieverts, is used as an indicator of dose received by all participating persons. The mobilisation of ground players has allowed a continuous improvement of performance on the protection of employees against the effects of ionising radiation.
<b>Remote metering</b>	Remote metering of the quantity of electrical power injected into and drawn from the network.
<b>Renewable energies</b>	Energies for which production does not require extinction of the initial resource. They include hydro, wind, solar, marine (the energy produced by marine waves and currents), geothermal (energy derived from the heat below the earth's magma) energies, and bio-mass (energy derived from living matter, particularly wood and organic waste). They often include energy from the incineration of household or industrial waste.
<b>Reprocessing</b>	Reactor burnt fuel reprocessing aimed at separating materials that can be recycled (uranium and plutonium) from final waste.

<b>RepU (reprocessed uranium)</b>	Reprocessed uranium ("RepU"), uranium derived from spent fuel reprocessing, differs from natural uranium as it contains slightly more uranium 235 and more uranium isotopes. It is recyclable and RepU fuel assembly refuelling is commonly used in reactors.
<b>RPD</b>	French public distribution network.
<b>RPT</b>	French public transmission network.
<b>Series</b>	In the nuclear field, a series of plants means a set of nuclear plants with identical generation capacity. EDF's PWR model is divided into three series of available electrical power: the 900-MW series (34 tranches of approximately 900MW each), the 1,300-MW series (20 tranches) and the 1,450-MW series (four tranches).
<b>STEP</b>	An energy transfer pumping station ("STEP") is a plant with two reservoirs, one higher and one lower, connected via pumps to push the water up and turbines to produce energy.
<b>Storage</b>	Storage consists in placing packages of radioactive waste in a facility, ensuring their long-term management, i.e., under safe conditions allowing for long-term risk control.
<b>Storage center</b>	Low- or medium-level short-lived radioactive waste from nuclear plants, from La Hague or Centraco facilities, are sent to ANDRA's Soulaïnes storage center in the French department of Aube, which has been operational since 1992. This centre has a capacity of 1,000,000m <sup>3</sup> , and acceptance capacity of approximately 60 years. Very low-level short-lived radioactive waste is sent to ANDRA's Morvilliers storage center (also in the Aube). This center was commissioned in October 2003 and has an operating life of about 30 years.
<b>Systems services</b>	Systems Services are services provided to users (consumers or electricity producers) through the joint action of the electricity transmission network operator RTE and the producers. They are intended to regulate frequency and voltage in order to maintain the balance between electric consumption and production at all times. They are created by RTE from elementary contributions from producers, i.e. primary and secondary reserves provided to RTE. RTE remunerates the producers for these auxiliary services before re-invoicing these services via the tariff to use the network under the rules defined by the Union for the Coordination of Transmission of Electricity ("UCTE").
<b>Therms (th)</b>	One therm is equivalent to 1,163kWh or 4,186 million joules.
<b>Transmission network</b>	Network providing for the transmission of electrical power at high and very high voltages from the generating sites to the distribution networks or industrial sites directly connected to it; this includes the major interconnection transmission network (400,000 volts and 225,000 volts) and the regional distribution networks (225,000 volts, 150,000 volts, 90,000 volts and 63,000 volts).
<b>Transmission Tariff Contribution ("CTA")</b>	Contribution applied to consumer bills that covers specific benefits constituted before 2005 concerning employees who work in transport and distribution. The CTA ends in 2025 and annual payments will be made to the National Fund for the Electricity and Gas Industries ("CNIEG").
<b>Tritium (<sup>3</sup>H)</b>	Hydrogen isotope, which emits beta rays, present in pressurised water reactor effluents.
<b>Ultracentrifugation</b>	This process involves very high speed spinning in a vacuum of a cylinder containing uranium hexafluoride (UF <sub>6</sub> ). Through the effect of the centrifugal force, the heavier molecules ( <sup>238</sup> U) aggregate at the periphery while the lighter ones ( <sup>235</sup> U) move towards the centre, creating an isotopic separation effect.
<b>UO<sub>2</sub></b>	Natural uranium, fluorinated and then enriched. Uranium oxide, a particularly stable chemical form of uranium used as fissile material in fuel assemblies of pressurised water reactors.
<b>Upstream</b>	See "Fuel Cycle" and "Upstream Asset Portfolio".
<b>Upstream Asset Portfolio</b>	All assets that contribute to electrical power availability. These might be infrastructures (production plants, etc.) or their contractual equivalent long-term contracts, equity interests, contracts granting rights to a portion of the energy produced.

**Uranium (U)**

In its natural state, uranium is a mix containing three main isotopes (elements whose atoms have the same number of electrons and protons, thus the same chemical properties, but a different number of neutrons):

- uranium 238, 99.3% fertile;
- uranium 235, 0.7% fissile;
- uranium 234.

Uranium 235 is the only natural fissile isotope, a quality which justifies its use as an energy source.

**VaR (Value at Risk)**

Financial indicator giving the statistical measure of potential maximum risk of loss of economic value (market value or mark to market) to a portfolio of cash flows in the event of unfavourable market movements over a certain period of time and a given confidence interval.

**Vitrification**

Process of immobilisation in a glass structure concentrated solutions of high-level waste by mixing at high temperature with glass paste.

**Waste**

The nuclear generation of 1MWh of electricity (equivalent to the monthly consumption of two households) produces around 11g of total waste across all categories.

Short-lived waste represents more than 90% of the total, but contains only 0.1% of the radioactivity of waste. Accordingly, based on their level of radioactivity, they are separated into two sub-categories: low-level waste and very-low-level waste.

Long-lived medium and high-level waste are produced in low quantity (less than 10% of the total quantity), but they contain almost all of the radioactivity of the waste (99.9%).







# Appendix

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# A 2013 Report by the Chairman of the EDF Board of Directors on corporate governance, internal control and risk management procedures

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## Introduction

Pursuant to Article L. 225-37 of the French Commercial Code, this report sets out:

- the corporate governance environment (the composition of the Board of Directors, the conditions under which the Board of Directors' work is prepared and performed, and the limits on the Chairman and CEO's powers), the principles and rules laid down by the Board of Directors to determine the corporate officers' compensation and the provisions governing shareholder involvement in EDF general meetings (§ 1);
- as well as the internal control and risk management procedures implemented within the EDF group (§ 2).

For the purposes of this report, the terms "EDF" or "Company" refer to Électricité de France SA.

The terms "EDF group" or "Group" refer to:

- the EDF corporation;
- its subsidiaries in the regulated sector: the "regulated subsidiaries";
  - RTE, which is responsible for managing the public network for the transmission of electricity. Under Articles L. 111-2 to L. 111-46 of the French Energy Code, and pursuant to the Third Directive of 13 July 2009, this management must be independent with regard to the parent company;
  - ERDF, which is responsible for managing the public network for the distribution of electricity, for which the French Energy Code also contains provisions on independent management (Articles L. 111-57 to L. 111-66);

- these statutory provisions introduce limits (which are specific to each of these subsidiaries but more restrictive for RTE) on the extent to which the parent company can control their activities;
- its other directly or indirectly held subsidiaries, over which it has majority control, in or outside France: "the controlled subsidiaries";
- its affiliates that are jointly-controlled, such as CENG and Dalkia International: "the jointly-controlled affiliates";
- affiliates in which the Group has direct or indirect minority holdings: "the shareholdings".

*Note 1:* the scope for the Group's consolidated financial statements is detailed in note 52 of the notes to the consolidated financial statements as of 31 December 2013 (see chapter 20 of the 2013 Reference Document).

*Note 2:* the information that is specific to the subsidiaries RTE and Électricité de Strasbourg is available in the reports produced by these two companies pursuant to Article L. 225-37 of the French Commercial Code. The practices and terms for exercising control may differ depending on the specific area of activity of the entities mentioned above, and will be specified as necessary throughout this report.

*Note 3:* The information contained in this report was established as of 31 December 2013, except as otherwise stated. Additional information and updates are available in the EDF 2013 Reference Document, to which the report will be appended.

## 1 Corporate governance

### 1.1 Corporate Governance Code

EDF adheres to the AFEP-MEDEF Consolidated Code, which was revised in June 2013. This is the corporate governance code to which the Company refers pursuant to Article L. 225-37 of the French Commercial Code<sup>1</sup>, subject to the specific provisions of the law and regulations that are applicable to EDF.

These specific provisions, which are a result of EDF being a state-owned company, and in particular the application to the Company of Law

no. 83-675 of 26 July 1983 on the Democratisation of the Public Sector and Decree no. 53-707 of 9 August 1953, are detailed in the Company's 2013 Reference Document and concern, in particular, the rules that determine the compensation awarded to the Chairman and CEO (see section 15.1.1.1 of the Reference Document ("Rules for determining compensation")) or the way in which Executive Management decisions are taken and implemented (see section 16.2.1.4 of the Reference Document ("How Executive Management decisions are taken and implemented and powers of the Chairman and CEO"))).

1. After consulting the AFEP-MEDEF recommendations of October 2008 on the remuneration of company senior executives, as of 17 December 2008 the Board of Directors expressed its agreement with these recommendations, stating that they were in line with EDF's corporate governance policy and that the Company had already implemented them.

In addition to the specificities mentioned above, the following table covers the recommendations of the AFEP-MEDEF Code that are not applied by the Company and the corresponding explanations:

Subject of the AFEP-MEDEF Code recommendation	Company position	Explanation	Corresponding section of the 2013 Reference Document
Composition of the Board of Directors	The composition of the EDF Board of Directors is divided into three colleges: the Board has six directors who are appointed by ordinary general meetings, six directors who represent the State and six directors who are elected by employees	This tripartite composition of the Board results from the application of Law no. 83-675 of 26 July 1983 on the Democratisation of the Public Sector	See sections 14.1.1 ("Composition of the Board of Directors") and 16.2.1.1 ("Composition of the Board")
Proportion of women within the Board of Directors	There are five <sup>(1)</sup> women on the EDF Board of Directors, one of whom belongs to the college of directors appointed by ordinary general meetings, one to the college of directors representing the State and the three others to the college of directors elected by the employees. This means that 27.8% of all Board members are women and that 16.6% of the Board members used to calculate this percentage in accordance with the AFEP-MEDEF Code (which therefore excludes directors who represent employees) are women	The EDF Board of Directors is appointed for five years, then renewed en masse in accordance with the Law of 26 July 1983. The most recent renewal of the Board membership dates back to November 2009 and the next renewal is scheduled for November 2014. The recommendations taken from the AFEP-MEDEF Code, as well as the obligations that result from Law no. 2011-103 of 27 January 2011 on the balanced representation of women and men on boards of directors and supervisory boards and gender balance in the workplace will be taken into account for future Board membership renewals	See section 16.2.1.1 ("Composition of the Board")
Percentage of independent directors on the Audit Committee	The Audit Committee has one independent director out of the three used to calculate the percentage of independent directors (which therefore excludes directors who represent employees)	The composition of the Audit Committee reflects the specificities of the composition of the Board, as per the Law of 26 July 1983, which make it difficult to comply with the two-thirds proportion of independent directors on the Committee. In the Company's opinion, although two-thirds of the directors on the Committee are not independent, its current composition does not affect the competencies of the Committee or its ability to perform effectively the tasks that are assigned to it by the law and the internal regulations of the Board of Directors	See section 16.2.3.1 ("Audit Committee")
Term of office of directors	The term of office of the directors is five years and the membership of the Board is renewed en masse every five years	The length of the term of office and how the Board membership is renewed result from Article 11 of the Law of 26 July 1983 on the Democratisation of the Public Sector	See section 16.2.1.2 ("Term of office of directors")
Rules governing the appointment of the Chairman and CEO of EDF	The Chairman and CEO of EDF is appointed by Presidential decree, following a proposal by the Board of Directors, after interviewing candidates and consulting the standing commissions of the National Assembly and the Senate	The rules governing the compensation of the Chairman and CEO result from the Law of 26 July 1983 and Article 13 of the Constitution	See section 16.2.1.4 ("How Executive Management decisions are taken and implemented and powers of the Chairman and CEO")
Holding of Company shares by the Directors	The Company's bylaws and the Board internal regulations do not provide that directors must possess a relatively significant number of shares with respect to the directors' fees received	Pursuant to the Law of 26 July 1983, the directors who represent the State, as well as those who represent the employees, must perform their duties free of charge. Moreover, the Chairman of the Board of Directors does not receive any directors' fees. For these reasons, a specific rule that applies only to those directors who receive directors' fees (five out of a total of eighteen) has not been adopted. Moreover, each director must act in the corporate interest, regardless of the number of shares he or she holds in the Company	See section 17.5 ("Investment by directors and the capital and involvement in transactions in EDF securities by corporate officers and senior executives")

(1) On the date of this report.

Subject of the AFEP-MEDEF Code recommendation	Company position	Explanation	Corresponding section of the 2013 Reference Document
Rules governing the allocation of directors' fees	A significant but not "preponderant" portion of directors' fees is linked to the effective attendance of directors at Board and Committee meetings	Only directors who are appointed by ordinary general meetings, other than the Chairman and CEO, receive directors' fees. Specific allocation rules, which only apply to these directors (five out of a total of eighteen) have been adopted, which take into account the level of responsibilities and time devoted by the directors to their duties. Although the variable portion of compensation paid in the form of directors' fees is not preponderant, the Company considers that is still significant and appropriate, since the total amount of the directors' fees is divided into a fixed portion and a variable portion (50% each of the total amount) allocated as follows: (i) the fixed portion is shared equally between the directors concerned, and (ii) the variable portion is allocated among these directors on the basis of a variable coefficient according to the type of meetings attended and the specific duties performed by each director.	See section 15.1.2 ("Total director compensation")

The AFEP-MEDEF Code, which was revised in June 2013, provides that a senior executive must not hold more than two other directorships in listed companies outside his or her group, including foreign companies. In accordance with this Code and the application guide published by the High Committee on Corporate Governance in January 2014, this recommendation applies the next time that the director or executive concerned is appointed or has his or her term of office renewed. Mr Henri Proglio's position will be reviewed in light of these recommendations, in accordance with the timeframes recommended by the Code and the application guide.

## 1.2 Composition and functioning of the Board of Directors

The Internal Regulations of the Board of Directors specify the principles on which the Board operates and how the Board, as well as the specialised advisory committees set up by the Board, fulfil their remits. These Regulations also stipulate the role and powers of the Chairman and CEO.

These Internal Regulations are reviewed as required, in order to take into account any changes in the law and regulations, for example.

### 1.2.1 Composition of the Board of Directors

In accordance with Article 6 of Law no. 83-675 of 26 July 1983 on the Democratisation of the Public Sector, 18 directors sit on the Board. The employees elect one-third of the directors. The remaining two-thirds are

appointed during ordinary general meetings, following a proposal by the Board of Directors, with the exception of the directors who represent the French State, who are appointed by decree.

In accordance with Article 11 of the Law on the Democratisation of the Public Sector, members of the Board of Directors serve a five-year term of office. The terms of office of all the current directors will expire on 22 November 2014 at midnight. Consequently, the membership of the Board of Directors will be renewed en masse during 2014.

The conditions under which directors may be removed from office are provided for in Article 12 of the Law on the Democratisation of the Public Sector (see section 16.2.1.2 of the 2013 Reference Document).

If a member's seat on the Board of Directors becomes vacant, regardless of the cause, the incoming director's term of office only lasts until the Board membership is next renewed en masse.

As of the date of this report, the Board of Directors comprises:

- six directors appointed by general shareholders' meetings: Henri Proglio, Chairman and CEO, Mireille Faugère, Philippe Crouzet, Michael Jay, Bruno Lafont and Pierre Mariani;
- six directors who represent the State: Marie-Christine Lepetit, Olivier Appert, David Azéma, Bruno Léchevin, Denis Morin and Pierre Sellal;
- six directors elected by employees: Christine Chabauty, Sidonie Delalande and Marie-Hélène Meyling, Alexandre Grillat, Jean-Paul Rignac and Maxime Villota.

The list of the directors' personal details is provided in section 14.1 of the 2013 Reference Document

Since 1 January 2013 and up through the date of this report, the following changes have been made to the composition of the Board of Directors:

Name of the director	College	Date of appointment	To replace
Bruno Léchevin	Director representing the State	Decree of 6 May 2013	François Loos
Olivier Appert	Director representing the State	Decree of 17 June 2013	Yannick d'Escatha
Denis Morin	Director representing the State	Decree of 14 December 2013	Julien Dubertret
Sidonie Delalande	Director elected by employees	1 February 2014	Philippe Maïssa



Pursuant to Law no. 2011-103 of 27 January 2011 on the balanced representation of women and men on boards of directors and supervisory boards, and professional gender equality, EDF, in its capacity as a listed *société anonyme* and state-owned company, is subject (i) to the rules applicable to listed companies (as regards the college of directors appointed by general meetings) and (ii) to the rules applicable to public institutions (for the college of directors appointed by decree).

As of the date of this report, the EDF Board of Directors has five female members. The first belongs to the college of directors appointed by general shareholders' meetings, the second belongs to the college of directors appointed by decree and the three others belong to the college of directors elected by the employees, i.e. 27.8% of all Board members are women and 16.6% of the Board members used to calculate this percentage in accordance with the AFEP-MEDEF Code are women (see section 16.2.1.1 of the 2013 Reference Document).

The Government Commissioner<sup>1</sup> and the Head of the French State's economic and financial evaluation of EDF<sup>2</sup>, as well as the Secretary of the Central Works Council attend the meetings of the Board of Directors in an advisory capacity.

## 1.2.2 Obligations and duties of directors

The Internal Regulations of the Board of Directors provide that Board members' obligations include: acting in the interest of the Company, informing the Board of Directors of any conflicts of interest and abstaining from voting in any discussion involving a potential conflict of interest, respecting the confidentiality obligation and complying with EDF's Stock Market Compliance Charter.

The members of the Board of Directors, and the Chairman and CEO are required to inform the Board of Directors immediately of all agreements entered into by the Company in which they have a direct or indirect interest or that are entered into by an intermediary.

Each director receives a regularly updated Director's Handbook that is primarily a compendium of the Company's bylaws, the Internal Regulations of the Board of Directors and its Committees, the Stock Market Compliance Charter (see section 16.5 of the 2013 Reference Document), the Group Ethics Charter, the Group's corporate social responsibility commitments and the AFEP-MEDEF Corporate Governance Code for Listed Companies.

## 1.2.3 Executive Management method, powers and responsibilities of the Chairman and CEO

According to the EDF bylaws, the Chairman of the Board of Directors is responsible for the Executive Management of the Company and has the title of Chairman and Chief Executive Officer (CEO).

EDF's bylaws thus stipulate that the duties of Chairman and CEO are not conferred on separate persons. The Board Internal Regulations and, in particular, the limits they place on the CEO's powers, are designed to ensure a balance of power between the executive corporate officer and the Board of Directors, while maintaining requisite flexibility and responsiveness in the administration and management of the Company.

The EDF Chairman and CEO is appointed by Presidential decree on the basis of a proposal of the Board of Directors and may also be removed from office by such a decree, in accordance with Article 10 of the Law on the Democratisation of the Public Sector.

Pursuant to the provisions of Article 13 of the Constitution, the Chairman is appointed after candidates have been interviewed and once the standing commissions of the National Assembly and Senate have been consulted.

Henri Proglio was appointed Chairman and CEO of EDF on 25 November 2009, by decree.

Subject to the specific provisions of the law relating to public sector companies and the powers that the law or the bylaws expressly reserve for the Board of Directors or shareholders' meetings, as well as the limits on the powers of the Chairman and CEO set forth in the Board of Directors' Internal Regulations as an internal rule (see § 1.2.4), the Chairman and CEO is vested with the broadest powers to act on behalf of the Company in all circumstances, within the limit of the corporate purpose. The Chairman and CEO organises and oversees the Board of Directors' work, on which he reports to general meetings. He ensures that the various corporate bodies function correctly and, in particular, verifies that the directors are able to fulfil their remits.

## 1.2.4 Powers and remits of the Board of Directors

In accordance with the law, the Board of Directors determines the Company's business policies and ensures that these policies are implemented. Subject to the powers that are expressly conferred on shareholders' meetings and within the limit of the corporate purpose, the Board of Directors may take it upon itself to review all matters that are related to the smooth running of the Company, governing such affairs through its deliberations.

Moreover, in accordance with Article 7 of the Law on the Democratisation of the Public Sector, the Board deliberates on all the Company's and the Group's strategic, economic, financial or technology policies, as well as on matters that the law expressly entrusts to the Board or that the Board has reserved for itself.

Pursuant to its Internal Regulations, solely the Board of Directors can authorise the following operations:

- acquisition-based and internal growth operations or disposals that represent financial exposure for the Company in excess of €200 million. This threshold is reduced to €50 million for acquisitions that are not consistent with the Company's strategy policies;
- real estate transactions that exceed €200 million;
- certain financial transactions for which the amount exceeds the value determined each year by a specific Board decision; for the 2013 fiscal year, the Board set (i) the total amount of the aggregate authorisation for guarantees, endorsements and sureties at €1.5 billion (the Chairman and CEO reports to the Board on all transactions of this type for which the unit amount exceeds €100 million, which are granted on behalf of the Company or by an undertaking that is controlled by the Company) and (ii) the nominal unit amount of certain financial transactions at €5 billion. For 2014, the Board of Directors decided to renew the same level of authorisations;
- procurement contracts (for supplies, works or services, with or without a financial commitment) for which the amount, including that of any successive riders entered into during the same year, is equal to or higher than €200 million, or between €100 and €200 million if these procurement contracts correspond to a new Group strategic policy or business line;
- long-term contracts for the purchase or sale of energy, or CO2 emission credit and allowances, which were entered into by the Company or by a company under its exclusive control, for annual volumes or amounts in excess of 10 TWh for electricity, 20 TWh for gas (detailed information on long-term contracts for the sale or purchase of gas for more than 5 TWh and less than 20 TWh is also provided during the Board meeting that follows their signature) and €250 million for coal and carbon dioxide;

1. Decree no. 2012-406 of 23 March 2012; Order of 15 June 2012.

2. In accordance with the Decree no. 55-733 of 26 May 1955, this assignment performs the French State's economic and financial evaluation of EDF. Extended audit procedures may be performed.

- strategies related to nuclear fuel cycle front-end and back-end operations;
- operations to transfer obligations relating to decommissioning or the back-end of the nuclear fuel cycle.

The Board of Directors establishes the framework for the policy on the constitution and management of the assets used to cover nuclear commitments, and votes, in particular, on asset-liability management, the asset allocation strategy, the quality of the assets and the method used to select any financial intermediaries. In the event of a negative opinion by the Nuclear Commitments Monitoring Committee on a project to invest in private equity for dedicated assets, only the Board of Directors has authority to authorise such a project (see § 1.4.2.2). The Board sets the market, counterparty and liquidity risk limits.

Lastly, pursuant to the Law no. 2011-103 of 27 January 2011 on the balanced representation of women and men on boards of directors and supervisory boards<sup>1</sup> and professional gender equality, the Board of Directors must deliberate annually on the Company's policy on professional gender equality and equal pay.

### 1.2.5 Assessment of director independence

The AFEP-MEDEF Corporate Governance Code, which was revised in June 2013, recommends that, in controlled companies, at least one-third of the seats on the Board of Directors should be held by independent directors and states that directors who represent employees are not taken into account to determine the percentage of independent directors. Given the specific legal framework that applies to the Company, out of a total of 18 members, the Board of Directors has six who represent the French state who cannot therefore meet the independence criteria defined by the AFEP-MEDEF Code, and six directors who represent employees, who are not taken into account when determining the proportion of independent directors.

During the joint meeting of 16 January 2014, the Ethics Committee and the Nominations and Compensation Committee reviewed each director's individual position. On the basis of the these Committees' findings, during its meeting of 12 February 2014, the Board of Directors assessed the independence of the directors in light of the criteria defined by the AFEP-MEDEF Corporate Governance Code and confirmed that Mireille Faugère, Philippe Crouzet, Michael Jay, Bruno Lafont and Pierre Mariani qualify as independent directors. In the Board's opinion, these directors have no ties with the Company, its Group or its Management that would be liable to compromise their freedom of judgement.

As of the date of this report, the Company Board of Directors therefore has five independent directors out of a total of 12 who can qualify as independent under the revised AFEP-MEDEF Code, i.e. 41.7% of the directors are independent.

### 1.2.6 Functional assessment of the Board of Directors

In accordance with the provisions of the AFEP-MEDEF Code, the Board of Directors Internal Regulations require the Ethics Committee to perform an annual functional assessment of the Board of Directors and to suggest areas that require improvement. Consequently, once a year the Board of Directors devotes an agenda item to this assessment and discusses how the Board functions, in order to improve the Board's effectiveness, and to verify that major issues are properly prepared and discussed within the Board. Moreover, every three years, an outside consultant performs this assessment, which is overseen by the Ethics Committee.

As the last assessment performed by an outside firm was conducted in 2010, a specialised firm was engaged to perform this assessment in respect of 2013, through in-depth interviews with each of the directors, which were

conducted during the fourth quarter of the 2013 fiscal year. On the basis of the findings reviewed by the Ethics Committee on 16 January 2014, which were presented to the Board of Directors on 12 February 2014, we can see that once again this year, the fact that Strategy Committee meetings can be attended by all members of the Board was broadly welcomed and that the directors do not believe that this possibility adversely affects the effective liaison between the Board of Directors and the Strategy Committee. Information is deemed to be exhaustive and detailed by the directors, who emphasise the quality of the files that are provided to the Board and its Committees. They appreciate the more widespread use of executive summaries and emphasise the usefulness of the various information media made available to them (Director's Guide, "Current Events" Document and monthly Media Analysis, for example).

### 1.2.7 Director information and training

In accordance with the Board of Directors' Internal Regulations, the directors periodically receive information on the Company's and the Group's financial position, cash flow and commitments, as well as data such as the financial outcome of contracts awarded by the Company for the purchase of nuclear fuels, a performance review of the Company's main subsidiaries when the annual and half-yearly financial statements are released, the customer policy, the procurements and sub-contracting policy and the human resources policy.

A document that focuses on current affairs in the Group's major areas of business, market trends, the economic, financial and institutional environment is prepared for each Board meeting.

Directors are informed of the main events involving the Company that occur in between Board meetings, as well as the follow-up on decisions taken by the Board.

The directors may supplement this information by meeting with senior managers from the Company or Group.

Moreover, informational meetings are held on complex matters or matters of major strategic importance, as well as areas in which the directors wish to receive training.

## 1.3 Board activity in 2013

The Board of Directors meets as often as the interest of the Company requires, in accordance with the provisions of the law and regulations. During the 2013 fiscal year, the Board of Directors met 11 times and 25 committee meetings were held in order to prepare these meetings.

On average, Board meetings lasted two hours and forty minutes, which allowed for an in-depth review and discussion of the agenda items.

The directors' average attendance rate at Board meetings was 87.8% in 2013.

In 2013, in addition to the numerous matters linked to the day-to-day running of the company, the Board of Directors reviewed and authorised actions such as the investment needed to extend the life of the Tihange 1 nuclear power station in Belgium by ten years (this power station is jointly owned with Electrabel), the sale by EDF of its 4% stake in Veolia Environnement, the planned takeover by EDF of Dalkia activities in France, EDF's gender balance policy in the workplace and equal pay policy, the signature of an agreement between the Group and the British government on the main commercial terms of an investment contract for the project to build two EPRs in the United Kingdom (Hinkley Point), development projects for EDF Energies Nouvelles (South Africa, Canada, the USA and France) as well as the plans to dispose of a majority stake held by EDF Energy and EDF Energies Nouvelles in the Fallago Rig wind farm (Scotland), the acquisition by EDF of a stake of 20% in Transport et Infrastructures Gaz France (TIGF) with a view to it being allocated to dedicated assets, the founding of a joint venture between EDF International and Global Energy Holding Company (GEHC) in

1. See section 16.2.1 of the 2013 Reference Document.

Saudi Arabia as part of the development of the Saudi nuclear programme, as well as the decision by EDF International to make a 15% investment in the construction of the undersea section of the "South Stream" gas pipeline by South Stream Transport BV; the Board of Directors was apprised of changes in the agreements between the EDF and Exelon Groups concerning the Constellation Energy Nuclear Group (USA).

## 1.4 Committees that report to the Board of Directors

For the performance of its remits, the Board of Directors is assisted by five committees, which are tasked with reviewing and preparing specific files, prior to their presentation to the full Board. These specialised committees are: the Audit Committee, the Nuclear Commitments Monitoring Committee, the Strategy Committee, the Ethics Committee and the Nominations and Compensation Committee.

The membership, functioning and remits of the Committees are governed by the Board of Directors Internal Regulations.

The Board of Directors selects the directors who sit on these Committees. The Board appoints the Chairman of each Committee following a proposal by the members of the Committee concerned.

The Government Commissioner and the Head of the French State's economic and financial evaluation of EDF attend committee meetings in an advisory capacity.

The Committees' work is organised within the framework of an annual programme. Meetings are recorded in written minutes. Each committee chairman provides written reports to the Board of Directors. Meetings last long enough for the matters over which the Committees have authority to be analysed and discussed in depth.

### 1.4.1 Audit Committee

#### 1.4.1.1 Functioning and composition

The Audit Committee fulfils the remits conferred on it in accordance with the provisions of Order no. 2008-1278 of 8 December 2008, which transposed the eighth European Directive of 17 May 2006 on statutory audits of annual accounts and consolidated accounts into French law.

Article L. 823-19 of the French Commercial Code provides that at least one member of the Audit Committee must have specific financial or accounting skills, and be independent on the basis of criteria that are specified and made public by the Board of Directors.

During the joint meeting of 14 January 2011, the Ethics Committee and the Nominations and Compensation Committee reviewed Pierre Mariani's position and issued an opinion that was presented to the Board of Directors. During the Board meeting of 21 January 2011, the directors noted that Mr Mariani has specific financial and accounting skills, as per the criteria recommended by the French financial markets authority (*Autorité des marchés financiers* – AMF) in its report on the Audit Committee dated 22 July 2010. On 12 February 2014, the Board of Directors moreover confirmed that Pierre Mariani is an independent director (see § 1.2.5). He therefore meets both the skills and independence criteria, in accordance with Article L. 823-19 of the French Commercial Code (see § 1.2.5).

More generally, all the Audit Committee members contribute to the quality of Committee discussions and work through their experience and skills.

The Audit Committee is chaired by Pierre Mariani, an independent director appointed by the general shareholders' meeting and a respected figure from outside the EDF group. The other members are Olivier Appert and David Azéma, two directors who represent the French state, along with Marie-Hélène Meyling, Alexandre Grillat and Maxime Villota, three directors who were elected by the employees.

Olivier Appert was appointed as Audit Committee member by the Board meeting of 25 June 2013. He replaces Yannick d'Escatha.

The Chairman and CEO attends the Committee meetings that review the annual and half-yearly financial statements, as well as the medium-term plan and the budget.

The Audit Committee met seven times in 2013. The average rate of attendance for its members was 92.4%.

#### 1.4.1.2 Remits

Prior to review by the Board of Directors, the Audit Committee analyses and issues an opinion on:

- the Company's financial position;
- the medium-term plan and the budget;
- the draft financial reports prepared by the Corporate Finance Division (parent company financial statements, Group consolidated financial statements and Group management report);
- the monitoring of the Company's risks (in particular, the half-yearly<sup>1</sup> review of the Group's risk mapping and risk mitigation methods);
- audit and internal control: the organisation, deployment and assessment of internal control, the annual audit programme, main findings and resulting corrective measures, follow-up on their implementation, as well as the draft annual report by the Chairman of the Board of Directors on corporate governance, internal control and risk management procedures;
- the insurance policy strategy;
- the selection of Statutory Auditors, while verifying their independence and the fees paid to them;
- the financial aspects of external growth operations or disposals that are particularly significant in nature (see § 1.2.4);
- changes in analysts' perception of the Group;
- the energy markets risk policy.

As part of its work, the Committee is in regular contact with the Statutory Auditors and the Executive Management, as well as the Corporate Finance, Corporate Risk Management and Internal Audit Divisions.

#### 1.4.1.3 Activities in 2013

In 2013, the Audit Committee reviewed, in particular, the half-yearly and annual financial statements, as well as the related press releases, the Statutory Auditors' presentation of the main points of their findings concerning the annual and half-yearly financial statements, the press releases on the quarterly sales figures, the risk mapping, the internal audit summary reports and the audit programme. During a joint meeting with the Nuclear Commitments Monitoring Committee, it was also informed of the changes in the treatment of the receivable linked to the compensation deficit for public electricity service costs (the CSPE receivable) and reviewed the plans to allocate this receivable to dedicated assets.

1. A complete analysis of the mapping is performed once a year at the end of the year; it is presented to the Audit Committee during the first half of the following year; an update is presented in the second half of the year.

## 1.4.2 Nuclear Commitments Monitoring Committee

### 1.4.2.1 Functioning and composition

The Nuclear Commitments Monitoring Committee ("CSEN"), which was created by Article 9 of the Decree of 23 February 2007, is chaired by Philippe Crouzet, an independent director appointed by the general shareholders' meeting and a respected figure from outside the Group. The other committee members are Marie-Christine Lepetit and Olivier Appert, two directors who represent the French State, and Marie-Hélène Meyling and Maxime Villota, two directors who were elected by the employees.

Olivier Appert was appointed as member of the Nuclear Commitments Monitoring Committee by the Board meeting of 25 June 2013 to replace Yannick d'Escatha.

The CSEN met five times in 2013. The average attendance rate for its members was 92.0%.

### 1.4.2.2 Remits

The Nuclear Commitments Monitoring Committee is tasked with monitoring changes in nuclear provisions, commenting on governance issues related to dedicated assets and the rules for matching assets and liabilities and strategic allocation, as well as ensuring the compliance of EDF's asset management within the framework of the policy on the constitution and management of dedicated assets. To this end, it can call on the support of the Nuclear Commitments Financial Expertise Committee (CEFEN), which comprises six<sup>1</sup> independent experts. The CEFEN's remit is to assist the Company and its governance bodies in this area.

Moreover, the Committee issues an opinion prior to any investment in private equity for all projects for which the unit amount exceeds €400 million as well as for any project (excluding real estate) for which the unit amount exceeds €200 million that leads to full consolidation of the target investment by the Company. In the event of a negative opinion by the Committee on an investment project, only the Board of Directors has the authority to authorise such a project.

### 1.4.2.3 Activities in 2013

In 2013, the Committee reviewed, in particular as part of the policy on the constitution and management of dedicated assets, the state of progress of the project for the industrial geological storage centre ("CIGEO") for high-level waste and long-lived intermediate-level waste (HLW/ILW-LL), and the 2013 update letter on securing the financing of nuclear expenses (see § 2.3.3.1), the discounting rate for nuclear commitments, private equity governance within dedicated assets, as well as the investment prospects in this class of assets, and the renewal of the CEFEN. During a joint meeting with the Nuclear Commitments Monitoring Committee, it was also informed of the changes in the treatment of the receivable linked to the compensation deficit for public electricity service costs (the CSPE receivable) and reviewed the plans to allocate this receivable to dedicated assets.

## 1.4.3 Strategy Committee

### 1.4.3.1 Functioning and composition

Henri Proglio, the Chairman and CEO, chairs the Strategy Committee. The other members are Michael Jay, an independent director appointed by the general shareholders' meeting and a respected figure from outside the Group, Marie-Christine Lepetit, David Azéma and Pierre Sellal, three directors who represent the French State, along with Marie-Hélène Meyling, Alexandre Grillat and Jean-Paul Rignac, three directors who were elected by the employees.

Since 2010, the Chairman has invited directors who are not members to attend Strategy Committee meetings, so that the Board of Directors is more involved in strategic discussions.

The Strategy Committee met six times in 2013. The average attendance rate for its members was 89.6%.

### 1.4.3.2 Remits

The Strategy Committee issues an opinion to the Board of Directors on the Company's major strategy policies, in particular the strategic development plan, the industrial and commercial policy, the public service contract, strategic agreements, alliances and partnerships, the research and development policy, external or internal growth or disposal projects that require authorisation from the Board of Directors.

### 1.4.3.3 Activities in 2013

In 2013, the Strategy Committee reviewed in particular the strategic issues for EDF in the debate on energy transition, the issue of the pricing and financial equation of the activity in France, the main research and development and innovation achievements, the progress of the Flamanville 3 project and the new nuclear development project in the United Kingdom (Hinkley Point) as well as strategic policies in the field of gas.

## 1.4.4 Ethics Committee

### 1.4.4.1 Functioning and composition

Mireille Faugère, an independent director who was appointed by the general shareholders' meeting and a respected figure from outside the Group, chairs the Ethics Committee. The other members are Marie-Christine Lepetit, one of the directors who represent the French State, along with Christine Chabauty and Marie-Hélène Meyling, two directors who were elected by the employees.

On 29 July 2013 the Board of Directors acknowledged the request by Alexandre Grillat, a director elected by the employees, to step down from the Ethics Committee.

The Ethics Committee met five times in 2013. The average attendance rate for its members was 86.0%.

### 1.4.4.2 Remits

The Ethics Committee ensures that ethical considerations are taken into account in the work of the Board of Directors and in the management of the Company. The Committee reviews the reports filed by the Mediator, the General Inspector of Nuclear Safety and Radioprotection and the Inspector of Hydro Safety.

Moreover, each year the Ethics Committee oversees an assessment of how the Board and its Committees function and, every three years, performs a formalised assessment of the work of the Board and its Committees, which is entrusted to an outside consultant (see § 1.2.6).

Moreover, the Committee periodically visits operations sites in order to understand the matters that fall under its authority.

### 1.4.4.3 Activities in 2013

In 2013, among other things, the Ethics Committee reviewed the commitments concerning the Group's corporate responsibility, EDF's professional gender equality and equal pay policy and EDF's policy with regard to outside service providers. The Committee visited a nuclear generation site in order to assess the implementation of the sub-contracting policy for this activity.

1. Appointed by the Board of Directors on 26 November 2013, for three years.



## 1.4.5 Nominations and Compensation Committee

### 1.4.5.1 Functioning and composition

Bruno Lafont, an independent director appointed by the general shareholders' meeting and a respected figure from outside the Group, chairs the Nominations and Compensation Committee. The other members of the Committee are Michael Jay, an independent director appointed by the general shareholders' meeting and a respected figure from outside the group and David Azéma, one of the directors who represent the French State as well as Maxime Villota, a director elected by the employees.

The Board of Directors appointed Maxime Villota as a member of the Nominations and Compensation Committee on 25 June 2013 (see section 16.2.3.5 of the 2013 Reference Document).

The Nominations and Compensation Committee met twice in 2013. The average attendance rate for its members was 83.3%.

### 1.4.5.2 Remits

Pursuant to the Internal Regulations, the Nominations and Compensation Committee submits proposals to the Board of Directors with a view to directors being appointed by the general shareholders' meeting. The committee sends the Minister responsible for the economy and finance, and the Minister responsible for energy, an opinion, for approval, on the salary, variable compensation (criteria used to determine the variable portion and assessment of the results obtained compared to the targets set), and peripheral compensation of the Chairman and CEO. It also sends this opinion to the Board of Directors, with a view to the Board discussing and determining these compensation components. The Committee designs its proposals within the limits provided for by Decree no. 2012-915 of 26 July 2012 on the State control of the compensation of executives of public institutions, pursuant to which the annual compensation of the Chairman and CEO must not exceed a gross limit of €450,000.

Where applicable, the Committee reviews the compensation paid to Vice-Presidents. It provides an opinion to the Board of Directors on the conditions for establishing the compensation of the principal senior executives (fixed and variable components, calculation method and indexing), as well as on the amount and conditions for allocating the directors' fees. The Committee ensures that succession plan charts exist for positions on the Executive Committee.

### 1.4.5.3 Activities in 2013

In 2013, the Nominations and Compensation Committee made proposals to the Board of Directors concerning the application, as from 1 October 2012, of Decree no. 2012-915 of 26 July 2012 that caps the Chairman and CEO's compensation at €450,000 and regarding the variable portion of the Chairman and CEO's compensation owed in respect of the period of January through September 2012. The Committee moreover reviewed the bonus criteria used to determine the variable portion of the compensation of Group executives (see section 15.1 of the 2013 Reference Document).

## 1.5 Compensation

The terms for setting EDF corporate officers' compensation, the principles and rules established by the Board of Directors for determining this compensation and the amounts paid to directors in 2013, are detailed in chapter 15 of the 2013 Reference Document.

## 1.6 Shareholders' meetings

The rules governing shareholder involvement in general meetings are set out in Article 20 of the Company bylaws, and are described in section 21.2.7 of the 2013 Reference Document.

Moreover, the information provided for by Article L. 225-100-3 of the French Commercial Code is published in the Company's Reference Document.

## 2 EDF Group internal control

The purpose of this report is not to give an exhaustive presentation of all the control procedures that exist within the Group's companies, but to emphasise the control procedures that concern activities or risks that are deemed to be significant, as well as the main long-term procedures in effect in 2013, highlighting any changes and key initiatives developed during that year. These internal control and risk management procedures are consistent with the general principles stipulated in the AMF Reference Framework for risk management and internal control<sup>1</sup> (published on 22 January 2007 and updated on 14 June 2010).

## 2.1 Control environment

### 2.1.1 Executive Management steering structures

EDF's Executive Management is organised in line with two major policies: improve functioning as an integrated Group while respecting the management autonomy of the regulated subsidiaries and reinforce the role of the operating teams in the decision-making process.

### Executive Committee

The Chairman and CEO is supported by an Executive Committee comprising representatives from all the Group's business lines, together with representatives from corporate finance, legal affairs and human resources.

The Executive Committee membership<sup>2</sup> is as follows:

- Henri Proglio, Chairman and CEO, Chairman of the Executive Committee;
- Marianne Laigneau, EDF Group Senior Executive Vice President, Human Resources;
- Henri Lafontaine, Group Senior Executive Vice President representative, Customers, Optimisation, Trading and IES (Island Energy Systems);
- Pierre Lederer, Special Advisor to the Chairman;
- Hervé Machenaud, Group Senior Executive Vice President, Generation and Engineering;
- Thomas Piquemal, Group Senior Executive Vice President, Finance;
- Vincent de Rivaz, Chief Executive of EDF Energy;
- Alain Tchernonog, the EDF Group General Secretary.

Denis Lépée, Advisor to the Chairman, is the Secretary to the Executive Committee.

1. In preparing this report, EDF used the AMF Reference Framework (chapters 2.3.1 to 2.3.4), which is based on the Committee of Sponsoring Organizations of the Treadway Commission ("COSO") reference framework (chapters 2.1 to 2.5).

2. Composition as of 31 December 2013.



This Committee is a forum for reflection, discussions on strategy and consultation on the Group's crosscutting issues. It monitors the targets and operating results, and contributes to the management and anticipation of the EDF group's major strategic challenges. The Committee reviews and approves major projects and, in particular, Group investment or divestment projects for which the amounts exceed certain thresholds. The Executive Committee meets weekly.

### **Commitments Committee within the Group Executive Committee**

A Commitments Committee within the Group Executive Committee<sup>1</sup> performs in-depth reviews of planned commitments for the Group (excluding regulated subsidiaries) to which the Executive Committee is, in principle, favourable, prior to the Commitments Committee making a final decision. Projects that receive a favourable opinion are monitored. No Company investment project can be submitted to the Board of Directors for review without first being approved by this Committee.

### **Management Committee**

In 2010, the Executive Management organisation was complemented by the creation of a Management Committee. The Executive Committee members also sit on the Management Committee, along with the Group's top international executives and the heads of geographical regions, the Chairman of the ERDF Management Board and Directors of Company support functions. Its membership<sup>2</sup> is as follows:

- Michèle Bellon, Chair of the ERDF Management Board;
- Jean-Paul Bouttes, Senior Executive Vice President, Corporate Strategy and Prospective;
- Antoine Cahuzac, CEO, EDF Energies Nouvelles;
- Catherine Gros, Group Senior Executive Vice President, Communications;
- Philippe Huet, Associate General Secretary, Senior Executive Vice President, Risks and Audit;
- Bruno Lescœur, Senior Executive Vice President representative, Gas and Southern Europe;
- Philippe Méchet, Senior Executive Vice President, Institutional Relations;
- Olivier Orsini, Senior Executive Vice President, Development in South America, Africa, the Middle East and the Community of Independence States (CIS) and associated partnerships;
- Bernard Salha, Senior Executive Vice President, Research and Development;
- Éric Thomas, Group General Counsel.

The Management Committee brings together business line, geographical and functional expertise. It is a forum for discussion between the Group's top executives on crosscutting matters. It provides support to the Company's Executive Management for strategy implementation and steering synergies within the Group. This Committee meets monthly.

### **General Inspector of Nuclear Safety and Radioprotection**

The General Inspector of Nuclear Safety and Radioprotection, who is appointed by and reports to the EDF Chairman and CEO, is tasked with conducting audits in his or her spheres of action and issuing an annual opinion on the overall safety of the Group's nuclear power stations. The remit also includes making proposals to Executive Management regarding potential areas for improvement.

### **EDF Group Inspector of Hydro Safety**

The EDF Group Inspector of Hydro Safety, who is appointed by and reports to the EDF Chairman and CEO, is tasked with conducting audits in his or her spheres of action and issuing an annual opinion on the overall safety of the Group's hydroelectric plants. The remit also includes making proposals to Executive Management regarding potential areas for improvement.

## **2.1.2 Description and leadership of the internal control system**

The Chairman and CEO signed off on a new decision relating to the implementation of internal control within the EDF group on 3 September 2010. This decision takes into account, in particular, the provisions of the Order of 8 December 2008 on statutory audits of financial statements and specifies the EDF group's internal control policies. It aims to provide a reasonable assurance of risk management at EDF, with a view to ensuring constant improvement, by using the following key principles as a foundation:

- delegated accountability to each of the Group's executives who, at every level, are responsible for:
  - managing the principal risks,
  - checking this management for the activities they have sub-delegated,
  - ensuring that the risks identified have the appropriate, proportionate control procedures in place,
  - self-assessing the procedures thus implemented and reporting regularly and formally on these procedures to their line managers;
- an audit procedure, with reporting to the Chairman and CEO, as described in paragraph 2.1.3.2.

These key principles apply to all the Group's entities, although the implementation conditions may vary depending on the entities concerned (size, governance conditions and level of control).

Within the control scope (excluding regulated subsidiaries), these principles are implemented by the Executive Management functions at the subsidiaries that they control and in the main EDF Operating Divisions, which themselves control several operating units or subsidiaries.

Each executive concerned has appointed an "Internal Control Coordinator". The Corporate Audit Division and the Corporate Risk Management Division organise this network of coordinators (around 80 persons).

An Internal Control Manual<sup>3</sup> has been written and is offered to each entity<sup>4</sup> as a standard for the implementation of its own internal control system. This manual describes the risk areas concerned, identifies the main aims of control to be explored and suggests the best practices to be adopted. It is updated annually to take into account feedback and new control requirements, in particular those linked to compliance with General Management policies and decisions. At the end of 2013, each of the 57 entities concerned produced an annual report on internal control that includes a description of their internal control system, a self-assessment<sup>5</sup> of this system and a statement by the head of the entity on commitment to internal control and an account of the intended measures to fulfil this commitment. This is the seventh consecutive year that the Group has commissioned this report. Each year a summary of these documents and how they could be interpreted in terms of the state of internal control in the Group is provided to the Chairman and CEO and the Audit Committee, then to the Board of Directors.

The Audit Division now performs full audits on these entities, which include a review of the robustness of their internal control, at the same frequency as previously (3 to 5 years depending on their size).

1. The composition of the Commitments Committee within the Group Executive Committee is the same as that of the Executive Committee. This Committee was created by decision of the Chairman and CEO on 14 April 2010.

2. Composition as of 31 December 2012.

3. In preparing this report, EDF used the AMF Reference Framework (chapters 2.3.1 to 2.3.4), which is based on the COSO-1 reference framework (chapters 2.1 to 2.5); the first Internal Control Manual was written and distributed on 22 January 2007.

4. EDF took control of Edison in 2012 and the company is being progressively integrated into the EDF internal control and risk management system.

5. Self-assessments report on all the areas mentioned in the Internal Control Manual, and in particular all the areas of action mentioned in the AMF Reference Framework.

Concerning the other Group subsidiaries (regulated subsidiaries, and significant shareholdings), risk control is the responsibility of EDF's representatives within the governance bodies. For each subsidiary, these representatives are responsible for implementing risk mapping, producing a description of the internal control and audit systems and providing regular information on risk mapping and the audit activities (audit programme and main findings), as well as verifying the effectiveness and the relevance of each of these systems through periodic audits<sup>1</sup>.

The Corporate Audit Division and the Corporate Risk Management Division provide support for:

- EDF representatives within its major subsidiaries, to help them implement and manage the initiative within governance bodies;
- heads of the Divisions to which they report, who are tasked with providing the same level of support to the EDF representatives within subsidiaries of lesser importance within their area of responsibility, and reporting back on this in their annual self-assessment reports.

## 2.1.3 The contribution to internal control by the Corporate Risk Management Division, the Group Audit function, the Finance Division and the Legal Affairs Division

### 2.1.3.1 Corporate Risk Management Division (DCRG)

For many years, EDF has implemented a policy for managing its operating (e.g. industrial, environmental and health), financial and organisational risks.

Over and above these sector-specific policies, in response to a constantly changing environment, back in 2003 EDF decided to establish an overarching process for managing and controlling its risks with the aim of improving existing procedures, in particular by creating the Corporate Risk Management Division, which is primarily responsible for:

- ensuring that each Group entity carries out risk mapping, either directly for the EDF scope and that of the controlled subsidiaries, or through the governance bodies for the regulated subsidiaries and jointly-controlled affiliates, and establishing and updating the consolidated risk mapping of the Group's major risks (see § 2.2.2);
- warning the Chairman and CEO and the Executive Committee of emerging risks and risks that have not been adequately identified;
- consolidating the deployment of the risk control policy, either directly within the EDF scope and that of the controlled subsidiaries, or through the governance bodies for the regulated subsidiaries and jointly-controlled affiliates (see § 2.2) in particular by ensuring the comprehensiveness and consistency of the various sectoral risk control policies (see § 2.3.1.1);
- ensuring the deployment of the internal control policy and steering the internal control function (see § 2.1.2);
- ensuring the deployment of the energy market risk policy within the EDF scope and that of the controlled subsidiaries and, more generally, ensuring the control of these energy market risks either directly within the EDF scope and that of the controlled subsidiaries, or through the governance bodies for the regulated subsidiaries and jointly-controlled affiliates (see § 2.3.1.1.1);
- defining and implementing financial risk control (interest and currency exchange rates, liquidity and equities risks) and counterparty risk control for the EDF scope and that of the controlled subsidiaries and ensuring the control of these financial risks through the governance bodies, for the regulated subsidiaries and jointly-controlled affiliates (see § 2.3.1.1.2);
- managing the comprehensiveness and relevance of the risk analyses performed on long-term investment and commitment projects, which are submitted to Executive Committee-level bodies for approval;

- ensuring the deployment of the crisis management policy for the EDF scope and that of the controlled subsidiaries, and defining the terms of exchange and coordination with all subsidiaries during periods of crisis and guaranteeing the operational readiness of the crisis management system at Group level (see § 2.2.3);
- coordinating the controls that are required for managing non-compliance risks (fraud, corruption, relations with employees, ethics charter, etc.);
- defining the internal control actions to be implemented as part of the fight against fraud and corruption with, in particular, the implementation of an alert process and system.

### 2.1.3.2 Group Audit function

The Group Audit function is made up of all the audit resources of the Group, EDF and the subsidiaries that perform internal audit activities. The Chairman and CEO has entrusted the management of this function to the Senior Vice President, Risks and Audit. The audit function includes the Corporate Audit Division and dedicated "operations" audit teams: "business line" audit teams (in the generation and customer areas, as well as the Asia-Pacific zone for EDF) and audit teams that are specific to each of the main French and international subsidiaries and affiliates (RTE, ERDF, EDF Énergies Nouvelles, EDF Energy and EDF Trading, Edison and EDF Luminus).

The relationships between Corporate Audit and the various audit teams, along with their respective prerogatives, take into account the fact that they are part of teams at EDF, the controlled subsidiaries or the regulated subsidiaries. Corporate Audit is responsible for the operational coordination of the function (joint appointment and joint assessment of business line Audit Directors – excluding RTE and ERDF – exchanges of best practices, training initiatives, pooling tools and methods).

### Qualification standards concerning EDF and the controlled subsidiaries

- The Corporate Audit Division applies international standards as defined by The Institute of Internal Auditors and ensures that these standards are promoted and upheld within the scope of control.
- The duties, powers and responsibilities of the auditors, as well as the rights and duties of the audited entities, are defined in a charter that was updated on 3 September 2010. This charter, which was signed by the Chairman and CEO, highlights the independence of the audit function and outlines the missions and commitments of the internal audit function, together with the duties and the prerogatives of auditors and audited entities. It is used in conjunction with an ethics code that applies to the entire Group audit function. The aim of this code is to promote an ethics-aware culture, and to emphasise that auditors must comply with and apply certain relevant, fundamental principles for the profession and for the internal audit practices.
- The Corporate Audit Division reports to the General Secretary, while the Senior Vice President, Corporate Audit, also benefits from direct access to the Chairman and CEO.
- All the Auditors in the Corporate Audit Division and the Audit departments of EDF and its controlled subsidiaries (excluding the regulated subsidiaries) are trained to use the same methodology, which is consistent with international standards. They are recruited from EDF's various business lines, as well as from external audit firms. Each auditor is assessed at the end of each mission and a transfer to audit is considered a positive career move. A memorandum of understanding was signed to this effect in March 2006 between the Corporate Audit Division and the EDF Senior Executive Development Division.
- The key processes that are essential to the proper functioning of the Corporate Audit Division throughout the chain of its activities (from the drawing up of audit programs to the monitoring of the implementation of recommendations) are outlined and overseen.

The audit function underwent outside assessments in 2008, then in 2011-2012, which attested to compliance with professional standards.

1. For regulated subsidiaries, these responsibilities are exercised within the limits laid down by the regulations in force.

### Qualification standards concerning EDF and the controlled subsidiaries

- The Corporate Audit Division and the corporate-level divisions audit the internal control procedures in the various divisions and controlled subsidiaries. The Corporate Audit Division conducts crosscutting and corporate-level audits, and also audits on their scope of responsibility. The Corporate Audit Division is the only structure that is authorised to perform business line audits that involve a corporate-level risk.
- The Chairman and CEO signs off on the audit programme. The programme is then reviewed by the EDF Audit Committee, which reports back to the Board of Directors. The audit programme takes into account:
  - the need to audit, at intervals adapted to their size, the Group's main entities (divisions and subsidiaries), in order to assess, in particular, the robustness of their internal control system,
  - the main accounting and financial processes,
  - major projects,
  - the major risks identified in the risk mapping, which are not covered by the above audits,
  - monitoring of decisions taken by Executive Management.
- The plan for the business line audit teams is coordinated with that of the Corporate Audit Division.
- All audits give rise to recommendations, which, after being approved by the audited entities and their management, form the basis for action plans on their part that are submitted to the Corporate Audit Division. During the 12 to 18 months following the audit, the Corporate Audit Division monitors the implementation of these corrective actions or any other action decided on by the management with the aim of eradicating the dysfunctions identified by the audit. An audit is only considered to have reached a satisfactory conclusion when these dysfunctions have been eliminated. In contrast, an unsatisfactory conclusion to an audit or one where reservations are expressed triggers an appropriate management alert.
- These principles are applied by the entire audit function under the same terms.
- The Corporate Audit Division issues half-yearly summary reports, which resume, for the entire scope of the Group audit function, the main audit findings and the corresponding recommendations, as well as the results of audits concluded during the period. It also identifies possible recurring or generic problems that appeared over the course of several audits conducted during the period, which warrant particular attention of the management. This report is presented first to the Chairman and CEO, then to the Audit Committee and the Board of Directors.

### 2.1.3.3 Corporate Finance Division

The Corporate Finance Division monitors changes that affect the markets and financial techniques, and also analyses project financial risks. Within the Corporate Finance Division, the Group Control Division is split into three sections, Management Control, Accounting and Tax.

Management Control has the following remits:

- manage the forecasting processes for the Group's management cycle (budgets, forecast updates and medium-term plans), summarise these processes and proposes trade-offs at Division and subsidiary level for the Group as a whole. In its analyses, Management Control is required to issue warnings and make proposals, before decisions are taken, regarding the financial consequences of the contemplated transactions, or the proposed performance levels;
- assist operations management in performance steering: tracking of budget implementation (for which forecast adjustments are issued twice a year, as well as a monthly reporting package that covers the results achieved to date and update of the most recent forecast adjustment) is tracked through regular, general performance reviews within the Division and controlled subsidiaries;

- perform the financial control function for the Group, by contributing, in particular, to the investment control processes and by performing economic and financial optimisation analyses;
- be the driving force behind the preparation of medium- and long-term financial trajectories.

The Finance Management Heads of the Divisions and subsidiaries sit on the Management Committees of the entities to which they are assigned. They are appointed and assessed by the operations management and the Management Control service line.

Accounting has the following remits:

- prepare and publish the EDF parent company financial statements, as well as the Group's consolidated financial statements;
- ensure the quality of accounting by designing a set of Group standards that detail the accounting practices and chart of accounts to be applied;
- update, for EDF, the internal control standards concerning the management of accounting and financial information.

Moreover, the accounting Internal Control policies for the subsidiaries are the responsibility of each legal structure concerned.

Tax has the following remits:

- guarantee the consistency of tax policies within the Group;
- ensure the proper performance of legal and filing obligations, in particular by monitoring changes in legal and regulatory obligations;
- track deferred tax positions in the accounts, as well as periodic justification of the accounts;
- identify and reduce Group tax risks.

### 2.1.3.4 Legal Affairs Division

In addition to the contribution to the Group's internal control made by the Legal Affairs Division outlined in paragraphs 2.1.4 and 2.3.3, Group-level legal reporting (EDF and major subsidiaries) has been implemented on a quarterly basis for litigation and major or sensitive cases.

Moreover, a contract library is used to guarantee knowledge of and control over EDF's sensitive contract archives. This contract library, which is an integral part of the internal control system, is a secure information system for the centralised archiving and scanning of the major contractual commitments of EDF and certain subsidiaries (excluding the regulated subsidiaries and jointly-controlled affiliates). This system was complemented by a new decision and a practical memorandum on the management of major contracts, according to which the original counterparts of major contracts that meet certain specific criteria are centralised in a secure national storage facility.

In addition, Legal Affairs entrusts a knowledge manager with capitalising on, harmonising and sharing the Legal Affairs Division's precedents and positions, as well as monitoring legal developments in the field of legislation and case law that are of major interest for the Group.

## 2.1.4 Delegations of powers and technical authorisations

The Chairman and CEO delegates some of his powers to the Board of Directors, in particular to certain members of the management team.

In the area of procurements, the existing organisation is designed to ensure that control is maintained over purchases. Based on a series of thresholds, procurement contracts are signed by the Chairman, a Group Senior Executive Vice President or one of their delegated representatives after being approved by the Senior Vice President, Purchasing, or his or her delegated representatives; this approval confirms that the contract complies with the procurement process. Each Group Senior Executive Vice President must also reinforce the internal control procedures on procurement contracts that are submitted for his or her signature and those handled directly by their respective divisions.

The powers conferred on the "nuclear operator's representative" are delegated to the Senior Executive Vice President, Generation and Engineering,



who, in turn, delegates to the Senior Vice Presidents in charge of the Nuclear Operations and Nuclear Engineering Divisions, who themselves have sub-delegated powers to unit directors.

Each facility head, subject to prior evaluation of the appropriate skills, issues the technical authorisations allowing individuals to work in the facilities (power plants, electricity transmission networks, etc.). These requirements apply to all workers, be they employees of EDF or external service providers.

The Legal Affairs Division drafts and/or updates delegations of powers where required by changes to EDF's organisation.

In addition, a handbook on delegations of powers written by the Legal Affairs Division, which was released for the first time in November 2008, has been updated and was re-released in 2010. This handbook is designed as a tool for informing and raising awareness at EDF entities on the nature, consequences and management rules for delegations of powers.

## 2.1.5 Ethics and Environmental Quality Initiatives

### 2.1.5.1 Ethics initiative

In a decision dated 2 April 2013 issued to the members of the Executive Committee and the the Group Management Committee, the CEOs of the Group Companies, the Country Directors and the Chairman and CEO launched the deployment of the Group Ethics Charter; this decision is a follow-up to the initiatives that have been launched in this area since 2004. The Chairman has set as an objective that all Group employees should be aware of the new ethics standards before 31 December 2013. On the same day, he appointed an Assistant Director of Sustainable Development, who is in charge of ethics and corporate responsibility, and who chairs the Group's Ethics & Deontology Committee.

In each company and major division of EDF SA, the Group's senior executives have appointed an Ethics Officer, whom they have entrusted with monitoring the deployment of the Ethics Charter and ensuring liaison with the corporate Ethics and Corporate Responsibility Division that is tasked with overseeing this deployment. The regular reporting to the General Secretary during the second half of 2013 shows that the EDF SA divisions and other Group companies should attain the target set by the Group Chairman, provided that certain actions are taken that are scheduled over the course of Q1 2014.

The Chairman and CEO founded the Group's Ethics & Deontology Committee on 30 October 2013. In addition to its Chair, the Committee has five voting members who are Group senior executives. Geographical parity (France/other countries) and gender parity are maintained within this Committee. The executive secretary of the Committee is the EDF Ethics & Deontology Advisor.

With the assistance of the management, the Committee is required to ensure the distribution, sharing and implementation of the Group Ethics Charter. The Committee is supported by the network of Ethics Officers in the Group companies. It advises the EDF Chairman and CEO on all matters in connection with the Charter, its deployment and application. The Committee issues an opinion on all questions or requests in relation to the content, development and application conditions of the Charter. The Committee receives and handles or arranges for the handling, in complete confidentiality, of all reports concerning a situation or conduct that is contrary to the Charter. All reporting from Group companies and divisions on the fulfilment of Charter commitments is sent to the Committee. The Committee can identify all insufficiencies in deployment or implementation of the Charter and recommend corrective measures to the Group management. The Chair of the Committee reports to the Chairman and CEO and to the Board of Directors' Ethics Committee in his or her own right.

During its first meeting of 30 October 2013, the Committee discussed and adopted its internal regulations. It also issued two opinions, one on the mandatory nature of the Charter's directives and the other on employees' freedom of expression.

The Group Ethics Charter guarantees that any Group employee who is confronted with a situation that is contrary to the Group's values and commitments, has the right to alert his or her manager or a dedicated

contact person in his or her company, or, if necessary and in the last resort the Group's Ethics & Deontology Committee, in complete confidentiality and without risk, in particular via a secure email address ([alerte-ethique@edf.com](mailto:alerte-ethique@edf.com)). Since this address was first made available, on 1 June 2013, one alert has been received and processed.

### 2.1.5.2 Environmental Quality Policy

For many years, the EDF group has taken into account the strategic issues associated with sustainable development, and has made sustainable development a fully-fledged component of its overarching strategy. This Group policy was materialised by the signature in 2009 of shared commitments by senior executives from the Group's principal companies. This policy provides a framework to facilitate consistency between the initiatives taken by these companies and is built around three priorities:

- combating climate change, controlling and limiting impacts on the environment, in particular the protection of biodiversity;
- giving everyone access to energy and developing local action links;
- contributing to the debate on sustainable development.

The EDF Group Sustainable Development Committee (SDC) coordinates the implementation of this policy.

This Committee acts as an Environment Board at Group level, and is in charge of steering the Environmental Management System in compliance with ISO 14001.

The EDF Group has been ISO 14001 certified since 9 April 2002. The certification scope includes EDF (all its operating entities and most of its functional entities), a number of French subsidiaries (including ERDF, Electricité de Strasbourg and EDF Energies Nouvelles) as well as numerous international subsidiaries, including EDF Energy. Moreover, some jointly-controlled affiliates are also ISO 14001 certified. In June 2013, the AFNOR independent certification organisation issued a new ISO 14001 certificate to the expanded Group, following the addition of the SLOE Centrale and ES Energies Strasbourg sites. The 2013 annual audit noted that the system is supported by an appropriate policy and indicators, with improved average maturity and performance levels. The EDF Group's "Corporate Responsibility" commitments were approved in 2013, which gives an even greater perspective and meaning to environmental action.

The processes implemented within the framework of this certification help strengthen the management of the Group's environmental risks, the regulatory aspect of which is moreover undergoing continual improvement, and gives our stakeholders the assurance of a structured organisation, which is tangible proof that the Group's commitment to environmental protection is an acknowledged reality.

## 2.1.6 Organisation and steering of the Information Systems (IS)

Each Company and Group entity (Divisions or subsidiaries) has project ownership responsibilities for its specified scope. The Group Information Systems Division (DSI) is responsible for infrastructures and shared services. Depending on the policies adopted and in liaison with each Division, project management responsibilities are shared between the division concerned and the IT and Telecommunications Shared Services Division, which acts as a cross-functional operator for EDF and the subsidiaries.

The Information System (IS) for the finance perimeter is used by several Group Divisions and is of strategic importance in terms of data integrity and application availability. The DSI Finance Section is entrusted with the delegated project management. It oversees the day-to-day functioning of applications, manages changes and takes all requisite steps to ensure the security of this IS.

Overall consistency is managed by the Group Information Systems Division, which coordinates the IS function through common policies. New governance for the function was designed pursuant to the Chairman's decision of 19 December 2011 to improve Group steering of support functions. It also provides for a broader role for the Group Information Systems Division in order to guarantee IS synergies and performance for the benefit of business

line strategy, in particular for the financial trajectory, security and availability of the IS. This new governance will support the extension of the IS function to the international subsidiaries.

Depending on their nature and the scope concerned, strategic decisions and choices are reviewed on a quarter basis either by one of the EDF Committees mentioned in paragraph 2.1.1 or by the IS Strategy Committee, which involves the main Directors and subsidiary Heads and their IS Divisions; other major decisions are taken by a committee of the Heads of Information Systems, France, and by the Information Systems Group Committee, on which the Group's subsidiaries are also represented.

### 2.1.7 External controls

As is the case for all listed companies, EDF is subject to the regulatory control of the French financial markets authority (*Autorité des Marchés Financiers* – AMF). Due to the French State being a majority shareholder in EDF, the company can also be audited by the National Audit Office, State Auditors, the Inspectorate of Public Finances, the French National Assembly and Senate Commissions for Economic Affairs, and the Public Procurement Contracts Commission.

As required by French law, the Statutory Auditors certify the annual financial statements (parent company and consolidated statements) and carry out a limited review of the Group's summary consolidated half-year financial statements. They also issue an opinion on the annual report by the Chairman of the Board of Directors that is prepared pursuant to Article L. 225-37 of the French Commercial Code.

Owing to the nature of its business activities, EDF is also subject to control by the French Energy Regulation Commission (*Commission de Régulation de l'Énergie* – CRE) and by the Nuclear Security Authority (*Autorité de Sûreté Nucléaire* – ASN).

The findings of these various external reviews bodies are incorporated into the internal control and audit programmes, in particular.

## 2.2 Risk management and control

### 2.2.1 Risk management and control policy

The objectives of the risk control policy are to:

- contribute to securing the Group's strategic and operating trajectory, and in order to do so:
  - identify and grade risks in all areas (operational risks, external risks, strategic risks, including risks that are linked to the consistency of actions with the Group's values, and those linked to protecting the Group's value, assets and reputation), with a view to ensuring a constant increase in the robustness of risk management,
  - ensure the Group's entities are made responsible and accountable for identifying, assessing and handling risks, so that each executive is aware of the risks inherent in his or her activities and implements the action required to control these risks;
- ensure that EDF senior executives and governance bodies have an aggregated and regularly-updated picture of the major risks and their level of control;
- meet the increasing information requirements of external stakeholders with regard to the management of risks across the organisation.

NB: the operating and functional entities are responsible for managing the risks that fall within their scope of activity, under the responsibility of Group Executive Management.

The Group's risk control policy is either implemented directly (for EDF and the controlled subsidiaries), or through governance bodies (for regulated subsidiaries and jointly-controlled affiliates).

This policy is supported by a risk control function that is separate<sup>1</sup> from the risk management functions. This function provides, inter alia, a consistent approach to the identification, assessment and management of risks.

### 2.2.2 Risk mapping process

In accordance with these principles, in line with the annual reporting schedules for the publication of the half-yearly consolidated financial statements, the EDF Group issues consolidated mapping of its major risks for the EDF scope and that of its controlled and jointly-controlled affiliates<sup>2</sup>. This consolidated risk mapping is based on maps established by each operating or functional entity using a common methodology (typology, identification and assessment principles, risk control measures, etc.). Each risk identified must be the subject of a detailed action plan. Responsibility for the major risks falls to a project leader appointed by the Executive Committee.

In-depth discussions concerning the up-dating of risk mapping are regularly held between the Group Risk Control Division (see § 2.1.3.1) and each of the contributing operating or functional entities. These discussions aim to review the relevance of the risk identification, as well as the robustness of the management initiatives taken.

At the end of each year, the consolidated risk mapping is submitted for approval by the Executive Committee and, following review by the Audit Committee, is presented to the EDF Board of Directors.

The risk mapping and management initiative is one aspect of the strong complementarity with Group internal control and with internal audit, for which the programme is designed on the basis of, inter alia, the major risks identified. Moreover, the risk mapping process also provides a foundation for a number of other processes: the Insurance Strategy and its implementation, the analysis of risks involved in projects reviewed by EDF's decision-making bodies (the Executive Committee, the Commitments Committee that reports to the Group Executive Committee (CECEG), etc.); in particular, through risk mapping, the risk control process helps secure the long-term investments and commitments process by monitoring the quality of the risk analysis of projects submitted to the CECEG. Lastly, the main risks to which the Group is exposed are described in section 4.1 of the 2013 Reference Document, in compliance with the consolidated risk mapping for the Group at the end of 2013.

### 2.2.3 Crisis management policy

The crisis management policy, which was formalised by a decision of the Chairman and CEO in June 2005, defines the organisational and crisis management principles for the EDF scope and that of its controlled subsidiaries, and describes in full the procedure to be implemented. The primary focus of the policy is:

- ensuring the existence of crisis management structures and standing reporting procedures for alerts, in all Group entities;
- verifying the existence of and regularly updating appropriate crisis management procedures, in light of the risks incurred in each EDF division and in the controlled subsidiaries;
- defining, for crisis periods, the procedures for coordinating with all subsidiaries<sup>3</sup> – potentially via the Divisions to which they report;

1. Function comprising the establishment managers for risk mapping and control (see § 2.3.1.1).

2. With the exception of Dalkia International.

3. For RTE, coordination during crisis periods is organised under the aegis of the authorities.



- ensuring that feedback from crises and crisis exercises is systematically taken into account, so as to avoid or limit the consequence of similar future crises;
- verifying the existence of professionalization initiatives for all crisis management stakeholders.

The internal control procedure for the crisis management policy is incorporated into the Group's internal control system. Moreover, a programme of crisis exercises enables the effectiveness of these procedures and their overall consistence to be regularly stress-tested. Finally, the crisis management organisation is regularly readjusted to reflect any significant changes in internal organisation or the external environment, as well as in the light of lessons learned following a major crisis.

## 2.3 Group control activities

### 2.3.1 Control procedures relating to the effective functioning of internal processes

#### 2.3.1.1 Sectoral strategies on risk control

##### 2.3.1.1.1 Energy market risk control

Each year the Executive Management approves the entities' hedging strategies, as well as the associated risk limits, which are presented to it by the Corporate Risk Management Division (DCRG) after consolidation at Group level and in accordance with the budget process. These strategies are based on an energy market risk policy, the update of which<sup>1</sup> was approved by a decision of the Chairman and CEO during the Executive Committee meeting of 30 April 2013. This policy defines how these risks should be managed for subsidiaries in the EDF scope over which it exercises operating control and stipulates all the necessary procedures for its implementation and the control of its application. Concerning jointly-controlled affiliates and companies over which there is no operations control<sup>2</sup>, the Energy Market Risks Policy and the associated control procedure are reviewed within the framework of the governance bodies of these companies.

This policy describes:

- the governance and measurement system, clearly separating the risk management and risk control responsibilities and enabling the tracking of exposure within the scope defined above;
- the risk control procedures involving EDF Executive Management in the event that risk limits are exceeded. Note that particularly rigorous risk control procedures are in operation at EDF Trading, given the specificity of the business activities and the fast reaction time required;
- the function responsible for controlling Energy Market Risks, which has a two-tier organisational structure, with the entities ensuring operating control and the Control department within Corporate Risk Management ensuring the second level of control.

The EDF Audit Committee issues an opinion to the Board of Directors on the Energy Market Risks Policy and the proposed changes to be made to it by the DCRG.

#### 2.3.1.1.2 Financial and investment risk control

The Corporate Risk Management Division, among other things, is responsible for controlling interest rate, foreign exchange, liquidity and counterparty risk for EDF and the controlled subsidiaries. This control is exercised through:

- verifying the proper application of financial risk management principles and of the Group's counterparty risk policy, in particular through control missions (methodology, organisation, exposure monitoring, regular calculation of risk indicators and control of compliance with Group risk limits);
- controlling market positions in EDF's trading room, which is responsible for cash management. For these activities, a system of indicators and risk limits, which is verified daily, is used to track and control financial risk exposure. This involves the Finance and Investments Division (DFI), the Head of the Trading Room and the Corporate Risk Management Division, which are expected to take immediate action if a limit is exceeded. The Markets Committee (on which the various DFI entities concerned and the DCRG are represented), checks and reviews monthly, as required, requests for exemptions to the framework and investment requests for new products;
- controlling the financial and counterparty risks associated with investments made for the "Dedicated Assets" portfolio (within the Corporate Finance Division), for which management responsibility is assumed by the Listed Asset Management (financial portfolio) and EDF-Invest (Private Equity, Infrastructure and Real Estate) sections of the Finance and Investments Division. Specific working environments have been (or will be) implemented by the Corporate Risk Management Division to define the risk management principles, as well as the acceptable risk limits for both portfolios. The Operations Management Committee chaired by the Senior Vice President, Finance and Investments is the steering organisation for the management of the risk associated with the financial portfolio (listed assets), whereas the Investment Committee for real estate assets chaired by the Group Senior Executive Vice President, Finance is the structure that oversees the management of the risk associated with the private equity portfolio. Moreover, the Monitoring Committee for Dedicated Assets, which is chaired by the Group Senior Executive Vice President, Finance, is responsible for the overall monitoring of the portfolio;
- controlling the completeness and relevance of the risk analysis performed on long-term investment projects and commitments, which are submitted for decisions at Executive Committee-level bodies.

In order to guarantee the independence of the financial risk control structure vis-à-vis the activities responsible for managing these risks, the Financial Risk Control department is attached to the Corporate Risk Management Division. This department has a functional link with the Financing and Investments Division.

#### 2.3.1.2 Specific controls

##### 2.3.1.2.1 Procedure for approving commitments

In accordance with the Group's "commitments process", for which the framework is provided by a procedure dating from September 2011, the Commitments Committee, which reports to the Group Executive Committee (CECEG), reviews potential Group commitments, excluding regulated subsidiaries and jointly-controlled affiliates, once the Executive Committee has adopted a favourable position in principle with respect to the commitment concerned. This review covers, in particular:

- investment, disinvestment, merger and acquisition projects in excess of €50 million<sup>3</sup>;
- expenditure on supplies, works or services for an amount in excess of €200 million;

1. The fundamental principles of the previous version Energy Markets Risk Policy have been maintained. The purposes of the major changes are to consolidate governance and harmonise risk hedging practices within the Group.

2. For regulated subsidiaries, these responsibilities are exercised within the limits laid down by the regulations in force.

3. Excluding financial investments and disinvestments linked to the management of dedicated assets and pension assets, for which the governance is specific. See section 1.4.2.

- long-term purchase or sale contracts that exceed annual limits of 5 TWh for electricity, 10 TWh for gas and €150 million for coal, fuel oil, CO<sub>2</sub> emission credits and allowances;
- the multi-year supply programme for reactors and back-end nuclear fuel cycle services;
- operations to transfer obligations regarding decommissioning or the back-end of the nuclear fuel cycle.

Group Executive Committee meetings are systematically preceded by a meeting attended by experts at corporate level (Group Risk Management Division, Legal Affairs Division, Corporate Finance Division, Upstream-Downstream Optimization & Trading Division, Sustainable Development Division, Strategy Division, Procurements Division, etc.) and project managers in order to verify the exhaustiveness and depth of the risk analysis on the projects submitted. This work is based on methodology standards for the analysis of the risks involved in development projects, which take into account the full impact of a project.

Planned commitments are then reviewed by the Board of Directors, as described in § 1.2.4.

The "Investments Steering" Guide states that planned commitments below the threshold for referring matters to the Group Executive Committee will be reviewed by the governance bodies that are specific to each entity.

In addition, and in order to improve the industrial and financial control of operations projects and activities in France and abroad, "golden rules" that are applicable to all contracts signed by the Group were approved by the Chairman and CEO in January 2013 and have been implemented. These "golden rules" constitute a framework, which, when associated with a monitoring process, make it possible to measure the risks taken by the Group within the scope of its operations.

### 2.3.1.2.2 Information Systems (IS) control

#### *Organisation of the internal control of the Information Systems function*

The internal control system for the Information Systems function is part of the Group's Internal Control Policy (that contains proposed control area standards, which the operating entities adapt to their specificities) and covers the implementation of the function's policies. These policies address, in particular, infrastructures and shared services, Information Systems security, IS project management, IS risk management and compliance with the French Data Protection Act.

For the record, EDF's Information Systems internal control standards are based on the COBIT (Control Objectives for Information and related Technology) external standards.

The Group Information Systems Division ("Group DSI") has coordinated the internal control and coverage of risks that are specific to Information Systems issues since 2009 at three levels within the function's organisation: a network of IS internal control officers, a network of the risk officers and the Committee of the Heads of Information Systems who represent the divisions. The interlinking of the risk officers', internal control and Information Systems networks makes it possible to achieve even better coordination between risk coverage and internal control for EDF. These networks will be progressively extended to include international subsidiaries, among others.

Moreover, in the field of information systems, the IS function has contributed to the standards for fraud detection tests.

#### *Actions in the field of IS security*

The EDF group's Information Systems Security Policy (PSSI) structures the information system security policies and organisation for the Group's IS. For EDF, the adjustment of these policies, as well as the level of security, are monitored:

- for EDF SA, on a monthly basis by a Security Committee (COSEC), which is chaired by the Group Information Systems Director, and brings together the Heads of Information Systems Security from all the entities within the EDF scope;

- for the main subsidiaries, on a quarterly basis by the European Security Working Group, which is chaired by the Group Information Systems Director, and brings together the Heads of Information Systems Security from the subsidiaries.

The Information Systems Strategy Committee reviews, as required (and at least once a year), in consultation with the Directors of the Group Divisions, the Heads of the Corporate Risk Management Division and the Security Division (DIRSEC), adjustments to the Group IS Security policy that are found to be necessary, without replacing the existing technical bodies. This ensures that a consistent, strategic vision is shared of IS security and IS key issues in terms of system availability and continuity, information and processing integrity, and the protection of sensitive information.

Key points for 2013 were:

- the release of a new memorandum on the Security Policy for EDF IS, which is aligned with international standards, accompanied by a letter from the General Secretary setting out the Group's management commitment;
- the publication of a Security Directive on the management of SI security incidents at EDF SA;
- the continued deployment of tools to manage access controls to IS;
- the implementation of a "Business Continuity Plan" exercise for the two EDF data centres, and the preparation of business continuity plans in most of the subsidiaries;
- regular meetings by the Review Board for Service Outsourcing Requests (BIPSE), which has been tasked with performing security analyses on outsourced services, since it was set up in 2012;
- the design of an Electronic Document Management policy (GED), which aims to facilitate the sharing of documents that are essential to the running of Group activities, while ensuring information security and integrity.

### 2.3.1.2.3 Administration and oversight of subsidiaries

Each EDF subsidiary or shareholding (with the exception of the regulated subsidiaries) reports to a Senior Executive who is a member of the Executive Committee or to his or her delegated representative. These Senior Executives, or their representatives, put forward the corporate officers who will represent EDF on the governance bodies of these companies, then send the directors concerned an assignment letter and a letter outlining their objectives.

The Chairman and CEO signed a new "Corporate Officers" policy on 1 March 2013. The aims of this policy are, firstly, to extend the implementation of the initial policy beyond EDF SA to all Group entities in which EDF holds a directorship and, secondly, to make the training and selection process stricter for all new or re-appointed directors.

The Directors and Companies Delegation, which was set up in 2002, pays particular attention to:

- updates to company reporting line mapping, in the light of decisions taken by the Executive Management concerned;
- the tracking of "target composition profiles" which foresee the assembly of the necessary collective skills, as well as the profiles necessary to represent EDF effectively on the governance bodies of subsidiaries and shareholdings, in light of the strategy defined by the Senior Executives to whom they report;
- compliance with the appointment process for corporate officers, prior management agreement for nomination (conformity with the "target composition profile", control over the number of offices, the approval of the proposed corporate officer's line management, etc.);
- improving the professional standards of corporate officers (induction training seminar for new officers with the support of the Corporate University, information via the intranet site for the directors community and on-going vocational training via workshops).

## 2.3.1.3 Other control policies

- The EDF Group's new insurance policy was implemented in 2013 after being presented to the Board of Directors in 2012 and approved by the CFO.

This new policy, which is a genuine integration tool for the Group's entities and subsidiaries, increases the insurance scope by covering all the Group's assignments and scope. It was distributed along with an Insurance Procedure Handbook and model letters of engagement for the Insurance Managers of entities and subsidiaries.

To complete these documents, and since 2011:

- in an Audit Committee meeting, the Director of the Group's Insurance Division gave a situation report on the scope and the cost of insuring EDF's risks with a policy or by transferring them to the financial markets
- a Strategic Insurance Guidelines Committee (COSA), which is chaired by the Group Senior Executive Vice President, Finance, stimulates discussions between business lines and investors on changes to and methods for implementing the Insurance Strategy, in particular the main characteristics of the coverage schemes for insurance risks.
- A control mechanism for consultants (i.e. intermediaries and business providers) has been implemented at EDF; it falls under the responsibility of the Group Chairman's staff, at the Economic Intelligence Division, which reports directly to the Chairman. It also includes analysis of the status and probity of Group counterparties. The director of economic intelligence is a stakeholder in the procedure for handling alerts concerning procurement corruption and fraud.

## 2.3.2 Internal control procedures relating to the reliability of accounting and financial information

### 2.3.2.1 AMF Reference Framework

The section of the Internal Control Manual that covers control over accounting and financial information was completely restructured in 2011 in order to conform to the AMF Reference Framework, as revised in 2010.

### 2.3.2.2 Group accounting standards and principles

The accounting standards used by the EDF Group<sup>1</sup> conform to the international accounting standards as published by the International Accounting Standards Board (IASB), and approved by the European Union, which have been applicable since 31 December 2013. These international standards comprise IAS (International Accounting Standards), IFRS (International Financial Reporting Standards) and SIC and IFRIC interpretations. The accounting rules and methods are described in the Group manual on accounting principles and summarised in the notes to the consolidated financial statements.

A network of correspondents in the Operating Divisions and subsidiaries facilitates sharing instructions and consistent accounting implementation from one Group entity to another.

### 2.3.2.3 Procedures for preparing and controlling the consolidated financial statements

The Consolidation Department (part of the Accounts Consolidation Division) prepares the consolidated financial statements based on data input locally by each entity (parent company entities and subsidiaries), in accordance with Group standards and instructions, using a single chart of accounts.

The half-yearly consolidated financial statements are presented to the Audit Committee then to the Board of Directors, and closed off on 30 June of each fiscal year.

The annual consolidated financial statements are presented to the Audit Committee, then closed off on 31 December of the fiscal year by the EDF Board of Directors and approved by the general shareholders' meeting.

Each time the half-yearly and annual financial statements are closed off, instructions are issued that specify all the deliverables expected from each person who plays a role in the publication of the financial statements, and in preparing the management report and the reference document used for annual closings. Meetings between the EDF divisions and the subsidiaries are used to prepare for each half-yearly closing and anticipate any changes in certain forms of accounting treatment in order to ensure that the financial and accounting information published is reliable. Subsequent analysis of the conditions under which the deliverables were produced (compliance with deadlines, quality of information, etc.) allows for a steady improvement in the process for preparing and analysing the consolidated financial statements.

A monthly reporting package containing information on the balance sheet and income statement accounts has been used since 2011. This has made it possible to anticipate the recognition of complex operations and helped make balance sheet flows more reliable.

The use of a common financial language by Accounting and Management Control contributes to the consistency of the Group's steering. This common language is one of the ways of ensuring continuity between:

- actual data obtained from accounting and the data produced during the forecasting phases;
- external financial communication and internal steering.

This common language facilitates dialogue and cooperation between these two functions at all levels of the organisation and helps ensure the exchange of information between those who play a key role and the quality of the information produced.

### 2.3.2.4 Procedures for preparing and controlling the parent company financial statements

The parent company financial statements are prepared on a half-yearly and annual basis by the Parent Company Accounts Department (part of the Accounts Consolidation Division).

The parent company financial statements are closed off on 31 December of the fiscal year by the EDF Board of Directors and then approved by the general shareholders' meeting.

The half-yearly parent company financial statements are closed off on 30 June of the fiscal year by the Board of Directors. EDF's transactional accounting (excluding the Financing and Investments Division, the Nuclear Fuel Department, Island Energy Systems and the Senior Executive Development Division for payroll accounting) is entrusted to an "Accounting" Shared Services Centre within the Shared Services Division. The handling of transactional accounting is organised by process. "Governance pacts" establish the respective responsibilities of the operating branches and divisions, the "Accounting" Shared Services Centre and the Accounting Consolidation Department.

Each operating branch and division Head makes a formalised annual commitment to respecting the internal control rules and ensuring the reliability of the financial information for which he or she is responsible via a letter of commitment addressed to the Head of Accounting.

The accounting internal control system is incorporated into the Group internal control system. EDF uses benchmark indicators, which make it possible to measure the extent to which certain aspects of accounting information are compliant, by process.

1. The scope of the Group's consolidated financial statements is detailed in the notes to the consolidated financial statements (cf. chapter 20 of the 2013 Reference Document).

### 2.3.3 Internal control procedures relating to compliance with laws and regulations

The Legal Affairs Division has a remit to track changes in the law and regulations. It issues warnings and raises awareness within the relevant Divisions in light of any changes that are liable to impact the Group.

Pursuant to a joint decision of 1 June 2007, completed by a decision of 1 June 2012, the Legal Affairs and Corporate Audit Divisions adopted an action plan aimed at formalising the role of Legal Affairs in defining the control objectives mandated in the different EDF entities, so that they can be taken into account in the entities' own internal control plans. These control objectives aim to ensure that these entities:

- inform the Legal Affairs Division of the regulatory areas that particularly concern them, to ensure that the Division can perform its monitoring assignment optimally, without forgetting crosscutting legal issues (e.g. anti-competitive practices and insider trading);
- systematically involve the Legal Affairs Division as early as possible in matters involving significant strategic issues and legal risks;
- check that their delegations of power effectively reflect their organisation and are updated as required;
- check that draft "major contracts" are written with the assistance of lawyers, then, once signed, are sent to the Legal Division for inclusion in the Group's Contract Library;
- check that the lawsuits brought by the entities are periodically reviewed by the Legal Division;
- identify their needs in terms of legal awareness within the fields that concern them, including crosscutting needs, and notify them to the Legal Affairs Division.

#### 2.3.3.1 Regulations relating to industrial operations

Numerous control procedures exist in the field of industrial operations, in particular for nuclear facilities. The nuclear sector regulations in force are specific to each country where facilities are located. External controls are organised by the relevant national authorities (the Nuclear Safety Authority in France (ASN), the Health and Safety Executive Nuclear Directorate, which is now part of the Office for Nuclear Regulation in the United Kingdom, the Nuclear Regulatory Commission in the United States, the National Nuclear Safety Administration in China, etc.).

Within EDF, this responsibility falls to the following executives and/or entities:

- the Nuclear Safety Council, which is chaired by the EDF Group Chairman, meets several times a year and in February reviews the annual "Nuclear Safety and Radioprotection" report;
- the General Inspector for nuclear safety and radioprotection (IGSNR) who, on behalf of the Chairman, ensures that all aspects of safety and radiation protection in the nuclear facilities for which EDF has operating responsibility are fully taken into account and whose annual report is made public;
- the Nuclear Inspectorate, a department that reports directly to the Senior Vice President, Nuclear Operations (DPN), and the Audit Assessment Taskforce, which functionally reports to the Senior Vice President, Nuclear Engineering (DIN), the verification work of which makes it possible to regularly assess the level of safety in all the various DPN and DIN entities and their work;
- the Audit function carries out several dozen audits per year in the nuclear field (engineering, fuels and operations).

The Law of 28 June 2006, as amended by NOME law of 7 December 2010, and its implementation regulations (decree of 23 February 2007 and Order of 21 March 2007) on securing financing for nuclear expenses, require the Company to produce a report on the procedures and systems used to assess

the expenses linked to the sustainable management of radioactive matter and waste. This report must specify the methods applied to calculate the related provisions and the choices made for the composition and management of the assets allocated to covering the provisions.

Since June 2007, and in accordance with the legislative and regulatory framework, EDF files a report with the administrative authority every three years and sends an update letter yearly. The third tri-annual report was finalised and filed in June 2013. These reports and update letters are given an in-depth review by the Nuclear Commitments Monitoring Committee, which then reports to the EDF Board of Directors before sending the reports and letters to the administrative authority. The report on internal control that is appended to the updating letter was deliberated by the Board of Directors.

The Basic Nuclear Facilities (BNF) order, which is part of the recasting of the general regulations that are applicable to BNF, was enacted on 7 February 2012 (and amended by an Order of 26 June 2013). Along with the "procedures" decree of 2 November 2007, this order is a major implementing piece of legislation for the Nuclear Transparency and Safety Act, which is now incorporated into the French Environment Code. Most of the articles entered into effect on 1 July 2013. Further details on implementation will be provided in the future by twenty ASN decisions and guides. In 2013, ten such decisions and guides were submitted for public consultation. Two of these consultations were dedicated to the draft decisions on controlling fire risks. Several talks are in progress on the major topics concerning BNF activities, and other documents will be published in 2014, which is a sign of the considerable activity in this field.

In the other operations-related areas (such as, for example, the monitoring of pressure vessels and dam surveillance), each entity is responsible for defining and implementing the appropriate control procedures.

Immediately following the Fukushima accident of 11 March 2011, EDF acted responsibly in its capacity as a nuclear operator by applying the lessons learned to its own facilities the same month. The 19 site Complementary Safety Evaluation reports (those for the Flamanville and Penly plants also have an "EPR" section) show the high safety levels at all of EDF's nuclear facilities in terms of the threats highlighted by the Fukushima incident, (earthquake and floods). These reports propose additional countermeasures that would make it possible to increase the fleet's robustness to situations for which the levels go well beyond those under consideration, and that would exceed current nuclear safety requirements.

The ASN notified its findings to the French government in a report dated 3 January 2012, which contains an opinion (no. 2012-AV-0139) in which the ASN states, in particular:

*"Following the complementary safety assessments of the priority nuclear facilities, ASN considers that the facilities examined offer a sufficient level of safety for it not to request the immediate shutdown of any of them. At the same time, ASN considers that for the continuation of their operation, an increase in the robustness of the facilities to extreme situations, beyond their existing safety margins, is necessary, as rapidly as possible."*

In 2012 the ASN issued a set of technical requirements for each site, with deadlines for the complementary measures to be implemented that are consistent with this opinion.

The schedule for the implementation of these requirements was adhered to strictly in 2013, in particular with the installation of a complementary generator for each reactor before the summer, along with several other modifications.

Moreover, the Nuclear Rapid Action Force, which provides additional water and electricity resources quickly (to cool the reactors and pools) is now in a position to intervene on any reactor in the fleet.

The ECS reports on dismantled sites were provided to the ASN in mid-September 2012 and, following the review of these reports by the ASN, the action programme was initiated in 2013. It primarily concerns improvement of earthquake resistance and the flood protection of facilities that being decommissioned.



Three Peer Reviews (performed by Wano) were conducted in 2013 on the Paluel, Civaux and Blayais sites and one OSART<sup>1</sup> review (assessment by the IAEA of the central level of a nuclear operator) in Chooz. A corporate OSART of EDF will be performed at the end of 2014. Its scope has been defined and a self-assessment using the IAEA was performed in the first half of 2013.

### 2.3.3.2 Other regulations

Control procedures are also used for the application of labour and employment regulations.

The implementation of management systems, particularly with regard to environmental considerations (see § 2.1.5.2) and Health and Safety, has enabled tighter control of the application of regulations and compliance with any regulatory changes to be foreseen.

## 2.3.4 Internal control procedures relating to the application of Executive Management instructions and policies

As part of the deployment of internal control within the Group, the monitoring of the effective implementation of major decisions and policies is taken into account by their inclusion in the Internal Control Reference Manual. Moreover, audits may be included in the corporate audit programme in order to check the correct implementation of these decisions and policies, and that the targets set within this framework are attained.

## 2.4 Information communication and circulation

In addition to the communication and reporting initiatives outlined within this report, the following specific initiatives are noteworthy:

- Since EDF shares were listed for trading in 2005, EDF has established procedures that aim to provide a framework for and ensure the reliability of EDF financial disclosure processes and content, as well as to prevent market abuse. Accordingly, a procedure has been defined to organise the respective roles within the Company with regard to the preparation, validation and dissemination of financial disclosure data. A system for validating financial information, designed to ensure the validation and consistency of EDF's different financial communication sources, to review and validate the contents of all financial communication channels has been set up. This Committee comprises representatives from the Corporate Finance, Communication and Legal Affairs Divisions. Furthermore, since 2006 the EDF group has adopted principles and rules that are applicable to transactions involving EDF securities or those of the EDF group's listed subsidiaries. These rules have been compiled in an Ethics Code that was updated in March 2011, in order to take into account the AMF recommendations of November 2010, and was presented to the EDF Executive Committee on 4 April 2011. In parallel with the publication of this Code, initiatives to raise awareness of stock market rules have been taken vis-à-vis Group employees, in particular concerning the precautions and obligations associated with holding inside information and the blackout periods during which senior executives and certain employees who are party to insider information may not trade in the Company's shares.
- The Code of Conduct: compliance with the codes of conduct for the regulated subsidiaries is monitored annually by these subsidiaries, and verified by the French Energy Regulation Commission, which publishes the results of its checks in its annual report.

*This report was prepared by a working group coordinated by the EDF Corporate Audit Division, which includes representatives of the Legal Affairs, Corporate Risk Management and Corporate Finance Divisions, as well as the General Secretary to the Board of Directors. Various contributors, such as the Ethics and Compliance Standards Delegation, the Information Systems Division, the Directors and Companies Delegation, the Sustainable Development Division and the Investors and Markets Division were also involved. This report was successively reviewed by the Group General Secretary (4 February 2012), the Financial Disclosure Committee (31 January 2014), the Group General Secretary (5 February 2014) and the Audit Committee (10 February 2014) before being approved by the Board of Directors' meeting of 12 February 2014, in accordance with Article L. 225-37 of the French Commercial Code.*

Paris, 12 February 2014.  
The Chairman and CEO of EDF,  
Henri Proglio

1. OSART: Operational Safety Review Team.





# B Statutory Auditors' Report, prepared in accordance with Article L. 225-235 of the French Commercial Code ("Code de Commerce"), on the Report prepared by the Chairman of the Board of Directors of Électricité de France SA

*This is a free translation into English of the statutory auditors' report issued in French prepared in accordance with Article L. 225-235 of French company law on the report prepared by the Chairman of the Board of Directors on the internal control and risk management procedures relating to the preparation and processing of accounting and financial information issued in French and is provided solely for the convenience of English speaking users.*

*This report should be read in conjunction and construed in accordance with French law and the relevant professional standards applicable in France.*

## Year ended 31 December 2013

To the shareholders,

In our capacity as Statutory Auditors of Électricité de France S.A. ("the Company"), and in accordance with Article L. 225-235 of the French Commercial Code ("Code de commerce"), we hereby report on the Report prepared by the Chairman of your Company in accordance with Article L. 225-37 of the French Commercial Code for the year ended 31 December 2013.

It is the Chairman's responsibility to prepare, and submit to the Board of Directors for approval, a report on the internal control and risk management procedures implemented by the Company and containing the other disclosures required by Article L. 225-37 of the French Commercial Code particularly in terms of the corporate governance measures.

It is our responsibility:

- to report to you on the information contained in the Chairman's Report in respect of the internal control and risk management procedures relating to the preparation and processing of the accounting and financial information, and
- to attest that this Report contains the other disclosures required by Article L. 225-37 of the French Commercial Code, it being specified that we are not responsible for verifying the fairness of these disclosures.

We conducted our work in accordance with professional standards applicable in France.

## Information on the internal control and risk management procedures relating to the preparation and processing of accounting and financial information

The professional standards require that we perform the necessary procedures to assess the fairness of the information provided in the Chairman's Report in respect of the internal control and risk management procedures relating to the preparation and processing of the accounting and financial information. These procedures consisted mainly in:

- obtaining an understanding of the internal control and risk management procedures relating to the preparation and processing of the accounting and financial information on which the information presented in the Chairman's Report is based and existing documentation;
- obtaining an understanding of the work involved in the preparation of this information and the existing documentation;
- determining if any significant weaknesses in the internal control procedures relating to the preparation and processing of the accounting and financial information that we would have noted in the course of our engagement are properly disclosed in the Chairman's Report.

On the basis of our work, we have nothing to report on the information in respect of the Company's internal control and risk management procedures relating to the preparation and processing of accounting and financial information contained in the Report prepared by the Chairman of the Board in accordance with Article L. 225-37 of the French Commercial Code.

## Other disclosures

We hereby attest that the Chairman's Report includes the other disclosures required by Article L. 225-37 of the French Commercial Code.

Paris – La Défense and Neuilly-sur-Seine, 12 February 2014

The Statutory Auditors

KPMG Audit  
Department of KPMG S.A.  
Jacques-François Lethu

Deloitte & Associés  
Alain Pons

Deloitte & Associés  
Patrick E. Suissa

# C Statutory Auditors' Report on Regulated Agreements and Commitments

*This is a free translation into English of the Statutory Auditors' special report on regulated agreements and commitments with third parties that is issued in French language and is provided solely for the convenience of English speaking readers. This report on regulated agreements and commitments should be read in conjunction with, and construed in accordance with, French law and professional auditing standards applicable in France. It should be understood that the agreements reported on are only those provided by the French Commercial Code and that the report does not apply to those related party transactions described in IAS 24 or other equivalent accounting standards.*

## Year ended 31 December 2013

To the shareholders,

In our capacity as Statutory Auditors of your Company, we hereby present to you our report on the regulated agreements and commitments.

The terms of our engagement require us to communicate to you, based on information provided to us, principal terms and conditions of those agreements and commitments brought to our attention or which we may have discovered during the course of our audit, without expressing an opinion on their usefulness and appropriateness or identifying such other agreements and commitments, if any. It is your responsibility, pursuant to article R. 225-31 of the French Commercial Code ("Code de Commerce"), to assess the interest involved in respect of the conclusion of these agreements and commitments for the purpose of approving them.

Our role is also to provide you with the information stipulated in article R. 225-31 of the French Commercial Code, relating to the implementation during the past year of agreements and commitments previously approved by the Shareholders' Meeting, if any.

We conducted the procedures we deemed necessary in accordance with the professional guidelines of the French National Institute of Statutory Auditors ("Compagnie Nationale des Commissaires aux Comptes"), relating to this engagement. These procedures consisted in agreeing the information provided to us with the relevant source documents.

## Agreements and Commitments submitted to the general shareholders' meeting approval

We hereby inform you that we have not been advised of any agreement and commitment authorized during the year to be submitted to the approval of the Shareholders' Meeting pursuant to article L. 225-38 of the French Commercial Code.

## Agreements and Commitments already approved by the general shareholders' meeting

### a) Continuing agreements and commitments having effects during the year:

Pursuant to article R. 225-30 of the French Commercial Code, we have been informed that the following agreements and commitments, previously approved by Shareholders' Meeting of prior years, were applicable during the year:

#### ■ Public Service Contract

On 24 October 2005, the French State and Electricité de France S.A. signed a public service contract whose purpose is to form the framework for the Company's public service mission and duties.

This contract sets out the commitments undertaken by the Company over the period 2005-2006-2007 and defines the financial compensation payable for public service obligations, in particular the principles set for the calculation of and the change in electricity sales tariffs. In the absence of a new agreement, the performance of certain provisions of this contract was continued in 2013.

#### ■ Final processing-recycling agreement entered into by EDF and AREVA for the period 2008-2012

In application of the agreement of 19 December 2008 setting forth the principles governing back-end cycle contracts for the post-2007 period, EDF and AREVA signed on 12 July 2010, the contract "Processing-Recycling Agreement" which lays down (i) the principles of an industrial cooperation until 2040, governing the transport, processing and recycling of spent nuclear fuel from EDF's nuclear power stations, and (ii) the application conditions of these principles for the 2008-2012 period. The performance of certain measures of this application contract for the 2008-2012 period was continued in 2013.

## ■ Agreements with the AREVA Group

Your Company entered into three agreements with the AREVA Group in 2007 with respect to the following services:

- Construction of the nuclear boiler for the Flamanville 3 EPR nuclear plant;
- Maintenance and servicing of boilers as part of the third ten-year inspection of the 900MW-type nuclear plants in France;
- Advance booking of forged parts for EPR reactors constructed abroad.

Total consideration for these agreements and their amendments amounted respectively to €1,465 million euros (of which €205 million recorded in 2013), €122 million (of which €10 million recorded in 2013) and €212 million (no amount recorded in 2013).

## **b) Continuing agreements and commitments with no effect during the year:**

In addition, we have been informed that the following agreement, previously approved by Shareholders' Meeting of prior years, was applicable but with no effect during the year:

## ■ Agreement entered into between EDF, AREVA and the CEA in respect with the audits required by the DGEC

In accordance with the law of 28 June 2006 related to the sustainable management of radioactive materials and waste, and in compliance with the application decree of 23 February 2007 on securing the funds to cover the nuclear expenses, the French Department for Energy and Climate (*Direction Générale de l'Energie et du Climat* or "DGEC") asked the main actors of the French nuclear industry to perform audits of their tools used for the valuation of the nuclear generation cycle obligations. As those audits are common to the aforementioned three operators, the DGEC requested that a single set of specifications be prepared with the selection of a single contractor for each of them.

On 25 May 2011, the three stakeholders and the DGEC, as the prescriber, entered into an agreement that sets out:

- the organization and governance rules of the combination agreed by the stakeholders with respect to the performance of the audits;
- the terms and conditions upon which the stakeholders will set up the financing and monitor the tender procedure related to those audits.

This agreement had no effect in 2013.

Paris – La Défense and Neuilly-sur-Seine, 12 February 2014

The Statutory Auditors

KPMG Audit  
Department of KPMG S.A.  
Jacques-François Lethu

Deloitte & Associés  
Alain Pons  
Patrick E. Suissa

# D EDF SA's financial statements and Statutory Auditors' Report on the financial statements

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## Income statements

(in millions of Euros)	Notes	2013	2012
<b>SALES <sup>(1)</sup></b>	<b>4</b>	<b>43,423</b>	<b>44,106</b>
Change in inventories and capitalised production		814	656
Operating subsidies	5	5,117	4,698
Reversals of provisions and depreciation	6	3,073	2,941
Other operating income and transfers of charges	7	847	643
<b>I TOTAL OPERATING INCOME</b>		<b>53,274</b>	<b>53,044</b>
<b>Purchases and other external expenses</b>	<b>8</b>	<b>34,089</b>	<b>34,805</b>
Fuel purchases used		4,298	4,265
Energy purchases		10,311	12,013
Services and other purchases used		19,480	18,527
<b>Taxes other than Income taxes</b>	<b>9</b>	<b>2,518</b>	<b>2,233</b>
<b>Personnel expenses</b>	<b>10</b>	<b>6,457</b>	<b>6,238</b>
<b>Depreciation, amortisation and provisions</b>		<b>4,857</b>	<b>4,936</b>
Depreciation and amortisation	11	2,723	2,354
Provisions, impairment and write-down	12	2,134	2,582
<b>Other operating expenses</b>	<b>13</b>	<b>944</b>	<b>989</b>
<b>II TOTAL OPERATING EXPENSES</b>		<b>48,865</b>	<b>49,201</b>
<b>OPERATING PROFIT (I - II)</b>		<b>4,409</b>	<b>3,843</b>
<b>III JOINT OPERATIONS</b>		<b>3</b>	<b>5</b>
<b>IV FINANCIAL RESULT</b>	<b>14</b>	<b>(890)</b>	<b>(18)</b>
<b>PROFIT OR LOSS BEFORE INCOME TAXES AND EXCEPTIONAL ITEMS (I - II + III + IV)</b>		<b>3,522</b>	<b>3,830</b>
<b>V EXCEPTIONAL RESULT</b>	<b>15</b>	<b>164</b>	<b>196</b>
<b>VI INCOME TAXES</b>	<b>16</b>	<b>748</b>	<b>460</b>
<b>PROFIT OR LOSS (I - II + III - IV + V - VI)</b>		<b>2,938</b>	<b>3,566</b>

(1) Production of goods for export in 2013: €5,307 million; production of services for export in 2013: €584 million

## Balance sheets

		31/12/2013			31/12/2012
(in millions of Euros)	Notes	Gross values	Depreciation or impairment	Net values	Net values
<b>ASSETS</b>					
Intangible assets	17-18	1,185	472	713	737
Property, plant and equipment owned by EDF	17-18	72,498	48,175	24,323	23,582
Property, plant and equipment operated under concession	17-18	13,080	7,754	5,326	5,002
Tangible and intangible assets in progress	17-18	12,774	71	12,703	10,724
Investments and related receivables		59,898	357	59,541	57,365
Investment securities		12,499	38	12,461	14,210
Loans and other financial assets		7,668	3	7,665	8,568
Financial assets	19	80,065	398	79,667	80,143
<b>TOTAL I FIXED ASSETS</b>		<b>179,602</b>	<b>56,870</b>	<b>122,732</b>	<b>120,188</b>
Inventories and work-in-progress	20	9,871	211	9,660	9,140
Advances on orders	21	1,056	1	1,055	906
Trade and other receivables	21	17,791	263	17,528	16,574
Marketable securities	22-23	10,316	4	10,312	8,947
Cash instruments	21	1,627	-	1,627	2,801
Cash and cash equivalents	23	5,066	-	5,066	3,685
Prepaid expenses	21	1,295	-	1,295	1,335
<b>TOTAL II CURRENT ASSETS</b>		<b>47,022</b>	<b>479</b>	<b>46,543</b>	<b>43,388</b>
Deferred charges (III)		258	-	258	242
Bond redemption premiums (IV)		558	102	456	467
Unrealised foreign exchange losses (V)	24	261	-	261	340
<b>TOTAL ASSETS (I + II + III + IV + V)</b>		<b>227,701</b>	<b>57,451</b>	<b>170,250</b>	<b>164,625</b>

(in millions of Euros)	Notes	31/12/2013	31/12/2012
<b>EQUITY AND LIABILITIES</b>			
Capital		930	924
Capital-related premiums		7,205	7,040
Revaluation surplus		670	670
Reserves			
Legal reserves		92	92
Other reserves		3,000	3,000
Retained earnings		4,988	3,713
Profit or loss for the financial year		2,938	3,566
Interim dividend		(1,059)	(1,053)
Investment subsidies		178	190
Tax-regulated provisions		6,401	6,323
<b>EQUITY</b>	25	<b>25,343</b>	<b>24,465</b>
Additionnal equity	26	6,120	-
Special concession accounts	27	2,016	1,999
<b>TOTAL I TOTAL EQUITY AND CONCESSION ACCOUNTS</b>		<b>33,479</b>	<b>26,464</b>
Provisions for risks	28	536	681
Back-end nuclear cycle	29	17,321	16,611
Plant decommissioning and last cores	29	15,909	15,293
Employee benefits	30	10,691	10,751
Other expenses	31	924	738
Provisions for expenses		44,845	43,393
<b>TOTAL II PROVISIONS</b>		<b>45,381</b>	<b>44,074</b>
Financial liabilities	32-33	45,280	49,482
Advances and progress payments received	32	6,279	5,833
Operating, investment and other liabilities	32	33,375	32,005
Cash instruments	32	1,973	2,370
Deferred income	32	4,273	4,232
<b>TOTAL III LIABILITIES</b>		<b>91,180</b>	<b>93,922</b>
Unrealised foreign exchange gains (IV)	34	210	165
<b>TOTAL EQUITY AND LIABILITIES (I + II + III + IV )</b>		<b>170,250</b>	<b>164,625</b>

## Cash flow statements

(in millions of Euros)	Notes	2013	2012
<b>Operating activities:</b>			
Profit / (loss) before income tax		3,686	4,026
Amortisation, depreciation and provisions		3,107	3,746
Capital (gains) / losses		213	(6)
Financial income and expenses		(623)	(1,995)
Changes in working capital		(528)	(2,270)
<b>Net cash flow from operations</b>		<b>5,855</b>	<b>3,501</b>
Net financial expenses, including dividends received		1,074	1,243
Income taxes paid		(1,727)	(1,173)
<b>Net cash flow from operating activities (A)</b>		<b>5,202</b>	<b>3,571</b>
<b>Investing activities:</b>			
Investments in property, plant and equipment and intangible assets		(5,656)	(4,713)
Proceeds from sale of property, plant and equipment and intangible assets		15	37
Changes in financial assets		(203)	(4,860)
<b>Net cash flow used in investing activities (B)</b>		<b>(5,844)</b>	<b>(9,536)</b>
<b>Financing activities:</b>			
Issuance of borrowings and underwriting agreements		3,288	9,618
Repayment of borrowings and underwriting agreements		(6,296)	(2,244)
Dividends paid		(2,145)	(2,125)
Issuance of perpetual subordinated bonds	26	6,135	-
Funding contributions received for assets operated under concessions		12	14
Investment subsidies		1	11
<b>Net cash flow from financing activities (C)</b>		<b>995</b>	<b>5,274</b>
<b>Net increase / (Decrease) in cash and cash equivalents (A)+(B)+(C)</b>		<b>353</b>	<b>(691)</b>
<b>CASH AND CASH EQUIVALENTS - OPENING BALANCE *</b>	23	<b>(3,699)</b>	<b>(3,100)</b>
Effect of currency fluctuations		5	24
Financial income on cash and cash equivalents		31	68
<b>CASH AND CASH EQUIVALENTS - CLOSING BALANCE *</b>	23	<b>(3,310)</b>	<b>(3,699)</b>

\* "Cash and cash equivalents – opening balance" and "Cash and cash equivalents – closing balance" do not include investment funds, nor negotiable debt instruments maturing in more than three months. Details of the variation in cash and cash equivalents are presented in note 23.



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## Notes to the financial statements

Électricité de France SA (EDF), the parent company of the EDF group, is a French *société anonyme* operating in electricity generation and electricity and gas supply. EDF also covers all the business activities of Island Energy Systems (IES, located in Corsica and France's overseas departments).

### ➤ Note 1. Accounting principles and methods

#### 1.1 Accounting standards

EDF's financial statements are prepared in accordance with the accounting principles and methods defined by the French national chart of accounts, as presented by CRC (French accounting committee) regulation 99-03 of 29 April 1999 with additions in subsequent regulations.

The accounting and valuation methods applied are identical to those used in the financial statements for the year ended 31 December 2012, apart from the change concerning greenhouse gas emissions described below.

The third phase of the Kyoto protocol began on 1 January 2013, introducing changes to the methods for allocation of greenhouse gas emission rights. In France, this put an end to free allocation of emission rights for electricity generating companies such as EDF.

Regulation 2012-04 of 4 October 2012 issued by the ANC (France's Accounting Standards Authority), approved by decision of 28 December 2012

and applicable from 1 January 2013, modified the accounting methods for emission rights.

The first application of this regulation qualifies as a change of accounting method.

At 1 January 2013, this change is reflected by recognition of a "commodity inventory" of €74 million corresponding to the surplus rights not consumed by emissions produced in 2012 for activities in mainland France, and an "operating liability" of €6 million corresponding to the rights receivable to cover emissions already produced by the island activities. For each activity, the amounts at 1 January 2013 result from offsetting the amount of rights held, which were included in "intangible assets" in the financial statements at 31 December 2012, with the amount of rights to be surrendered to the State for emissions of the year 2012, which were included in "other liabilities" in the financial statements at 31 December 2012.

(in millions of Euros)

31/12/2012					01/01/2013			
ACTIVITIES	ASSETS		LIABILITIES		ASSETS		LIABILITIES	
Mainland France	Intangible assets	229	155	Other liabilities	Commodity inventories	74	-	Operating liabilities
Island activities	Intangible assets	21	27	Other liabilities	Commodity inventories	-	6	Operating liabilities

The accounting treatment is described in note 1.19.1.

#### 1.2 Management judgments and estimates

The preparation of the financial statements requires the use of judgments, best estimates and assumptions in determining the value of assets and liabilities, income and expenses recorded for the period, considering positive and negative contingencies existing at year-end. The figures in EDF's future financial statements could differ significantly from current estimates due to changes in these assumptions or economic conditions.

EDF's industrial strategy is to continue operation of the French nuclear power plants beyond their current accounting depreciation period of 40 years, in optimum conditions as regards safety and efficiency.

EDF has been making preparations for extending the useful life of its power plants for several years, and is now making the necessary investments under the major industrial overhaul programme called "*grand carénage*". The adjustment of the accounting useful life of the nuclear power plants to bring it into line with this industrial strategy will be reflected in EDF's financial statements as soon as all the required technical, economic and governance conditions are in place.

The other principal sensitive accounting methods involving use of estimates and judgments are described below.

In a context characterised by financial market volatility, the parameters used to prepare estimates are based on macro-economic assumptions appropriate to the very long-term cycle of EDF's assets.

##### 1.2.1 Nuclear provisions

The measurement of provisions for the back-end of the nuclear cycle, decommissioning and last cores is sensitive to assumptions concerning costs, inflation rate, long-term discount rate, and disbursement schedules. A revised estimate is therefore established at each closing date to ensure that the amounts accrued correspond to the best estimate of the costs eventually to be borne by EDF. Any significant differences resulting from these revised estimates could entail changes in the amounts accrued.

The main assumptions and sensitivity analyses are presented in note 29.3.

##### 1.2.2 Pensions and other long-term and post-employment benefits

The value of pensions and other long-term and post-employment benefit obligations is based on actuarial valuations that are sensitive to all the actuarial assumptions used, particularly concerning discount rates and wage increase rates.

The principal actuarial assumptions used to calculate these post-employment and long-term benefits at 31 December 2013 are presented in note 30.4. These assumptions are updated annually. EDF considers the actuarial assumptions used at 31 December 2013 appropriate and well-founded, but future changes in these assumptions could have a significant effect on the amount of the obligations and EDF's net income.

### 1.2.3 Energy supplied but not yet measured and billed

The quantities of energy supplied but not yet measured and billed are calculated at the reporting date based on consumption statistics and selling price estimates. Determination of the unbilled portion of sales revenues at the year-end is sensitive to the assumptions used to prepare these statistics and estimates.

## 1.3 Sales

Sales essentially comprise income from energy sales and services sales. Services for delivery through the energy distribution network purchased from the subsidiary ERDF and invoiced to end-customers contribute to EDF's energy sales.

EDF accounts for sales when:

- there is a proven contractual relationship;
- delivery has taken place (or the service has been completed);
- a quantifiable price has been established or can be determined;
- and the receivables are likely to be recovered.

Delivery takes place when the risks and benefits associated with ownership are transferred to the buyer.

The quantities of energy delivered to EDF customers but not yet measured and billed at the end of the period are calculated based on the quantities used by the sites of the EDF balance responsible entities less the quantities billed, after losses measured by a statistical method presented to the *Commission de Régulation de l'Énergie* (CRE), the French Energy Regulation Commission. These quantities are valued using an average price determined by reference to energy invoiced in the previous month.

Sales of goods and revenues on services not completed at the balance sheet date are valued by reference to the stage of completion at that date.

Sales of energy to EDF Trading, the Group's trading company, are recorded at their contractually stipulated amount.

## 1.4 Intangible assets

### 1.4.1 Research and Development expenses

Research expenses are recognised as expenses in the financial period incurred.

Project development expenses are capitalised as an intangible asset when EDF can demonstrate:

- the technical feasibility of making the intangible asset ready for commissioning or sale;
- its intention to complete the intangible asset and use or sell it;
- its ability to use or sell the intangible asset;
- how the intangible asset will generate likely future economic benefits;

- the availability of the appropriate resources (technical, financial or other) to complete development and use or sell the intangible asset;
- and its ability to provide a reliable estimate of expenses attributable to the intangible asset during its development.

Capitalised development expenses are amortised on a straight-line basis over their foreseeable useful life.

### 1.4.2 Other intangible assets

Other intangible assets mainly consist of software, leasehold rights, and storage capacity reservation costs.

They are amortised on a straight-line basis over their useful lives regardless of whether they are generated in-house or purchased.

## 1.5 Property, plant and equipment

EDF's property, plant and equipment is reported under two balance sheet headings, as appropriate to the business and contractual circumstances of their use:

- property, plant and equipment owned by EDF, essentially nuclear generation facilities;
- property, plant and equipment operated under concession.

### 1.5.1 Initial measurement

Property, plant and equipment is recorded at acquisition or production cost.

The initial value in the assets is the acquisition or production cost (including external costs as well as costs incurred directly by EDF).

The cost of facilities developed in-house includes all labour and materials costs, and all other production costs attributable to the construction of the asset.

EDF capitalises safety expenses incurred as a result of legal and regulatory obligations sanctioning non-compliance by an administrative ban from operation.

The cost of property, plant and equipment also includes decommissioning costs for generation plants, and last core costs for nuclear facilities. These assets are associated with the provisions recorded to cover these obligations. At the date of commissioning, they are measured and recorded in the same way as the corresponding provision (see note 1.15). They are depreciated in the same way and over the same useful life as the relevant facility. The asset ceases to be recognised when the associated facility has been totally depreciated.

When some of the decommissioning costs for a plant are to be borne by a partner, the expected reimbursement is recognised as accrued income in the assets. The difference between the provision and the accrued income is recorded as a tangible asset, and subsequent payments by the partner are deducted from the accrued income.

The value of property, plant and equipment therefore includes the following:

- the discounted cost of decommissioning the facilities;
- and for nuclear installations, the discounted cost of last core nuclear fuel, including:
  - the cost of the loss on reactor fuel that will not be fully irradiated when production shuts down and cannot be reused because of technical and regulatory constraints,
  - the cost of processing this fuel,
  - and the cost of removing and storing waste resulting from these operations.

Strategic safety spare parts for nuclear facilities are treated as property, plant and equipment, and depreciated over the residual useful life of the installations.

When a part of an asset has a different useful life from the overall asset's useful life, it is identified as an asset component and depreciated over a specific period. This mainly concerns the costs of major inspections, which are amortised over a period corresponding to the time elapsing between two inspections.

Borrowing costs attributable to the financing of an asset incurred during the construction period, and pre-operating expenses, are recognised as expenses.

## 1.5.2 Depreciation

Items of property, plant and equipment are depreciated on a straight-line basis over their useful life, defined as the period during which the company expects to draw future economic benefits from their use.

The expected useful lives for the main facilities are as follows:

■ Hydroelectric dams:	75 years
■ Electromechanical equipment used in hydropower plants:	50 years
■ Fossil-fired power plants:	25 to 45 years
■ Nuclear generation facilities:	40 years
■ Transmission and distribution installations (lines, substations):	20 to 45 years

## 1.5.3 Concession agreements

In France, EDF is the operator for two types of public service concessions:

- public electricity distribution concessions in which the grantors are local authorities (municipalities or syndicated municipalities);
- hydropower concessions with the French State as grantor.

### 1.5.3.1 Public electricity distribution concessions

EDF is the concession operator for the island networks located in Corsica and France's overseas departments, generally under concession agreements using standard concession rules deriving from the 1992 Framework Contract (updated in 2007) negotiated with the National Federation of Licensing Authorities (*Fédération Nationale des Collectivités Concédantes et Régies* - FNCCR) and approved by the public authorities.

The accounting treatment of concessions is based on the 1975 accounting guide for concession operator firms, as there are no specific instructions in the General Chart of Accounts (*Plan Comptable Général*).

Assets used under concessions are reported in the balance sheet assets as property, plant and equipment operated under concession, regardless of their initial financing, at acquisition cost or their estimated value at the transfer date when supplied by the grantor. An offsetting liability is recognised for any assets supplied for nil consideration by concession grantors.

### 1.5.3.2 Hydropower concessions

Hydropower concessions follow standard rules approved by decree.

Assets attributed to the hydropower concessions comprise hydropower generation equipment (dams, pipes, turbines, etc) and, in the case of recently-renewed concessions, electricity generation and switching facilities (alternators, etc).

Assets used in these concessions are recorded under "Property, plant and equipment operated under concession", at acquisition cost less accumulated depreciation. Depreciation is calculated over their useful life, which is generally identical to the term of the concession.

Additional depreciation is booked in complement to industrial depreciation for assets operated under concession that are to be returned for nil consideration at the end of the concession but whose useful life extends beyond the concession term.

## 1.6 Long-term asset impairment

At each reporting date, EDF assesses whether there is an indication that an asset could have significantly lost value. If so, an impairment test is carried out as follows:

- EDF measures any long-term asset impairment by comparing the carrying value of these assets, grouped into cash-generating units where necessary, and their recoverable amount, usually determined using the discounted future net cash flow method; when this recoverable value is lower than the value in the balance sheet, an amount equivalent to the difference is written off under "Depreciation and impairment";
- The discount rates used for these purposes are based on the weighted average cost of capital (WACC) for each asset or group of assets concerned;
- Future cash flows are based on medium-term plan projections over three years, and assumptions validated by the management.

## 1.7 Financial assets

### 1.7.1 Investments

Investments are carried at acquisition cost. Gains and losses on sales of investments are valued using the FIFO (first in first out) method.

In accordance with the CNC (French accounting council) Emergency Committee opinion 2007-C of 15 June 2007, transfer duties, fees and commissions and legal fees related to acquisitions of investments are included in the cost of acquisition of the asset. Expenses of this type relating to other shares are included in expenses. Tax-regulated amortisation of acquisition costs is recorded in an excess depreciation account.

When the book value of investments is higher than their value in use, an impairment is recorded equivalent to the difference.

The value in use of listed securities in non-consolidated entities is based on stock market price.

For unlisted and listed securities in companies included in the EDF group consolidation, the value in use is determined by reference to equity or net adjusted consolidated assets, taking into account expert valuation information and information that has become known since the previous year-end when necessary.

### 1.7.2 Investment securities

EDF has set up two investment portfolios:

- the first comprises dedicated financial assets intended to finance the end of nuclear fuel cycle operations, for which provisions have been accrued. These assets are managed separately from other financial assets and investments in view of their specific objective, and comprise bonds, equities, collective investment funds and "reserved" funds built up by EDF solely for its own use;
- the second comprises securities acquired to generate a satisfactory return on investment in the medium to long term, without participating in the management of the companies concerned.



Investment securities also include treasury shares that cover obligations relating to debt instruments providing access to the company's capital, acquired under a liquidity contract with an investment services company or through an external operation or capital reduction.

Shares are recorded at acquisition cost. In compliance with CRC regulation 99-03 and CNC Emergency Committee opinion 2005-J of 6 December 2005, transfer duties, professional fees, commissions, legal expenses and purchasing costs are all charged to expenses, under the option used for other investments.

The investment portfolios (shares and bonds) are recorded at acquisition cost. If the carrying amount of a security is lower than the book value, the unrealised capital loss is fully written off without being netted against potential gains on other securities. The carrying amount of listed securities is assessed individually, taking the stock market price into account. For unlisted securities, the carrying amount is also assessed individually, mainly in consideration of the growth prospects of the companies concerned and their share prices.

### 1.7.3 Other financial assets

As part of Group activities, EDF grants short-term loans in foreign currencies to its subsidiaries. In order to reduce exposure to foreign exchange risks, the Group mainly finances these loans by short-term commercial paper issues in foreign currencies and in Euros, together with the use of currency hedging derivatives.

## 1.8 Inventories and work-in-progress

The initial cost of inventories includes all direct material costs (including the effect of hedging), labour costs and a share of indirect production costs. Inventory consumption is valued under the weighted average unit cost method, except for greenhouse gas emission rights, for which the FIFO (first in first out) method is used.

Inventories are carried at the lower of historical cost or net realisable value.

### 1.8.1 Nuclear fuel and materials

Inventory accounts include:

- nuclear materials, whatever their form during the fuel production cycle;
- fuel components in the warehouse or in the reactor.

The stated value of nuclear fuel and materials and work-in-progress is determined based on direct processing costs including materials, labour and subcontracted services (e.g. fluorination, enrichment, production, etc.).

In accordance with the notion of "loaded fuel" as defined in the decision of 21 March 2007, the cost of inventories for fuel in reactors but not yet irradiated includes expenses for spent fuel management and long-term radioactive waste management. The corresponding amounts are taken into account in the relevant provisions.

Nuclear fuel consumption is determined by component (natural uranium, fluorination, enrichment, fuel assembly production) as a proportion of the expected output when the fuel is loaded in the reactor. These quantities are valued at weighted average cost of inventories, applied to each component. Inventories are periodically corrected in view of forecast spent quantities based on neutronic measurements and physical inventories.

### 1.8.2 Other operating inventories

These inventories include:

- fossil fuels required for operation of fossil-fired power plants;
- operating materials and equipment such as spare parts supplied under a maintenance programme (excluding capitalised strategic safety spare parts);
- greenhouse gas emission rights acquired for the generation cycle (see note 1.19.1);
- gas stocks, valued at weighted average cost, including direct and indirect purchase costs, especially transport costs.

Impairment of spare parts depends on the turnover of these parts and the useful lives of the generation units.

## 1.9 Accounts receivable and marketable securities

### 1.9.1 Trade receivables

Trade receivables are initially stated at nominal value. They also include the value of unbilled receivables for energy already supplied.

An write down is recorded when, based on the probability of recovery assessed according to the type of receivable, the carrying amount of receivables falls below their book value. Depending on the nature of the receivable, the risk associated with doubtful receivables is assessed individually or by experience-based statistical methods, bearing in mind that EDF does not bear the risks of non-payment for the delivery portion of these receivables, which is borne by ERDF.

### 1.9.2 Marketable securities

Marketable securities are initially recorded as assets at acquisition cost, and restated at the lower of historical cost or present value at year-end.

For listed securities, the present value is equal to the year-end stock market price. For unlisted securities, the value in use is the probable trading value taking the company's growth prospects into consideration.

An impairment is recorded to fully cover any unrealised losses, without netting against unrecorded unrealised gains.

Gains and losses on sales of marketable securities are valued using the FIFO (first in first out) method.

## 1.10 Bond issuance expenses and redemption premiums

Bond redemption premiums are amortised on a straight-line basis over the term of the related bond (or each tranche of the bond to maturity in the case of serial bonds).

Commissions and external costs paid by EDF upon issuance of borrowings and included in "deferred charges" are spread on a straight-line basis over the term of the related instruments.

## 1.11 Unrealised foreign exchange gains and losses

Foreign currency receivables and payables are translated into Euros at the year-end exchange rates. The resulting translation differences are recorded in the balance sheet under "Unrealised foreign exchange gains" and "Unrealised foreign exchange losses". Provisions are recorded to cover all unrealised exchange losses on foreign currency borrowings not hedged for exchange risks. Unrealised gains are not recognised in the income statement.

Translation differences with respect to swaps hedging foreign currency borrowings are recorded under "Unrealised foreign exchange gains" and "Unrealised foreign exchange losses" as an offsetting entry to "Cash Instruments".

## 1.12 Tax-regulated provisions

The following items are recorded under this heading:

- excess depreciation on generation, transmission and distribution facilities computed using the declining-balance method;
- accelerated depreciation on the chimney sulphur removal facilities of fossil-fired plants;
- excess depreciation on software developed in-house by the company.

## 1.13 Additional equity

Perpetual subordinated bonds issued by EDF in Euros and other currencies are recorded in compliance with the French Chartered accountants' body *Ordre des Experts Comptables* opinion 28 of July 1994, taking their specific characteristics into consideration.

As a result, they are classified as additional equity, since redemption is exclusively controlled by EDF.

Issuance expenses and premiums are amortised through the income statement.

Interest paid on these bonds is recorded in financial result.

## 1.14 Special concession accounts

These liabilities relate mostly to public electricity distribution concessions for the Island Energy Systems (IES), and hydropower concessions.

### 1.14.1 Special public distribution concession liabilities – IES

These liabilities represent the contractual obligations specific to the concession rules for public electricity distribution concessions, recognised in the liabilities as:

- rights in existing assets: these correspond to the grantor's right to recover all assets for nil consideration. This right comprises the value in kind of the facilities – the net book value of assets operated under concession – less any as yet unamortised financing provided by the operator;
- rights in assets to be replaced: these correspond to the operator's obligation to contribute to the financing of assets due for replacement. These non-financial liabilities comprise:
  - depreciation recorded on the portion of assets financed by the grantor,
  - the provision for renewal, exclusively for assets due for renewal before the end of the concession. This provision is included in provisions for expenses.

When assets are replaced, the provision and amortisation of the grantor's financing recorded in respect of the replaced item are eliminated and transferred to the rights in existing assets, since they are considered as the grantor's financing for the new asset. Any excess provision is taken to income.

During the concession, the grantor's rights in assets to be replaced are thus transferred upon the asset's renewal to become the grantor's rights in existing assets, with no outflow of cash to the benefit of the grantor.

### 1.14.2 Special hydropower concession liabilities

These liabilities comprise:

- the value of assets remitted for nil consideration and contributions received;
- differences arising from revaluations in accordance with French legislation for fixed assets commissioned before 1 January 1959 and before 1 January 1977;
- and since 1 January 2009 (when implementation decree 2008-1009 of 26 September 2008 came into force) additional depreciation booked for facilities that are to be returned for nil consideration at the end of the concession but whose useful life extends beyond the concession term. This additional depreciation is based on the share of the assets' net book value at the end of the concession financed by the concession operator.

Following the changes made to the accounting treatment of hydropower concessions at 1 January 2009, the 1959 revaluation reserve is transferred to equity when the assets concerned are retired.

The net revaluation reserve generated by the 1976 revaluation is taken to income over the residual useful life of the assets concerned.

The value of assets remitted for nil consideration and contributions received are transferred to the income statement over their useful lives.

## 1.15 Provisions other than employee benefit provisions

A provision is booked if the following three conditions are met:

- EDF has a present obligation (legal or constructive) towards a third party that arises from an event prior to the closing date;
- it is probable that an outflow of resources embodying economic benefits will be required to settle the obligation;
- the obligation amount can be estimated reliably.

Provisions are determined based on EDF's estimate of the expected cost necessary to settle the obligation. Estimates are based on management data from the information system, assumptions adopted by EDF, and if necessary experience of similar transactions, or in some cases based on independent expert reports or contractor quotes. The various assumptions are reviewed for each closing of the accounts.

Provisions mainly cover the following:

- back-end nuclear cycle expenses: provisions for spent fuel management and long-term radioactive waste management are established for all fuels. This provision concerns all fuel in reactors, regardless of the extent of irradiation; it also covers management expenses for radioactive waste resulting from decommissioning of nuclear plants;
- costs for decommissioning power plants and losses relating to fuel in the reactor when the reactor is shut down (provision for last cores);

- future losses relating to multi-year agreements for the purchase and sale of energy:
  - losses on energy purchase agreements are measured by comparing the acquisition cost under the contractual terms with the forecast market price,
  - losses on energy sale agreements are measured by comparing the estimated income under the contractual terms with the cost of the energy to be supplied.
- unrealised foreign exchange losses;
- costs of renewal of facilities operated under distribution concessions.

Provisions to cover back-end nuclear cycle expenses, expenses related to the decommissioning of power plants and last cores, and future losses relating to multi-year energy purchase and sale agreements are estimated based on discounted future cash flows.

The rate of inflation and the discount rate are based on French economic and regulatory parameters.

The discount effect generated at each closing to reflect the passage of time is recorded under "financial expenses".

Changes in provisions resulting from a change in discount rates, a change in the disbursement schedule or a change in contractor quote are recorded:

- as an increase or decrease in the corresponding assets, up to the net book value, if the provision was initially covered by balance sheet assets (decommissioning of plants still in operation, long-term management of the radioactive waste resulting from such decommissioning, and last cores), as required by CRC Emergency Committee opinion 2005-H of 6 December 2005 on recognition of decommissioning, removal and site rehabilitation costs in the financial statements;
- in the income statement in all other cases.

In extremely rare cases, description of a specific litigation covered by a provision may be omitted from the notes to the financial statements if such disclosure could cause serious prejudice to the company.

If it is anticipated that all or part of the expenses covered by a provision will be reimbursed, the reimbursement is recognised under receivables if and only if EDF is virtually certain of receiving it.

In extremely rare situations, a provision cannot be booked due to lack of a reliable estimate. In such unusual cases, the obligation is mentioned in the notes as a contingent liability, unless there is little likelihood of an outflow of resources.

## 1.16 Employee benefits

In accordance with the statutory regulations for companies in the electricity and gas sector (IEG), EDF's employees are entitled to post-employment benefits (pensions plans, retirement indemnities, etc) and other long-term benefits (e.g. long-service awards).

### 1.16.1 Calculation and recognition of employee benefits

In application of the CNC Emergency Committee opinion 2000-A issued on 6 July 2000 and article 355.1 paragraph 2 of the General Chart of Accounts, EDF opted for recognition of post-employment benefits granted to personnel as of 1 January 2005.

Obligations under defined-benefit plans are calculated by the projected unit credit method, which determines the present value of entitlements earned by employees at year-end to post-employment benefits and long-term benefits, taking into consideration the country's specific economic conditions and the prospects for wage increases.

Post-employment benefit obligations are valued mainly using the following methods and assumptions, in compliance with CNC recommendation 2003-R01:

- retirement age, determined on the basis of the applicable rules, and the requirements to qualify for a full pension;
- career-end salary levels, with reference to employee seniority, projected salary levels at the time of retirement based on the expected effects of career advancement, and estimated trends in pension levels;
- forecast numbers of pensioners, determined based on employee turnover rates and mortality data;
- reversion pensions where relevant, taking into account both the life expectancy of the employee and his/her spouse and the marriage rate for IEG sector employees;
- a discount rate that depends on the duration of the obligations, determined at the year-end date by reference to the market yield on high quality non financial corporate bonds or the rate on government bonds whose duration is coherent with EDF's commitments to employees.

The amount of the provision takes into account the present value of the assets that cover these benefits, which is deducted from the value of the benefit obligation.

Any actuarial gain or loss on post-employment benefit obligations in excess of 10% (the "corridor") of the obligations or fund assets, whichever is the highest, are recognised in the income statement progressively over the average residual working life of the company's employees.

For other long-term benefits, actuarial gains and losses and the full past service cost are directly included in the provision, without application of the "corridor" rule.

The net expense booked during the year for employee benefit obligations includes:

- the current service cost, corresponding to additional benefit entitlements earned during the year;
- the net interest expense, corresponding to interest on obligations net of the return on fund assets;
- the income or expense corresponding to the actuarial gains and losses on long-term benefits and amortisation of actuarial gains or losses on post-employment benefits;
- the past service cost, including the income or expense related to amendments or settlements of benefit plans or introduction of new plans.

### 1.16.2 Post-employment benefit obligations

Since the financing reform for the IEG sector system took effect on 1 January 2005, the CNIEG (*Caisse Nationale des IEG*, the sector's specific pension body) has managed not only the special IEG pension system, but also the industrial accident, invalidity and death insurance system for the sector.

The CNIEG is a social security body governed by private law, formed by the law of 9 August 2004. It has legal entity status and reports to the French government, operating under the joint supervision of France's ministers for the Budget, Social Security and Energy.

Under the funding arrangements introduced by the law, EDF establishes pension provisions to cover entitlements not funded by France's standard systems (CNAV, AGIRC and ARRCO), to which the IEG system is affiliated, or by the CTA (*Contribution Tarifaire d'Acheminement*) levy on gas and electricity transmission and distribution services.

The provision for pensions thus includes:

- specific benefits of employees in the deregulated or competitive activities;
- specific benefits earned by employees from 1 January 2005 for the regulated activities (distribution) (benefits earned before that date are financed by the CTA levy).

CNIEG management expenses payable by EDF for the administration and payment of retired employees' pensions are also included.

In addition to pensions, other benefits are granted to IEG status former employees (not currently in active service), as detailed below:

- benefits in kind (energy): article 28 of the IEG national statutes entitles such employees and current employees to benefits in kind in the form of supplies of electricity or gas at preferential prices. The obligation for supplies of energy to employees of EDF and GDF Suez corresponds to the probable present value of kWh to be supplied to beneficiaries or their dependants during their retirement, valued on the basis of the unit cost. It also includes the payment made under the energy exchange agreement with GDF Suez;
- retirement gratuities: these are paid upon retirement to employees due to receive the statutory old-age pension, or to their dependants if the employee dies before reaching retirement. These obligations are almost totally covered by an insurance policy;
- bereavement benefit: this is paid out upon the death of an inactive or disabled employee, in order to provide financial assistance for the expenses incurred at such a time (Article 26 -§5 of the National Statutes). It is paid to the deceased's principal dependants (statutory indemnity equal to three months' pension) or to a third party that has paid funeral costs (discretionary indemnity equal to the costs incurred);
- bonus pre-retirement paid leave: all employees eligible to benefit immediately from the statutory old-age pension and aged at least 55 at their retirement date are entitled to 18 days of bonus paid leave during the last twelve months of their employment;
- other benefits include help with the cost of studies, additional retirement indemnities, time banking for pre-retirement leave, and pensions for personnel sent on secondment to companies not covered by the IEG system.

### 1.16.3 Other long-term benefit obligations

These benefits concern employees currently in service, and include:

- annuities following incapacity, invalidity, industrial accident or work-related illness; like their counterparts in the general national system, IEG employees are entitled to financial support in the event of industrial accident or work-related illness, and invalidity and incapacity annuities and benefits. The obligation is measured as the probable present value of future benefits payable to current beneficiaries, including any possible reversions;
- long-service awards;
- specific benefits for employees who have been in contact with asbestos.

## 1.17 Derivatives

EDF uses derivatives in order to minimise the impact of foreign exchange risks and interest rate risks.

Short-term and long-term derivatives comprise interest rate and currency derivatives.

Hedging derivatives correct the foreign exchange result and interest income or expense of the corresponding asset or derivative. If the foreign exchange risk is fully hedged, no provision is recorded. If it is only partly hedged, a provision is recorded for the unhedged portion of the unrealised foreign exchange loss.

For derivatives traded over the counter, when there is no hedging relationship, a provision is recorded for unrealised losses and unrealised gains are not recognised.

Instruments in the portfolio at the year-end are included in off balance sheet commitments at the nominal value of the contracts.

## 1.18 Commodity contracts

Forward financial instruments on commodities are traded for hedging purposes. Gains and losses on these operations are included in sales or in the cost of energy purchases, depending on the nature of the hedged item.

Instruments in the portfolio at the year-end are included in off balance sheet commitments at the quantities to be delivered or to be received under the contracts.

## 1.19 Environment

### 1.19.1 Greenhouse gas emission rights

Until 2012, greenhouse gas emission rights were included in intangible assets, with an offsetting entry in a special liability account under "Other liabilities". Greenhouse gas emissions used to generate an expense and an obligation to surrender emission rights equivalent to the emissions produced. At the same time, the rights allocated by the State gave rise to reversals from the amounts in the special liability account, and recognition of income.

As of 1 January 2013, EDF applies the new accounting methods for greenhouse gas emission rights in accordance with France's Accounting Standards Authority (ANC) regulation 2012-04 of 4 October 2012.

The accounting treatment of emission rights depends on the holding intention. There are two economic models, both of which coexist at EDF.

Emission rights held under the "Trading" model are included in inventories at acquisition cost. A write-down is recorded when the present value of emission rights is lower than the book value.

Emission rights held to comply with regulatory requirements on greenhouse gas emissions (the "Generation" model) are included in inventories at acquisition cost, and the FIFO (first in first out) method is applied. A write-down is recorded when the generation cost of the electricity that includes the cost of the rights is higher than the present value of that electricity. At year-end, a "net presentation" principle is now applied as follows:

- an asset is recognised (in inventories) if the quantities of greenhouse gas emissions are lower than the number of emission rights held in the portfolio. This corresponds to the rights available to cover future greenhouse gas emissions;
- a liability is recorded (in debts) in the opposite situation equivalent to the rights still needed to cover emissions already produced, valued at contractualised acquisition price for forward purchases deliverable before surrender, and at market value for the balance.

The net reporting principle assumes that the emission rights held in the portfolio will be the rights used to offset emissions produced. However, there is a limit to the fungibility of rights at EDF, as there are no transfers of rights between the island and mainland activities. This can lead to concurrent recognition of an asset and a liability.

### 1.19.2 Energy savings certificates

In application of French law 2005-781 of 13 July 2005 defining the major lines of the national energy policy, which introduced a system of energy savings certificates for legal entities selling electricity, gas, heat or cold to end-users, and CNC Emergency Committee opinion 2006-D of 4 October 2006 defining the relevant accounting treatment under French GAAP, EDF's financial statements reflect the management of energy savings certificates.

Expenses incurred to meet a cumulative energy savings obligation are treated as:

- tangible assets, if the action taken by the company concerns its own assets and the expenses qualify for recognition as an asset;
- expenses for the year incurred, if they do not meet the requirements for capitalisation or if the action taken is to encourage third parties to save energy.

Under the general framework of an energy savings certificate system:

- certificates obtained from the State after the action taken are not recognised in the accounts;
- purchases of energy savings certificates are included in:
  - expenses, if the purchases are made to meet the obligation,
  - intangible assets, if the certificates are purchased for resale (as there is no active market).

Certificates purchased, obtained or receivable from the State in support of the action taken are recorded in specific commodities off-balance sheet accounts.

## ➤ Note 2. Significant events and transactions

The main events and transactions in 2013 with a definite or potential significant impact on the financial statements are as follows:

### 2.1 Issuance of perpetual subordinated bonds

On 22 January 2013 EDF launched several tranches of a perpetual subordinated bond in Euros and sterling (a "hybrid" bond):

- €1,250 million at 4.25% coupon for the tranche with a 7-year first call date;
- €1,250 million at 5.375% coupon for the tranche with a 12-year first call date;
- £1,250 million at 6% coupon for the tranche with a 13-year first call date.

On 24 January 2013 EDF also launched a US\$3 billion perpetual subordinated bond at 5.25% coupon and a 10-year first call date.

Given their characteristics (see note 1.13), these issues are recorded in "Additional equity" from reception of funds (29 January 2013) at the amount of €6,135 million (net of redemption premium).

### 2.2 Developments concerning the CSPE

The Contribution to the Public Electricity Service (*Contribution au Service Public de l'Électricité* or CSPE) is a contribution set by the French State and collected directly from the end-user of electricity to compensate for certain public service charges borne by EDF. It is intended to finance the rise in renewable energies, social tariffs and tariff equalisation.

Since 2007, the amount of CSPE collected has been unable to cover these charges, despite a system of regular rises in the CSPE introduced by the French finance law of 2011, and the resulting shortfall was affecting EDF's indebtedness.

Under the agreement reached with the French authorities and announced on 14 January 2013, EDF is to receive reimbursement of the receivable consisting of the CSPE shortfall at 31 December 2012 (€4.3 billion) and the costs of bearing this shortfall for EDF (€0.6 billion).

A progressive reimbursement schedule for this €4.9 billion receivable was validated in the agreement. It runs until 2018, and bears interest at market rates (1.72%) which is included in financial income in EDF's financial statements.

Following conclusion of this agreement, EDF recognised financial income of €0.6 billion in its financial statements for the year ended 31 December 2012 and transferred the CSPE receivable from "Other receivables" to "Financial loans and receivables" at an amount of €4.3 billion.

In application of the decree of 23 February 2007, on 8 February 2013 the French government authorised allocation of the CSPE receivable held by EDF to the dedicated assets for secure financing of long-term nuclear expenses.

In view of this authorisation, the positive opinion of the Nuclear Commitments Monitoring Committee and the deliberations of the Board of Directors at its meeting of 13 February 2013, EDF has allocated the total receivable, which represents the accumulated shortfall in CSPE compensation at 31 December 2012 and amounts to €4.9 billion (including the associated financing costs), to dedicated assets. This allocation is concurrent with a withdrawal of financial assets from the portfolio (diversified bond and equity investments) totalling €2.4 billion. As a result of the net €2.5 billion allocation to dedicated assets, the objective of 100% coverage of long-term nuclear provisions was reached in advance of the legal deadline of June 2016 set by the "NOME" law on the new electricity market organisation.

France's amended finance law for 2013 recognises the costs of bearing the shortfall in the CSPE mechanism as a public service expense entitling EDF to compensation through the contribution.



## 2.3 Agreement with Veolia environnement over Dalkia

EDF and Veolia Environnement (VE) announced on 28 October 2013 that they had entered into advanced discussions for the conclusion of an agreement on their joint subsidiary Dalkia, a specialist provider of energy services.

Once the ongoing discussions are completed, EDF would acquire all the Dalkia group's activities in France, while VE would acquire the activities of Dalkia International. Under this arrangement, VE would make a cash payment of €550 million to EDF to compensate for the difference in value between the stakes owned by the two shareholders in the various Dalkia entities.

The operation would lead to a takeover of control over Dalkia's activities in France and a sale of EDF's investment in Dalkia International.

If the agreement is finalised, the transaction will require approval by the companies' Boards of Directors and the competent competition authorities. It will be finalised in the middle of 2014 by the earliest.

## 2.4 Issuance of a green bond

On 27 November 2013, EDF received the funds from its first "Green Bond", the first such issue by a large corporate, totalling €1.4 billion, and maturing in April 2021 at 2.25% annual coupon.

The funds raised will be entirely used to finance future renewable energy projects by EDF Énergies Nouvelles.

# ➤ Note 3. Regulatory events in 2013 with an impact on the financial statements

## 3.1 Pension reforms – law of 20 January 2014

The French law 2014-40 of 20 January 2014 amended the regulations governing pensions in France. The two principal measures introduced by the law will apply to the special pension system for companies in the electricity and gas sector (IEG). The contribution period required to qualify for a full pension will be progressively extended to 43 years starting with employees born in 1973. This applies to France's standard national pension system and public sector pension system, and should be transposed to the IEG pension system by decree in early 2014. Also, the date for the annual review of pension values is deferred from 1 April to 1 October as of the 2014 financial year.

Since the bill for this law was adopted by Parliament on 18 December 2013, its impact has been taken into account in valuing EDF's pension obligations at 31 December 2013. The effects of the main two measures referred to above constitute plan amendments and have been recorded in the operating profit at the pre-tax amount of €393 million, in "Reversals of provisions" (see note 6).

## 3.2 Unpaid trade receivables – delivery component

Following the decision by the CoRDIS (*Comité des Règlements des Différends et des Sanctions*) published in France's *Official Journal* of 19 March 2013, the delivery component of outstanding trade receivables

on combined supply and delivery contracts and regulated-tariff sales contracts no longer have to be borne by electricity suppliers, but by ERDF. This decision applies to energy consumed since 1 January 2012.

As a result, EDF no longer has to record a write-down for the risk of non-payment of the delivery component, and will be reimbursed by ERDF for losses due to receivables on which the delivery component has become unrecoverable.

This decision has a positive impact of €212 million on operating profit for 2013.

## 3.3 "NOME" law

Supplies of electricity to EDF's competitors under the ARENH scheme for regulated access to historic nuclear power supplies concern a volume of 64.4 TWh for 2013. The annual volume cannot exceed 100 TWh, and will be progressively increased from 1 January 2014 by the amounts sold to network operators to compensate for their technical losses, according to a timetable set by government decision. The estimated volume for 2014 is 74.2 TWh; this volume may be adjusted under certain conditions at 1 July 2014.

The ARENH price was set at €42/MWh from 1 January 2012, and will subsequently reflect the economic conditions of generation by the existing nuclear fleet. On 22 October 2013, the French government announced that the decree stipulating the valuation method for costs making up the ARENH price should be published by the end of the first quarter of 2014.

## INCOME STATEMENT

## ➤ Note 4. Sales

Sales are comprised of:

<i>(in millions of Euros)</i>	2013	2012
Sales of energy <sup>(1)</sup>	41,234	41,897
Sales of goods and services	2,189	2,209
<b>SALES</b>	<b>43,423</b>	<b>44,106</b>

(1) Including a share of delivery costs for sales of electricity and gas.

Sales were down by 1.5% from 2012, principally as a result of the decrease in volumes delivered under capacity auctions (as the Virtual Power Plant or VPP system has ended).

## ➤ Note 5. Operating subsidies

<i>(in millions of Euros)</i>	2013	2012
<b>OPERATING SUBSIDIES</b>	<b>5,117</b>	<b>4,698</b>

Operating subsidies mainly comprise the subsidy received or receivable by EDF in respect of the Contribution to the Public Electricity Service (CSPE). In the financial statements, this compensation results in recognition of income of €5,103 million for 2013 (€4,687 million for

2012). The increase is mainly explained by lower market prices for electricity – because this situation increases the subsidy receivable for purchase obligations in mainland France – and higher fuel purchases in non-interconnected zones.

## ➤ Note 6. Reversals of provisions and depreciation

<i>(in millions of Euros)</i>	2013	2012
<b>Reversals of provisions for risks</b>	<b>227</b>	<b>79</b>
Pensions and similar obligations <sup>(1)</sup>	1,407	1,137
Spent fuel management	637	738
Long-term radioactive waste management	137	150
Decommissioning of power plants	208	257
Other provisions for expenses	188	115
<b>Reversals of provisions for expenses</b>	<b>2,577</b>	<b>2,397</b>
<b>Reversals of depreciation</b>	<b>269</b>	<b>465</b>
<b>TOTAL REVERSALS OF PROVISIONS AND DEPRECIATION</b>	<b>3,073</b>	<b>2,941</b>

(1) In 2013, the impact of the pension reform led to a reversal of € 393 million (see note 3.1).

## ➤ Note 7. Other operating income and transfers of charges

(in millions of Euros)	2013	2012
Other operating income	719	560
Transfers of charges	128	83
<b>TOTAL</b>	<b>847</b>	<b>643</b>

## ➤ Note 8. Purchases and other external expenses

(in millions of Euros)	2013	2012
Fuel purchases used <sup>(1)</sup>	4,298	4,265
Energy purchases <sup>(2)</sup>	10,311	12,013
Services and other purchases used <sup>(3)</sup>	19,480	18,527
<b>PURCHASES AND OTHER EXTERNAL EXPENSES</b>	<b>34,089</b>	<b>34,805</b>

(1) Fuel purchases used include costs relating to raw materials for energy generation (nuclear fuels, fissile materials, coal, oil, and gas), and purchases of services related to the nuclear fuel cycle. From 1 January 2013, this item includes greenhouse gas emission rights consumed (see note 1.19.1).

(2) These purchases include electricity purchase obligations.

(3) The increase in this item notably concerns distribution network access fees invoiced by the subsidiary ERDF, including the rise in the TURPE network access tariff (Tarif d'Utilisation des Réseaux Publics d'Électricité).

## ➤ Note 9. Taxes other than income taxes

(in millions of Euros)	2013	2012
Taxes on salaries and wages	157	145
Energy-related taxes <sup>(1)</sup>	1,124	1,006
Local Economic Contribution	530	466
Property taxes	374	362
Other taxes	333	254
<b>TAXES OTHER THAN INCOME TAXES</b>	<b>2,518</b>	<b>2,233</b>

(1) A receivable of €98 million was recorded in 2012 after the CRE's decision setting the final charge for the TaRTAM transition tariff system.

## ➤ Note 10. Personnel expenses

(in millions of Euros)	2013	2012
Salaries and wages	3,843	3,687
Social contributions	2,614	2,551
<b>PERSONNEL EXPENSES</b>	<b>6,457</b>	<b>6,238</b>

The increase in personnel expenses results primarily from changes in the workforce and the Basic National Salary.

	2013			2012
	IEG status	Other	Total	Total
Executives	28,674	313	28,987	27,789
Operational, supervisory and technical staff	36,652	136	36,788	36,514
<b>AVERAGE WORKFORCE</b>	<b>65,326</b>	<b>449</b>	<b>65,775</b>	<b>64,303</b>

Average workforce numbers are reported on a full-time equivalent basis.

## ➤ Note 11. Depreciation and amortisation

(in millions of Euros)	2013	2012
Amortisation of intangible assets	123	116
Depreciation on property, plant and equipment:		
■ owned by EDF	2,358	2,004
■ operated under concession <sup>(1)</sup>	207	203
<b>Total depreciation and amortisation on fixed assets</b>	<b>2,688</b>	<b>2,323</b>
Amortisation of bond issuance expenses and other capitalised expenses	35	31
<b>TOTAL DEPRECIATION AND AMORTISATION</b>	<b>2,723</b>	<b>2,354</b>

(1) This depreciation concerns the Island Energy System's Public Distribution concessions and Hydropower concessions.

## ➤ Note 12. Provisions and impairment

(in millions of Euros)	2013	2012
<b>Provisions for risks</b>	<b>137</b>	<b>141</b>
Pensions and similar obligations	810	708
Management of spent nuclear fuel	417	432
Long-term management of radioactive waste <sup>(1)</sup>	228	46
Decommissioning of power plants and last cores <sup>(2)</sup>	1	912
Other provisions for expenses	222	130
<b>Provisions for expenses</b>	<b>1,678</b>	<b>2,228</b>
<b>Impairment</b>	<b>319</b>	<b>213</b>
<b>TOTAL PROVISIONS AND IMPAIRMENT</b>	<b>2,134</b>	<b>2,582</b>

(1) Including €208 million in 2013 to reflect the ANDRA's new financing requirements for studies concerning the geological storage plans.

(2) Including €610 million in 2012 associated with revision of the estimated costs for decommissioning permanently shut-down nuclear power plants (UNGG power plants, Creys-Malville, Brennilis and Chooz A).

## ➤ Note 13. Other operating expenses

(in millions of Euros)	2013	2012
Greenhouse gas emissions <sup>(1)</sup>	-	146
Other operating expenses	944	843
<b>TOTAL</b>	<b>944</b>	<b>989</b>

(1) From 1 January 2013, the greenhouse gas emissions are recorded as fuel purchases used (see 1.19.1 and note 8).

## ➤ Note 14. Financial result

(in millions of Euros)	2013	2012
Income from investments <sup>(1)</sup>	2,116	2,478
Income from other securities and receivables related to fixed assets <sup>(2)</sup>	377	1,039
Interest and similar income and expenses <sup>(3)</sup>	(2,007)	(1,615)
Reversal of provisions and impairment and transfers of charges <sup>(4)</sup>	1,187	975
<b>Foreign exchange result</b>	<b>137</b>	<b>93</b>
■ Gains	1,835	1,953
■ Losses	(1,698)	(1,860)
<b>Result on sales of marketable securities</b>	<b>(26)</b>	<b>27</b>
■ Net income	7	28
■ Net charges	(33)	(1)
Financial amortisation, provisions and impairment <sup>(5)</sup>	(2,674)	(3,015)
<b>FINANCIAL RESULT</b>	<b>(890)</b>	<b>(18)</b>

(1) The change in dividends received principally concerns EDEV (€146 million in 2013 and €964 million in 2012) and C3 (the holding company carrying EDF Investissements Groupe) which paid out €514 million in 2013, for which there was no equivalent in 2012.

(2) In 2013, this item includes income of €83 million for the cost of bearing the shortfall in the CSPE at 31 December 2012. In 2012, it included €629 million for the accumulated past costs of bearing the shortfall (see note 2.2).

(3) The change essentially results from changes in the unrealised foreign exchange gain or loss on currency instruments.

(4) This item comprises:

- in 2013, reversals of impairment in respect of dedicated assets (€176 million, compared to €317 million in 2012), and reversals from impairment on shares in Veolia Environnement (€327 million) following sale of all those shares;
- in 2012, reversals from impairment on shares in La Gérance Générale Foncière (GGF) (€212 million) following the capital increase of EDF Immo by transfer of those shares as a contribution in kind.

(5) This item chiefly includes the discount expenses on provisions for back-end nuclear cycle, decommissioning and last cores, and provisions for long-term and post-employment benefits. In 2012 the discount effect on nuclear provisions included a €244 million expense related to revision of the discount rate.

## ➤ Note 15. Exceptional result

At 31 December 2013, exceptional items resulted in net income of €164 million, the main items of which are the following:

- gains of €622 million on sales of investments securities included in dedicated assets, especially sales undertaken after the CSPE receivable was allocated to those assets (see note 2.2);
- a loss of €266 million on sale of the shares in Veolia Environnement, offset by a €327 million reversal from impairment included in the financial result;
- excess tax depreciation amounting to €222 million relating to a new information system commissioned in the nuclear activities in 2013.

At 31 December 2012, exceptional items resulted in net income of €196 million, the main items of which are the following:

- net reversals of excess tax depreciation on property, plant and equipment and intangible assets amounting to €199 million;
- a loss of €212 million on GGF shares, after GGF and Sofilo shares were transferred to EDF Immo as a contribution in kind, offset by a reversal of an equivalent amount from impairment on GGF shares in the financial result;
- A gain of €86 million on the transfer to EDEV of the shares in EDF Énergies Nouvelles previously held by EDF.



## ➤ Note 16. Income taxes

### 16.1 Tax group

Since 1 January 1988, EDF and certain subsidiaries have formed a group subject to the tax consolidation system existing under French tax legislation (articles 223A to 223U of the French Tax Code). The tax consolidation group comprises 110 subsidiaries in 2013, including RTE Réseau de Transport d'Électricité, ERDF, EDF International and the EDF Énergies Nouvelles subgroup.

### 16.2 Income tax payable

Under article 223A of the French Tax Code, EDF, as the head of the tax consolidated group, is the sole entity responsible for payment of income taxes and additional related contributions (social contributions, exceptional contribution equal to 10.7% of income taxes, and 3% contribution on dividend distributions).

The tax consolidation agreement between the members of the tax group stipulates that the arrangement must be neutral in effect. In application

of this principle, each subsidiary pays the consolidating company a contribution to group income tax equivalent to the tax it would have paid had it been taxed separately.

The tax consolidation agreement between EDF and the subsidiaries included in the tax group requires EDF to reimburse loss-making subsidiaries for the tax saving generated by their losses, as and when the entities concerned make taxable profits, in compliance with the standard rules for use of taxable losses.

The company at the head of the tax group, EDF, recorded an income tax expense of €748 million for 2013. The breakdown is as follows:

- €608 million for the taxable profit of 2013;
- €146 million for the net exceptional income;
- €(6) million for adjustments resulting from the tax consolidation.

This includes the negative impact of the French finance laws for 2012 and 2013, principally corresponding to the increase in the corporate income tax rate to 38%, a 3% contribution on dividend distributions and the limitation of deductibility of financial expenses.

### 16.3 Deferred taxes

Deferred taxes are not recognised in EDF's financial statements. Deferred taxes result from differences between the accounting bases and tax bases of items. They generally arise as a result of timing differences in the recognition of income and expenses:

- Deferred tax assets reflect expenses which will be tax deductible in future years or losses carried forward which will reduce taxable income in the future;
- Deferred tax liabilities reflect either advance tax deduction of future accounting expenses or accounting revenues that will be taxable in future years and will increase the tax basis.

Changes in deferred taxes are as follows:

(in millions of Euros)	31/12/2013	31/12/2012	Change
<b>Timing differences generating a deferred tax asset</b>			
– Non-deductible provisions <sup>(1)</sup>	(10,316)	(10,980)	664
– Financial instruments and unrealised exchange gains	(3,780)	(3,295)	(485)
– Other	(337)	(246)	(91)
<b>Total deferred tax assets subject to the standard rate</b>	<b>(14,433)</b>	<b>(14,521)</b>	<b>88</b>
<b>Timing differences generating a deferred tax liability</b>			
– Financial instruments and unrealised exchange losses	2,883	2,875	8
– Other	727	501	226
<b>Total deferred tax liabilities subject to the standard rate</b>	<b>3,610</b>	<b>3,376</b>	<b>234</b>
– Capital gains not yet taxed, net of capital losses	79	79	-
<b>Total deferred tax liabilities subject to reduced rate</b>	<b>79</b>	<b>79</b>	<b>-</b>
<b>BASIS FOR DEFERRED TAXES</b>	<b>(10,744)</b>	<b>(11,066)</b>	<b>322</b>
Net future tax asset at standard rate	(3,726)	(3,838)	112
Net future tax liability at reduced rate	1	1	-

(1) Mainly concerning post-employment benefits for personnel.

## BALANCE SHEET

### ➤ Note 17. Gross values of intangible and tangible fixed assets

(in millions of Euros)	Gross value at 31/12/2012	Increases	Decreases	Gross value at 31/12/2013
Software <sup>(1)</sup>	629	331	18	942
Other <sup>(2)</sup>	490	3	250	243
<b>Intangible assets</b>	<b>1,119</b>	<b>334</b>	<b>268</b>	<b>1,185</b>
Land	117	2	2	117
Buildings	9,228	234	88	9,374
Nuclear power plants	48,108	2,114	700	49,522
Machinery and plant other than networks	10,941	701	356	11,286
EDF-owned networks	853	33	-	886
Other	1,202	173	62	1,313
<b>Property, plant and equipment owned by EDF</b>	<b>70,449</b>	<b>3,257</b>	<b>1,208</b>	<b>72,498</b>
Land	39	-	-	39
Buildings	9,026	338	5	9,359
Machinery and plant other than networks	1,324	66	11	1,379
Concession networks	2,173	132	13	2,292
Other	11	-	-	11
<b>Property, plant and equipment operated under concession <sup>(3)</sup></b>	<b>12,573</b>	<b>536</b>	<b>29</b>	<b>13,080</b>
Tangible assets <sup>(4)</sup>	7,697	5,167	3,644	9,220
Intangible assets	1,165	369	335	1,199
Advances and progress payments on orders	1,862	494	1	2,355
<b>Assets in progress</b>	<b>10,724</b>	<b>6,030</b>	<b>3,980</b>	<b>12,774</b>
<b>TOTAL</b>	<b>94,865</b>	<b>10,157</b>	<b>5,485</b>	<b>99,537</b>

(1) The increase mainly corresponds to the start of a new information system in the nuclear activities.

(2) The decrease results from the change in accounting method for greenhouse gas emission rights from 1 January 2013 (see note 1.1).

(3) Assets operated under concession concern the Island Energy Systems and hydropower concessions.

(4) Investments during 2013 mainly concern equipment for existing power plants and construction of the EPR plant at Flamanville.

## ➤ Note 18. Depreciation and amortisation on intangible and tangible fixed assets

<i>(in millions of Euros)</i>	Accum. at 31/12/2012	Increases	Decreases	Accum. at 31/12/2013
Software	300	109	14	395
Other	82	14	19	77
<b>Intangible assets</b>	<b>382</b>	<b>123</b>	<b>33</b>	<b>472</b>
Buildings and land developments	6,063	257	55	6,265
Nuclear power plants	32,421	1,638	632	33,427
Machinery and plant other than networks	7,303	390	355	7,338
EDF-owned networks	339	26	1	364
Other	741	100	60	781
<b>Property, plant and equipment owned by EDF</b>	<b>46,867</b>	<b>2,411</b>	<b>1,103</b>	<b>48,175</b>
Buildings and land developments	5,737	123	5	5,855
Machinery and plant other than networks	968	22	10	980
Concession networks	855	62	8	909
Other	11	-	1	10
<b>Property, plant and equipment operated under concession</b>	<b>7,571</b>	<b>207</b>	<b>24</b>	<b>7,754</b>
<b>Tangible assets in progress</b>	<b>-</b>	<b>71</b>	<b>-</b>	<b>71</b>
<b>TOTAL</b>	<b>54,820</b>	<b>2,812</b>	<b>1,160</b>	<b>56,472</b>

## ➤ Note 19. Financial assets

### 19.1 Change in financial assets

(in millions of Euros)	Gross value at 31/12/2012	Increases	Decreases	Translation adjustments	Reclassification	Gross value at 31/12/2013
Investments <sup>(1)</sup>	57,962	2,538	771	-	119	59,848
Receivables related to investments	198	10	158	-	-	50
Investment securities	14,710	8,416	10,976	-	-	12,150
Other investments <sup>(2)</sup>	40	785	357	-	(119)	349
CSPE receivable <sup>(3)</sup>	4,879	83	-	-	91	5,053
Loans to subsidiaries and other financial assets <sup>(4)</sup>	3,689	1,465	2,533	(6)	-	2,615
<b>Total financial assets</b>	<b>81,478</b>	<b>13,297</b>	<b>14,795</b>	<b>(6)</b>	<b>91</b>	<b>80,065</b>

(in millions of Euros)	Gross value at 31/12/2012	Increases	Decreases	Translation adjustments	Reclassification	Gross value at 31/12/2013
Impairment of investments and related receivables <sup>(1)</sup>	(795)	(47)	485	-	-	(357)
Impairment of investment securities <sup>(5)</sup>	(540)	(21)	520	-	-	(41)
<b>Total</b>	<b>(1,335)</b>	<b>(68)</b>	<b>1,005</b>	<b>-</b>	<b>-</b>	<b>(398)</b>

<b>NET VALUE</b>	<b>80,143</b>	<b>79,667</b>
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- (1) EDF subscribed to capital increases by EDEV and EDF Production Électrique Insulaire for amounts of €2,181 million and €215 million respectively. EDF also acquired a 35% shareholding in Trimet France for the amount of €130 million, and purchased shares of C31 (the holding company carrying a 20% investment in TIGF) for €122 million, which were allocated to dedicated assets (see note 38.2.3).  
The liquidation of MNTC in December 2013, after the Edison shares held by MNTC were transferred to Wagram 4, resulted in a €770 million decline in shares and a €400 million reversal of impairment included in the exceptional result, offset by a loss on liquidation of an equivalent amount also recorded in the exceptional result.
- (2) On 30 July 2013, the Consortium made up of SNAM, the Italian gas transport and storage operator (45%), GIC, the Singaporean sovereign fund (35%) and EDF (20%) signed a final agreement with the Total group for acquisition of TIGF (Transport et Infrastructures Gaz France), Total's gas transport and storage subsidiary. EDF's 20% investment is carried by the holding company C31, which is fully-owned by EDF. The acquisition value was €265 million.
- (3) This receivable consists of the CSPE shortfall at 31 December 2012 and the financing costs borne by EDF (see note 2.2). The change since 31 December 2012 mainly reflects the €91 million adjustment of the benchmark shortfall after the CRE officialised its final position in October 2013, and the costs of bearing the CSPE deficit recorded in 2013, amounting to €83 million.
- (4) Loans to subsidiaries at 31 December 2013 total €2,491 million, including €1,411 million for C3 and €670 million for RTE.
- (5) An amount of €327 million was reversed from impairment on shares in Veolia Environnement following their sale in 2013, and an amount of €176 million was reversed from impairment on dedicated assets at 31 December 2013.

## 19.2 Subsidiaries and investments of at least 50% of capital

<i>(in millions of Euros)</i>	Gross book value of shares owned	Impairment recorded at 31/12/2013	% capital owned	Equity 2012	Net income 2012	Dividends received 2013	Sales 2012
<b>I. Subsidiaries</b>							
<b>* Holding companies</b>							
EDEV	6,891	-	100	4,257	184	146	-
EDF International	25,930	-	100	24,140	415	394	-
EDF Production Électrique Insulaire SAS	711	-	100	426	(44)	-	4
EDF Holding SAS	1,950	-	100	2,286	270	257	-
Société C3	9,896	-	100	10,449	541	514	-
Wagram 4	4,493	220	100	2,803	(317)	-	-
EDF Immo	1,361	-	100	1,377	262	40	-
C31	122	-	100	nm	nm	-	-
<b>* Industrial and commercial companies</b>							
<b>France</b>							
Centrale Électrique Rhénane de Gambenheim	3	-	50	11	-	-	7
Dalkia Investissement	200	38	50	259	34	17	3
RTE Réseau de Transport d'Électricité <sup>(1)</sup>	4,030	-	100	5,579	348	209	4,480
Électricité Réseau Distribution France (ERDF)	2,700	-	100	4,084	831	535	13,313
<b>Other countries</b>							
Emosson	14	14	50	115	1	-	31
Rheinkraftwerk Iffezheim (RKI)	3	-	50	107	3	-	12
Forces Motrices du Chatelôt	nm	-	50	12	nm	-	4
<b>* Financial companies</b>							
Sapar Finance	3	-	100	1	-	-	nm
<b>* Other (EIG EIFER)</b>	<b>87</b>	<b>85</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>
<b>TOTAL I</b>	<b>58,394</b>	<b>357</b>				<b>2,112</b>	

nm: not material (less than €500,000)

(1) Including 50% of shares allocated to dedicated assets.



## 19.3 Subsidiaries and investments under 50% of capital

(in millions of Euros)	Gross book value of shares owned	Impairment recorded at 31/12/2013	% capital owned	Equity 2012	Net income 2012	Dividends received 2013
<b>I. Subsidiaries</b>						
Total I Carried forward	58,394	357				2,112
<b>II. Investments</b>						
II.1 Companies in which EDF has an interest of between 10% and 50%						
* Industrial and commercial companies						
France						
Dalkia International	425	-	24	1,632	63	-
Dalkia Holding	897	-	34	1,314	56	-
Trimet France	130	-	35	nm	nm	-
Total II.1	1,452	-				-
II.2 Companies in which EDF has an interest of less than 10%						
Other companies	1	-	-	-	-	-
Other countries						
Force Motrice de Mauvoisin	1	-	10	98	4	nm
Total II.2	2	-				-
Total II	1,454	-				-
Total investments, gross (I + II)	59,848	357				2,112
<b>TOTAL INVESTMENTS, NET</b>	<b>59,491</b>					

nm: not material (less than €500,000)

## 19.4 Portfolio investment securities

(in millions of Euros)	At start of year			At year-end		
	Gross book value	Net book value	Fair value	Gross book value	Net book value	Fair value
<b>VALUE OF INVESTMENT SECURITIES</b>	<b>14,710</b>	<b>14,177</b>	<b>15,531</b>	<b>12,150</b>	<b>12,118</b>	<b>14,005</b>

At 31 December 2013, the investment securities portfolio comprises dedicated assets (€12,026 million) and an equities portfolio (€124 million).

## 19.5 Variation in treasury shares

A share repurchase program authorised by the General Shareholders' Meeting of 9 June 2006 was implemented by the Board of Directors, within the limits of 10% of the total number of shares making up the Company's capital. The initial duration of the program was 18 months, renewed for 12 months then by tacit agreement every year.

A liquidity contract exists for this program, as required by the market regulator AMF.

(in millions of Euros)	Gross value at 31/12/2012	Increases	Decreases	Gross value at 31/12/2013
<b>TREASURY SHARES</b>	<b>30</b>	<b>366</b>	<b>(352)</b>	<b>44</b>

At 31 December 2013, treasury shares included in the investment securities portfolio represent 1,693,422 shares with total value of €44 million.

## 19.6 Financial loans and receivables related to investments

(in millions of Euros)	Liquidity			Gross value at 31/12/2013	Gross value at 31/12/2012
	< 1 year	1 - 5 years	> 5 years		
Receivables related to investments	2	-	48	50	198
CSPE receivable	307	4,746	-	5,053	4,879
Loans and other financial assets	1,593	812	210	2,615	3,689
<b>FINANCIAL LOANS AND RECEIVABLES RELATED TO INVESTMENTS</b>	<b>1,902</b>	<b>5,558</b>	<b>258</b>	<b>7,718</b>	<b>8,766</b>

## ➤ Note 20. Inventories and work-in-progress

(in millions of Euros)	Raw materials		Other supplies	Work-in-progress for production of goods and services	Total
	Nuclear fuel and materials	Other raw materials <sup>(1)</sup>			
Gross value at 31/12/2012	7,836	463	996	21	9,316
Provision at 31/12/2012	(14)	-	(162)	-	(176)
<b>Net value at 31/12/2012</b>	<b>7,822</b>	<b>463</b>	<b>834</b>	<b>21</b>	<b>9,140</b>
Gross value at 31/12/2013	8,327	487	1,038	19	9,871
Provision at 31/12/2013	(14)	-	(197)	-	(211)
<b>NET VALUE AT 31/12/2013</b>	<b>8,313</b>	<b>487</b>	<b>841</b>	<b>19</b>	<b>9,660</b>

(1) From 1 January 2013, greenhouse gas emission rights are included in commodity inventories (see notes 1.1 and 1.19.1).

## ➤ Note 21. Other current assets

(in millions of Euros)	Liquidity			Gross value at 31/12/2013	Gross value at 31/12/2012
	< 1 year	1 - 5 years	> 5 years		
Advances on orders	566	84	406	1,056	906
■ Trade receivables					
Amounts billed	2,519	-	-	2,519	2,499
Unbilled receivables <sup>(1)</sup>	11,102	-	-	11,102	10,686
■ Other operating receivables <sup>(2)</sup>	4,027	61	82	4,170	3,706
Current receivables	17,648	61	82	17,791	16,891
Cash instruments <sup>(3)</sup>	681	756	190	1,627	2,801
Prepaid expenses	493	135	667	1,295	1,335
<b>TOTAL OTHER CURRENT ASSETS</b>	<b>19,388</b>	<b>1,036</b>	<b>1,345</b>	<b>21,769</b>	<b>21,933</b>

(1) Mainly receivables for energy supplied and not billed.

(2) Including €2,300 million for taxes and €1,357 million for the Contribution to the Public Electricity Service (CSPE) (€997 million in 2012). Following the agreement signed with the French authorities in January 2013, the CSPE deficit generated prior to 31 December 2012 and the associated financing costs were classified under "Financial loans and receivables" (see note 2.2).

(3) Unrealised gains on foreign exchange instruments.

## ➤ Note 22. Marketable securities

(in millions of Euros)	31/12/2013	31/12/2012	Change
Treasury shares marketable securities	3	3	-
Investment funds	2,844	3,282	(438)
Negotiable debt instruments (Euros or other currencies) maturing within 3 months	10	392	(382)
Negotiable debt instruments (Euros or other currencies) maturing after 3 months	2,599	1,315	1,284
Negotiable debt instruments medium and long-term	-	394	(394)
Bonds	4,847	3,515	1,332
Other marketable securities	13	53	(40)
<b>Gross value</b>	<b>10,316</b>	<b>8,954</b>	<b>1,362</b>
Provision	(4)	(7)	3
<b>NET VALUE</b>	<b>10,312</b>	<b>8,947</b>	<b>1,365</b>

The change mainly results from the transfer of financial assets from the dedicated asset portfolio, totalling €2.4 billion, after the CSPE was allocated to dedicated assets (see note 2.2).

## ➤ Note 23. Variation in cash and cash equivalents reported in the cash flow statement

<i>(in millions of Euros)</i>	<b>31/12/2013</b>	31/12/2012	Change
Marketable securities	10,316	8,954	1,362
Cash and cash equivalents	5,066	3,685	1,381
<b>Sub-total in balance sheet assets</b>	<b>15,382</b>	<b>12,639</b>	<b>2,743</b>
Euro investment funds	(2,844)	(3,282)	438
Negotiable debt instruments (Euro) maturing after 3 months	(1,595)	(1,315)	(280)
Negotiable debt instruments (non Euro) maturing after 3 months	(1,004)	-	(1,004)
Bonds	(4,847)	(3,515)	(1,332)
Marketable securities - treasury shares	(3)	(3)	-
Accrued interest on marketable securities maturing after 3 months	(13)	(53)	40
Negotiable debt instruments medium and long-term	-	(394)	394
<b>Marketable securities included in financial assets in the cash flow statement</b>	<b>(10,306)</b>	<b>(8,562)</b>	<b>(1,744)</b>
Cash advances to subsidiaries (cash pooling agreements) included in "other operating receivables" in the balance sheet	4	2	2
Cash advances from subsidiaries (cash pooling agreements) included in "other operating liabilities" in the balance sheet	(8,390)	(7,778)	(612)
<b>CASH AND CASH EQUIVALENTS, CLOSING BALANCE IN THE CASH FLOW STATEMENT*</b>	<b>(3,310)</b>	<b>(3,699)</b>	<b>389</b>
Elimination of the effect of currency fluctuations			(5)
Elimination of net financial income on cash and cash equivalents			(31)
<b>NET VARIATION IN CASH AND CASH EQUIVALENTS IN THE CASH FLOW STATEMENT</b>			<b>353</b>

\* See the Cash flow statement.

## ➤ Note 24. Unrealised foreign exchange losses

The net unrealised exchange loss amounts to €261 million in 2013, including €163 million related to unhedged borrowings in pounds sterling.

## ➤ Note 25. Changes in equity

	Capital	Reserves and premiums	Retained earnings and interim dividends	Profit or loss for the financial year	Investment subsidies	Tax-regulated provisions	Total equity
<i>(in millions of Euros)</i>							
<b>At 31 December 2011</b>	<b>924</b>	<b>10,815</b>	<b>3,233</b>	<b>1,118</b>	<b>171</b>	<b>6,549</b>	<b>22,810</b>
Allocation of 2011 net income	-	-	46	(46)	-	-	-
Dividend distribution	-	-	-	(1,072)	-	-	(1,072)
2012 profit	-	-	-	3,566	-	-	3,566
Interim dividend	-	-	(1,053)	-	-	-	(1,053)
Other changes <sup>(1)</sup>	-	(13)	434	-	19	(226)	214
<b>At 31 December 2012</b>	<b>924</b>	<b>10,802</b>	<b>2,660</b>	<b>3,566</b>	<b>190</b>	<b>6,323</b>	<b>24,465</b>
Allocation of 2012 net income	-	-	2,309	(2,309)	-	-	-
Dividend distribution	-	-	1	(1,257)	-	-	(1,256)
Capital increase on 29 July 2013	6	165	-	-	-	-	171
2013 profit	-	-	-	2,938	-	-	2,938
Interim dividend	-	-	(1,059)	-	-	-	(1,059)
Other changes	-	-	18	-	(12)	78	84
<b>AT 31 DECEMBER 2013</b>	<b>930</b>	<b>10,967</b>	<b>3,929</b>	<b>2,938</b>	<b>178</b>	<b>6,401</b>	<b>25,343</b>

(1) €214 million in other changes, including €(226) million in tax-regulated provisions and the €431 million impact on retained earnings of the change in accounting method for major plant inspections as of 1 January 2012.

### 25.1 Dividends

The General Shareholders' Meeting of 30 May 2013 decided to distribute a dividend of €1.25 per share in respect of 2012. As interim dividends of €0.57 per share had been paid out on 17 December 2012, the balance payable for 2012 amounted to €0.68 per share. The General Shareholders' Meeting also decided to offer each shareholder the option to receive payment of the outstanding dividends in the form of new EDF shares on a basis of €0.10 per share.

The balance of 2012 dividends, amounting to a total of €1,256 million, was paid out on 8 July 2013.

- Payment of dividends in shares resulted in a €6 million increase in the capital, corresponding to issuance of 11,141,806 shares with nominal value of €0.50 each, plus an issuance premium of €165 million (net of issuance expenses);
- Payment of dividends in cash amounted to €1,085 million.

On 26 November 2013, EDF's Board of Directors decided to distribute an interim dividend of €0.57 per share or a total of €1,059 million for 2013, paid out in cash on 17 December 2013.

In keeping with the amendment to the company's articles of association proposed at the General Shareholders' Meeting of 24 May 2011,

shareholders who have held their shares continuously for at least 2 years at the year-end date and still hold them at the dividend distribution date are entitled to a 10% increase in their dividends. The number of shares eligible for this increase cannot be more than 0.5% of the company's capital for a single shareholder. This amendment will take effect for the payment in 2014 of the dividend for the year 2013.

### 25.2 Share capital

On 29 July 2013 EDF's Board of Directors formally noted the capital increase for EDF decided at the company's General Shareholders' Meeting of 30 May 2013.

EDF's share capital amounted to €930,004,234 at 31 December 2013, comprising 1,860,008,468 fully subscribed and paid-up shares with nominal value of €0.50 each, owned 84.5% by the French State, 13.6% by the public (institutional and private investors), 1.8% by current and retired Group employees, and 0.1% held by EDF as treasury shares.

Under article L. 111-67 of the French Energy Code, the French State must hold more than 70% of the capital of EDF at all times.

## ➤ Note 26. Additional equity

This item records the perpetual subordinated bonds issued by EDF in January 2013 at the value of €6,135 million (net of redemption premium). Details of this issue are presented in note 2.1.

After adjustment for foreign exchange variations and amortisation of the redemption premium over the year, additional equity amounts to €6,120 million at 31 December 2013.



## ➤ Note 27. Special concession accounts

<i>(in millions of Euros)</i>	31/12/2013	31/12/2012
Value in kind of assets	103	99
Revaluation difference	971	998
Additional depreciation	88	71
<b>Rights in hydropower assets</b>	<b>1,162</b>	<b>1,168</b>
Value in kind of assets	1,441	1,368
Unamortised financing by the operator	(860)	(799)
Amortisation of grantor financing	264	251
Contributions received for concessionary plant assets under construction	9	11
<b>Rights in public distribution concession assets <sup>(1)</sup></b>	<b>854</b>	<b>831</b>
<b>TOTAL</b>	<b>2,016</b>	<b>1,999</b>

(1) Rights in public distribution concession assets concern the Island Energy Systems (IES).

## ➤ Note 28. Provisions for risks

	31/12/2012	Increases		Decreases			31/12/2013
<i>(in millions of Euros)</i>		Operating	Financial	Utilisations	Reversals	Financial	
Unrealised exchange losses	340	-	60	-	-	(138)	262
Losses on contracts	149	40	6	(98)	-	-	97
Other risks	192	97	2	(16)	(96)	(2)	177
<b>PROVISIONS FOR RISKS</b>	<b>681</b>	<b>137</b>	<b>68</b>	<b>(114)</b>	<b>(96)</b>	<b>(140)</b>	<b>536</b>

## ➤ Note 29. Provisions for back-end nuclear cycle, plant decommissioning and last cores

These provisions comply with the instructions of the law of 28 June 2006 and its implementing provisions. In compliance with the regulation on secure financing of nuclear expenses:

- EDF books provisions to cover all obligations related to the nuclear facilities it operates;
- EDF has a portfolio of dedicated assets for secure financing of long-term obligations (see note 38).

The relevant expenses are estimated based on the economic conditions of the year-end, then spread over a forecast disbursement schedule and adjusted to Euros of the year of payment, through application of a forecast long-term inflation rate. To determine the provisions, these amounts are discounted to present value using a nominal discount rate.

### 29.1 Provisions for the back-end nuclear cycle

Changes in provisions for the back-end nuclear cycle break down as follows:

	31/12/2012	Increases		Decreases		Others <sup>(2)</sup>	31/12/2013
(in millions of Euros)		Operating	Financial <sup>(1)</sup>	Utilisations	Reversals		
Provisions for spent fuel management	9,498	417	454	(634)	(3)	47	9,779
Provisions for long-term radioactive waste management	7,113	228	338	(137)	-	-	7,542
<b>PROVISIONS FOR BACK-END NUCLEAR CYCLE</b>	<b>16,611</b>	<b>645</b>	<b>792</b>	<b>(771)</b>	<b>(3)</b>	<b>47</b>	<b>17,321</b>

(1) Financial discounting expenses.

(2) This corresponds to the portion of fuel in the reactor but not yet irradiated, with an offsetting entry in inventories.

Expenses are estimated based on the economic conditions at the year-end, discounted to present value as follows:

	31/12/2013		31/12/2012	
(in millions of Euros)	Costs based on economic conditions at year-end	Amounts in provisions at present value	Costs based on economic conditions at year-end	Amounts in provisions at present value
Provisions for spent fuel management	15,868	9,779	15,250	9,498
Provisions for long-term radioactive waste management	25,578	7,542	24,562	7,113
<b>PROVISIONS FOR BACK-END NUCLEAR CYCLE</b>	<b>41,446</b>	<b>17,321</b>	<b>39,812</b>	<b>16,611</b>

### 29.1.1 Provisions for spent nuclear fuel management

This covers services in connection with the following:

- Removal of spent fuel from EDF's generation centres, reception, and interim storage;
- Processing, including conditioning and storage of recyclable matter and waste resulting from this processing.

Processing expenses exclusively concern spent fuel that can be recycled in existing facilities, including the portion in reactors but not yet irradiated.

Expenses are calculated based on forecast physical flows at the balance sheet date. Valuation is based on the contracts signed with AREVA.

### 29.1.2 Provisions for long-term radioactive waste management

This includes future expenses for:

- removal and storage of radioactive waste resulting from decommissioning of regulated nuclear installations operated by EDF;
- removal and storage of radioactive waste packages resulting from spent fuel processing at La Hague;
- long-term and direct storage of spent fuel that cannot be recycled on an industrial scale in existing installations: plutonium or uranium fuel derived from enriched processing, fuel from Creys Malville and Brennilis;
- EDF's share of the costs of studies, coverage, shutdown and surveillance of storage centres:
  - existing centres, for very low-level waste, and low and medium-level waste;
  - new centres to be opened, for long-life low-level waste and long-life medium and high-level waste.

The volumes of waste concerned by provisions include existing packages of waste and all waste to be conditioned, resulting from plant decommissioning or spent fuel processing at La Hague (based on all fuel in reactors at 31 December, irradiated or otherwise). These volumes are regularly reviewed, in keeping with the data declared for the purposes of the national waste inventory undertaken by the French agency for radioactive waste management ANDRA (*Agence nationale pour la gestion des déchets radioactifs*).

The provision for long-life medium and high-level waste is the largest component of the provisions for long-term radioactive waste management. The French Law of 28 June 2006 on the sustainable management of radioactive materials and waste has confirmed the assumption of geological storage used by EDF in calculating these provisions.

Since 2005, the gross value and disbursement schedules for forecast expenses have been based on a scenario of industrial geological waste storage, following conclusions presented in the first half of 2005 by the task force set up by the French department for Energy and Raw Materials (*Direction Générale de l'Énergie et des Matières Premières* – DGEMP, which has since become the French department for Energy and Climate – *Direction Générale de l'Énergie et du Climat* or DGEC) comprising members representing the relevant government departments (DGEC, the State investment agency (APE) and the Budget Department), ANDRA and the producers of waste (EDF, AREVA, CEA). The approach applied by EDF to the task force's conclusions is reasonable and coherent with information available internationally.

In 2011 ANDRA and waste producers set up a partnership aiming to facilitate completion of the geological storage project by leveraging on all the skills of the French nuclear industry. This partnership encompasses joint studies on targeted issues and an interface between the ANDRA project team and nuclear operators to help them make well-informed, relevant contributions to governance of the project. ANDRA conducted preliminary conceptional studies in 2012 and 2013, taking into consideration design options proposed by the waste producers. It is currently studying the technical optimisations identified in conjunction with the producers, and should be able to propose an estimate of storage costs based on that information by mid-2014 at the earliest, after including the recommendations of the French Nuclear Safety Authority (*Autorité de Sûreté Nucléaire* or ASN), the National Evaluation Commission (*Commission Nationale d'Évaluation* or CNE) and the public debate. After consulting waste producers and the ASN, France's minister for Energy is due to decide on the value of these costs and make a public announcement.

Regarding the provision for long-life low-level waste, the search for a storage site has resumed, mainly through geological reconnaissance surveys in the Soulaines area. The calculation method for storage of long-life low-level waste has been revised to incorporate the new technical and schedule assumptions, with no significant adjustment to the provision.

In 2013, a €208 million increase was booked for the provision for long-term radioactive waste management, to reflect the ANDRA's new financing requirements in connection with the studies concerning geological storage plans.

## 29.2 Provisions for decommissioning and last cores

The change in decommissioning and last core provisions breaks down as follows:

	31/12/2012	Increases		Decreases		Others	31/12/2013
(in millions of Euros)		Operating	Financial <sup>(1)</sup>	Utilisations	Reversals		
Provisions for fossil-fired and hydropower plant decommissioning	522	1	28	(37)	-	58	572
Provisions for nuclear power plant decommissioning	12,578	-	604	(171)	-	13	13,024
Provisions for last cores	2,193	-	105	-	-	15	2,313
<b>TOTAL</b>	<b>15,293</b>	<b>1</b>	<b>737</b>	<b>(208)</b>	<b>-</b>	<b>86</b>	<b>15,909</b>

(1) Financial discounting expenses

Expenses are estimated based on the economic conditions at the year-end, discounted to present value as follows:

	31/12/2013		31/12/2012	
	Costs based on economic conditions at year-end	Amounts in provisions at present value	Costs based on economic conditions at year-end	Amounts in provisions at present value
<i>(in millions of Euros)</i>				
Provisions for fossil-fired and hydropower plant decommissioning	767	572	707	522
Provisions for nuclear power plants	22,448	13,024	22,174	12,578
Provisions for last cores	3,979	2,313	3,887	2,193
<b>TOTAL</b>	<b>27,194</b>	<b>15,909</b>	<b>26,768</b>	<b>15,293</b>

### 29.2.1 Provisions for fossil-fired and hydropower plant decommissioning

The costs of decommissioning are calculated using regularly updated studies based on estimated future costs, measured by reference to the charges recorded on past operations and the most recent estimates for plants still in operation.

### 29.2.2 Provisions for nuclear power plant decommissioning

These provisions concern the decommissioning of pressurised water reactor (PWR) nuclear power plants currently in operation, and nuclear power plants that have been permanently shut down.

They are estimated on the assumption that once decommissioning is complete, the sites will be returned to their original state and the land reused for industry.

#### For nuclear power plants currently in operation (PWR plants with 900 MW, 1300 MW and N4 reactors)

Provisions are estimated based on a 1991 study by the French Ministry of Trade and Industry, which set an estimated benchmark cost in €/MW, confirming the assumptions defined in 1979 by the PEON commission. This estimate was confirmed by a further study carried out by EDF in 1999 focusing on a specific site, and a subsequent valuation in 2009 involving the following steps:

- measurement of the decommissioning cost for a PWR plant with four 900 MW units, taking into consideration the most recent developments in regulations, past experience in decommissioning of shut-down plants and recommendations issued by the ASN;
- a review of the schedule for decommissioning operations over time;
- determination of the rules for extrapolation of costs for the entire fleet of PWR plants in operation.

International intercomparison studies carried out with an external specialist firm support the results of this study.

The study resulted in a figure for decommissioning costs that confirms the amount of the provision booked to date, and validates the benchmark costs used, expressed in €/MW.

#### For permanently shut-down nuclear power plants (UNGG power plants, Creys-Malville, Brennilis and Chooz A)

The provision is based on contractor quotes for decommissioning, newly updated in 2012.

The valuation is based on the following key assumptions:

- that decommissioning will take place as soon as possible (this is unchanged from the previous quote);
- that long-life medium-level waste will be stored in a packaging and interim storage installation for radioactive waste (ICEDA) now due to open in 2016, until it can be placed in deep underground storage;
- that the facility for storing graphite waste will be available from 2025;
- that the decree for full decommissioning of Brennilis will be obtained by the end of 2018.

### 29.2.3 Provision for last cores

This provision covers the future expenses resulting from scrapping fuel that will only be partially used when the reactor is shut down. It is measured based on:

- The cost of the loss on fuel in the reactor that is not totally spent at the time of final reactor shutdown and cannot be reused due to technical and regulatory constraints;
- The cost of fuel processing, disposal and waste storage operations. These costs are valued in a similar way to provisions for spent fuel management and long-term radioactive waste management.

These unavoidable costs are components of the cost of nuclear reactor shutdown and decommissioning. As such, they are fully covered by provision from the commissioning date and an asset associated with the provision is recognised.

## 29.3 Discounting of provisions related to nuclear generation and sensitivity analyses

### 29.3.1 Discount rate

At 31 December 2013, EDF has applied a nominal discount rate of 4.8% to calculate its provisions, together with assumed inflation of 1.9% (these assumptions are unchanged from 31 December 2012).

#### Calculation of the discount rate

The discount rate is determined based on long-series data for a sample of bonds with maturities as close as possible to that of the liability. However, some expenses covered by these provisions will be disbursed over periods significantly longer than the duration of instruments generally traded on the financial markets.

The benchmark used to determine the discount rate is the sliding 10-year average of the return on French treasury bonds over the longest time horizons, plus the spread of corporate bonds rated A to AA, which include EDF. The assumed inflation rate is determined in line with the forecasts provided by consensus and expected inflation based on the returns on inflation-linked bonds. The discount rate calculated in this way is 4.8% at 31 December 2013.

#### Revision of the discount rate and regulatory limit

The methodology used to determine the discount rate gives priority to long-term trends in rates, in keeping with the long-term horizon for disbursements. The discount rate is therefore revised in response to structural developments in the economy leading to medium and long-term changes.

The discount rate applied must also comply with the two limits laid down by the decree of 23 February 2007 and the decision of 21 March 2007. This means it must be lower than:

- a regulatory maximum "equal to the arithmetic average over the forty-eight most recent months of the constant 30-year rate (TEC 30 years), observed on the last date of the period concerned, plus one point";
- and the expected rate of return on assets covering the liability (dedicated assets).

This ceiling rate was 4.58% at 31 December 2013. In view of ongoing discussions between nuclear operators and the French government concerning a revision of the regulations, the discount rate used at 31 December 2013 is 4.8% (identical to the rate used at 31 December 2012).

### 29.3.2 Analyses of sensitivity to macro-economic assumptions

Sensitivity to assumptions concerning costs, inflation rate, long-term discount rate, and disbursement schedules can be estimated through comparison of the gross amount estimated under year-end economic conditions with the present value of the amount.

This approach can be complemented by estimating the impact of a change in the discount rate on the discounted value.

In application of article 11 of the decree of 23 February 2007, the following table reports these details for the main components of provisions for the back-end nuclear cycle, decommissioning of nuclear plants and last cores for EDF:

#### At 31 December 2013

	Amounts in provisions at present value	Sensitivity to discount rate			
	31/12/2013	Balance sheet provision		Pre-tax net income	
(in millions of Euros)		0.20%	-0.20%	0.20%	-0.20%
Back-end of nuclear cycle					
Spent fuel management	9,779	(167)	177	139	(147)
Long-term radioactive waste management	7,542	(374)	417	320	(359)
Decommissioning and last cores					
Decommissioning of nuclear power plants	13,024	(456)	476	45	(47)
Last cores	2,313	(66)	69	-	-
TOTAL	32,658	(1,063)	1,139	504	(553)



## At 31 December 2012

	Amounts in provisions at present value	Sensitivity to discount rate			
	31/12/2012	Balance sheet provision		Pre-tax net income	
(in millions of Euros)		0.20%	-0.20%	0.20%	-0.20%
<b>Back-end of nuclear cycle</b>					
Spent fuel management	9,498	(165)	174	138	(145)
Long-term radioactive waste management	7,113	(361)	403	307	(345)
<b>Decommissioning and last cores</b>					
Decommissioning of nuclear power plants	12,578	(458)	479	47	(49)
Last cores	2,193	(66)	70	-	-
<b>TOTAL</b>	<b>31,382</b>	<b>(1,050)</b>	<b>1,126</b>	<b>492</b>	<b>(539)</b>

## ➤ Note 30. Provisions for employee benefits

Changes in provisions for employee benefits were as follows:

	31/12/2012	Increases		Decreases		31/12/2013
		Operating expenses <sup>(1)</sup>	Financial expenses	Operating reversals <sup>(2)</sup>	Financial reversals <sup>(3)</sup>	
(in millions of Euros)						
Provisions for post-employment benefits	9,872	731	822	(1,317)	(314)	9,794
Provisions for long-term benefits	879	79	29	(90)	-	897
<b>PROVISIONS FOR EMPLOYEE BENEFITS</b>	<b>10,751</b>	<b>810</b>	<b>851</b>	<b>(1,407)</b>	<b>(314)</b>	<b>10,691</b>

(1) including past service cost of €514 million, amortisation of actuarial losses amounting to €285 million and unvested benefits of €11 million.

(2) including €988 million for employers' contributions, €26 million for actuarial gains and €393 million for reversals concerning vested benefits due to the pension reform (see note 3.1).

(3) including €314 million for the expected return on fund assets.

### Details of changes in provisions

	Obligations	Fund assets	Obligations net of fund assets	Unrecognised past service cost	Unrecognised actuarial gains and losses	Provision in the balance sheet
(in millions of Euros)						
<b>Balance at 31/12/2012</b>	<b>24,324</b>	<b>(8,084)</b>	<b>16,240</b>	<b>(118)</b>	<b>(5,371)</b>	<b>10,751</b>
Net expense for 2013	972	(314)	658	11	259	928
Unrecognised actuarial gains and losses	(294)	151	(143)	-	143	-
Contributions to funds	-	(301)	(301)	-	-	(301)
Benefits paid	(982)	295	(687)	-	-	(687)
<b>BALANCE AT 31/12/2013</b>	<b>24,020</b>	<b>(8,253)</b>	<b>15,767</b>	<b>(107)</b>	<b>(4,969)</b>	<b>10,691</b>

The actuarial gains and losses on obligations amount to €294 million, including €617 million of gains resulting from changes in assumptions and €323 million in losses from experience adjustments.

**Post-employment and long-term employee benefit expenses :**

<i>(in millions of Euros)</i>	31/12/2013	31/12/2012
Current service cost	514	347
Interest expenses (discount effect)	851	931
Expected return on fund assets	(314)	(345)
Amortisation of unrecognised actuarial gains and losses - post-employment benefits	188	53
Change in actuarial gains and losses - long-term benefits	71	184
Past service cost - vested benefits	(393)	(77)
Past service cost - unvested benefits	11	8
<b>NET CHARGES RELATED TO POST-EMPLOYMENT BENEFITS AND LONG-TERM BENEFITS</b>	<b>928</b>	<b>1,101</b>
including:		
Operating expenses <sup>(1)</sup>	391	515
Financial expenses	537	586

(1) This amount corresponds to operating increases (€810 million) net of reversals for actuarial gains and losses (€26 million) and the pension reform (€393 million).

**30.1 Provisions for post-employment benefits**

Details of these provisions are shown below:

	31/12/2012	Increases		Decreases		31/12/2013
<i>(in millions of Euros)</i>		Operating expenses	Financial expenses	Operating reversals	Financial reversals	
<b>Provisions for post-employment benefits</b>						
Pensions	8,081	533	674	(1,149)	(301)	7,838
CNIEG expenses	415	7	14	(15)	-	421
Benefits in kind (energy)	903	123	89	(86)	-	1,029
Retirement gratuities	(9)	38	20	(41)	(13)	(5)
Other benefits	482	30	25	(26)	-	511
<b>TOTAL</b>	<b>9,872</b>	<b>731</b>	<b>822</b>	<b>(1,317)</b>	<b>(314)</b>	<b>9,794</b>

	Obligations	Fund assets	Unrecognised past service cost	Unrecognised actuarial gains and losses	Provision in the balance sheet
<i>(in millions of Euros)</i>					
<b>Provisions for post-employment benefits at 31/12/2013</b>					
Pensions	18,540	(7,810)	-	(2,892)	7,838
CNIEG expenses	424	-	-	(3)	421
Benefits in kind (energy)	2,929	-	-	(1,900)	1,029
Retirement gratuities	575	(429)	(57)	(94)	(5)
Other benefits	655	(14)	(50)	(80)	511
<b>TOTAL</b>	<b>23,123</b>	<b>(8,253)</b>	<b>(107)</b>	<b>(4,969)</b>	<b>9,794</b>

	Obligations	Fund assets	Unrecognised past service cost	Unrecognised actuarial gains and losses	Provision in the balance sheet
<i>(in millions of Euros)</i>					
<b>Provisions for post-employment benefits at 31/12/2012</b>					
Pensions	19,218	(7,668)	-	(3,469)	8,081
CNIEG expenses	428	-	-	(13)	415
Benefits in kind (energy)	2,558	-	-	(1,655)	903
Retirement gratuities	582	(403)	(65)	(123)	(9)
Other benefits	660	(13)	(54)	(111)	482
<b>TOTAL</b>	<b>23,446</b>	<b>(8,084)</b>	<b>(119)</b>	<b>(5,371)</b>	<b>9,872</b>

The lower level of obligations in 2013 compared to 2012 is principally related to the favourable effect of revision of financial assumptions (particularly the lower assumed inflation rate and the higher wage increase rate).

## 30.2 Provisions for other long-term benefits for current employees

The amount of obligations for other long-term benefits awarded to current employees is identical to the corresponding balance sheet provisions. Details are as follows:

	31/12/2012	Increases		Decreases	31/12/2013
		Operating expenses	Financial expenses	Operating reversals	
<i>(in millions of Euros)</i>					
<b>Provisions for other long-term benefits for current employees</b>					
Annuities following work-related accident and illness	757	72	24	(76)	777
Long service awards	95	5	3	(8)	95
Other	27	2	2	(6)	25
<b>TOTAL</b>	<b>879</b>	<b>79</b>	<b>29</b>	<b>(90)</b>	<b>897</b>

## 30.3 Fund assets

Fund assets amount to €8,253 million at 31 December 2013 (€8,084 million at 31 December 2012) and concern the past specific benefits earned under the special pension system (€7,810 million), retirement gratuities (€429 million) and seconded employees (€14 million).

These assets break down as follows:

	31/12/2013	30/12/2012
<i>(in millions of Euros)</i>		
<b>Assets funding special pension benefits</b>	<b>7,810</b>	<b>7,668</b>
(%)		
Equities	31%	29%
Bonds and monetary instruments	69%	71%
<b>Assets funding retirement gratuities</b>	<b>429</b>	<b>403</b>
(%)		
Equities	32%	31%
Bonds and monetary instruments	68%	69%
<b>Assets funding other benefits</b>	<b>14</b>	<b>13</b>
<b>TOTAL</b>	<b>8,253</b>	<b>8,084</b>

## 30.4 Actuarial assumptions

The main actuarial assumptions used for provisions for post-employment benefits and long-term employee benefits under the IEG system are summarised below:

- the discount rate is 3.5% at 31 December 2013 (3.5% at 31 December 2012);
- the inflation rate is estimated at 1.9% at 31 December 2013 (2% at 31 December 2012);
- the average residual period of employment is 17.5 years (at 31 December 2013);
- the staff turnover rate is considered non-significant;
- the "tarif agent" (special energy price for EDF employees) at 1 January 2013 includes changes in taxes based on that tariff;

- the expected return on fund assets covering specific benefits under the special pension system is 4.10%;
- the expected return on fund assets covering retirement gratuities is 3.66%.

The discount rate used for employee benefit obligations is determined by applying the yield rate on high-quality non-financial corporate bonds based on their duration to maturities corresponding to the future disbursements resulting from these obligations.

The obligations are based on wage increase assumptions that are differentiated by age group and employee category, leading to an average annual rise of 1.7% excluding inflation (3.6% including inflation).

## ➤ Note 31. Provisions for other expenses

	31/12/2012	Increases	Decreases		Other	31/12/2013
			Utilisations	Reversals		
<i>(in millions of Euros)</i>						
<b>Provisions for :</b>						
Personnel expenses	104	88	(76)	(8)	-	108
Renewal of facilities operated under concession	248	16	(1)	(3)	(6)	254
Other expenses <sup>(1)</sup>	386	292	(97)	(19)	-	562
<b>PROVISIONS FOR OTHER EXPENSES</b>	<b>738</b>	<b>396</b>	<b>(174)</b>	<b>(30)</b>	<b>(6)</b>	<b>924</b>

(1) At 31 December 2013, this mainly includes €60 million to cover expenses related to social security bodies (€145 million at 31 December 2012).

## ➤ Note 32. Liabilities

(in millions of Euros)	Maturity			Gross value at 31/12/2013	Gross value at 31/12/2012
	< 1 year	1 - 5 years	> 5 years		
Bonds	5,070	4,952	29,319	39,341	41,587
Borrowings from financial institutions	-	-	500	500	500
Other borrowings	1,980	1,758	-	3,738	6,116
Other financial liabilities :					
– Advances on consumption	2	20	20	42	65
– Other	1,659	-	-	1,659	1,214
<b>Financial liabilities (see note 33)</b>	<b>8,711</b>	<b>6,730</b>	<b>29,839</b>	<b>45,280</b>	<b>49,482</b>
<b>Advances and progress payments received <sup>(1)</sup></b>	<b>6,279</b>	<b>-</b>	<b>-</b>	<b>6,279</b>	<b>5,833</b>
Trade payables and related accounts	7,300	6	-	7,306	7,894
Tax and social security liabilities <sup>(2)</sup>	7,235	-	-	7,235	6,626
Liabilities related to fixed assets and related accounts	2,067	-	-	2,067	1,538
Other liabilities <sup>(3)</sup>	16,767	-	-	16,767	15,947
<b>Operating, investment and other liabilities</b>	<b>33,369</b>	<b>6</b>	<b>-</b>	<b>33,375</b>	<b>32,005</b>
<b>Cash instruments <sup>(4)</sup></b>	<b>965</b>	<b>344</b>	<b>664</b>	<b>1,973</b>	<b>2,370</b>
<b>Deferred income <sup>(5)</sup></b>	<b>765</b>	<b>1,260</b>	<b>2,248</b>	<b>4,273</b>	<b>4,232</b>
<b>TOTAL</b>	<b>50,089</b>	<b>8,340</b>	<b>32,751</b>	<b>91,180</b>	<b>93,922</b>

(1) Advances and progress payments received principally include monthly standing order payments by EDF's residential and business customers, amounting to €6,129 million (€5,558 million at 31 December 2012). The increase over 2013 is mainly explained by the growing number of customers that opted to pay their bills this way.

(2) In 2013 this item includes an amount of €984 million for the CSPE income to be collected by EDF on energy supplied but not yet billed (€747 million at 31 December 2012).

(3) Mainly the amount of cash pooling and cash management agreements with subsidiaries, i.e. €14.8 billion in 2013 (€13.6 billion in 2012).

(4) Essentially unrealised losses on foreign exchange instruments.

(5) Deferred income at 31 December 2013 comprises the partner advances made to EDF under nuclear plant financing plans and the associated long-term contracts, amounting to €2,112 million (€2,183 million in 2012).

Deferred income on long-term contracts also includes the advance paid to EDF under the agreement with the Exeltium consortium in 2010.



## ➤ Note 33. Financial liabilities

<i>(in millions of Euros)</i>	Balance at 31/12/2012	New borrowings	Repayments	Translation adjustments	Other	Balance at 31/12/2013
Bonds in Euros	913	100	-	-	-	1,013
Bonds in other currencies	8,270	-	1,347	(446)	-	6,477
Euro-Medium Term notes (EMTN) in Euros	24,332	1,670	1,895	-	-	24,107
Euro-Medium Term notes (EMTN) in other currencies	8,072	235	308	(255)	-	7,744
<b>Bonds</b>	<b>41,587</b>	<b>2,005</b>	<b>3,550</b>	<b>(701)</b>	<b>-</b>	<b>39,341</b>
Long-term loans in Euros	500	-	-	-	-	500
Short term loans in other currencies	-	-	2	2	-	-
<b>Borrowings from financial institutions</b>	<b>500</b>	<b>-</b>	<b>2</b>	<b>2</b>	<b>-</b>	<b>500</b>
Negotiable debt instruments (Euro) <sup>(1)</sup>	1,620	-	1,351	-	-	269
Negotiable debt instruments (non-Euro) <sup>(1)</sup>	4,493	-	812	(218)	-	3,463
Contractual financial borrowings	3	4	1	-	-	6
<b>Other borrowings</b>	<b>6,116</b>	<b>4</b>	<b>2,164</b>	<b>(218)</b>	<b>-</b>	<b>3,738</b>
<b>Total borrowings</b>	<b>48,203</b>	<b>2,009</b>	<b>5,716</b>	<b>(917)</b>	<b>-</b>	<b>43,579</b>
<b>Advances on consumption</b>	<b>65</b>	<b>-</b>	<b>23</b>	<b>-</b>	<b>-</b>	<b>42</b>
Miscellaneous advances	91	-	-	-	(17)	74
Bank overdrafts	34	-	-	-	321	355
Deferred bank debits	49	-	-	-	(15)	34
Interest payable	1,040	-	-	-	156	1,196
<b>Total other financial liabilities</b>	<b>1,214</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>445</b>	<b>1,659</b>
<b>TOTAL FINANCIAL LIABILITIES</b>	<b>49,482</b>	<b>2,009</b>	<b>5,739</b>	<b>(917)</b>	<b>445</b>	<b>45,280</b>

(1) Issues net of repayments.

In 2013, EDF undertook several bond issues totalling €2,005 million for French and international institutional investors.

- A €100 million bond at the fixed rate of 3.286%, maturing in June 2033;
- Euro-Medium Term Notes totalling €1,905 million, breaking down as follows:
  - €120 million at the fixed rate of 3.45%, maturing in January 2033,
  - €100 million at the fixed rate of 2.991%, maturing in June 2033,
  - €1,400 million at the fixed rate of 2.25%, maturing in April 2021, the first Green Bond issue,

- €50 million at the fixed rate of 3.47%, maturing in December 2029,
- 1,000 million Norwegian kroner or €121 million at the fixed rate of 4.155%, maturing in November 2025,
- 1,216 million Hong Kong dollars or €114 million at the fixed rate of 4.18%, maturing in December 2028.

Redemption of bonds totalled €3,550 million and concerned bonds in Euros, Swiss francs and Japanese yen that reached maturity.

### 33.1 Breakdown of loans by currency, before and after hedging instruments

(in millions of Euros)	Structure of liability in balance sheet				Impact of instruments		Structure of liability after hedging			
	Non-Euro	In Euros	% Non-Euro	% of debt	Non-Euro	In Euros	Non-Euro	In Euros	% Non-Euro	% of debt
<b>TOTAL I - IN EUROS</b>		<b>25,895</b>		<b>59</b>		<b>12,732</b>		<b>38,627</b>		<b>88</b>
CHF	760	619	3.5	1	(760)	(619)	-	-	-	-
GBP	6,035	7,238	40.9	17	(1,550)	(1,859)	4,485	5,379	100	12
HKD	1,216	114	0.7	0.3	(1,216)	(114)	-	-	-	-
JPY	121,100	836	4.7	2	(121,100)	(836)	-	-	-	-
NOK	1,000	121	0.7	0.3	(1,000)	(121)	-	-	-	-
USD	12,075	8,756	49.5	20	(12,075)	(8,756)	-	-	-	-
<b>TOTAL II - IN NON-EURO</b>		<b>17,684</b>	<b>100</b>	<b>41</b>		<b>(12,305)</b>		<b>5,379</b>	<b>100</b>	<b>12</b>
<b>TOTAL I + II</b>		<b>43,579</b>		<b>100</b>		<b>427</b>		<b>44,006</b>		<b>100</b>

The nominal value of hedging instruments included in off balance sheet commitments (see note 35) has no effect on loans in the balance sheet.

### 33.2 Breakdown of loans by type of interest rate before and after hedging instruments

(in millions of Euros)	Structure of liability in balance sheet			Impact of instruments		Structure of liability after hedging		
	Total	% 31/12/2013	% 31/12/2012	Total		Total	% 31/12/2013	% 31/12/2012
Long-term borrowings and EMTN	39,233			(8,250)		30,983		
Short-term borrowings	3,732			77		3,809		
<b>Borrowings at fixed rate</b>	<b>42,965</b>	<b>99</b>	<b>98</b>	<b>(8,173)</b>		<b>34,792</b>	<b>79</b>	<b>72</b>
Long-term borrowings and EMTN	614			8,600		9,214		
Short-term borrowings	-			-		-		
<b>Borrowings at floating rate</b>	<b>614</b>	<b>1</b>	<b>2</b>	<b>8,600</b>		<b>9,214</b>	<b>21</b>	<b>28</b>
<b>TOTAL</b>	<b>43,579</b>	<b>100</b>	<b>100</b>	<b>427</b>		<b>44,006</b>	<b>100</b>	<b>100</b>

## ➤ Note 34. Unrealised foreign exchange gains

Unrealised foreign exchange gains in 2013 include an unrealised gain of €210 million, of which €128 million concerned a borrowing in pounds sterling partly hedged by foreign exchange swaps.

## Other information

## ➤ Note 35. Financial instruments

## 35.1 Off balance sheet commitments related to currency and interest rate derivatives

EDF uses financial instruments to limit the impact of foreign exchange rate risks and interest rate risks.

	31/12/2013		31/12/2012	
	To be received (notional)	To be given (notional)	To be received (notional)	To be given (notional)
<i>(in millions of Euros)</i>				
<b>1 - Interest rate transactions</b>				
<b>Short-term interest rate swaps</b>				
EUR	1,988	1,988	3,039	3,039
<b>Long-term interest rate swaps</b>				
EUR	7,215	7,215	6,616	6,616
USD	979	979	246	246
CHF	-	-	390	390
GBP	2,070	2,070	2,285	2,285
JPY	325	325	350	350
<b>Sub-total</b>	<b>12,577</b>	<b>12,577</b>	<b>12,926</b>	<b>12,926</b>
<b>2 - Exchange rate transactions</b>				
<b>Forward transactions</b>				
EUR	18,532	21,640	18,988	24,813
CAD	1,026	1,026	535	535
USD	9,970	6,698	10,420	5,221
GBP	11,338	11,466	14,871	14,322
CHF	-	-	20	20
HUF	419	410	471	471
PLN	968	1,050	975	993
JPY	21	122	-	54
MXN	254	254	577	577
Other	308	311	89	90
<b>Long-term currency swaps</b>				
EUR	7,226	23,565	7,003	23,958
JPY	837	-	1,418	-
USD	6,566	1,273	5,533	-
GBP	14,913	5,721	15,142	6,152
CHF	619	-	2,662	666
HUF	14	14	22	22
CAD	131	131	127	127
ILS	132	132	123	123
PLN	-	53	-	79
NOK	120	-	-	-
HKD	114	-	-	-
<b>Sub-total</b>	<b>73,508</b>	<b>73,866</b>	<b>78,976</b>	<b>78,223</b>
<b>3 - Securitisation swaps</b>	<b>734</b>	<b>734</b>	<b>771</b>	<b>771</b>
<b>TOTAL FINANCIAL OFF BALANCE SHEET COMMITMENTS</b>	<b>86,819</b>	<b>87,177</b>	<b>92,673</b>	<b>91,920</b>
<b>4- Commodity swaps</b>				
Coal <i>(in millions of tonnes)</i>	4	4	6	6
Oil products <i>(in thousands of barrels)</i>	5,776	5,776	5,268	5,268

The amounts of off balance sheet commitments shown in the above table are the nominal value of contracts, translated where necessary using year-end exchange rates (regardless of whether they are classified as hedges).

## 35.2 Impacts of financial instrument transactions on net income

<i>(in millions of Euros)</i>	2013	2012
<b>Instruments not classified as hedges</b>		
Realised gains and losses	142	71
Unrealised gains and losses	(100)	120
Interest rate instruments (swap, cap and floor, FRA, option) <sup>(1)</sup>	78	(35)
<b>Instruments classified as hedges</b>		
Interest rate instruments (swap, cap and floor, FRA)	134	193
Exchange rate instruments (currency swap)	67	90

*(1) Including interest on swaps*

## 35.3 Fair value of derivative financial instruments

The fair value of currency and interest rate swaps was calculated by discounting future cash flows using year-end market exchange and interest rates, over the remaining term of the contracts (market value includes accrued interest).

The book value of off-balance sheet derivatives includes accrued interest, equalisation payments and premiums paid or received, and

translation adjustments, which are already booked in EDF's accounts. The difference between book value and market value is the unrealised gain or loss.

The fair value of derivative financial instruments reported off-balance sheet at 31 December 2013 as calculated by EDF is as follows:

<i>(in millions of Euros)</i>	Book value	Fair value
<b>Interest rate hedges</b>		
Long-term swaps	80	507
<b>Exchange rate hedges</b>		
Forward exchange transactions	(118)	(148)
Long-term currency swaps	(101)	(701)
<b>Commodity hedges</b>		
Coal	-	(51)
Oil products	-	(26)
<b>TOTAL</b>	<b>(139)</b>	<b>(419)</b>

## ➤ Note 36. Other off-balance sheet commitments and operations

At 31 December 2013, off-balance sheet commitments related to operations, financing and investments (other than electricity supply commitments and partnership agreements) comprise the following:

(in millions of Euros)	Maturity				31/12/2013	31/12/2012
	< 1 year	1 - 5 years	5 - 10 years	> 10 years		
<b>Off-balance sheet commitments given</b>	<b>12,653</b>	<b>17,920</b>	<b>11,676</b>	<b>11,355</b>	<b>53,604</b>	<b>51,878</b>
Operating commitments	5,511	11,832	10,007	11,351	38,701	41,159
■ Commitments related to fuel and energy purchases	2,928	9,023	8,573	11,120	31,644	33,264
■ Other operating commitments	2,583	2,809	1,434	231	7,057	7,895
Investments commitments	3,743	4,922	284	-	8,949	7,909
Financing commitments	3,399	1,166	1,385	4	5,954	2,810
<b>Off-balance sheet commitments received</b>	<b>1,254</b>	<b>10,378</b>	<b>221</b>	<b>81</b>	<b>11,934</b>	<b>10,684</b>
Operating commitments	1,246	807	220	81	2,354	2,719
Financing commitments	8	9,571	1	-	9,580	7,965

### 36.1 Commitments given

In almost all cases, commitments given are reciprocal, and the third parties concerned are under an obligation to supply to EDF the assets or services related to operating, investing and financing transactions.

#### 36.1.1 Fuel and energy purchase commitments

In the course of its ordinary generation and supply activities, EDF has entered into long-term contracts for purchases of electricity and nuclear fuels, for periods of up to 20 years.

At 31 December 2013, fuel and energy purchase commitments mature as follows:

(in millions of Euros)	Maturity				31/12/2013	31/12/2012
	< 1 year	1 - 5 years	5 - 10 years	> 10 years		
Purchases of electricity and associated expenses	1,114	2,779	3,103	7,019	14,015	13,687
Purchases of nuclear fuel	1,814	6,244	5,470	4,101	17,629	19,577
<b>PURCHASE COMMITMENTS</b>	<b>2,928</b>	<b>9,023</b>	<b>8,573</b>	<b>11,120</b>	<b>31,644</b>	<b>33,264</b>



## Electricity purchases and related services

Electricity purchase commitments mainly concern:

- Island Energy Systems (IES), which has given commitments to purchase electricity generated from bagasse and coal, and electricity generated by the plants of EDF's Island Electricity Production subsidiaries;
- hedging contracts : these are forward purchases, for which the volumes and prices are set in contracts with EDF Trading.

In addition to the obligations reported above and under article 10 of the law of 10 February 2000, in mainland France EDF is obliged, at the producer's request and subject to compliance with certain technical features, to purchase the power produced by co-generation plants and renewable energy generation units (wind turbines, small hydro-electric plants, photovoltaic power, etc).

The additional costs generated by this obligation are offset, after validation by the CRE, by the Contribution to the Public Electricity Service (*Contribution au Service Public de l'Electricité* or CSPE). These purchase obligations total 34 TWh for 2013 (36 TWh for 2012), including 7 TWh for co-generation (10 TWh for 2012), 15 TWh for wind power (14 TWh for 2012), 4 TWh for photovoltaic power (4 TWh for 2012) and 3 TWh for hydropower (3 TWh for 2012).

## Nuclear fuel purchases

Commitments for purchases of nuclear fuel arise from supply contracts for the nuclear plants intended to cover EDF's needs for uranium and fluorination, enrichment and fuel assembly production services. The decrease in these commitments mainly results from services executed in 2013.

### 36.1.2 Other operating commitments

These are mostly commitments undertaken by EDF through signature of orders relating to operations or contracts in progress, and as lessee under irrevocable operating lease contracts principally for premises, equipment and vehicles. The corresponding rents are subject to renegotiation at intervals defined in the contracts.

### 36.1.3 Investment commitments

Investment commitments are mostly commitments for acquisition of property, plant and equipment.

### 36.1.4 Financing commitments

These are commitments by EDF to its subsidiaries, primarily €2 billion to EDF Trading and €1,7 billion to EDF Énergies Nouvelles.

## 36.2 Commitments received

### 36.2.1 Operating commitments

These commitments mainly comprise:

- guarantees received in connection with sales under the ARENH system. Electricity supplied by EDF to operators under the NOME law is covered by a stand-alone guarantee enforceable on demand. This guarantee amounts to 1.5 times the average monthly volume of electricity as stated

in the CRE's notification of the annual volume of electricity to be sold, valued at the ARENH price in force.

- operating lease commitments received as lessor.

### 36.2.2 Financing commitments

These commitments correspond to the total value of credit lines available to EDF from various banks.

## 36.3 Other types of commitment

### 36.3.1 Electricity supply commitments

In the course of its business, EDF has signed long-term contracts to supply electricity as follows:

- Long-term contracts with a number of European electricity operators, for a specific plant or for a defined group of plants in the French nuclear generation fleet, corresponding to installed power capacity of 3.5 GW;
- In execution of France's NOME law on organisation of the French electricity market, EDF has a commitment to sell some of the energy generated by its "traditional" nuclear power plants to other suppliers. This covers volumes of up to 100 TWh each year until 31 December 2025;
- EDF is still committed to supplying the residual volumes of 12 TWh by March 2015, in application of the rights acquired at VPP or Virtual Power Plant capacity auctions, which ended in 2011.

### 36.3.2 Gas purchases and related services

Gas purchase commitments are given by EDF in connection with its expanding gas supply business. In connection with the South Stream project, EDF and Gazprom signed an agreement in 2013 defining the essential conditions of a gas supply contract.

Gas purchases for supply and delivery are mostly undertaken through long-term contracts.

In 2011, EDF signed a capacity subscription contract for the Dunkirk methane terminal, which is due to be commissioned in 2015.

### 36.3.3 Commitments related to share purchases and acquisition of fixed assets

Agreement with Veolia Environnement: Veolia Environnement has granted EDF a call option on all its Dalkia shares in the event that a competitor of EDF takes control over Veolia Environnement. EDF has also granted Veolia Environnement a call option over all its Dalkia shares in the event that the status of EDF should change and a competitor of Veolia Environnement, individually or with other parties, should take control over EDF. If the parties fail to agree on the sale price of the shares, it is to be fixed by an independent expert.

EDF and Veolia Environnement also announced on 28 October 2013 that they had entered advanced discussions to reach an agreement concerning their joint subsidiary Dalkia (see note 2.5). No off-balance sheet commitment is recognised in this respect at 31 December 2013.

## ➤ Note 37. Contingent liabilities

### Individual training entitlement (Droit individuel à la formation or DIF)

The French law of 4 May 2004 allows each employee an individual entitlement to a minimum of 20 hours of training per year, which may be accumulated over 6 years. The company agreement with unions signed on 24 February 2006 defines the conditions for exercising this entitlement, listing the types of training eligible. Expenses for such training are recorded as incurred.

DIF entitlements earned at 31 December 2013 total 6,366,040 hours, including 6,284,004 for which no application has been made.

### General Network – Rejection of the European Commission's appeal

On 15 December 2009 the European Union Court cancelled the European Commission's decision of 16 December 2003 that had classified the tax treatment of provisions created for the renewal of the General Network at the time of EDF's capital increase in 1997 as state aid, and ordered repayment to the French State of the updated value, i.e. €1,224 million (paid by EDF in February 2004). The State therefore reimbursed this amount to EDF on 30 December 2009, then in February 2010 the European Commission filed an appeal before the Court of Justice of the European Union.

On 5 June 2012, the Court of Justice of the European Union issued a decision rejecting the European Commission's appeal and upheld the European Union Court's decision of 15 December 2009.

The European Commission then decided in May 2013 to reopen the proceedings. As a result, a further adversarial exchange of positions has begun between the French state and the Commission.

### Tax inspections

EDF has been subject to inspections of its accounts covering the years 2004 to 2010, and the Company has received proposed tax reassessments for those years. EDF is contesting most of these proposals.

One of the main grounds for reassessment concerns the tax-deductibility of the provision for annuities following work-related accidents and illness. EDF is contesting the tax authorities' position on this question. In late 2013 the National Commission of direct taxes and sales taxes issued several opinions that were favourable to RTE. RTE also received a favourable ruling by Montreuil Administrative Court. If the outcome of this dispute is unfavourable, the financial risk for EDF (payment of back income taxes) could amount to some €150 million.

EDF was notified in late 2011 of a proposed rectification for 2008, particularly concerning deductibility of certain long-term liabilities. During 2013, EDF received a letter from the tax administration accepting some of its arguments, which reduces the risk to €600 million. The Company considers it is likely to win this dispute, and no provision has been recorded in connection with this matter.

The tax administration has also proposed a reassessment concerning an interest-free advance made by EDF to its indirect subsidiary Lake Acquisitions Ltd in connection with the acquisition of British Energy. EDF is contesting this reassessment.

### Labour litigation

EDF is party to a number of labour lawsuits with employees and employment inspectors, primarily regarding calculation and implementation of legislation regarding working hours. EDF estimates that none of these lawsuits, individually, is likely to have a significant impact on its profits and financial position. However, because they concern situations likely to concern a large number of EDF's employees in France, any increase in such litigations could present a risk with a potentially significant negative impact on the company's financial results. The number of these litigation cases is nonetheless small at the time of preparing this report.

## ➤ Note 38. Dedicated assets

### 38.1 Regulations

The French law of 28 June 2006 and the implementing regulations require assets (dedicated assets) to be set aside for secure financing of nuclear plant decommissioning expenses and long-term storage expenses for radioactive waste (spent fuel and fuel recovered from decommissioning). The regulations govern the way dedicated assets are built up, and the management and governance of the funds themselves. These assets are clearly identified and managed separately from the company's other financial assets and investments. They are also subject to specific monitoring and control by the Board of Directors and the administrative authorities.

The initial aim of these laws and regulations was to cover the full discounted cost of long-term nuclear obligations by 29 June 2011. The NOME law enacted in 2010 introduced a 5-year extension, subject to certain conditions, of the deadline for constitution of dedicated assets.

The decree of 29 December 2010 made RTE shares eligible for inclusion in dedicated assets subject to certain conditions and administrative authorisation. The decree of 24 July 2013 revised the list of eligible assets by reference to the insurance code, and unlisted securities are also now eligible subject to certain conditions.

### 38.2 Portfolio contents and measurement

Given the applicable regulations, these dedicated assets are a highly specific category of assets.

The dedicated assets are structured and managed according to a strategic allocation defined by the Board of Directors and reported to the administrative authorities. The strategic allocation is designed to meet the overall objective of long-term coverage of obligations, and determines the structure and management of the portfolio as a whole. It takes into account regulatory constraints concerning the nature and liquidity of the dedicated asset, the financial outlook for the equity and bond markets, and the diversifying contribution of unlisted assets.

As part of the strategic allocation review process and in order to pursue the diversification into real assets begun in 2010 with the shares in RTE, the Board of Directors approved a new strategic allocation for dedicated assets. Under this new allocation, a real asset portfolio has been set up alongside the diversified equity and bond investments. This portfolio is managed by EDF Invest, which was formed in 2013 following the decree

of 24 July 2013 on secure funding for nuclear expenses. EDF Invest has three target asset classes: principally infrastructures, and also real estate and private equity. EDF Invest's objective is ultimately to have some €5 billion of unlisted investments under management, representing approximately a quarter of the total dedicated assets.

Following the French government's authorisation issued on 8 February 2013, and the approval of the Nuclear Commitments Monitoring Committee and the Board of Directors' decision of 13 February 2013, EDF allocated the entire receivable representing the accumulated shortfall in CSPE financing at 31 December 2012 to its dedicated assets. This financial asset is considered as a risk-free asset, expected to be repaid by late 2018.

### 38.2.1 Diversified equity and bond investments

Certain dedicated assets take the form of bonds held directly by EDF. The rest comprise specialised collective investment funds on leading international markets, managed by independent asset management companies. They take the form of open-end funds and "reserved" funds established solely for the use of EDF (which does not participate in the fund management).

These investments are structured and managed in line with the strategic allocation, which takes into consideration international stock market cycles, for which the statistical inversion generally observed between equity market cycles and bond market cycles – as well as between geographical areas – has led EDF to define an overall composite benchmark indicator that can guarantee continuation of the long-term investment policy.

### 38.2.2 Real assets (EDF Invest)

Real assets managed by EDF Invest consist of unlisted securities related to investments in infrastructures and shares in investment funds.

At 31 December 2013, infrastructure assets include 50% of EDF's investment in RTE, and since September 2013 the shares in C31, the holding company that carries EDF's investment in TIGF (see note 19.1).

The value of the RTE shares allocated to dedicated assets is €2,567 million at 31 December 2013 (€2,409 million at 31 December 2012). This value is the net consolidated value of 50% of EDF's investment in RTE, presented in investments in associates in the consolidated balance sheet.

The other assets in the real asset portfolio are shares in an investment fund.

### 38.2.3 Valuation of the dedicated asset portfolio

Dedicated assets are classified in the balance sheet according to their accounting nature: investments, investment securities, marketable securities. They are valued under the accounting principles presented in note 1.

Details of the portfolio at 31 December 2013 are as follows:

	31/12/2013		31/12/2012	
	Net book value	Fair value or realisable value	Net book value	Fair value or realisable value
<i>(in millions of Euros)</i>				
RTE Shares	2,015	2,567	2,015	2,409
C31 Shares	122	119	-	-
Investments Securities	11,994	13,842	13,864	15,218
Other financial investments	151	146	-	-
<b>Dedicated asset portfolio - Investments</b>	<b>14,282</b>	<b>16,674</b>	<b>15,879</b>	<b>17,627</b>
CSPE receivable	5,053	5,051	-	-
<b>Dedicated asset portfolio before hedge</b>	<b>19,335</b>	<b>21,725</b>	<b>15,879</b>	<b>17,627</b>
Hedging instruments and other	1	12	-	15
<b>DEDICATED ASSET PORTFOLIO AFTER HEDGE</b>	<b>19,336</b>	<b>21,737</b>	<b>15,879</b>	<b>17,642</b>

Net book value and fair value include unmatured accrued interest.

### 38.2.4 Changes in the dedicated asset portfolio in 2013

With the allocation of the CSPE receivable to dedicated assets in 2013, the objective of 100% coverage of long-term nuclear provisions was achieved ahead of the legal June 2016 deadline (set by the "NOME" law).

The total allocation to dedicated assets for 2013 amounts to €2,591 million, resulting from a €20 million cash allocation and allocation of the CSPE receivable (€4,978 million after revaluation by the CRE including accrued interest), net of withdrawals during the year (€2,407 million).

Since September 2013 real assets have included the shares of C31, the holding company carrying EDF's 20% investment in TIGF.

Withdrawals totalled €326 million, equivalent to payments made in respect of the long-term nuclear obligations to be covered in 2013 (€350 million in 2012).

In view of the economic and institutional changes observed in Europe, EDF reinforced the proportion of Italian and Spanish sovereign bonds during the year, to the detriment of other sovereign bonds offering less attractive yields.

### 38.3 Present cost of long-term nuclear obligations

The long-term nuclear obligations concerned by the regulations for dedicated assets are included in EDF's financial statements at the following values:

<i>(in millions of Euros)</i>	31/12/2013	31/12/2012
Provision for long-term radioactive waste management	7,542	7,113
Provisions for nuclear power plant decommissioning	13,024	12,578
Provisions for last cores - portion of long-term radioactive waste management	454	434
<b>PRESENT COST OF LONG-TERM NUCLEAR OBLIGATIONS</b>	<b>21,020</b>	<b>20,125</b>

## ➤ Note 39. Related parties

### 39.1 Relations with subsidiaries

	EDF's receivables <sup>(1)</sup>		EDF's liabilities <sup>(1)</sup>		Financial expenses	Financial income (excluding dividends)
	Loans	Trade receivables	Net liabilities included in current account	Trade liabilities		
<i>(in millions of Euros)</i>						
<b>Companies</b>						
RTE	670	235	-	162	-	56
C3	1,411	-	-	-	-	3
EDF Energy	-	310	-	132	-	3
EDF Énergies Nouvelles	292	-	-	-	-	5
EDF Trading	-	514	-	779	-	12
ERDF	-	150	-	1,954	-	-
ERSA	92	-	-	-	-	3
EDEV	-	-	-	-	-	10
Current account ERDF	-	-	-	100	-	-
Group cash management agreement with subsidiaries	-	-	8,390	-	(5)	-
Tax consolidation agreement <sup>(2)</sup>	-	-	-	973	-	-
Agreement for investment of subsidiaries' cash surpluses	-	-	6,407	-	(26)	-

(1) Receivables and payables of more than €50 million.

(2) Including €688 million of liabilities concerning EDF International.

## 39.2 Relations with the french state and state-owned entities

### 39.2.1 Relations with the French State

The French State holds 84.5% of the capital of EDF at 31 December 2013, and is thus entitled in the same way as any majority shareholder to control decisions that require approval by the shareholders.

In accordance with the legislation applicable to all companies having the French State as their majority shareholder, EDF is subject to certain inspection procedures, in particular economic and financial inspections by the State, audits by the French Court of Auditors (*Cour des Comptes*) or Parliament, and verifications by the French General Finance Inspectorate (*Inspection Générale des Finances*).

Under an agreement entered into by the French State and EDF on 27 July 2001 concerning the monitoring of external investments, procedures exist for prior approval by the French State or notification (advance or otherwise) of the State in respect of certain planned investments, additional investments or disposals by EDF. This agreement also introduced a procedure for monitoring the results of external growth operations.

The public service contract between the French State and EDF was signed on 24 October 2005. This contract is intended to form the framework for public service missions assigned to EDF by the lawmaker for an unlimited period. The law of 9 August 2004 does not stipulate the duration of the contract.

EDF, like other electricity producers, also participates in the multi-annual generation investment program defined by the minister in charge of energy, which sets objectives for the allocation of generation capacity.

Finally, the French State intervenes through the regulation of electricity and gas markets, particularly for authorisation to build and operate generation facilities, establishment of sales tariffs for customers that have stayed on the regulated tariffs, transmission and distribution tariffs, and also determination of the ARENH price in accordance with the NOME law, and the level of the Contribution to the Public Electricity Service (CSPE).

### 39.2.2 Relations with public sector entities

EDF enters into normal business transactions with public sector entities, mainly for electricity supplies.

Transactions with AREVA concern uranium purchases, uranium enrichment, nuclear fuel purchases, plant maintenance operations, equipment purchases, and transportation, storage, processing and recycling services for spent fuel.

On 15 December 2008 EDF and AREVA signed an agreement for uranium enrichment services to cover the period 2013-2032.

On 19 December 2008 EDF and AREVA signed a framework agreement for spent fuel management contracts concerning periods after 2007. In execution of this agreement, EDF and AREVA signed two contracts on 12 July 2010 entitled the "EDF-AREVA NC Processing-Recycling agreement" and the "Protocol for recovery and conditioning of EDF waste, and the final shutdown and decommissioning of the AREVA NC plant at La Hague".

On 28 December 2012, EDF and AREVA signed a transitional agreement for the year 2013, following on from the 2008-2012 processing and recycling agreement. Transportation, reprocessing of spent fuel, oxidation and storage of reprocessed uranium and production of MOX continued under this agreement during 2013 until a contract for 2013-2017 could be signed. On 7 November 2013, EDF and AREVA signed an agreement on the result of 2008-2012 investments and early processing of spent fuel.

On 31 July 2012 EDF and AREVA Mines also signed two contracts for supplies of natural uranium concentrate, covering the period 2014-2035.

EDF and AREVA have signed the following contracts for 1,300 MW nuclear power plants:

- a contract for supply of 32 steam generators and a contract for renewal of the control / command systems in 2011;
- a contract for services related to replacement operations for the first steam generators, in August 2012.

In 2013 EDF and AREVA signed two amendments to the initial 2007 contract for the Flamanville EPR boiler, covering the period from development studies to industrial commissioning.

As part of the plan to construct two EPRs in the United Kingdom (Hinkley Point 1 and 2), EDF and AREVA signed a letter of intent on 21 October 2013 defining the term for supplies of fuel (components: uranium, fluorination, enrichment and production). This letter of intent will be applied through four contracts (one for each component) which are currently being signed.

EDF also holds shares in AREVA, amounting to €123 million at 31 December 2013.



## ➤ Note 40. Environment

### 40.1 Greenhouse gas emission rights

In application of the Kyoto protocol, the EU Directive aiming to reduce greenhouse gas emission levels by attributing emission rights came into effect in 2005, for an initial three-year period followed by a second period from 2008 to 2012, with progressive reduction of the emission rights allocated.

One of the main features of the third period, running from 2013 to 2020, is the discontinuation of free allocation of emission rights in certain countries, including France. As a result EDF no longer receives emission rights from 2013. In 2012, the volume of rights allocated to EDF and recorded in the national register was 22 million tonnes.

In 2013, EDF surrendered 17 million tonnes in respect of emissions generated in 2012. In 2012, EDF surrendered 14 million tonnes in respect of emissions generated in 2011. The volume of emissions at 31 December 2013 stood at 17 million tonnes (16 million tonnes at 31 December 2012).

### 40.2 Energy savings certificates

The French Law of 13 July 2005 introduced a system of energy savings certificates. Companies selling electricity, gas, heat or cold to end-users with sales above a certain level are subject to energy savings obligations for a three-year period. They fulfil these obligations by making direct or indirect energy savings rewarded by certificates, or by purchasing energy savings certificates. At the end of the three years, the entities concerned must provide evidence of compliance with obligations by surrendering the certificates, or pay a fine to the Treasury.

In the second period, which began on 1 January 2011 and runs until 31 December 2014, the system was extended to new obligated actors (fuel distributors) and applies stricter requirements for obtaining energy savings certificates. EDF is well-placed to meet its obligation thanks to energy-efficient offers for each market segment: residential customers, business customers, local authorities and organisations funding social projects.

EDF's obligation will be calculated retrospectively, based on gas and electricity sales to households and service sector businesses for the period 2010-2013. The volumes of certificates obtained between the two periods will count towards achievement of the obligation for the second period.

## ➤ Note 41. Management compensation

The Company's key management and governance personnel are the Chairman and CEO and the directors. In application of law 83-675 of 26 July 1983 on democratisation of the public sector, directors representing the government and employee representative directors receive no fees for their services as directors.

The total gross compensation paid by EDF (salaries, all types of benefits and director's fees, excluding employer contributions) to the company's key management personnel was as follows:

(in Euros)	2013	2012
Chairman and CEO	743,946 <sup>(2)</sup>	1,593,007 <sup>(1)</sup>
Directors	200,000	200,000

(1) Including the performance-related salary for 2011, paid in 2012.

(2) Including the balance of the performance-related salary for 2012, paid in 2013, after deduction of amounts already paid in 2012.

Decree 2012-915 of 26 July 2012 sets a ceiling of €450,000 for the total annual gross remuneration paid to the Chairman and CEO.

## ➤ Note 42. Subsequent events

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### 42.1 Senior bond issues

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On 13 January 2014 EDF issued several tranches of a senior bond in US dollars:

- \$750 million with 3-year maturity at floating rate;
- \$1 billion with 3-year maturity and coupon of 1.15%;
- \$1.25 billion with 5-year maturity and coupon of 2.15%;
- \$1 billion with 30-year maturity and coupon of 4.875%;
- \$700 million with 100-year maturity and coupon of 6%.

On 17 January 2014, EDF also issued a £1,350 million bond with 100-year maturity and coupon of 6%.

These issues enable EDF to prepare for redemption of bonds maturing in 2014, and take advantage of good market conditions to pursue its financing policy aim of extending the average maturity of debt to bring it closer to the useful life of its long-term industrial assets.

### 42.2 Issuance of perpetual subordinated bonds

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On 15 January 2014 EDF launched several tranches of a perpetual subordinated bond in Euros, US dollars, and sterling (hybrid bond):

- \$1.5 billion at 5.625% coupon for the tranche with a 10-year first call date;
- €1 billion at 4.125% coupon for the tranche with a 8-year first call date;
- €1 billion at 5% coupon for the tranche with a 12-year first call date;
- £750 million at 5.875% coupon for the tranche with a 15-year first call date.

This bond is the second issue in the financing programme launched in January 2013, with the aim of building up an amount of subordinated instruments coherent with the portfolio of industrial assets in development.

### 42.3 Payments to bearers of perpetual subordinated bonds

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On 29 January 2014, EDF paid a total of €223 million to the bearers of the perpetual subordinated bonds issued in January 2013.

## Statutory Auditors' Report on the financial statements

This is a free translation into English of the Statutory Auditors' Report issued in French and is provided solely for the convenience of English speaking users. The Statutory Auditors' Report includes information specifically required by French law in such reports, whether modified or not. This information is presented below the audit opinion on the financial statements and includes an explanatory paragraph discussing the auditors' assessments of certain significant accounting and auditing matters. These assessments were considered for the purpose of issuing an audit opinion on the financial statements taken as a whole and not to provide separate assurance on individual account captions or on information taken outside of the financial statements.

This report also includes information relating to the specific verification of information given in the Group management report and in the documents addressed to shareholders.

This report should be read in conjunction with, and construed in accordance with, French law and professional auditing standards applicable in France.

### Year ended December 31, 2013

To the Shareholders,

In compliance with the assignment entrusted to us by your Annual General Meeting, we hereby report to you, for the year ended December 31, 2013, on:

- the audit of the accompanying financial statements of Électricité de France S.A. ("the Company");
- the justification of our assessments;
- the specific procedures and disclosures required by law.

These financial statements have been approved by the Board of Directors. Our role is to express an opinion on these financial statements based on our audit.

### 1. Opinion on the financial statements

We conducted our audit in accordance with professional standards applicable in France; those standards require that we plan and perform the audit to obtain reasonable assurance about whether the financial statements are free of material misstatement. An audit involves performing procedures, using sampling techniques or other methods of selection, to obtain audit evidence about the amounts and disclosures in the financial statements. An audit also includes evaluating the appropriateness of accounting policies used and the reasonableness of accounting estimates made, as well as the overall presentation of the financial statements. We believe that the audit evidence we have obtained is sufficient and appropriate to provide a basis for our audit opinion.

In our opinion, the financial statements give a true and fair view of the assets and liabilities and of the financial position of the Company as at December 31, 2013 and of the results of its operations for the year then ended in accordance with French accounting principles.

Without qualifying our opinion, we draw your attention to the following matters:

- the change in accounting principle described in notes 1.1 and 1.19.1 related to the application of the regulation n°2012-04 issued on October 4, 2012 by the ANC ("*Autorité des Normes Comptables*") – the French accounting standards setting body – on greenhouse gas emission recording;
- the valuation of long-term provisions relating to nuclear electricity production, which results from management's best estimates and assumptions as described in notes 1.15 and 29 to the financial statements. This valuation is sensitive to the assumptions made concerning technical processes, costs, inflation rates, long-term discount rates and forecast cash outflows. Changes in these parameters could lead to a material revision of the level of provisioning.

### 2. Justification of our assessments

In accordance with the requirements of article L. 823-9 of the French Commercial Code ("*Code de commerce*") relating to the justification of our assessments, we bring to your attention the following matters:

#### Accounting principles and policies

Notes 1.3, 1.7 and 1.16 to the financial statements describe the principles and policies used for the accounting and valuation of revenues related to energy delivered but not yet measured nor billed, the valuation of financial investments and the determination of provisions for employee benefits.

As part of our assessment of the Company's accounting principles and methods, we have verified the appropriateness of the accounting methods used by the Company and the information disclosed in the notes to the financial statements, as well as the accuracy of the implementation of these accounting methods.

### Accounting estimates

Note 1.2 to the consolidated financial statements describes the main sensitive accounting policies for which management makes significant estimates and assumptions and exercises judgment based on macro-economic assumptions appropriate to the very long-term cycle of Company assets. It may be possible that future results could differ from those estimates which were made in a context of economic and financial crisis and significant market volatility, thus resulting in difficulties to assess the economic outlook in the medium term.

Particularly, the Company describes in the notes to the financial statements the information related to:

- the methods used to account for the shortfall in the compensation for the Contribution to the Electricity Public Service Costs ("*Contribution au Service Public de l'Electricité*") as at December 31, 2012, subsequent to the agreement announced on January 14, 2013 with the French State and the allocation during the period of the related receivable held to the dedicated assets for secure financing of long-term nuclear expenses on February 8, 2013 (notes 2.2 and 19.1);
- the valuation of investments (notes 1.7.1 and 19);
- the underlying assumptions on which the valuation of provisions for risks and contingent liabilities are based (notes 1.15, 28 and 37);
- the valuation of provisions for employee benefits (notes 1.16 and 30).

Our procedures consisted in assessing these estimates, the data and assumptions, and as applicable, the legal opinions on which they are based, reviewing, on a test basis, the technical data and calculations performed by the Company, comparing accounting estimates of prior periods with corresponding actual amounts, reviewing the procedures for approving these estimates by management and finally verifying that the notes to the financial statements provide appropriate disclosures.

### Verification procedures

The procedures we performed in relation to the regulatory framework related to the principle of regulated access to historical nuclear energy ("*Accès Régulé à l'Energie Nucléaire Historique*" or "ARENH") as established by the NOME Law in France, effective July 1, 2011, are based on the information available from the Company, or released by the Regulatory Energy Commission ("*Commission de Régulation de l'Energie*"), and the findings resulting from agreed-upon procedures performed by independent third parties that had access to the underlying transactions.

These assessments were made as part of our audit of the financial statements, taken as a whole, and therefore contributed to the opinion we formed which is expressed in the first part of this report.

## 3. Specific procedures and disclosures

We have also performed, in accordance with professional standards applicable in France, the specific verifications required by French law.

We have no matters to report as to the fair presentation and the consistency with the financial statements of the information given in the management report of the Board of Directors, and in the documents addressed to shareholders with respect to the financial position and the financial statements.

Concerning the information given in accordance with the requirements of article L.225-102-1 of the French Commercial Code relating to remunerations and benefits received by the directors and any other commitments made in their favour, we have verified its consistency with the financial statements or with the underlying information used to prepare these financial statements and, where applicable, with the information obtained by your Company from companies controlling your Company or controlled by it. Based on this work, we attest the accuracy and fair presentation of this information.

In accordance with French law, we have verified that the required information concerning the purchase of investments and controlling interests and the identity of the shareholders and holders of the voting rights has been properly disclosed in the management report.

Paris La Défense and Neuilly-sur-Seine, February 12, 2014

### The Statutory Auditors

KPMG Audit  
Department of KPMG S.A.

Jacques-François Lethu

Deloitte & Associés

Alain Pons

Patrick E. Suissa

# E

# Summary of environmental and social indicators and methodological information on the environmental and social indicators for 2013

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## Summary of environmental and social indicators

### Economic indicators

		Scope <sup>(1)</sup>						
	Unit	2013	2012	2011	2013	2012	2011	GRI ref. <sup>(2)</sup>
<b>Economic indicators</b>								
Provisions for decommissioning and last cores	€ million	22,150	20,979	19,843	2	2	2	
Provisions for back-end nuclear fuel cycle	€ million	20,547	19,525	18,830	2	2	2	
Indemnities paid or payable following a court ruling in an environmental matter	€ thousand	8.1	6.9	0	1	1	1	
<b>Management</b>								
Environmental protection expenditure	€ million	2,924	3,465	2,800	1	1	1	EN 30
<i>Increases in provisions</i>		1,901	2,465	1,765				
Environmental management (% of the Group consolidated sales revenues covered by an ISO 14001 certification)	%	95 <sup>(3)</sup>	98 <sup>(3)</sup>	79	2	2	2	

(1) Scope 1: EDF

Scope 2: EDF Group.

(2) GRI: Global Reporting Initiative, version 3.

(3) Including companies not covered by the Group certificate.

## Environmental indicators

					Scope <sup>(1)</sup>			
	Unit	2013	2012	2011	2013	2012	2011	GRI ref.
Fuels and raw materials – Fuel consumption								
Nuclear reactor fuel	t	1,205	1,096	1,205	1	1	1	EN 1
Coal	kt	25,314	24,277	21,024	2	2	2	EN 1
Heavy fuel oil	kt	885	1,098	1,170	2	2	2	EN 1
Domestic fuel oil	kt	329	317	402	2	2	2	EN 1
Natural gas	10 <sup>6</sup> m <sup>3</sup>	8,842	9,290	6,859	2	2	2	EN 1
Industrial gas	10 <sup>6</sup> m <sup>3</sup>	797	842	3,555	2	2	2	EN 1
Water <sup>(2)</sup> – consumption of raw materials from sources outside the company								
Cooling water drawn	10 <sup>9</sup> m <sup>3</sup>	53.9	54.8	55.2	2	2	2	EN 8
<i>o.w. fresh water</i>	10 <sup>9</sup> m <sup>3</sup>	18.3	28.0	26.8	2	2	2	EN 8
<i>o.w. brackish (or estuary) water</i>	10 <sup>9</sup> m <sup>3</sup>	8.4			2			
Cooling water returned	10 <sup>9</sup> m <sup>3</sup>	53.4	54.2	54.6	2	2	2	EN 21
<i>o.w. fresh water</i>	10 <sup>9</sup> m <sup>3</sup>	18.0	27.5	26.3	2	2	2	EN 21
<i>o.w. brackish (or estuary) water</i>	10 <sup>9</sup> m <sup>3</sup>	8.4			2			
Air – gas emissions								
Total CO <sub>2</sub> emissions * (including installations not subject to quotas)	Mt	80.6	79.8	70.5	2	2	2	EN 16
SO <sub>2</sub> emissions	kt	134.3	137.8	140.6	2	2	2	EN 20
NO <sub>x</sub> emissions	kt	171.7	182.2	157.0	2	2	2	EN 20
Dusts	t	7,246	6,968	5,407	2	2	2	EN 20
Particles (PM <sub>10</sub> )	t	2,602	1,745	nc	1	1a	nc	G4-EN 21
Mercury	t	0.16	0.16	nc	1	1a	nc	G4-EN 21
CH <sub>4</sub> emissions	kt eq. CO <sub>2</sub>	38.2	40.5	32.2	2	2	2	EN 16
N <sub>2</sub> O emissions	kt eq. CO <sub>2</sub>	349.0	329.8	254.7	2	2	2	EN 16
SF <sub>6</sub> emissions – EDF	kt eq. CO <sub>2</sub>	71.6	83.8	94.3	1	1	1	EN 16
SF <sub>6</sub> emissions – EDF + ERDF	kt eq. CO <sub>2</sub>	78.9	93.3	102.8	1b	1b	1b	EN 16
SF <sub>6</sub> emissions – Group	kt eq. CO <sub>2</sub>	95.2	109.8	nc	2	2	nc	EN 16
Non-nuclear waste <sup>(3)</sup>								
Hazardous waste	t	68,443	64,598	60,956	2	2	2	EN 22
Non-hazardous waste	t	354,554	321,789	302,251	2	2	2	EN 22
Conventional industrial waste recycled or removed for recycling	t	294,378	253,412	251,908	2	2	2	EN 22
Ash produced	kt	3,860	3,816	3,617	2	2	2	EN 22
Energy								
Renewable energies: quantity of electricity and heat generated using renewable energy sources (other than hydro)	GWh	17,198	15,583	11,032	2	2	2	EN 6
Direct energy consumption by primary source								
Internal consumption, pumping electricity	TWh	7.0	6.7	6.9	1	1	1	EN 3
Internal consumption, electricity	TWh	22.1	22.5	22.8	1	1	1	EN 3

(1) Scope 1: EDF

Scope 1a: EDF mainland France

(1) Scope 1: EDF  
 Scope 1a: EDF mainland France  
 Scope 1b: EDF + ERDF  
 Scope 2: EDF Group.

(2) In 2011 and 2012, brackish (or estuary) water are included in fresh water.

(3) Edison' hydrocarbon activities are excluded from the waste indicators in 2011.

\* 2013 data was verified with reasonable assurance by the Statutory Auditors.

nc: non communicated.

## Nuclear indicators – EDF

	Unit	2013	2012	2011	GRI ref.
<b>Radioactive emissions to water<sup>(1)</sup></b>					
Carbon 14	GBq/reac	n.a	13.19	13.06	EN 21
Tritium	TBq/reac	n.a	20.47	18.07	EN 21
<b>Radioactive emissions to air<sup>(1)</sup></b>					
Carbon 14	TBq/reac	n.a	0.18	0.17	EN 20
Tritium	TBq/reac	n.a	0.64	0.65	EN 20
<b>Fuel</b>					
Evacuated spent nuclear fuel	t	1,099	1,075	1,199	EN 24
<b>Nuclear waste</b>					
Very low-level radioactive waste from decommissioning	t	1,110	2,528	634	EN 24
Low and medium level short-life solid radioactive waste	m³/TWh	19.0	20.7	15.6	EN 24
High and medium level long-life solid radioactive waste	m³/TWh	0.86	0.88	0.87	EN 24

(1) Data 2013 of radioactive emissions to water and air are not available at the reporting date.

n.a: not available.

## Nuclear indicators – EDF Energy

	Unit	2013	2012	2011	GRI ref.
<b>Radioactive emissions to water</b>					
Tritium – AGR (Advanced Gas-cooled Reactor)	TBq/reac	150	135.7	124.5	EN 21
Tritium – PWR (Pressurised Water Reactor)	TBq/reac	41	44	46	EN 21
<b>Radioactive emissions to air</b>					
Carbon14 – AGR	TBq/reac	0.67	0.71	0.68	EN 20
Carbon14 – PWR	TBq/reac	0.20	0.30	0.30	EN 20
Tritium – AGR	TBq/reac	0.59	0.68	0.80	EN 20
Tritium – PWR	TBq/reac	0.80	0.80	0.70	EN 20
<b>Fuel</b>					
Uranium sent off site	t	177	216	211	EN 24
<b>Nuclear waste</b>					
Evacuated low level radioactive waste	m³	655	698	608	EN 24
Medium level radioactive waste generated	m³	178	161	161	EN 24

## Nuclear indicators – Constellation Energy Nuclear Group

	Unit	2013	2012	2011	GRI ref.
<b>Radioactive emissions to water</b>					
Tritium	TBq/reac	8.34	12.91	12	EN 21
<b>Radioactive emissions to air</b>					
Carbon 14	TBq/reac	0.37	0.33	0.34	EN 20
Tritium	TBq/reac	1.16	1.38	1.40	EN 20
<b>Fuel<sup>(1)</sup></b>					
Nuclear fuel delivered	t	44	46	48	EN 24
<b>Nuclear waste<sup>(1)</sup></b>					
Evacuated low and medium level radioactive waste	m³	1,411	2,419	1,287	EN 24

1. Data is consolidated according to the percentage ownership in the subsidiary.

## Social indicators

EDF group	Unit	2013	2012	2011	GRI ref.
<b>Workforce numbers and breakdown at 31/12/2013<sup>(1)</sup></b>					
EDF + ERDF	Number	109,754	107,333	103,954	LA 1
TOTAL EDF group *	Number	158,467	159,740	156,168	LA 1
<b>Employees by age</b>					
Employees under 25 *	%	8	8		
Employees aged 25-35 *	%	25	23		
Employees aged 36-45 *	%	25	25		
Employees aged 46-55 *	%	32	34		
Employees aged 56 and over *	%	10	10		
<b>Employees by geographical zone (based on head office location)</b>					
France	Number	129,492	129,328		
<i>o.w. Dalkia</i>	Number	13,056	15,964		
United Kingdom	Number	16,190	16,178		
Italy	Number	5,175	5,210		
Other European countries	Number	6,114	7,503		
Other international	Number	1,496	1,521		
Number of managers (as defined by French regulations)	Number	42,327	40,355	37,786	LA 1
Percentage of women managers	%	25.7	25.0	23.9	LA 13
Number of "non-managers"	Number	116,140	119,385	118,382	LA 13
<b>Gender equality</b>					
Male workforce *	Number	116,928	118,512	117,023	LA 13
Female workforce *	Number	41,539	41,228	39,145	LA 13
Male managers	Number	31,468	30,286	28,753	LA 13
Female managers	Number	10,859	10,069	9,033	LA 13
<b>Hiring / departures</b>					
Recruitments	Number	10,945	12,577	12,755	LA 2
Other arrivals <sup>(1)</sup>	Number	8,027	7,499	5,849	LA 2
Retirements / Inactive employees	Number	4,321	4,185	4,200	LA 2
Resignations <sup>(2)</sup>	Number	1,768	2,355	2,761	LA 2
Redundancies, dismissals, employees made inactive	Number	864	1,739	1,689	LA 2
Other departures <sup>(1)</sup>	Number	8,424	9,304	9,398	LA 2
<b>Remunerations</b>					
Total gross remuneration	€ million	7,494	7,400		
Part-time employees	Number	12,943	14,690	15,296	LA 1
<b>Absenteeism</b>					
Average number of days' absence (illness + accident)	Number	8.8	9.0		
<b>Health and safety</b>					
Fatal accidents <sup>(3)</sup>	Number	4	14	13	LA 7
Injury frequency rate		3.1	3.8	3.9	LA 7
Work-related accidents (causing leave of one day or more)	Number	750	921	933	LA 7
Injury severity rate		0.16	0.16		

(1) Inclusions and exclusions from the scope are accounted under "Other arrivals" and "Other departures" respectively.

(2) Terminated special contracts (including work-study contracts) are included in "Other departures" regardless of whether a further contract was signed. Departures during the trial period are included in "Other departures".

(3) Group employees, excluding subcontractors.

For reasons of confidentiality, CENG does not report this information in 2011, 2012 or 2013.

The figure collected by Edison in 2011 does not include the subsidiary Abu Qir, first consolidated during 2009.

\* 2013 data was verified with reasonable assurance by the Statutory Auditors.

EDF group	Unit	2013	2012	2011	GRI ref.
<b>Management-employee relations</b>					
Percentage of employees covered by collective bargaining agreements	%	89	88	87	LA 4
<b>Training</b>					
Total hours of training	Number	8,636,882	7,631,618		
Number of employees benefiting from training <sup>(1)</sup>	Number	134,910	131,311	118,930	LA 10
<b>Employment and integration of employees with disabilities</b>					
Number of disabled employees <sup>(2)</sup>	Number	4,645	4,519	4,601	LA 13

(1) Excluding Estag in 2011.

(2) Collected by declaration at EDF Energy.

For reasons of confidentiality, CENG does not report this information in 2011, 2012 or 2013.

The figure collected by Edison in 2011 does not include the subsidiary Abu Qir, first consolidated during 2009.

\* 2013 data was verified with reasonable assurance by the Statutory Auditors.

EDF	Unit	2013	2012	2011	GRI ref.
<b>Workforce numbers and breakdown at 31/12/2013</b>					
Total EDF staff covered by collective bargaining agreement (at 31/12/2013)	Number	66,561	64,838	63,002	LA 1
Other permanent EDF staff not covered by collective bargaining agreement	Number	434	433	409	LA 1
Other non-permanent EDF staff not covered by collective bargaining agreement	Number	4,094	3,851	3,773	LA 1
Total EDF staff not covered by collective bargaining agreement	Number	4,528	4,284	4,182	LA 1
Total EDF workforce	Number	71,088	69,122	67,184	LA 1
Number of executives (as defined by French regulations)	Number	29,595	28,230	26,644	LA 1
Percentage of women executives	%	26.8	26.0	25.1	LA 13
Number of "non-managers"	Number	41,493	40,892	40,540	LA 13
Technicians and supervisory staff	Number	33,410	33,084	32,871	LA 13
Operatives	Number	8,084	7,808	7,669	LA 13
<b>Gender equality</b>					
Male workforce	Number	48,991	47,852	46,938	LA 13
Female workforce	Number	22,097	21,270	20,246	LA 13
Male managers	Number	21,650	20,884	19,944	LA 13
Female managers	Number	7,945	7,346	6,700	LA 13
<b>Hiring / departures</b>					
Recruitments	Number	4,433	4,452	4,021	LA 2
Integration & rehiring	Number	249	261	251	LA 2
Other arrivals <sup>(1)</sup>	Number	3,598	3,194	2,818	LA 2
Retirements / Inactive employees	Number	2,134	2,061	1,990	LA 2
Resignations	Number	109	114	123	LA 2
Redundancies, dismissals, employees made inactive	Number	16	6	14	LA 2
Deaths	Number	81	82	89	LA 2
Other departures <sup>(1)</sup>	Number	3,725	3,709	3,285	LA 2
<b>Overtime</b>					
Number of hours of overtime	thousands	2,847	2,831	2,791	

(1) Not including arrivals and departures of seasonal staff on fixed-term contracts.



EDF	Unit	2013	2012	2011	GRI ref.
<b>Outside contractors</b>					
Monthly average number of temporary staff <sup>(1)</sup>	Number	n.a	1,837	1,187	LA 1
<b>Working time</b>					
Full-time employees	Number	62,990	60,612	58,157	LA 1
Part-time employees	Number	8,098	8,510	9,027	LA 1
Employees on contracts allowing overtime	Number	6,917	6,882	6,808	LA 1
<b>Absenteeism</b>					
Absenteeism	%	3.8	3.8	3.9	LA 7
Hours of maternity or paternity leave/total working time	%	0.8	0.7	0.7	LA 7
<b>Health and safety</b>					
Number of industrial illness declared in the year to the French Social security <sup>(1)</sup>		n.a	13	11	
Fatal accidents	Number	0	6	8	LA 7
Injury frequency rate		2.7	3.4	3.7	LA 7
Injury severity rate		0.14	0.15	0.14	LA 7
Work-related accidents (causing leave of 1 day or more)	Number	273	333	358	LA 7
<b>Wages / social security contributions / profit share</b>					
Main monthly remuneration					
Managers	€	4,327	4,308	4,248	EC 1
Technicians and supervisory staff	€	2,615	2,612	2,581	EC 1
Operatives	€	1,870	1,877	1,874	EC 1
Personnel expenses	€ million	6,366	6,113	5,784	EC 1
Average profit share per employee	€	1,820	1,820	1,583	EC 1
<b>Management-employee relations</b>					
Number of collective bargaining agreements signed (France)	Number	8	8	11	HR 5
Percentage of employees covered by collective bargaining agreements <sup>(2)</sup>	%	93	94	94	LA 4
<b>Training</b>					
Number of employees benefiting from training	Number	62,074	58,899	55,905	LA 10
<b>Employment and integration of employees with disabilities</b>					
Number of disabled employees	Number	1,946	1,842	1,698	LA 13
Number of disabled employees hired	Number	110	124	94	LA 13
<b>Charitable works</b>					
Committee budgets (1% requirement)	€ million	205	196	198	

(1) 2013 figure unavailable at the reporting date.

(2) EDF staff are not covered by a collective bargaining agreement as defined by law, but are covered by the IEG (electricity and gas sector) statutes.

n.a: not available.

*This is a free translation into English of the Statutory Auditors' report issued in French, provided solely for the convenience of English speaking users. This report should be read in conjunction and construed in accordance with French law and the relevant professional standards applicable in France.*

*This report covers the social, environmental and societal information included in the EDF Group's 2013 management report approved by the Board of Directors on 12 February 2014. This information (hereinafter "CSR Information") is taken up in section 6.6.2 to 6.6.5 and chapter 17 of this Reference document, and CSR information on the summary of environmental and social indicators and reporting methodology relating to these data is taken up in Appendix E. Chapter 17 of the Reference document moreover includes some points that are not included in the management report and therefore are not part of the CSR Information referred to in the Statutory Auditors' report below. In particular, these include a breakdown of the workforce by the major divisions of EDF SA, the EDF age pyramid in section 17.1.1, and further details on the EDF Group's compensation policy and social safety nets (including with regard to the status of employees in the electricity and gas sector) in section 17.3. Sections 2.5.3 and 2.5.5 of the management report referred to in the Statutory Auditors' report are included in this Appendix E under their respective headings.*

## Statutory Auditors' assurance report as the designated independent body on the social, environmental and societal indicators disclosed in the management report

### Year ended 31 December 2013

To the shareholders,

In our capacity as Statutory Auditors of EDF SA designated as an independent body, whose application for accreditation has been considered admissible by the French accreditation body COFRAC, we are presenting our report on the social, environmental and societal information disclosed in the management report (the "CSR information") for the year ended 31 December 2013, in application of article L. 225-102-1 of the French Commercial Code.

### Responsibility of the Company

It is the responsibility of the Board of Directors to establish a management report including the CSR information required by article R. 225-105-1 of the French Commercial Code, in compliance with the reporting standards used (the "Standards") by the company, which are available on request from the company's head office, and are summarised in the management report in the section entitled "Methodological information on the environmental and social indicators for 2013".

### Independence and quality control

Our independence is defined by the rules and regulations, the code of ethics of the profession and the provisions of article L. 822-11 of the French Commercial Code. We have also a comprehensive system of quality control including documented policies and procedures intended to ensure compliance with the professional ethics, professional standards and the applicable rules and regulations.

### Responsibility of the Statutory Auditors

It is our responsibility, on the basis on our work:

- to attest that the required CSR information is presented in the management report, or that its omission is explained in application of the third paragraph of article R. 225-105 of the French Commercial Code (Attestation of presence of CSR information);
- to express a conclusion of limited assurance that the CSR information as a whole is fairly presented, in all material respects, in compliance with the Standards (Opinion on the fair presentation of CSR information);

- at the request of the company, to express a conclusion of reasonable assurance that the information selected by the Group and identified by the sign \* in section 2.5.3 of the management report is fairly presented, in all material respects, in compliance with the Standards.

We were assisted by our CSR experts in performing our audit, which was carried out between October 2013 and February 2014.

The work described below was conducted in accordance with professional auditing standards applicable in France, the decision of 13 May 2013 determining the conditions in which the independent body conducts its engagement, and international standard ISAE 3000<sup>1</sup> regarding the opinion and reasonable assurance.

### Attestation of presence of CSR information

Based on interviews with the directors of the divisions concerned, we were informed of the sustainable development orientations, depending on the social and environmental consequences related to the company's business and its societal commitment, and the resulting actions and programmes where applicable.

We compared the CSR information presented in the management report with the list required by article R. 225-105-1 of the French Commercial Code.

When certain information was absent, we verified that explanations were provided in compliance with the provisions of article R. 225-105, paragraph 3 of the French Commercial Code.

We verified that the CSR information covered the scope of consolidation, i.e. the company and its subsidiaries as defined in article L. 233-1 and controlled companies as defined in article L. 233-3 of the French Commercial Code, with the limit stated in the methodology note presented in section 2.5.5 of the management report.

On the basis of this work, in view of the limits stated above, we attest that the required CSR information is present in the management report.

1. ISAE 3000 – Assurance engagements other than audits or reviews of historical information.

## Opinion on the fair presentation of CSR information

### Nature and scope of audit

We conducted the interviews we considered necessary with some fifty people responsible for preparing CSR information in the divisions in charge of collecting the information, and where necessary, with the heads of internal control and risk management procedures, in order to:

- assess the suitability of the Standards regarding their relevance, completeness, reliability neutrality, and understandability, taking into consideration best practices in the sector if necessary;
- verify the implementation of a collection, consolidation, processing and control process aiming to ensure completeness and consistency in the information, and examine the internal control and risk management procedures related to preparation of the CSR information.

We determined the nature and scope of tests and controls based on the nature and importance of CSR information in view of the company's

characteristics, the key social and environmental factors of its business, its sustainable development orientations and good practices in the sector.

For the CSR information shown in the table below, which we considered the most important:

- for the consolidating entity, we consulted documentary sources and conducted interviews to corroborate qualitative information (organisation, policies, actions), we applied analytical procedures to quantitative information, and through sampling verified the calculations and consolidation of the data, and their consistency and agreement with other information contained in the management report;
- for a representative sample of entities and divisions<sup>1</sup> selected on the basis of their business, their contribution to consolidated indicators, their location and a risk analysis, we conducted interviews to verify that procedures are correctly applied, and implemented detail tests through sampling, consisting of verifying the calculations made and comparing data with the supporting documentation. The sample selected represented 63% of the workforce and between 14% and 100% of the quantitative environmental information.

Scope	Social indicators	Level of assurance
EDF group	Total EDF group workforce at 31 December 2013	Reasonable
	Employee breakdown by age	
	Male workforce, female workforce	
	Male executives	Limited
	Female executives	
	Recruitments	
	Other arrivals	
	Retirements/inactivity	
	Resignations	
	Dismissals, revocations	
	Other departures	
	Fatal accidents (employees)	
	Fatal accidents (subcontractors)	
	Work-related accidents (causing leave of one day or more)	
	Frequency rate	
	Severity rate	
	Absenteeism: Average number of days' absence (illness + accident)	
	Number of employees benefiting from training	
	Total hours of training	
	Number of disabled employees	

(1) CENG: Ginna Nuclear Electricity Generation Centre (US) and head office of CENG (US).

EDF Énergies Nouvelles: EDF ENR Photowatt (FR).

EDF Energy: Sizewell Nuclear Electricity Generation Centre (UK), Hinkley Point B Nuclear Electricity Generation Centre (UK), Cottam fossil-fired power plant (UK), Nuclear Generation consolidation, Crawley HR centre (UK) and head office of EDF Energy.

EDF Polska: Rybnik fossil-fired power plant (PL) and head office of EDF Polska (PL), ECW fossil-fired power plant (PL).

EDF SA: Cordemais fossil-fired power plant (FR), Blénod fossil-fired power plant (FR), Porcheville fossil-fired power plant (FR), La Maxe fossil-fired power plant (FR) Blayais Nuclear Electricity Generation Centre (FR), Paluel Nuclear Electricity Generation Centre (FR), Tricastin Nuclear Electricity Generation Centre (FR) Creys Malville plant in decommissioning (FR), Deputy HR director, Île-de-France region (FR), Deputy HR director, Rhône-Alpes region (FR), Generation-Engineering Training Unit (FR).

Edison: Torviscosa fossil-fired power plant (IT).

ERDF: Limousin electricity network unit (FR), Est IDF electricity network unit (FR), Provence electricity network unit (FR), Agence Ouest (FR), Agence Auvergne (FR).

FIGLEC: Figlec fossil-fired power plant (CN).

Fenice: Mirafiori power plant (IT), head office of Fenice (IT).

TIRU: Cydel Perpignan (FR).

UTE Norte Fluminense: UTE Norte Fluminense fossil-fired power plant (BR).

EDF Luminus: Ringvaart power plant (BE), head office of EDF Luminus (BE).

Dalkia International and Dalkia Investissement.

Scope	Environmental indicators	Level of assurance
EDF group	Total CO <sub>2</sub> emissions (including installations not subject to quotas)	Reasonable
	Renewable energies: quantity of electricity and heat generated using renewable energy sources (other than hydro)	Limited
	SO <sub>2</sub> emissions	
	Cooling water drawn, of which fresh water	
	Cooling water returned, of which fresh water	
	Coal	
	Hazardous waste	
	Non-hazardous waste	
	Conventional industrial waste recycled or removed for recycling	
	SF <sub>6</sub> emissions	
	NO <sub>x</sub> emissions	
EDF S.A.	Low and medium level short-life solid radioactive waste	Limited
	High and medium level long-life solid radioactive waste	
	Very low level radioactive waste from decommissioning	
EDF Energy	Uranium sent off site	Limited
	Low level radioactive waste evacuated	
	Medium level radioactive waste generated	
CENG	Nuclear fuel delivered	Limited
	Low and medium level radioactive waste evacuated	

#### Qualitative information

Social themes	Health and safety at work
Environmental themes	Resources devoted to preventing environmental risks and pollution
	Adaptation to the consequences of climate change
	Measures taken to preserve or develop biodiversity
Societal themes	Importance of subcontracting and consideration of social and environmental responsibility into relations with suppliers and subcontractors
	Action taken against corruption

The coherence of other consolidated CSR information was assessed by reference to our knowledge of the company.

Finally, we assessed the relevance of the explanations provided for total or partial absence of certain information.

We consider that the sampling methods and sample sizes used in application of our professional judgement enables us to express a conclusion of limited assurance. For a higher level of assurance, a more extensive audit would have been necessary. Given the use of sampling techniques and other limitations inherent to any information and internal control system, the

risk of non-detection of a material anomaly in the CSR information cannot be totally ruled out.

### Conclusion

Based on our audit, we did not identify any material anomalies likely to call into question the fact that the overall CSR information is fairly presented in compliance with the Standards.

## Reasonable assurance regarding a selection of CSR information

### Nature and scope of audit

For the information selected by the Group and identified by the sign \*, our audit consisted of work of the same nature as described in paragraph 2 above for the CSR information considered the most important, but in more depth, particularly regarding the number of tests.

The sample selected represented 63% of the workforce and 51% of environmental information identified by the sign \*.

We consider that this work enables us to express a conclusion of reasonable assurance for the information selected by the Group and identified by the sign \*.

### Conclusion

In our opinion, the information selected by the Group and identified by the sign \* is fairly presented, in all material aspects, in compliance with the Standards.

Paris – La Défense and Neuilly-sur-Seine, 12 February 2014

The Statutory Auditors

#### KPMG Audit

Department of KPMG S.A.

Jacques-François Lethu

*Partner*

Jean-Louis Caulier

*Partner*

#### Deloitte & Associés

Alain Pons

*Partner*

Patrick E. Suissa

*Partner*



## Methodological information on the environmental and social indicators for 2013

### Reporting scope

The scope covered by the reporting process for economic, environmental and social indicators corresponds to the EDF group as defined by the financial consolidation. This scope includes the parent company EDF, and its fully consolidated subsidiaries (100% of their social and environmental indicators) and proportionally consolidated entities (inclusion based on the percentage ownership). Companies accounted for under the equity method are not included.

The reporting process scope is defined on the basis of:

- the scope of consolidation established by the Finance Division;
- criteria of relevance regarding the environmental and social impacts of the subsidiaries' businesses.

Social and environmental indicators are consolidated under the rules for accounting consolidation, and with reference to relevance criteria for human resources and environmental impact.

Environmental information relates to:

- industrial activities (generation, distribution and hydrocarbons) that are significant in terms of environmental impact;
- entities acquired more than one year ago;
- entities still included in the scope of consolidation at 31 December 2013.

Social information relates to:

- companies with a significant workforce in terms of human resources (more than 50 employees);
- companies acquired more than 6 months ago.

Consequently, differences between the reporting scopes for social and environmental indicators are as follows:

- subsidiaries included in reporting scope for environmental indicators but not the reporting scope for social indicators: Dalkia Investissement (France), Figlec (China), Sloe Centrale (Netherlands);
- subsidiaries included in reporting scope for social indicators but not the reporting scope for environmental indicators: CHAM (France), EDF Optimal Solutions (France), EDF Paliwa (Poland).

Due to difficulties in collecting data, the reporting scope may vary for different indicators. For example, EDF Belgium and EDF Fenice are not yet able to apply the environmental reporting in all their operating sites; the estimated impact is not significant, and work is in process to reinforce the fullness of reporting in the medium term.

The main changes in the scope in 2013 are:

- deconsolidation of SSE;
- inclusion of EDF Trading and EDF Island Energy Production (IEP) in the environmental reporting;
- inclusion of Dalkia International for the whole of 2013 (deconsolidated for financial reporting as of 28 October 2013).

### Environmental indicators

The accounting data on provisions for decommissioning and last cores, and for the back-end nuclear cycle, are consolidated Group data taken from the Group's consolidated accounts.

#### Indicators for water drawn and returned

Indicators on cooling water include water drawn from and returned to rivers, sea and ground water, and may also include water drawn from distribution networks and returned to waste water networks. For nuclear plants in coastal locations and fossil-fired plants, the quantities of cooling water drawn/returned are calculated based on the operating time and nominal debit from pumps.

This indicator is not collected by Dalkia, Estag and certain EDF Fenice sites.

#### Air emissions

CO<sub>2</sub>, SO<sub>2</sub>, N<sub>2</sub>O, NO<sub>x</sub> and CH<sub>4</sub> emissions by EDF's fossil-fired power plants are measured or calculated based on fuel analysis or standard emission factors, and cover all phases of electricity generation, including plant start-up and shutdown. CO<sub>2</sub>, SO<sub>2</sub>, N<sub>2</sub>O, NO<sub>x</sub> and CH<sub>4</sub> emissions by EDF's fossil-fired power plants are measured or calculated based on fuel analysis or standard emission factors, and cover all phases of electricity generation, including plant start-up and shutdown. CO<sub>2</sub> and CH<sub>4</sub> emissions by the dams are not included in calculating this indicator.

EDF Group's SF<sub>6</sub> emissions are calculated based on the mass balance of SF<sub>6</sub> bottles or a nominal annual leakage rate of 2% of the volume of SF<sub>6</sub> contained in facilities.

The subsidiaries Dalkia, Meco, Estag and EDF Énergies Nouvelles do not collect all their air emissions. These exclusions are potentially non-significant at the level of the Group, which is working on broadening its scope in the short term.

#### Conventional waste

Data on conventional waste are taken from information available at the year-end concerning the quantities removed and the elimination channels. The reported data do not include:

- conventional industrial waste of Dalkia, Estag, EDF Énergies Nouvelles and certain EDF Fenice operating sites,
- the portion of conventional industrial waste recycled at the subsidiaries in Poland and the Asia-Pacific region.

Waste from construction and decommissioning sites is included in the figures reported when the EDF group is responsible for its management.

However, waste managed by subcontractors and under their responsibility is excluded. On a construction site, for example, the builder is generally in charge of dealing with waste (packaging, product leftovers, paintpots, etc).

For ERDF, the reporting on waste concerns a rolling 12-month period, and wooden posts are now included. Concrete posts are excluded, because the current reporting arrangements cannot provide satisfactory monitoring figures. Also, ERDF's recycled waste is underestimated as it does not systematically include recycling of the unpolluted metal parts of certain transformers. An action plan is in process to reinforce full data collection.

## Nuclear waste

### EDF

The indicator for “Very low level radioactive waste from decommissioning” comprises:

- the actual tonnage of waste sent directly to the very low level storage centre;
- the tonnage of waste sent to the Centrac fusion unit, weighted by an estimated ratio, calculated annually based on recent years’ reports from the processing subsidiary SOCODEI, to arrive at the share of very low level radioactive waste ultimately sent to the appropriate storage centre.

In 2013, as in 2011 and 2012, all very low level radioactive waste from decommissioning was sent directly to the storage centre.

The “Low and medium level short-life solid radioactive waste produced by reactors in operation” indicator does not include waste resulting from occasional maintenance (vessel lids, steam generators). The volume of waste calculated corresponds to the volume of waste stored at the Aube centre (after compacting, incineration and fusion). The volume of waste resulting from reconditioning of waste produced and conditioned in previous years is not included.

The “High and medium level, long-life solid radioactive waste” indicator includes waste conditioning in the calculation.

In view of the technical constraints associated with processing operations, the packages will be produced around 10 years after the fuel actually generates the waste. Consequently, this indicator is an estimate based on ongoing application of current practices for conditioning long-life waste which projects the current conditioning ratio into the near future (number of packages actually made after processing one tonne of fuel). This ratio essentially depends on the blends used to optimise operations, and is a combination of the following:

- for waste deriving directly from spent fuel: factors drawn from the national inventory of radioactive materials and waste undertaken by the French agency for radioactive waste management ANDRA (*Agence nationale pour la gestion des déchets radioactifs*);
- for waste not deriving directly from spent fuel (such as control rods) and assuming an average life of 10 years: experience-based assessment.

### EDF Energy

Data for the “Medium level radioactive waste” reported by Existing Nuclear, EDF Energy’s nuclear division, are based on the inventory of nuclear waste in the UK drawn up by the Nuclear Decommissioning Authority. The figure is an estimate of the annual volume of waste that will be considered and classified as medium level radioactive waste when the nuclear generation sites are shut down, and includes the volume of conditioning required to transport the waste from the sites. All medium level radioactive waste is stored at the nuclear generation sites to await a national decision on its final treatment.

“Low level radioactive waste” includes desiccants sent for processing in the form of medium level radioactive waste, in compliance with applicable regulations.

### Constellation Energy Nuclear Group

The “Solid low and medium level radioactive waste” of Constellation Energy Nuclear Group (“CENG”) covers radioactive waste that is not high level. The Nuclear Regulatory Commission (“NRC”) draws a distinction in the

US between three types of solid low and medium level radioactive waste: types A, B and C, depending on the activity (A being the lowest activity). Data reported by CENG are volumes of conditioned waste removed from sites declared to the NRC.

The “Nuclear fuel delivered” indicator reported by Constellation Energy Nuclear Group is the quantity of fuel delivered to generation sites. These quantities are expressed in grammes of uranium, and are reported by suppliers and declared to the NRC.

## Quantity of electricity and heat produced from renewable energies

Data on Dalkia International’s electricity and heat generation from renewable energies have been included in the consolidated figure since 2012. The proportions of electricity and heat generated from renewable energies are estimated as a prorata of the quantities of electricity and heat output.

## Environmental expenses

Environmental protection expenses are expenses declared by the various entities of EDF.

The definition of environmental protection expenses used by the Group is derived from the CNC recommendation of 21 October 2003 (itself inspired by the European recommendation of 30 May 2001). Environmental expenses are identifiable, additional expenses incurred to prevent, reduce or repair damage to the environment that has been or may be caused by the Group as a result of its activities.

They relate, for example, to:

- waste elimination and waste limitation efforts;
- anti-pollution measures for the ground, surface water and underground water;
- protection of air and climate quality;
- reduction of noise emissions;
- protection of biodiversity and the landscape;
- plant decommissioning.

The amount of these expenses is assessed on their cost excluding taxes, allocated between three main categories:

- operating expenses (including studies that qualify as operating expenses), not including expenses covered by a provision;
- investment expenditure (including the related studies);
- amounts allocated to provisions, including discount expenses.

## Social data

Since 2011, the population concerned by data collection comprises all employees who have a non-suspended employment contract with a Group company.

## Calculation of workforce and movements

The workforce reported includes employees who are co-employed by EDF and GDF Suez. An employee working 50% for EDF counts as 0.5 in the published workforce.

Changes in the scope of consolidated entities are not entirely reflected in arrivals and departures recorded by Group subsidiaries, and this is the main reason for the variance between the 2012 workforce as reported and as recalculated based on 2011 workforce and arrivals/departures.

Changes in IEG status workforce numbers are considered as transfers and not included in new arrivals, resignations or redundancies, in application of a sector-specific agreement (IEG statutes).

Staff movements between ERDF and EDF are included in "Other arrivals" and "Other departures".

The "Other arrivals" indicator for 2013 includes the workforce of the Polish subsidiaries that merged during the year within EDF Polska.

The age groups used for Dalkia International employees are slightly different from EDF group age groups: "24 and under"; "25-34"; "35-44"; "45-54"; "55 and over". Figures are consequently extrapolated.

### Absenteeism

To calculate the absenteeism rate EDF includes the following categories of absence: absences for sickness, absences due to work-related accidents, including on the journey between home and work, and miscellaneous absences (unpaid leave, unexplained absences, etc). Absences relative to social and union activities, early retirement leave and maternal absences are not included. The absenteeism rate is calculated based on the theoretical number of hours worked.

At Group level, the indicator "Number of days' absence per employee present at 31/12/2013" is the sum of the absences for illness, measured in working days prorata to the employees' working time, and absences due to work-related accidents, which are measured in calendar days.

### Accidents

For EDF and ERDF, data on the number of accidents during the year and the number of days' leave for work-related accident is supplied by the HR information system (Sprint), or the Safety information system (Ariane Web). If the two systems contain different figures, the Group reports the less favourable figure.

The frequency rate for work-related accidents does not include accidents on the home-work journey. Road accidents may be taken into account when local legislation considers them as work-related accidents. The number of fatal accidents includes work-related accidents and accidents on the home-work journey, but does not include fatal accidents for subcontractors.

### Training

Training is not included when no supporting documentation has been received at the reporting date.

Data on training under professionalisation contracts is not always included.

In countries where there is no regulatory requirement to declare the number of disabled employees, the reported figure is based on voluntary declarations by employees.

# F Information relating to the allocation of funds raised through the Green Bond issued by EDF in November 2013

On 25 November 2013, EDF issued its first Green Bond, with a maturity of 7.5 years (April 2021), for a total amount of €1.4 billion. EDF has committed to report annually on (i) the projects selected and financed by the funds raised through this bond issue and (ii) the total amounts allocated from it.

The commitments made by EDF concerning the allocation of the funds raised through the bond issue are as follows:

- the eligible projects are (i) new projects meeting the eligibility criteria defined below by EDF and approved by Vigeo (hereinafter the "Project Eligibility Criteria validated by Vigeo") and/or (ii) existing projects meeting the eligibility criteria which have not yet started or been externally

financed at the issue date that EDF Energies Nouvelles may develop or invest in after the issue date;

- upon receipt by EDF, the funds raised through the Issue are invested and followed in a dedicated portfolio of treasury liquidity assets until they are allocated to eligible projects selected by EDF Energies Nouvelles.

The eligibility criteria applicable to the development and construction phases of the projects are described hereinafter and are listed in section 6 of the final terms of the EMTN No. 19 – Green Bond issue, which are available in the section Bonds / Loan Programmes of the EDF website ([www.edf.com](http://www.edf.com)).

The Eligible Projects that were selected and have received funding as of 31 December 2013 under the November 2013 Green Bond issue are as follows:

Project	Technology and capacity	Location	Projected year of commissioning
Rivière du Moulin – phase 1/phase 2	Onshore wind power, 150 MW/200 MW	Canada (Québec)	2014/2015
Catalan wind farm	Onshore wind power, 87MW	France (Pyrénées Orientales)	2015
Hereford	Onshore wind power, 200 MW	USA (Texas)	2015
Heartland	Biomethane, 20 MW	USA (Colorado)	2014

The four projects selected meet the eligibility criteria presented herein.

The funds raised through the Issue were invested in an EDF dedicated portfolio and the total funds allocated to the four eligible projects selected above as of 31 December 2013 totalled €192 million. These funds were

allocated to the various project companies for the eligible projects and are intended exclusively for the funding of the construction and/or development costs of the eligible projects.

## Green bond EDF – Project Eligibility Criteria validated by Vigeo

### 1. Assessment of the countries in which projects are located based on human rights and governance

Eligible countries to host projects financed by the funds raised by the green bond issue must reach a minimum threshold scoring, set by EDF Energies Nouvelles, based on the Vigeo CountryRating evaluation<sup>1</sup>.

The scoring is based on following indicators:

Criteria	Key indicators
Respect, protection, and promotion of freedom and Human Rights	Integration, signature or ratification of conventions related to (i) Human Rights, and (ii) Labour Rights
Democratic institutions	Performance indicators on: Political Freedom and Stability; Prevention of corruption; Press freedom ; Independence of the judicial system; Legal certainty

1. Latest update as of 1 July 2013 (for 6 months) – In the area of Human Rights and Labour Rights, the Vigeo scoring can be complemented with performance results indicators.

## 2. Monitoring the environmental impact of the projects

Criteria	Key elements
Is an environmental impact study*undertaken? (= effects on environment and identified measures)	Existing environmental impact study
Are environmental specifications of the projects monitored during the construction phase?	Existence of an internal reporting or signature of a contract with a third party to monitor environmental aspects
Has an environment referent been designated for every project?	Name/Function of the environment referent for each project
Are contracts established in compliance with the project's environmental specifications?	Environmental specifications specified in the contracts

## 3. Promote health and safety of all those involved in the projects

Criteria	Key elements
Is a Health / Protection / Safety coordinator or equivalent planned on the site of the construction project?	Name/Function of the coordinator for each of the sites of the project
Are risk prevention plans systematically provided for with each person on the project site?	Risk prevention plan for each firm working on the project site

## 4. Promote responsible relationships with suppliers

Criteria	Key elements
Is the Sustainable Development Charter for EDF EN's suppliers and subcontractors signed by each supplier/subcontractor to ensure their knowledge of it?	Inclusion in the contract with suppliers and/or signature of the charter by suppliers/subcontractors
Is the project management by EDF EN compatible with the principles of the EDF Group's ethical charter?	Existence of «non-conformity» (human rights, corruption, conflict of interest, political actions...)
Has a verification of good practices and of any reputational risk and controversial issues related to financial partner(s) been conducted before launching the project?	Legal / banking evidence as to the activities, especially as to social affairs, of the financial partner(s) (EDF risk control department)
Guarantee of the traceability of the use of proceeds in favour of the beneficiaries?	€ figures on use of proceeds / beneficiaries
Is there a policy in terms of advantages and gifts received by EDF EN employees?	Policy relative to gifts and invitations applicable
Has a binding confidentiality clause (as between the suppliers and EDF EN) been included in the applicable contracts?	Confidentiality clause commitment
Is the consultation of suppliers systematic, except for justified cases of one to one negotiations?	Traceability of the project's purchasing process
Are the decisions on the awarding of contracts formalized on the basis of objective criteria, identical for every suppliers, in order to ensure a fair selection (cf. EDF EN Group Purchase Policy)	Traceability of the decision process for awarding contracts

## 5. Ensure the consultation with the territory's stakeholders

Criteria	Key elements
Are external stakeholders involved in the project put in place from the conception stage of the project?	List of discussions/consultations effected Examples: nbr of public meetings, information reports, ...
Are stakeholders provided with information, at least for stakeholders surrounding the work area and site users, for the duration of the construction project?	Actions undertaken



*This is a free translation into English of the attestation from one of the Statutory Auditors of EDF SA on the information related to the allocation, as of December 31, 2013, of funds raised through the "Green Bond" issued by EDF on November 25, 2013 originally issued in French and is provided solely for the convenience of English speaking readers.*

*This attestation should be read in conjunction with, and is construed in accordance with, French law and professional auditing standards applicable in France.*

## Attestation from one of the Statutory Auditors of EDF SA on the information related to the allocation, as of December 31, 2013, of funds raised through the "Green Bond" issued by EDF on November 25, 2013

To the Chairman and Chief Executive Officer,

In our capacity as statutory auditor of Electricité de France S.A. (the "**Company**") and in accordance with your request, we have prepared this attestation on the information related to the allocation, as of December 31, 2013, of funds raised through the *Green Bond* issued by EDF on November 25, 2013 (the "**Issue**"), which amounts to €1,400,000,000, contained in the attached document "*Information relating to the allocation of funds raised through the Green Bond issued by EDF in November 2013*", and prepared pursuant to the terms and conditions of the final terms dated November 25, 2013 (the "**Final Terms**").

This document, prepared for the purposes of the information of the "Green Bond" debt securities holders, presents an allocation of the funds raised from the Issue to eligible projects from the period beginning as of the receipt of the funds raised from the Issue on November 27, 2013 to December 31, 2013, for an amount of €192 million.

This information was prepared under your responsibility based on the accounting records used for the preparation of the consolidated financial statements for the year ended December 31, 2013.

Our role is to report on:

- the compliance, in all material respects, of the eligible projects referred to in the attached document, with the eligibility criteria defined in the Final Terms (the "**Eligible Projects**");
- the tracking of the funds raised from the Issue, in a dedicated portfolio of financial assets, until the allocation of such funds to Eligible Projects and on the reconciliation of the amount of funds allocated to Eligible Projects as at December 31, 2013 as part of the Issue, with the accounting records and data underlying the accounting records.

However, we have no responsibility:

- for challenging the eligibility criteria defined as an appendix to the Final Terms and, in particular, we give no interpretation on the terms of the Final Terms;
- for forming an opinion on the use of the allocated funds to Eligible Projects after such funds have been allocated.

In the context of our role as statutory auditor, we have audited, jointly with the other statutory auditor, the consolidated financial statements of the Company for the year ended December 31, 2013. Our audit was conducted in accordance with professional standards applicable in France, and was planned and performed for the purpose of forming an opinion on the consolidated financial statements taken as a whole and not on any individual component of the accounts used to determine the information. Accordingly, our audit tests and samples were not carried out with this objective and we do not express any opinion on any components of the accounts taken individually. These consolidated financial statements, which have not yet been approved by the Shareholders' meeting, have been audited and our report thereon is dated February 12, 2014.

Furthermore, we have not performed any procedures to identify events that may have occurred after the date of our report on the consolidated financial statements of the Company which was issued on February 12, 2014.

Our engagement, which constitutes neither an audit nor a review, was performed in accordance with professional standards applicable in France. For the purpose of this attestation, our work consisted, using sampling techniques or other methods of selection, in:

- understanding the procedures implemented by the Company for producing the information contained in the attached document;
- verifying the compliance, in all material respects, of the Eligible Projects referred to in the attached document, with the eligible criteria, as defined in the Final Terms;
- verifying the appropriate segregation of the funds raised from the Issue and their exclusive allocation to Eligible Projects;
- performing the necessary reconciliations between this information and the accounting records from which it is derived and verifying that the information agrees with the data used to prepare the consolidated financial statements for the year ended December 31, 2013.

On the basis of our work, we have no matters to report on:

- the compliance, in all material respects, of the Eligible Projects referred to in the attached document, with the eligible criteria, as defined in the Final Terms;
- the tracking of the funds raised from the Issue, in a dedicated portfolio of financial assets, until the allocation of such proceeds to Eligible Projects and the consistency of the amount of allocated funds to Eligible Projects as at December 31, 2013 in the context of the Issue, with the accounting records and data underlying the accounting records.

This attestation has been prepared solely for your attention within the context described above and may not be used, distributed or referred to for any other purpose.

Neuilly-sur-Seine, March 3, 2014

One of the Statutory Auditors

**Deloitte & Associés**

Alain Pons  
*Partner*

Patrick E. Suissa  
*Partner*

# G Concordance table – Annual financial report

The 2013 annual financial report contained in this reference document, prepared pursuant to Articles L. 451-1-2 of the French Monetary and Financial Code (*Code monétaire et financier*) and 222-3 of the AMF General Regulations. The annual financial report is composed of the sections of the reference document referred to in the following table:

	Reference Document sections
Certification from the person responsible of the annual financial report	Section 1.2
EDF annual financial statements	Appendix D
EDF group consolidated financial statements	Section 20.1
	Chapter 9 (Group's businesses)
	Chapter 4 (risk factors)
	Section 21.1.4 (financial authorities)
	Chapters 18 to 21 (information on share capital and capital composition, the exercise of voting rights)
	Chapters 14 and 16 (powers of the Board of Directors and Corporate Governance)
	Chapter 15 (compensation)
	Section 21.1.3 (stock repurchase program)
Extracts from the management report	Section 6.6, chapter 17 and Appendix E (environmental and social informations)
Statutory Auditors' Report on the EDF annual financial statements	Appendix D
Report from the Auditors on the EDF group's consolidated financial statements	Section 20.2







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