CONSOLIDATED FINANCIAL STATEMENTS AT 31 DECEMBER 2016

Consolidated income statement

(in millions of Euros)	Notes	2016	2015
Sales	7	71,203	75,006
Fuel and energy purchases	8	(36,050)	(38,775)
Other external expenses	9	(8,902)	(9,526)
Personnel expenses	10	(12,543)	(12,529)
Taxes other than income taxes	11	(3,656)	(3,641)
Other operating income and expenses	12	6,362	7,066
Operating profit before depreciation and amortisation		16,414	17,601
Net changes in fair value on Energy and Commodity derivatives, excluding trading activities		(262)	175
Net depreciation and amortisation	22.2	(7,966)	(9,009)
Net increases in provisions for renewal of property, plant and equipment operated under concessions		(41)	(102)
(Impairment)/reversals	13	(639)	(3,500)
Other income and expenses	14	8	(885)
Operating profit		7,514	4,280
Cost of gross financial indebtedness	15.1	(1,827)	(1,994)
Discount effect	15.2	(3,417)	(2,812)
Other financial income and expenses	15.3	1,911	2,218
Financial result	15	(3,333)	(2,588)
Income before taxes of consolidated companies		4,181	1,692
Income taxes	16	(1,388)	(483)
Share in net income of associates and joint ventures	23	218	192
GROUP NET INCOME		3,011	1,401
EDF net income		2,851	1,187
Net income attributable to non-controlling interests		160	214
Earnings per share (EDF share) in Euros:	17		
Earnings per share		1.15	0.32
Diluted earnings per share		1.15	0.32

Consolidated statement of comprehensive income

(in millions of Euros)	2016 EDF net income	2016 Net income attributable to non-controlling interests	2016 Total	2015 EDF net income	2015 Net income attributable to non-controlling interests	2015 Total
Group net income	2,851	160	3,011	1,187	214	1,401
Gross change in fair value of available-for-sale financial assets [1]	318	-	318	(703)	-	(703)
Related tax effect	(116)	-	(116)	214	-	214
Associates' and joint ventures' share of fair value of available-for-sale financial assets	21	-	21	(103)	-	(103)
Change in fair value of available-for-sale financial assets	*223*	*-*	*223*	*(592)*	*-*	*(592)*
Gross change in fair value of hedging instruments [1]	290	26	316	(600)	(5)	(605)
Related tax effect	268	(8)	260	(14)	2	(12)
Associates' and joint ventures' share of fair value of hedging instruments	(15)	-	(15)	(3)	-	(3)
Change in fair value of hedging instruments	*543*	*18*	*561*	*(617)*	*(3)*	*(620)*
Translation adjustments - controlled entities	(2,755)	(380)	(3,135)	1,199	159	1,358
Translation adjustments - associates and joint ventures	43	-	43	426	-	426
Translation adjustments	*(2,712)*	*(380)*	*(3,092)*	*1,625*	*159*	*1,784*
Gains and losses recorded in equity that will be reclassified subsequently to profit or loss	(1,946)	(362)	(2,308)	416	156	572
Gross change in actuarial gains and losses on post-employment benefits [2]	468	93	561	1,009	(9)	1,000
Related tax effect	(175)	(16)	(191)	(153)	1	(152)
Associates' and joint ventures' share of change in actuarial gains and losses on post-employment benefits	(352)	-	(352)	35	-	35
Actuarial gains and losses on post-employment benefits	*(59)*	*77*	*18*	*891*	*(8)*	*883*
Gains and losses recorded in equity that will not be reclassified subsequently to profit or loss	(59)	77	18	891	(8)	883
Total gains and losses recorded in equity	(2,005)	(285)	(2,290)	1,307	148	1,455
CONSOLIDATED COMPREHENSIVE INCOME	846	(125)	721	2,494	362	2,856

(1) 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.
(2) Gross changes in actuarial gains and losses are presented in note 31.1.2.

Consolidated balance sheet

ASSETS *(in millions of Euros)*	Notes	31/12/2016	31/12/15
Goodwill	18	8,923	10,236
Other intangible assets	19	7,450	8,889
Property, plant and equipment operated under French public electricity distribution concessions	20	53,064	51,600
Property, plant and equipment operated under concessions for other activities	21	7,616	7,645
Property, plant and equipment used in generation and other tangible assets owned by the Group	22	70,573	71,069
Investments in associates and joint ventures	23	8,645	11,525
Non-current financial assets	36	35,129	35,238
Other non-current receivables	26	2,268	1,830
Deferred tax assets	16.3	1,641	2,713
Non-current assets		195,309	200,745
Inventories	24	14,101	14,714
Trade receivables	25	23,296	22,259
Current financial assets	36	29,986	27,019
Current tax assets		183	1,215
Other current receivables	26	10,652	8,807
Cash and cash equivalents	37	2,893	4,182
Current assets		81,111	78,196
Assets classified as held for sale	46	5,220	-
TOTAL ASSETS		281,640	278,941

EQUITY AND LIABILITIES *(in millions of Euros)*	Notes	31/12/2016	31/12/15
Capital	27	1,055	960
EDF net income and consolidated reserves		33,383	33,789
Equity (EDF share)		34,438	34,749
Equity (non-controlling interests)	27.5	6,924	5,491
Total equity	27	41,362	40,240
Provisions related to nuclear generation - back-end of the nuclear cycle, plant decommissioning and last cores	29	44,843	44,825
Provisions for decommissioning of non-nuclear facilities	30	1,506	1,447
Provisions for employee benefits	31	21,234	21,511
Other provisions	28	2,155	2,190
Non-current provisions	28	*69,738*	*69,973*
Special French public electricity distribution concession liabilities	33	45,692	45,082
Non-current financial liabilities	38	54,276	54,159
Other non-current liabilities	35	4,810	5,126
Deferred tax liabilities	16.3	2,272	4,122
Non-current liabilities		176,788	178,462
Current provisions	28	5,228	5,354
Trade payables	34	13,031	13,284
Current financial liabilities	38	18,289	17,473
Current tax liabilities		419	506
Other current liabilities	35	24,414	23,622
Current liabilities		61,381	60,239
Liabilities related to assets classified as held for sale	46	2,109	-
TOTAL EQUITY AND LIABILITIES		281,640	278,941

Consolidated cash flow statement

(in millions of Euros)	Notes	2016	2015
Operating activities:			
Income before taxes of consolidated companies		4,181	1,692
Impairment/(reversals)		639	3,500
Accumulated depreciation and amortisation, provisions and changes in fair value		9,814	11,392
Financial income and expenses		948	951
Dividends received from associates and joint ventures		330	322
Capital gains/losses		(877)	(1,593)
Change in working capital	43.1	(1,935)	132
Net cash flow from operations		*13,100*	*16,396*
Net financial expenses disbursed		(1,137)	(1,252)
Income taxes paid		(838)	(1,508)
European Commission decision of 22 July 2015	3.8.3	-	(906)
Net cash flow from operating activities		11,125	12,730
Investing activities:			
Acquisitions of equity investments, net of cash acquired		(127)	(162)
Disposals of equity investments, net of cash transferred		372	748
Investments in intangible assets and property, plant and equipment	43.2	(14,397)	(14,789)
Net proceeds from sale of intangible assets and property, plant and equipment		508	964
Changes in financial assets		(2,913)	(5,600)
Net cash flow used in investing activities		(16,557)	(18,839)
Financing activities:			
Transactions with non-controlling interests [(1)] [(2)]		1,368	64
Dividends paid by parent company	27.3	(165)	(1,420)
Dividends paid to non-controlling interests		(289)	(326)
Purchases/sales of treasury shares		(2)	(14)
Cash flows with shareholders		*912*	*(1,696)*
Issuance of borrowings [(3)]		9,424	9,422
Repayment of borrowings		(6,176)	(2,336)
Payments to bearers of perpetual subordinated bonds	27.4	(582)	(591)
Funding contributions received for assets operated under concessions		143	152
Investment subsidies		417	623
Other cash flows from financing activities		*3,226*	*7,270*
Net cash flow from financing activities		4,138	5,574
Net increase/(decrease) in cash and cash equivalents		(1,294)	(535)
CASH AND CASH EQUIVALENTS - OPENING BALANCE		4,182	4,701
Net increase/(decrease) in cash and cash equivalents		(1,294)	(535)
Effect of currency fluctuations		102	(36)
Financial income on cash and cash equivalents		20	13
Effect of reclassifications		(117)	39
CASH AND CASH EQUIVALENTS - CLOSING BALANCE	37	2,893	4,182

(1) Contributions via capital increases or reductions and acquisitions of additional interests or disposals of interests in controlled companies.

(2) In 2016, this item comprises a receipt of €830 million on the sale to CGN of 33.5% of Hinkley Point C (HPC) Holding Co and 20% of Sizewell C Holding Co, and an amount of €469 million relating to CGN's payment for the Hinkley Point C and Sizewell C capital increases (see note 3.2).

(3) In 2016, this item includes the €2,820 million bond issue by C25 (the company owning RTE's shares) (see note 3.5.1).

Change in consolidated equity

(in millions of Euros)	Capital	Treasury shares	Translation adjustments (2)	Impact of fair value adjustment of financial instruments (3)	Other consolidated reserves and net income	Equity (EDF share)	Equity (non-controlling interests)	Total equity
Equity at 31/12/2014 (restated) (1)	930	(41)	2,724	(1,144)	32,777	35,246	5,419	40,665
Gains and losses recorded in equity	-	-	1,625	(1,209)	891	1,307	148	1,455
Net income	-	-	-	-	1,187	1,187	214	1,401
Consolidated comprehensive income	**-**	**-**	**1,625**	**(1,209)**	**2,078**	**2,494**	**362**	**2,856**
Payments on perpetual subordinated bonds	-	-	-	-	(591)	(591)	-	(591)
Dividends paid	-	-	-	-	(2,327)	(2,327)	(327)	(2,654)
Purchases/sales of treasury shares	-	3	-	-	-	3	-	3
Capital increase by EDF (4)	30	-	-	-	876	906	-	906
Other changes (5)	-	-	-	-	(982)	(982)	37	(945)
Equity at 31/12/2015	960	(38)	4,349	(2,353)	31,831	34,749	5,491	40,240
Gains and losses recorded in equity	-	-	(2,712)	766	(59)	(2,005)	(285)	(2,290)
Net income	-	-	-	-	2,851	2,851	160	3,011
Consolidated comprehensive income	**-**	**-**	**(2,712)**	**766**	**2,792**	**846**	**(125)**	**721**
Payments on perpetual subordinated bonds	-	-	-	-	(582)	(582)	-	(582)
Dividends paid	-	-	-	-	(2,026)	(2,026)	(288)	(2,314)
Purchases/sales of treasury shares	-	9	-	-	-	9	-	9
Capital increase by EDF (6)	95	-	-	-	1,767	1,862	-	1,862
Other changes (7)	-	-	-	-	(420)	(420)	1,846	1,426
EQUITY AT 31/12/2016	1,055	(29)	1,637	(1,587)	33,362	34,438	6,924	41,362

(1) Figures published for 2014 have been restated for the impact of retrospective application of IFRIC 21.

(2) Changes in translation adjustments amount to €(2,712) million at 31 December 2016, mainly relating to the fall of the pound sterling against the euro.

(3) These changes correspond to the effects of fair value adjustments, amounts transferred to income following changes in the fair value of available-for-sale financial assets, 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 consolidated comprehensive income.

(4) In 2015, the capital increase and issue premium, totalling €906 million, relate to payment of the scrip interim dividend for 2015 (see note 27.3).

(5) "Other changes" in 2015 include the effect of the European Commission decision of 22 July 2015 (see note 3.8.3).

(6) In 2016, the capital increase and issue premium, totalling €1,862 million, relate to payment of the balance of the scrip dividend for 2015 and the scrip interim dividend for 2016 (see note 27.3).

(7) "Other changes" in 2016 include the effect of the sale to CGN of 33.5% of HPC Holding Co and 20% of Sizewell C Holding Co on 29 September 2016. This transaction has an effect of €(548) million on Equity (EDF share) and an effect of €1,510 million on Equity (non-controlling interests) (see note 3.2).

"Other changes" also include the effects of the Cogestar operation, amounting to €119 million (see note 5.1).

NOTES TO THE CONSOLIDATED FINANCIAL STATEMENTS

NOTES TO THE CONSOLIDATED FINANCIAL STATEMENTS

Electricité de France (EDF or the "Company") is a French *société anonyme* governed by French law, and registered in France.

The consolidated financial statements reflect the accounting position of the Company and its subsidiaries (which together form the "Group") and the Group's interests in associates, joint arrangements classified as joint operations, and joint ventures, for the year ended 31 December 2016.

The Group is an integrated energy operator engaged in all aspects of the energy business: generation, transmission, distribution, supply, energy trading and services.

The Group's consolidated financial statements at 31 December 2016 were prepared under the responsibility of the Board of Directors and approved by the Directors at the Board meeting held on 13 February 2017. They will become final after approval at the General Shareholders' Meeting to be held on 18 May 2017.

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 2016 are prepared under the international accounting standards published by the IASB and approved by the European Union for application at 31 December 2016. These international standards are IAS (International Accounting Standards), IFRS (International Financial Reporting Standards), and SIC and IFRIC interpretations.

The Group has not opted for early application of standards and interpretations that were not yet mandatory in 2016.

1.2 CHANGES IN ACCOUNTING METHODS AT 31 DECEMBER 2016

The accounting and valuation methods applied by the Group in the consolidated financial statements for the year ended 31 December 2016 are identical to those used in the consolidated financial statements for the year ended 31 December 2015.

1.2.1 Accounting standard amendments adopted by the European Union that became mandatory as of 1 January 2016

The following amendments to accounting standards have been adopted by the European Union and are mandatory for financial years beginning on or after 1 January 2016:

- amendments to IAS 19 entitled "Defined benefit plans – Employee contributions";
- amendments to IAS 16 and IAS 38 entitled "Clarification of acceptable methods of depreciation and amortisation";
- amendments to IAS 1 entitled "Disclosure initiative";
- amendments to IFRS 10, IFRS 12 and IAS 28 "Investment Entities: Applying the Consolidation Exception";
- amendments to IFRS 11 entitled "Accounting for acquisitions of interests in joint operations".

The application of these amendments does not have a significant impact on the EDF Group's annual consolidated financial statements.

The amendments to IFRS 11 "Accounting for acquisitions of interests in joint operations" could have impacts if the Group acquires initial or additional interests in a joint operation that constitutes a business as defined by IFRS 3.

1.2.2 Standards adopted by the European Union but not yet mandatory at 1 January 2016

The following two new standards have been adopted by the European Union and will be mandatory for financial years beginning on or after 1 January 2018:

1.2.2.1 IFRS 15 – Revenue from Contracts with Customers

On 29 October 2016, the European Union adopted IFRS 15 "Revenue from Contracts with Customers", which must be applied from 1 January 2018 at the latest. Subject to approval by the European Union, the associated amendments will be applicable at the same date as the standard itself. The Group has not opted for early application of this standard.

The Group's preliminary analysis has identified a list of subjects for examination in the light of IFRS 15. The entities concerned have analysed their contracts and sales revenues by major categories, and working groups have been set up to assess the potential impacts of this new standard.

The cumulative revenues of entities covered by this preliminary analysis represent 95% of the Group's total revenues. The subjects identified are currently under examination, and the impacts of first application of IFRS 15 are also being assessed.

The subjects identified so far that may have an impact on Group sales are the following.

- Recognition of income from energy delivery (the agent/principal distinction):

  In accordance with IAS 18, all Group entities supplying electricity or gas include the service of delivery in their sales revenues.

  IFRS 15 requires analysis of whether or not the energy delivery service is a separate performance obligation within the electricity supply contract. It sets out the conditions in which an entity operates as principal or agent for the supply of a good or service with third party involvement. If the entity is classified as the principal, it can recognise the sales revenue from the delivery service, including the part of the service executed by a third party. Otherwise, it is classified as an agent, and can only include the amount of any commission in its sales revenues on delivery services.

  In France, electricity delivery services are performed by Enedis, the Group's regulated subsidiary that is the French distribution network operator. As a result the principal-agent analysis under IFRS 15 only relates to the presentation of revenues in segment reporting.

  However, gas delivery services in France and electricity and gas delivery services in Italy, the United Kingdom and Belgium are carried out by non-Group entities.

- Among the other subjects analysed by the Group, in certain countries, IFRS 15 could lead to changes in the recognition of market energy purchase and sale transactions as part of optimisation activities, but this would have no impact on the Group's consolidated net income.

- The Group has identified further subjects for which accounting practices could change, but the impacts on Group net income would be non-significant. Analyses will continue, in response to developments in the contractual framework and the Group's business activity, until the standard is applied.

1.2.2.2 IFRS 9 - Financial Instruments

IFRS 9, "Financial Instruments", released by the IASB in July 2014 and adopted by the European Union on 29 November 2016, will replace IAS 39 "Financial Instruments: Recognition and Measurement" from 1 January 2018. The new standard introduces new principles for classification and measurement of financial instruments, impairment for credit risk on financial assets, and hedge accounting.

The Group has no plans for early application of this standard.

Application of IFRS 9 in the Group, and potential impacts

The Group began analyses in 2015 to assess the possible consequences of application of IFRS 9.

At this stage of the preparations for application of the new standard, which has several phases, estimation of the impact of application is in process.

Phase 1 concerns the classification and measurement of financial assets and liabilities.

Analysis of the business models and contractual features of the Group's financial assets is currently being finalised.

The main potential impacts concern financial assets held in the form of shares in equity or bond investment funds, and to a lesser degree equities held, and the directly-managed bond portfolio.

- For shares in equity or bond investment funds that correspond strictly to the definition of puttable financial instruments, application of IFRS 9 will mean that unrealised gains or losses on such assets, which were previously recorded in equity and subsequently transferred to profit and loss upon sale, will now have a direct impact on the Group's net income.
- For equity instruments not held for trading and for which an irrevocable option is made to recognise fair value changes in other components of comprehensive income (OCI), IFRS 9 only allows dividends received to be reported in the income statement. Unrealised gains and losses recognised in OCI while the instrument is held can no longer be included in profit and loss upon derecognition of the instrument. The Group has not yet decided which option it will take.
- For the directly-held bond portfolio, if the associated cash flows consist solely of payments related to the principal and associated interest, the principle is that fair value changes should be recorded in equity and transferred under a "collect and sell" business model, or at amortised cost under a "collect" model.

Many of the financial assets affected by these changes are part of the portfolio of dedicated assets held to cover future expenses for the back-end of EDF's nuclear cycle in France.

Phase 2 concerns the impairment model for financial assets. IFRS 9 introduces a single, prospective model based on expected losses (i.e. the probability that the counterparty will default in a given time horizon). This model applies to financial assets carried at amortised cost, debt securities carried at fair value through other components of comprehensive income, trade receivables and lease receivables. The existing IAS 39 model requires recognition of a provision when a loss is incurred (non-payment or late payments). For financial assets with a low credit risk that do not require recognition of impairment under IAS 39, the new IFRS 9 provisioning model based on expected losses within 12 months could lead to an increase in impairment for credit risk, as all financial assets will be concerned from the inception of operations, which is not the case under IAS 39. The work done so far has concerned the rules for assessing credit risk.

Finally, phase 3 concerning the general hedge accounting model intends to align hedge accounting more closely with the entity's risk management activities, notably by broadening the list of eligible hedging instruments and relaxing certain rules that had been considered too restrictive under IAS 39. The Group is currently studying the potential impacts of these points on its financial risk hedging strategies and documentation. Based on the analysis to date, no material impact is expected in the consolidated financial statements.

At the transition date

The classification and measurement rules and the new impairment model introduced by IFRS 9 are applicable retrospectively via adjustments to the opening balance sheet at the date of first application. The new standard's hedge accounting methods are principally for prospective application.

1.2.3 Standards and amendments published by the IASB but not yet adopted by the European Union

The following IASB publications related to the accounting principles applied by the Group have not yet been adopted by the European Union:

- IFRS 16 "Leases";
- amendments to IFRS 15 "Clarifications to IFRS 15 Revenue from Contracts with Customers";
- amendments to IFRS 10 and IAS 28 entitled "Sale or contribution of assets between an investor and its associate or joint venture";
- amendments to IAS 12 "Recognition of Deferred Tax Assets for Unrealised Losses";
- amendments to IAS 7, as part of the "Disclosure initiative" project;

- amendments to IFRS 2 "Classification and measurement of share-based payment transactions";
- amendments to IAS 40 "Transfers of Investment Property".

Subject to European Union adoption, application of IFRS 16 "Leases" will be mandatory for financial years beginning on or after 1 January 2019. This standard requires all leases other than short-term leases and leases of low-value assets to be recognised in the lessee's balance sheet in the form of a right-of-use asset, with a corresponding financial liability. Currently, leases classified as "operating leases" are reported as off-balance sheet items (see note 44.1.3).

The potential impact of the standards and amendments listed above 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 assets acquired and liabilities assumed through business combinations, and of 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.

In the specific case of the accounting depreciation period of its French nuclear power plants, the EDF group's industrial strategy is to continue operation beyond 40 years, in optimum conditions as regards safety and efficiency.

The Group has been making preparations for extending this useful life for several years, and the necessary investments are being made through its *Grand carénage* industrial overhaul programme which was approved in principle by the Board of Directors in January 2015.

During 2016, all the technical, economic and governance conditions for extending the accounting depreciation period of 900MW series power plants were fulfilled. The Group therefore changed the estimate at 1 January 2016 for all 900MW power plants, with the exception of Fessenheim (see note 3.1, Extension to 50 years of the depreciation period of the 900MW PWR series in France).

The depreciation period of other Group series in France (1300MW and 1450MW), which are more recent, is currently unchanged at 40 years, as the conditions for extension are not yet fulfilled.

These lifetimes are in line with the date of recoupling with the network after the most recent 10-year inspection.

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 technical processes, costs, inflation rates, long-term discount rates, the useful life of plants currently in operation and disbursement schedules.

These parameters are therefore re-estimated 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.

The Group considers that the assumptions used at 31 December 2016 are appropriate and justified. However, any future change in assumptions could have a significant impact on the Group's balance sheet and income statement.

The main assumptions and sensitivity analyses relating to nuclear provisions are presented in note 29.1.5.

The calculation of provisions incorporates a level of risks and unknowns as appropriate to the operations concerned. The valuation of costs carries uncertainty factors such as:

- changes in the regulations, particularly on safety, security and environmental protection, and financing of nuclear expenses;
- changes in the regulatory decommissioning process and the time necessary for issuance of administrative authorisation;
- future methods for storing long-lived radioactive waste and provision of storage facilities by the French agency for radioactive waste management ANDRA (*Agence Nationale pour la Gestion des Déchets Radioactifs*);
- changes in certain financial parameters such as discount rates, notably in relation to the regulatory limit, inflation rates, or changes in the contractual terms of spent fuel management.

1.3.2.2 Pensions and other long-term and post-employment benefit obligations

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, inflation rates and wage increase rates.

The principal actuarial assumptions used to calculate these post-employment and long-term benefits at 31 December 2016 are presented in note 31. These assumptions are updated annually. The Group considers the actuarial assumptions used at 31 December 2016 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 Group companies, 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 replace 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 Interests in other entities

For the application of IFRS 10 and IFRS 11, the Group uses judgment to assess control or classify the type of partnership arrangement represented by a jointly-controlled entity.

For an overall analysis of its interests in other entities, the Group mainly exercised judgment to assess the situation of the following entities in particular:

- The EDF group owns 100% of the capital of RTE Réseau de Transport d'Electricité, but EDF ceased exercising control (exclusive or joint) over RTE in 2010 when its governance was brought into line with EU Directive 2009/72/EC of 13 July 2009 as transposed into French law. However, the Group has significant influence over RTE since it appoints one third of its Supervisory Board members. RTE is therefore an associate for the EDF group, and is accounted for by the equity method in accordance with the instructions of IAS 28 (revised). At 31 December 2016, operations in process with RTE (described in note 3.5.1) do not affect the consolidation method applied to RTE.
- EDF has set up "reserved" investment funds for some of its funds set aside for secure financing of nuclear plant decommissioning expenses and long-term storage expenses for radioactive waste (see note 47.3). In view of the funds' characteristics, the prerogatives exercised by their managers and the procedures for defining the management strategies applicable to them, the Group considers that it does not have control, as defined by IFRS 10, over these funds. They are consequently treated as available-for-sale financial assets, in application of IAS 39.
- Through its subsidiary Edison, since 2014 the Group has held a 30% investment in Edens, with F2i. However, the governance arrangements and contractual agreements introduced for Edens in connection with this transaction give Edison exclusive control over the company. In application of IFRS 10, Edens is therefore fully consolidated (via Edison) in the Group's consolidated financial statements.

To determine the appropriate joint arrangement classification for each jointly-controlled entity, the Group examines whether the partners benefit from substantially all economic benefits of the assets and are substantially continuously responsible for settlement of liabilities. A joint arrangement is classified as a joint operation when both these conditions are fulfilled, and as a joint venture otherwise.

1.3.2.9 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

A list of the main subsidiaries, associates and joint ventures is presented in note 51.

Certain companies owned by the Group are not consolidated as they are not significant for the Group.

1.3.3.1 Controlled entities

Subsidiaries are companies in which the Group exercises exclusive control and are fully consolidated. The Group controls an entity when the three following conditions are fulfilled:

- it holds power over the entity;
- it is exposed, or has rights, to variable returns from its involvement with the entity;
- it has the ability to use its power to affect the amount of the investor's returns.

The Group considers all facts and circumstances when assessing control. All substantive potential voting rights exercisable, including by another party, are also taken into consideration.

1.3.3.2 Investments in associates and joint ventures

An associate is an entity in which the Group exercises significant influence on financial and operational policies without having exclusive or joint control. Significant influence is presumed to exist when the Group's investment is at least 20%.

A joint venture is a partnership in which the parties (joint venturers) that exercise joint control over the entity have rights to the entity's net assets. Joint control is the contractually agreed sharing of control of an entity operated jointly by a limited number of partners or shareholders, such that the financial and operational policies result from unanimous consent of the parties.

Investments in associates and joint ventures are accounted for by the equity method. They are carried in the balance sheet at historical cost, adjusted for the share in net assets generated after the acquisition, less any impairment. The share in the net income for the period is reported in "Share in net income of associates and joint ventures" in the income statement.

1.3.3.3 Investments in joint operations

A joint operation is a joint arrangement in which the parties (joint operators) that exercise joint control over the entity have direct rights to its assets, and obligations for its liabilities. The Group, as an operator in a joint operation, reports the assets and liabilities and income and expenses related to its investment line by line.

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 in the consolidated balance sheet. 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 date of the Group's first application of IAS 27 (amended) and IFRS 3 (revised), the differential between the value of the non-controlling 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 when 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.

In compliance with IAS 12, current and deferred taxes are generally recorded in the income statement or in equity symmetrically to the underlying operation.

Under IAS 32, income taxes on distributions to holders of equity instruments (notably dividends and the remuneration paid to holders of perpetual subordinated bonds) must be recognised in accordance with IAS 12. The Group considers that these distributions are paid out of previous years' accumulated profits and as a result the associated tax effects are included in the net income for the period.

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 and associates, investments in branches and interests in joint arrangements, 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 extinguished, 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.

Deferred tax assets and liabilities are reported on a net basis, determined at the level of a tax entity or tax group.

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 beginning 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 (stock options, stock 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 for the year 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 (full 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.

In application of IFRS 10, any acquisition or disposal of an investment that does not affect control is considered as a transaction between shareholders and must be recorded directly in equity.

If additional interests are acquired in a joint venture, joint operation or associate without resulting in acquisition of control, the value of the previously-acquired assets and liabilities remains unchanged in the consolidated financial statements.

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 is disclosed separately in the balance sheet. Impairment on this goodwill is reported under the heading "Impairment" in the income statement. After initial recognition, goodwill is carried at cost less any impairment recognised.

Goodwill on acquisition of associates and joint ventures is included in the investment's net book value. Impairment on this goodwill is included under the heading "Share in income of associates and joint ventures".

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.

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.

Development costs that qualify for capitalisation under IAS 38 are included in intangible assets and 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 1.3.28);
- 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.
- assets related to concession contracts governed by IFRIC 12, under the "intangible model" (see note 1.3.13.2.4).

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 Unit Of Production (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 that can be included in the construction of the asset.
- 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 "Borrowing costs".
- The cost of property, plant and equipment also includes the initial estimate of decommissioning costs. These assets are associated with the provisions recorded to cover decommissioning obligations. At the date of commissioning, property, plant and equipment is measured and recorded in the same way as the corresponding provision (see note 1.3.21).
- Decommissioning costs for nuclear generation installations also include last core costs (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 in Property, plant and equipment, and subsequent payments by the partner are deducted from the accrued income.

The Group capitalises safety expenses incurred as a result of legal and regulatory obligations sanctioning non-compliance by an administrative ban from operation.

Strategic safety spare parts for generation facilities are treated as property, plant and equipment, and depreciated over the residual useful life of the installations.

The costs of major inspections that are necessary for continued operation by generation assets are capitalised and amortised over a period corresponding to the time elapsing between two inspections.

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.

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 to 50 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, other than concessions for heat generation and distribution, 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 four 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;
- concessions from public grantors for heat generation and distribution.

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 follow standard rules approved by decree. Hydropower concession assets consist solely of hydropower generation equipment (dams, pipes, turbines, etc) for initial concessions. In other concessions, they comprise hydropower generation equipment and switching facilities (alternators, etc).

Assets used in these concessions, whether operated under the concession agreement or owned by the EDF group, are recorded under "Property, plant and equipment operated under concessions for other activities" at acquisition cost.

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 (RTE). 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.

1.3.13.2.4 Heat generation and distribution concessions

Heat generation and distribution concession agreements signed by Dalkia with public authorities confer the right to operate facilities remitted by or constructed at the request of those authorities for a limited period, under the grantor's supervision.

These agreements set the terms for remuneration and transfer of the facilities to the grantor or another successing operator at the end of the agreement.

The assets are recorded as intangible assets, in accordance with IFRIC 12 "Service concession agreements".

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 1.3.11.2).

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 provided 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 asset's economic 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.

1.3.14.3 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 an intangible asset with an indefinite useful life, or to which goodwill has been partly or totally allocated.

Impairment tests are 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. They reflect the way activities are managed in the Group: they may be subgroups when the activity is optimised across the whole subgroup, or CGUs formed by parts of subgroups corresponding to different types of activity that are managed separately (fossil-fired generation, renewable energy production, services). Goodwill is allocated to the CGUs that benefit from synergies resulting from the acquisition.
- The recoverable value of these CGUs 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.
- Fair value is the asset's potential sale price in a normal transaction between economic actors.
- 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;
        - for certain intangible assets with an indefinite useful life (such as brands), beyond the horizon that can be observed or modelled, a terminal value is determined by discounting to infinity a normative cash flow;
    - 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.

- 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). Over the MTP horizon, energy and commodity prices are determined based on available forward prices, taking hedges into consideration;
  - beyond the MTP horizon, cash flows are estimated based on long-term assumptions prepared for each country and each energy, using a process that is updated annually. Medium and long-term electricity prices are constructed analytically by assembling blocks of assumptions, e.g. economic growth, commodity prices (oil, gas, coal) and CO_2, demand for electricity, interconnections, and developments in the energy mix (rise of renewable energies, installed nuclear capacity, etc) with fundamental models of supply-demand balance. The Group refers in particular to external analyses for each assumption object (for example, for commodities and CO_2, which are primary factors in electricity prices, the Group compares its own scenarios with scenarios developed by organisations such as the AIE, IHS or Wood Mackenzie, bearing in mind that each of these analysts itself proposes a cone of scenarios corresponding to different macro-economic environments).
  - Income from capacity market mechanisms is also taken into consideration in valuing generation assets, starting from the MTP horizon where relevant, provided the countries concerned have introduced or announced the future introduction of a capacity remuneration mechanism.

These calculations may be influenced by several variables:

- changes in discount rates;
- changes in market prices for energy and commodities and tariff regulations;
- changes in demand and the Group's market share, and the attrition rate on customer portfolios;
- the useful life of facilities, or the duration of concession agreements where relevant;
- the growth rates used beyond the medium-term plans and where relevant the terminal values taken into consideration.

Impairment recognised on 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 47.

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 Valuation of financial assets and liabilities

Financial instruments are stated at fair value, which corresponds to the price that would be received to sell an asset or paid to transfer a liability in an orderly transaction on the principal or most advantageous market at the measurement date.

The valuation methods for each level are generally as follows:

- 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. 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 available from external sources for financial 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 Loans and financial liabilities

When specific hedge accounting treatments are not applied (see note 1.3.16.1.6 (A)), loans and 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 loan or 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 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 designated 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 to classify operations for hedge accounting purposes:

- 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.

Loans and financial liabilities include bonds that are covered by a fair value hedge. In application of hedge accounting, their balance sheet value is adjusted for changes in fair value attributable to the hedged risks (foreign exchange and interest rate risks).

(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 change in fair value resulting from the foreign exchange effect and interest rate effect of derivatives hedging a net investment in a foreign operation is recorded in equity.

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; and
- 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. fluoration, 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 1.3.28);
- certificates issued under capacity obligation mechanisms (capacity guarantees in France) (see note 4.3);
- goods and services in progress, particularly relating to the businesses of EDF Énergies Nouvelles and Dalkia;
- gas stocks.

Other non-trading operating inventories are generally valued at weighted average cost including direct and indirect purchasing costs.

Impairment of spare parts principally depends on the turnover of these parts.

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 immediately available liquidities and very short-term investments that are readily convertible into a known amount of cash, 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 EDF 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

In 2013 and 2014 EDF issued perpetual subordinated bonds comprising several tranches in Euros, US dollars and pounds sterling (a "hybrid" bond issue). These bonds are redeemable at the initiative of EDF after a minimum period that depends on the specific terms of the issue, and subsequently at each coupon date or in the event of highly specific circumstances (such as a change in IFRS or tax regime). The annual yield is fixed and reviewable based on contractual clauses that vary according to the specific terms of the issue. There is no obligation for EDF to make any payment, due to the existence of contractual clauses that allow it to defer payment indefinitely. However, those clauses stipulate that deferred payments must be made if it is decided to pay dividend to EDF's shareholders. All these features give EDF an unconditional right to avoid paying out cash or another financial asset in redemption or interest on the principal. Consequently, in compliance with IAS 32, these bonds are recorded in equity and any payment made is treated as dividends.

1.3.21 Provisions other than employee benefit provisions

The Group recognises provisions when it has a present obligation (legal or constructive) arising from a past event, an outflow of resources will probably be required to settle the obligation, and the obligation amount can be estimated reliably.

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.

Provisions are determined based on the Group's expectation of the 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.

The expected costs are estimated based on year-end economic conditions and spread over a forecast disbursement schedule. They are then adjusted to Euros of the year of payment through application of a forecast long-term inflation rate and discounted to present value using a nominal discount rate. The provisions are based on these 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, considering the long operating cycle of the Group's assets and the maturities of commitments.

The discount effect generated at each closing to reflect the passage of time is recorded under "Discount effect" in financial expenses.

In extremely rare situations, a provision cannot be booked due to lack of a reliable estimate. In such cases, the obligation is mentioned in the notes as a contingent liability, unless there is little likelihood of an outflow of resources.

1.3.21.1 Provisions related to nuclear generation

Provisions related to nuclear generation 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).

  Last core expenses correspond to 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, and the cost of fuel processing, and removal and storage of the resulting waste.

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.

Detailed information on the principles for determining provisions related to nuclear generation in France and the United Kingdom is given in note 29.

1.3.21.2 Other provisions

Other provisions primarily concern:

- contingencies related to subsidiaries and investments;
- tax liabilities;
- litigation;
- onerous contracts;
- environmental schemes.

Provisions for onerous contracts primarily relate to multi-year agreements for the purchase or 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 for environmental schemes are established to cover the shortfall in greenhouse gas emission quotas and renewable energy certificates compared to the assigned targets (see note 1.3.28).

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.

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 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 other components of consolidated comprehensive income:
  - 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, Enedis (formerly ERDF), RTE, Électricité de Strasbourg, EDF PEI, Dunkerque LNG 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 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, IEG sector 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).

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 and Engie (formerly GDF-Suez) groups 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 Engie;
- 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, subject to a ceiling) 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, time banking for pre-retirement leave, and pensions for personnel sent on secondment to subsidiaries not covered by the IEG system.

1.3.22.2.2 French and foreign subsidiaries not covered by the special IEG system

Pension obligations principally relate to the British companies and are mostly covered by defined-benefit plans.

In the United Kingdom, EDF Energy has three 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 has not accepted any new members since then.
- The EDF Energy Pension Scheme (EEPS). This scheme was established in March 2004 and membership remains open to new employees.

In 2016 EDF Energy introduced a new defined-benefit section of the EEPS pension plan named EEPS CARE (Career Average Revalued Earnings). Under EEPS CARE, pensions are based on a pensionable salary corresponding to the average salary over the beneficiary's entire career, adjusted for inflation. Pensions for the other sections continue to be based on the beneficiary's most recent pensionable salary.

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 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 the plan 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 company or a group may benefit from capital increases reserved for them. Their company may also implement 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 1.5%, less the asset's historical value. This amount is based on the wear and tear on the asset and discounted at a rate of 4.2%;
- amortisation of the grantor's financing is also discounted at the rate of 4.2%.

The following table shows the main impacts of this simulation for Enedis (formerly ERDF) in 2016:

- Impacts on the income statement

(in millions of Euros and before taxes)	2016
Operating profit	538
Financial result	(526)
Income before taxes of consolidated companies	12

- Impacts on the balance sheet – equity

(in millions of Euros and before taxes)	2016
At opening date	1,965
At closing date	1,977

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 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 related liabilities, and discontinued operations

Assets that qualify as held for sale and related liabilities are disclosed separately from other assets and liabilities in the balance sheet.

When assets or groups of assets are classified as discontinued operations, income and expenses relating to these discontinued operations are disclosed in a single net amount after taxes in the income statement and net changes in cash and cash equivalents of discontinued operations are also reported separately in the cash flow statement.

Impairment is booked when the realisable value is lower than the net book value.

1.3.27 Nature and extent of restrictions on the Group's ability to access and use assets or settle liabilities

The main restrictions that may limit the Group's ability to access or use its assets or settle its liabilities concern the following items:

- Assets held to fund employee benefits (principally in France and the United Kingdom – see note 1.3.22) – and expenses related to nuclear liabilities (principally in France – see note 47 – and the United Kingdom – see note 29.2);
- Tangible and intangible assets and the related liabilities associated with concession agreements, whether or not they are subject to regulatory mechanisms (obligations to supply energy or energy-related services, rules governing investments, an obligation to return concession facilities at the end of the contract, amounts payable at the end of the contract, tariff constraints, etc). These restrictions mainly apply to assets of this type in France (EDF, Enedis and Dalkia), and to a lesser extent Italy, Poland, and Hungary (see notes 1.3.13 and 1.3.24);

- The sale of Group investments in certain subsidiaries requires authorisations from State bodies, particularly when they exercise a regulated activity or operate nuclear power plants (this is the case for EDF Nuclear Generation Ltd. in the United Kingdom, Taishan (TNPJVC) in China and CENG in the United States);
- Prudential reserves established and measures taken as regards distribution capacity, so that the insurance subsidiaries will meet their prudential ratio requirements;
- The cash of certain entities that use financing arrangements stipulating that dividend distribution is subject to conditions concerning repayment of bank debt (or qualification for loans) and shareholders, or are subject to regulatory limitations in certain countries.

Certain shareholder agreements concerning companies controlled by the Group include clauses to protect minority shareholders, requiring approval from minority shareholders for certain particularly important decisions.

Finally, certain financing loans granted to Group entities contain early repayment clauses (see note 38.2.6), and certain items of cash and cash equivalents are subject to restrictions (see note 37).

1.3.28 Environment

1.3.28.1 Greenhouse gas emission rights

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 no consideration 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 measured on the basis of the acquisition cost up to the amount of rights acquired on the spot or forward markets, and 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 is booked.

1.3.28.2 Renewable energy certificates

In application of EU Directive 2009/28/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);
- introducing a renewable energy certificate system (as is the case in the United Kingdom, Poland and Belgium).

The renewable energy certificates system may apply to:

- non-obligated electricity producers when the obligation applies to energy sales (EDF Énergies Nouvelles, Poland);
- 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, 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 in the balance sheet date. The change in fair value is recorded in the income statement.

1.3.28.3 Energy savings certificates

In application of EU directive 2012/27/EC on energy efficiency, EU Member States are required to meet energy savings targets by 2020. These targets can be met through a system of energy savings certificates, similar to the system introduced by the French Law of 13 July 2005.

The EDF Group fulfils its obligations either by taking measures regarding its assets or actions 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 the 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 year-end are included in inventories until they are used to cover the obligation. A provision is recognised if the energy savings achieved are lower than the cumulative energy savings obligation. The amount of the provision is equal to the cost of actions still to be taken to meet the obligations related to the energy sales made.

1.3.28.4 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

Accounting methods for 2016 are unchanged from 2015.

Note 3 SIGNIFICANT EVENTS AND TRANSACTIONS

3.1 EXTENSION TO 50 YEARS OF THE DEPRECIATION PERIOD OF THE 900MW PWR SERIES IN FRANCE [1]

The Group considers that all the technical, economic and governance conditions necessary to bring the depreciation periods of its 900MW PWR power plants in France into line with its industrial strategy are fulfilled in 2016.

In view of studies and work already completed, particularly concerning replacement of components and controlled equipment ageing, the Group has sufficient assurance of the plants' technical capacity to operate for at least 50 years. This is also confirmed by the international benchmark.

The Group has also made progress with the Nuclear Safety Authority (*Autorité de Sûreté Nucléaire* (ASN)) on the question of the content of the fourth 10-year inspections of this series as part of the *Grand Carénage* overhaul programme. Although some points remain to be finalised, the components of these inspections are currently in a convergence process with the ASN. This is demonstrated by the Re-examination Orientation File response sent by the ASN to EDF in April 2016, in which the ASN stated its agreement with the company's chosen themes and commitments for these inspections. This was an important step in the process, giving EDF secure grounds for industrial preparations for the 10-year inspections pending the ASN's generic opinion, which should be issued a few months before the first of the inspections begins.

Once its fourth 10-year inspections are completed, the 900MW PWR series will have reached a level of safety that is both as close as possible to EPR safety level and one of the highest worldwide.

Extending the nuclear reactors' operating lifetimes beyond 40 years also offers clearly positive returns that are higher than in a 40-year scenario, even in the event of long-term price depression.

Furthermore, the principle of operating lifetimes of more than 40 years is laid down in France's multi-year energy plan (*Programmation Pluriannuelle de l'Énergie* (PPE)) adopted by Decree 2016-1442 of 27 October 2016 as a necessity for secure power supplies. Extending the depreciation period of the 900MW series is consistent with the objectives of the PPE (particularly development of renewable energies, and control of greenhouse gas emissions).

In view of all these factors, the Group considers that the best estimate for the depreciation period of the 900MW series is now 50 years. This change in accounting estimate does not affect the ASN's decisions to authorise continued operation. Authorisations will be given individually for each unit after each 10-year inspection, which is currently the case as required by law.

The Group therefore undertook this change of accounting estimate at 1 January 2016 for all its power plants in the 900MW series in France, except for Fessenheim.

1. *Except for Fessenheim*

This change of accounting estimate is applied prospectively, and has the following consequences for the Group's consolidated financial statements at 31 December 2016:

- At 1 January 2016, due to timing differences in the payment schedules, provisions relating to nuclear power generation were reduced by €2,044 million (see note 29), including €1,657 million covered by dedicated assets (see note 47.4). This reversal from provisions does not affect the income statement, but is allocated to the net book value of the assets in compliance with IFRIC 1 (see note 22.1). It is almost entirely taxable and generates a current tax liability of €679 million.
- The impacts in 2016, are estimated as follows :
  - The 10-year extension of the accounting depreciation period, and the reduction in the value of assets at 1 January 2016 in line with the decrease in nuclear provisions, leads to a lower depreciation charge compared to depreciation based on a 40-year depreciation period, estimated at €965 million for the year;
  - the reduction in nuclear provisions at 1 January 2016 leads to a €90 million decrease in the cost of unwinding the discount;
  - income related to partner advances made to EDF under the nuclear plant financing plans is down by €42 million;
  - overall, the various effects lead to a €1,013 million increase in the income before taxes, and a €664 million increase in consolidated net income.

3.2 HINKLEY POINT C: SIGNATURE OF THE FINAL AGREEMENTS

On 21 October 2015, EDF and China General Nuclear Power Corporation (CGN) signed a Strategic Investment Agreement for joint investment in the construction of two EPRs at the Hinkley Point C site (HPC) in Somerset. The agreement also includes a UK partnership to develop the new nuclear power plants Sizewell (SZC) in Suffolk and Bradwell B (BRB) in Essex.

The final agreements concerning Hinkley Point C were signed on 29 September 2016 following the final investment decision authorized by EDF's board of directors on 28 July 2016.

This important milestone marks the end of the development phase for the Hinkley Point C project after ten years of planning and preparation involving assessment of the generic EPR design, obtaining the licence for the nuclear site, and the start of on-site work.

Funding

Under the Strategic Investment Agreement, EDF holds 66.5% of the project entity HPC and CGN holds 33.5%.

EDF intends to remain the majority shareholder and has noted the British Government's stipulation that control of HPC should not be transferred during the construction phase without its approval. EDF has not ruled out the possibility of bringing other investors into the project in due course, but will retain a stake of at least 50%.

Financing guarantee agreements for the HPC project were also signed with the British Treasury on 29 September 2016. A first tranche of a maximum £2 billion will be made available once certain required conditions are fulfilled. However, as EDF has indicated to the British government, it currently has no intention of using this guarantee, and the project will be self-funded, at least initially.

Return on investment and sensitivity

The total project cost is estimated at £18 billion nominal (excluding interim interest). This investment will be equity financed by the partners, at least in an initial phase. The EDF group's share amounts to £12 billion and CGN's share is £6 billion. These figures include a contingency provision. In the event the final project cost is lower, any gains made will be shared with consumers under the profit-sharing mechanism of the Contract for Difference. The plant construction risks, particularly those associated with delays and budget overruns, are borne by the investors.

The total equity commitment by the shareholders includes an additional 15% margin amounting to £2.7 billion, in addition to the £18 billion planned.

The projected IRR is estimated at around 9%.

The sensitivity of this IRR is approximately 45 base points for a twelve-month delay on construction.

Agreement for secure income: the Contract for Difference – CfD.

As announced on 21 October 2015, the HPC project entity and the British government's Department of Energy and Climate Change (DECC) have finalised the terms for the Contract for Difference that was approved in October 2014 by the European Commission as compliant with EU regulations on State aid.

This CfD was signed on 29 September 2016 and is designed to guarantee returns on the electricity produced and sold by HPC, through payments based on the differential between the contractual strike price defined below and the market price over a 35-year period beginning once the plant starts operation.

From that date, if the benchmark price for the sales of HPC-generated electricity on the market falls below the strike price agreed in the contract, the generator will receive a top-up payment. If the price is higher, the generator will pay the difference.

Impacts on the 2016 consolidated financial statements

The agreements signed notably led to the partial sale by EDF to CGN of Hinkley Point C (33.5%) and Sizewell C (20%). As these are non-controlling interests, Hinkley Point C and Sizewell C remain fully consolidated and the operation has no impact on net income. This operation had an impact of €(548) million on EDF's share of equity and €1,510 million on the non-controlling interests' share of equity. These amounts comprise the reallocation to non-controlling interests of part of the goodwill of EDF Energy, which was essentially recognised when the Group took over British Energy in 2009.

The amount received in 2016 for these sales was €830 million. CGN also participated to the extent of its ownership interest in the capital increases undertaken by Hinkley Point C and Sizewell C after these operations, in the total amount of €469 million.

3.3 SENIOR BOND ISSUES

On 6 October 2016, EDF raised the equivalent of €5.4 billion through a series of senior bond issues in US dollars, Euros and Swiss Francs. Details are as follows:

- EDF undertook a €3 billion multi-currency senior bond issue in 4 tranches:
    - a €1,750 million Green Bond, with 10-year maturity and a fixed coupon of 1%;
    - a €750 million bond with 20-year maturity and a fixed coupon of 1.875%;
    - a CHF 400 million bond, with 8-year maturity and a fixed coupon of 0.3%;
    - a CHF 150 million bond, with 12-year maturity and a fixed coupon of 0.65%.
- On the same day, EDF raised US$2.7 billion from some twenty investors through 2 senior Formosa bonds on the Taiwanese market:
    - a US$491 million bond, with 30-year maturity and a fixed coupon of 4.65%;
    - a US$2,164 million bond, with 40-year maturity and a fixed coupon of 4.99%.

These transactions enable the Group to further diversify its investor base and extend the average maturity of its gross debt.

3.4 EDF AND AREVA SIGN BINDING AGREEMENTS FOR THE ACQUISITION OF AREVA NP'S ACTIVITIES

EDF and AREVA SA signed a non-binding memorandum of understanding on 30 July 2015 that formalised the state of progress on discussions concerning their contemplated partnership. This memorandum had three sections:

- Acquisition by EDF of exclusive control over AREVA NP. The plan was that EDF should hold majority control (at least 51%) of AREVA NP, while AREVA would hold up to 25% in a strategic partnership, that could potentially involve other minority partners;
- Formation of a dedicated company (currently named Nuclear Island Common Engineering), owned 80% by EDF and 20% by AREVA NP, to optimise design activities and construction for nuclear islands and command-control systems for new projects in France and internationally;
- Conclusion of a comprehensive strategic and industrial partnership agreement covering such areas as promotion of integrated offerings (fuel assemblies and materials) in the event of new reactor export sales, cooperation on dismantling work (methods, tools, skills, etc) and storage of spent fuel (joint export offerings), continuation of studies concerning fourth-generation reactors (boilers and fuel) and cooperation in R&D.

At its meeting of 27 January 2016, EDF's Board of Directors was informed that following due diligence work conducted during the second half of 2015, discussions with AREVA regarding EDF's takeover of the activities of AREVA NP had been finalized.

The Board approved the final valuation of the activities to be acquired by EDF, amounting to €2.5 billion for 100% of the capital[1] of AREVA NP. This amount could be revised upwards or downwards depending on the financial statements drawn up at the transaction's completion date, with a possible earn-out payment of up to €350 million based on achievement of certain performance objectives measured after the completion date.

A further non-binding memorandum of understanding was signed by the same parties on 28 July 2016, noting new developments since early 2016 which did not affect the three sections presented above. The valuation was unchanged and the earn-out payment was revised to a maximum €325 million.

The new developments since early 2016 are:

  - The negative outcome of discussions with TVO on the initial proposed arrangements to give EDF total protection against the risks of the Olkiluoto 3 (OL3) project, leading to the following new transaction structure: formation of a company, New AREVA NP, over which EDF will acquire exclusive control: this company will take over the contracts currently held by AREVA NP except for the OL3 contract and certain other contracts involving risks that EDF does not intend to bear. The contracts for the Olkiluoto 3 EPR project and the resources required to complete the project, as well as certain contracts relating to components forged in Le Creusot plant, will be retained by AREVA NP, which is part of the AREVA SA group, depending on their maturities and the assessment of the associated risks that is currently in process as part of the ongoing audits.
  - AREVA NP remains a fully-owned subsidiary of AREVA SA and will retain all its current contracts that are not transferred to New AREVA NP. The valuation of New AREVA NP remains the figure validated by EDF for AREVA NP : €2.5 billion for 100% of the capital;
  - AREVA and EDF have a common intention to set up the dedicated company currently named Nuclear Island Common Engineering (NICE) before EDF's acquisition of exclusive control over New AREVA NP;
- The cases of non-quality observed at AREVA's Le Creusot plant, whether insufficient control of carbon content ("carbon segregation") or irregularities in the manufacturing records. The new memorandum of understanding laid down the principles for indemnification and protection of EDF against the consequences of these issues: non-transfer of terminated contracts to New AREVA NP, specific indemnities and a general guarantee, prerequisite conditions for completion of EDF's acquisition of exclusive control over New AREVA NP (intended for late 2017) depending on on the ASN's conclusions on test results for the Flamanville 3 reactor's primary circuit, and the results of the quality audit launched by AREVA NP in the Le Creusot, Saint-Marcel and Jeumont plants. AREVA SA will remain responsible in the usual way for the contractual obligations concerning any defects brought to light in quality control for equipment manufactured at Le

1. *Without transfer of financial debt*

Creusot, and, if relevant at the Saint-Marcel and Jeumont plants. The aim is to provide EDF with full protection from the risks associated with any defects noted that are classified as serious.

In accordance with the terms of this memorandum of understanding, an equity sale contract was signed between EDF SA, and AREVA SA and AREVA NP. Opinions on the operation were issued by EDF's Central Works Committee on 27 October 2016 and AREVA's Central Works Committee on 10 November 2016, and it was approved by AREVA's Board of Directors on 10 November 2016 and EDF's Board of Directors on 15 November 2016. The contract was signed by all parties on 15 November 2016.

Completion of the transaction, expected during the second half of 2017, remains conditional on:

- favourable ASN conclusions regarding the outcome of the tests on the Flamanville 3 reactor's primary circuit,
- completion with satisfactory conclusions of the quality audits at Le Creusot, Saint-Marcel and Jeumont plants,
- clearance by the relevant merger control authorities.

Meanwhile, AREVA and EDF have begun discussions with strategic investors that have expressed an interest in becoming shareholders in New AREVA NP alongside EDF. The stake acquired by EDF could thus be reduced to a target of at least 51%, with EDF retaining exclusive control.

3.5 DISPOSAL PLAN

3.5.1 EDF, Caisse des Dépôts and CNP Assurances: Signature of a binding agreement for a long-term partnership with RTE

On 14 December 2016, EDF entered into a binding agreement with Caisse des Dépôts and CNP Assurances for the acquisition by Caisse des Dépôts and CNP Assurances of 49.9% of the capital of Réseau de Transport d'Electricité (RTE)[1], and the modalities of a long-term partnership to promote the development of RTE.

The final agreed value was set at €8,200 million for 100% of RTE's equity, with a potential supplement of up to €100 million.

Completion of the operation is expected during 2017, once the necessary authorisations (e.g. by the merger control authorities) have been given.

Under the chosen structure for the sale, on 23 December 2016 EDF transferred all the shares in RTE to a new company, currently named C25, which is partly financing this operation through external debt to the extent of €2,820 million.

EDF will then sell 49.9% of the equity capital of this company to Caisse des Dépôts and CNP Assurances.

C25 remains fully-owned by EDF at 31 December 2016, and this operation has no impact on the Group's financial statements apart from the reclassification of 49.9% of C25's balance sheet items as assets and liabilities held for sale (see note 46).

Following publication of Decree 2016-1781 of 19 December 2016, the shares of C25 can be allocated to the portfolio of dedicated assets intended to cover EDF's back-end nuclear cycle expenses. At 31 December 2016, 75.93% of the shares in C25 are allocated to dedicated assets (see note 47.3). Once the operation is completed, EDF's remaining investment in C25 (50.1%) will be allocated to the dedicated asset portfolio.

3.5.2 EDF: Future sale of EDF Polska's assets

Following an open competitive process, on 26 October 2016 EDF announced that it was beginning exclusive negotiations with IFM Investors, which made a binding offer to the Group for its Polish cogeneration activities (heat and electricity). A separate sale process for the coal-fired Rybnik power plant (1.8GW capacity) was already in exclusive negotiations between the EDF group and EPH.

To finalise these two operations, it was necessary to split EDF Polska into two stand-alone entities, one holding the cogeneration assets and the other Rybnik. The Polish government informed the EDF group on 12 December 2016 that it had decided not to authorise this split.

1. *29.9% for Caisse des Dépôts and 20% for CNP Assurances.*

In view of the ongoing sales process for EDF Polska's businesses, the assets and liabilities concerned have been classified as assets and liabilities held for sale (see note 46).

On 27 January 2017, a memorandum of understanding was signed by EDF and a consortium of Polish utilities comprising Polska Grupa Energetczna (PGE), Enea, Energa and PGNiG Termika, in preparation for the sale of EDF Polska and Kogeneracja SA.

3.5.3 EDF finalises the sale of 100% of EDF Démász Zrt. to ENKSZ

On 5 December 2016, EDF and the Hungarian state-owned national public utility "Első Nemzeti Közműszolgáltató Zrt." (ENKSZ) signed a firm agreement for the sale of 100% of the Hungarian subsidiary EDF Démász Zrt.

The Group has classified the assets and liabilities concerned by this operation as assets and liabilities as assets held for sale and related liabilities (note 46).

On 31 January 2017, EDF and ENKSZ completed the sale of the total capital of EDF Démász Zrt. This announcement followed approval of the operation by the Hungarian energy sector regulator and the French Ministry for the Economy.

The transaction values EDF's 100% stake in EDF Démász Zrt at approximately €400 million, and is a new step forward in the execution of the Group's disposal plan for the period 2015-2020.

3.5.4 EDF Trading and JERA: Sale of the coal trading and freight business

On 21 December 2016, EDF Trading signed a binding agreement for the sale of its coal business and the associated freight activity to JERA Trading Singapore. After this transaction is finalised, EDF Trading will own one third of the shares in the new trading company (JERA Trading) which should be operational by the end of the first half of 2017.

The Group has classified the assets and liabilities concerned by this operation as assets held for sale and related liabilities (note 46).

3.6 PARTIAL ASSIGNMENT OF THE CSPE RECEIVABLE

On 22 December 2016 EDF assigned a portion (26.4%) of the CSPE (Contribution to the Public Electricity Service) receivable on the French state, corresponding to the accumulated shortfall at 31 December 2015 in compensation for public energy service costs.

This receivable was assigned to a pool of investors comprising a bank and a dedicated securitisation vehicle. This assignment generated income of €1,538 million.

Part of the assigned receivable was not allocated to dedicated assets, and consequently assignment of this portion led to a €644 million improvement in net indebtedness (as defined in note 38.3). The balance was allocated to dedicated assets and the corresponding amount has been reinvested in those assets.

3.7 COMPENSATION ARRANGEMENTS FOR THE CLOSURE OF THE FESSENHEIM PLANT

At a meeting held on 24 January 2017, EDF's Board of Directors examined the terms of the protocol negotiated between the company and the French State concerning compensation for the prejudice to the company resulting from closure of the Fessenheim nuclear power plant, in application of the Energy Transition Law of 17 August 2015.

This Law caps the total authorised installed nuclear generation capacity in France at 63.2GW. This means that the Flamanville 3 EPR cannot be commissioned before the final shutdown of an equivalent generation capacity by the commissioning date.

The Board of Directors was informed of the unanimously negative opinion issued by EDF's Central Works Council on 10 January 2017.

The Board approved the terms of the protocol and authorised the CEO to sign it on behalf of EDF in due course. The protocol provides for the following compensation for EDF:

- a fixed initial portion covering the anticipated costs associated with the closure (costs of staff retraining, decommissioning, the INB tax on basic nuclear facilities and "post-operation" costs). This fixed portion is currently estimated at approximately €490 million, 20% of which would be paid in 2019 and 80% in 2021;
- a further, variable portion that could give rise to subsequent payments reflecting the loss of income for EDF until 2041. This will be determined on the basis of market prices and the actual volumes generated by EDF's 900 MW power plants other than Fessenheim over that period. EDF's partners in the Fessenheim plant (EnBW and CNP) will have certain conditional entitlements to a share of the compensation for loss of income, proportional to their contractual rights to the plant's generation capacity.

The closure of the Fessenheim plant requires a decree revoking its operating licence, to be issued at the request of the company. In application of the Law, this decree will take effect at the same time as the commissioning of the Flamanville 3 EPR, scheduled for late 2018.

In the corporate interests of EDF, and in order to comply with the statutory ceiling of 63.2 GW, the Board decided that submission of the request for revocation would be subject to the entry into force of the authorisations required to continue construction of the Flamanville 3 EPR and operation of Paluel 2, which is currently offline, and European Commission clearance of the protocol as regards State aid regulations.

The Board has decided that further deliberations will take place to establish that these conditions are fulfilled before the request for revocation is submitted.

3.8 SIGNIFICANT EVENTS AND TRANSACTIONS OF 2015

3.8.1 Ministerial order concerning the cost of the Cigéo storage project

On 15 January 2016 the Ministry of Ecology, Sustainable Development and Energy issued an order setting the cost associated with implementation of long-term management solutions for long-lived medium and high-level radioactive waste under the Cigéo storage project at €25 billion under 2011 economic conditions. This cost valuation is required by Article L542-12 of France's Energy Code.

The cost stated in the order constituted an objective to be met by the French Agency for Radioactive Waste Management (ANDRA), in compliance with safety standards set by the Nuclear Safety Authority (ASN), in close cooperation with operators of nuclear installations. In application of this order, the cost of the Cigéo project will be regularly updated, at least at each key milestone of the project's development (authorisation to create the facility, commissioning, end of the "pilot industrial phase", safety reviews) in accordance with the opinion of the ASN.

The cost of the Cigéo project set by the ministerial order replaced the estimated benchmark cost of €20.8 billion previously used by the EDF Group for its consolidated financial statements.

At 31 December 2015, the new cost figure resulted in an increase of around €820 million in the provisions for long-term radioactive waste management established to cover future expenses relating to the Cigéo deep storage project.

This increase in provisions had a negative impact of €509 million, net of taxes, on EDF net income attributable to the Group for 2015.

3.8.2 Edison: Arbitration concerning long-term gas supply contracts

On 27 November 2015, the International Chamber of Commerce Court of Arbitration notified Edison and ENI of its decision regarding arbitration concerning the long-term Libyan gas contract price. This decision led to a positive impact of €855 million on the Group's operating profit before depreciation and amortisation for 2015.

3.8.3 European Commission decision on the tax treatment of provisions established between 1987 and 1996 for renewal of General Network facilities

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 which covered 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 a ruling on 15 December 2009 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 enforceable, 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 ruling of the General Court of the European Union of 15 December 2009.

On 2 May 2013, the European Commission decided to reopen its investigation to re-examine the question of whether or not the State aid had acted as an informed market economy investor under the tests established by the European courts.

On 22 July 2015 the European Commission issued a new decision classifying the tax treatment of provisions established between 1987 and 1996 for renewal of General Network facilities as state aid, considering that the tax exemption granted to EDF could not be treated as an investment for economic reasons. As a result of this decision the French state ordered EDF to reimburse the amount corresponding to the aid received, plus interest calculated as determined by the Commission, giving a total of €1.38 billion.

EDF duly reimbursed the sums demanded. However, the Group contests the existence of unlawful state aid and filed a new action for annulment before the European Union General Court on 22 December 2015. These proceedings are still ongoing.

EDF recognised the consequences of this decision as follows in its consolidated financial statements at 31 December 2015:

- In a symmetrical approach to the impacts recorded in the financial statements at 31 December 2009:
  - the principal amount of tax (€889) million was charged to the Group's consolidated equity,
  - concerning the associated financial interest, amounting to €494 million, the portion concerning EDF and Enedis was included in "Other financial income and expenses" and the portion concerning RTE was included in "Share in net income of associates and joint ventures". The impact on EDF net income attributable to the Group amounted to €(354) million.
- On 13 October 2015, EDF made a corresponding payment of €1,383 million to the French state, which was partly offset by a reimbursement of €375 million received from RTE;
- The value of RTE shares was thus reduced by a net-of-tax amount equivalent to its share in the above principal and interest (in "Investments in associates and joint ventures").

The Commission's decision led to a net-of-tax increase of €906 million in net indebtedness for the Group.

3.8.4 Issuance of senior bonds

On 8 October 2015 EDF issued several tranches of a senior bond in US dollars:

- US$1,500 million with 5-year maturity and a 2.35% fixed coupon;
- US$500 million with 20-year maturity and a 4.75% fixed coupon;
- US$1,150 million with 30-year maturity and a 4.95% fixed coupon;
- US$350 million, with 40-year maturity and a 5.25% fixed coupon.

On the same date, EDF launched a US$1,250 million green bond with 10-year maturity and a fixed coupon of 3.625%.

These issues followed a US$1,500 million senior Formosa bond issue on the Taiwanese market on 25 September 2015 (30-year maturity and a 4.75% fixed coupon).

Note 4 Regulatory changes in France

4.1 REGULATED ELECTRICITY SALES TARIFFS IN FRANCE

4.1.1 Cancellation by the Council of State of the 2014-2015 regulated tariffs

Several petitions for cancellation and repeal of the ministerial orders of 28 July and 30 October 2014 and the Decree of 28 October 2014 were brought before the Council of State by the ANODE (French association of energy retail operators).

After a public reading of the reporting officer's *(Rapporteur's)* conclusions on 13 May 2016, the Council of State issued its decisions on 19 May and 15 June 2016, in which:

- it dismissed the substance of the appeal against the Decree of 28 October 2014, thereby validating the "stacking" method for constructing regulated sales tariffs;
- it overturned the ministerial order of 28 July 2014 that cancelled the 5% increase in "blue" tariffs from 1 August 2014 planned in a previous Decree of 26 July 2013, for reasons of unsound legal grounds.
- it cancelled the decision of 30 October 2014 due to the insufficient level of "blue" residential tariffs and "green" tariffs which had been set without including the total tariff regularisation adjustment existing at that date.

The rectified tariffs for 2014-2015 requested by the Council of State were published in the *Journal Officiel* on 2 October 2016.

Based on this rectification, additional sales revenues of €1,030 million (of which €1,018 million relate to EDF) were recognised in the Group's consolidated income statement in 2016. Including the various costs associated with the rectification, the impact on Group operating profit before depreciation and amortisation for 2016 amounts to €872 million.

4.1.2 Regulated electricity sales tariffs

"Blue" tariffs

In application of the NOME Law on organisation of the French electricity market, on 7 December 2015 responsibility for proposing tariff scales was transferred to France's Energy Regulation Commission (*Commission de Régulation de l'Énergie* or CRE).

On 13 July 2016 the CRE proposed an average 0.5% reduction in the blue tariff for residential customers and an average 1.5% reduction in the blue tariff for non-residential customers. The ministers concerned accepted this proposal and the ministerial order on these new tariff scales was published in the *Journal Officiel* of 29 July 2016, to take effect from 1 August 2016. The CRE's proposal also gave details of the methodologies and options chosen to calculate regulated sales tariffs, using the "stacking" method in accordance with the Decree of 28 October 2014 and the NOME Law.

"Yellow" and "green" tariffs

31 December 2015 saw the end of the "yellow" and "green" regulated tariffs. By 1 January 2016 around three quarters of the sites concerned had signed a market-rate contract with their chosen supplier. The remaining quarter who had not yet signed up with a supplier continued to receive electricity from their former supplier, under a transitional contract that was due to end on 30 June 2016.

During the first half of 2016 the CRE organised calls for tenders from suppliers to allocate the sites that had not chosen a supplier at 30 June 2016 (approximately 20,000 sites at the beginning of June 2016). Suppliers bid for combinations of a contract and an electricity price set by the CRE, proposing an amount per megawatt sold that would be passed on to the State. No supplier could be awarded more than 15% of contract combinations.

EDF, like several other suppliers, was awarded 15% of these contracts and has supplied the sites concerned since 1 July 2016 on the basis of the contract and the prices set by the CRE, while continuing to offer its own contracts.

In November 2016, the CRE organised a second call for tenders to allocate the sites still on transitional contracts due to lack of bids, sites that were left out of the combinations in the first call for tenders, and sites that had not switched to the scope of the allocated supplier (around 2,700 sites). No bids were made, and these sites remain on transitional contracts.

4.2 "TURPE" NETWORK ACCESS TARIFFS

TURPE 4 indexing

On 2 June 2016 France's Energy Regulation Commission (*Commission de Régulation de l'Énergie* or CRE) published its decision for changes from 1 August 2016 in the TURPE distribution tariff, raising it by 1.11%, rounded down to 1.1%. This rise reflected stable inflation (0.03%) and 1.08% for the clearance of the income and expenses adjustment account (CRCP)[1].

On 13 May 2016 France's Council of State rejected the application by energy company Direct Énergie for cancellation, on the grounds that the CRE had exceeded its powers, of the CRE's decision of 12 December 2013 setting the tariffs for use of the high voltage and low voltage public electricity distribution network (the TURPE 4 distribution tariffs).

TURPE transmission tariffs increased by 1.37%, rounded up to 1.4%, from 1 August 2016, again corresponding to stable inflation (0.03%), -0.81% for the clearance of the CRCP, and 2.15% for the interruptibility service.

TURPE 5

On 17 November 2016, the CRE published its decisions for the TURPE Transmission and TURPE Distribution tariffs for the period 2017-2020, to take effect from 1 August 2017.

The TURPE 5 Transmission tariff is due to increase by 6.76% from 1 August 2017, with subsequent rises on 1 August in the years 2018 to 2020, based on average inflation observed over the previous calendar year (excluding the correcting effects of the CRCP). The TURPE 5 sets the weighted average cost of capital (WACC) at 6.125% for the return on RTE's asset base, compared to 7.25% in TURPE 4.

The TURPE 5 Distribution tariff is due to increase by 2.71% from 1 August 2017, with subsequent rises on 1 August in the years 2018 to 2020, based on average inflation observed over the previous calendar year (excluding the correcting effects of the CRCP). The TURPE 5 continues to use the previous method for calculating cost of capital, but adjusts the margin on assets to 2.6% (2.5% for TURPE 4) and the return on regulated equity to 4.1% (6.1% for TURPE 4).

The *Journal Officiel* of 28 January 2017 contained the three CRE decisions concerning the TURPE 5: the two above decisions on the TURPE 5 Transmission and Distribution tariffs, and the decision of 19 January 2017 issued in response to a request for a further decision. This request came from the Minister for the Environment, Energy and the Sea who is in charge of international relations on climate matters, and in the resulting decision the CRE upheld its initial decision concerning the TURPE 5 Distribution tariff.

On 3 February 2017, EDF filed a petition with the Council of State for cancellation of the CRE's decisions concerning the TURPE 5 distribution tariff.

Decision of the Paris Court of Appeal (gas) and the Council of State (electricity)

In a decision dated June 2, 2016, the Paris Court of Appeal ruled that the gas distributor GrDF should "bear, at least partly, the management costs of services provided by suppliers" of gas. It therefore ordered GRDF to conclude an amendment to the distribution network access contract (DAC), to ensure that Direct Énergie and ENI, the plaintiffs in the court case, would receive "fair remuneration commensurate with the cost savings for the Distribution Network Manager" The Court also ordered GrDF to pay retroactive remuneration to Direct Énergie from 21 June 2005, the date the relevant DAC contract was signed.

On the grounds of this decision, EDF applied to GrDF for remuneration for services performed on behalf of the gas network operator from the start of its own DAC contract.

This decision concerning the gas industry was followed on 13 July 2016 for the electricity industry by the Council of State's cancellation of the CRE's decision of 10 December 2014 rejecting Engie's application for withdrawal of the CRE's decision of 26 July 2012 on management of customers under a single contract, which introduced an asymmetrical regulation system.

1. *A mechanism to measure and offset differences between the actual figures and the forecasts on which tariffs are based.*

The Council of State considered that remuneration paid to suppliers for customer management tasks executed on behalf of the electricity or gas distribution network operators cannot legally be transitional and limited to certain suppliers.

The Group is currently analysing the scope of this decision, which entitles electricity suppliers to remuneration. On 23 December 2016, Engie initiated related proceedings against Enedis before the Paris Commercial Court. These proceedings are ongoing.

In its decision of 17 November 2016, the CRE states that remuneration is payable to suppliers for customer management under a single contract by distribution network operators, but does not set out the calculation methods. These methods will be decided by the CRE in the second quarter of 2017, following a public consultation, as announced in the CRE's decision of 19 January 2017. This remuneration will be included in the expenses covered by the TURPE tariff.

4.3 EUROPEAN COMMISSION APPROVAL OF THE REVISED FRENCH CAPACITY MECHANISM

On 8 November 2016, the European Commission concluded that the capacity market proposed by France was compatible with internal market rules on State aid. This decision marked the end of an in-depth investigation opened one year earlier against France, and the mechanism was able to take effect as of 1 January 2017. The decision of 8 November 2016 lays down the methods for sales of capacity guarantees related to the ARENH system (see note 4.5).

The Commission's decision results from commitments made by the French authorities to modify the mechanism, mainly along three dimensions:

- To facilitate the entry of new market players by allowing new capacities to obtain certificates with a seven-year duration, subject to certain conditions;
- To include capacity providers from neighbouring EU Member States, subject to the capacity available for interconnections at peak times;
- To increase the mechanism's transparency and introduce measures to prevent possible market manipulation.

Amendments to the mechanism rules in November 2016 made it possible to apply the third of these measures.

For the first two, further amendments are needed that will take effect from 2019. Capacity market participants will be consulted on changes to the rules during 2017.

The first auction of French capacities was held on the European Power Exchange EPEX SPOT on 15 December 2016. A total volume of 22.6GW was traded between obligated capacity purchasers and operators selling capacity. The equilibrium price determined was €10/kWh. This price is also the "market reference price" of capacity for 2017.

The capacity price will be passed on to customers through their contracts with their supplier (EDF or a different supplier).

A further auction will take place in 2017 for 2017 and subsequent years.

4.4 COMPENSATION FOR PUBLIC ENERGY SERVICE CHARGES

The financing and compensation mechanism for public energy service charges (*compensation des charges de service public de l'énergie*) exists to compensate operators who are assigned certain public service charges relating to gas and electricity. EDF is the main operator concerned [1].

Charges covered by the mechanism

The current system results from a reform by France's amended finance law for 2015, published in the *Journal Officiel* on 30 December 2015. It is overseen by the French government, which funds it through the national budget with input from the CRE, which calculates and proposes the amounts of charges to be compensated for each operator. Public energy service charges are therefore included in the State budget through two items:

1. *Local distribution companies and Électricité de Mayotte also make small contributions to the system.*

- a special "Energy Transition" budget item, mainly covering the expenses borne by obligated operators, such as the additional costs associated with contracts obliging suppliers to purchase renewable energies and biogas, the differences between forecast and actual expenses, the annual contribution to repayment of the accumulated shortfall due to EDF, and reimbursement of surplus amounts of TICFE (renamed CSPE) to industrial operators who were exempt prior to 2016;
- a "Public Energy Service" item in the general budget to cover solidarity charges, purchase obligations excluding renewable energies, and the cost of applying the standard national tariffs to zones that are not connected to France's mainland network.

Funding for the CSPE mechanism

Funding for this system comes from four taxes on energy consumption (the TIFCE for electricity, the TICC for coal and similar sources, the TICGN for natural gas and the TICPE for fuel oils), in varying proportions.

For 2016, the special "Energy Transition" budget item was funded by 100% of the TICFE and 2.16% of the income generated by the TICGN. Income from the other taxes went into the general budget without being allocated to any particular expense item.

From 1 January 2017, the special "Energy Transition" budget item is funded by income from taxes on carbon energies, mainly the TICPE, supplemented by the TICC. Income from the other taxes, including the TICFE, contributes to the general budget.

The level of the TICFE (renamed CSPE) remained stable in 2016, with the full rate at €22.5/MWh, and reduced rates for electro-intensive users of between €0.5/MWh and €7.5/MWh, depending on a criterion of kWh per euro of value added and electro-intensiveness. These rates have not been changed by the French finance law for 2017.

Compensation for charges borne by EDF in 2016

The amount of expenses to be covered by compensation for EDF for 2016 is €6,365 million, 1% more than in 2015. The main explanation for this slight rise is the increase in the cost of purchase obligations, principally due to growth in the volume of renewable energies as the renewable energy fleet expands in France, partly offset by lower surplus costs for generation in non-interconnected zones. The amounts received during 2016 totalled €6,357 million, up by 4% from 2015.

Reimbursement of the pre-reform shortfall

The French government issued a ministerial order on 2 December 2016 setting the final amount of the receivable due to EDF at 31 December 2015 for the past accumulated shortfall in compensation (€5,780 million in principal excluding interest accrued in 2015). A repayment schedule was also laid down in the ministerial order such that the receivable will be repaid by 2020.

On 22 December 2016 EDF assigned a portion (26.40%) of the receivable on the French government for compensation for public energy service charges, corresponding to the accumulated shortfall in compensation for public energy services at 31 December 2015. This receivable was assigned to a pool of investors comprising a bank and a dedicated securitisation vehicle. The assignment operation generated income of €1,538 million.

Following this operation, from 2017 EDF will receive 73.6% (corresponding to the unassigned portion of the receivable) of reimbursements of this receivable and associated interest paid by the State.

4.5 ARENH

The slump in wholesale market prices made the wholesale market an attractive source of energy supplies over most of the year. Consequently, no applications for the ARENH (regulated access to historical nuclear electricity) scheme were made at the end of 2015 for supplies in the first half of 2016, or in mid-2016 for supplies during the second half of 2016.

However, a very large number of ARENH applications were made by alternative suppliers in November/December 2016 (a firm commitment of 40.8TWh for first-half 2017). Given the extremely rapid upturn in forward prices for 2017 (particularly for the first quarter, driving a general rise for the whole year) in the weeks leading up to the November/December 2016 round of bids for ARENH supplies, the application bids were higher than the ARENH price of €42/MWh, which also includes the value of capacity guarantees.

The ministerial orders of 8 and 14 November 2016 modified the ARENH framework agreement. The main changes were the addition of provisions concerning implementation of the capacity mechanism and the rules for early termination by suppliers. The revised framework agreement restricts the possibility of unilateral termination such that it is only applicable if the ARENH price is modified by more than 2%, there is a substantial modification to the framework agreement, or changes in ARENH regulations have a substantial, unfavourable effect on the balance of supply conditions for the buyer.

Note 5 Changes in the scope of consolidation

There was no significant change in the scope of consolidation during 2016. However, sales of non-controlling interests (other than the partial sale of HPC discussed in note 3.2) concerned the following entities:

5.1 DALKIA GROUP: SALE OF INVESTMENTS IN COGESTAR

Amundi Transition Energétique (ATE), the asset management company jointly owned by Amundi and EDF, acquired an investment in Cogestar 1 and Cogestar 2 on 16 December 2016, corresponding to 70% of their capital, for €53 million. Dalkia retains 30% and remains the sole service provider to the Cogestar entities for the entire lifetimes of the cogeneration assets they own.

The analysis of voting rights and governance of the Cogestar entities confirms that Dalkia still has exclusive control. The sale of shares to ATE, considered as a transaction between owners with no change in control, has no significant impact on Group equity.

This operation includes a bond issue (consisting entirely of bonds convertible into shares) by the Cogestar entities for the total amount of €86 million, to be subscribed by ATE. These convertible bonds are classified as equity instruments under IAS 32 (see note 27.4).

This operation is presented in cash flows from financing activities in the cash flow statement.

5.2 CHANGES IN THE SCOPE OF CONSOLIDATION IN 2015

5.2.1 Budapesti Erömü Zrt (BE Zrt)

On 10 December 2015, the EDF group completed the sale of its majority 95.6% stake in the Hungarian company Budapesti Erőmű Zrt (BE Zrt) to EP Energy.

This operation had no significant impact on the consolidated financial statements at 31 December 2015.

5.2.2 Estag

On 21 December 2015, the EDF group completed the sale of its minority 25% stake in Energie Steiermark Holding AG (Estag) following signature of an agreement for this operation with Macquarie Infrastructure and Real Assets in July 2015.

This operation had no significant impact on the consolidated financial statements at 31 December 2015.

5.2.3 Agreement on the EDF Luminus shareholder pact

On 26 October 2015 Publilec, Socofe, Ethias and Nethys, shareholders of EDF Luminus, and the EDF group signed an amendment to the shareholder pact extending it to 2025, and providing for the following reorganisation in the ownership structure (the control exercised by the Group was unaffected):

- Four Belgian shareholders remained, and they benefit from a liquidity mechanism allowing them to exit the capital of EDF Luminus from the end of 2018, subject to certain conditions;
- The EDF Group’s stake rose from 63.5% to 68.6% as a result of the Group’s acquisition of the shares in EDF Luminus held by Publilum and VEH for €58 million.

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.

Following regulatory changes in France in late 2015 (discontinuation of the "yellow" and "green" regulated tariffs, and opening up to market offers), the Group is changing its segment reporting in the tables of note 6.1. The former "France" segment has been replaced by two new segments, "France – Generation and Supply" and "France – Regulated activities".

The Group now uses the following segments:

- "France – Generation and Supply";
- "France – Regulated activities": distribution, transmission, EDF's island activities and the activities of Electricité de Strasbourg (which was previously part of the "Other activities" segment");
- "United Kingdom": the entities of the EDF Energy subgroup;
- "Italy": Edison entities and TdE SpA;
- "Other international": EDF International and the other gas and electricity entities located in continental Europe, the US, Latin America and Asia;
- "Other activities": comprising in particular EDF Trading, EDF Énergies Nouvelles, Dalkia, Tiru, and EDF Investissements Groupe.

No segments have been merged.

6.1.1 At 31 December 2016

(in millions of Euros)	France – Generation and Supply	France – Regulated activities	United Kingdom	Italy	Other international	Other activities	Inter-segment eliminations	Total
Income statements:								
External sales	34,137	5,387	9,266	11,105	5,138	6,170	-	71,203
Inter-segment sales	1,054	10,341	1	20	148	1,564	(13,128)	-
TOTAL SALES	35,191	15,728	9,267	11,125	5,286	7,734	(13,128)	71,203
OPERATING PROFIT BEFORE DEPRECIATION AND AMORTISATION	6,156	5,102	1,713	641	711	2,091	-	16,414
OPERATING PROFIT	3,265	2,395	486	(255)	213	1,410	-	7,514
Balance sheet:								
Goodwill	-	223	7,818	2	13	867	-	8,923
Intangible assets and property, plant and equipment	47,136	57,305	13,353	6,887	2,242	11,780	-	138,703
Investments in associates and joint ventures	355	2,558	59	104	4,587	982	-	8,645
Other segment assets (1)	30,098	4,281	4,386	2,696	738	8,118	-	50,317
Assets classified as held for sale	-	2,623	-	-	2,115	482	-	5,220
Other non-allocated assets								69,833
TOTAL ASSETS	77,589	66,990	25,616	9,689	9,695	22,229	-	281,641
Other information:								
Net depreciation and amortisation	(2,681)	(2,674)	(1,069)	(558)	(378)	(606)	-	(7,966)
Impairment	(65)	-	(81)	(159)	(194)	(140)	-	(639)
Equity (non-controlling interests)	-	38	4,782	400	641	1,063	-	6,924
Investments in intangible assets and property, plant and equipment	5,752	3,779	1,911	436	497	2,022	-	14,397

(1) Other segment assets include inventories, trade receivables and other receivables. By convention, the CSPE receivable is totally allocated to the France-Regulated Activities segment, in the amount of €1,647 million.

6.1.2 At 31 December 2015

The segment reporting at 31 December 2015 has been restated according to the new operating segments (see note 6.1).

(in millions of Euros)	France – Generation and Supply	France – Regulated Activities	United Kingdom	Italy	Other international	Other activities	Inter-segment eliminations	Total
Income statements:								
External sales	36,098	4,323	11,618	11,677	5,634	5,656	-	75,006
Inter-segment sales	1,229	11,095	4	17	193	1,632	(14,170)	-
TOTAL SALES	37,327	15,418	11,622	11,694	5,827	7,288	(14,170)	75,006
OPERATING PROFIT BEFORE DEPRECIATION AND AMORTISATION	6,936	4,719	2,242	1,345	609	1,750	-	17,601
OPERATING PROFIT	2,387	2,322	(217)	(814)	(382)	984	-	4,280
Balance sheet:								
Goodwill	-	223	9,163	-	15	835	-	10,236
Intangible assets and property, plant and equipment	45,338	55,837	14,668	7,350	3,907	12,103	-	139,203
Investments in associates and joint ventures	466	5,159	61	171	4,891	777	-	11,525
Other segment assets (1)	27,461	3,789	5,044	3,196	1,033	7,087	-	47,610
Assets classified as held for sale	-	-	-	-	-	-	-	-
Other non-allocated assets	-	-	-	-	-	-	-	70,367
TOTAL ASSETS	73,265	65,008	28,936	10,717	9,846	20,802	-	278,941
Other information:								
Net depreciation and amortisation	(3,228)	(2,507)	(1,416)	(856)	(461)	(541)	-	(9,009)
Impairment	(259)	-	(1,096)	(1,420)	(473)	(252)	-	(3,500)
Equity (non-controlling interests)	-	37	3,174	633	640	1,007	-	5,491
Investments in intangible assets and property, plant and equipment	5,695	3,657	1,823	587	696	2,331	-	14,789

(1) Other segment assets include inventories, trade receivables and other receivables. By convention, the CSPE receivable is totally allocated to the France-Regulated Activities segment, in the amount of €1,643 million.

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 electricity distribution networks;
- "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.).

(in millions of Euros)	Generation - Supply	Distribution	Other	Total
2016 :				
External sales :				
- France [(1)]	24,247	15,202	75	39,524
- International and Other activities	26,652	145	4,882	31,679
SALES	50,899	15,347	4,957	71,203
2015 :				
External sales :				
- France [(1)]	25,477	14,865	79	40,421
- International and Other activities	29,787	148	4,650	34,585
SALES	55,264	15,013	4,729	75,006

(1) "France" comprises the two operating segments "France – Generation and Supply" and "France – Regulated activities" (see note 6.1).

INCOME STATEMENT

Note 7 Sales

Sales are comprised of:

(in millions of Euros)	2016	2015
Sales of energy and energy-related services	68,128	72,768
Other sales of goods and services	2,051	1,557
Trading	1,024	681
SALES	71,203	75,006

The decrease in sales observed in 2016 is principally attributable to lower sales in the United Kingdom and France.

In the United Kingdom, sales mainly decreased as a result of the downturn in market prices for electricity and the highly competitive environment. Sales in the United Kingdom were also affected by the fall in value of the pound sterling.

In France, the movement in sales observed in 2016 primarily reflects stiffer competition (with the end of the "yellow" and "green" regulated tariffs) and lower market prices for electricity. The decrease in nuclear power output, principally related to requests by the Nuclear Safety Authority (ASN) for inspections, led to a substantially lower supply on the wholesale markets.

These sales decreases were partly offset in France by the effects of regularisation of regulated sales tariffs for the period 1 August 2014 to 31 July 2015, amounting to €1,030 million (see note 4.1), and a favourable weather effect, as well as a good performance by EDF Trading in Europe.

Note 8 Fuel and energy purchases

Fuel and energy purchases comprise:

(in millions of Euros)	2016	2015
Fuel purchases used - power generation	(12,639)	(13,572)
Energy purchases	(14,805)	(15,870)
Transmission and delivery expenses	(9,017)	(9,462)
Gain/loss on hedge accounting	(110)	(209)
(Increase)/decrease in provisions related to nuclear fuels and energy purchases	521	338
FUEL AND ENERGY PURCHASES	(36,050)	(38,775)

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, incorporating energy derived from cogeneration intended for resale.

Note 9 Other external expenses

Other external expenses comprise:

(in millions of Euros)	2016	2015
External services	(11,177)	(11,631)
Other purchases (excluding external services, fuel and energy)	(2,486)	(2,617)
Change in inventories and capitalised production	4,728	4,509
(Increase)/decrease in provisions on other external expenses	33	213
OTHER EXTERNAL EXPENSES	(8,902)	(9,526)

After elimination of changes in foreign exchange rates and the scope of consolidation, other external expenses were down across all operating segments, showing an overall decrease of some (6)% from 2015.

Note 10 Personnel expenses

10.1 PERSONNEL EXPENSES

Personnel expenses comprise:

(in millions of Euros)	2016	2015
Wages and salaries	(7,860)	(7,878)
Social contributions	(1,885)	(1,867)
Employee profit sharing	(218)	(274)
Other contributions related to personnel	(366)	(388)
Other expenses linked to short-term benefits	(242)	(236)
Short-term benefits	(10,571)	(10,643)
Expenses under defined-contribution plans	(939)	(952)
Expenses under defined-benefit plans	(839)	(949)
Post-employment benefits	(1,778)	(1,901)
Other long-term expenses	(190)	11
Termination payments	(4)	4
Other personnel expenses	(194)	15
PERSONNEL EXPENSES	(12,543)	(12,529)

10.2 AVERAGE WORKFORCE

	2016	2015
IEG status	103,275	104,186
Other	51,533	52,126
AVERAGE WORKFORCE	154,808	156,312

Average workforce numbers for the controlled entities and joint operations are reported on a full-time equivalent basis.

A more detailed presentation of workforce categories can be found in the "Environmental and Societal Information – Human Resources" section of the Reference Document in section 3.5.3, "Social indicators".

Note 11 Taxes other than income taxes

Taxes other than income taxes break down as follows:

(in millions of Euros)	2016	2015
Payroll taxes	(265)	(258)
Energy taxes	(1,566)	(1,505)
Other non-income taxes	(1,825)	(1,878)
TAXES OTHER THAN INCOME TAXES	(3,656)	(3,641)

Taxes other than income taxes mainly concern France and essentially comprise land tax and the French business taxes on land and value added.

Note 12 Other operating income and expenses

Other operating income and expenses comprise:

(in millions of Euros)	Notes	2016	2015
Operating subsidies	12.1	6,765	6,552
Net income on deconsolidation	12.2	290	319
Gains on disposal of fixed assets	12.2	108	138
Net increase in provisions on current assets		(17)	(10)
Net increase in provisions for operating contingencies and losses		41	(168)
Other items	12.3	(825)	235
OTHER OPERATING INCOME AND EXPENSES		6,362	7,066

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 €6,510 million for 2016 (€6,320 million for 2015). The difference is principally explained by the higher subsidy for purchase obligations due to an increase in volumes of wind power and photovoltaic energy purchased, and the decline in market prices for electricity.

12.2 NET INCOME ON DECONSOLIDATION AND GAINS ON DISPOSAL OF FIXED ASSETS

In 2016, net income on deconsolidation and gains on disposal of property, plant and equipment mainly includes:

- gains on sales of EDF Énergies Nouvelles' generation assets as part of the Development and Sale of Structured Assets (DSSA) activities, amounting to €357 million (€340 million for 2015);
- gains on sales of real estate assets in France, amounting to €230 million (€236 million for 2015).

12.3 OTHER ITEMS

Other items notably include losses on non-recoverable operating receivables, and costs associated with the Energy Savings Certificates used or consumers over the year, which were higher than in 2015.

In 2015, another main component of other items was the prior-year effects of arbitration rulings in favour of Edison for the revision of long-term gas supply contract prices (see note 3.8.2).

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	2016	2015
Impairment of goodwill	18	-	(34)
Impairment of other intangible assets	19	(159)	(210)
Impairment of tangible assets and discontinued operations	21-22-46	(480)	(3,256)
IMPAIRMENT NET OF REVERSALS		(639)	(3,500)

In 2015, the €(3,500) million of impairment recorded mainly concerned:

- The Group's thermal assets (coal-fired and gas-fired plants and gas storage facilities) in Europe (principally located in the United Kingdom, Italy, Belgium, Poland and Germany): €(2,281) million;
- Edison's exploration and production assets: €(551) million.

In 2016, impairment amounts to €(639) million. Details are given below.

13.2 IMPAIRMENT TESTS ON GOODWILL, INTANGIBLE ASSETS AND PROPERTY, PLANT AND EQUIPMENT

The following tables present the results of impairment tests carried out on the main goodwill, intangible assets with indefinite useful lives and other Group assets in 2016, and some of the key assumptions used.

Impairment of goodwill and intangible assets with indefinite useful lives

Operating segment	Cash-Generating Unit or asset	Net book value *(in millions of Euros)*	WACC after tax	Growth rate to infinity	Impairment 2016 *(in millions of Euros)*
United Kingdom	EDF Energy goodwill	7,819	6.4%	-	-
Italy	Edison brand	945	7.1 - 9.3%	2.0%	-
Other activities	Dalkia goodwill Dalkia brand	496 130	4.7% 5.2%	1.5% 1.5%	-
Other impairment of goodwill			-	-	(37)
IMPAIRMENT OF GOODWILL AND INTANGIBLE ASSETS WITH INDEFINITE USEFUL LIVES					(37)

Impairment of other intangible assets and property, plant and equipment

Operating segment	Cash-Generating Unit or asset	Impairment indicators	WACC after tax	Impairment 2016 *(in millions of Euros)*
United Kingdom	Gas storage	Persistently low price volatility	6.2%	(44)
Italy	Edison assets (Power and E&P)	Decline in forward electricity prices and lower volumes for E&P activities	6.1% - 9.7%	(160)
Other activities	EDF Énergies Nouvelles CGU	Underperformance by certain activities and unfavourable regulatory context in Poland	4.0% - 12.8%	(127)
Other international	EDF Polska CGU	Operational reorganisation	7.6%	(197)
France – Generation and Supply		Closure of certain oil-fired units		(28)
Other impairment				(46)
IMPAIRMENT OF OTHER INTANGIBLE ASSETS AND PROPERTY, PLANT AND EQUIPMENT				(602)

General assumptions

Note 1.3.15 explains the methodology used by the Group for impairment testing.

The WACC in the benchmark countries was lower overall than at 31 December 2015 (by around 30 to 50 base points), consistent with the decline in risk-free rates. Test results are submitted to analyses of sensitivity to the discount rate, and the principal results are discussed below.

The market environment remained weak and volatile in 2016 as the trends observed in 2015 continued. Low market prices for electricity and commodities affected profitability on traditional generation assets (essentially fossil-fired plants), and the recent introduction of capacity mechanisms with different modalities in each country has not yet been able to re-establish sufficient returns for these generation facilities.

On the market horizon, forward prices were below the prices used in the previous MTP that formed the basis for the initial assessment of impairment at 31 December 2015. However, they were generally higher than the levels observed in mid-January 2016 which were used for sensitivity analyses and in some cases led to recognition of additional impairment in the 2015 financial statements (particularly concerning Edison's E&P assets).

Beyond the market horizon, a recovery in electricity prices is expected. In the medium term, the price trajectory nonetheless remains below (€5-10/MWh decrease depending on the country) the trajectory assumed in late 2015, essentially due to downward revision of price trends for gas and coal, which are the principal determinants of electricity prices. As these assumptions are crucial in determining recoverable value and thus for the results of impairment tests, sensitivity analyses were applied to long-term price curves.

At 31 December 2016, this macro-economic environment did not lead to any change from the accounting treatments used in 2015:

- Impairment booked in 2015 in respect of fossil-fired plants and exploration assets remains justified in 2016;
- The downward revision between 2015 and 2016 of the benchmark scenario of an electricity price recovery affected the value of Group assets, which are mainly remunerated with base loaded prices, but this does not affect the positive difference between recoverable values as determined though the tests, and the book values.

United Kingdom - EDF Energy

The risks relating to thermal energy facilities (low price volatility on gas storage assets, and small spreads and low additional income from the capacity mechanism for other thermal assets) were incorporated into the review of asset values in 2015. At 31 December 2016, the recoverable value of the West Burton B CCGT plant and the coal-fired plants showed a small improvement in line with a slightly more favourable market environment (appreciation in clean spark spreads, introduction in the UK of an additional capacity auction in 2017/2018) and cost-cutting plans implemented by EDF Energy. Nonetheless, the market remained depressed overall and there are still uncertainties (e.g. the capacity market, Brexit, etc).

At 31 December 2016, additional impairment of €(44) million was booked on gas storage facilities as a result of mandatory investments and persistently low price volatility that cannot currently cover outlays.

The sensitivity analyses of margins on thermal assets, described in detail below, do not affect the conclusions of impairment tests at 31 December 2016:

- A 5% variation in clean dark spreads would have an impact of approximately 7% on the recoverable value of the coal-fired plants, with no effect on the positive difference between the recoverable value and the book value;
- A 5% variation in clean dark spreads would have an impact of approximately 5% on the recoverable value of the West Burton B combined-cycle gas plant, with no effect on the positive difference between the recoverable value and the book value;
- A 5% variation in price volatility would have a limited impact in terms of absolute value on the risk relating to gas storage.

The recoverable value of existing nuclear assets is estimated by discounting future cash flows over the assets' useful life, assuming a 20-year extension for the Sizewell B PWR plant (other, Advanced Gas-cooled Reactor (AGR) plants have already had their useful life extended by the British Nuclear Authority, which announced the most recent decisions in February 2016). The recoverable value of EDF Energy's nuclear fleet is sensitive to the downward revision between 2015 and 2016 of medium-term electricity price recovery trends, but is still higher than its book value. Sensitivity analyses of the benchmark price curve do not affect the positive difference, identified by the impairment test, between the recoverable value and the book value.

EDF Energy's goodwill amounted to €7,818 million (£6,694 million) at 31 December 2016 and mainly resulted from the takeover of British Energy in 2009.

The recoverable value of EDF Energy is estimated by discounting future cash flows, taking into consideration the plan to construct two EPRs with a 60-year useful life at the Hinkley Point site, a project that has now been confirmed with the signature of final contracts on 29 September 2016. Future cash flows relating to these plants are determined by reference to the Contract for Difference (CfD) between the Group and the UK government. The CfD sets stable, predictable prices for EDF Energy for a period of 35 years from the date the two EPRs are first commissioned: if market prices fall below the CfD exercise price, EDF Energy will receive an additional payment. The impairment test is based on a nominal project construction cost of £18 billion assuming a commissioning date of late 2025 for the first reactor, consistent with the final investment decision.

The sensitivity of EDF Energy's recoverable value to the assumptions used concerning Hinkley Point C was specifically tested as of December 31, 2016. The positive difference between the recoverable value and book value of EDF Energy remains substantial in the following examples:

- A £2.7 billion increase in the costs of the Hinkley Point C project (i.e. 15% of the total project cost) would reduce EDF Energy's test margin by 20%;
- A simulation with a 4-year delay in commissioning Hinkley Point C combined with a £4.4 billion cost overrun (around 25% of the total project cost) indicates a 53% reduction in EDF Energy's test margin.

The Brexit decision has no immediate impact on EDF Energy's financial statements since most cash flows (receipts, costs, investments) and assets are stated in pounds sterling. It is still difficult at this stage to anticipate the long-term consequences, given the uncertainties over the timing and terms of the UK's departure from the European Union. The Group will monitor movements in the rates of return demanded by investors and changes in fuel prices, CO_2 prices and macro-economic data such as GDP growth, which could affect price curves.

Italy - Edison

As an intangible asset with an indefinite useful life, the Edison brand, stated at €945 million, was subjected to an impairment test that did not lead to recognition of any impairment. This test used the relief-from-royalty method.

Impairment of €(1,419) million was booked in 2015 in respect of electricity generation assets (thermal and renewable plants) and Edison's exploration and production assets.

At 31 December 2016, the recoverable value of most assets was stable or showing a small improvement as the short-term market environment was slightly more favourable than in January 2016 (due to the effect of clean spark spreads and Brent prices), and also thanks to controlled cost and investment trajectories. However, additional risks were identified in 2016 concerning (i) certain exploration-production fields adversely affected by falling volumes, and (ii) hydropower assets negatively affected by forward prices. As a result, impairment of €(160) million was recognised at 31 December 2016.

- In the thermal power assets, sensitivity tests on clean spark spreads (+/-€1/MWh) do not affect the positive difference between recoverable value and book value.
- In the renewable energy generation assets, sensitivity tests on electricity prices (+/-€1/MWh) have a small impact on the level of impairment of hydropower assets and a non-significant impact on the recoverable value of wind power assets, without affecting the positive difference between recoverable value and book value.
- A 50 base point increase in the WACC used in the valuation of electricity generation assets would lead to an additional risk of around €(50) million.
- A 5% decrease in gas and oil prices would lead to a risk of additional impairment of about €(45) million on exploration-production assets. However, a 50 base point variation in the WACC would have a marginal impact on the risk assessment for the same assets.

Other international

EDF Polska

As part of the strategic review of its asset portfolio, the Group reorganised the management of its thermal plants in Poland, separating the cogeneration branches – which benefit from regulated heat tariffs – from branches that only produce electricity. The impairment test now covers two different Cash Generating Units (the Cogeneration CGU and the Electricity CGU) whereas previously EDF Polska was considered as a single unit. As a result, impairment of €(197) million was recognised in respect of the Electricity CGU, whose assets are fully exposed to market prices for electricity. This impairment was recorded at 30 June 2016. In the second half of 2016, the Group announced its decision to sell EDF Polska's assets, and reclassified them as non-current assets held for sale, in compliance with IFRS 5 (see notes 3.5.2 and 46).

EDF Luminus

The downward revision of the medium-term electricity price trajectory between 2015 and 2016 led to an impairment test at 31 December 2016. After updating the assumptions for 2016, the difference between discounted cash flows and the book value resulting from the test remains positive. Sensitivity analyses of the key assumptions (price scenario and discount rate) do not call these conclusions into question.

Other activities

EDF Énergies Nouvelles

In 2016, impairment of €(127) million was recorded in respect of the various CGUs of EDF Énergies Nouvelles. This impairment essentially concerns a biogas plant in the United States whose viability is currently in question, and Polish wind farms which were penalised by changes in legislation (increases in local taxes) and the declining price of green certificates.

Dalkia

Dalkia's goodwill amounted to €496 million at 31 December 2016, and mainly resulted from acquisition of the Dalkia group in France under the agreement of 25 March 2014 with Veolia Environnement.

The recoverable value of the Dalkia group is based on future cash flows projected over a long-term horizon, and a terminal value that represents cash flow projections to infinity. Using updated assumptions for 2016, the recoverable value remains higher than the book value. The key parameters of the test are the calculation method for the terminal value, and the discount rate: both were subjected to sensitivity analyses and the results did not affect the positive difference between the recoverable value and the book value.

The Dalkia brand, recognised as an asset when the Group took control of Dalkia in 2014 at the value of €130 million, is estimated by the relief-from-royalties method. An updated test at 31 December 2016 showed that this book value is justified.

France

The integrated management and interdependence of the different generation facilities that make up the French fleet (nuclear, thermal and hydropower plants), independently of their maximum technical capacities, have led the Group to consider the entire fleet as a single CGU. This CGU does not include any goodwill

The persistent decline in electricity prices over the market horizon and in the long term, in a context of increasing exposure to market prices following discontinuation of the "yellow" and "green" regulated tariffs from 1 January 2016, is an indication of impairment that led to a review of the French generation fleet's value at 31 December 2016.

The recoverable value of the generation fleet is estimated by discounting future cash flows under the Group's usual methodology, described in note 1.3.15, over the assets' useful life using an after-tax WACC of 5.4%. For nuclear assets, the Group's basic valuation assumes that the useful life will be extended to 50 years, in line with its industrial strategy. The nuclear capacity remains subject to a ceiling of 63.2GW under France's Energy Transition Law.

The assumption of stable returns on capacity of €10/KW (in 2015 prices) is applied from 2017. This assumption is consistent with the price set for the first French capacity mechanism auction, which was held on the EPEX Spot market on 15 December 2016.

The impairment test led to recognition of a significant positive difference between the recoverable value and the book value of the generation fleet in France.

The key assumptions used in the test are the useful life of nuclear assets, the medium and long-term price scenario, the discount rate, developments in costs and investments, and the assumed capacity premium. Each of these assumptions has been subjected to a sensitivity analysis, which does not call into question the existence of a positive difference between the recoverable value and book value.

In view of decisions to phase out the oil-fired units, the book value of Pocheville unit 1 was entirely written off at 31 December 2016 through recognition of €(28) million of impairment.

Other impairment of assets

The Group also identified certain indications of loss of value on specific assets, leading to recognition of impairment of €(46) million.

Finally, impairment of €(481) million was booked in respect of associates at 31 December 2016. Details are given in note 23.

Note 14 Other income and expenses

Other income and expenses in 2016 mainly include income of €112 million resulting from the favourable outcome of a dispute with the Hungarian State. This corresponds to a payment ordered by the Hague Permanent Court of Arbitration in response to two applications filed by EDF International on the basis of the Energy Charter Treaty: one for compensation for loss of power purchase contracts (PPAs), and one in reimbursement of stranded costs arising from termination of PPAs.

Other income and expenses in 2015 mainly include:

- a €820 million increase to provisions following the ministerial order of 15 January 2016 concerning the cost of implementing long-term management solutions for long-lived medium and high-level radioactive waste under the Cigéo storage project (see notes 3.8.1 and 29.1.2);
- a €590 million increase to provisions following updating of the industrial scenario and costs estimate for decommissioning nuclear power plants that are permanently shut down (see note 29.1.3), less a reversal of €332 million from the provision for long-term radioactive waste management resulting from updating of this scenario (see notes 29.1.2 and 29.1.3), giving a net effect of €258 million;

- income of €287 million in connection with the agreement signed on 30 June 2015 between EDF and Engie concerning the compensation system for employee benefits in kind in the form of energy (see note 31.1.2).
- income of €154 million associated with the change in EDF Energy's defined-benefit pension plans (see note 31.1.2).

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:

(in millions of Euros)	2016	2015
Interest expenses on financing operations	(1,907)	(1,955)
Change in the fair value of derivatives and hedges of liabilities	(11)	(9)
Transfer to income of changes in the fair value of cash flow hedges	122	(57)
Net foreign exchange gain on indebtedness	(31)	27
COST OF GROSS FINANCIAL INDEBTEDNESS	(1,827)	(1,994)

15.2 DISCOUNT EFFECT

The cost of unwinding the discount primarily concerns provisions for the back-end of the nuclear cycle, decommissioning and last cores, and long-term and post-employment employee benefits.

This cost increased in 2016, in line with the lower real discount rate (see note 29.1.5.1).

Details of the final discount effect are as follows:

(in millions of Euros)	2016	2015
Provisions for long-term and post-employment employee benefits	(1,048)	(1,070)
Provisions for the back-end of the nuclear cycle, decommissioning and last cores (1)	(2,278)	(1,639)
Other provisions and advances	(91)	(103)
DISCOUNT EFFECT	(3,417)	(2,812)

(1) Including the effect of discounting the receivable corresponding to amounts reimbursable by the NLF – see note 36.3.

15.3 OTHER FINANCIAL INCOME AND EXPENSES

Other financial income and expenses comprise:

(in millions of Euros)	2016	2015
Financial income on cash and cash equivalents	20	13
Gains/(losses) on available-for-sale financial assets	775	1,174
Gains/(losses) on other financial assets	398	408
Changes in financial instruments carried at fair value with changes in fair value included in income	(46)	(96)
Other financial expenses	(263)	(491)
Foreign exchange gain/loss on financial items other than debts	43	132
Return on fund assets	547	538
Capitalised borrowing costs	437	540
OTHER FINANCIAL INCOME AND EXPENSES	1,911	2,218

Gains net of losses on available-for-sale financial assets include gains on disposals, interest income, and dividends.

In 2016, gains and losses on available-for-sale financial assets include net gains on sales of EDF's dedicated assets, amounting to €428 million (€972 million in 2015).

In 2015, Other financial expenses mainly include the financial interest in connection with the European Commission's decision of 22 July 2015, amounting to €(360) million (see note 3.8.3).

Note 16 Income taxes

16.1 BREAKDOWN OF TAX EXPENSE

Details are as follows:

(in millions of Euros)	2016	2015
Current tax expense	(1,886)	(1,028)
Deferred taxes	498	545
TOTAL	(1,388)	(483)

The increase in the Group's tax expense is mainly explained by the higher pre-tax income, resulting notably from impairment recorded in 2015.

In 2016, €(1,458) million of the current tax expense relates to EDF's tax consolidated group in France, and €(428) million relates to other subsidiaries (€(467) million and €(561) million respectively in 2015).

16.2 RECONCILIATION OF THE THEORETICAL AND EFFECTIVE TAX EXPENSE (TAX PROOF)

(in millions of Euros)	2016	2015
Income of consolidated companies before tax	4,181	1,692
Income tax rate applicable to the parent company	34.43%	38.00%
Theoretical tax expense	(1,440)	(643)
Differences in tax rate	119	229
Permanent differences	(163)	(266)
Taxes without basis	286	222
Unrecognised deferred tax assets	(189)	(24)
Other	(1)	(1)
ACTUAL TAX EXPENSE	(1,388)	(483)
EFFECTIVE TAX RATE	33.20%	28.55%

The increase in 2016 in the effective tax rate is mainly explained by the smaller reductions in the French and UK income tax rates compared to 2015.

The main factors explaining the difference between the theoretical tax rate and the effective rate are:

- 2016:
  - The positive impacts of income tax cuts from 2020 in France (from 34.43% to 28.92%) and the United Kingdom (from 18% to 17%), amounting to €69 million and €68 million respectively;
  - The favourable impact of deduction of payments made to bearers of perpetual subordinated loans, amounting to €200 million.
- 2015:
  - the positive impact of differences in tax rates applicable to foreign subsidiaries (€229 million, including €158 million relating to the 2-point decrease in the UK tax rate by 2020, and €142 million relating to cancellation of Italy's "Robin Hood" tax following the decision by the Constitutional Court);
  - the favourable impact of payments made to the bearers of perpetual subordinated bonds (€225 million).

16.3 CHANGE IN DEFERRED TAX ASSETS AND LIABILITIES

(in millions of Euros)	2016	2015
Deferred tax assets	2,713	2,590
Deferred tax liabilities	(4,122)	(4,315)
NET DEFERRED TAXES AT 1 JANUARY	(1,409)	(1,725)
Change in net income	498	547
Change in equity	33	(147)
Translation adjustments	185	(75)
Changes in scope of consolidation	60	(1)
Other movements	2	(8)
NET DEFERRED TAXES AT 31 DECEMBER	(631)	(1,409)
Deferred tax assets	1,641	2,713
Deferred tax liabilities	(2,272)	(4,122)

€(191) million of the change in 2016 in deferred tax assets included in equity results from actuarial gains and losses on post-employment benefits (€(152) million in 2015), and €224 million of this change concerns fair value movements on financial instruments and financial assets held for sale (€5 million in 2015).

The changes in deferred tax assets and liabilities principally relate to the net presentation of the French tax group's deferred tax position.

16.4 BREAKDOWN OF DEFERRED TAX ASSETS AND LIABILITIES BY NATURE

(in millions of Euros)	31/12/2016	31/12/2015
Deferred taxes:		
Fixed assets	(5,344)	(6,458)
Provisions for employee benefits	6,051	7,292
Other provisions and impairment	377	395
Financial instruments	232	(58)
Tax loss carryforwards and unused tax credits	1,279	1,171
Other	48	46
Total deferred tax assets and liabilities	**2,643**	**2,388**
Unrecognised deferred tax assets	(3,274)	(3,797)
NET DEFERRED TAXES	(631)	(1,409)

At 31 December 2016, unrecognised deferred tax assets represent a potential tax saving of €3,274 million (€3,797 million at 31 December 2015), mainly relating to France and the United States.

In France, this potential tax saving, which amounts to €2,385 million at 31 December 2016 (€2,912 million at 31 December 2015), essentially concerns deferred tax assets on employee benefits. These deferred tax assets have no expiry date.

In the United States, this potential tax saving amounts to €734 million (€747 million in 2015) and mainly corresponds to losses carried forward, with expiry dates between 2029 and 2035.

Deferred tax assets on recognised tax loss carryforwards amount to €438 million (€370 million in 2015) and principally concern the United States (€135 million in 2016, €128 million in 2015), France (€111 million in 2016, €89 million in 2015), Canada and Italy. They have been recognised due to the existence of deferred tax liabilities on the same tax entities that will reverse over the same time horizon, or in view of prospects for taxable profits.

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:

(in millions of Euros)	2016	2015
Net income attributable to ordinary shares	2,851	1,187
Payments on perpetual subordinated bonds	(582)	(591)
Effect of dilutive instruments	-	-
Net income used to calculated earnings per share	2,269	596
Average weighted number of ordinary shares outstanding during the year	1,980,632,028	1,859,988,148
Average weighted number of diluted shares outstanding during the year	1,980,632,028	1,859,988,148
Earnings per share (in Euros):		
EARNINGS PER SHARE	1.15	0.32
DILUTED EARNINGS PER SHARE	1.15	0.32

In 2016, payment of the outstanding scrip dividend for 2015 and the scrip interim dividend for 2016 led to an increase in the share capital and an issue premium totalling €1,862 million, corresponding to the issuance of 188,997,656 shares.

Note 18 Goodwill

18.1 CHANGES IN GOODWILL

Goodwill on consolidated entities comprises the following:

(in millions of Euros)	31/12/2016	31/12/2015
Net book value at opening date	10,236	9,694
Acquisitions	36	67
Disposals	-	(3)
Impairment (note 13)	-	(34)
Translation adjustments	(1,298)	532
Other changes	(51)	(20)
NET BOOK VALUE AT CLOSING DATE	8,923	10,236
Gross value at closing date	9,709	11,122
Accumulated impairment at closing date	(786)	(886)

The changes in goodwill in 2016 primarily related to the translation adjustments of €(1,298) million, largely reflecting the pound sterling's decline against the Euro.

The changes in goodwill in 2015 primarily relate to:

- Dalkia's acquisition of CRAM and Cesbron for €57 million;
- impairment of €(34) million, including €(20) million for EDF Polska goodwill;
- translation adjustments of €532 million, largely due to the pound sterling's increase against the Euro.

18.2 GOODWILL BY OPERATING SEGMENT

The breakdown of goodwill between the new segments as presented in note 6.1 is as follows:

(in millions of Euros)	31/12/2016	31/12/2015
France – Regulated activities	223	223
United Kingdom (EDF Energy)	7,818	9,163
Italy	2	-
Other International	13	15
Dalkia	496	455
EDF Énergies Nouvelles	177	178
Other	194	202
Other activities	867	835
GROUP TOTAL	8,923	10,236

Note 19 Other intangible assets

The net value of other intangible assets breaks down as follows:

At 31 December 2016

(in millions of Euros)	31/12/2015	Acquisitions	Disposals	Translation adjustments	Changes in scope	Other movements	31/12/2016
Software	3,577	617	(381)	(135)	(60)	6	3,624
Positive fair value of commodity contracts acquired in a business combination	810	-	-	-	-	-	810
Greenhouse gas emission rights – green certificates	690	935	(1,094)	(49)	(1)	(53)	428
Other intangible assets	5,936	341	(19)	(46)	(324)	87	5,975
Intangible assets in development [1]	1,976	87	-	(23)	(1)	(1,044)	995
Gross value	12,989	1,980	(1,494)	(253)	(386)	(1,004)	11,832
Accumulated amortisation and impairment	(4,100)	(992)	394	84	166	66	(4,382)
NET VALUE	8,889	988	(1,100)	(169)	(220)	(938)	7,450

(1) Increases in intangible assets in development are presented net of the effect of commissioning new assets. Other movements include the reclassification of certain costs relating to the Flamanville 3 EPR as property, plant and equipment in progress.

The gross value of other intangible assets at 31 December 2016 includes:

- the Edison brand and intangible assets related to Edison's hydropower concessions, for amounts of €945 million and €729 million respectively;
- the Dalkia brand and intangible assets related to Dalkia's concession agreements in France, for respective amounts of €130 million and €912 million.

Impairment of €(159) million was recorded in respect of other intangible assets in 2016.

EDF's research and development expenses recorded in the income statement total €572 million for 2016.

At 31 December 2015

(in millions of Euros)	31/12/2014	Acquisitions	Disposals	Translation adjustments	Changes in scope	Other movements	31/12/2015
Software	2,601	1,036	(116)	41	(4)	19	3,577
Positive fair value of commodity contracts acquired in a business combination	810	-	-	-	-	-	810
Greenhouse gas emission rights – green certificates	674	1,227	(1,230)	19	-	-	690
Other intangible assets	5,545	450	(45)	10	(24)	-	5,936
Intangible assets in development	2,220	(264)	-	17	-	3	1,976
Gross value	**11,850**	**2,449**	**(1,391)**	**87**	**(28)**	**22**	**12,989**
Accumulated amortisation and impairment	(2,966)	(1,263)	141	(6)	7	(13)	(4,100)
NET VALUE	8,884	1,186	(1,250)	81	(21)	9	8,889

The gross value of other intangible assets at 31 December 2015 included:

- the Edison brand and intangible assets related to Edison’s hydropower concessions, for amounts of €945 million and €831 million respectively;
- the Dalkia brand and intangible assets related to Dalkia’s concession agreements in France, for respective amounts of €130 million and €735 million.

Impairment of €(210) million was recorded in respect of other intangible assets in 2015.

EDF’s research and development expenses recorded in the income statement total €555 million for 2015.

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)	31/12/2016	31/12/2015
Property, plant and equipment	51,489	50,093
Property, plant and equipment in progress	1,575	1,507
PROPERTY, PLANT AND EQUIPMENT OPERATED UNDER FRENCH PUBLIC ELECTRICITY DISTRIBUTION CONCESSIONS	53,064	51,600

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
Gross value at 31/12/2015	2,468	84,021	3,756	90,245
Increases [(1)]	147	3,559	320	4,026
Decreases	(14)	(621)	(167)	(802)
Gross value at 31/12/2016	2,601	86,959	3,909	93,469
Depreciation and impairment at 31/12/2015	(1,291)	(36,463)	(2,398)	(40,152)
Net depreciation	(51)	(208)	(174)	(433)
Disposals	12	543	164	719
Other movements [(2)]	(7)	(2,013)	(94)	(2,114)
Depreciation and impairment at 31/12/2016	(1,337)	(38,141)	(2,502)	(41,980)
Net value at 31/12/2015	1,177	47,558	1,358	50,093
NET VALUE AT 31/12/2016	1,264	48,818	1,407	51,489

(1) Increases also include facilities provided by the concession grantors.
(2) Other movements mainly concern depreciation of assets operated under concessions, booked against amortization recorded in the special concession liability accounts.

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)	31/12/2016	31/12/2015
Property, plant and equipment	6,010	6,142
Property, plant and equipment in progress	1,606	1,503
PROPERTY, PLANT AND EQUIPMENT OPERATED UNDER CONCESSIONS FOR OTHER ACTIVITIES	7,616	7,645

21.2 MOVEMENTS IN PROPERTY, PLANT AND EQUIPMENT OPERATED UNDER CONCESSIONS FOR OTHER ACTIVITIES (EXCLUDING ASSETS IN PROGRESS)

(in millions of Euros)	Land and buildings	Fossil-fired & hydropower plants	Networks	Other installations, plant, machinery, equipment & other	Total
Gross value at 31/12/2015	1,413	11,421	613	549	13,996
Increases	51	386	32	43	512
Decreases	(5)	(42)	(14)	(7)	(68)
Translation adjustments	(1)	(23)	4	-	(20)
Changes in the scope of consolidation (1)	(7)	29	(595)	(36)	(609)
Other movements	1	24	1	(3)	23
Gross value at 31/12/2016	1,452	11,795	41	546	13,834
Depreciation and impairment at 31/12/2015	(862)	(6,303)	(319)	(370)	(7,854)
Net depreciation	(28)	(351)	(21)	(4)	(404)
Impairment net of reversals	-	(48)	-	(26)	(74)
Disposals (1)	5	38	10	6	59
Translation adjustments	1	13	2	-	16
Changes in the scope of consolidation (1)	13	85	310	27	435
Other movements	(2)	(4)	-	4	(2)
Depreciation and impairment at 31/12/2016	(873)	(6,570)	(18)	(363)	(7,824)
Net value at 31/12/2015	551	5,118	294	179	6,142
NET VALUE AT 31/12/2016	579	5,225	23	183	6,010

(1) Changes in the scope of consolidation mainly concern the assets of EDF Démász, which have been reclassified as assets held for sale.

Property, plant and equipment operated under concessions for other activities comprise concession facilities mainly located in France (hydropower, excluding public electricity distribution) and Italy.

At 31 December 2016, impairment of property, plant and equipment in progress and other assets used in concessions for other activities amount to €(23) million and €(74) million respectively.

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:

(in millions of Euros)	31/12/2016	31/12/2015
Property, plant and equipment	46,350	50,197
Property, plant and equipment in progress	24,059	20,688
Finance-leased property, plant and equipment	164	184
PROPERTY, PLANT AND EQUIPMENT USED IN GENERATION AND OTHER TANGIBLE ASSETS OWNED BY THE GROUP	70,573	71,069

At 31 December 2016, property, plant and equipment in progress mainly concerns the EPR reactors at Flamanville 3 (€10,544 million, including capitalised borrowing costs of €1,932 million) and Hinkley Point C (€3,640 million), and the Dunkirk methane terminal which began commercial operations in early 2017 (€1,158 million).

The net book value of generation assets reflects the €(2,044) million impact of the extension to 50 years of the accounting depreciation period of the 900MW PWR plants at 1 January 2016 (see note 3.1).

The changes observed in generation assets in 2016 also include the €(1,470) million effect of reclassification of certain assets as assets held for sale, and a foreign exchange effect of €(1,965) million due to the pound sterling's decline against the Euro.

At 31 December 2016, impairment of property, plant and equipment in progress and other property, plant and equipment amounted to €(94) million and €(289) million respectively.

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)

(in millions of Euros)	Land and buildings	Nuclear power plants	Fossil-fired & hydropower plants	Networks	Other installations, plant, machinery, equipment & other	Total
Gross value at 31/12/2015	13,281	66,095	21,991	17	17,073	118,457
Increases	555	2,562	1,132	-	1,738	5,987
Decreases	(247)	(807)	(350)	-	(556)	(1,960)
Translation adjustments	(163)	(1,733)	(637)	-	13	(2,520)
Changes in the scope of consolidation (1)	(865)	-	(2,125)	-	(1,412)	(4,402)
Other movements (2)	(7)	841	(47)	-	24	811
Gross value at 31/12/2016	12,554	66,958	19,964	17	16,880	116,373
Depreciation and impairment at 31/12/2015	(7,123)	(41,412)	(13,089)	(8)	(6,628)	(68,260)
Net depreciation	(336)	(2,255)	(747)	(2)	(1,111)	(4,451)
Impairment net of reversals	(45)	1	(199)	-	(46)	(289)
Disposals	130	712	348	-	393	1,583
Translation adjustments	6	693	448	1	94	1,242
Changes in the scope of consolidation (1)	521	-	1,439	-	292	2,252
Other movements (3)	(27)	(2,008)	(66)	-	1	(2,100)
Depreciation and impairment at 31/12/2016	(6,874)	(44,269)	(11,866)	(9)	(7,005)	(70,023)
Net value at 31/12/2015	6,158	24,683	8,902	9	10,445	50,197
NET VALUE AT 31/12/2016	5,680	22,689	8,098	8	9,875	46,350

(1) Changes in the scope of consolidation mainly concern the assets of Polish subsidiaries which have been reclassified as assets held for sale.

(2) Other movements include the effect on assets associated with provisions and underlying assets of the €615 million change in the real discount rate used to calculate provisions related to EDF's nuclear generation (see note 29.1).

(3) Other movements principally concern the extension of the depreciation periods of the thirty-two 900MW PWR reactors currently in operation (see note 3.1).

The net depreciation of €(7,966) million recorded in the income statement (€(9,009) million in 2015) reflects the extension to 50 years of the depreciation period for the 900MW PWR series nuclear power plants (except Fessenheim), amounting to €965 million at 31 December 2016 (see note 3.1).

22.3 FINANCE LEASE CONTRACTS

(in millions of Euros)	31/12/2016 Total	31/12/2016 Maturity < 1 year	31/12/2016 Maturity 1 - 5 years	31/12/2016 Maturity > 5 years	31/12/2015 Total
Future minimum lease payments receivable as lessor	46	12	28	6	53
Future minimum lease payments payable as lessee	482	61	212	209	511

The Group is the lessor in agreements classified as finance leases under IFRIC 4 and IAS 17.

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 and joint ventures

Investments in associates and joint ventures are as follows:

(in millions of Euros)	Principal activity [(1)]	31/12/2016 Ownership%	31/12/2016 Share of net equity	31/12/2016 Share of net income	31/12/2015 Share of net equity	31/12/2015 Share of net income
Principal investments in associates						
RTE [(2)]	T	50.10	2,558	403	5,159	457
CENG	G	49.99	2,120	(485)	2,524	(284)
Alpiq [(3)]	G, D, O, T	25.04	606	-	624	(192)
Other investments in associates and joint ventures			3,361	300	3,218	211
TOTAL			8,645	218	11,525	192

(1) G = generation, D = distribution, T = transmission, O = other.
(2) The investment in RTE presented at 31 December 2016 is the share that will be retained after the partial sale in 2017. The share to be sold (49.9%) has been reclassified as assets held for sale (see notes 3.5.1 and 46).
(3) As Alpiq publishes its consolidated financial statements after the Group, the figures above include an estimate for net income at 31 December 2016.

Other investments in associates and joint ventures principally concern Taishan (TNPJVC), Nam Theun Power Company (NTPC) and certain companies owned by EDF Énergies Nouvelles, EDF SA and Edison.

In 2016, €(481) million of impairment of investments in associates and joint ventures was booked, mainly concerning the assets of CENG (see note 23.2.3).

In 2015, €(549) million of impairment was booked in respect of investments in associates and joint ventures, including €(271) million on the assets of CENG (see note 23.2.3), €(196) million on the investment in Alpiq, corresponding to the Group's share of past impairment in the financial statements of Alpiq (see note 23.3.2) and €(68) million on investments in associates and joint ventures held by Edison.

23.1 RTE RESEAU DE TRANSPORT D'ÉLECTRICITÉ (RTE)

23.1.1 RTE - financial indicators

The key financial indicators for RTE (on a 100% basis) are as follows:

(in millions of Euros)	31/12/2016	31/12/2015
Non-current assets	16,627	15,805
Current assets	1,862	2,323
Total assets	18,489	18,128
Equity	5,106	5,159
Non-current liabilities	9,924	8,157
Current liabilities	3,459	4,812
Total equity and liabilities	18,489	18,128
Sales	4,446	4,593
Operating profit before depreciation and amortisation	1,711	1,913
Net income	403	457
Net indebtedness	8,539	8,260
Gains and losses recorded directly in equity	(328)	(230)
Dividends paid to the Group	129	177

At 31 December 2015, the value of the shares of RTE was affected by the European Commission's decision of 22 July 2015 (see note 3.8.3).

23.1.2 Transactions between the EDF group and RTE

At 31 December 2016 the main transactions between the EDF group and RTE are as follows:

Sales

Enedis 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 €3,331 million in sales revenues for RTE from Enedis over 2016.

In executing its responsibility to ensure balance in the electricity system, during 2016 RTE also undertook:

- energy purchases and sales with EDF and Enedis, amounting to €85 million and €118 million respectively;
- system service purchases from EDF amounting to €281 million.

Other transactions

The EDF group contributed to financing of RTE through a loan amounting to a total of €670 million at 31 December 2015. RTE repaid this loan in October 2016. Interest expenses on this loan amount to €30 million in 2016 (€36 million in 2015).

23.2 CENG

23.2.1 CENG - financial indicators

The key financial indicators for CENG (on a 100% basis) are as follows:

(in millions of Euros)	31/12/2016	31/12/2015
Non-current assets	10,164	10,409
Current assets	1,020	1,019
Total assets	11,184	11,428
Equity	4,240	5,048
Non-current liabilities	6,521	6,016
Current liabilities	423	364
Total equity and liabilities	11,184	11,428
Sales	1,059	1,095
Operating profit before depreciation and amortisation	305	235
Net income	(971)	(568)
Gains and losses recorded directly in equity	169	434
Dividends paid to the Group	-	-

23.2.2 Transactions between the EDF group and CENG

At 31 December 2016 the main transactions between the EDF group and CENG concern the power purchase agreements between CENG and the Group (EDF Trading North America). These agreements provide for delivery to EDF Trading North America of 15% of the energy generated by CENG that is not sold to former owners of its power plants, in application of the pre-existing power purchase agreements that terminated in 2014. Since 1 January 2015, the Group has purchased 49.99% of the power output from CENG's two plants at market price.

These electricity sales by CENG to EDF Trading North America represented a volume of 14.2TWh in 2016.

23.2.3 Impairment

In 2015, impairment of €(271) million was recorded on the Group's investment in CENG as a result of lower forward prices and long-term electricity prices.

At 30 June 2016, the Group recognised additional impairment of €(462) million.

This impairment was determined under the Group's usual methodology. It results primarily from downward revision of long-term prices scenarios in line with the most recent publications of external entities (ABB, Cera, EIA) and the decline in short-term market prices due to the ongoing downturn in gas prices. Below-forecast results in the latest capacity auctions have also affected the recoverable values of one of CENG's nuclear power plants.

The Group did not identify any new risk on its investment in CENG during the second half of 2016. There was no significant change in market conditions. As a result of New York State's Zero Emission Credit (ZEC) programme of subsidies for nuclear power plants, contracts were signed on 18 November 2016 by two CENG power plants and the New York State Energy Research and Development Authority. The first payment under the ZEC programme should be made in April 2017, providing additional income for the Ginna and Nine Mile Point power plants over the MTP horizon. The introduction of this mechanism confirms the carbon price assumptions used so far by the Group. However, continuation of the mechanism is conditional on the outcome of legal proceedings that are already in process. The value of the investment in CENG could also be sensitive to changes in energy policies and their potential impacts on the long-term vision of price fundamentals and the rate of return demanded by investors.

23.3 ALPIQ

As Alpiq publishes its consolidated financial statements after the Group, the figures presented here include an estimate for net income at 31 December 2016 (see note 3 to the table in note 23).

23.3.1 Published financial indicators

The main published indicators by the Alpiq group were as follows:

(in millions of Euros)	31/12/2015	31/12/2014
Non-current assets	5,889	6,217
Current assets	3,239	3,248
Assets classified as held for sale	503	400
Total assets	9,631	9,865
Equity [1]	3,525	3,919
Non-current liabilities	4,148	3,984
Current liabilities	1,905	1,960
Liabilities related to assets classified as held for sale	53	2
Total equity and liabilities	9,631	9,865
Sales	6,289	6,644
Operating profit before depreciation and amortisation	47	257
Net income	(777)	(744)
Gains and losses recorded directly in equity	(160)	(95)
Dividends paid to the Group	11	11

(1) Including €939 million of hybrid bonds.

On 25 April 2013, the main Swiss shareholders of Alpiq subscribed 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, these hybrid loan and bond were recorded in equity in Alpiq's consolidated financial statements. Since the EDF group did not subscribe to the operation, there was no impact on the value of the investment in Alpiq reported in "Investments in associates and joint ventures".

The difference between the shares of equity as published by Alpiq and as reported in the Group's consolidated financial statements largely results from this hybrid loan.

The value of the EDF group's investment in Alpiq, valued on the basis of the stock market price at 31 December 2016, is €549 million. The Group considers that this stock market value does not correspond to the value of the company, particularly as a result of the low level of floating stock.

23.3.2 Impairment

Impairment of €(196) million was booked on the Group's investment in Alpiq at 31 December 2015, corresponding to the Group's share of impairment recognised in Alpiq's half-year 2015 financial statements published in August 2015. That impairment was caused by persistently low prices on wholesale markets, and the discontinuation in January 2015 of the minimum Euro-Swiss franc exchange rate of 1.20 (this was unfavourable for Alpiq which sells most of the electricity generated by its Swiss-located plants in Euros). In a particularly difficult market environment, Alpiq announced the launch of major structural measures involving the sale of up to 49% of its Swiss hydropower portfolio, in order to limit its dependence on wholesale prices and reduce net indebtedness.

Following publication by Alpiq of its half-year 2016 financial statements on 26 August 2016, the Group recorded impairment of €(19) million. This corresponded to its share of the impairment recognised in Alpiq's half-year 2016 financial statements, which essentially concerned the Swiss power plants with a high proportion of baseload power generation, that were penalised by the downward revision of long-term market prices.

When releasing its half-year financial results, Alpiq commented that in addition to the difficult market environment, the framework agreements in place were highly detrimental to the interests of electricity producers like Alpiq. They have no regulated network or captive final customers and this harms the profitability of Swiss-produced electricity on a deregulated market. Alpiq stated that implementation of the structural measures announced in March 2016, including opening up the hydropower portfolio and divestments for strategic streamlining of the portfolio, was still a priority for preserving the profitability of its generation assets in Switzerland.

The Group will nevertheless closely monitor the effective implementation of Alpiq's large-scale strategic plan. Should the Alpiq group recognise impairment in its annual 2016 consolidated financial statements in March 2017, the EDF group would reflect that in its half-year financial statements at 30 June 2017.

Note 24 Inventories

The carrying value of inventories, broken down by nature, is as follows:

	31/12/2016			31/12/2015		
(in millions of Euros)	Gross value	Provision	Net value	Gross value	Provision	Net value
Nuclear fuel	10,923	(19)	10,904	11,104	(17)	11,087
Other fuel	1,281	(5)	1,276	1,657	(5)	1,652
Other raw materials	1,413	(296)	1,117	1,500	(276)	1,224
Work-in-progress for production of goods and services	197	(46)	151	215	(53)	162
Other inventories	711	(58)	653	613	(24)	589
TOTAL INVENTORIES	14,525	(424)	14,101	15,089	(375)	14,714

The more-than-one-year portion mainly concerns nuclear fuel inventories amounting to €8,182 million at 31 December 2016 (€8,198 million at 31 December 2015).

The value of EDF Trading's inventories stated at market value is €492 million at 31 December 2016 (€458 million at 31 December 2015).

Note 25 Trade receivables

Details of net trade receivables are as follows:

(in millions of Euros)	31/12/2016	31/12/2015
Trade receivables, gross value – excluding EDF Trading	21,022	20,439
Trade receivables, gross value – EDF Trading	3,331	2,974
Impairment	(1,057)	(1,154)
TRADE RECEIVABLES, NET VALUE	23,296	22,259

Most trade receivables mature within one year.

25.1 TRADE RECEIVABLES DUE AND NOT YET DUE

(in millions of Euros)	31/12/2016			31/12/2015		
	Gross value	Provision	Net value	Gross value	Provision	Net value
TRADE RECEIVABLES	24,353	(1,057)	23,296	23,413	(1,154)	22,259
overdue by up to 6 months	1,214	(186)	1,028	1,443	(279)	1,164
overdue by 6-12 months	491	(152)	339	572	(220)	352
overdue by more than 12 months	1,105	(595)	510	1,207	(573)	634
Trade receivables due	2,810	(933)	1,877	3,222	(1,072)	2,150
Trade receivables not yet due	21,543	(124)	21,419	20,191	(82)	20,109

25.2 ASSIGNMENT OF RECEIVABLES

(in millions of Euros)	31/12/2016	31/12/2015
Trade receivables assigned and wholly retained in the balance sheet	-	-
Trade receivables assigned and partly retained in the balance sheet	33	39
Trade receivables assigned and wholly derecognised	1,304	1,544

The Group assigned trade receivables for a total of €1,304 million at 31 December 2016, including €665 million by the Edison group (€1,544 million at 31 December 2015, including €911 million by the Edison group).

As most assignment 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)	31/12/2016	31/12/2015
Prepaid expenses	1,567	1,532
Contribution to the Public Electricity Service (CSPE)	1,647	1,643
VAT receivables	2,862	2,795
Other tax receivables	1,754	845
Other operating receivables	5,090	3,822
OTHER RECEIVABLES	12,920	10,637
Non-current portion	2,268	1,830
Current portion	10,652	8,807
Gross value	13,135	10,832
Impairment	(215)	(195)

At 31 December 2016, other receivables include an amount of €1,647 million corresponding to the CSPE receivable (€1,643 million at 31 December 2015). The rest of the CSPE receivable is reported in "Loans and financial receivables" (see note 36.3).

Note 27 Equity

27.1 SHARE CAPITAL

At 31 December 2016, the share capital amounted to €1,054,568,341.50, comprising 2,109,136,683 fully subscribed and paid-up shares with nominal value of €0.50 each, owned 85.62% by the French State, 12.68% by the public (institutional and private investors) and 1.57% by current and retired Group employees, with 0.13% held by EDF as treasury shares.

In June 2016, payment of part of the outstanding dividend for 2015 in the form of a scrip dividend led to a €47 million increase in the share capital and an issue premium of €892 million following the issuance of 93,112,364 new shares.

In October 2016, payment of part of the interim dividend for 2016 in the form of a scrip dividend led to a €48 million increase in the share capital and an issue premium of €875 million following the issuance of 95,885,292 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 programme 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 programme 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 2016, treasury shares deducted from consolidated equity represent 2,669,215 shares with total value of €29 million.

27.3 DIVIDENDS

The General Shareholders' Meeting of 12 May 2016 decided to distribute an ordinary dividend of €1.10 per share in respect of 2015, offering the choice of receiving this dividend in cash, or in the form of shares (scrip option).

In application of Article 24 of EDF's articles of association, shareholders who have held their shares continuously for at least two years at the year-end and still hold them at the dividend distribution date benefit from a 10% bonus on their dividends. The number of shares carrying an entitlement to the bonus dividend cannot exceed 0.5% of the company's capital for a single shareholder. The bonus dividend amounts to €1.21 per share.

As interim dividends of €0.57 per share had been paid out on 18 December 2015, the balance payable for 2015 amounted to €0.53 per share benefiting from the ordinary dividend and €0.64 per share benefiting from the bonus dividend. The balance of the dividend was paid out on 30 June 2016.

The French government opted for the scrip dividend for this distribution.

The amount of the cash dividend paid to shareholders who did not opt for the scrip dividend amounted to €82 million.

On 30 September 2016, EDF's Board of Directors decided to distribute an interim dividend of €0.50 per share in respect of 2016. This interim dividend amounting to a total of €1,006 million was paid out in the form of new shares (scrip option) or cash on 31 October 2016.

The French government opted for the scrip interim dividend.

The amount of the cash dividend paid to shareholders who did not opt for the scrip interim dividend for 2016 amounted to €83 million.

27.4 EQUITY INSTRUMENTS

At 31 December 2016, perpetual subordinated bonds are carried in equity at the amount of €10,095 million (net of transaction costs).

Interest paid by EDF to the bearers of perpetual subordinated bonds issued in January 2013 and January 2014 totalled €582 million in 2016 and €591 million in 2015.

In January 2017, EDF paid interest of £60 million, USD121 million and €211 million (or a total of around €394 million) to the bearers of perpetual subordinated bonds. In application of IAS 32, an amount corresponding to the cash paid out will be charged to Group equity in the first half of 2017.

Perpetual subordinated bonds in the accounts of EDF

(in millions of currencies)

Entity	Issue	Issue amount	Currency	Repayment option	Rate
EDF	01/2013	1,250	EUR	7 years	4.25%
EDF	01/2013	1,250	EUR	12 years	5.38%
EDF	01/2013	1,250	GBP	13 years	6.00%
EDF	01/2013	3,000	USD	10 years	5.25%
EDF	01/2014	1,500	USD	10 years	5.63%
EDF	01/2014	1,000	EUR	8 years	4.13%
EDF	01/2014	1,000	EUR	12 years	5.00%
EDF	01/2014	750	GBP	15 years	5.88%

Other equity instruments

Other equity instruments are financial instruments issued by the Group that qualify as equity instruments under IAS 32.

In December 2016, the Dalkia group's Cogestar entities issued an instrument consisting of convertible bonds. At 31 December 2016, the total amount of the instrument recorded in equity is €86 million (see note 5.1).

27.5 NON-CONTROLLING INTERESTS (MINORITY INTERESTS)

27.5.1 Details of non-controlling interests

	31/12/2016			31/12/2015	
(in millions of Euros)	Ownership%	Equity (non-controlling interests)	Net income attributable to non-controlling interests	Equity (non-controlling interests)	Net income attributable to non-controlling interests
Principal non-controlling interests:					
EDF Energy Nuclear Generation Ltd.	20,0,%	2,773	111	3,174	231
NNB Holding Ltd.	33,5,%	1,718	-	-	-
EDF Investissements Groupe SA	6,1,%	516	13	526	30
EDF Luminus SA	31,4,%	390	3	391	(74)
Other non-controlling interests (1)		1,527	33	1,400	27
TOTAL		6,924	160	5,491	214

(1) including Sizewell C Holding Co.

Non-controlling interests in EDF Energy Nuclear Generation Ltd. (formerly British Energy), which is owned 80% by the Group via EDF Energy, correspond to Centrica's share.

Non-controlling interests in NNB Holding Limited, the holding company for the Hinkley Point C project, which is owned 66.5% by the Group via EDF Energy, correspond to CGN's share (see note 3.2).

Non-controlling interests in EDF Luminus correspond to the investments held by Belgian local authorities (see note 5.2.3).

Non-controlling interests in EDF Investissements Groupe correspond to the investment held by Natixis Belgique Investissements.

Other non-controlling interests principally correspond to the investments held by Total and Fluxys in Dunkerque LNG, and minority interests in subsidiaries of the Edison subgroup.

27.5.2 Non-controlling interests in EDF Energy

The key financial indicators (100% basis) for EDF Energy Nuclear Generation Ltd. are as follows:

(in millions of Euros)	31/12/2016	31/12/2015
Non-current assets	21,877	24,750
Current assets	3,325	3,710
Total assets	25,202	28,460
Equity	13,870	15,877
Non-current liabilities	11,058	11,465
Current liabilities	274	1,118
Total equity and liabilities	25,202	28,460
Sales	3,805	4,434
Net income	653	1,155
Gains and losses recorded directly in equity	(1,804)	758
Net cash flow from operating activities	1,296	1,655
Net cash flow from investing activities	(516)	(566)
Net cash flow from financing activities	(672)	(1,143)
Cash and cash equivalents - opening balance	422	466
Net increase/(decrease) in cash and cash equivalents	107	(54)
Effect of currency fluctuations	(62)	10
Other	-	-
Cash and cash equivalents - closing balance	468	422
Dividends paid to shares of non-controlling interests	151	(207)

Note 28 Provisions

The breakdown between current and non-current provisions is as follows:

		31/12/2016			31/12/2015		
(in millions of Euros)	Notes	Current	Non-current	Total	Current	Non-current	Total
Provisions for the back-end of the nuclear cycle		1,463	20,823	22,286	1,733	20,179	21,912
Provisions for decommissioning and last cores		208	24,020	24,228	251	24,646	24,897
Provisions related to nuclear generation	29	1,671	44,843	46,514	1,984	44,825	46,809
Provisions for decommissioning of non-nuclear facilities	30	63	1,506	1,569	75	1,447	1,522
Provisions for employee benefits	31	1,100	21,234	22,334	1,033	21,511	22,544
Other provisions	32	2,394	2,155	4,549	2,262	2,190	4,452
TOTAL PROVISIONS		5,228	69,738	74,966	5,354	69,973	75,327

Note 29 Provisions related to nuclear generation - back-end of the 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 1.3.2.1.

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 the back-end of the nuclear cycle, provisions for decommissioning and provisions for last cores breaks down as follows:

(in millions of Euros)	31/12/2015	Increases	Decreases	Discount effect	Translation adjustments	Other movements	31/12/2016
Provisions for spent fuel management	12,369	397	(1,596)	738	(286)	807	12,429
Provisions for long-term radioactive waste management	9,543	181	(233)	773	(174)	(233)	9,857
Provisions for the back-end of the nuclear cycle	**21,912**	**578**	**(1,829)**	**1,511**	**(460)**	**574**	**22,286**
Provisions for nuclear plant decommissioning	21,025	156	(175)	996	(893)	(541)	20,568
Provisions for last cores	3,872	-	-	160	(199)	(173)	3,660
Provisions for decommissioning and last cores	**24,897**	**156**	**(175)**	**1,156**	**(1,092)**	**(714)**	**24,228**
PROVISIONS RELATED TO NUCLEAR GENERATION	46,809	734	(2,004)	2,667	(1,552)	(140)	46,514

The breakdown of provisions by company is shown below:

(in millions of Euros)	EDF Note 29.1	EDF Energy Note 29.2	Belgium	Total
Provisions for spent fuel management	10,658	1,771	-	12,429
Provisions for long-term radioactive waste management	8,966	888	3	9,857
PROVISIONS FOR THE BACK-END OF THE NUCLEAR CYCLE AT 31/12/2016	19,624	2,659	3	22,286
Provisions for the back-end of the nuclear cycle at 31/12/2015	**18,645**	**3,267**	**-**	**21,912**
Provisions for nuclear plant decommissioning	14,122	6,190	256	20,568
Provisions for last cores	2,287	1,373	-	3,660
PROVISIONS FOR DECOMMISSIONING AND LAST CORES AT 31/12/2016	16,409	7,563	256	24,228
Provisions for decommissioning and last cores at 31/12/2015	**17,485**	**7,207**	**205**	**24,897**

29.1 NUCLEAR PROVISIONS IN FRANCE

In France, the provisions established by EDF for the nuclear generation fleet result from the Law of 28 June 2006 on long-term management of radioactive materials and waste, and the associated implementing provisions concerning secure financing of nuclear expenses.

In compliance with the accounting principles described in note 1.3.21:

- EDF books provisions to cover all obligations related to the nuclear facilities it operates;
- EDF holds dedicated assets for secure financing of long-term obligations (see note 47).

The calculation of provisions incorporates a level of risks and unknowns as appropriate to the operations concerned. The valuation of costs carries uncertainty factors such as:

- changes in legislation, particularly regarding safety, security and environmental protection, and financing of nuclear expenses;
- changes in the regulatory decommissioning process and the time necessary for issuance of administrative authorisation;
- future methods for storing long-lived radioactive waste and provision of storage facilities by the French agency for radioactive waste management ANDRA (*Agence Nationale pour la Gestion des Déchets Radioactifs*);
- changes in certain financial parameters such as discount rates, notably in view of the regulatory limits, inflation rates, or changes in the contractual terms of spent fuel management.

Details of changes in provisions for the back-end of the nuclear cycle, decommissioning and last cores are as follows:

(in millions of Euros)	Notes	31/12/2015	Increases	Decreases (3)	Discount effect (2)	Other movements (1)	31/12/2016
Provisions for spent fuel management	29.1.1	10,391	389	(1,282)	637	523	10,658
Provisions for long-term radioactive waste management	29.1.2	8,254	173	(233)	729	43	8,966
Provisions for the back-end of the nuclear cycle		**18,645**	**562**	**(1,515)**	**1,366**	**566**	**19,624**
Provisions for nuclear plant decommissioning	29.1.3	14,930	156	(159)	723	(1,528)	14,122
Provisions for last cores	29.1.4	2,555	-	-	93	(361)	2,287
Provisions for decommissioning and last cores		**17,485**	**156**	**(159)**	**816**	**(1,889)**	**16,409**
PROVISIONS RELATED TO NUCLEAR GENERATION		36,130	718	(1,674)	2,182	(1,323)	36,033

(1) Other movements include changes in provisions with related assets (assets associated with provisions and underlying assets), resulting from the following in 2016 :

- *the consequences of extending the accounting depreciation period of the 900MW PWR series (see note 3.1), i.e. a €(2,044) million decrease in these provisions comprising €(1,465) million on provisions for decommissioning, €(470) million on provisions for last cores, and €(109) million on provisions for long-term radioactive waste management concerning waste resulting from decommissioning;*
- *the effects of the change in real discount rate at 31 December 2016 on the same provisions, which amounts to €662 million;*
- *revision of the decommissioning costs for the PWR plants currently in operation, amounting to €(451) million (see note 29.1.3).*

Other movements also include a reclassification of €465 million from provisions for long-term radioactive waste management to provisions for spent fuel management.

(2) The discount effect comprises the €1,502 million cost of unwinding the discount, and the effects of the change of real discount rate in 2016 via the income statement for provisions with no related assets (€680 million).

(3) Following an update to the industrial scenario, services associated with additional interim storage of spent fuel do not longer need to be accrued for provisions. The decrease in provisions for spent fuel includes an amount of €491 million reversed from the provision for this reason.

29.1.1 Provisions for spent fuel management

EDF's currently adopted strategy with regards to the fuel cycle, in agreement with the French State, is to process spent fuel and to recycle the separated plutonium in the form of MOX fuel (Mixed OXide of plutonium and uranium).

The quantities processed, totalling approximately 1,100 tonnes per year, are determined based on the quantity of recyclable plutonium in the reactors that are authorised to load MOX fuel.

Consequently, provisions for spent fuel cover services associated 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.

The processing expenses included in the provision exclusively concern spent fuel that can be recycled in existing facilities, including the portion in reactors but not yet irradiated.

Expenses are measured based on forecast physical flows at the year-end, with reference to the contracts currently in effect with AREVA following the framework agreement for the period 2008-2040, which has given rise to the following contracts:

- an implementation contract signed in July 2010, setting the prices and quantities of services for the period 2008-2012;
- an implementation contract signed in May 2015 defining the conditions for processing and recycling over the period 2013-2015;
- an amendment signed on 5 February 2016 laying down the terms of implementation for the period 2016-2023, which was previously covered by an agreement of December 2015, presented to the Board of Directors on 27 January 2016.

The provision also covers long-term storage of spent fuel that cannot currently be recycled in existing installations: plutonium fuel (MOX) or uranium fuel derived from enriched processing, and fuel from Creys-Malville and Brennilis

29.1.2 Provisions for long-term radioactive waste management

These provisions concern future expenses for:

- removal and storage of radioactive waste resulting from decommissioning of nuclear installations operated by EDF;
- removal and storage of radioactive waste packages resulting from spent fuel processing;
- EDF's share of the costs of studies, construction, operation and maintenance, shutdown and surveillance of existing and future storage centres.

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 (comprising 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 ANDRA.

The provision for long-term radioactive waste management breaks down as follows:

(in millions of Euros)	31/12/2016	31/12/2015
Very low-level and low and medium-level waste	1,066	988
Long-lived low-level waste	256	252
Long-lived medium and high-level waste (1)	7,644	7,014
PROVISIONS FOR LONG-TERM RADIOACTIVE WASTE MANAGEMENT	8,966	8,254

(1) Including provisions for retrieval and conditioning of waste.

Very low-level and low and medium-level waste

Very low-level waste mainly comes from nuclear plant decommissioning, and generally takes the form of rubble (concrete, scrap metal, insulating materials and piping). This type of waste is stored at surface level at the Morvilliers storage centre managed by ANDRA.

Low and medium-level waste comes from nuclear facilities (gloves, filters, resins). This type of waste is stored at surface level at the Soulaines storage centre managed by ANDRA.

The cost of removing and storing short-lived waste (very low-level and low and medium-level) is assessed on the basis of current contracts with transporters and contracts with ANDRA for operation of the existing storage centres.

Long-lived low-level waste

Long-lived low-level waste belonging to EDF essentially consists of graphite waste from the ongoing decommissioning of the former UNGG (natural uranium graphite gas-cooled) reactors.

As this waste has a long lifetime, but is lower-level than long-lived medium and high-level waste, specific subsurface storage requirements apply under the French Law of 28 June 2006.

An initial site search launched by ANDRA in 2008 was unsuccessful. ANDRA resumed this search in 2013 and is currently continuing feasibility studies in liaison with the authorities. Other alternative management scenarios are also being examined, including new specifications for a broader range of potential management solutions.

The benchmark scenario for dismantling the UNGG plants, established in 2015 (see note 29.1.3), sets out a sequence for dismantling operations. In particular, the aim is to consolidate experience acquired from dismantling the first caisson (UNGG reactor building) before beginning work on the other five. The new schedule also defers the dates for removal of waste (graphite and long-lived medium-level waste). In 2015 this change led to a reversal of €292 million from the provision for long-lived low-level waste, and a smaller €40 million reversal from the provision for very low-level and low and medium-level waste resulting from decommissioning of the UNGG plants, giving a total reversal of €332 million from the provision for long-term waste management.

Long-lived medium and high-level waste

Long-lived medium and high-level waste essentially comes from processing of spent fuel, and to a lesser extent waste resulting from nuclear plant decommissioning (metallic components that have been inside the reactor).

The French Law of 28 June 2006 requires reversible storage in deep geological layers for this type of waste.

The provision established for long-lived medium and high-level waste is the largest component of provisions for long-term radioactive waste management.

From 2005, the gross value and disbursement schedules for forecast expenses were based on a scenario of industrial geological waste storage, following conclusions presented in the first half of 2005 by a working group formed under supervision of the State involving representatives of the administrations concerned, ANDRA and the producers of waste (EDF, AREVA, CEA). EDF applied a reasonable approach to information supplied by this working group, leading to a benchmark cost, for storage of waste from all producers, of €14.1 billion under the economic conditions of 2003 (€20.8 billion under 2011 economic conditions).

In the partnership set up in 2011 between ANDRA and waste producers to contribute to the success of the geological storage project (the Cigéo project), ANDRA carried out preliminary conceptional studies from 2012, and analysed the technical optimisations proposed by the producers. The cooperation between ANDRA and producers provided a forum for formal technical discussions that resulted in optimisation of the waste storage design (for example new sizing for the above-ground installations, a significant reduction in the length of underground structures, thinner coatings, etc) and operating conditions (such as new timetables for package transfer, leading to a substantial reduction in the numbers of operating staff).

On this basis, ANDRA drew up provisional figures in a report sent to EDF on 18 July 2014. In compliance with the Law of 28 June 2006, a consultation process was started by the French Department for Energy and Climate *(Direction Générale de l'Énergie et du Climat* or DGEC) on 18 December 2014, when ANDRA's consolidated figures were submitted to the waste producers for their comments. The consultation focused mainly on methods for incorporating risks, opportunities and uncertainties, and on unit costs, which are still a point of significant divergence between ANDRA and the producers. EDF and the other producers sent their comments on ANDRA's report to the DGEC in February 2015 and a joint estimation of the target Cigéo storage cost in April 2015. All this information was included in the report submitted to the Minister for Ecology, Sustainable Development and Energy, who will set the new benchmark cost for storage of long-lived medium and high-level waste after consulting the Nuclear Safety Authority (ASN).

On 15 January 2016 the Ministry of Ecology, Sustainable Development and Energy issued a Ministerial Order setting the cost associated with the implementation of long-term management solutions for long-lived medium and high-level radioactive waste under the Cigéo storage project at €25 billion under 2011 economic conditions. This cost valuation is required by Article L542-12 of France's Energy Code.

The cost as defined constitutes an objective to be met by ANDRA, in compliance with safety standards set by the ASN, working in close liaison with the operators of nuclear installations.

Publication of this Order entailed an €820 million adjustment to the provision shown in the Group's financial statements at 31 December 2015. The cost of the Cigéo project defined in the Order has replaced the estimated benchmark cost of €20.8 billion previously used by EDF for its consolidated financial statements.

In application of this Ministerial Order, the cost of the Cigéo project will be regularly updated, at least at each key milestone in the course of the project's development (authorisation to create the facility, commissioning, end of the "pilot industrial phase", safety reviews) in accordance with the opinion of the ASN.

Design studies for future facilities are currently in process with ANDRA, with a view to filing an application to build a new basic nuclear facility by 2018. The Law of 11 July 2016 which defines the terms for creation of a reversible deep geological storage facility, is an important step towards issuance of the authorisation. Under the timetable set by ANDRA, authorisation to create the facility should be given in 2021 and the first waste should arrive in 2030.

The provision for long-lived medium and high-level waste also includes provisions for retrieval and conditioning of waste, amounting to €581 million (of which €452 million were booked in 2016, notably for long-lived medium-level radioactive waste from operations).

29.1.3 Decommissioning provisions for nuclear power plants

EDF bears full technical and financial responsibility for decommissioning of the nuclear plants it operates. The decommissioning process is governed by French Law of 13 June 2006, Decree 2007-1557 of 2 November 2007, and the French Environment Code (Articles L593-25 and following). It involves the following operations for each site:

- a shutdown declaration, to be made at least two years prior to the planned shutdown date;
    - since the Energy Transition Law of 17 August 2015, the final shutdown, which takes place during the operating phase of the basic nuclear facility, is considered separately from dismantling, as a notable change of lesser importance (simply requiring a declaration by the operator to the Minister and the ASN).
- an application for decommissioning, which after examination by the authorities and a public inquiry, leads to a single decree authorising the decommissioning;
- key progress reviews with the ASN, included in a formal safety procedure specific to dismantling operations;
- an internal authorisation procedure for the operator, independent of operational personnel and audited by the ASN, allowing some specific work to be started ahead of the authorised safety procedure;
- finally, once these operations are complete, declassification of the facility to remove it from the legal regime governing basic nuclear facilities.

The decommissioning scenario adopted by EDF complies with France's environmental code, which requires as short a period as possible to elapse between final shutdown and dismantling in economically acceptable conditions and in compliance with the principles laid down in Article L.1333-1 of the public health code (radioprotection) and section II of Article L.110-1 of the environmental code (protection of the environment). The intended end-state is industrial use: the sites will be restored to their original condition and will be reusable for industrial facilities.

The decommissioning provisions cover future decommissioning expenses as described above (excluding the cost of removing and storing waste, which is covered by the provision for long-term waste management).

Details of changes in decommissioning provisions for nuclear power plants are as follows:

(in millions of Euros)	31/12/2015	Increases	Decreases	Discount effect	Other movements	31/12/2016
Provisions for decommissioning nuclear plants in operation	11,944	-	(23)	472	(1,494)	10,899
Provisions for decommissioning permanently shut-down nuclear plants	2,986	156	(136)	251	(34)	3,223
DECOMMISSIONING PROVISIONS FOR NUCLEAR POWER PLANTS	**14,930**	**156**	**(159)**	**723**	**(1,528)**	**14,122**

For nuclear power plants currently in operation (PWR pressurized water reactor plants with 900MW, 1,300MW and N4 reactors)

Until 2013, provisions were estimated based on a 1991 study by the French Ministry of Trade and Industry, which set an estimated benchmark cost for decommissioning expressed in €/MW, confirming the assumptions defined in 1979 by the PEON commission.

In 2009, EDF carried out a detailed study of decommissioning costs, using Dampierre (four 900MW units) as a representative site. This study involved the following steps:

- measurement of the decommissioning cost for the Dampierre site, 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 timeline for decommissioning operations (the total duration of decommissioning for one reactor was estimated at 15 years following shutdown);
- determination of the rules for extrapolation of cost estimates for the entire fleet of PWR plants in operation.

An intercomparison with the study carried out by consultants La Guardia, based mainly on the Maine Yankee reactor in the US which is comparable in terms of technology and capacity, subsequently corroborated the results of EDF's study.

In 2014 the Dampierre study was reviewed by EDF to make sure that the previous calculations were still valid in view of recent developments and experience, both internationally and internally. This review reinforced the amounts of decommissioning provisions for plants in operation based on costs resulting from the Dampierre study, incorporating best estimates and feedback in and outside France. This change of estimate had no significant impact on the level of provisions at 31 December 2014.

Between June 2014 and July 2015, an audit of dismantling costs for EDF's nuclear fleet currently in operation was conducted by specialised consulting firms, at the request of the French Department for Energy and Climate (*Direction Générale de l'Énergie et du Climat* or DGEC). On 15 January 2016 the DGEC published a summary of the audit report. It stated that although estimating the cost of decommissioning nuclear reactors is a demanding exercise due to relatively limited past experience, the prospects of changes in techniques, and the distant timing of the expenditure, overall, the audit confirmed EDF's estimate of decommissioning costs for its nuclear fleet currently in operation. The DGEC also made a number of recommendations to EDF following this audit.

In 2016, EDF revised the decommissioning estimate, in order to incorporate the audit recommendations and past experience gained from dismantling operations for first-generation reactors (particularly Chooz A).

A detailed analytical approach was used to revise this estimate, identifying all costs for the engineering, construction work, operation and waste processing relating to future dismantling of reactors currently in operation. This led to figures based on detailed timetables for plant decommissioning. The approach adopted made it possible to explore more thoroughly the assessment of costs specific to the initial units of each series and the series and mutualisation effects, as these costs and effects are inherent to the fleet's size and configuration.

The Group considers that the work done to revise the estimate answers the recommendations issued after the audit. The approach adopted and its results have been presented to the administrative authority and are currently the subject of further questions and discussion.

EDF is also continuing to support its analyses through an international comparison, making it sure it takes into consideration a number of factors that could distort direct comparisons, for example differences in the scope concerned by costs estimate, or national and regulatory contexts.

The results of the work accomplished this year lead overall to limited changes [(*)] in the costs estimate and the associated provisions at 31 December 2016, apart from the consequences of the change in the depreciation period for 900MW series plants (excluding Fessenheim) at 1 January 2016, and the effect of changes in discount rates at 31 December 2016.

[(*)] *- an increase of €321 million in the estimated decommissioning costs and an increase of €334 million in the estimated cost of long-term management of long-lived medium-level waste,*

- and a decrease of €(451) million in the provision for plant decommissioning, and an increase of €162 million in the provision for long-term management of long-lived medium-level waste, with corresponding changes in the underlying assets.

For permanently shut-down nuclear power plants

Unlike the PWR fleet currently in operation, the first-generation reactors now shut down used a range of different technologies: a PWR reactor at Chooz A, UNGG (natural uranium graphite gas-cooled) reactors at Bugey, St-Laurent and Chinon, a heavy water reactor at Brennilis, and a sodium-cooled fast neutron reactor at Creys-Malville.

The decommissioning costs are based on contractor quotes, which take account of accumulated industrial experience, unforeseen and regulatory developments, and the latest available figures.

In 2015 the industrial strategy for UNGG plants was totally revised. The previously selected strategy was based on a scenario involving "underwater" dismantling of caissons (UNGG reactor buildings) for four of the reactors, with direct graphite storage in a centre currently under examination by ANDRA (see Long-lived low-level waste, note 29.1.2). This scenario was re-examined in view of several new technical factors (new technical information indicating industrial difficulties in underwater dismantling in this specific case, lower visibility on the availability of graphite storage, etc). The new information also brought out an alternative "in-air" dismantling solution for the caissons, which facilitates industrial control of operations and would be more favourable in terms of safety, radioprotection and environmental impact. The company has therefore selected a new "in-air" dismantling scenario as the benchmark strategy for all six caissons.

The amended scenario was presented to the ASN's commissioners on 29 March 2016, and shared with local stakeholders in the Local Information Commissions for the sites concerned. A further presentation to the ASN is scheduled for mid-2017. For both scenarios, the studies to update contractor quotes have led to a significant increase in forecast decommissioning costs for these caissons. The selected scenario includes a consolidation phase, building on experience acquired from dismantling the first caisson before beginning work on the other five. Under this scenario, the decommissioning phase will ultimately be longer than previously planned, leading to higher contractor quotes due to the induced operating costs.

Updating the industrial decommissioning scenario for first-generation power plants, particularly UNGGs, led to a €590 million increase in the provision at 31 December 2015.

After the revision of the estimated cost in 2015, the decision was made that it should be reviewed annually. In 2016 this review gave rise to adjustments that were non-significant except for one specific installation (the Irradiated Materials Workshop at Chinon), for which the provision was increased by €125 million.

29.1.4 Provisions for last cores

These provisions cover the future expenses resulting from scrapping fuel that will only be partially irradiated 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, and waste removal and 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

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 OAT 2055 treasury bonds, which have a similar duration to the obligations, plus the spread of corporate bonds rated A to AA, which include EDF.

The methodology used to determine the discount rate, particularly the reference to sliding 10-year averages, is able to prioritise 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 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 4.2% at 31 December 2016, assuming inflation of 1.5% (4.5% and 1.6% respectively at 31 December 2015), giving a real discount rate of 2.7% at 31 December 2016 (2.9% at 31 December 2015).

Regulatory discount rate limit

The discount rate applied must also comply with two regulatory limits. Since the ministerial order of 24 March 2015, the discount rate must be lower than:

- a regulatory maximum "equal to the arithmetic average over the 120 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).

The ceiling rate based on the TEC 30-year rate is 4.3% at 31 December 2016 (4.6% at 31 December 2015).

In a letter dated 10 February 2017, the minister for the Economy and Finance and the minister for the Environment, Energy and the Sea announced their decision to change the calculation formula for the regulatory limit on discount rates with effect from 2017. This decision will be set out in an amendment to the ministerial order of 21 March 2007, itself modified by the order of 24 March 2015. This amendment comes after joint work by the nuclear operators and public authorities to establish a formula for a maximum discount rate, taking into account the long time horizons of nuclear liabilities and prudential objectives for secure financing of long-term nuclear expenses.

Under the new formula, the regulatory limit will gradually migrate from its level at 31 December 2016 (4.3%) until by 2026 it is equal to the average constant 30-year rate (TEC 30 years) over the four most recent years, plus 100 base points.

Considering past and anticipated changes in rates, the new formula, which will progressively incorporate the move from the regulatory 4.3% to a four-year average including a 100 base point spread, should mean that future years see smoother changes in the regulatory limit than under the previous formula.

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.

	31/12/2016		31/12/2015	
(in millions of Euros)	Costs based on year-end economic conditions (1)	Amounts in provisions at present value	Costs based on year-end economic conditions	Amounts in provisions at present value
Spent fuel management (2)	18,460	10,658	16,843	10,391
Long-term radioactive waste management (3)	29,631	8,966	28,890	8,254
BACK-END NUCLEAR CYCLE EXPENSES	48,091	19,624	45,733	18,645
Decommissioning provisions for nuclear power plants (4)	26,616	14,122	26,067	14,930
Provisions for last cores	4,344	2,287	4,113	2,555
DECOMMISSIONING AND LAST CORE EXPENSES	30,960	16,409	30,180	17,485

(1) *An amount of €1,368 million has been reclassified from provisions for long-term radioactive waste management to provisions for spent fuel management.*
(2) *Excluding the effect of the reclassification presented in (1), the increase between 2015 and 2016 in the cost of spent fuel management, based on year-end economic conditions, includes an amount of €(540) million related to the lower cost estimate for additional interim*

spent fuel storage services, which are no longer covered by a provision. Other changes notably concern updating of the contractor quote for processing of spent fuel loaded in the reactors in 2016.

(3) Excluding the effect of the reclassification presented in (1), the increase between 2015 and 2016 in the cost of long-term radioactive waste management, based on year-end economic conditions, includes an amount of €729 million for retrieval and conditioning of waste, particularly the long-lived medium-level waste resulting from operations and decommissioning of plants in operation. Other changes mainly concern adjustment of the Cigéo estimate for processing of spent fuel loaded in the reactors in 2016.

(4) The increase between 2015 and 2016 of the cost of nuclear plant decommissioning based on year-end economic conditions includes an amount of €321 million resulting from revision of the cost estimate for decommissioning of plants currently in operation.

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 of the nuclear cycle, decommissioning of nuclear plants and last cores:

At 31 December 2016:

(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%
Back-end nuclear cycle expenses:					
- spent fuel management	10,658	(211)	227	182	(195)
- long-term radioactive waste management	8,966	(475)	534	381	(432)
Decommissioning and last cores:					
- decommissioning of nuclear power plants	14,122	(586)	619	127	(138)
- last cores	2,287	(85)	90	-	-
TOTAL	36,033	(1,357)	1,470	690	(765)

At 31 December 2015:

(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%
Back-end nuclear cycle expenses:					
- spent fuel management	10,391	(168)	177	140	(149)
- long-term radioactive waste management	8,254	(400)	448	337	(376)
Decommissioning and last cores:					
- decommissioning of nuclear power plants	14,930	(496)	522	122	(131)
- last cores	2,555	(62)	65	-	-
TOTAL	36,130	(1,126)	1,212	599	(656)

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 €10,222 million at 31 December 2016;
- in the assets, EDF Energy 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 €8,743 million at 31 December 2016 (€9,061 million at 31 December 2015).

Details of changes in provisions for the back-end of the nuclear cycle and provisions for decommissioning and last cores are as follows:

(in millions of Euros)	31/12/2015	Increases	Decreases	Discount effect	Translation adjustments	Other movements (1)	31/12/2016
Provisions for spent fuel management	1,978	8	(314)	101	(286)	284	1,771
Provisions for long-term radioactive waste management	1,289	4	-	44	(174)	(275)	888
Provisions for the back-end of the nuclear cycle	**3,267**	**12**	**(314)**	**145**	**(460)**	**9**	**2,659**
Provisions for nuclear plant decommissioning	5,890	-	(16)	263	(893)	946	6,190
Provisions for last cores	1,317	-	-	67	(199)	188	1,373
Provisions for decommissioning and last cores	**7,207**	**-**	**(16)**	**330**	**(1,092)**	**1,134**	**7,563**
PROVISIONS RELATED TO NUCLEAR GENERATION	10,474	12	(330)	475	(1,552)	1,143	10,222

(1) Other movements include a €955 million change in nuclear liabilities, with a corresponding change in the receivable representing reimbursements due from the NLF (Nuclear Liabilities Fund) and the British government. This change resulted from the 3-yearly revision in 2016 of assumptions used in calculating nuclear liabilities.

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 life of the plants as at the date of the "restructuring agreements"; the corresponding provision amounts to €131 million at 31 December 2016;
- £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 or surcharge dependent on market electricity price and electricity generated in the year - are included in inventories (see note 1.3.17.1).

29.2.2 Provisions for the back-end of the nuclear cycle

Spent fuel from the Sizewell B PWR (pressurised 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 of the 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.

	31/12/2016		31/12/2015	
(in millions of Euros)	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
Spent fuel management	3,101	1,771	3,037	1,978
Long-term radioactive waste management	5,326	888	8,178	1,289
BACK-END NUCLEAR CYCLE EXPENSES	8,427	2,659	11,215	3,267

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.

	31/12/2016		31/12/2015	
(in millions of Euros)	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
PLANT DECOMMISSIONING EXPENSES	15,803	6,059	16,997	5,732

The table above concerns decommissioning obligations excluding the present value of decommissioning contributions payable to the NLF, which is €131 million at 31 December 2016 (see note 29.2.1).

29.2.4 Discounting of provisions related to nuclear generation

The discount rate has been calculated using an average series of data for a sample of UK Government gilts over the longest available durations plus the spread of UK Corporate bonds rated A to AA, again over the longest-term duration. The implicit inflation rate used in determining a discount rate is based on long-term forecast of adjusted retail prices (the UK's RPIJ index).

At 31 December 2016, EDF Energy applied a real discount rate of 2.7% to nuclear liabilities in the United Kingdom (3.0% at 31 December 2015).

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
PROVISIONS FOR DECOMMISSIONING OF NON-NUCLEAR FACILITIES AT 31/12/2016	617	90	667	195	1,569
Provisions for decommissioning of non-nuclear facilities at 31/12/2015	597	99	688	138	1,522

Provisions for decommissioning of non-nuclear facilities principally concern fossil-fired power plants and hydrocarbon production assets.

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 2016 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)	31/12/2016	31/12/2015
Provisions for employee benefits - current portion	1,100	1,033
Provisions for employee benefits - non-current portion	21,234	21,511
PROVISIONS FOR EMPLOYEE BENEFITS	22,334	22,544

31.1.1 Breakdown of the change in the net liability

(in millions of Euros)	Obligations	Fund assets	Net Liability
Balance at 31/12/2015 (1)	41,567	(19,075)	22,492
Net expense for 2016	2,077	(547)	1,530
Actuarial gains and losses	2,041	(2,602)	(561)
Employer's contributions to funds	-	(694)	(694)
Employees' contributions to funds	11	(11)	-
Benefits paid	(1,701)	709	(992)
Translation adjustment	(1,298)	1,303	5
Changes in scope of consolidation	(11)	-	(11)
Other movements	(3)	-	(3)
BALANCE AT 31/12/2016	42,683	(20,917)	21,766
Including:			
Provision for employee benefits			22,334
Non-current financial assets			(568)

(1) The net liability at 31 December 2015 comprised €22,544 million for the provision for employee benefits and €(52) million of non-current financial assets, giving a net liability amount of €22,492 million.

Actuarial gains and losses on obligations amount to €2,041 million for 2016, essentially comprising €1,349 million in the United Kingdom associated with changes in the discount and inflation rates (see note 31.3.6) and €643 million in France, mainly related to the effect of changes in financial assumptions:

- Change in discount and inflation rate assumptions : €2,322 million
- Changes concerning the valuation of employee benefits in kind in the form of energy, particularly following the CSPE reform: €(1,742) million.

Actuarial gains and losses on assets amount to €(2,602) million for 2016 and reflect the rise in the value of fund assets, which is notably associated with the valuation of long-term obligations after a decrease in interest rates.

31.1.2 Post-employment and long-term employee benefit expenses

(in millions of Euros)	2016	2015
Current service cost	(890)	(1,032)
Past service cost	38	511
Actuarial gains and losses – long-term benefits	(177)	22
Net expenses recorded as operating expenses	**(1,029)**	**(499)**
Interest expense (discount effect)	(1,048)	(1,070)
Return on fund assets	547	538
Net interest expense included in financial result	**(501)**	**(532)**
EMPLOYEE BENEFIT EXPENSES RECORDED IN THE INCOME STATEMENT	(1,530)	(1,031)
Actuarial gains and losses – post-employment benefits	(2,041)	1,490
Actuarial gains and losses on fund assets	2,602	(490)
Actuarial gains and losses	**561**	**1,000**
Translation adjustments	(5)	(18)
GAINS AND LOSSES ON EMPLOYEE BENEFITS RECORDED DIRECTLY IN EQUITY	556	982

The past service cost in 2015 includes:

- income of €287 million resulting from the signature on 30 June 2015 by EDF and Engie of an agreement concerning the compensation system for employee benefits in kind in the form of energy. This agreement led to a contractual change in the number of beneficiaries covered by the Group;
- income of €154 million recognised by EDF Energy following a change of benefit plan. EDF Energy’s defined-benefit pension plans now have a ceiling on pensionable pay over a threshold;
- A €67 million decrease in the Group’s obligations related to a cap on the death benefit for retired employees. Law no. 2014-1544 of 22 December 2014 on social security financing for 2015 and Decree 2015-209 of 24 February 2015 introduced a fixed scale for death benefits in the normal French system. This was extended to the IEG sector by Decree 2015-1536 of 25 November 2015.

31.1.3 Net employee benefit liability by geographical area

(in millions of Euros)	France [1]	United Kingdom	Other	Total
Obligations at 31/12/2015	32,575	8,614	378	41,567
Net expense for 2016	1,575	486	16	2,077
Actuarial gains and losses	643	1,349	49	2,041
Employees' contributions to funds	-	11	-	11
Benefits paid	(1,420)	(270)	(11)	(1,701)
Translation adjustment	-	(1,299)	1	(1,298)
Changes in scope of consolidation	-	-	(11)	(11)
Other movements	-	-	(3)	(3)
OBLIGATIONS AT 31/12/2016	33,373	8,891	419	42,683
Fair value of fund assets	(11,566)	(9,248)	(103)	(20,917)
NET EMPLOYEE BENEFIT LIABILITY AT 31/12/2016	21,807	(357)	316	21,766
Including:				
Provision for employee benefits	21,807	211	316	22,334
Non-current financial assets [2]	-	(568)	-	(568)

(in millions of Euros)	France [1]	United Kingdom	Other	Total
Obligations au 31/12/2015	32,575	8,614	378	41,567
Fair value of fund assets	(10,499)	(8,505)	(71)	(19,075)
PROVISIONS FOR RMPLOYEE BENEFITS AT 31/12/2015	22,076	109	307	22,492
Including:				
Provision for employee benefits	22,076	161	307	22,544
Non-current financial assets	-	(52)	-	(52)

(1) France comprises the two operating segments "France – Generation and Supply" and "France – Regulated activities" (see note 31.2).
(2) At 31 December 2016, EDF Energy recognised surplus funding on its EEGSG and BEGG pension schemes (see note 31.3.1).

31.2 FRANCE (REGULATED ACTIVITIES, AND GENERATION AND SUPPLY)

Given the strong similarities between their pension schemes, the two new operating segments "France – Generation and Supply" and "France – Regulated activities" (see note 6.1) are combined here into a single subtotal, France, which primarily includes EDF and Enedis. Almost all of these companies' employees have IEG status, including the special IEG pension and other IEG benefits.

These benefits are described in note 1.3.22.

31.2.1 Details of changes in the provision

(in millions of Euros)	Obligations	Fund assets	Provision in the balance sheet
Balances at 31/12/2015	32,575	(10,499)	22,076
Net expense for 2016	1,575	(252)	1,323
Actuarial gains and losses	643	(854)	(211)
Contributions to funds	-	(396)	(396)
Benefits paid	(1,420)	435	(985)
BALANCES AT 31/12/2016	33,373	(11,566)	21,807

31.2.2 Post-employment and long-term employee benefit expenses

(in millions of Euros)	2016	2015
Current service cost	(659)	(732)
Past service cost [(1)]	-	356
Actuarial gains and losses – long-term benefits	(177)	22
Net expenses recorded as operating expenses	*(836)*	*(354)*
Interest expense (discount effect)	(739)	(742)
Return on fund assets	252	229
Net interest expense included in financial result	*(487)*	*(513)*
EMPLOYEE BENEFIT EXPENSES RECORDED IN THE INCOME STATEMENT	(1,323)	(867)
Actuarial gains and losses – post-employment benefits	(643)	1,136
Actuarial gains and losses on fund assets	854	(157)
Actuarial gains and losses	*211*	*979*
GAINS AND LOSSES ON EMPLOYEE BENEFITS RECORDED DIRECTLY IN EQUITY	211	979

(1) In 2015, the past service cost includes €287 million relating to the EDF / Engie agreement of 30 June 2015 and €67 million relating to introduction of a fixed scale for death benefits (see note 31.1.2).

Actuarial gains and losses on post-employment benefits break down as follows:

(In millions of Euros)	2016	2015
Experience adjustments	(165)	360
Changes in demographic assumptions	23	35
Changes in financial assumptions [(1)]	(678)	763
Actuarial gains and losses on obligations	(820)	1,158
Including:		
-actuarial gains and losses on post-employment benefits	(643)	1,136
-actuarial gains and losses on long-term benefits	(177)	22

(1) Financial assumptions mainly concern the discount rate, inflation rate and wage increase rate, and in 2016, changes in assumptions regarding the value of benefits in kind (electricity/gas).

The actuarial gains and losses on obligations generated over 2016 amount to €(820) million, and are mainly attributable to revisions of financial assumptions (particularly the change in discount and inflation rates).

In 2015, actuarial gains and losses on obligations amounted to €1,158 million, mainly related to the effect of revised financial assumptions (including the changes in assumptions for the discount rate, and the AGIRC-ARRCO agreement of 30 October 2015 which led to a rise of €1 billion in the Group's employee benefit obligations).

31.2.3 Provisions for employee benefits by nature

At 31 December 2016:

(in millions of Euros)	Obligations	Fund assets	Provision in the balance sheet
Provisions for post-employment benefits at 31/12/2016	31,876	(11,566)	20,310
Comprising:			
Pensions	24,976	(10,810)	14,166
Benefits in kind (electricity/gas)	4,695	-	4,695
Retirement gratuities	913	(741)	172
Other	1,292	(15)	1,277
Provisions for other long-term employee benefits at 31/12/2016	1,497	-	1,497
Comprising:			
Annuities following work-related accident and illness, and invalidity	1,252	-	1,252
Long service awards	213	-	213
Other	32	-	32
PROVISIONS FOR EMPLOYEE BENEFITS AT 31/12/2016	33,373	(11,566)	21,807

At 31 December 2015:

(in millions of Euros)	Obligations	Fund assets	Provision in the balance sheet
Provisions for post-employment benefits at 31/12/2015	31,175	(10,499)	20,676
Comprising:			
Pensions	22,999	(9,753)	13,246
Benefits in kind (electricity/gas)	6,124	-	6,124
Retirement gratuities	888	(731)	157
Other	1,164	(15)	1,149
Provisions for other long-term employee benefits at 31/12/2015	1,400	-	1,400
Comprising:			
Annuities following work-related accident and illness, and invalidity	1,200	-	1,200
Long service awards	170	-	170
Other	30	-	30
PROVISIONS FOR EMPLOYEE BENEFITS AT 31/12/2015	32,575	(10,499)	22,076

31.2.4 Breakdown of obligations by type of beneficiary

(In millions of Euros)	31/12/2016	31/12/2015
Current employees	19,918	19,425
Retirees	13,455	13,150
OBLIGATIONS	33,373	32,575

31.2.5 Fund assets

For France, fund assets, managed under an Asset/Liability model, amount to €11,566 million at 31 December 2016 (€10,499 million at 31 December 2015) and concern the coverage of 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:

- 69% in a hedging pocket consisting of bonds, designed to replicate variations in the obligation caused by changes in interest rates;
- 31% in a growth asset pocket consisting of international equities.

Fund assets break down as follows:

(in millions of Euros)	31/12/2016	31/12/2015
FUND ASSETS	11,566	10,499
Assets funding special pension benefits	*10,810*	*9,753*
Comprising (%)		
Listed equity instruments (shares)	31%	29%
Listed debt instruments (bonds)	69%	71%
Assets funding retirement gratuities	*741*	*731*
Comprising (%)		
Listed equity instruments (shares)	33%	32%
Listed debt instruments (bonds)	67%	68%
Other fund assets	*15*	*15*

At 31 December 2016, the equities held as part of fund assets are distributed as follows:

- approximately 55% of the total are shares in North American companies;
- approximately 21% of the total are shares in European companies;
- approximately 24% of the total are shares in companies in the Asia-Pacific zone and emerging countries.

This distribution is relatively stable compared to the distribution at 31 December 2015.

At 31 December 2016, the bonds held as part of fund assets are distributed as follows:

- approximately 86% of the total are AAA and AA-rated bonds;
- approximately 14% of the total are bonds with A, BBB and other ratings.

Around 81% of 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 2015.

The performance of pension fund assets in France is +10.9% in 2016.

31.2.6 Future Cash Flows

Cash flows related to future employee benefits are as follows:

(in millions of Euros)	Cash flow in year-end economic conditions	Amount covered by provision (present value)
Less than one year	1,642	1,426
One to five years	5,771	5,435
Five to ten years	5,799	4,978
More than ten years	41,006	21,534
CASH FLOWS RELATED TO EMPLOYEE BENEFITS	54,218	33,373

At 31 December 2016, the average duration of employee benefit commitments in France is 18.7 years.

31.2.7 Actuarial assumptions

(in %)	31/12/2016	31/12/2015
Discount rate/rate of return on assets (1)	1.90%	2.40%
Inflation rate	1.50%	1.60%
Wage increase rate (2)	1.70%	1.70%

(1) *The interest income generated by assets is calculated using the discount rate. The difference between this interest income and the return on assets is recorded in equity.*
(2) *Excluding inflation.*

In France, the discount rate used for employee benefit obligations is determined by applying the yield rate on high-quality corporate bonds based on their duration to maturities corresponding to the future disbursements resulting from these obligations.

Changes at 31 December 2016 in the economic and market parameters used have led the Group to set the discount rate at 1.90% at 31 December 2016 (versus 2.40% at 31 December 2015).

The inflation rate used to calculate provisions for employee benefits is derived from an internally-determined inflation curve by maturity which is used in the Group as a benchmark for Euro zone countries. The inflation rate determined in this way at 31 December 2016 is an average 1.50% (versus 1.60% at 31 December 2015).

31.2.8 Sensitivity analysis

Sensitivity analyses on the amount of the obligation are as follows:

(in %)	31/12/2016
Impact of a 25bp increase or decrease in the discount rate	-4.5% / +4.9%
Impact of a 25bp increase or decrease in the wage increase rate	+3.6% / -3.6%
Impact of a 25bp increase or decrease in the inflation rate	+4.7% / -4.3%

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 net liability

(in millions of Euros)	Obligations	Fund assets	Net liability
Balances at 31/12/2015	8,614	(8,505)	109
Net expense for 2016	486	(294)	192
Actuarial gains and losses	1,349	(1,717)	(368)
Employer's contributions to funds	-	(295)	(295)
Employees' contributions to funds	11	(11)	-
Benefits paid	(270)	270	-
Translation adjustment	(1,299)	1,304	5
BALANCES AT 31/12/2016	8,891	(9,248)	(357)
Including:			
Provision for employee benefits			211
Non-current financial assets			(568)

At 31 December 2016, EDF Energy's EEGSG and BEGG pension schemes (see note 1.3.22.2.2) were overfunded to the extent of €568 million compared to €52 million at 31 December 2015. This overfunding results from the favourable effect of the three-yearly negotiation, and the good performance by fund assets, and is recognised in balance sheet assets as "non-current financial assets".

31.3.2 Post-employment benefit and long-term employee benefit expenses

(in millions of Euros)	2016	2015
Current service cost	(224)	(290)
Past service cost [(1)]	40	154
Actuarial gains and losses – long-term benefits	-	-
Net expenses recorded as operating expenses	(184)	(136)
Interest expense (discount effect)	(302)	(322)
Return on fund assets	294	307
Net interest expense included in financial result	(8)	(15)
EMPLOYEE BENEFIT EXPENSES RECORDED IN THE INCOME STATEMENT	(192)	(151)
Actuarial gains and losses – post-employment benefits	(1,349)	332
Actuarial gains and losses on fund assets	1,717	(336)
Actuarial gains and losses	368	(4)
Translation adjustments	(5)	(17)
GAINS AND LOSSES ON EMPLOYEE BENEFITS RECORDED DIRECTLY IN EQUITY	363	(21)

(1) Including €154 million in 2015 relating to the ceiling on pensionable pay introduced at EDF Energy (see note 31.1.2).

31.3.3 Breakdown of obligations by type of beneficiary

(in millions of Euros)	31/12/2016	31/12/2015
Current employees	5,195	5,443
Retirees	3,696	3,171
OBLIGATIONS	8,891	8,614

31.3.4 Fund assets

Pension obligations in the United Kingdom are partly covered by external funds with a present value of €9,248 million at 31 December 2016 (€8,505 million at 31 December 2015).

The investment strategy applied in these funds is a liability driven investment strategy. The allocation between growth and back-to-back 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:

(in millions of Euros)	31/12/2016	31/12/2015
BEGG pension fund	7,454	6,853
EEGSG pension fund	1,059	982
EEPS pension fund	735	670
FUND ASSETS	9,248	8,505
Comprising (%)		
Listed equity instruments (shares)	27%	34%
Listed debt instruments (bonds)	52%	42%
Real estate properties	6%	7%
Cash and cash equivalents	3%	2%
Other	12%	15%

At 31 December 2016, the equities held as part of fund assets are distributed as follows:

- approximately 32% of the total are shares in North American companies;
- approximately 41% of the total are shares in European companies;
- approximately 27% 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 2015.

At 31 December 2016, the bonds held as part of fund assets are distributed as follows:

- approximately 68% of the total are AAA and AA-rated bonds;
- approximately 32% of the total are bonds with A, BBB and other ratings.

Around 62% of all these bonds are sovereign bonds, mainly issued by the United Kingdom. The balance mainly consists of bonds issued by financial and non-financial firms.

The portion of sovereign bonds issued by the United Kingdom was 11% higher than at 31 December 2015.

31.3.5 Future cash flows

Cash flows related to future employee benefits are as follows.

(in millions of Euros)	Cash flow under year-end economic conditions	Amount covered by provision (present value)
Less than one year	253	249
One to five years	1,037	999
Five to ten years	1,494	1,293
More than ten years	14,444	6,350
CASH FLOWS RELATED TO EMPLOYEE BENEFITS	17,228	8,891

The contribution to funds for 2017 is estimated at approximately €280 million (€267 million contributed by the employer and €13 million by the employees).

The average weighted duration of funds in the United Kingdom is 20.8 years at 31 December 2016.

31.3.6 Actuarial assumptions

(in %)	31/12/2016	31/12/2015
Discount rate/rate of return on assets (1)	2.76 %	3.85%
Inflation rate	3.05 %	3.10%
Wage increase rate	2.45 %	3.10%

(1) The interest income generated by assets is calculated using the discount rate. The difference between this interest income and the return on assets is recorded in equity.

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

Sensitivity analyses on the amount of the obligations are as follows:

(in %)	31/12/2016
Impact of a 25bp increase or decrease in the discount rate	-4.9% / +5.3%
Impact of a 25bp increase or decrease in the wage increase rate	+0.4% / -0.4%
Impact of a 25bp increase or decrease in the inflation rate	+4.1% / -3.8%

Note 32 Other provisions

Details of changes in other provisions are as follows:

(in millions of Euros)	31/12/2015	Increases	Decreases		Changes in scope	Other Changes (3)	31/12/2016
			Utilisations	Reversals			
Provisions for contingencies related to subsidiaries and investments	431	217	(47)	(27)	1	462	1,037
Provisions for tax liabilities	484	81	(47)	(1)	(2)	3	518
Provisions for litigation	551	131	(31)	(127)	-	8	532
Provisions for onerous contracts	284	151	(72)	(19)	-	(2)	342
Provisions related to environmental schemes (1)	917	1,004	(902)	(2)	(88)	(95)	834
Other provisions for risks and liabilities (2)	1,785	583	(484)	(57)	(36)	(505)	1,286
TOTAL	4,452	2,167	(1,583)	(233)	(125)	(129)	**4,549**

(1) Provisions related to environmental schemes include provisions for greenhouse gas emission rights and renewable energy certificates (see note 49).
(2) These provisions cover various contingencies and expenses related to operations (employers' matching contributions to employee profit sharing, contractual maintenance obligations, etc). No individual provision is significant.
(3) Other changes include a €450 million reclassification from other provisions for risks and liabilities to provisions for contingencies related to subsidiaries and investments.

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)	31/12/2016	31/12/2015
Value in kind of assets	46,497	45,346
Unamortised financing by the operator	(23,160)	(22,287)
Rights in existing assets - net value	23,337	23,059
Amortisation of financing by the grantor	12,613	12,047
Provisions for renewal	9,742	9,976
Rights in assets to be replaced	22,355	22,023
SPECIAL FRENCH PUBLIC ELECTRICITY DISTRIBUTION CONCESSION LIABILITIES	45,692	45,082

Note 34 Trade payables

(in millions of Euros)	31/12/2016	31/12/2015
Trade payables - excluding EDF Trading	9,770	10,428
Trade payables - EDF Trading	3,261	2,856
TRADE PAYABLES	13,031	13,284

The Group has a reverse factoring programme allowing suppliers to transfer their receivables on EDF to a factoring company, at their own initiative.

For the Group, this programme does not cause any change in the substance and features of the receivables held by suppliers on EDF. In particular it does not affect the sequences of operating cash flows. The associated liabilities are therefore included in "trade payables" in the Group's financial statements.

Note 35 Other liabilities

Details of other liabilities are as follows:

(in millions of Euros)	31/12/2016	31/12/2015
Advances and progress payments received	7,793	7,618
Liabilities related to property, plant and equipment	3,247	3,331
Tax liabilities	7,098	6,316
Social charges	4,010	3,795
Deferred income on long-term contracts	3,438	3,586
Other deferred income	729	735
Other	2,909	3,367
OTHER LIABILITIES	29,224	28,748
Non-current portion	4,810	5,126
Current portion	24,414	23,622

35.1 ADVANCES AND PROGRESS PAYMENTS RECEIVED

At 31 December 2016 advances and progress payments received include monthly standing order payments by EDF's residential and business customers amounting to €6,828 million (€6,682 million at 31 December 2015). The increase over 2016 is mainly explained by customers opting to pay their bills this way.

35.2 TAX LIABILITIES

At 31 December 2016 tax liabilities mainly include an amount of €1,633 million for the CSPE income to be collected by EDF on energy supplied but not yet billed (€1,258 million at 31 December 2015).

35.3 DEFERRED INCOME ON LONG-TERM CONTRACTS

EDF's deferred income on long-term contracts at 31 December 2016 comprises €1,822 million (€1,874 million at 31 December 2015) of partner advances made to EDF under the nuclear plant financing plans.

Deferred income on long-term contracts also includes an advance paid to the EDF group in 2010 under the agreement with the Exeltium consortium. This advance is transferred to the income statement progressively over the term of the contract.

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:

	31/12/2016			31/12/2015		
(in millions of Euros)	Current	Non-current	Total	Current	Non-current	Total
Financial assets at fair value through profit or loss	3,813	-	**3,813**	4,973	-	**4,973**
Available-for-sale financial assets	22,402	17,888	**40,290**	18,374	15,959	**34,333**
Positive fair value of hedging derivatives	2,157	3,899	**6,056**	1,716	4,322	**6,038**
Loans and financial receivables	1,614	13,342	**14,956**	1,956	14,957	**16,913**
CURRENT AND NON-CURRENT FINANCIAL ASSETS(1)	29,986	35,129	65,115	27,019	35,238	62,257

(1) Including impairment of €(566) million at 31 December 2016 (€(558) million at 31 December 2015).

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)	31/12/2016	31/12/2015
Positive fair value of trading derivatives	3,813	4,973
Fair value of financial assets held for trading	-	-
FINANCIAL ASSETS CARRIED AT FAIR VALUE WITH CHANGES IN FAIR VALUE INCLUDED IN INCOME	3,813	4,973

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

	31/12/2016			31/12/2015		
(in millions of Euros)	Equities (1)	Debt securities	Total	Equities (1)	Debt securities	Total
EDF dedicated assets	9,201	7,766	**16,967**	8,227	6,976	**15,203**
Liquid assets	4,507	17,759	**22,266**	3,942	14,199	**18,141**
Other securities	944	113	**1,057**	941	48	**989**
AVAILABLE-FOR-SALE FINANCIAL ASSETS	14,652	25,638	40,290	13,110	21,223	34,333

(1) Equities or Undertaking for Collective Investments in Transferable Securities (UCITS).

Changes in the fair value of available-for-sale financial assets were recorded in equity (EDF share) over the period as follows:

(in millions of Euros)	2016 Gross changes in fair value recorded in equity (1)	2016 Gross changes in fair value transferred to income (2)	2015 Gross changes in fair value recorded in equity (1)	2015 Gross changes in fair value transferred to income (2)
EDF dedicated assets	760	488	530	1,118
Liquid assets	63	12	(108)	44
Other securities	(5)	-	(40)	(77)
AVAILABLE-FOR-SALE FINANCIAL ASSETS (3)	818	500	382	1,085

(1) +/( ): increase/(decrease) in equity (EDF share).
(2) +/( ): increase/(decrease) in net income (EDF share).
(3) Excluding associates and joint ventures.

Gross changes in fair value included in equity (EDF share) in 2016 and 2015 principally concern EDF.

No significant impairment was recorded in 2016.

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 47.

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 UCITS, included in liquid assets, amount to €3,955 million at 31 December 2016 (€3,490 million at 31 December 2015).

36.3 LOANS AND FINANCIAL RECEIVABLES

Loans and financial receivables are recorded at amortised cost.

(in millions of Euros)	31/12/2016	31/12/2015
Loans and financial receivables - amounts receivable from the NLF	8,743	9,061
Loans and financial receivables – CSPE (1)	4,185	5,875
Loans and financial receivables - other	2,028	1,977
LOANS AND FINANCIAL RECEIVABLES	14,956	16,913

(1) Including €4,185 million allocated to dedicated assets at 31 December 2016 (€5,232 million at 31 December 2015).

Loans and financial receivables include:

- amounts representing reimbursements receivable from the NLF and the British government for coverage of long-term nuclear obligations, totalling €8,743 million at 31 December 2016 (€9,061 million at 31 December 2015), discounted at the same rate as the provisions they finance;
- the receivable corresponding to the accumulated shortfall in the Contribution to the Public Electricity Service (CSPE) at 31 December 2015 and the costs of bearing that shortfall. Reimbursements received during 2016 amounted to €293 million, in line with the schedule published in the ministerial orders of 13 May 2016 and 2 December 2016, made in application of Article R 121-31 of the French Energy Code;

The change in the CSPE receivable also reflects the assignment by EDF of part of the receivable relating to the shortfall in compensation up to 31 December 2015 and the associated interest, amounting to €1,501 million, of which €872 million was classified as dedicated assets (see note 3.6);

- EDF's loan to RTE was repaid in October 2016 (€670 million at 31 December 2015).

36.4 CHANGE IN FINANCIAL ASSETS OTHER THAN DERIVATIVES

The variation in financial assets is as follows:

36.4.1 At 31 December 2016

(in millions of Euros)	31/12/2015	Net increases	Changes in fair value	Discount effect	Changes in scope	Translation adjustments	Other	31/12/2016
Available-for-sale financial assets	34,333	5,079	894	-	12	110	(138)	40,290
Loans and financial receivables	16,913	(2,908)	-	403	221	(1,387)	1,714	14,956

"Net increases" in loans and financial receivables include the €(629) million effect of assignment of part of the CSPE receivable (see note 36.3).

Other changes in loans and financial receivables reflect the change in the amounts receivable from the NLF and the British government in connection with coverage of long-term nuclear obligations (€955 million), and the change in financial assets reflecting the overfunding of EDF Energy's EEGSG and BEGG pension plans (€568 million at 31 December 2016, compared to €52 million at 31 December 2015).

36.4.2 At 31 December 2015

(in millions of Euros)	31/12/2014	Net increases	Changes in fair value	Discount effect	Changes in scope	Translation adjustments	Other	31/12/2015
Available-for-sale financial assets	29,427	4,436	475	-	(4)	8	(9)	34,333
Loans and financial receivables	15,748	(364)	-	252	64	563	650	16,913

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)	31/12/2016	31/12/2015
Cash	2,651	3,263
Cash equivalents (1)	242	904
Financial current accounts	-	15
CASH AND CASH EQUIVALENTS	2,893	4,182

(1) Items stated at fair value amount to €235 million at 31 December 2016 (€896 million at 31 December 2015).

Cash restrictions

Cash and cash equivalents include €243 million of cash subject to restrictions at 31 December 2016 (see note 1.3.27).

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:

	31/12/2016			31/12/2015		
(in millions of Euros)	Non-current	Current	Total	Non-current	Current	Total
Loans and other financial liabilities	52,992	12,203	**65,195**	52,684	11,499	**64,183**
Negative fair value of derivatives held for trading	-	4,485	**4,485**	-	4,001	**4,001**
Negative fair value of hedging derivatives	1,284	1,601	**2,885**	1,475	1,973	**3,448**
FINANCIAL LIABILITIES	54,276	18,289	72,565	54,159	17,473	71,632

38.2 LOANS AND OTHER FINANCIAL LIABILITIES

38.2.1 Changes in loans and other financial liabilities

(in millions of Euros)	Bonds	Loans from financial institutions	Other financial liabilities	Loans related to finance-leased assets	Accrued Interest	Total
Balances at 31/12/2015	48,538	3,586	10,314	445	1,300	64,183
Increases	5,385	3,665	1,412	-	117	10,579
Decreases	(1,485)	(1,444)	(4,364)	(55)	(60)	(7,408)
Translation adjustments	(968)	(43)	126	-	-	(885)
Changes in scope of consolidation (1)	-	(1,585)	(139)	20	(3)	(1,707)
Changes in fair value	392	-	45	2	-	439
Other changes	2	1	(14)	8	(3)	(6)
BALANCES AT 31/12/2016	51,864	4,180	7,380	420	1,351	65,195

(1) Changes in scope of consolidation principally concern the borrowings of C25 (the company owning RTE's shares) that have been reclassified as assets held for sale.

Loans and other financial liabilities of the Group's main entities are as follows:

(in millions of Euros)	31/12/2016	31/12/2015
EDF and other affiliated subsidiaries (1)	52,811	52,351
EDF Energy (2)	5,268	4,983
EDF Énergies Nouvelles	4,642	4,396
Edison (3)	1,214	1,568
Other	1,260	885
LOANS AND OTHER FINANCIAL LIABILITIES	65,195	64,183

(1) Enedis, EDF PEI, EDF International, EDF Holding SAS, C3, C25 and EDF Investissements Groupe.
(2) Including holding companies.
(3) Edison excluding TdE SpA.

At 31 December 2016, none of these entities had defaulted on any borrowing.

The Group's principal borrowings at 31 December 2016 are as follows:

Type of borrowing *(in millions of currencies)*	Entity	Issue [1]	Maturity	Issue amount	Currency	Rate
Bond	EDF	01/2014	01/2017	1,000	USD	1.15 %
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	01/2014	01/2019	1,250	USD	2.15 %
Bond	EDF	01/2010	01/2020	1,400	USD	4.60 %
Euro MTN	EDF	05/2008	05/2020	1,200	EUR	5.38 %
Bond	EDF	10/2015	10/2020	1,500	USD	2.35 %
Euro MTN	EDF	01/2009	01/2021	2,000	EUR	6.25 %
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	4.63 %
Bond (green bond)	EDF	10/2015	10/2025	1,250	USD	3.63 %
Euro MTN	EDF	11/2010	11/2025	750	EUR	4.00 %
Euro MTN (green bond)	EDF	10/2016	10/2026	1,750	EUR	1.00%
Euro MTN	EDF	03/2012	03/2027	1,000	EUR	4.13 %
Euro MTN	EDF	04/2010	04/2030	1,500	EUR	4.63 %
Euro MTN	EDF	07/2001	07/2031	650	GBP	5.88 %
Euro MTN	EDF	02/2003	02/2033	850	EUR	5.63 %
Euro MTN	EDF	06/2009	06/2034	1,500	GBP	6.13 %
Euro MTN	EDF	10/2016	10/2036	750	EUR	1.88%
Bond	EDF	01/2009	01/2039	1,750	USD	6.95 %
Euro MTN	EDF	11/2010	11/2040	750	EUR	4.50 %
Euro MTN	EDF	10/2011	10/2041	1,250	GBP	5.50 %
Bond	EDF	01/2014	01/2044	1,000	USD	4.88 %
Bond	EDF	10/2015	10/2045	1,500	USD	4.75 %
Bond	EDF	10/2015	10/2045	1,150	USD	4.95 %
Euro MTN	EDF	09/2010	09/2050	1,000	GBP	5.13 %
Euro MTN	EDF	10/2016	10/2056	2,164	USD	4.99 %
Bond	EDF	01/2014	01/2114	1,350	GBP	6.00 %

(1) Date funds were received.

The €2,820 million loan issued by C25 matures in December 2017 and has a variable rate based on 3-month Euribor. 50.1% of the value of this loan is included in "Financial liabilities" and 49.9% in "Assets held for sale" (see note 3.5.1).

On 6 October 2016 EDF launched a senior bond in several tranches, in Euros and Swiss francs, and a senior Formosa bond in two tranches on the Taiwanese market (see note 3.3).

At 31 December 2016, the total ceiling on EDF's EMTN (Euro Medium Term Notes) programme, allowing issuance of borrowings under the programme, is €45 billion.

38.2.2 Maturity of loans and other financial liabilities

At 31 December 2016:

(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	2,913	1,780	6,332	51	1,127	**12,203**
From one to five years	12,386	526	109	168	52	**13,241**
More than five years	36,565	1,874	939	201	172	**39,751**
LOANS AND OTHER FINANCIAL LIABILITIES AT 31/12/2016	51,864	4,180	7,380	420	1,351	65,195

At 31 December 2015:

(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	1,455	1,546	7,329	53	1,116	**11,499**
From one to five years	11,577	679	1,904	180	42	**14,382**
More than five years	35,506	1,361	1,081	212	142	**38,302**
LOANS AND OTHER FINANCIAL LIABILITIES AT 31/12/2015	48,538	3,586	10,314	445	1,300	64,183

38.2.3 Breakdown of loans and other financial liabilities by currency

	31/12/2016			31/12/2015		
(in millions of Euros)	Initial debt structure	Impact of hedging instruments [1]	Debt structure after hedging	Initial debt structure	Impact of hedging instruments [1]	Debt structure after hedging
Euro (EUR)	31,204	20,220	51,424	31,731	16,731	48,462
American dollar (USD)	22,239	(19,314)	2,925	19,137	(17,250)	1,887
Pound sterling (GBP)	9,824	(827)	8,997	11,677	382	12,059
Other	1,928	(79)	1,849	1,638	137	1,775
LOANS AND OTHER FINANCIAL LIABILITIES	65,195	-	65,195	64,183	-	64,183

(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

	31/12/2016			31/12/2015		
(in millions of Euros)	Initial debt structure	Impact of derivatives	Final debt structure	Initial debt structure	Impact of derivatives	Final debt structure
Fixed rates	58,650	(23,710)	34,940	56,840	(22,261)	34,579
Floating rates	6,545	23,710	30,255	7,343	22,261	29,604
LOANS AND OTHER FINANCIAL LIABILITIES	65,195	-	65,195	64,183	-	64,183

The breakdown of loans and financial liabilities by interest rate includes the impact of all derivatives classified as hedges in accordance with IAS 39.

A large portion of the EDF group's fixed-rate loans is swapped to variable rates.

38.2.5 Credit lines

At 31 December 2016, the Group has unused credit lines with various banks totalling €11,709 million (€11,380 million at 31 December 2015).

	31/12/2016				31/12/2015
	Total	Maturity			Total
(in millions of Euros)		< 1 year	1-5 years	> 5 years	
CONFIRMED CREDIT LINES	11,709	2,205	9,504	-	11,380

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.

In other Group entities, certain clauses contained in contracts for financing or other commitments may make reference to Group ratings, but are not classified as covenants.

However, two borrowings with a combined total of €725 million contain a Rating Trigger that does not lead to mandatory early repayment but is a signal for renegotiation of the terms of the borrowing and subsequent voluntary withdrawal by the borrower.

No early repayment took place in 2016 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 and are managed according to a liquidity-oriented policy.

(in millions of Euros)	Notes	31/12/2016	31/12/2015
Loans and other financial liabilities	38.2.1	65,195	64,183
Derivatives used to hedge liabilities	41	(3,965)	(3,795)
Cash and cash equivalents	37	(2,893)	(4,182)
Available-for-sale financial assets - liquid assets	36.2.2	(22,266)	(18,141)
Loan to RTE	36.3	-	(670)
Net indebtedness of assets held for sale		1,354	-
NET INDEBTEDNESS		37,425	37,395

The net indebtedness of assets held for sale in 2016 principally concerns C25 (the company owning RTE's shares) (see note 46).

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 2016

(in millions of Euros)	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 [(1)]	3,813	3,813	220	3,337	256
Available-for-sale financial assets	40,290	40,290	1,799	37,895	596
Positive fair value of hedging derivatives	6,056	6,056	7	6,049	-
Cash equivalents carried at fair value	235	235	141	94	-
Financial assets carried at fair value in the balance sheet	50,394	50,394	2,167	47,375	852
Loans and financial receivables - assets receivable from the NLF	8,743	8,743	-	8,743	-
Loans and financial receivables - CSPE	4,185	4,288	-	4,288	-
Other loans and financial receivables	2,028	2,028	-	2,028	-
Financial assets recorded at amortised cost	14,956	15,059	-	15,059	-
Negative fair value of hedging derivatives	2,885	2,885	105	2,775	5
Negative fair value of trading derivatives	4,485	4,485	216	4,046	223
Financial liabilities carried at fair value in the balance sheet	7,370	7,370	321	6,821	228
Loans and other financial liabilities [(2)]	65,195	70,682	-	70,682	-
Financial liabilities recorded at amortised cost	65,195	70,682	-	70,682	-

(1) Including €3,813 million for the positive fair value of trading derivatives.
(2) Loans and other financial liabilities are carried in the balance sheet at amortised cost, adjusted for changes in the fair value of risks covered by a fair value hedge.

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 yield curves, and therefore observable market data.

39.1.2 At 31 December 2015

(in millions of Euros)	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 [(1)]	**4,973**	4,973	427	4,439	107
Available-for-sale financial assets	**34,333**	34,333	1,676	32,032	625
Positive fair value of hedging derivatives	**6,038**	6,038	31	6,007	-
Cash equivalents carried at fair value	**896**	896	113	783	-
Financial assets carried at fair value in the balance sheet	46,240	46,240	2,247	43,261	732
Loans and financial receivables - Assets receivable from the NLF	**9,061**	9,061	-	9,061	-
Loans and financial receivables - CSPE	**5,875**	5,875	-	5,875	-
Other loans and financial receivables	**1,977**	2,008	-	2,008	-
Financial assets recorded at amortised cost	16,913	16,944	-	16,944	-
Negative fair value of hedging derivatives	**3,448**	3,448	161	3,285	2
Negative fair value of trading derivatives	**4,001**	4,001	390	3,516	95
Financial liabilities carried at fair value in the balance sheet	7,449	7,449	551	6,801	97
Loans and other financial liabilities [(2)]	**64,183**	69,815	-	69,815	-
Financial liabilities recorded at amortised cost	64,183	69,815	-	69,815	-

(1) Including €4,973 million for the positive fair value of trading derivatives.
(2) Loans and other financial liabilities are carried in the balance sheet at amortised cost, adjusted for changes in the fair value of risks covered by a fair value hedge.

39.2 OFFSETTING OF FINANCIAL ASSETS AND LIABILITIES

39.2.1 At 31 December 2016

(in millions of Euros)	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 offset under IAS 32	**Net amount recognised after offsetting under IAS 32**	Financial instruments	Fair value of financial collateral	**Net amount**
Fair value of derivatives - assets	9,869	**5,043**	10,741	(5,915)	**4,826**	(1,689)	(2,303)	**834**
Fair value of derivatives - liabilities	(7,370)	**(5,240)**	(8,045)	5,915	**(2,130)**	1,689	56	**(385)**

39.2.2 At 31 December 2015

(in millions of Euros)	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 offset under IAS 32	Net amount recognised after offsetting under IAS 32	Financial instruments	Fair value of financial collateral	Net amount
Fair value of derivatives - assets	**11,011**	**2,925**	13,290	(5,204)	**8,086**	(1,695)	(2,142)	**4,249**
Fair value of derivatives - liabilities	**(7,449)**	**(2,391)**	(10,262)	5,204	**(5,058)**	1,695	58	**(3,305)**

Note 40 Management of market and counterparty 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 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 section 5.1.6.1 of the Reference Document, "Financial Information – Management and control of financial risks".

- Energy market risks

With the opening of the final customer market, development of the wholesale markets and international business expansion, the EDF group operates on deregulated energy markets, mainly in Europe, through its generation and supply activities. This exposes the Group to price variations on the wholesale markets for energy (electricity, gas, coal, oil products) and the CO2 emissions quota market, with a potentially significant impact on the financial statements.

A more detailed description of these risks can be found in section 5.1.6.2 of the Reference Document, "Financial Information – Management and control of energy market risks".

- 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 section 5.1.6.1.7 of the Reference Document, "Financial Information – Management and control of counterparty/credit risks".

Regarding the customer risk, 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 section 5.1.6.1 of the Reference Document, "Financial Information – Management and control of financial risks":

- Foreign exchange risks: section 5.1.6.1.3;
- Interest rate risks: section 5.1.6.1.4;
- Equity risk on financial assets: sections 5.1.6.1.5 and 5.1.6.1.6.

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 type of interest rate: notes 38.2.3 and 38.2.4 to the consolidated financial statements.
- Equity risks (sections 5.1.6.1.5 and 5.1.6.1.6 of the Reference Document, "Financial Information - Management of equity risks/Management of financial risk on EDF's dedicated asset portfolio"):
  - coverage of nuclear obligations: notes 47 and 29.1.5 to the consolidated financial statements;
  - coverage of social obligations: notes 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:

(in millions of Euros)	Notes	31/12/2016	31/12/2015
Positive fair value of hedging derivatives	36.1	6,056	6,038
Negative fair value of hedging derivatives	38.1	(2,885)	(3,448)
FAIR VALUE OF HEDGING DERIVATIVES		3,171	2,590
Interest rate hedging derivatives	41.4.1	2,023	2,033
Exchange rate hedging derivatives	41.4.2	2,122	1,472
Commodity-related cash flow hedges	41.4.3	(995)	(913)
Commodity-related fair value hedges	41.5	21	(2)

An alternative breakdown of hedging derivatives is shown below:

(in millions of Euros)	Notes	31/12/2016	31/12/2015
Fair value of derivatives hedging liabilities	38.3	3,965	3,795
Fair value of derivatives hedging net foreign investments		14	(420)
Fair value of other hedging derivatives (commodities)		(808)	(785)
FAIR VALUE OF HEDGING DERIVATIVES		3,171	2,590

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 2016, the ineffective portion of fair value hedges represents a loss of €(11) million (loss of €(9) million in 2015), 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.

The ineffective portion of cash flow hedges recorded in 2016 is nil (also nil in 2015).

41.3 HEDGES OF NET INVESTMENTS IN FOREIGN ENTITIES

Hedging of net foreign investments 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:

(in millions of Euros)	2016 Gross changes in fair value recorded in equity (1)	2016 Gross changes in fair value transferred to income - Recycling (2)	2016 Gross changes in fair value transferred to income - Ineffectiveness	2015 Gross changes in fair value recorded in equity (1)	2015 Gross changes in fair value transferred to income - Recycling(2)	2015 Gross changes in fair value transferred to income - Ineffectiveness
Interest rate hedging	6	-	1	(19)	-	-
Exchange rate hedging	70	288	(4)	702	656	(19)
Net foreign investment hedging	1,352	-	-	(1,038)	-	-
Commodity hedging	(489)	361	31	(59)	(470)	(10)
HEDGING DERIVATIVES (3)	939	649	28	(414)	186	(29)

(1) +/( ): increase/(decrease) in equity (EDF share).
(2) +/( ): increase/(decrease) in net income (EDF share).
(3) Excluding associates and joint ventures.

41.4.1 Interest rate hedging derivatives

Interest rate hedging derivatives break down as follows:

(in millions of Euros)	Notional at 31/12/2016 < 1 year	Notional at 31/12/2016 1-5 years	Notional at 31/12/2016 > 5 years	Notional at 31/12/2016 Total	Notional at 31/12/2015 Total	Fair value 31/12/2016	Fair value 31/12/2015
Fixed rate payer/floating rate receiver	294	668	380	1,342	1,683	(62)	(121)
Floating rate payer/fixed rate receiver	600	3,430	20,876	24,906	23,523	2,299	2,178
Floating rate/floating rate	712	-	1,310	2,022	2,767	4	(3)
Fixed rate/fixed rate	1,044	5,830	3,453	10,327	8,248	(218)	(21)
Interest rate swaps	2,650	9,928	26,019	38,597	36,221	2,023	2,033
INTEREST RATE HEDGING DERIVATIVES	2,650	9,928	26,019	38,597	36,221	2,023	2,033

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).

A large portion of the EDF group's fixed-rate loans is swapped to variable rates.

41.4.2 Exchange rate hedging derivatives

Exchange rate hedging derivatives break down as follows:

At 31 December 2016:

(in millions of Euros)	Notional amount to be received at 31/12/2016 < 1 year	Notional amount to be received at 31/12/2016 1-5 years	Notional amount to be received at 31/12/2016 > 5 years	Notional amount to be received at 31/12/2016 Total	Notional amount to be given at 31/12/2016 < 1 year	Notional amount to be given at 31/12/2016 1-5 years	Notional amount to be given at 31/12/2016 > 5 years	Notional amount to be given at 31/12/2016 Total	Fair value 31/12/2016
Forward exchange transactions	1,600	730	-	2,330	1,589	718	-	2,307	26
Swaps	15,030	11,027	13,703	39,760	14,304	10,107	12,782	37,193	2,096
EXCHANGE RATE HEDGING DERIVATIVES	16,630	11,757	13,703	42,090	15,893	10,825	12,782	39,500	2,122

At 31 December 2015:

(in millions of Euros)	Notional amount to be received at 31/12/2015				Notional amount to be given at 31/12/2015				Fair value
	< 1 year	1-5 years	> 5 years	Total	< 1 year	1-5 years	> 5 years	Total	31/12/2015
Forward exchange transactions	4,477	843	-	5,320	4,434	847	-	5,281	39
Swaps	13,101	13,858	10,335	37,294	12,820	13,090	9,826	35,736	1,433
EXCHANGE RATE HEDGING DERIVATIVES	17,578	14,701	10,335	42,614	17,254	13,937	9,826	41,017	1,472

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)	31/12/2016	31/12/2015
Electricity hedging contracts	(2,610)	182
Gas hedging contracts	(316)	35
Coal hedging contracts	9	(142)
Oil product hedging contracts	2,007	(86)
CO_2 emission rights hedging contracts	421	(48)
CHANGES IN FAIR VALUE BEFORE TAXES	(489)	(59)

The main components of the amount transferred to income in respect of commodity hedges terminated during the year are:

(in millions of Euros)	31/12/2016	31/12/2015
Electricity hedging contracts	1,276	(113)
Gas hedging contracts	(943)	(200)
Coal hedging contracts	(72)	(353)
Oil product hedging contracts	86	161
CO_2 emission rights hedging contracts	14	35
CHANGES IN FAIR VALUE BEFORE TAXES	361	(470)

Details of commodity-related cash flow hedges are as follows:

(in millions of Euros)	Units of measure	31/12/2016 Net notional				31/12/2016 Fair value	31/12/2015 Net notional	31/12/2015 Fair value
		< 1 year	1-5 years	> 5 years	Total			
Swaps		5	-	-	5	(3)	2	-
Forwards/futures		(36)	(53)	-	(89)	(1,174)	(119)	784
Electricity	TWh	(31)	(53)	-	(84)	(1,177)	(117)	784
Swaps		(411)	(120)	-	(531)	(4)	(952)	181
Forwards/futures		1,039	646	-	1,685	109	1,621	(364)
Gas	Millions of therms	628	526	-	1,154	105	669	(183)
Swaps		19,219	5,939	-	25,158	69	69,044	(1,605)
Oil products	Thousands of barrels	19,219	5,939	-	25,158	69	69,044	(1,605)
Swaps		-	-	-	-	-	(1)	69
Coal	Millions of tonnes	-	-	-	-	-	(1)	69
Swaps		-	-	-	-	-	-	-
Forwards/futures		17,400	4,302	-	21,702	8	20,606	22
CO_2	Thousands of tonnes	17,400	4,302	-	21,702	8	20,606	22
COMMODITY-RELATED CASH FLOW HEDGES						(995)		(913)

41.5 COMMODITY-RELATED FAIR VALUE HEDGES

Details of commodity-related fair value hedges are as follows:

(in millions of Euros)	Units of measure	31/12/2016 Net notional	31/12/2016 Fair value	31/12/2015 Net notional	31/12/2015 Fair value
Coal and freight	Millions of tonnes	4	3	8	(2)
Gas	Millions of therms	(307)	18	-	-
COMMODITY-RELATED FAIR VALUE HEDGES			21		(2)

Note 42 Non-hedging derivatives

Details of the fair value of trading derivatives reported in the balance sheet are as follows:

(in millions of Euros)	Notes	31/12/2016	31/12/2015
Positive fair value of trading derivatives	36.2.1	3,813	4,973
Negative fair value of trading derivatives	38.1	(4,485)	(4,001)
FAIR VALUE OF TRADING DERIVATIVES		(672)	972
Interest rate derivatives held for trading	42.1	(55)	(52)
Currency derivatives held for trading	42.2	(179)	98
Non-hedging commodity derivatives	42.3	(438)	926

42.1 INTEREST RATE DERIVATIVES HELD FOR TRADING

Interest rate derivatives held for trading break down as follows:

(in millions of Euros)	Notional at 31/12/2016 < 1 year	1-5 years	> 5 years	Total	Notional at 31/12/2015 Total	Fair value 31/12/2016	31/12/2015
Purchases of options	-	-	517	517	525	22	26
Interest rate operations	-	-	517	517	525	22	26
Fixed rate payer/floating rate receiver	18	288	436	742	2,680	(77)	(123)
Floating rate payer/fixed rate receiver	4	245	157	406	1,493	(2)	43
Floating rate/floating rate	-	910	-	910	-	1	1
Fixed rate/fixed rate	61	357	-	418	301	1	1
Interest rate swaps	83	1,800	593	2,476	4,474	(77)	(78)
INTEREST RATE DERIVATIVES HELD FOR TRADING	83	1,800	1,110	2,993	4,999	(55)	(52)

42.2 CURRENCY DERIVATIVES HELD FOR TRADING

Currency derivatives held for trading break down as follows:

At 31 December 2016:

(in millions of Euros)	Notional amount to be received at 31/12/2016 < 1 year	1-5 years	> 5 years	Total	Notional amount to be given at 31/12/2016 < 1 year	1-5 years	> 5 years	Total	Fair value 31/12/2016
Forward transactions	2,230	603	-	2,833	2,138	629	-	2,767	3
Swaps	11,279	5,094	-	16,373	11,264	5,368	-	16,632	(182)
CURRENCY DERIVATIVES HELD FOR TRADING	13,509	5,697	-	19,206	13,402	5,997	-	19,399	(179)

At 31 December 2015:

(in millions of Euros)	Notional amount to be received at 31/12/2015 < 1 year	1-5 years	> 5 years	Total	Notional amount to be given at 31/12/2015 < 1 year	1-5 years	> 5 years	Total	Fair value 31/12/2015
Forward transactions	849	242	15	1,106	851	247	20	1,118	(9)
Swaps	8,738	802	-	9,540	8,651	793	-	9,444	107
CURRENCY DERIVATIVES HELD FOR TRADING	9,587	1,044	15	10,646	9,502	1,040	20	10,562	98

42.3 NON-HEDGING COMMODITY DERIVATIVES

Details of commodity derivatives not classified as hedges are as follows:

		31/12/2016		31/12/2015	
(in millions of Euros)	Unit of measure	Net notional	Fair value	Net notional	Fair value
Swaps		(18)	52	(19)	70
Options		4	118	83	(30)
Forwards/futures		(45)	(406)	(6)	589
Electricity	TWh	(59)	(236)	58	629
Swaps		8,253	114	4,174	287
Options		338	38	4,076	54
Forwards/futures		(4,169)	(205)	(2,463)	21
Gas	Millions of therms	4,422	(53)	5,787	362
Swaps		11,159	27	4,278	(27)
Options		(247)	(14)	207	-
Forwards/futures		(10)	(2)	(29)	1
Oil products	Thousands of barrels	10,902	11	4,456	(26)
Swaps		-	(205)	(1)	(203)
Options		-	-	(16)	(3)
Forwards/futures		45	105	66	252
Freight		7	31	(8)	90
Coal and freight	Millions of tonnes	52	(69)	41	136
Swaps		113	-	-	-
Options		-	-	600	-
Forwards/futures		2,906	(42)	12,673	(20)
CO_2	Thousands of tonnes	3,019	(42)	13,273	(20)
Swaps/options			258		194
Forwards/futures			(308)		(352)
Other commodities			(50)		(158)
Embedded commodity derivatives			1		3
NON-HEDGING COMMODITY DERIVATIVES			(438)		926

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

(in millions of Euros)	2016	2015
Change in inventories	6	129
Change in the receivable for Contribution to the Public Electricity Service (CSPE)	(9)	(230)
Change in trade receivables	(1,487)	896
Change in trade payables	91	(967)
Change in other receivables and payables (excluding CSPE)	(536)	304
CHANGE IN WORKING CAPITAL	(1,935)	132

43.2 INVESTMENTS IN INTANGIBLE AND TANGIBLE ASSETS

(in millions of Euros)	2016	2015
Acquisitions of intangible assets	(1,038)	(1,224)
Acquisitions of tangible assets	(13,217)	(13,249)
Change in payables to suppliers of fixed assets	(142)	(316)
INVESTMENTS IN INTANGIBLE AND TANGIBLE ASSETS	(14,397)	(14,789)

Note 44 Off-balance sheet commitments

This note presents off-balance sheet commitments given and received by the Group at 31 December 2016. 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. Other commitments are described separately in the detailed notes.

(in millions of Euros)	Notes	31/12/2016	31/12/2015
Operating commitments given	44.1.1	46,560	42,060
Investment commitments given	44.1.2	18,605	13,262
Financing commitments given	44.1.3	5,535	6,390
TOTAL COMMITMENTS GIVEN		70,700	61,712

In almost all cases, these are reciprocal commitments, and the third parties concerned are under a contractual obligation to supply the Group with 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 2016 are as follows:

(in millions of Euros)	31/12/2016	31/12/2015
Fuel and energy purchase commitments (1)	32,669	29,909
Operating contract performance commitments given	10,260	8,317
Operating lease commitments as lessee	3,631	3,834
TOTAL OPERATING COMMITMENTS GIVEN	46,560	42,060

(1) Excluding gas purchases and related services

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 and nuclear fuel, 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 2016, fuel and energy purchase commitments mature as follows:

	31/12/2016					31/12/2015
	Total	Maturity				Total
(in millions of Euros)		< 1 year	1-5 years	5-10 years	> 10 years	
Electricity purchases and related services (1)	9,267	1,586	2,739	2,136	2,806	9,401
Other energy and commodity purchases (2)	662	171	364	127	-	740
Nuclear fuel purchases	22,740	1,888	8,538	7,150	5,164	19,768
FUEL AND ENERGY PURCHASE COMMITMENTS	32,669	3,645	11,641	9,413	7,970	29,909

(1) Including commitments given by controlled entities to joint ventures, amounting to €643 million at 31 December 2016 (€669 million at 31 December 2015).

(2) Excluding gas purchases and related services – see note 44.1.1.1.4.

The changes in fuel and energy purchase commitments mainly relate to the significant rise in EDF's nuclear fuel purchase commitments.

44.1.1.1.1 Electricity purchases and related services

Electricity purchase commitments mainly concern EDF and EDF Energy. In the case of EDF many of these commitments are borne by the Island Energy Systems (SEI), 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, 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 43TWh for 2016 (41TWh for 2015), including 6TWh for co-generation (5TWh for 2015), 20TWh for wind power (20TWh for 2015), 8TWh for photovoltaic power (7TWh for 2015) and 3TWh for hydropower (3TWh for 2015).

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, and purchases of biomass fuel used by Dalkia in the course of its business.

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 fluoration, enrichment and fuel assembly production services.

The rise in these commitments is mainly explained by the signature of new contracts with AREVA in 2016 for purchases of natural uranium, fluoration services and enrichment services. These contracts notably relate to fuel supplies for the two EPRs at the Hinkley Point site in the United Kingdom.

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 2016 are as follows:

	31/12/2016				31/12/2015
	Total	Maturity			Total
(in billions of m^3)		< 1 year	1-5 years	> 5 years	
Edison	167	13	47	107	180
EDF	26	2	6	18	88

Edison has entered into agreements to import natural gas from Russia, Libya, Algeria and Qatar, for a total maximum volume of 14.4 billion m^3 per year. The terms of these contracts vary between 3 and 18 years. A memorandum of understanding was signed with Sonatrach in November 2016 for future imports of natural gas from Algeria once the Galsi pipeline project is operational.

Under the contract with Terminale GNL Adriatico, a gas liquefaction unit 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.

44.1.1.2 Operating contract performance commitments given

At 31 December 2016, these commitments mature as follows:

	31/12/2016				31/12/2015
	Total	Maturity			Total
(in millions of Euros)		< 1 year	1-5 years	> 5 years	
Operating guarantees given	5,883	3,488	1,833	562	4,055
Operating purchase commitments [(1)]	4,212	2,509	1,392	311	4,084
Other operating commitments	165	80	70	15	178
OPERATING CONTRACT PERFORMANCE COMMITMENTS GIVEN [(2)]	10,260	6,077	3,295	888	8,317

(1) Excluding fuel and energy.
(2) Including commitments given by controlled entities to joint ventures, amounting to €1,121 million at 31 December 2016 (€126 million at 31 December 2015).

44.1.1.2.1 Operating guarantees given

Operating guarantees given are as follows:

(in millions of Euros)	31/12/2016	31/12/2015
EDF	1,612	1,443
EDF Énergies Nouvelles	1,617	340
Edison	1,432	1,193
EDF Energy	630	428
Other entities	592	651
TOTAL	5,883	4,055

The change since 31 December 2015 in operating guarantees given is mainly explained by new guarantees provided to joint ventures by EDF Énergies Nouvelles in connection with projects in Canada, France and India.

44.1.1.2.2 Operating purchase commitments

Operating purchase commitments are as follows:

(in millions of Euros)	31/12/2016	31/12/2015
EDF	2,434	2,343
EDF Energy	608	715
Enedis	598	413
Other entities	572	613
TOTAL	4,212	4,084

44.1.1.3 Operating lease commitments as lessee

At 31 December 2016, operating lease commitments as lessee break down as follows:

	31/12/2016				31/12/2015
	Total	Maturity			Total
(in millions of Euros)		< 1 year	1-5 years	> 5 years	
OPERATING LEASE COMMITMENTS AS LESSEE	3,631	646	1,719	1,266	3,834

The Group is bound as lessee by irrevocable operating lease contracts, principally for premises, equipment, land 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 and Enedis.

44.1.2 Investment commitments given

At 31 December 2016, details of investment commitments are as follows:

	31/12/2016				31/12/2015
	Total	Maturity			Total
(in millions of Euros)		< 1 year	1-5 years	> 5 years	
Commitments related to acquisition of tangible and intangible assets	17,351	7,040	8,735	1,576	12,294
Commitments related to acquisition of financial assets	406	315	91	-	270
Other commitments related to investments	848	287	561	-	698
TOTAL INVESTMENT COMMITMENTS GIVEN (1)	18,605	7,642	9,387	1,576	13,262

(1) *Including commitments given by controlled entities to joint ventures, amounting to €548 million at 31 December 2016 (€326 million at 31 December 2015).*

44.1.2.1 Commitments related to acquisition of tangible and intangible fixed assets

The commitments related to acquisition of tangible and intangible fixed assets are as follows:

(in millions of Euros)	31/12/2016	31/12/2015
EDF	7,556	8,426
EDF Energy	5,837	529
Enedis	2,621	1,771
EDF Énergies Nouvelles	977	1,066
Other entities	360	502
TOTAL	17,351	12,294

The increase in these commitments is mainly attributable to the signature by EDF Energy of new contracts related to the construction of the Hinkley Point C plant, and the rollout of Linky meters by Enedis.

The decrease in EDF's commitments for acquisition of tangible and intangible assets is explained by progress on the FLA3 EPR project.

44.1.2.2 Commitments related to acquisition of financial assets

The Group's off-balance sheet commitments contain no significant commitment for acquisition of financial assets at 31 December 2016.

To be noted, on 15 November 2016, EDF embarked on a process to purchase New AREVA NP, a subsidiary of AREVA NP (see note 3.4).

The main share purchase commitments that cannot be valued concern EDF Luminus.

EDF Luminus signed an amendment to the shareholder pact on 26 October 2015 defining a liquidity clause for the investments held by its minority shareholders, which could, in certain conditions under the control of EDF, result in sale of their shares through an IPO, or purchase of their shares by the Group at market value. This liquidity clause is valid at all times from 1 July 2018 to 31 December 2025.

Regarding the investment in EDF Investissements Groupe (EIG), C3 (a fully-owned EDF subsidiary) and NBI (Natixis Belgique Investissement, a subsidiary of the Natixis group) amended the agreements for their investment in EIG on 12 February 2014.

C3 now has a call option to buy EIG shares held by NBI at a fixed price, exercisable at any time until May 2021. Meanwhile, NBI has a put option to sell EDF all of its EIG shares for a fixed amount of cash, exercisable subject to certain conditions between February 2019 and May 2020.

Due to their features, in compliance with IAS 39, NBI's put option and C3's call option are considered as derivatives and their net value is included in the positive or negative fair value of trading derivatives. At 31 December 2016, the fair value of these trading derivatives is not significant.

44.1.2.3 Other commitments related to investments

Other commitments given related to investments at 31 December 2016 mainly comprise guarantees given by EDF Norte Fluminense in connection with its 51% investment in CES, the company in charge of constructing and operating a hydroelectric dam on the Teles Pires river in Brazil, and a parent company guarantee given as part of a real estate investment project.

44.1.3 Financing commitments given

Financing commitments given by the Group at 31 December 2016 comprise the following:

(in millions of Euros)	31/12/2016 Total	Maturity < 1 year	Maturity 1-5 years	Maturity > 5 years	31/12/2015 Total
Security interests in real property	**4,637**	104	694	3,839	5,075
Guarantees related to borrowings	**644**	259	250	135	1,050
Other financing commitments	**254**	236	13	5	265
TOTAL FINANCING COMMITMENTS GIVEN [(1)]	5,535	599	957	3,979	6,390

(1) Including commitments given by controlled entities to joint ventures, amounting to €673 million at 31 December 2016 (€847 million at 31 December 2015). These financing commitments to joint ventures mainly concern EDF Énergies Nouvelles.

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.

44.2 COMMITMENTS RECEIVED

The table below shows off-balance sheet commitments received by the Group that have been valued. Other commitments received are described separately in the detailed notes.

(in millions of Euros)	Notes	31/12/2016	31/12/2015
Operating commitments received [(1)]	44.2.1	3,430	2,633
Investment commitments received	44.2.2	3,663	80
Financing commitments received	44.2.3	24	29
TOTAL COMMITMENTS RECEIVED [(2)]		7,117	2,742

(1) Excluding commitments related to supplies of energy and related services (see notes 44.2.1.4 and 44.2.1.5).
(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 2016 comprise the following:

(in millions of Euros)	31/12/2016 Total	Maturity < 1 year	Maturity 1-5 years	Maturity > 5 years	31/12/2015 Total
Operating lease commitments as lessor	911	121	471	319	1,021
Operating sale commitments	829	325	267	237	520
Operating guarantees received	1,637	1,082	344	211	1,030
Other operating commitments received	53	16	27	10	62
OPERATING COMMITMENTS RECEIVED	3,430	1,544	1,109	777	2,633

44.2.1.1 Operating lease commitments as lessor

The Group benefits from commitments as lessor in operating leases amounting to €911 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 estate leases.

44.2.1.2 Operating sale commitments

Operating sale commitments received principally concern EDF Énergies Nouvelles and relate to agreements for operation services, maintenance services, and development and sale of structured assets.

44.2.1.3 Operating guarantees received

Operating guarantees received primarily concern EDF and relate to guarantees received from suppliers, particularly in connection with deliveries under the ARENH system.

44.2.1.4 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 3.5GW;
- 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 existing nuclear power plants to other suppliers. This covers volumes of up to 100TWh each year until 31 December 2025;
- in the United Kingdom, EDF made a commitment in 2009 to supply 18TWh of electricity to Centrica at market price for a 5-year period starting in 2011. This commitment terminated in 2016.

44.2.1.5 Sale commitments for regasification capacities and related services

The Dunkirk methane terminal began commercial operations in early 2017. It has an annual regasification capacity of some 13 billion cubic metres.

The Total group has subscribed a liquefied natural gas (LNG) regasification capacity from Dunkerque LNG, covering a total fixed volume of 40 billion cubic metres over a 20-year period. 8.5 billion cubic metres of this volume could, subject to certain restrictive conditions, be transferred to EDF.

44.2.2 Investment commitments received

	31/12/2016				31/12/2015
	Total	Maturity			Total
(in millions of Euros)		< 1 year	1-5 years	> 5 years	
INVESTMENT COMMITMENTS RECEIVED	3,663	3,323	99	241	80

At 31 December 2016, investment commitments received mainly include a commitment of €2,566 million relating to the future sale of 49.9% of its subsidiary RTE via the new company C25 (see note 3.5.1).
Other notable investment commitments received concern the future sale of EDF Démász Zrt and EDF Trading's coal trading and freight businesses (see notes 3.5.3. and 3.5.4).

Under the terms of the agreement signed with Exelon on 29 July 2013 and finalised on 1 April 2014, EDF has an option to sell its share in CENG to Exelon at fair value, which can be exercised between January 2016 and June 2022. Due to its features, this commitment has nil value at 31 December 2016.

44.2.3 Financing commitments received

	31/12/2016				31/12/2015
	Total	Maturity			Total
(in millions of Euros)		< 1 an	1-5 years	> 5 years	
FINANCING COMMITMENTS RECEIVED	24	1	2	21	29

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. In September 2012, Neckarpri confirmed the reduction of its main claim to this amount. As an alternative, Neckarpri is seeking cancellation of the sale of the EDF group's stake in EnBW.

EDF International made a counterpetition for compensation for the prejudice suffered as a result of the proceedings, which EDF considers unfounded and a misuse of law.

The Court of Arbitration ruled in favour of EDF International on 6 May 2016, rejecting all claims made against EDF International by Neckarpri. EDF International's counterpetition was not deemed admissible.

45.2 TAX INSPECTIONS

EDF

Following inspections of previous years' accounts, the French tax authorities are challenging the tax-deductibility of the provision for annuities following work-related accidents and illness paid by the Company. As this is an issue that relates to the special gas and electricity (IEG) statutes, it also concerns RTE, Enedis and Électricité de Strasbourg. The Group is contesting the tax authorities' position on this question. The National Commission of direct taxes and sales taxes issued several opinions that were favourable to RTE and EDF. EDF and its subsidiaries RTE and Électricité de Strasbourg also received favourable rulings from Montreuil Administrative Court which were all upheld by the Versailles Administrative Appeal Court. The authorities filed appeals against these decisions before the Council of State. 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 the tax-deductibility of certain long-term liabilities. This rectification, which may apply each year, represents a financial risk of some €500 million in income taxes at 31 December 2016.

The tax authorities also issued notice of 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. The out-of-court negotiations initiated by EDF had a favourable outcome for the Group during 2016.

In late 2015 the tax authorities issued notice to the Company of the recurring reassessments stated above for the years 2012 and 2013, and challenged the deductibility of certain long-term provisions.

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 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, considering it has good chances of winning the dispute. In 2015, an out-of-court discussion between France and the United States initiated by EDF International concerning the valuation of the CEG shares ended in withdrawal of the tax reassessment notified to the Company.

The tax authorities upheld the reassessments concerning valuation of the convertible bond for 2012 and 2013.

45.3 LABOUR LITIGATION

EDF is party to a number of labour lawsuits with employees, primarily regarding working hours. EDF estimates that none of these lawsuits, individually, is likely to have a significant impact on its financial results or financial position. However, because they relate to situations that could concern a large number of EDF's employees in France, any increase in such litigations could have a potentially negative impact on the Group's financial position.

45.4 ENEDIS - LITIGATION WITH PHOTOVOLTAIC PRODUCERS

The French authorities' announcement in autumn 2010 of a forthcoming downward revision to photovoltaic electricity purchase prices triggered an upsurge in applications for purchase contracts which was likely to generate a very significant increase in costs to be compensated by the CSPE. Several successive ministerial orders were issued reducing purchase prices.

As these price decreases were not sufficient to stem the flow of contract applications, by a decree of 9 December 2010 the Government provisionally and retroactively suspended EDF's obligation to purchase photovoltaic electricity, and reduced the purchase prices for producers that had not finalised their connection requests by 2 December 2010.

A certain number of producers who, as a result of these circumstances, lost their entitlement to the pre-moratorium purchase obligation price brought legal proceedings against EDF as operator of the distribution network in the non-interconnected zones, and against Enedis as network operator for mainland France, claiming that the electricity network operator did not issue the technical and financial connection proposals in time for them to benefit from more advantageous electricity purchase terms.

Certain first instance rulings rejected all the plaintiffs' claims, while others awarded compensation.

EDF and Enedis sought to apply their Civil Liability insurance policy, but the insurers refused their claims. The Court of Cassation ruling of 9 June 2015 for the Green Yellow case found that Enedis was liable and that the insurance payment was due. However, the insurers are still refusing to make any payouts on the other pending cases.

EDF and Enedis dispute their liability, and:

- are filing appeals for the most unfavourable first-instance judgments issued against them;
- are routinely applying for suspension of proceedings following the preliminary question put to the Court of Justice of the European Union on 20 September 2016 by Versailles Appeal Court, concerning the compliance of the 2006 and 2010 pricing orders with European State aid laws. Many courts and appeal courts have granted this application.

On 21 June 2012, SUN'R filed a complaint against EDF and Enedis, along with an application for interim measures, with France's Competition Authority, the ADLC. SUN'R accused Enedis of delays in the procedure for the connecting its photovoltaic facilities and EDF of delays in the implementation of the purchase obligation contracts and payment of the related invoices. SUN'R also claimed that EDF ENR had benefited from special treatment from Enedis for the connection of its facilities and from EDF for the payment of its invoices.

In a decision of 14 February 2013, the ADLC rejected all the applications made by SUN'R for interim measures but decided to continue the investigation on the merits of the case. This decision is no indication of the outcome of the proceedings. If the ADLC's investigation leads to a finding that anti-competitive practices have taken place, it could notably impose a financial sanction under Article L.464-2 of the French Commercial Code. Any sanction would be proportionate to the seriousness of the alleged offences, the significance of the damage caused to the economy, and the company's situation, with a maximum of 10% of the company's global sales before taxes.

At the same time, on 29 August 2012 SUN'R filed a petition at an urgent applications hearing for expert assessment and provision for costs before the Paris Administrative Court, including a claim for provisional compensation of €1 million from EDF and €2.5 million from Enedis. By order of 27 November 2012, the urgent applications judge *(juge des référés)* at the Administrative Court of Paris dismissed this petition.

On 30 April 2015, SUN'R issued proceedings against Enedis and EDF SA before the Paris Commercial Court, seeking compensation for the loss allegedly caused to it by the delays in the procedure for the connecting its solar energy plant projects to the electricity distribution network. It has asked the Court to suspend proceedings pending the ADLC's decision on the merits of the case, and is claiming a provisional amount of €10 million to be applied against future compensation for its loss. In a ruling of 7 November 2016 the Paris Commercial Court dismissed SUN'R's claim for provisional compensation and suspended proceedings until the ADLC issues a decision on the merits of the case.

On 24 November 2015, Sun West, Azimut 56 and JB Solar issued proceedings against Enedis and EDF SA before the Paris Commercial Court on the same grounds. They are currently claiming almost €4 million for the alleged prejudice, but have asked the Court to suspend proceedings pending the ADLC's decision on the merits of the case.

Note 46 Assets held for sale and related liabilities

(in millions of Euros)	31/12/2016	31/12/2015
ASSETS HELD FOR SALE	5,220	-
LIABILITIES RELATED TO ASSETS HELD FOR SALE	2,109	-

The Group reclassified the balance sheet items concerned by the following operations as assets held for sale and related liabilities at 31 December 2016:

- Sale to Caisse des Dépôts and CNP Assurances of 49.9% of the balance sheet items of C25 (principally comprising RTE shares and a bond) (see note 3.5.1);
- Sale of EDF Polska's assets (see note 3.5.2);
- Sale of EDF Démász's assets (see note 3.5.3);
- Sale of EDF Trading's coal trading and freight business (see note 3.5.4).

Note 47 EDF's dedicated assets

47.1 REGULATIONS

Article L-594 of France's Environment code and its 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. 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 law requires the realisable value of these dedicated assets to be higher than the value of the provisions corresponding to the present value of the long-term nuclear expenses defined above.

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.

The Decree of 24 March 2015 contains two measures concerning dedicated assets:

- the annual allocation to dedicated assets, net of any increases to provisions, must be positive or zero as long as their realisable value is below 110% of the amount of the provisions concerned;
- subject to certain conditions, real estate property owned by the operators of nuclear facilities may be allocated to coverage of these provisions.

Subject to certain conditions, the Decree of 19 December 2016 allows allocation of the shares of C25, which holds 100% of the capital of RTE, to the portfolio of dedicated assets at 31 December 2016 (see note 47.2.2 below).

47.2 PORTFOLIO CONTENTS AND MEASUREMENT

Given the applicable regulations, these dedicated assets are a highly specific category of assets.

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 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 unlisted assets begun in 2010 with the shares in RTE, in 2013 the Board of Directors approved the introduction of an unlisted asset portfolio alongside the diversified equity and bond investments. This portfolio is managed by the EDF Invest division, which was formed following the Decree of 24 July 2013 on securing the funding for nuclear expenses. EDF Invest has three target asset classes: principally infrastructures, and also real estate and private equity funds.

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 recognised by the French State, representing the accumulated shortfall in CSPE financing at 31 December 2012, to its dedicated assets.

This financial receivable was increased in the financial statements at 31 December 2015 by an additional amount estimated at €644 million that was not allocated to dedicated assets, corresponding to the shortfalls in compensation that arose between the beginning of 2013 and the end of 2015, as acknowledged by the State in a ministerial letter of 26 January 2016. In accordance with this letter, the total financial receivable bears interest at 1.72% and will be repaid under a revised schedule ending in late 2020. This schedule was laid down in a ministerial order of 2 December 2016, based on the CRE's confirmation of the shortfall for 2015.

On 22 December 2016, EDF assigned a 26.4% portion of this financial receivable, including the additional receivable corresponding to the shortfalls in compensation between 2013 and 2015, to a pool of investors.

Consequently, the realisable value of the non-assigned portion of the receivable, which is totally allocated to dedicated assets, is calculated based on the assignment value at that date.

The amount received for assignment of the part of the CSPE receivable that was allocated to dedicated assets (€894 million) has been reinvested in dedicated assets (currently, in the "Cash portfolio") (see note 3.6).

47.2.1 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 guarantees 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, as disbursements are spread over a period extending beyond 2150.

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 dedicated asset portfolio, 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).

47.2.2 Unlisted assets (EDF Invest)

The assets managed by EDF Invest consist of unlisted securities related to investments in infrastructures, real estate, and private equity funds.

At 31 December 2016, the assets managed by EDF Invest represent a realisable value of €5,633 million, particularly including:

- 75.93% of the Group's shares in C25, the company that owns RTE, in compliance with Decree 2016-1781 of 19 December 2016 amending the Decree of 23 February 2007. These shares amount to €3,905 million at 31 December 2016 (€2,580 million for 50% of the shares in RTE, at 31 December 2015) (see note 3.5.1);
- the Group's investment in TIGF, Porterbrook, Thyssengas and Aéroports de la Côte d'Azur presented in available-for-sale financial assets in the consolidated balance sheet;
- the Group's investments in Madrileña Red de Gas (MRG) and Géosel, presented in investments in associates in the consolidated balance sheet.

47.3 VALUATION OF EDF'S DEDICATED ASSETS

The following table shows a breakdown of dedicated assets by nature:

(in millions of Euros)	Consolidated balance sheet presentation	31/12/2016 Book value	31/12/2016 Realisable value	31/12/2015 Book value	31/12/2015 Realisable value
Equities		8,010	8,010	7,298	7,298
Debt instruments		6,866	6,866	6,674	6,674
Cash portfolio		900	900	282	282
Dedicated assets – equities and debt instruments	Available-for-sale financial assets	*15,776*	*15,776*	*14,254*	*14,254*
Derivatives	Fair value of derivatives	(18)	(18)	6	6
Other	Available-for-sale financial assets	-	-	20	20
Diversified equity and bond investments		**15,758**	**15,758**	**14,280**	**14,280**
CSPE receivable (1)	Loans and financial receivables	4,185	4,288	5,232	5,232
Derivatives	Fair value of derivatives	(2)	(2)	(7)	(7)
CSPE receivable after derivatives		**4,183**	**4,286**	**5,225**	**5,225**
C25 (the company owning RTE's shares) (2)	Investments in associates (3)	1,852	3,905	2,580	2,580
Other associates	Investments in associates (3)	487	537	466	466
Other assets	Available-for-sale financial assets	1,191	1,191	929	929
Unlisted assets (EDF Invest)		**3,530**	**5,633**	**3,975**	**3,975**
TOTAL DEDICATED ASSETS (4)		23,471	25,677	23,480	23,480

(1) The receivable consisting of shortfalls in compensation at 31 December 2015, less the portion assigned on 22 December 2016 for the amount of €894 million, which has been reinvested in dedicated assets (see note 3.6). After the partial assignment, the fair value of the CSPE receivable was adjusted based on current market rates.
(2) In 2016, 75.93% of the Group's investment in C25, the company owning 100% of RTE's shares. In 2015, 50% of the Group's investment in RTE.
(3) The RTE shares are included at the equity value in the consolidated financial statements (book value in the table), to the extent of the portion allocated to dedicated assets (75.93%). The realisable value shown in this table is based on the future sale price (see note 3.5.1).
(4) Including the value of the share in equity of the controlled companies owning these investments.
(5) By limiting the value of certain investments in compliance with Article 16 of Decree 2007-243 concerning calculation of the amount of the regulatory realisable value of dedicated assets, the regulatory realisable value is reduced to €24,312 million at 31 December 2016 and could reach €25,653 million in 2017 once the sale of some of the shares in C25 (the company owning RTE's shares) is completed, which should be during the first half of 2017.

Structured entities - Investment funds

The investment funds held by the Group are located in France and owned by EDF. The Group has not given these funds any financial support.

The value of the assets of these investment funds amounts to €1,548 million at 31 December 2016 (€1,292 million at 31 December 2015). The funds mainly consist of 9 listed funds with total value of €1,297 million (at 31 December 2015, 7 listed funds with total value of €1,130 million).

47.4 CHANGES IN DEDICATED ASSETS IN 2016

At 31 December 2016, the degree of coverage of provisions by dedicated assets was 99.8% applying the regulatory calculations. All other things being equal, this coverage should reach 105.3% after completion of the sale of some of the shares of C25, which is planned for the first half of 2017. Without application of the regulatory limits set by Decree 2007-243, the provision coverage rate is 105.4%.

Withdrawals totalled €377 million, equivalent to the payments made in respect of the long-term nuclear obligations to be covered in 2016 (€378 million in 2015). No allocations to dedicated assets took place in 2016 (allocation of €38 million in 2015). The €972 million of allocations yet to be made, as reported at 31 December 2015, no longer applied at 30 June 2016, largely due to the extension of the depreciation period for 900MW PWR plants which led to a reversal of €1,657 million from the provisions covered by dedicated assets (see note 3.1).

However, at 31 December 2016, notably due to the decrease in the real discount rate at the year-end, increases to provisions that must be offset by allocations to dedicated assets under the Decree of 24 March 2015 amount to a total €1,095 million. EDF will allocate this amount to dedicated assets over the month following finalisation of its financial statements, in accordance with the Letter of 10 February 2017 from the minister for the Economy and Finance, and the minister for the Environment, Energy and the Sea.

After a sharp drop in the early part of the year, the financial markets ended 2016 on a positive note despite instability in the international political environmental, which generally put active management policies at a disadvantage. Against this background, the financial portfolio (equities and debt instruments) was managed conservatively, especially with underweighting on the emerging markets at the beginning of the year. But the difference in equity allocations had been made up by the end of the year, especially on emerging equities. For the bond portfolio, sensitivity was reduced to provide protection against a new rise in rates.

For the unlisted asset portfolio, EDF Invest continued over 2016 to build up a portfolio of infrastructures, real estate property and investment funds.

On 5 October 2016 EDF Invest and the Dutch infrastructure fund DIF announced their 50/50 acquisition of Thyssengas, one of Germany's principal regulated gas transport networks.

On 9 November 2016, once the regulatory authorisations had been received, Atlantia and EDF Invest, through their 75%/25% investment vehicle Azzurra Aeroporti Srl, acquired a 64% stake in Aéroports de la Côte d'Azur (ACA), the company that manages the French airports of Nice-Côte d'Azur, Cannes-Mandelieu and Saint Tropez, and the Sky Valet international business aviation service network.

These investments are allocated to EDF Invest's Infrastructures pocket, alongside other investments including TIGF, Porterbrook, MRG, Géosel and C25 (the company owning RTE's shares).

A total of €428 million in net gains on disposals from the financial portfolio was recorded in the financial result in 2016 (€972 million in 2015).

The difference between the fair value and acquisition cost of diversified bond and equity investments included in equity was a positive €1,984 million before taxes at 31 December 2016 (€1,711 million at 31 December 2015).

The Group's assessment of the value of the dedicated asset portfolio did not lead to recognition of any impairment in 2016.

47.5 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 the EDF group's consolidated financial statements at the following values:

(in millions of Euros)	31/12/2016	31/12/2015
Provisions for spent fuel management – portion unrelated to the operating cycle as defined in the regulations	820	-
Provisions for long-term radioactive waste management	8,966	8,254
Provisions for nuclear plant decommissioning	14,122	14,930
Provisions for last cores - portion for future long-term radioactive waste management	450	462
PRESENT COST OF LONG-TERM NUCLEAR OBLIGATIONS	24,358	23,646

Note 48 Related parties

Details of transactions with related parties are as follows:

	Associates and joint ventures		Joint operations		French State or State-owned entities [1]		Group Total	
(in millions of Euros)	31/12/2016	31/12/2015	31/12/2016	31/12/2015	31/12/2016	31/12/2015	31/12/2016	31/12/2015
Sales	547	618	-	-	1,328	976	1,875	1,594
Energy purchases	3,651	3,738	4	4	2,418	2,077	6,073	5,819
External purchases	4	27	4	4	1,065	1,187	1,073	1,218
Financial assets	106	670	-	-	-	-	106	670
Other assets	575	603	-	-	754	845	1,329	1,448
Financial liabilities	-	-	-	-	-	-	-	-
Other liabilities	1,106	1,049	-	-	880	1,043	1,986	2,092

(1) Excluding tax and social liabilities and the CSPE receivable.

48.1 TRANSACTIONS WITH ENTITIES INCLUDED IN THE SCOPE OF CONSOLIDATION

Transactions with the principal associates (RTE, CENG and Alpiq) are presented in note 23.

Transactions with other associates, joint ventures, and partner entities in joint arrangements with the Group mainly consist of sales and purchases of energy.

48.2 RELATIONS WITH THE FRENCH STATE AND STATE-OWNED ENTITIES

48.2.1 Relations with the French State

The French State holds 85.62% of the capital of EDF at 31 December 2016, 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*).

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 energy program established in the Decree of 27 October 2016, which defines objectives for generation and load shedding.

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 France's Energy Code, and the level of the Contribution to the Public Electricity Service.

48.2.2 Relations with Engie

The common service function shared by EDF and Engie, respectively the electricity distribution and gas distribution subsidiaries Enedis and GRDF, is defined by Article L. 111-71 of the French Energy Code. Its missions in the electricity and gas distribution sector are building structures, site project management, network operation and maintenance, and metering operations. This service is not a legal entity in its own right.

48.2.3 Relations with public sector entities

The EDF group's relations with public sector entities mainly concern the AREVA group.

Transactions with AREVA concern:

- the front-end of the nuclear fuel cycle (uranium supplies, conversion and enrichment services and fuel assembly production);
- the back-end of the nuclear fuel cycle (transportation, storage, processing and recycling services for spent fuel);
- plant maintenance operations and equipment purchases.

On 15 November 2016 the Board of Directors approved the terms of the contract for the sale of an investment that would give EDF exclusive control over "New AREVA NP", a fully-owned subsidiary of AREVA NP (see note 3.4).

Front-end of the cycle

In December 2014, EDF and AREVA NP signed a contract for supplies of enriched-uranium fuel assemblies from 2015.

Several important agreements were also negotiated:

- for supplies of natural uranium: an AREVA Mines contract covering the period 2021-2030;
- for fluoration: a contract covering the period 2019-2030;
- for enrichment of natural uranium into uranium 235: an AREVA NC contract for the period 2019-2030.

As part of the plan to construct two EPRs in the United Kingdom at the Hinkley Point site, on 29 September 2016 EDF and AREVA signed a uranium contract with AREVA Mines, a conversion contract and enrichment contract with AREVA NC, and a fabrication contract with AREVA NP.

Back-end of the cycle

Relations between EDF and AREVA concerning transportation, processing and recycling of spent fuels are described in note 29.1.1.

EDF and AREVA have signed the following contracts for the 1,300MW nuclear power plants:

- in 2011, a contract for supply of 32 steam generators and a contract for renewal of the control/command systems;
- in August 2012, a contract for services related to replacement operations for the first steam generators.

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.

The Group owns a very small minority shareholding in AREVA (2.24%).

48.3 MANAGEMENT COMPENSATION

The Company's key management and governance personnel are the Chairman and CEO, the members of the COMEX (Executive Committee) throughout 2016 or since their date of appointment if they joined the COMEX during the year, and the Directors. Directors representing the employees receive no remuneration for their services.

The total compensation paid by EDF and controlled companies to the Group's key management and governance personnel amounted to €12.1 million in 2016 (€12.2 million in 2015). 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.

Apart from EDF's Chairman and CEO who could benefit from a termination indemnity if his term of office were ended, the directors benefit from no other special pension system, starting bonus or severance payment entitlement except by contractual negotiation.

Note 49 Environment

49.1 GREENHOUSE GAS EMISSION RIGHTS

In ratifying the Kyoto Protocol Europe made a commitment to reduce its greenhouse gas emissions. EU Directive 2003/87/EC set up a greenhouse gas emission quota system for the European Union which has been in operation since 1 January 2005.

This system is adapted into national laws. Among other things it requires obligated actors, which is the case of EDF, to surrender to the State a number of greenhouse gas emission credits each year, corresponding to their emissions for the year.

This Directive 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, Dalkia, Kogeneracja, Zielona Gora, EDF Polska and EDF Luminus.

In 2016, the Group surrendered 46 million tonnes in respect of emissions generated in 2015. In 2015, the Group surrendered 48 million tonnes in respect of emissions generated in 2014.

The Group's total emission rights allocation for 2016 recorded in the national registers is 5 million tonnes (7 million tonnes for 2015).

The volume of emissions at 31 December 2016 stood at 38 million tonnes (47 million tonnes for 2015). The provision resulting from over-quota emissions amounts to €90 million at 31 December 2016 (€209 million at 31 December 2015).

49.2 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.

In France, the Law of 13 July 2005 introduced a system of energy savings certificates. Suppliers of energy (electricity, gas, heat, cold, domestic fuel oil and fuel for vehicles) with sales above a certain level are subject to energy savings obligations for a defined 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 set period, the entities concerned must provide evidence of compliance with obligations by surrendering the certificates, or pay a fine to the Treasury.

The French system was renewed by Decree 2014-1557 of 24 December 2014 for a third period running from 1 January 2015 to 31 December 2017. The energy savings objectives for this period are more ambitious, and the system has been simplified. The volumes of energy savings certificates obtained during the second period will count towards achievement of the objectives for the third period.

In application of Article 30 of the Law of 17 August 2015 on the energy transition for green growth, a new additional energy savings obligation for 2016-2017 applies from 1 January 2016, for the benefit of households in situation of energy poverty. This new obligation is added to the energy savings obligations for the third period. The annual volume of the obligation is proportional to the annual energy savings obligation.

EDF is well-placed to meet its obligations thanks to energy-efficient offers for each market segment: residential customers, business customers, local authorities and organisations funding social projects.

49.3 RENEWABLE ENERGY CERTIFICATES

Through the renewable energy certificates scheme, the EDF group has an obligation to surrender renewable energy certificates, particularly in the United Kingdom and Belgium (see note 1.3.28.2).

At 31 December 2016, a provision of €744 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 50 Subsequent events

Subsequent developments concerning EDF Polska and EDF Démász are referred to in notes 3.5.2 and 3.5.3. Subsequent developments concerning changes in particular in 2017 in the regulatory limits on the discount rate used to calculate nuclear provisions in France are referred to in notes 29.1.5.1 and 47.4

50.1 ¥137 BILLION SAMURAI BOND ISSUE

On 20 January 2017, EDF raised ¥137 billion, i.e. around €1.1 billion, through 4 senior bonds issue on the Japanese market ("Samurai bonds") with maturities of 10 years and more:

- ¥107.9 billion bond, with a 10-year maturity and a fixed coupon of 1.088%;
- ¥19.6 billion green bond, with a 12-year maturity and a fixed coupon of 1.278%;
- ¥6.4 billion green bond, with a 15-year maturity and a fixed coupon of 1.569%;
- ¥3.1 billion bond, with a 20-year maturity and a fixed coupon of 1.870%.

With the issuance of two green tranches totalling ¥26 billion dedicated to the financing of its renewable investments, EDF has opened the Samurai green bond market, continuing its active contribution to the development of green bonds as financing instruments for the energy transition.

50.2 BOARD OF DIRECTORS' MEETING HELD ON 13 FEBRUARY 2017

During its meeting held on 13 February 2017, the Board of Directors of EDF decided to carry out a capital increase with preferential subscription rights to existing shareholders for a total amount, including issue premium, of approximately 4 billion euros, as announced on 22 April 2016.

EDF intends to launch this capital increase before the end of the first quarter of 2017, subject to market conditions and after having received the *visa* from the French *Autorité des marchés financiers* (the "AMF") on the prospectus. This transaction will be executed, after a new deliberation of the Board of Directors, in accordance with the delegation of authority which has been granted to it by the second resolution adopted at the extraordinary general meeting of the shareholders of the company held on 26 July 2016.

The French State, EDF's largest shareholder, has committed to subscribe for new shares in an amount of 3 billion euros out of the total amount of approximately 4 billion euros.

Note 51 Scope of consolidation at 31 December 2016

The Group's activities are defined as follows:

- "Generation/Supply" (G): energy generation and energy sales to industry, local authorities, small businesses and residential consumers. This segment also includes commodity trading activities;
- "Distribution" (D): management of the low and medium-voltage public electricity distribution networks;
- "Transmission" (T): operation, maintenance and development of the high-voltage and very-high-voltage electricity transmission networks;
- "Other" (O): 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.).

51.1 FULLY CONSOLIDATED COMPANIES

France – Generation and Supply	Percentage of ownership at 31/12/2016	Percentage of ownership at 31/12/2015	Business sector
Electricité de France – Parent Company	100.00	100.00	G,D,O
Group Support Services (G2S)	100.00	100.00	O
Other holding companies (EDF Invest)	100.00	100.00	O
France – Regulated activities			
Enedis (formerly ERDF)	100.00	100.00	D
Electricité de Strasbourg	88.64	88.64	G, D
EDF Production Electrique Insulaire (EDF PEI)	100.00	100.00	G
C25 (the company owning RTE's shares)	100,00	-	A
United Kingdom			
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
Italy			
Edison SpA (Edison)	97.45	97.40	G, O
Transalpina di Energia SpA (TdE SpA)	100.00	100.00	O
Fenice Qualita Per L'Ambiante SpA (Fenice) (1)	-	100.00	O

Other international				
EDF International SAS	France	100.00	100.00	O
EDF Belgium SA	Belgium	100.00	100.00	G
EDF Luminus SA	Belgium	68.63	68.63	G, O
EDF Norte Fluminense SA	Brazil	100.00	100.00	G
Ute Paracambi SA	Brazil	100.00	100.00	G
French Investment Guangxi Laibin Electric Power Co, Ltd. (Figlec)	China	100.00	100.00	G
EDF (China) Holding Ltd.	China	100.00	100.00	O
EDF Inc.	USA	100.00	100.00	O
Unistar Nuclear Energy LLC	USA	100.00	100.00	G
EDF Démász Zrt.	Hungary	100.00	100.00	G, D,O
EDF Paliwa Sp. z o.o. (Energokrak)	Poland	99.51	97.44	O
EDF Polska SA	Poland	99.51	97.44	G
Zec Kogeneracja SA (Kogeneracja)	Poland	49.91	49.55	G, O
Elektrocieplownia Zielona Gora SA (Zielona Gora)	Poland	49.11	48.75	G, O
EDF Alpes Investissements SARL	Switzerland	100.00	100.00	O
Mekong Energy Company Ltd. (Meco)	Vietnam	56.25	56.25	G
EDF Chile Spa	Chile	100.00	-	G

Business segments: G = Generation, D = Distribution, T = Transmission, O = Other
(1) Fenice is part of the Edison group at 31 December 2016.

Other activities		Percentage of ownership at 31/12/2016	Percentage of ownership at 31/12/2015	Business sector
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
Compagnie Financière de Valorisation pour l'Ingénierie (COFIVA) (1)	France	-	100.00	O
Société Française d'Ingénierie Electronucléaire et d'Assistance (SOFINEL)	France	55.00	55.00	O
Tiru SA – Traitement Industriel des Résidus Urbains (2)	France	-	51.00	O
Dunkerque LNG	France	65.01	65.01	O
EDF Énergies Nouvelles	France	100.00	100.00	G,O
EDF IMMO and real estate subsidiaries	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
Dalkia	France	99.94	99.94	O
Citelum	France	100.00	100.00	O
EDF Trading 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
EDF Investissements Groupe SA	Belgium	93.89	93.89	O
Océane Re	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.
(1) Cofiva merged with EDEV at 31 December 2016.
(2) Tiru is part of the Dalkia group at 31 December 2016. The percentage ownership is now 75%.

51.2 COMPANIES HELD IN THE FORM OF JOINT OPERATIONS

Other activities		Percentage of ownership at 31/12/2016	Percentage of ownership at 31/12/2015	Business sector
Friedeburger Speicherbetriebsgesellschat GmbH (Crystal)	Germany	50.00	50.00	O

Business segments: G = Generation, D = Distribution, T = Transmission, O = Other.

51.3 COMPANIES ACCOUNTED FOR BY THE EQUITY METHOD

France – Generation and Supply		Percentage of ownership at 31/12/2016	Percentage of ownership at 31/12/2015	Business sector
Elisandra IV (Madrileña Red de Gas Holding) (EDF Invest)	Spain	20.00	25.00	O
Alba Real Estate SCS (EDF Invest)	Luxembourg	46.50	46.50	O
Immo C47 (EDF Invest)	France	100.00	100.00	O
Géosel Manosque (EDF Invest)	France	25.00	-	O
Transport Stockage Hydrocarbures (TSH) (EDF Invest)	France	50.00	-	O
France – Regulated activities				
RTE Réseau de Transport d'Electricité (RTE)	France	100.00	100.00	T
Other international				
Compagnie Énergétique de Sinop (CES)	Brazil	51.00	51.00	G
Constellation Energy Nuclear Group LLC (CENG)	USA	49.99	49.99	G
SLOE Centrale Holding BV	Netherlands	50.00	50.00	G
Shandong Zhonghua Power Company, Ltd.	China	19.60	19.60	G
Datang Sanmenxia Power Generation Co., Ltd.	China	35.00	35.00	G
Taïshan Nuclear Power Joint Venture Company Ltd. (TNPJVC)	China	30.00	30.00	G
Jiangxi Datang International Fuzhou Power Generation Company Ltd.	China	49.00	49.00	G
Nam Theun 2 Power Company (NTPC)	Laos	40.00	40.00	G
Alpiq	Switzerland	25.04	25.04	G,D,T,O
Other activities				
Domofinance SA	France	45.00	45.00	O

Business segments: G = Generation. D = Distribution. T = Transmission. O = Other

51.4 COMPANIES IN WHICH THE EDF GROUP'S VOTING RIGHTS DIFFER FROM ITS PERCENTAGE OWNERSHIP

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 31/12/2016	Percentage of voting rights at 31/12/2016
Edison SpA	97.45	99.48
Zec Kogeneracja SA (Kogeneracja)	49.91	50.00
Elektrocieplownia Zielona Gora SA (Zielona Gora)	49.11	98.40
EDF Paliwa Sp. z o.o.	99.51	100.00
Société Française d'Ingénierie Electronucléaire et d'Assistance (SOFINEL)	55.00	54.98
EDF Investissements Groupe SA	93.89	50.00

Note 52 Statutory Auditors' fees

The following table sets forth the fees paid for work done by the Statutory Auditors and their network during 2016.

(In thousands of Euros)	Deloitte network		KPMG network	
	Amount (excluding taxes)	%	Amount (excluding taxes)	%
Audit:				
Statutory audit, certification, review of company and consolidated accounts				
EDF	3,701	21.8	3,535	26.0
Fully consolidated subsidiaries	6,787	40.0	8,639	63.7
Sub-total	10,488	61.8	12,174	89.7
Non-audit services				
EDF	1,973	11.6	448	3.3
Fully consolidated subsidiaries	4,507	26.6	951	7.0
Sub-total	6,480	38.2	1,399	10.3
TOTAL	16,968	100	13,573	100

Statutory Auditors' fees for 2015

The following table sets forth the fees paid for work done by the Statutory Auditors and their network during 2015.

(In thousands of Euros)	Deloitte network		KPMG network	
	Amount (excluding taxes)	%	Amount (excluding taxes)	%
Audit				
Statutory audit, certification, review of company and consolidated accounts				
EDF	3,681	22.5	3,623	25,9
Fully consolidated subsidiaries	7,574	46.2	8,309	59,4
Sub-total	11,255	68.7	11,932	85.3
Non-audit services				
EDF	1,771	10.8	713	5.1
Fully consolidated subsidiaries	3,353	20.5	1,341	9.6
Sub-total	5,124	31.3	2,054	14.7
TOTAL	16,379	100	13,986	100