CONSOLIDATED FINANCIAL STATEMENTS AT 31 DECEMBER 2017

Consolidated income statement

(in millions of Euros)	Notes	2017	2016
Sales	7	69,632	71,203
Fuel and energy purchases	8	(37,641)	(36,050)
Other external expenses	9	(8,739)	(8,902)
Personnel expenses	10	(12,456)	(12,543)
Taxes other than income taxes	11	(3,541)	(3,656)
Other operating income and expenses	12	6,487	6,362
Operating profit before depreciation and amortisation		**13,742**	**16,414**
Net changes in fair value on Energy and Commodity derivatives, excluding trading activities		(355)	(262)
Net depreciation and amortisation	22.2	(8,537)	(7,966)
Net increases in provisions for renewal of property, plant and equipment operated under concessions		(58)	(41)
(Impairment)/reversals	13	(518)	(639)
Other income and expenses	14	1,363	8
Operating profit		**5,637**	**7,514**
Cost of gross financial indebtedness	15.1	(1,778)	(1,827)
Discount effect	15.2	(2,959)	(3,417)
Other financial income and expenses	15.3	2,501	1,911
Financial result	15	**(2,236)**	**(3,333)**
Income before taxes of consolidated companies		**3,401**	**4,181**
Income taxes	16	(147)	(1,388)
Share in net income of associates and joint ventures	23	35	218
GROUP NET INCOME		3,289	3,011
EDF net income		**3,173**	**2,851**
Net income attributable to non-controlling interests		**116**	**160**
Earnings per share (EDF share) in Euros:	17		
Earnings per share		**0.98**	**1.15**
Diluted earnings per share		**0.98**	**1.15**

Consolidated statement of comprehensive income

(in millions of Euros)	2017			2016		
	EDF net income	Net income attributable to non-controlling interests	Total	EDF net income	Net income attributable to non-controlling interests	Total
Group net income	**3,173**	**116**	**3,289**	**2,851**	**160**	**3,011**
Gross change in fair value of available-for-sale financial assets [(1)]	107	-	107	318	-	318
Related tax effect	(61)	-	(61)	(116)	-	(116)
Associates' and joint ventures' share of fair value of available-for-sale financial assets	77	-	77	21	-	21
Change in fair value of available-for-sale financial assets	***123***		***123***	***223***	***-***	***223***
Gross change in fair value of hedging instruments [(1)]	1,513	4	1,517	290	26	316
Related tax effect	(361)	(2)	(363)	268	(8)	260
Associates' and joint ventures' share of fair value of hedging instruments	6	-	6	(15)	-	(15)
Change in fair value of hedging instruments	**1,158**	**2**	**1,160**	***543***	***18***	***561***
Translation adjustments - controlled entities	(970)	(169)	(1,139)	(2,755)	(380)	(3,135)
Translation adjustments - associates and joint ventures	(531)	-	(531)	43	-	43
Translation adjustments	***(1,501)***	***(169)***	***(1,670)***	***(2,712)***	***(380)***	***(3,092)***
Gains and losses recorded in equity that will be reclassified subsequently to profit or loss	**(220)**	**(167)**	**(387)**	**(1,946)**	**(362)**	**(2,308)**
Gross change in actuarial gains and losses on post-employment benefits [(2)]	1,061	60	1,121	468	93	561
Related tax effect	(337)	(12)	(349)	(175)	(16)	(191)
Associates' and joint ventures' share of change in actuarial gains and losses on post-employment benefits	16	-	16	(352)	-	(352)
Actuarial gains and losses on post-employment benefits	***740***	***48***	***788***	***(59)***	***77***	***18***
Gains and losses recorded in equity that will not be reclassified subsequently to profit or loss	**740**	**48**	**788**	**(59)**	**77**	**18**
Total gains and losses recorded in equity	**520**	**(119)**	**401**	**(2,005)**	**(285)**	**(2,290)**
CONSOLIDATED COMPREHENSIVE INCOME	**3,693**	**(3)**	**3,690**	**846**	**(125)**	**721**

(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	31/12/2017	31/12/16
Goodwill	18	10,036	8,923
Other intangible assets	19	8,896	7,450
Property, plant and equipment operated under French public electricity distribution concessions	20	54,739	53,064
Property, plant and equipment operated under concessions for other activities	21	7,607	7,616
Property, plant and equipment used in generation and other tangible assets owned by the Group	22	75,622	70,573
Investments in associates and joint ventures	23	7,249	8,645
Non-current financial assets	36	36,787	35,129
Other non-current receivables	26	2,168	2,268
Deferred tax assets	16.3	1,220	1,641
Non-current assets		**204,324**	**195,309**
Inventories	24	14,138	14,101
Trade receivables	25	23,411	23,296
Current financial assets	36	24,953	29,986
Current tax assets		673	183
Other current receivables	26	9,561	10,652
Cash and cash equivalents	37	3,692	2,893
Current assets		**76,428**	**81,111**
Assets classified as held for sale	46	-	5,220
TOTAL ASSETS		280,752	281,640

EQUITY AND LIABILITIES *(in millions of Euros)*	Notes	31/12/2017	31/12/16
Capital	27	1,464	1,055
EDF net income and consolidated reserves		39,893	33,383
Equity *(EDF share)*		***41,357***	**34,438**
Equity (non-controlling interests)	27.5	7,341	6,924
Total equity	27	**48,698**	**41,362**
Provisions related to nuclear generation - back-end of the nuclear cycle, plant decommissioning and last cores		46,410	44,843
Other provisions for decommissioning		1,977	1,506
Provisions for employee benefits	31	20,630	21,234
Other provisions	28	2,356	2,155
Non-current provisions	28	***71,373***	***69,738***
Special French public electricity distribution concession liabilities	33	46,323	45,692
Non-current financial liabilities	38	51,365	54,276
Other non-current liabilities	35	4,864	4,810
Deferred tax liabilities	16.3	2,362	2,272
Non-current liabilities		**176,287**	**176,788**
Current provisions	28	5,484	5,228
Trade payables	34	13,994	13,031
Current financial liabilities	38	11,142	18,289
Current tax liabilities		187	419
Other current liabilities	35	24,960	24,414
Current liabilities		**55,767**	**61,381**
Liabilities related to assets classified as held for sale	46	-	2,109
TOTAL EQUITY AND LIABILITIES		280,752	281,640

Consolidated cash flow statement

(in millions of Euros)	Notes	2017	2016
Operating activities:			
Income before taxes of consolidated companies		**3,401**	**4,181**
Impairment/(reversals)		518	639
Accumulated depreciation and amortisation, provisions and changes in fair value		9,980	9,814
Financial income and expenses		764	948
Dividends received from associates and joint ventures		243	330
Capital gains/losses		(2,739)	(877)
Change in working capital	43.1	1,476	(1,935)
Net cash flow from operations		***13,643***	***13,100***
Net financial expenses disbursed		(1,209)	(1,137)
Income taxes paid		(771)	(838)
Net cash flow from operating activities		**11,663**	**11,125**
Investing activities:			
Acquisitions of equity investments, net of cash acquired[1]		(2,463)	(127)
Disposals of equity investments, net of cash transferred[2]		2,472	372
Investments in intangible assets and property, plant and equipment	43.2	(14,747)	(14,397)
Net proceeds from sale of intangible assets and property, plant and equipment		1,140	508
Changes in financial assets		1,885	(2,913)
Net cash flow used in investing activities		**(11,713)**	**(16,557)**
Financing activities:			
EDF capital increase		4,005	-
Transactions with non-controlling interests[3]		481	1,368
Dividends paid by parent company	27.3	(109)	(165)
Dividends paid to non-controlling interests		(183)	(289)
Purchases/sales of treasury shares		(6)	(2)
Cash flows with shareholders		***4,188***	***912***
Issuance of borrowings		2,901	9,424
Repayment of borrowings		(6,304)	(6,176)
Payments to bearers of perpetual subordinated bonds	27.4	(565)	(582)
Funding contributions received for assets operated under concessions		144	143
Investment subsidies		348	417
Other cash flows from financing activities		***(3,476)***	***3,226***
Net cash flow from financing activities		**712**	**4,138**
Net increase/(decrease) in cash and cash equivalents		**662**	**(1,294)**
CASH AND CASH EQUIVALENTS - OPENING BALANCE		2,893	4,182
Net increase/(decrease) in cash and cash equivalents		662	(1,294)
Effect of currency fluctuations		(13)	102
Financial income on cash and cash equivalents		21	20
Effect of reclassifications		129	(117)
CASH AND CASH EQUIVALENTS - CLOSING BALANCE	37	3,692	2,893

(1) Including the acquisition price for Framatome: €1,868 million (see note 3.2).
(2) In 2017, this item includes an amount of €1,282 million relating to the partial sale of Coentreprise de Transport d'Électricité or CTE (formerly C25), the company that holds RTE's shares (see note 3.4.1).
(3) Capital increases or reductions and acquisitions or disposals of interests in controlled companies.
In 2017, this item includes the €501 million contribution received from CGN for the NNB Holding Ltd. and Sizewell C Holding Co capital increases.

Change in consolidated equity

(in millions of Euros)	Capital	Treasury shares	Translation adjustments (1)	Impact of fair value adjustment of financial instruments (2)	Other consolidated reserves and net income	**Equity (EDF share)**	Equity (non-controlling interests)	**Total equity**
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 (3)	95	-	-	-	1,767	1,862	-	1,862
Other changes (4)	-	-	-	-	(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**
Gains and losses recorded in equity	-	-	(1,501)	1,281	740	520	(119)	401
Net income	-	-	-	-	3,173	3,173	116	3,289
Consolidated comprehensive income			**(1,501)**	**1,281**	**3,913**	**3,693**	**(3)**	**3,690**
Payments on perpetual subordinated bonds	-	-	-	-	(565)	(565)	-	(565)
Dividends paid	-	-	-	-	(1,532)	(1,532)	(183)	(1,715)
Purchases/sales of treasury shares	-	(11)	-	-	-	(11)	-	(11)
Capital increase by EDF (5)	409	-	-	-	5,018	5,427	-	5,427
Other changes (6)	-	-	-	-	(93)	(93)	603	510
EQUITY AT 31/12/2017	**1,464**	**(40)**	**136**	**(306)**	**40,103**	**41,357**	**7,341**	**48,698**

(1) Changes in translation adjustments amount to €(1,501) million at 31 December 2017, mainly relating to the fall of the pound sterling and the US dollar against the euro.

(2) 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.

(3) 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.

(4) "Other changes" in 2016 included 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 had an effect of €(548) million on Equity (EDF share) and an effect of €1,510 million on equity (non-controlling interests) in 2016 (see note 3.7.2).
"Other changes" in 2016 also included the effects of the Cogestar operation, amounting to €119 million (see note 5.2).

(5) In 2017, the changes in capital and other consolidated reserves (issue premium) relate to EDF's capital increase amounting to €4,005 million net of expenses (see note 3.1) and payment of the balance of the scrip dividend for 2016 totalling €1,024 million and the scrip interim dividend for 2017 totalling €398 million (see note 27.3).

(6) "Other changes" in equity (non-controlling interests) include the effect of capital increases funded by CGN for NNB Holding Ltd. and Sizewell C Holding Co. amounting to €501 million.
They also include the effects of the acquisition of Framatome, amounting to €209 million (see note 3.2), and the effects of the Cogestar operation, amounting to €48 million (see note 5.2).

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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 2017.

The Group is an integrated energy operator engaged in all aspects of the energy business: generation, transmission, distribution, supply, energy trading and services. As of 31 December 2017, it includes the activities of Framatome: services and production of equipment and fuel for reactors (see note 3.2).

The Group's consolidated financial statements at 31 December 2017 were prepared under the responsibility of the Board of Directors and approved by the Directors at the Board meeting held on 15 February 2018. They will become final after approval at the General Shareholders' Meeting to be held on 15 May 2018.

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 2017 are prepared under the international accounting standards published by the IASB and approved by the European Union for application at 31 December 2017. 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 2017.

1.2 CHANGES IN ACCOUNTING METHODS AT 31 DECEMBER 2017

The accounting and valuation methods applied by the Group in the consolidated financial statements for the year ended 31 December 2017 are identical to those used in the consolidated financial statements for the year ended 31 December 2016, with the exception of the following changes:

1.2.1 Accounting standard amendments adopted by the European Union that became mandatory as of 1st January 2017

The following amendments to accounting standards have been adopted by the European Union and are mandatory for financial years beginning on or after 1st January 2017:

- amendments to IAS 12 "Income Taxes" entitled "Recognition of Deferred Tax Assets for Unrealised Losses": no impact for the group.
- amendments to IAS 7 "Statement of cash flows" entitled "Disclosure Initiative". These amendments require companies to disclose information that can be used to reconcile the changes in balance sheet assets and liabilities reported in the "cash flows from operating activities" section of the cash flow statement, separating cash movements from non-cash movements (see note 38.2.1).

1.2.2 Standards and amendments adopted by the European Union for mandatory application after 31 December 2017

1.2.2.1 IFRS 15 - Revenue from Contracts with Customers

On 22 September 2016, the European Union (EU) adopted IFRS 15 "Revenue from Contracts with Customers", which will be mandatory for financial years beginning on or after 1 January 2018. The associated amendments were adopted on 31 October 2017 and will be applicable at the same date as the standard itself.

Preparatory work for application of IFRS 15 continued during 2017, and the operations for which the accounting treatment will be changed were identified. The two principal changes concern the following:

- Recognition of income from energy delivery (principal versus agent considerations):

  In accordance with IAS 18, the delivery component of an energy supply contract is automatically included in sales revenues by all Group entities that supply electricity or gas.

  IFRS 15 requires analysis of whether or not this energy delivery is a distinct performance obligation within the energy supply contract. It also 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 a principal, it can recognise the sales revenue from the delivery service. Otherwise, it is classified as an agent, and can only include the amount of commission, if any, in its sales revenues.

  A review of contracts and the applicable regulatory framework has been conducted for each country where customers have single contracts covering the supply and delivery of gas and/or electricity (France, Belgium, the United Kingdom and Italy).

  - In France and Belgium, the Group has concluded that delivery is a distinct service from the supply of energy, and that the energy supplier is acting as an agent in providing this delivery service, as the supplier is not responsible for performance of this service, is not exposed to any risk related to stocks or capacity, and cannot pass on to the final customer any price other than the price charged by the distributor for the delivery. Also, in France the credit risk is borne by the distributor as of 1st January 2018, and energy suppliers will be remunerated by a commission paid by distributors for management of clients on a single contract (see note 4.2).

    In France, the vast majority of 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 concerning electricity delivery in France will only have an impact on presentation of sales in the operating segment reporting. Currently, the Group's operating segment reporting presents revenues on electricity delivery in the "France – Regulated Activities" segment, as inter-segment sales. When IFRS 15 is applied, these revenues will be presented as external sales.

    This analysis will lead to a reduction in Group sales equivalent to the amount of gas and electricity delivery services in Belgium and gas delivery services in France.

    To give an illustration, the amounts for 2017 would have been €1,065 million for Belgium, in the "Other international" segment, €387 million for the "France - Generation and Supply" segment and €56 million for the "France - Regulated activities" segment. These figures are not necessarily representative of the amounts for 2018, since they are sensitive to delivery volumes, which notably depend on weather conditions and the level of demand, as well as delivery tariffs.

    In correlation, purchases of delivery (included in fuel and energy purchases) will be reduced by the same amount. Classification as an agent will therefore have no impact on the Group's operating profit before depreciation and amortisation.

  - In Italy and the UK, however, the energy supplier will continue to be classified as a principal for delivery services.

    In the United Kingdom, the Group has concluded that supply and delivery formed a single performance obligation, for which the supplier is the principal. In Italy, the risk borne by the supplier on capacity reservations with network operators and the fact that the supplier can set its price for delivery to the final customer justify its classification as a principal.

- Recognition of market energy purchase and sale transactions that are part of optimisation activities

  Some Group entities undertake operations on the wholesale electricity and gas markets, in application of the Group's risk management policy. Depending on the net position to be hedged, an entity may make purchases and sales on the forward and spot markets. These hedges are executed progressively and give rise to optimisation activities (supply/demand adjustment at different timeframes, and decisions between using the Group's own generation facilities or purchasing from the markets).

  The analysis of contracts for implementation of IFRS 15 has led the Group to consider that accounting on a net basis provides a more relevant reflection of the economic reality of optimisation transactions. Some Group entities (Edison – "Italy" segment, EDF Luminus – "Other International" segment, Dalkia – "Other activities" segment) have so far reported such sales on a gross basis, and booked a corresponding entry in energy purchases. Based on 2017 data, this change would reduce revenue and energy purchases by €2,793 million, with no impact on operating profit before depreciation and amortisation. These figures are not necessarily representative of the future amount for 2018, as the amount is by nature very variable from one year to the next.

The other subjects identified as potentially subject to a change of accounting treatment due to application of IFRS 15 should not have any significant impact on the Group's sales or net income.

In addition, the Group is currently finalising its assessment of the impacts of IFRS 15 on the accounting methods for the sales applied by Framatome, an entity that is fully consolidated from 31 December 2017. The subjects identified mainly concern the level of contract combinations, the financing component, contractual penalties and calculation of losses at completion.

The full retrospective approach will be applied. This will have no significant impact on Group's equity.

Finally, in connection with future application of IFRS 15, the Group is continuing to follow changes in international standards that could affect the current accounting treatment of regulated-tariff activities.

1.2.2.2 IFRS 9 – Financial Instruments

IFRS 9 "Financial Instruments", adopted by the European Union on 22 November 2016, will replace IAS 39 "Financial Instruments: Recognition and Measurement" from 1st January 2018. This standard introduces new principles for classification and measurement of financial instruments, impairment for credit risk on financial assets, and hedge accounting.

The Group began analyses in 2015 to assess the consequences of IFRS 9's application. In 2016 and 2017 preparatory work for implementation of the new standard continued, identifying the instruments for which the accounting treatment will be changed, as well as the necessary adjustments to the information systems.

Classification and measurement

Apart from the financial assets carried at amortised cost in application of IAS 39 such as loans, trade receivables and certain financial receivables, almost all of the Group's financial asset portfolio is currently classified as available-for-sale financial assets under IAS 39. Consequently, these assets are measured at fair value in the balance sheet, and changes in fair value are recorded in other comprehensive income (OCI); unrealised gains and losses recognised in OCI while the asset is held are transferred to profit and loss upon its derecognition.

A detailed, in-depth review of the Group's financial asset portfolio was conducted to determine its future accounting treatment under IFRS 9, based on the characteristics of its contractual cash flows and business model. The main impacts will concern financial assets held in the form of shares in investment funds, and to a lesser degree equity instruments (shares).

More specifically, a large share of the financial assets affected by these changes concerns the financial portfolio (amounting to €20,848 million at 31 December 2017 – see note 36.2.2) that forms part of the dedicated assets held to cover expenses for the back-end of EDF's nuclear cycle in France (see note 47).

The table below summarises changes in the classification of financial assets held by the Group at 31 December 2017 between IAS 39 and IFRS 9, and the impacts on the Group's financial statements. Further details of these changes are provided in the following paragraphs.

(in billions of Euros)		IFRS 9 classification				
IAS 39 classification	Balance at 31.12.2017	Amortised cost	Fair value through OCI	Fair value through OCI without recycl. to P&L	Fair value through P&L	Fair value in OCI at 31.12.17
Available-for-sale financial assets	40.9	-	20.8	0.5	19.6	2.2
EDF's dedicated assets	20.8	-	5.0	-	15.9	2.1
Liquid assets	19.0	-	15.8	-	3.1	0.1
Other securities	1.1	-	-	0.5	0.6	-
Loans and receivables	14.6	14.3	-	-	0.3	-
Trade receivables	23.4	21.8	1.6	-	-	-

- For **shares in investment funds**, which account for a significant portion of the dedicated asset financial portfolio, unrealised gains or losses, which were previously recognised in OCI and transferred to profit and loss upon their derecognition, will be recorded directly in the Group's income statement because these instruments will be classified as "at fair value through profit and loss".

  As well as holding shares in investment funds, to meet the needs of its dedicated asset portfolio the Group also makes significant investments in exchange-traded funds (ETFs). ETFs are traded on stock exchanges and generally passively managed with the aim of replicating upward or downward movements in an index. Market discussions in recent months about the classification of these "hybrid" instruments led to the conclusion that these instruments should not be classified as equity instruments under IAS 32 – which was the Group's initial analysis – but as puttable debt instruments. As a result, shares in ETFs will be treated under IFRS 9 in the same way as shares in investment funds, and unrealised gains and losses will be recorded in the Group's income statement.

  The accumulated fair value changes on these instruments at 1st January 2018, amounting to €1.8 billion before taxes, will be reclassified as reserves that will not be subsequently transferred to profit and loss.

  The impact on the Group's financial result at 31 December 2017 of applying IFRS 9 instead of IAS 39 to these instruments, all other things being equal, would have been around €349 million, comprising:

  - non-recognition of unrealised gains and losses of 2016 that were realised in 2017 (€(800) million);
  - recognition in the income statement of unrealised gains and losses in 2017 (including the effect of foreign exchange hedges), which represent the annual volatility (€1,149 million).

  An estimate of the main impacts of the standard's application, based on figures at 31 December 2017, is presented below for information.

  The amounts shown are not necessarily representative of the amounts that will be recognized in 2018 or in later years, as unrealised gains or losses depend primarily on stock market movements over each period concerned. Unrealised gains on certain financial instruments and markets in one period may reverse during another.

- For **equity instruments** not held for trading (investments in shares and similar), the Group will record fair value changes on most of the instruments in the portfolio at 31 December 2017 in profit and loss. However, the Group has exercised the irrevocable option to recognise fair value changes on some of the securities in the portfolio at 31 December 2017 in OCI. For the securities concerned, as IFRS 9 requires, only dividends received can be included in profit and loss; it will not be possible to transfer gains and losses to the income statement upon derecognition of the instrument.

  The accumulated fair value changes on equity instruments at 1st January 2018, amounting to €0.1 billion before taxes, will be reclassified as reserves that will not be subsequently transferred to profit and loss.

  The impact on the Group's financial result at 31 December 2017 of applying IFRS 9 instead of IAS 39 to these instruments, all other things being equal, would have been non-significant.

- The whole portfolio of **debt instruments, particularly the bond portfolio,** is managed under the "collect and sell" business model. Detailed analyses for each type of instrument have shown that the cash flows associated with this portfolio consist entirely of payments of principal and interest (the "SPPI" (Solely Payment of Principal and Interests) test from IFRS 9). As a result, fair value changes on this portfolio will be recorded in OCI, with no change from the current accounting treatment.

As stated earlier, a large portion of the financial assets affected by these changes belongs to the portfolio of financial assets that is part of the dedicated assets held to cover future expenses for the back-end of EDF's nuclear cycle in France. In general, application of IFRS 9 will lead to greater volatility in the Group's income statement, while dedicated assets are held to cover provisions for the back-end of the nuclear cycle, which give rise to a recurring cost of unwinding the discount, which is included in the financial result.

Impairment

IFRS 9 introduces an impairment model based on expected credit losses, whereas IAS 39 referred to incurred losses. This new "expected credit loss" (ECL) model could lead to earlier recognition of impairment than under IAS 39. It applies to financial assets carried at amortised cost, debt instruments carried at fair value through other comprehensive income, off-balance sheet commitments and financial guarantees previously governed by IAS 37, and contract assets measured in accordance with IFRS 15.

The Group has reviewed the rules for assessing the deterioration of credit risk and measuring expected losses for a one-year horizon and at maturity.

For debt instruments, the Group applies a rating-based approach for counterparties with low credit risk. As the standard allows, the Group defines the level of the "low credit risk" as the lowest rating for "Investment Grade" counterparties. In application of the risk management policy, the Group's bond portfolio consists almost entirely of instruments issued by Investment Grade entities. The threshold marking a significant increase in credit risk on debt instruments is reached when the counterparty ceases to be rated "Investment Grade".
Across all the financial assets concerned, the analyses conducted lead to an estimated ECL that is not significant at 31 December 2017.

For trade receivables that mainly relate to the Group entities' customer portfolios, the Group will apply IFRS 9's simplified impairment approach, based on indicators such as a provision matrix to calculate expected credit losses on trade receivables. Across all the financial assets concerned, the analyses conducted lead to an estimated ECL that is not significant at 31 December 2017.

For loans, the Group has chosen an approach based on the probability of default by the counterparty and assessment of changes in the credit risk.

Retrospective application of the new impairment model would lead to recognition of a non-material amount in equity at the transition date (not subsequently transferrable to profit and loss).

Hedge accounting

The new IFRS 9 model aims to simplify hedge accounting, align hedge accounting more closely with risk management activities and allow application of hedge accounting to a broader range of hedging instruments and items qualifying as hedged items. The new standard does not explicitly cover macro-hedging activities, which are the subject of a separate IASB project.

Two approaches are allowed for the first application of IFRS 9: (i) use of IFRS 9's "general hedge accounting model", or (ii) continued use of IAS 39 until the new macro-hedging standard is released by the IASB and adopted by the EU.

The Group intends to apply the new rules introduced by IFRS 9 for hedge accounting from 1st January 2018. Application of this section of the new standard is not expected to have any significant impacts on the consolidated financial statements at the transition date. Implementation of these provisions is currently ongoing in the Group.

Other aspects of IFRS 9: debt modification

The accounting treatment under IFRS 9 of debt modifications that do not result in derecognition was clarified by the IASB in July 2017. In such situations the only approach considered compatible with the currently adopted wording of IFRS 9 is to recognise an adjustment to the net income, corresponding to the change in the amortised cost of the debt at the restructuring date. This decision puts an end to the current practice (an IAS 39 option) of

spreading the expected saving (or additional expense) over the residual term of the modified debt, through a prospective adjustment to the effective interest rate applied.

The impact of retrospective application at 1st January 2018 of this clarification of IFRS 9 to all modifications of debts that do not result in their derecognition (because they are non-substantial) remains non-material for the Group.

1.2.2.3 IFRS 16 – Leases

IFRS 16, "Leases" was adopted by the European Union on 31 October 2017 and will be mandatory for financial years beginning on or after 1st January 2019. The Group has no plans for early application of this standard.

IFRS 16 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. Current contracts classified as "operating leases" are reported as off-balance sheet items. The Group's lease contracts essentially concern real estate assets (office and residential properties), industrial installations (land, wind farms) and to a lesser extent vehicles and IT equipment. The amount of the liability included in financial debt is thus noticeably dependent on the assumptions used regarding the discount rate and the duration of commitments, since options for renewal, extension or early termination of contracts must be incorporated into calculation of the liability if it is considered reasonably certain, when the contract is first signed, that they will be exercised.

The Group has worked to identify the impacts of application of IFRS 16 by sending a questionnaire to all the subsidiaries concerned to collect information about the features of leases classified as "operating leases" in existence at 31 December 2016, and updating the information at 31 December 2017. On this basis, the Group has analysed the standard in order to quantify its impacts on key consolidated totals (*i.e.* operating profit before depreciation and amortisation, consolidated net income, and net indebtedness) and the changes it may entail in reported information.

Data collection and analysis works are today currently being finalised. The assumptions concerning the duration of certain contracts are still being defined, and the Group is continuing its calculations regarding the impact of the first application of IFRS 16 on the balance sheet.

As a result of this work, the Group intends to apply the "modified" retrospective method (IFRS 16.C5.b).

The choice of appropriate IT systems to enable the Group to implement IFRS 16 is under consideration.

1.2.2.4 Amendments to IFRS 4

The amendments to IFRS 4 entitled "Applying IFRS 9 'Financial Instruments' with IFRS 4 "Insurance Contracts", applicable from 1 January 2018, were adopted on 3 November 2017. The potential impacts for the Group have not yet been evaluated.

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:

- IFRIC 22 "Foreign Currency Transactions and Advance Consideration" (application date: 1st January 2018). Subject to adoption by the European Union, this interpretation will be applied prospectively by the Group from 1st January 2018. This interpretation requires payment or receipt of a non-monetary advance in a foreign currency to be translated at the exchange rate of the transaction date, with no subsequent adjustment. Based on the analyses conducted to date, the Group considers that future application of IFRIC 22 will not have a significant impact on the EDF group's consolidated financial statements.
- IFRIC 23 "Uncertainty over Income Tax Treatments" (application date: 1st January 2019). IFRIC 23 clarifies the application of IAS 12 "Income Taxes" regarding recognition and measurement when there is uncertainty over the income tax treatment. Analyses are in process to estimate the potential impact of this interpretation.

- Amendments to IAS 28 "Investments in Associates" entitled "Long-term Interests in Associates and Joint Ventures" (application date: 1st January 2019). Analyses are in process to estimate the potential impact of these amendments.
- Amendments to IFRS 9 entitled "Prepayment Features with Negative Compensation", published by the IASB on 12 October 2017 (application date: 1st January 2019, early application allowed).
- IFRS 17 "Insurance Contracts" (application date: 1st January 2021).

In addition, the Group has not yet evaluated the potential impact of the following amendments:

- Amendments to IAS 40 "Investment property" entitled "Transfers of Investment Property" (application date: 1st January 2018);
- Amendments to IFRS 2 "Share-based Payment" entitled "Classification and measurement of share-based payment Transactions" (application date: 1st January 2018).

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 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.

The principal operations for which the Group uses estimates and judgments are the following:

1.3.2.1 Depreciation period of nuclear power plants in France

In the specific case of the 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.

During 2016, all the technical, economic and governance conditions for extending the depreciation period of 900MW series power plants were fulfilled. The Group therefore extended this period as of 1 January 2016 for all 900MW power plants, with the exception of Fessenheim (see note 3.7.1: 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 depreciation periods take into account the date of recoupling with the network after the most recent 10-year inspection.

1.3.2.2 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 depreciation period 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 2017 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.

1.3.2.3 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 2017 are presented in note 31. These assumptions are updated annually. The Group considers the actuarial assumptions used at 31 December 2017 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.

1.3.2.4 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.

1.3.2.5 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.

1.3.2.6 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 statistic models 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.

1.3.2.7 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 1.3.23 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.

1.3.2.8 Deferred tax assets

The use of estimates and assumptions over recovery horizons is particularly important in the recognition of deferred tax assets.

1.3.2.9 Other judgments

- 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.

  In particular, 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.

  Furthermore, 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.
- 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.

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 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.

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.

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.

1.3.7.1 Capacity mechanism

Capacity mechanisms have been set up in France and the UK to ensure secure power supplies during peak periods.

- French system: French law 2010-1488 of 7 December 2010 on the new organisation of the electricity market introduced an obligation in France to contribute to power supply security from January 2017.

  Operators of electricity generation facilities and load-shedding operators must have their capacities certified by RTE, and commit to a forecast level of availability for a given year of delivery. In return, they are awarded capacity certificates. Meanwhile, electricity suppliers and purchasers of power to compensate for networks losses (obligated actors) must have capacity certificates equivalent to consumption by their customers in peak periods.

  The system is completed by registers for trading of capacities between actors. Capacity auctions are held several times a year.

  The Group is concerned by both aspects of this system, both as an operator of electricity installations (EDF SA, Dalkia, EDF Energies Nouvelles) and as an electricity supplier (EDF SA, Électricité de Strasbourg) and a purchaser of power to compensate for networks losses (Enedis and Électricité de Strasbourg).

  The operations are recorded as follows:

  - Sales of certificates are recognised in income when the auctions or over-the-counter sales take place;
  - Stocks of certificates are stated either at their certification value (*i.e.* cost of certification by RTE) or at their purchase value on the markets;
  - Decreases in the stock of certificates are valued at the weighted average unit cost. The timing of recognition depends on the actor:
    - Operators of installations: when the auction sales take place;

- Obligated actors: spread on a straight-line basis over the 5-month peak period.

- For obligated actors, if there is a shortfall in the stocks of capacity certificates, a provision is recorded equivalent to the best estimate of the expense necessary to extinguish the obligation;
- At the closing date, if the realisable value of the stock of capacity certificates is lower than its net book value, impairment is recognised.

- British system: The British capacity mechanism is based on a system of auctions for operators, organised by the network operator 4 years prior to delivery. Capacity operators which have acquired certificates are remunerated in the year of delivery out of a fund consisting of contributions from electricity suppliers. This remuneration is recorded in sales revenues the same year.

  The electricity suppliers' contribution to this mechanism is proportional to their sales to customers in the peak period. This contribution is recognised in expenses over the peak period.

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 1st 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.

Any acquisition or disposal of an investment in a subsidiary 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.

Commitments given by the Group to purchase minority interests in Group-controlled companies are included in liabilities. For commitments of this kind given since 1st 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.

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 1.3.27);
- the positive value of energy purchase/sale contracts stated at fair value as part of a business combination governed by IFRS 3: this value is amortised as the contractual deliveries take place.
- assets related to concession contracts governed by IFRIC 12, under the "intangible model" (see note 1.3.13.2.4);
- technology related to activities as designer and supplier of nuclear steam supply systems and manufacturer of control rod clusters and nuclear fuel (Framatome) including codes and methods, EPR technology, patents and manufacturing processes, all amortised over their useful life;
- purchased customer contracts and relations, amortised over their useful life.

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 operator succeeding the grantor 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 1.3.11.2.3).

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 Assignment of receivables

When it can be demonstrated that the Group has transferred substantially all the risks and benefits related to assignment 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 1.3.27);
- 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, Dalkia and Framatome;
- 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, for waste removal and conditioning 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 and losses on completion;
- 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.

The revenues and margin on Framatome's long-term contracts are recorded under the percentage-of-completion method. When the estimated result upon completion is negative, the loss is immediately recorded in profit and loss, after deducting the loss already recognised under the percentage-of-completion method, and a provision is booked.

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 1.3.27).

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 other 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. In December 2017 a CARE section was also introduced in the BEGG pension plan, open to new employees in Nuclear Generation on equivalent terms to the corresponding section of the EEPS pension plan. 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 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 4.1%;
- amortisation of the grantor's financing is also discounted at the rate of 4.1%.

The following table shows the main impacts of this simulation for Enedis in 2017:

- Impacts on the income statement

(in millions of Euros and before taxes)	2017
Operating profit	152
Financial result	(377)
Income before taxes of consolidated companies	(225)

- Impacts on the balance sheet – equity

(in millions of Euros and before taxes)	2017
At opening date	1,977
At closing date	1,752

Valuation of concession liabilities under this method is subject to uncertainty over costs and disbursements, and is also sensitive to inflation and discount rates.

1.3.24 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.

1.3.25 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.

1.3.26 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 (see notes 1.3.13 and 1.3.23);
- 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).

1.3.27 Environment

1.3.27.1 Greenhouse gas emission rights

The system currently in force is described in note 49.1.

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.

1.3.27.2 Renewable energy certificates

The system currently in force is described in note 49.3.

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.

1.3.27.3 Energy savings certificates

The system currently in force is described in note 49.2.

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.

1.3.27.4 Environmental expenses

Environmental expenses are identifiable expenses incurred to prevent, reduce or repair damage to the environment that has been or may be caused by the Group as a result of its activities. These expenses are treated as follows:

- they are capitalised if they are incurred to prevent or reduce future damage or protect resources;
- they are booked as environmental liabilities and increases to provisions for environmental risks if they correspond to an obligation that exists at the year-end and it is probable or certain at the reporting date that they will lead to an outflow of resources;
- they are recognised as expenses if they are operating expenses for the bodies in charge of environmental concerns, environmental supervision, environmental duties and taxes, processing of liquid and gas effluents and non-radioactive waste, or research unrelated to an investment.

Note 2 Comparability

There were no accounting changes during 2017.

Note 3 Significant events and transactions

3.1 CAPITAL INCREASE BY EDF SA

On 30 March 2017, EDF undertook a cash capital increase with preferential subscription rights for existing shareholders.

The total gross amount of the increase (including the issue premium) was €4,018 million, and 632,741,004 new shares were issued at the unit issue price of €6.35. This total amount comprises:

- a €316 million increase in the share capital;
- a €3,702 million gross increase in the issue premium.

Issue expenses (net of taxes) are charged to the issue premium.

In accordance with its commitment, the French State subscribed for an amount of €3 billion or approximately 75% of the capital increase, and after this operation held 83.10% of the Company's share capital. The dilution of the French State's shareholding results in a larger free float, as the proportion of shares in the Company held by the public (including employees) was raised from 14.25% to 16.81% as a result of the capital increase.

3.2 ACQUISITION OF 75.5% OF FRAMATOME

Following approval of the operation by their respective Boards of Directors on 13 and 14 December 2017, AREVA SA and EDF signed definitive binding agreements on 22 December 2017 setting the terms for the sale to EDF on 31 December 2017 of an interest giving EDF exclusive control over a 100% subsidiary of AREVA NP ("New NP") that comprises the former AREVA Group's activities relating to the design and manufacturing of nuclear reactors and equipment, fuel assemblies and services to the nuclear installed base.

Under the terms of these agreements, EDF's acquisition of 75.5% of New NP's capital was based on an adjusted valuation of €2.47 billion (for 100% of the capital), with no transfer of financial debt. This price was equivalent to a 2017 forecast EBITDA multiple of 8x [1].

1 Normalised pro forma EBITDA for the activities acquired, excluding large projects.

This amount may be adjusted upwards or downwards based on the accounts at the completion date (31 December 2017) once they have been finalised. Depending on achievement of certain performance targets measured after the completion date, it may also be subject to earn-out payment of up to €245 million. EDF also benefits from liability guarantee clauses.

The contracts for the EPR Olkiluoto 3 project and the resources required to complete the project, as well as certain contracts relating to components forged in Le Creusot plant, are not part of EDF's acquisition and remain with AREVA NP, part of AREVA SA.

The signing of these binding agreements of 22 December 2017 followed issuance of a positive opinion by the Board of the French Nuclear Safety Authority (*Autorité de Sûreté Nucléaire* - ASN) on 28 June 2017 regarding commissioning of the Flamanville 3 reactor vessel. EDF decided on 12 July 2017 to waive the condition precedent concerning the absence of anomalies on the primary circuit as it concerned the carbon segregation identified in parts of this reactor vessel.

These agreements also followed the completion and satisfactory conclusion of the quality audits undertaken at the Le Creusot, Saint-Marcel and Jeumont plants, regarding contracts transferred to New NP. For these contracts, EDF has a guarantee from AREVA SA for any residual risk related to the quality audits.

On 31 December 2017, the Group completed its acquisition of 75.5% of Framatome.

Simultaneously with completion of this transaction between EDF and AREVA SA, Mitsubishi Heavy Industries Ltd and Assystem took investments of 19.5% and 5% respectively in Framatome.

The immunisation mechanisms and guarantees set out in the final share purchase agreement signed with EDF on 22 December 2017 also apply to Mitsubishi Heavy Industries Ltd and Assystem.

Finally, the three new shareholders of New NP decided to change the name of New NP to Framatome from 4 January 2018.

On 3 February 2018, Teollisuuden Voima (TVO) brought an action before the European General Court seeking cancellation of the European Commission's decision of 29 May 2017 that authorised EDF's takeover of Framatome, on the grounds that it breaches the regulation on control of concentrations. The notice of the action, which should state the pleas in law and the main arguments put forward by TVO, has not yet been published in the Official Journal of the European Union and EDF is not currently informed of its content.

3.2.1 History

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 of AREVA NP, while AREVA SA would hold up to 25% in a strategic partnership that could potentially involve other minority partners;
- Formation of a dedicated company (Edvance, created on 17 May 2017), owned 80% by EDF and 20% by AREVA NP (and now by Framatome), to optimise design 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.

A further non-binding memorandum of understanding was signed by the same parties on 28 July 2016, formally acknowledging the EDF Board of Directors' approval of the final valuation of the activities to be acquired by EDF, and taking note of new developments since early 2016, *i.e.*:

- 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 NP, over which EDF would acquire exclusive control: this company would take over the contracts held by AREVA NP except for the OL3 contract and certain other contracts involving risks that EDF did not intend to bear (see the following point);
- The cases of non-quality observed at AREVA NP's Le Creusot plant, whether insufficient control of carbon content ("carbon segregation") or the presence of 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 NP, specific indemnities and a general guarantee, quality audit-related conditions precedent for completion of the acquisition;

- AREVA NP was to remain a fully-owned subsidiary of AREVA SA, and would retain all its existing contracts that were not transferred to New NP.

In accordance with the terms of this memorandum of understanding, a share sale contract was signed on 15 November 2016 between EDF SA, and AREVA SA/AREVA NP.

Completion of the transaction remained conditional on:

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

3.2.2 Framatome's activities

The new Framatome group's activities are principally the following:

- Industrial design, production and installation of nuclear plant components for the existing nuclear fleet, and for management of major new reactor projects;
- Service activities to improve the availability and competitivity of nuclear installations, while reinforcing the safety of nuclear steam supply systems through production of instrumentation and control systems;
- Production of nuclear fuel assemblies for electricity operators and certain research reactors.

These activities are exercised through six business units, mostly located in France, Germany and the United States:

- *Engineering and Design Authority:* development, design, certification and licensing of nuclear steam supply systems and related services;
- *Large projects:* management and execution of new nuclear reactor projects, from engineering to project completion;
- *Installed Base:* maintenance and engineering services for existing nuclear fleets and fleets under construction;
- *Fuel:* development, design, licensing and production of fuel assemblies and core components for Pressurised Water Reactors (PWR), Boiling Water Reactors (BWR) and research reactors; development of zirconium products;
- *Components:* design and production of heavy equipment and mobile equipment for nuclear power plants;
- *Instrumentation and Control (I&C):* design and production of instrumentation and control systems for the safety for steam supply systems in operation and new builds.

EDF was a major customer of Framatome before the acquisition that was finalised on 31 December 2017, and will remain so after the operation (see note 48).

The EDF Group uses Framatome for production of its fuel assemblies, plant maintenance operations and equipment purchases (supply and installation of steam supply systems, etc).

Framatome is also the supplier of the steam supply system and instrumentation and control for EDF's new EPR reactors currently under construction (Flamanville 3 and Hinkley Point C), covering the whole process from initial design to commissioning.

3.2.3 Accounting treatment in the EDF consolidated financial statements

To form the Framatome group that was the target of this acquisition, AREVA SA undertook preliminary reorganisation operations involving the following principal steps:

- Partial assets contribution by AREVA NP to New NP SAS, excluding certain contracts concerning the Le Creusot plant (partial assets contribution agreement of 29 September 2017, with deferred effect to 31 December 2017); the transfer took place at real values based on a fairness opinion issued by an independent assessor, expert reports on certain identified assets, and a report by two independent valuation auditors *(commissaires aux apports)*;

- A sale of assets and liabilities (excluding assets attached to the Olkiluoto 3 project) by AREVA GmbH to New NP GmbH on 31 October 2017: this operation also took place at real values based on valuations by independent financial experts.

As a result of analysis of the governance arrangements and percentage ownership, Framatome is fully consolidated by the Group.

The acquisition of control over the activities of Framatome at 31 December 2017 led the Group to recognise Framatome's identifiable assets and liabilities at their fair value at the acquisition date in accordance with IFRS 3. The valuations are provisional and the Group has 12 months to finalise allocation of the purchase price.

The work done by EDF for the purchase price allocation was undertaken with the support of an independent financial valuation expert, and took into consideration the results of valuations performed as part of the preliminary reorganisations prior to the takeover of Framatome.

The acquisition on 31 December 2017 of 75.5% of Framatome is reflected in the Group's consolidated financial statements by recognition of provisional goodwill (measured under the partial goodwill method) of €1,257 million.

3.2.4 Items of Framatome's opening balance sheet in the EDF group's consolidated financial statements, and determination of goodwill

3.2.4.1 Determination of the provisional opening balance sheet

The fair value of Framatome's identifiable assets and liabilities is the Group's current best estimate. It was determined based on Framatome's available business plan, applying standard valuation methods

After including the fair values of assets acquired and liabilities assumed, the provisional opening balance sheet for Framatome at 31 December 2017 (for 100% of the capital) is as follows.

ASSETS

(in millions of Euros)	Provisional opening values
Goodwill	-
Other intangible assets	1,236
Property, plant and equipment	1,100
Investments in associates and joint ventures	92
Financial assets	176
Deferred tax assets	131
Inventories	565
Trade receivables	4,427
Current tax assets	5
Other receivables	613
Cash and cash equivalents	-
TOTAL ASSETS	8,345

EQUITY AND LIABILITIES

(in millions of Euros)	Provisional opening values
Capital	707
Consolidated reserves	103
Equity – Group share	**810**
Non-controlling interests	10
Total equity	**820**
Provisions	984
Financial liabilities	12
Deferred tax liabilities	141
Trade payables	460
Current tax liabilities	1
Other liabilities	5,927
TOTAL EQUITY AND LIABILITIES	8,345

This balance sheet for the Framatome subgroup is presented before elimination of positions with Group entities, which mainly concern trade receivables and other liabilities.

The main restatements resulting from fair value adjustments of the assets acquired and liabilities assumed concern intangible assets and affect the following items:

- Fair value adjustment of intangible assets in the amount of €554 million, comprising:
  - €132 million for the Framatome brand, valued by the royalty relief method. This brand is considered to have an indefinite useful life;
  - €156 million for customer relations, valued by the excess earnings method. When AREVA created the target Framatome group, some customer relations were stated at their real value of €246 million, leading to a total value of €402 million for customer relations. The useful life of these customer relations was determined for each business unit, giving an average of around 11 years;
  - €266 million for technology, valued by the royalty relief method: codes and methods, EPR technology, software, products, patents and trade secrets. When AREVA created the target Framatome subgroup, some of the technology was stated at its real value of €436 million, leading to a total value of €702 million for technology. The useful life of this technology was determined for each business unit, giving an average of 15 to 20 years.
- Net deferred taxes, in the amount of €(131) million:

Revaluation of deferred taxes only concerned the tax effects associated with fair value adjustments applied for the purposes of determining the opening balance sheet (€554 million before tax).

The main assumptions to which these opening balance sheet assets and liabilities are sensitive are:

- The royalty rate used to value the Framatome brand and the technology;
- The margin rate;
- The discount rate applied to future cash flows;
- The attrition rate for customer contracts.

3.2.4.2 Determination of provisional goodwill

The provisional goodwill recorded on the operation, under the partial goodwill method and based on a 75.5% ownership percentage, is determined as follows.

(in millions of Euros)	
Purchase price for the investment	1,868
Consideration transferred at 31 December 2017 (A)	**1,868**
Fair value of the Framatome assets acquired	611
130 **Fair value of assets acquired and liabilities assumed (B)**	**611**
PROVISIONAL GOODWILL (A)-(B)	1,257

The acquisition price used to calculate provisional goodwill is the adjusted provisional price paid when the transaction was completed.

The provisional goodwill recognised mainly corresponds to:

- Framatome's pre-existing customer relations with the EDF group (see note 3.2.2);
- Framatome's future customer relations (with EDF and external customers) and technologies;
- Framatome's human capital.

3.2.4.3 Non-controlling interests

Framatome's non-controlling interests, amounting to €199 million at 31 December 2017, consist of the shareholders Mitsubishi Heavy Industries (19.5%) and Assystem (5%). These shareholders acquired their interests on 31 December 2017.

3.2.5 Impact of the operation on the Group's net income and net indebtedness

The acquisition of Framatome has no impact on the Group's net income in 2017, due to the acquisition date (31 December 2017).

The acquisition price paid, €1,868 million[1], leads to an equivalent increase in the Group's net indebtedness at 31 December 2017. The operation took place on the basis that no financial net indebtedness would be transferred.

3.2.6 Impact of acquisition of control over Framatome on the Group's key indicators for 2017

The Framatome subgroup is a new subgroup established for the purpose and at the date of the operation (see note 3.2.3). The figures shown below are thus the best estimates for the activities taken over in the acquisition, taking into consideration operations with the EDF Group.

On this basis, if the acquisition had taken place at 1st January 2017 instead of 31 December 2017, full consolidation of Framatome from 1st January 2017 (excluding the effects of purchase price allocation) would have led to an increase in Group sales and operating profit before depreciation and amortisation of approximately €1.7 billion and €0.2 billion respectively.

Framatome expects its operating profit before depreciation and amortisation to increase in 2018 due to growth in non-Group sales and better control of costs (particularly costs related to non-quality and corporate costs).

[1] *Based on a price of €2,475 million for 100% of the capital.*

3.3 CLARIFICATIONS ON THE HINKLEY POINT C PROJECT

The HPC project cost and timetable review undertaken after EDF's final investment decision in September 2016 in conjunction with the project company (NNB) concluded that:

- The milestone of the first nuclear safety concrete for the building of Unit 1, scheduled for mid-2019, is confirmed provided that the final design, which is on a tight schedule, is settled by the end of 2018.
- Project completion costs are now estimated at £19.6 billion (in 2015 sterling[1]), £1.5 billion (in 2015 sterling) more than previous estimates. This new estimate assumes successful completion of operational action plans, in partnership with suppliers. The estimated additional costs[2] result mainly from a better understanding of the design, which has been adjusted to meet the regulators' requirements, the volume and sequencing of work on site and the gradual implementation of supplier contracts. EDF's projected rate of return (IRR) is now estimated at about 8.5% compared to about 9% initially
- The risk of deferral of the Commercial Operation Date (COD) is estimated at 15 months for Unit 1 and 9 months for Unit 2. This risk would entail an additional potential cost of around £0.7 billion (in 2015 sterling). In such a case, the IRR for EDF would be around 8.2%.

The project company NNB will examine and implement the recommendations of the review in compliance with its rules of governance.

The project management team is working hard to meet the initial delivery objective of the end of 2025 for Unit 1, and to identify and implement action plans to reduce costs and risks.

3.4 DISPOSAL PLAN

3.4.1 Finalisation of the sale of 49.9% of CTE

On 31 March 2017, EDF finalised the sale to Caisse des Dépôts and CNP Assurances of a 49.9% stake in the electricity transmission entity *Coentreprise de transport d'électricité* (CTE, formerly C25), which has held 100% of RTE since December 2016.

After completion, EDF, Caisse des Dépôts and CNP Assurances hold respective stakes of 50.1%, 29.9% and 20.0% in CTE.

The sale was based on a valuation of €8.2 billion for 100% of RTE.

The new shareholder agreement strengthens RTE's long-term investment strategy, which seeks to maximise transmission system infrastructure efficiency in support of the energy transition.

Impacts on the consolidated financial statements

This operation has an impact of €1,462 million on other income and expenses (€1,289 million on consolidated net income), and contributed to a decrease of approximately €4 billion in the EDF group's net indebtedness.

Previously, the 49.9% share of CTE's balance sheet items due to be sold was classified as assets and liabilities held for sale at 31 December 2016.

Following this operation, EDF's 50.1% investment in CTE, stated at historic value, is accounted for under the equity method and entirely allocated to the dedicated asset portfolio.

1 Excluding interest during construction and forex effects versus the reference exchange rate for the project: £1 = €1.23.
2 Net of action plans.

3.4.2 Completion of the sale of EDF Polska's assets to PGE

On 13 November 2017, EDF finalised the disposal of EDF Polska's assets (heat and electricity cogeneration, and electricity generation)[1] to PGE Polska Grupa Energetyczna SA[2].

This operation followed the issuance of all regulatory approvals and authorisations required under the sale agreement signed between EDF and PGE on 19 May 2017.

The transaction was based on a valuation of approximately 6.1 billion zlotys (€1.4 billion[3])[4] for 100% of EDF Polska. It contributes to a €1.0 billion reduction in the EDF Group's net indebtedness.

This transaction has no significant effect on the Group's income statement.

The EDF Polska business assets concerned were classified as assets and liabilities held for sale at 31 December 2016.

3.4.3 Sale of 100% of EDF Démász Zrt.

On 31 January 2017, EDF and ENKSZ finalised the sale of the total capital of EDF Démász, following approval of the operation by the Hungarian energy sector regulator and the French Ministry for the Economy.

The transaction valued EDF's 100% stake in EDF Démász at approximately €400 million, and had no significant effect on the Group's income statement.

3.4.4 EDF Trading and JERA: Sale of the coal trading business

Following the contractual agreements signed on 21 December 2016 with JERA Trading Singapore ("JERA TS"), in April 2017 EDF Trading acquired one third of the shares in the new trading company ("JERA Trading"), to which it sold several assets related to its coal business during the year 2017, with further sales due to take place in the near future.

This operation has no significant effect on the Group's income statement at 31 December 2017.

3.5 ¥137 BILLION SAMURAI BOND ISSUE

On 20 January 2017, EDF raised ¥137 billion, *i.e.* around €1.1 billion, through 4 senior bond issues 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 financing its renewable investments, EDF opened the Samurai green bond market, continuing its active contribution to the development of green bonds as financing instruments for the energy transition.

1 The transaction concerned the Rybnik generation plant, the coal cogeneration plants of Krakow, Czechnica, Gdansk, Gdynia, Torun and Wroclaw, and the gas fired cogeneration plants of Zawidawie and Zielona Gora. These power plants have a total installed capacity of 4.4GWth and 1.4GWe. The transaction also included the heat distribution networks of Czechnica, Torun, Zawidawie and Zielona Gora. The Wroclaw plant, the cogeneration plants and heat distribution networks of Czechnica, Zawidawie and Zielona Gora were held indirectly through a 50% + 1 share stake via Kogeneracja.
2 PGE is owned 58% by the Polish state and is the country's largest electricity producer.
3 As of 31 December 2016.
4 Representing 4.9 billion zlotys (approximately €1.1 billion) after deduction of minority interests.

3.6 UNCONSTITUTIONALITY OF THE 3% CONTRIBUTION ON DIVIDEND DISTRIBUTIONS

The contribution on dividend distributions introduced in France in 2012, amounting to 3% of the amounts distributed, is a tax on companies that make cash distributions.

After legal challenges, the Constitutional Council ruled on 6 October 2017 that this contribution was unconstitutional because it is contrary to the principle of equality before the law and public charges, since it created differences in tax treatment on the sole basis of the origin (and nature) of the profits distributed.

The EDF group filed claims for refunds of €220 million for the years 2013 to 2017, and in 2017 it recognised a tax receivable of €255 million for the companies concerned, including €35 million of interest on arrears. At 31 December 2017, the Group received a partial refund of these claims from the state, totalling €235 million.

3.7 SIGNIFICANT EVENTS AND TRANSACTIONS OF 2016

3.7.1 Extension to 50 years of the depreciation period of the 900MW PWR series in France [1]

In 2016, the Group considered 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 were fulfilled.

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

The Group 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 remained to be finalised, the components of these inspections were in a convergence process with the ASN. This was 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.

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 offered clearly positive returns that are higher than in a 40-years 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).

The best estimate for the depreciation period of the 900MW series is now 50 years. This 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 1st January 2016 for all its power plants in the 900MW series in France, except for Fessenheim.

The impacts on the 2016 consolidated financial statements were the following:

- At 1st January 2016,
  - provisions relating to nuclear power generation were reduced by €2,044 million due to timing differences in the payment schedules, including €1,657 million concerning provisions covered by dedicated assets;
  - assets were reduced by the same amount, in accordance with IFRIC 1. This decrease was almost entirely taxable, generating a current tax liability of €679 million.

1. Except for Fessenheim

- The impacts on 2016 net income were estimated based on an unchanged depreciation period of 40 years:
  - a €965 million decrease in the depreciation charge due to the reduction in the value of assets and the extension of the depreciation period;
  - a €90 million decrease in the cost of unwinding the discount due to the reduction in provisions ;
  - a €42 million decrease in income due to the lower level of partner advances made to EDF under the nuclear plant financing plans;
- these effects led to overall increases of €1,013 million in the income before taxes, and €664 million in consolidated net income.

3.7.2 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.

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

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 (CfD) 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.

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 remained fully consolidated and the operation had 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.

3.7.3 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.

3.7.4 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.

3.7.5 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 to be borne after shutdown of the reactor and the end of operations (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 63.2GW, 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.

Note 4 Regulatory changes in France

4.1 REGULATED ELECTRICITY SALES TARIFFS IN FRANCE

"Blue" tariffs

Since 8 December 2015, in accordance with the NOME Law on organisation of the French electricity market (articles L337-4 and L337-13 of the French Energy Code), the CRE has been responsible for sending the ministers for the economy and energy its reasoned proposals for regulated sales tariffs for electricity. If no objections are made within three months, the proposals are deemed to have been approved

The tariff change of summer 2017 followed this process; and by a decision of 27 July 2017 confirming the CRE's proposal of 6 July 2017, the "blue" regulated tariffs for residential and non-residential customers (excluding taxes) were raised by 1.7% from 1st August 2017.

In preparing its tariff revision in 2017, the CRE undertook an audit of the allocation of EDF's selling costs, to confirm proper application of the methodology ensuring that regulated sales tariffs do not bear development costs for market-price offers by EDF. This point was publicly confirmed in the CRE's decision of 6 July 2017 containing its tariff change proposal.

Appeals against the tariff changes of 2016 and 2017 have been brought before the Council of State by Anode and Engie.

4.2 "TURPE" NETWORK ACCESS TARIFFS

TURPE 5 Transmission and Distribution tariffs

On 17 November 2016, the CRE published its decisions for the TURPE 5 Transmission and TURPE 5 Distribution tariffs for the period 2017-2020. The new TURPE 5 tariff scale took effect on 1st August 2017.

- The TURPE 5 Transmission tariff includes a 6.76% tariff increase which took effect on 1 August 2017, with subsequent rises due on 1 August in the years 2018 to 2020, based on average inflation observed over the previous calendar year, adjusted by a correcting factor to balance the income and expenses adjustment account (CRCP) [1]. The TURPE 5 Transmission tariff sets the weighted average cost of capital (WACC) at 6.125% for the return on RTE's asset base versus 7.25% for TURPE 4.
- The TURPE 5 Distribution tariff includes a 2.71% tariff increase which took effect on 1 August 2017, with subsequent rises due on 1 August in the years 2018 to 2020, based on average inflation observed over the previous calendar year, adjusted by a correcting factor to balance the CRCP. The TURPE 5 continues to use the previous method for calculating cost of capital, setting the margin on assets at 2.6% and the return on regulated equity at 4.1%.

The CRCP income and expenses adjustment account

The income and expenses adjustment account (CRCP) is a non-accounting mechanism that has existed since the TURPE 2 tariffs to monitor differences between the actual figures for clearly-identified income and expense items and the forecasts on which tariffs are based, and to take account of financial incentives resulting from application of the regulatory incentive systems included in the tariff.

The CRCP is cleared at each tariff change on 1 August, leading to adjustment of the annual tariff movement (upward adjustment if there is a shortfall compared to the tariff, or downward adjustment if there is a surplus compared to the tariff).

Publications in the *Journal officiel* and appeals

By a decision of 12 January 2017 published in the *Journal officiel* of 17 January 2017; the French minister for energy, acting within the two-month response period, requested a new decision from the CRE as she considered that the decision of 17 November 2016 had not taken national energy policy orientations into consideration.

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

In a new decision of 19 January 2017, the CRE reiterated its initial decision of 17 November 2016. Both decisions were published in the *Journal officiel* of 28 January 2017. On 2 February 2017, Enedis filed an application before the Council of State for cancellation of these two CRE decisions.

On 3 February 2017, EDF, in its capacity as the shareholder of Enedis, also filed an application before the Council of State for cancellation of the same CRE decisions.

Supplier commissioning

The CRE complemented its decision of 17 November 2016 with a decision of 26 October 2017 published in the *Journal officiel* of 14 December 2017 concerning the remuneration payable by Enedis to suppliers for customer management under a single contract ("supplier commissioning"). Noting the amendments to the French Energy Code resulting from Law 2017-1839 of 30 December 2017 "ending the search and operation of conventional and non-conventional hydrocarbons and introducing measures concerning energy and the environment", particularly as regards the CRE's competence for supplier commissioning, the CRE issued a new decision on 18 January 2018, due to be published in the *Journal officiel* in the next few weeks, reiterating all of its decision of 26 October 2017.

The content of these decisions upholds the principle of identical commissions for all suppliers selling single-contract market-price offers. Only regulated tariffs will give rise to slightly lower commissions (around €2 per delivery point), and this difference will be progressively reduced to zero over a period of 5 years.

For remuneration of past customer management charges (prior to 1st January 2017), the CRE's decision sets an amount it considers as a cap that can be taken into consideration through the TURPE.

Law 2017-1839 of 30 December 2017 mentioned above introduces a measure intended to rule out the possibility of suppliers receiving remuneration from network managers for past customer management services.

On 23 December 2016, Engie brought action against Enedis before the Paris Commercial Court claiming such remuneration. These legal proceedings are ongoing.

Electricity Equalisation Fund

On 30 November 2017 the CRE published its consultation 2017-017 on the levels of contribution to be made to the Electricity Equalisation Fund for EDF SEI for the years 2018 to 2021. This consultation takes into consideration both the remuneration levels and the expected regulation framework for EDF SEI.

The associated decision is expected in early 2018.

4.3 COMPENSATION FOR PUBLIC ENERGY SERVICE CHARGES (CSPE)

Legal and regulatory framework

The compensation mechanism for public energy service charges (*compensation des Charges de Service Public de l'Energie*) results from a reform introduced by France's amended finance law for 2015, published in the *Journal officiel* on 30 December 2015. Under the legislative and regulatory framework, the public energy service charges (electricity and gas) were to be compensated *via* two State budget items included in France's finance laws from 2016 onwards. The initial finance law for 2018 marks a continuation from 2017, defining the following charges for 2018:

- a special "Energy Transition" budget item of €7.2 billion, principally to compensate for the additional costs associated with all contracts obliging the operators to purchase renewable energies and biogas, the annual contribution to repayment of the accumulated shortfall in compensation due to EDF, and reimbursement of advances to industrial operators who benefited from ceilings for their CSPE tax prior to 2016;
- a "Public Energy Service" item of €3 billion in the general budget to cover solidarity charges borne by gas and electricity suppliers, costs associated with purchase obligations excluding renewable energies (essentially cogeneration), and the cost of applying the standard national tariffs to zones that are not connected to France's mainland network. The interest on the accumulated shortfall to be repaid to EDF is also funded through the general budget.
- From 2018, the "basic necessity" rates for electricity and the "special solidarity" rates for gas will gradually be phased out and replaced by an energy voucher system. The cost of this system will no longer be borne by

EDF SA, although it has been budgeted by the State in the "Public Energy Service" programme. However, EDF will bear charges in 2018 due to the timing of invoicing for 2017 basic necessity rates.

In 2018, this mechanism is funded as follows:

- the costs linked to the energy transition, which correspond to the subsidy mechanisms for renewable energies, and the reimbursement of the past accumulated shortfall in compensation borne by EDF as measured at 31 December 2015, are registered in a special "energy transition" budget item created by the amended finance law for 2015. Law no. 2016-1917 of 29 December 2016 (the finance law for 2017) stipulated that the two sources of additional funding for this special budget item would be a portion of the domestic tax on coal, lignite and coke (TICC), and a portion of the domestic tax on energy products (TICPE). The finance law for 2018 replaces the percentages of the TICC and TICPE by a set amount, to avoid the uncertainties of forecast income from these taxes, and broadens the sources of funding for the "Energy transition" Budget item to include the proceeds of auctions of Guarantees of Origin as allowed by article L.314-14-1 of the Energy Code.
- other public service charges – excluding costs associated with the subsidy mechanisms for renewable energies (fuel poverty, tariff equalisation in zones that are not connected to France's mainland network, cogeneration, the budget for the energy ombudsman, etc.) are registered directly in the general budget.
- income generated by the domestic tax on the final consumption of electricity, now renamed the Contribution to Public Electricity Service (*Contribution au Service Public de l'Electricité* - CSPE) goes directly into the general budget. The CSPE is collected directly from final consumers of electricity in the form of an additional levy on the electricity sale price (and collected from electricity suppliers), or directly from electricity producers that produce electricity for their own uses.

  The level of the CSPE is set at the same level in 2018 as in 2017 with the full rate at €22.5/MWh, and seven reduced rates ranging from €7.5/MWh to €0.5/MWh depending on criteria of electro-intensiveness, business category and the risk of carbon leakage from installations (the risk of industries relocating to countries where greenhouse gas emissions are higher due to their electricity mix).

The costs associated with conclusion and management of purchase obligation contracts are eligible for compensation in 2018, as they were in 2017. This concerns an annual amount of around €45 million.

The amended French finance law for 2017 applied a downward adjustment to the amounts of compensation paid by the State for public service charges in 2017: these charges had decreased substantially due to a rise in electricity market prices between the July 2016 and July 2017 estimates for 2017, which automatically narrowed the differential between the purchase tariff and the market price for electricity.

Public service charges borne by EDF

The amount of expenses (excluding the annual contribution to repayment and associated interest) to be compensated to EDF for 2017 is €6,558 million, up slightly from 2016 due to higher wind and solar power output. The amounts received over 2017 (excluding the annual contribution to repayment and associated interest) totalled €7,065 million, higher than 2016, mainly as a result of the State's decision to defer the €414 million compensation payment to EDF out of the "Energy Transition" budget item. The effects of this deferral on funding *via* the "Energy Transition" budget item for 2017 were adjusted through a budget carryover decision of 28 March 2017.

A repayment schedule for EDF's receivable corresponding to the accumulated shortfall in compensation, which amounted to €5,780 million at 31 December 2015, was set out in the ministerial decision of 13 May 2016, amended on 2 December 2016. Under this schedule the receivable will be fully repaid by 2020. On 22 December 2016 EDF securitised a portion of this receivable (€1.5 billion) through a State-approved "Dailly law" assignment. Consequently, since 1st January 2017 EDF has received a 73.6% share of payments made by the State in reimbursement of the receivable as set out in the repayment schedule. The remainder is paid directly to the assignees.

At 31 December 2017, the State had paid €881 million of the €904 million due for 2017. The outstanding €23 million were paid on 2 January 2018.

Finally, in accordance with decree 2016-158 of 18 February 2016 concerning compensation for public energy service charges, on 13 July 2017 the CRE published a decision recording the public service charges for 2016 (€6,345 million) and providing a revised forecast of charges for 2017 (€6,698 million) and a forecast of charges for 2018 (€7,390 million).

4.4 FRENCH CAPACITY MECHANISM

On 13 November 2015, the European Commission opened an in-depth investigation into the proposed French capacity mechanism in order to decide whether it complied with EU state aid rules.

On 8 November 2016, the European Commission authorised France's proposals for its capacity mechanism. In the course of the investigation France had agreed to modify its mechanism in the following ways: introducing long-term (7-year) contracts for new capacities, admitting foreign capacities, and taking measures to prevent any market manipulation.

Two auctions of capacity for 2017 were held on the European Power Exchange EPEX SPOT, on 15 December 2016 and 27 April 2017. The volumes traded and the prices between obligated capacity purchasers and operators selling capacity amounted to 22.6GW in December 2016 for the price of €10/kW (the market reference price for 2017) and 0.5GW in April 2017 for the price of €10.42/kW.

The capacity price is passed on to customers through their contracts with EDF as supplier, or with other suppliers. This price is already included in bills for customers on market-price contracts. For customers on regulated sales tariffs, the cost of capacity was incorporated into the tariff change of 1st August 2017.

Auctions for 2018 capacities took place in November 2017 (10.96GW were traded at the price of €9.31 / kW) and December 2017 (10.25GW were traded at the price of €9.38/kW), determining the market reference price for 2018 as €9.34/kW.

The first capacity auction relating to 2019 was also held in December 2017, and concerned a volume of 1.22GW traded at the price of €13/kW.

In 2018, additional auctions will take place concerning capacity for 2017 and 2018 (rebalancing between actors) and later years (2019 to 2022).

4.5 REGULATED GAS SALES TARIFFS IN FRANCE

By a decision of 19 July 2017 the Council of State cancelled the decree of 16 May 2013 concerning regulated sales tariffs for natural gas, on the grounds that keeping tariffs at such levels is contrary to European Union law. These gas tariffs did not meet the requirements laid down by directive 2009/73/EC, and in particular they did not pursue any objective in the general economic interest.

However, while this decision cancelled the disputed decree, it did not cancel the regulatory provisions of the Energy Code concerning regulated gas sales tariffs, which took effect on 1st January 2016.

Therefore, as things currently stand the regulated sales tariffs for gas remain in force until the Prime Minister takes steps to have those provisions repealed.

4.6 ENERGY SAVINGS CERTIFICATES: FOURTH PERIOD (2018-2020)

Decree 2017-690 of 2 May 2017 issued by the French Ministry for the Environment, Energy and the Sea, published in the *Journal officiel* on 3 May 2017, sets the obligation levels for the fourth period of energy savings obligations to run from 1st January 2018 to 31 December 2020. The overall level of obligations for this three-year period is substantially increased by the decree: 1,200TWhc for the "standard" obligations and 400TWhc for the obligations that are to benefit households in situations of energy poverty, compared to 700TWhc and 150TWhc respectively for the previous period.

Energy sellers may fulfil their obligation in three ways: by supporting consumers in their energy efficiency operations, funding ministry-approved energy savings certificate schemes, and purchasing certificates from eligible actors. Any surplus "stock" of certificates gained in the previous period also contributes to fulfilment of the obligation. If there is a shortfall at the end of the period, obligated actors must pay the Treasury the fine of €15 per MWhc of shortfall laid down in article L221-4 of the Energy Code, approximately three times the current cost of the standard obligation.

The EDF group will make every effort to gradually increase its number of certificates in order to meet the objectives set by the State. However, the significant increase in obligations combined with the current lack of depth in the

energy savings certificates market, whose future liquidity is uncertain, expose the Group to the risk of a shortfall in certificates for the fourth period.

4.7 ARENH

After the large number of ARENH applications in November/December 2016, confirmed in the May 2017 session, for a total delivery of some 82TWh in 2017, ARENH applications in November 2017 for 2018 deliveries totalled €94.6TWh. Applications due to network losses rose substantially (from 0.7TWh in 2017 to 9.2TWh in 2018) due to a recent change in the rules. The volume requested by alternative suppliers increased by around 4TWh over 2017.

This subscription volume results from the prices in force since the end of the third quarter of 2017 for 2018 deliveries, and is also attributable to the fact that ARENH includes delivery of a capacity guarantee.

Note 5 Changes in the scope of consolidation

The main changes in the scope of consolidation during 2017 are presented in note 3 (Framatome, partial sale of CTE and sales of EDF Polska, Démász Zrt and Jera) and in this note.

5.1 TAKEOVER OF FUTUREN

In June and July 2017, EDF Énergies Nouvelles acquired 87.5% of the capital (240,855,625 shares) and 87.2% of voting rights in Futuren, and 62.7% of OCEANE convertible bonds still outstanding (105,601 bonds). These acquisitions took place in accordance with the agreement of 10 May 2017 signed with Futuren's majority shareholders, after a simplified public tender offer of €1.15 per ordinary share and €9.37 per OCEANE convertible bond (ex coupon).

The Futuren group is specialised in onshore wind power. It operates in four countries, with 389MW gross capacity of wind power facilities in operation (France, Germany, Italy and Morocco), 21MW under construction (France); 212MW in development (France) and 357MW under management (Germany).

The Futuren group's consolidated financial statements at 30 June 2017 reported half-yearly EBITDA of €17 million and equity of €180 million.

The Futuren group has been fully consolidated since 30 June 2017.

5.2 DALKIA GROUP: SALE OF INVESTMENTS IN COGESTAR 1, 2 AND 3

Amundi Transition Energétique (ATE), the asset management company jointly owned by EDF and Amundi, acquired an investment in Cogestar 3 on 22 December 2017, corresponding to 70% of its capital, for €15 million. Dalkia retains 30% and remains the sole service provider to Cogestar 3 for the entire lifetimes of the cogeneration assets it owns.

The analysis of the voting rights and governance of Cogestar 3 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 by Cogestar 3 (consisting entirely of bonds convertible into shares) for the total amount of €48 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.

ATE had acquired a 70% stake in each of Cogestar 1 and Cogestar 2 in 2016 through its subsidiary Edulis Finance for an amount of €53 million, in an operation that also included an issue of bonds convertible into shares for the total amount of €86 million, subscribed by ATE.

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 the acquisition of Framatome on 31 December 2017 (see note 3.2), the Group has created a new operating segment, "Reactors and Services (Framatome)".

The Group uses the following segments:

- "France – Generation and Supply";
- "France – Regulated activities": distribution, transmission, EDF's island activities and the activities of Electricité de Strasbourg;
- "Reactors and Services (Framatome)": this segment reports the balance sheet items of the Framatome subgroup following its acquisition at 31 December 2017;
- "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, and EDF Investissements Groupe.

No segments have been merged.

6.1.1 At 31 December 2017

(in millions of Euros)	France – Generation and Supply	France – Regulated activities	Reactors and Services (Framatome)	United Kingdom	Italy	Other international	Other activities	Inter-segment eliminations	Total
Income statements:									
External sales	34,533	5,732	-	8,681	9,918	4,649	6,119		69 632
Inter-segment sales	1,073	10,164	-	7	22	173	1,694	(13,133)	-
TOTAL SALES	**35,606**	**15,896**	**-**	**8,688**	**9,940**	**4,822**	**7,813**	**(13,133)**	**69,632**
OPERATING PROFIT BEFORE DEPRECIATION AND AMORTISATION	**4,876**	**4,898**	**-**	**1,035**	**910**	**457**	**1,566**	**-**	**13,742**
OPERATING PROFIT	**3,039**	**2,035**	**-**	**(296)**	**(96)**	**314**	**641**	**-**	**5,637**
Balance sheet:									
Goodwill	-	223	1,257	7,586	18	15	937	-	10,036
Intangible assets and property, plant and equipment	50,344	59,008	2,336	14,074	6,396	2,155	12,550	-	146,863
Investments in associates and joint ventures [(1)]	1,990	-	92	114	67	3,812	1,174	-	7,249
Other segment assets [(2)]	28,909	3,904	1,694	4,306	2,405	628	7,433	-	49,279
Assets classified as held for sale	-	-	-	-	-	-	-	-	-
Other non-allocated assets	-	-	-	-	-	-	-	-	67,325
TOTAL ASSETS	**81,243**	**63,135**	**5,379**	**26,080**	**8,886**	**6,610**	**22,094**	**-**	**280,752**
Other information:									
Net depreciation and amortisation	(3,128)	(2,797)	-	(1,097)	(603)	(246)	(666)	-	(8,537)
Impairment	(73)	-	-	(246)	(150)	(19)	(30)	-	(518)
Equity (non-controlling interests)	-	39	209	5,109	370	407	1,208	-	7,342
Investments in intangible assets and property, plant and equipment	5,831	4,003	-	2,408	457	325	1,723	-	14,747

(1) At 31 December 2017*, investments in associates and joint ventures include 50.1% of the interests in CTE (the joint venture holding RTE's shares) which is now part of the France – Generation and Supply segment.*

(2) 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 €1,147 million.

6.1.2 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 [(1)]	355	2,558	59	104	4,587	982	-	8,645
Other segment assets [(2)]	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) At 31 December 2016, investments in associates and joint ventures included figures for RTE in the France – Regulated Activities segment.
(2) 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.

6.2 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
2017 :				
External sales :				
- France [1]	24,832	15,352	80	40,264
- International and Other activities	24,201	-	5,167	29,368
SALES	**49,033**	**15,352**	**5,247**	**69,632**
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**

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

Note 7 Sales

Sales are comprised of:

(in millions of Euros)	2017	2016
Sales of energy and energy-related services	66,835	68,128
Other sales of goods and services	2,193	2,051
Trading	604	1,024
SALES	69,632	71,203

After elimination of changes in foreign exchange rates and the scope of consolidation, the downturn observed in 2017 (-1.0%) is principally attributable to lower sales in Italy, partly offset by higher sales in France.

In Italy, sales declined due to the lower volumes of electricity and gas sold, especially on the wholesale markets, although there was no significant impact on the margin.

In France, generation and supply activities registered a rise in sales in 2017 reflecting high ARENH subscriptions in 2017 (82.1TWh) whereas 2016 had no subscriptions. This rise is partly offset by the effects of retroactive adjustments to regulated sales tariffs for the period 1 August 2014 to 31 July 2015, recorded in 2016 in the amount of €1,030 million, which had no equivalent in 2017.

Note 8 Fuel and energy purchases

Fuel and energy purchases comprise:

(in millions of Euros)	2017	2016
Fuel purchases used - power generation	(12,473)	(12,639)
Energy purchases	(16,723)	(14,805)
Transmission and delivery expenses	(8,968)	(9,017)
Gain/loss on hedge accounting	80	(110)
(Increase)/decrease in provisions related to nuclear fuels and energy purchases	443	521
FUEL AND ENERGY PURCHASES	(37,641)	(36,050)

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.

The increase in energy purchases is principally explained by the sourcing of ARENH subscriptions in France as nuclear power output was declining. This increase was partly counterbalanced by a decline in purchases in Italy, in line with the change in sales.

Note 9 Other external expenses

Other external expenses comprise:

(in millions of Euros)	2017	2016
External services	(11,678)	(11,177)
Other purchases (excluding external services, fuel and energy)	(2,706)	(2,486)
Change in inventories and capitalised production	5,485	4,728
(Increase)/decrease in provisions on other external expenses	160	33
OTHER EXTERNAL EXPENSES	(8,739)	(8,902)

After elimination of changes in foreign exchange rates and the scope of consolidation, other external expenses declined by around 3.1% from 2016, mainly in the France-Generation and Supply segment.

Note 10 Personnel expenses

10.1 PERSONNEL EXPENSES

Personnel expenses comprise:

(in millions of Euros)	2017	2016
Wages and salaries	(7,790)	(7,860)
Social contributions	(1,844)	(1,885)
Employee profit sharing	(223)	(218)
Other contributions related to personnel	(383)	(366)
Other expenses linked to short-term benefits	(212)	(242)
Short-term benefits	**(10,452)**	**(10,571)**
Expenses under defined-contribution plans	(938)	(939)
Expenses under defined-benefit plans	(994)	(839)
Post-employment benefits	**(1,932)**	**(1,778)**
Other long-term expenses	(83)	(190)
Termination payments	11	(4)
Other personnel expenses	**(72)**	**(194)**
PERSONNEL EXPENSES	(12,456)	(12,543)

10.2 AVERAGE WORKFORCE

	2017	2016
IEG status	100,185	103,275
Other	50,888	51,533
AVERAGE WORKFORCE	151,073	154,808

The Group's average workforce presented in the above table does not include the effect of acquisition of Framatome, due to the date of the acquisition (31 December 2017).

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 3.7.3.3, "Social indicators".

Note 11 Taxes other than income taxes

Taxes other than income taxes break down as follows:

(in millions of Euros)	2017	2016
Payroll taxes	(267)	(265)
Energy taxes	(1,518)	(1,566)
Other non-income taxes	(1,756)	(1,825)
TAXES OTHER THAN INCOME TAXES	(3,541)	(3,656)

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	2017	2016
Operating subsidies	12.1	6,823	6,765
Net income on deconsolidation	12.2	214	290
Gains on disposal of fixed assets	12.2	57	108
Net increase in provisions on current assets		42	(17)
Net increase in provisions for operating contingencies and losses		137	41
Other items	12.3	(786)	(825)
OTHER OPERATING INCOME AND EXPENSES		6,487	6,362

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 €6,547 million for 2017 (€6,510 million for 2016).

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

In 2017, 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 €180 million (€357 million for 2016);
- gains on sales of real estate assets in France and Italy, amounting to €307 million (€230 million in France for 2016).

12.3 OTHER ITEMS

Other items are stable compared to 2016, and notably include losses on non-recoverable operating receivables and costs associated with the Energy Savings Certificates used or consumed over the year.

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	2017	2016
Impairment of goodwill	18	-	-
Impairment of other intangible assets	19	(16)	(159)
Impairment of tangible assets and discontinued operations	21-22-46	(502)	(480)
IMPAIRMENT NET OF REVERSALS		(518)	(639)

In 2016, the €(639) million of impairment recorded concerned:

- thermal assets: €(269) million (principally in Poland, but also in the United Kingdom and France);
- some of Edison's exploration and production fields and hydropower assets: €(160) million;
- various CGUs of EDF Energies Nouvelles (particularly a biogas plant in the United States): €(127) million;
- other impairment on specific assets: €(83) million.

Impairment of €(481) million was also booked in respect of associates (see note 23).

In 2017, impairment amounts to €(518) 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 2017, and some of the key assumptions used.

As reported in note 3.2, the Group finalised the acquisition of 75.5% of the capital of Framatome on 31 December 2017. The assets acquired, mainly goodwill, intangible assets and property, plant and equipment, were recorded at fair value at 31 December 2017.

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 2017 *(in millions of Euros)*
United Kingdom	EDF Energy goodwill	7,586	6.3%	-	-
Italy	Edison brand	945	6.4% - 9.1%	2.0%	-
Other activities	Dalkia goodwill Dalkia brand	536 130	4.6% 5.1%	1.5% 1.5%	-
Other impairment of goodwill	Specific assets - France	-	-	-	(16)
IMPAIRMENT OF GOODWILL AND INTANGIBLE ASSETS WITH INDEFINITE USEFUL LIVES					(16)

Impairment of other intangible assets and property, plant and equipment

Operating segment	Cash-Generating Unit or asset	Impairment indicators	WACC after tax	**Impairment 2017** *(in millions of Euros)*
United Kingdom	Coal-fired plants Gas storage Real estate asset	Fall in clean dark spreads and early shutdown decision Persistently low price volatility	6.0% - 6.3%	(246)
Italy	Edison assets (Power and E&P)	Decline in the Euro-dollar exchange rate	4.8% - 10.3%	(150)
Other activities	EDF Énergies Nouvelles CGU		3.8% - 13.0%	(29)
France – Specific assets	Real estate assets Hydropower projects			(57)
Other impairment				(20)
IMPAIRMENT OF OTHER INTANGIBLE ASSETS AND PROPERTY, PLANT AND EQUIPMENT				(502)

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 2016 (variable decline of around 10 to 70 base points, depending on the country). In core Euro zone countries (especially France and Belgium), the slight decrease in the WACC largely reflects the downward trend in risk-free rates in recent years. The sharper downturn in the WACC in other Euro zone countries (especially Italy) reflects the positive change in country risk. Test results are submitted to analyses of sensitivity to the discount rate, and the principal results of these analyses are detailed below.

The market environment remained weak and volatile in 2017 as the trends observed in 2015 continued. Low market prices for electricity and commodities, and for CO_2, affected profitability on traditional generation assets (essentially thermal plants), and the recent introduction of capacity mechanisms with different modalities in each country cannot so far restore sufficient returns for these generation facilities.

On the market horizon, however, forward prices were slightly better than the price levels used in the previous medium-term plan.

Over the medium and long-term horizon, fundamentals show relative year-on-year stability. The fuel and electricity price trajectory used in impairment testing is slightly lower than last year, except for the United Kingdom where the price trajectories expressed in pounds sterling are slightly higher than those used last year.

As these assumptions are crucial in determining recoverable value and thus for the results of impairment tests, sensitivity analyses are applied to long-term price curves.

At 31 December 2017, the macro-economic context presented above does not introduce any major risk for the Group in addition to the risks already noted in previous years' financial statements; the impairment booked reflects risks specific to certain CGUs or specific assets.

United Kingdom - EDF Energy

Thermal assets and gas storage assets

In 2015, €(1,096) million of impairment was recorded on EDF Energy's thermal assets (mainly coal-fired plants and gas storage facilities, and to a lesser degree combined-cycle gas (CCGT) plants), reflecting the low spreads, volatility and additional revenues generated by the capacity mechanism. Additional risks were also identified in 2016, amounting to €(44) million.

At 31 December 2017, the persistently poor market for coal-fired plants (declining clean dark spreads and lower than expected results from capacity auctions) and for gas storage (continuously low volatility) led the Group to

review the strategy relating to these assets, and decisions were made for early shutdown, sale or mothballing of plants. The operating lifetimes of the Cottam and West Burton A coal-fired plants were reassessed and reset to end in 2019 and 2021 respectively, in line with the results of the latest capacity auctions. As a result of updated assumptions regarding the Group's use of these facilities, their residual book value of €(188) million was fully written off at 31 December 2017.

The updated impairment test on the West Burton B CCGT plant showed a surplus recoverable value over the book value. As it is currently considered that the test result does not necessarily indicate a long-term improvement in the asset's profitability prospects, there was no partial reversal of the €(216) million impairment recorded in 2015 on this plant.

A 5% variation in clean spark spreads would have an impact of approximately 5% on the recoverable value of the West Burton B CCGT plant, with no effect on a positive difference between the recoverable value and the book value.

Nuclear assets (plants in operation and the Hinkley Point C project)

The recoverable value of existing nuclear assets (7 power plants) 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 has improved compared to 2016, in line with slightly more favourable long-term price trajectories, and is significantly higher than the assets' book values. Sensitivity analyses of the benchmark price curve do not call into question the existence of a positive difference between the recoverable value and the book value, identified by the impairment test.

EDF Energy's goodwill amounted to €7.6 billion (£6.7 billion) at 31 December 2017 and mainly resulted from the takeover of British Energy in 2009.

The recoverable value of EDF Energy is estimated by discounting future cash flows over the assets' expected useful life, taking into consideration the plan to construct two EPRs with a 60-year useful life at the Hinkley Point site, a project for which the final contracts were signed 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 incorporates the revised project costs (see press release of 3 July 2017) and thus includes total project completion costs (excluding borrowing costs and exchange rate effects compared to the project's benchmark rate of £1=€1.23) of £19.6 billion (in 2015 sterling), £1.5 billion more than previous estimates, still assuming delivery of Unit 1 by the end of 2025. This estimate also assumes successful completion of operational action plans in partnership with suppliers. The estimated additional costs (net of action plans) essentially result from a better understanding of the design, which has been adjusted to meet the regulator's requirements, the volume and sequencing of work on site, and the gradual implementation of supplier contracts. EDF's projected rate of return (IRR) is now estimated at 8.5% compared to about 9% initially. On these revised bases, the difference between the recoverable value and the book value of EDF Energy remains significant at 31 December 2017.

The project review also identified a risk of deferral of the Commercial Operation Date (COD), estimated at 15 months for Unit 1 and 9 months for Unit 2, entailing an additional potential cost of around £0.7 billion (in 2015 sterling) which would lead to an IRR for EDF of around 8.2%. This risk of deferral and the associated additional cost would reduce the margin resulting from the EDF Energy impairment test by approximately 20%.

Further sensitivity analyses were also conducted for information purposes, for example based on a 4-year deferral of commissioning and an associated additional cost of £4 billion over the new benchmark business plan. The results do not call into question the book value of EDF Energy.

Impairment of €58 million was recognised on other assets, including one real estate asset.

Although the Brexit decision has no immediate impact on EDF Energy's impairment tests 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, first recognised at the value of €945 million when Edison was taken over in 2012, was subjected to an impairment test that did not identify any risk of impairment. This test used the royalty relief method.

In 2015, €(1,419) million of impairment was recorded on Edison's electricity generation assets (thermal and renewable energy plants) and exploration and production assets. Additional risks amounting to €(160) million were identified in 2016 in relation to exploration and production assets and hydropower assets.

At 31 December 2017, the recoverable value of most assets was stable or showing a small improvement in a slightly more favourable short-term market environment, and also thanks to controlled cost and investment trajectories. However, additional risks amounting to €(150) million were identified in 2017 concerning (i) certain exploration-production fields adversely affected by a deterioration in macro-economic parameters (the Euro-dollar exchange rate, the country risk premium). For information, a 1% variation in the Euro/dollar exchange rate would have an impact of approximately €10 million on the recoverable value, expressed in Euros, of exploration and production assets the generate cash flows in dollars.

Sensitivity analyses conducted as part of the impairment tests produced the following information:

- For electricity generation assets, a 10% decrease in electricity prices or a 50 base point increase in the WACC would cause a maximum risk of around €(30) million, or less than 2% of the book value of these assets;
- For exploration and production assets, a 5% decrease in commodity prices would generate an additional risk of some €(30) million.

Other activities

EDF Énergies Nouvelles

In 2017, impairment of €(29) million was recorded in respect of the various CGUs of EDF Énergies Nouvelles (this mainly concerned a US company specialising in batteries).

Dalkia

Dalkia's goodwill amounted to €536 million at 31 December 2017, 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 medium-term horizon, and a terminal value that represents cash flow projections to infinity. Using updated assumptions for 2017, 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 royalties relief method. An updated test at 31 December 2017 showed that this book value is justified.

France – Generation and supply

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.

Even when there is no indication of any loss of value, an impairment test is performed due to the highly significant value of this CGU in the Group's financial statements and its substantial exposure to market prices since discontinuation of the "yellow" and "green" regulated tariffs on 1st January 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 5.2%. 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 2016 prices) is adopted in keeping with the price set for the latest French capacity mechanism auction, which was held on the EPEX Spot market.

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, supported by the slight rise in electricity prices on the market horizon and implementation of savings plans.

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.

France - Impairment of specific assets

The Group also recognised impairment of €(73) million on specific assets, notably relating to certain real estate assets and hydropower projects.

Finally, impairment of €(618) million was booked in respect of associates at 31 December 2017. Details are given in note 23.

Note 14 Other income and expenses

Other income and expenses amount to €1,363 million for 2017, mainly including a gain of €1,462 million on the sale of 49.9% of the Group's investment in CTE (see note 3.4.1).

Other income and expenses in 2016 mainly included income of €112 million resulting from the favourable outcome of a dispute with the Hungarian State. This payment was ordered by the Hague Permanent Court of Arbitration following applications for compensation for loss of long-term power purchase agreements (PPAs) and reimbursement of stranded costs.

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)	**2017**	2016
Interest expenses on financing operations	(1,869)	(1,907)
Change in the fair value of derivatives and hedges of liabilities	37	(11)
Transfer to income of changes in the fair value of cash flow hedges	31	122
Net foreign exchange gain on indebtedness	23	(31)
COST OF GROSS FINANCIAL INDEBTEDNESS	**(1,778)**	**(1,827)**

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 decreased 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)	2017	2016
Provisions for long-term and post-employment employee benefits	(884)	(1,048)
Provisions for the back-end of the nuclear cycle, decommissioning and last cores [(1)]	(1,968)	(2,278)
Other provisions and advances	(107)	(91)
DISCOUNT EFFECT	(2,959)	(3,417)

(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)	2017	2016
Financial income on cash and cash equivalents	21	20
Gains/(losses) on available-for-sale financial assets	1,395	775
Gains/(losses) on other financial assets	295	398
Changes in financial instruments carried at fair value with changes in fair value included in income	(102)	(46)
Other financial expenses	(52)	(263)
Foreign exchange gain/loss on financial items other than debts	(41)	43
Return on fund assets	470	547
Capitalised borrowing costs	515	437
OTHER FINANCIAL INCOME AND EXPENSES	2,501	1,911

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

In 2017, gains and losses on available-for-sale financial assets include net gains on sales of EDF's dedicated assets, amounting to €985 million (€428 million in 2016).

Note 16 Income taxes

16.1 BREAKDOWN OF TAX EXPENSE

Details are as follows:

(in millions of Euros)	2017	2016
Current tax expense	42	(1,886)
Deferred taxes	(189)	498
TOTAL	(147)	(1,388)

In 2017, €362 million of the current tax expense relates to EDF's tax consolidated group in France, and €(320) million relates to other subsidiaries (€(1,458) million and €(428) million respectively in 2016).

Following the announcement that the 3% contribution on dividend distributions is unconstitutional, the Group recorded a tax receivable of €255 million (see note 3.6).

In France, the first finance law for 2017 introduced two exceptional contributions in addition to income taxes, levied on 2017 taxable income only. These cumulative contributions respectively apply to large companies with sales revenues of over €1 billion and €3 billion. The EDF Group is concerned by both, and this brings the income

tax rate for 2017 to 44.43% (including the 3.3% social contribution). The increase in the income tax charge resulting from these contributions is approximately €69 million.

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

(in millions of Euros)	2017	2016
Income of consolidated companies before tax	**3,401**	**4,181**
Income tax rate applicable to the parent company	34.43%	34.43%
Theoretical tax expense	**(1,171)**	**(1,440)**
Differences in tax rate [(1)]	51	119
Permanent differences [(2)]	476	(163)
Taxes without basis [(3)]	478	286
Unrecognised deferred tax assets	20	(189)
Other	(1)	(1)
ACTUAL TAX EXPENSE	(147)	(1,388)
EFFECTIVE TAX RATE	4.32%	33.20%

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

- 2017:
  - [(1)] the positive impacts of income tax cuts in Belgium (from 33.99% to 25% in 2020) and the United States (from 40% to 27%), amounting to €38 million and €46 million respectively;
  - [(2)] the favourable impact of sales of investments (mainly the CTE/RTE operation (see note 3.4.1) and assets subject to a reduced tax rate, amounting to €389 million.
  - [(3)] the favourable impact of the appeal concerning the 3% contribution on dividend distributions, amounting to €255 million (and non-taxable) and the favourable impact of deduction of payments made to bearers of perpetual subordinated loans, amounting to €195 million.

- 2016:
  - [(1)] 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;
  - [(3)] the favourable impact of deduction of payments made to bearers of perpetual subordinated loans, amounting to €200 million.

16.3 CHANGE IN DEFERRED TAX ASSETS AND LIABILITIES

(in millions of Euros)	2017	2016
Deferred tax assets	1,641	2,713
Deferred tax liabilities	(2,272)	(4,122)
NET DEFERRED TAXES AT 1 JANUARY	(631)	(1,409)
Change in net income	(189)	498
Change in equity	(437)	33
Translation adjustments	61	185
Changes in scope of consolidation	22	60
Other movements	32	2
NET DEFERRED TAXES AT 31 DECEMBER	(1,142)	(631)
Deferred tax assets	1,220	1,641
Deferred tax liabilities	(2,362)	(2,272)

€(349) million of the change in 2017 in deferred tax assets included in equity results from actuarial gains and losses on post-employment benefits (€(191) million in 2016), and €(294) million of this change concerns fair value movements on financial instruments and financial assets held for sale (€224 million in 2016).

16.4 BREAKDOWN OF DEFERRED TAX ASSETS AND LIABILITIES BY NATURE

(in millions of Euros)	31/12/2017	31/12/2016
Deferred taxes:		
Fixed assets	(5,419)	(5,344)
Provisions for employee benefits	5,203	6,051
Other provisions and impairment	378	377
Financial instruments	163	232
Tax loss carryforwards and unused tax credits	1,289	1,279
Other	132	48
Total deferred tax assets and liabilities	**1,746**	**2,643**
Unrecognised deferred tax assets	(2,888)	(3,274)
NET DEFERRED TAXES	(1,142)	(631)

At 31 December 2017, unrecognised deferred tax assets represent a potential tax saving of €2,888 million (€3,274 million at 31 December 2016), mainly relating to France and the United States.

In France, this potential tax saving, which amounts to €2,043 million at 31 December 2017 (€2,385 million at 31 December 2016), 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 €499 million (€734 million in 2016) and mainly corresponds to losses carried forward, with expiry dates between 2029 and 2036.

Recognised deferred tax assets on tax loss carryforwards amount to €497 million (€438 million in 2016) and principally concern the United States (€199 million in 2017, €135 million in 2016), France (€51 million in 2017, €111 million in 2016), 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)	**2017**	2016
Net income attributable to ordinary shares	3,173	2,851
Payments on perpetual subordinated bonds	(565)	(582)
Effect of dilutive instruments	-	-
Net income used to calculated earnings per share	**2,608**	**2,269**
Average weighted number of ordinary shares outstanding during the year	**2,660,243,412**	**1,980,632,028**
Average weighted number of diluted shares outstanding during the year	**2,660,243,412**	**1,980,632,028**
Earnings per share (in Euros):		
EARNINGS PER SHARE	**0.98**	**1.15**
DILUTED EARNINGS PER SHARE	**0.98**	**1.15**

In 2017, the EDF capital increase, payment of the outstanding scrip dividend for 2016 and payment of the scrip interim dividend for 2017 led to an increase in the share capital and an issue premium totalling €5,427 million, corresponding to the issuance of 818,302,121 shares.

Note 18 Goodwill

18.1 CHANGES IN GOODWILL

Goodwill on consolidated entities comprises the following:

(in millions of Euros)	31/12/2017	31/12/2016
Net book value at opening date	**8,923**	**10,236**
Acquisitions (note 3.2)	1,396	36
Disposals	-	-
Impairment (note 13)	-	-
Translation adjustments	(282)	(1,298)
Other changes	(1)	(51)
NET BOOK VALUE AT CLOSING DATE	10,036	8,923
Gross value at closing date	10,802	9,709
Accumulated impairment at closing date	(766)	(786)

The changes in goodwill in 2017 primarily related to:

- The acquisition of Framatome for €1,257 million (see note 3.2).
- Translation adjustments of €(282) million, largely reflecting the pound sterling's decline against the Euro.

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.

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)	31/12/2017	31/12/2016
France – Regulated activities	**223**	**223**
Reactors and services (Framatome) (note 3.2)	**1,257**	-
United Kingdom (EDF Energy)	**7,586**	**7,818**
Italy	**18**	**2**
Other International	**15**	**13**
Dalkia	536	496
EDF Énergies Nouvelles	206	177
Other	195	194
Other activities	**937**	**867**
GROUP TOTAL	10,036	8,923

Note 19 Other intangible assets

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

At 31 December 2017

(in millions of Euros)	31/12/2016	Acquisitions	Disposals	Translation adjustments	Changes in scope	Other movements	31/12/2017
Software	**3,624**	638	(224)	(37)	23	10	4,034
Positive fair value of commodity contracts acquired in a business combination	**810**	-	-	-	-	-	810
Greenhouse gas emission rights – green certificates	**428**	1,123	(1,107)	(7)	1	2	440
Other intangible assets	**5,975**	410	(113)	(46)	1,322	(47)	7,501
Intangible assets in development [1]	**995**	128	(2)	(6)	96	-	1,211
Gross value	**11,832**	2,299	(1,446)	(96)	1,442	(35)	13,996
Accumulated amortisation and impairment	**(4,382)**	(976)	272	58	(71)	(1)	(5,100)
NET VALUE	**7,450**	**1,323**	**(1,174)**	**(38)**	**1,371**	**(36)**	**8,896**

(1) Increases in intangible assets in development are presented net of the effect of commissioning new assets.

The gross value of other intangible assets at 31 December 2017 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 €962 million;

The "Framatome" brand, Framatome's nuclear technology-related intangible assets and Framatome's customer contracts, for respective amounts of €132 million, €702 million and €402 million.

Impairment of €(16) million was recorded in respect of other intangible assets in 2017.

EDF's research and development expenses recorded in the income statement total €546 million for 2017.

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) 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.

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)	31/12/2017	31/12/2016
Property, plant and equipment	53,034	51,489
Property, plant and equipment in progress	1,705	1,575
PROPERTY, PLANT AND EQUIPMENT OPERATED UNDER FRENCH PUBLIC ELECTRICITY DISTRIBUTION CONCESSIONS	54,739	53,064

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 31/12/2016	**2,601**	**86,959**	**3,909**	**93,469**
Increases [1]	164	3,762	389	**4,315**
Decreases	(19)	(766)	(167)	**(952)**
Gross value at 31/12/2017	2,746	89,955	4,131	96,832
Depreciation and impairment at 31/12/2016	**(1,337)**	**(38,141)**	**(2,502)**	**(41,980)**
Net depreciation	(58)	(216)	(187)	**(461)**
Disposals	7	678	162	**847**
Other movements [2]	(9)	(2,099)	(96)	**(2,204)**
Depreciation and impairment at 31/12/2017	(1,397)	(39,778)	(2,623)	(43,798)
Net value at 31/12/2016	**1,264**	**48,818**	**1,407**	**51,489**
NET VALUE AT 31/12/2017	1,349	50,177	1,508	53,034

(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)	31/12/2017	31/12/2016
Property, plant and equipment	6,369	6,010
Property, plant and equipment in progress	1,238	1,606
PROPERTY, PLANT AND EQUIPMENT OPERATED UNDER CONCESSIONS FOR OTHER ACTIVITIES	7,607	7,616

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 31/12/2016	**1,452**	**11,795**	**41**	**546**	**13,834**
Increases	29	891	18	47	985
Decreases	(5)	(41)	(20)	(5)	(71)
Translation adjustments	-	(59)	(1)	(1)	(61)
Changes in the scope of consolidation	13	23	-	3	39
Other movements	-	(43)	1	(8)	(50)
Gross value at 31/12/2017	1,489	12,566	39	582	14,676
Depreciation and impairment at 31/12/2016	**(873)**	**(6,570)**	**(18)**	**(363)**	**(7,824)**
Net depreciation	(29)	(361)	(4)	(35)	(429)
Impairment net of reversals	-	(150)	-	-	(150)
Disposals	4	27	-	6	37
Translation adjustments	-	38	-	-	38
Changes in the scope of consolidation	-	-	-	-	-
Other movements	3	17	-	1	21
Depreciation and impairment at 31/12/2017	(895)	(6,999)	(22)	(391)	(8,307)
Net value at 31/12/2016	**579**	**5,225**	**23**	**183**	**6,010**
NET VALUE AT 31/12/2017	594	5,567	17	191	6,369

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 2017, impairment of property, plant and equipment in progress and other assets used in concessions for other activities amount to €(54) million and €(150) 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)	**31/12/2017**	31/12/2016
Property, plant and equipment	48,972	46,350
Property, plant and equipment in progress	26,515	24,059
Finance-leased property, plant and equipment	135	164
PROPERTY, PLANT AND EQUIPMENT USED IN GENERATION AND OTHER TANGIBLE ASSETS OWNED BY THE GROUP	75,622	70,573

At 31 December 2017, property, plant and equipment in progress owned by the Group mainly concern the EPR reactors at Flamanville 3 (€11,523 million including capitalised borrowing costs amounting to €2,287 million), and Hinkley Point C (€5,149 million including capitalised borrowing costs amounting to €59 million).

Property, plant and equipment concerning the Dunkirk methane terminal, which began commercial operations in early 2017, have been reclassified and transferred from property, plant and equipment in progress to property, plant and equipment used in generation at the value of €1,158 million.

The changes observed in generation assets in 2017 also include a foreign exchange effect of €(1,081) million, mainly caused by the decline of the pound sterling and US dollar against the Euro.

At 31 December 2017, impairment of tangible assets owned by the group amounts to €(298) million.

22.2 MOVEMENTS IN PROPERTY, PLANT AND EQUIPMENT USED IN GENERATION AND OTHER TANGIBLE ASSETS OWNED BY THE GROUP (EXCLUDING ASSETS IN PROGRESS AND FINANCE-LEASED ASSETS)

(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 31/12/2016	**12,554**	**66,958**	**19,964**	**17**	**16,880**	**116,373**
Increases	654	2,938	1,767	-	2,200	7,559
Decreases	(503)	(1,020)	(493)	-	(429)	(2,445)
Translation adjustments	(43)	(378)	(179)	-	(737)	(1,337)
Changes in the scope of consolidation [(1)]	314	-	(271)	-	821	864
Other movements [(2)]	43	392	49	-	30	514
Gross value at 31/12/2017	**13,019**	**68,890**	**20,837**	**17**	**18,765**	**121,528**
Depreciation and impairment at 31/12/2016	**(6,874)**	**(44,269)**	**(11,866)**	**(9)**	**(7,005)**	**(70,023)**
Net depreciation	(345)	(2,545)	(776)	(2)	(1,155)	(4,823)
Impairment net of reversals	(77)	13	(217)	-	(17)	(298)
Disposals	229	893	398	-	398	1,918
Translation adjustments	4	164	126	-	205	499
Changes in the scope of consolidation [(1)]	(9)	-	81	-	2	74
Other movements	(2)	65	24	(1)	11	97
Depreciation and impairment at 31/12/2017	**(7,074)**	**(45,679)**	**(12,230)**	**(12)**	**(7,561)**	**(72,556)**
Net value at 31/12/2016	**5,680**	**22,689**	**8,098**	**8**	**9,875**	**46,350**
NET VALUE AT 31/12/2017	**5,945**	**23,211**	**8,607**	**5**	**11,204**	**48,972**

(1) Changes in the scope of consolidation mainly concern assets related to the first consolidation of Framatome.
(2) Other movements include the effect on assets associated with provisions and underlying assets of the €322 million change in the real discount rate used to calculate provisions related to EDF's nuclear generation (see note 29.1).

22.3 FINANCE LEASE CONTRACTS

	31/12/2017				31/12/2016
	Total	Maturity			Total
(in millions of Euros)		< 1 year	1 - 5 years	> 5 years	
Future minimum lease payments receivable as lessor	**33**	10	20	3	46
Future minimum lease payments payable as lessee	**367**	51	150	166	482

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]	31/12/2017 Ownership%	31/12/2017 Share of net equity	31/12/2017 Share of net income	31/12/2016 Share of net equity	31/12/2016 Share of net income
Principal investments in associates						
CTE [2]	O	50.10	1,241	249	n/a	n/a
RTE	T	n/a	n/a	n/a	2,558	403
CENG	G	49.99	1,494	(316)	2,120	(485)
Taishan (TNPJVC) [3]	G	30.00	n.c.	n.c.	1,191	(12)
Alpiq [4]	G, D, O, T	25.04	602	25	606	-
Other investments in associates and joint ventures			n.c.	n.c.	2,170	312
TOTAL			**7,249**	**35**	**8,645**	**218**

n/a = not applicable
n.c. = not communicated
(1) G = generation, D = distribution, T = transmission, O = other.
(2) At 31 December 2017, this corresponds to a 50.1% interest in CTE (the joint venture holding RTE's shares) (see note 3.4.1). By convention, the share of net income presented comprises 100% of RTE's net income for the first quarter of 2017 and 50.1% of the CTE subgroup's net income for the rest of the year 2017.
(3) As CGN publishes its consolidated financial statements after the Group, the Group cannot report the financial data for Taishan at 31 December 2017.
(4) As Alpiq publishes its consolidated financial statements after the Group, the figures above include an estimate for net income at 31 December 2017 (including the final results published by Alpiq in August 2017).

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

In 2017, €(618) million of impairment of investments in associates and joint ventures was booked, mainly concerning the assets of CENG (see note 23.2.3).

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).

23.1 COENTREPRISE DE TRANSPORT D'ÉLECTRICITÉ (CTE)

23.1.1 CTE - financial indicators

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

(in millions of Euros)	31/12/2017 (1)
Non-current assets	17,163
Current assets	2,793
Total assets	**19,956**
Equity	2,476
Non-current liabilities	12,870
Current liabilities	4,610
Total equity and liabilities	**19,956**
Sales	3,143
Operating profit before depreciation and amortisation	1,285
Net income	337
Net indebtedness	11,633
Gains and losses recorded directly in equity	-
Dividends paid	159

(1) The figures for 31 December 2017 correspond to the CTE subgroup data, for the year 2017 (CTE is the company that holds RTE's shares – see note 3.4.1). The financial indicators published for RTE in 2016 are presented in note 23.1 to the consolidated financial statements at 31 December 2016.

23.1.2 Transactions between the EDF group and CTE

At 31 December 2017 the main transactions between the EDF group and CTE 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 €3,507 million in sales revenues for RTE from Enedis over 2017.

In executing its responsibility to ensure balance in the electricity system, during 2017 RTE also undertook:

- energy purchases and sales with EDF and Enedis, amounting to €153 million and €165 million respectively;
- system service purchases from EDF amounting to €257 million.

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)	**31/12/2017**	31/12/2016
Non-current assets	7,370	10,164
Current assets	965	1,020
Total assets	**8,335**	**11,184**
Equity	2,989	4,240
Non-current liabilities	5,030	6,521
Current liabilities	316	423
Total equity and liabilities	**8,335**	**11,184**
Sales	1,156	1,059
Operating profit before depreciation and amortisation	396	305
Net income	(633)	(971)
Gains and losses recorded directly in equity	107	169
Dividends paid	-	-

23.2.2 Transactions between the EDF group and CENG

At 31 December 2017 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 1st 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 16.3TWh in 2017.

23.2.3 Impairment

In 2016, impairment of €(462) million was recorded on the Group's investment in CENG as a result of lower forward prices and long-term electricity prices.

At 31 December 2017, the Group recognised additional impairment of €(491) million (of which €(341) million was already booked at 30 June 2017).

This impairment was evaluated by the Group's usual methodology. It results from:

- further downward revision of long-term price trajectories published by external analysts (ABB, IHS, Cera, EIA): the reports published in autumn 2017 were lower than the forecasts issued in spring 2017;
- a decline in short-term market prices caused by the steady decrease in gas prices throughout the year (average 4% decrease in electricity prices on the market horizon between the first and second half-year).

Calculation of the value in use takes into consideration the implementation of New York State's Zero Emission Credit (ZEC) programme of subsidies for nuclear power plants, which provides additional income for the Ginna and Nine Mile Point plants. However, the ZEC programme's long-term existence will depend on the outcome of current legal proceedings. In addition to the question of the ZEC programme's continuation, there are uncertainties relating to several key assumptions for the valuation of the investment in CENG (e.g. the market environment, legal framework, changes in energy policies, and the Group's lack of control over strategy-setting). The calculation of recoverable value for the CENG asset thus includes a specific risk premium.

23.3 TAISHAN

23.3.1 Taishan - financial indicators

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

(in millions of Euros)	**31/12/2016**	31/12/2015
Non-current assets	10,936	10,369
Current assets	66	41
Total assets	**11,002**	**10,410**
Equity	3,594	3,597
Non-current liabilities	6,563	5,836
Current liabilities	845	977
Total equity and liabilities	**11,002**	**10,410**
Sales	-	-
Net income	(39)	29
Dividends paid	-	-

23.3.2 Transactions between the EDF group and Taishan

EDF owns 30% of TNPJVC (Taishan Nuclear Power Joint Venture Company Limited), which was set up to build and operate two EPR nuclear reactors in Taishan, in the province of Guangdong in China. CGN holds a 51% stake and Yudean a 19% stake.

Taishan Unit 1 and Taishan Unit 2 are expected to begin commercial operation in 2018 and 2019 respectively.

23.4 ALPIQ

As Alpiq publishes its consolidated financial statements after the Group, the figures presented here include an estimate for net income at 31 December 2017 (see note 3 to the table in note 23).

23.4.1 Published financial indicators

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

(in millions of Euros)	**31/12/2016**	31/12/2015
Non-current assets	5,303	5,889
Current assets	3,765	3,239
Assets classified as held for sale	107	503
Total assets	**9,175**	**9,631**
Equity [(1)]	3,619	3,525
Non-current liabilities	3,222	4,148
Current liabilities	2,315	1,905
Liabilities related to assets classified as held for sale	19	53
Total equity and liabilities	**9,175**	**9,631**
Sales	5,576	6,289
Operating profit before depreciation and amortisation	714	47
Net income	270	(777)
Gains and losses recorded directly in equity	(24)	(160)
Dividends paid to the Group	-	11

(1) Including €949 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 2017, is €379 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.

23.4.2 Impairment

The Alpiq Group is operating in a difficult market environment with notably low wholesale prices. Also, Alpiq has no access to final customers on the non-liberalised Swiss market. This unfavourable context has affected the profitability of its generation capacities in Switzerland, where the proportion of baseload energy is high, and capacities have been penalised by the downward revision of long-term market prices. In March 2016, Alpiq therefore announced implementation of structural measures in traditional energy generation to reduce exposure to wholesale prices.

When it published its half-year 2017 financial statements on 28 August 2017, Alpiq once again stressed the two factors affecting the profitability of its traditional generation assets: stagnation of market prices at low levels, and asymmetrical regulation of the Swiss electricity market. However, since these risks had already been taken into account, no additional impairment was recognised by Alpiq during the first half-year 2017.

In legislative developments, a referendum in Switzerland on 21 May 2017 approved the energy law aiming to phase out nuclear power and increase clean energies. The "Energy Strategy 2050" bill provides for progressive

replacement of electricity produced by the country's five nuclear power plants by renewable energies. Switzerland has said it will not build any more new nuclear power plants, but that existing plants can remain in operation as long as they are guaranteed to be safe. This energy law had already been approved by the Swiss Parliament in September 2016. It is the end product of a long process, as Switzerland first announced its decision to abandon nuclear power and stop developing new nuclear plants in 2011.

Currently, since the publication of Alpiq's half-year results in August 2017, the Group is not aware of any factors indicating a risk of further impairment of its investment in Alpiq at 31 December 2017.

The Group will continue to closely monitor the effective implementation of Alpiq's action plans and changes in the market context and regulatory environment in Switzerland. Should the Alpiq group recognise impairment in its annual 2017 consolidated financial statements, due to be published on 26 March 2018, the EDF group would reflect that in its half-year 2018 financial statements.

Note 24 Inventories

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

	31/12/2017			31/12/2016		
(in millions of Euros)	Gross value	Provision	Net value	Gross value	Provision	Net value
Nuclear fuel	10,831	(15)	10,816	10,923	(19)	10,904
Other fuel	906	(7)	899	1,281	(5)	1,276
Other raw materials	1,526	(283)	1,243	1,413	(296)	1,117
Work-in-progress for production of goods and services	494	(48)	446	197	(46)	151
Other inventories	768	(34)	734	711	(58)	653
TOTAL INVENTORIES	**14,525**	**(387)**	**14,138**	**14,525**	**(424)**	**14,101**

The more-than-one-year portion mainly concerns nuclear fuel inventories amounting to €7,932 million at 31 December 2017 (€8,182 million at 31 December 2016).

The value of EDF Trading's inventories stated at market value is €179 million at 31 December 2017 (€492 million at 31 December 2016).

Note 25 Trade receivables

Details of net trade receivables are as follows:

(in millions of Euros)	31/12/2017	31/12/2016
Trade receivables, gross value – excluding EDF Trading	20,927	21,022
Trade receivables, gross value – EDF Trading	3,530	3,331
Impairment	(1,046)	(1,057)
TRADE RECEIVABLES, NET VALUE	**23,411**	**23,296**

Most trade receivables mature within one year.

25.1 TRADE RECEIVABLES DUE AND NOT YET DUE

	31/12/2017			31/12/2016		
(in millions of Euros)	Gross value	Provision	Net value	Gross value	Provision	Net value
TRADE RECEIVABLES	**24,457**	**(1,046)**	**23,411**	**24,353**	**(1,057)**	**23,296**
overdue by up to 6 months	1,172	(260)	912	1,214	(186)	1,028
overdue by 6-12 months	435	(137)	298	491	(152)	339
overdue by more than 12 months	890	(532)	358	1,105	(595)	510
Trade receivables due	**2,497**	**(929)**	**1,568**	**2,810**	**(933)**	**1,877**
Trade receivables not yet due	**21,960**	**(117)**	**21,843**	**21,543**	**(124)**	**21,419**

25.2 ASSIGNMENT OF RECEIVABLES

(in millions of Euros)	31/12/2017	31/12/2016
Trade receivables assigned and wholly retained in the balance sheet	-	-
Trade receivables assigned and partly retained in the balance sheet	41	33
Trade receivables assigned and wholly derecognised	903	1,304

The Group assigned trade receivables for a total of €903 million at 31 December 2017, including €406 million by the Edison group (€1,304 million at 31 December 2016, including €665 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)	31/12/2017	31/12/2016
Prepaid expenses	1,592	1,567
Contribution to the Public Electricity Service (CSPE)	1,147	1,647
VAT receivables	3,026	2,862
Other tax receivables	1,727	1,754
Other operating receivables	4,237	5,090
OTHER RECEIVABLES	**11,729**	**12,920**
Non-current portion	2,168	2,268
Current portion	9,561	10,652
Gross value	11,804	13,135
Impairment	(75)	(215)

At 31 December 2017, other receivables include an amount of €1 147 million corresponding to the CSPE receivable (€1,647 million at 31 December 2016). 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 2017, EDF's share capital amounts to €1,463,719,402 comprising 2,927,438,804 fully subscribed and paid-up shares with nominal value of €0.50, owned 83.50% by the French State, 15.18% by the public (institutional and private investors) and 1.20% by current and retired Group employees, with 0.12% held by EDF as treasury shares.

In March 2017, the capital increase with preferential subscription rights led to a €316 million increase in the share capital and an issue premium of €3,689 million net of expenses, following the issuance of 632,741,004 new shares (see note 3.1).

In June 2017, payment of the interim dividend for 2016 in the form of a scrip dividend led to a €73 million increase in the share capital and an issue premium of €951 million following issuance of 145,476,587 new shares. The legal formalities for this operation were finalised in June 2017.

In December 2017, payment of part of the interim dividend for 2017 in the form of a scrip dividend led to a €20 million increase in the share capital and an issue premium of €378 million following the issuance of 40,084,530 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 2017, treasury shares deducted from consolidated equity represent 3,430,016 shares with total value of €40 million.

27.3 DIVIDENDS

The General Shareholders' Meeting of 18 May 2017 decided to distribute an ordinary dividend of €0.90 per share in respect of 2016, offering shareholders the choice of payment in cash or shares (scrip option).

In application of article 24 of the Company's articles of association, shareholders who had held their shares continuously for at least 2 years at the year-end and still held 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 per shareholder. The bonus dividend amounts to €0.99 per share.

As interim dividends of €0.50 per share had been paid in the form of new shares or cash on 31 October 2016, the balance payable for 2016 amounted to €0.40 per share benefiting from the ordinary dividend and €0.49 per share benefiting from the bonus dividend. The balance of the dividend was paid out on 30 June 2017.

The French government opted for the scrip dividend for the balance of 2016 dividends payable.

The amount of the cash dividend paid to shareholders who did not opt for the scrip dividend for 2016 amounts to €75 million.

On 7 November 2017, EDF's Board of Directors decided to distribute an interim dividend of €0.15 per share in respect of 2017. This interim dividend amounting to a total of €433 million was paid out in the form of new shares (scrip option) or cash on 11 December 2017.

The French government opted for the scrip interim dividend for the 2017 interim dividends payable.

The amount of the cash dividend paid to shareholders who did not opt for the scrip interim dividend for 2017 amounted to €35 million.

27.4 EQUITY INSTRUMENTS

At 31 December 2017, 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 €565 million in the year 2017 and €582 million in the year 2016. The resulting cash payout is reflected in a corresponding reduction in Group equity.

In January 2018, EDF paid interest of around €376 million to the bearers of perpetual subordinated bonds.

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 2017, the Dalkia group's Cogestar entities issued an instrument consisting of convertible bonds. At 31 December 2017, the total amount of the instrument recorded in equity is €124 million (€86 million at 31 December 2016) (see note 5.2).

27.5 NON-CONTROLLING INTERESTS (MINORITY INTERESTS)

27.5.1 Details of non-controlling interests

(in millions of Euros)	31/12/2017			31/12/2016	
	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%	2,687	23	2,773	111
NNB Holding Ltd.	33.5%	2,138	-	1,718	-
EDF Investissements Groupe SA	6.1%	516	11	516	13
EDF Luminus SA	31.4%	388	2	390	3
Framatome	24.5%	209	-	-	-
Other non-controlling interests (1)		1,403	80	1,527	33
TOTAL		**7,341**	**116**	**6,924**	**160**

(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 3.7.2).

Non-controlling interests in Framatome, the group acquired on 31 December 2017 (see note 3.2) and owned 75.5% by the Group *via* EDF SA, correspond to the 19.5% share held by Mitsubishi Heavy Industries and the 5% share held by Assystem.

Non-controlling interests in EDF Luminus correspond to the investments held by Belgian local.

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)	31/12/2017	31/12/2016
Non-current assets	21,149	21,877
Current assets	3,228	3,325
Total assets	**24,377**	**25,202**
Equity	13,433	13,870
Non-current liabilities	10,252	11,058
Current liabilities	692	274
Total equity and liabilities	**24,377**	**25,202**
Sales	3,070	3,805
Net income	135	653
Gains and losses recorded directly in equity	(220)	(1,804)
Net cash flow from operating activities	867	1,296
Net cash flow from investing activities	(514)	(516)
Net cash flow from financing activities	(328)	(672)
Cash and cash equivalents - opening balance	**468**	**422**
Net increase/(decrease) in cash and cash equivalents	25	107
Effect of currency fluctuations	(10)	(62)
Other	-	-
Cash and cash equivalents - closing balance	**483**	**468**
Dividends paid to shares of non-controlling interests	70	151

Note 28 Provisions

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

		31/12/2017			31/12/2016		
(in millions of Euros)	Notes	Current	Non-current	Total	Current	Non-current	Total
Provisions for the back-end of the nuclear cycle		1,479	21,378	**22,857**	1,463	20,823	**22,286**
Provisions for decommissioning and last cores		290	25,032	**25,322**	208	24,020	**24,228**
Provisions related to nuclear generation	29	**1,769**	**46,410**	**48,179**	**1,671**	**44,843**	**46,514**
Other provisions for decommissioning	30	**80**	**1,977**	**2,057**	**63**	**1,506**	**1,569**
Provisions for employee benefits	31	**1,106**	**20,630**	**21,736**	**1,100**	**21,234**	**22,334**
Other provisions	32	**2,529**	**2,356**	**4,885**	**2,394**	**2,155**	**4,549**
TOTAL PROVISIONS		5,484	71,373	76,857	5,228	69,738	74,966

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 1.3.2.2.

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)	31/12/2016	Increases	Decreases	Discount effect	Translation adjustments	Other movements[1]	31/12/2017
Provisions for spent fuel management	12,429	454	(1,109)	648	(60)	(9)	12,353
Provisions for waste removal and conditioning	-	76	(15)	47	(4)	937	1,041
Provisions for long-term radioactive waste management	9,857	46	(221)	590	(28)	(781)	9,463
Provisions for the back-end of the nuclear cycle	**22,286**	**576**	**(1,345)**	**1,285**	**(92)**	**147**	22,857
Provisions for nuclear plant decommissioning	20,568	2	(146)	997	(220)	230	21,431
Provisions for last cores	3,660	-	-	162	(50)	119	3,891
Provisions for decommissioning and last cores	**24,228**	**2**	**(146)**	**1,159**	**(270)**	**349**	25,322
PROVISIONS RELATED TO NUCLEAR GENERATION	46,514	578	(1,491)	2,444	(362)	496	48,179

(1) Other movements mainly include the reclassification at 1st January 2017 of the provisions for waste removal and conditioning, which were previously included in the provisions for long-term radioactive waste management, in the amount of €882 million.

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	10,786	1,567	-	12,353
Provisions for waste removal and conditioning	726	315	-	1,041
Provisions for long-term radioactive waste management	8,814	645	4	9,463
PROVISIONS FOR THE BACK-END OF THE NUCLEAR CYCLE AT 31/12/2017	20,326	2,527	4	22,857
Provisions for the back-end of the nuclear cycle at 31/12/2016	**19,624**	**2,659**	**3**	**22,286**
Provisions for nuclear plant decommissioning	14,920	6,233	278	21,431
Provisions for last cores	2,387	1,504	-	3,891
PROVISIONS FOR DECOMMISSIONING AND LAST CORES AT 31/12/2017	17,307	7,737	278	25,322
Provisions for decommissioning and last cores at 31/12/2016	**16,409**	**7,563**	**256**	**24,228**

29.1 NUCLEAR PROVISIONS IN FRANCE

In France, the provisions established by EDF SA 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 1.3.2.2.

- 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	31/12/2016	Increases	Decreases	Discount effect (1)	Other movements (2)	31/12/2017
Provisions for spent fuel management	29.1.1	10,658	443	(851)	545	(9)	10,786
Provisions for waste removal and conditioning	29.1.2	0	74	(15)	31	636	726
Provisions for long-term radioactive waste management	29.1.2	8,966	44	(221)	556	(531)	8,814
Provisions for the back-end of the nuclear cycle		**19,624**	**561**	**(1,087)**	**1,132**	**96**	20,326
Provisions for nuclear plant decommissioning	29.1.3	14,122	2	(131)	658	269	14,920
Provisions for last cores	29.1.4	2,287	0	0	95	5	2,387
Provisions for decommissioning and last cores		**16,409**	**2**	**(131)**	**753**	**274**	17,307
PROVISIONS RELATED TO NUCLEAR GENERATION		36,033	563	(1,218)	1,885	370	37,633

(1) The discount effect comprises the €1,505 million cost of unwinding the discount, and the €380 million effect of the change in the real discount rate in 2017, which were recorded in the income statement for provisions with no related assets (cost of unwinding the discount).

(2) Other movements mainly include :
- the reclassification at 1st January 2017 of the provisions for waste removal and conditioning, which were previously included in the provisions for long-term radioactive waste management, in the amount of €581 million
- the €347 million effect of the change in the real discount rate at 31 December 2017 for provisions with related assets.

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 by AREVA (now Orano) at the request of EDF, 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 these provisions 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 with AREVA (Orano) which define the terms for implementation of the framework agreement for the period 2008-2040. The most recent of these agreements, signed on 5 February 2016, covers the period 2016-2023.

These provisions also cover 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 until fourth-generation reactors become available.

29.1.2 Provision for waste removal and conditioning - Provision for long-term radioactive waste management

29.1.2.1 Provisions for waste removal and conditioning

The provisions for waste removal and conditioning are reported separately from 1st January 2017.

They cover the following future expenses for radioactive waste resulting from operations or decommissioning (apart from spent fuel):

- characterisation and conditioning of waste;
- interim storage of waste.

29.1.2.2 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;
- direct storage, where relevant, of spent fuel that cannot be recycled in existing installations: specifically plutonium fuel (MOX) or uranium fuel derived from enriched processing, and fuel from Creys-Malville and Brennilis;
- 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 provisions for long-term radioactive waste management break down as follows:

(in millions of Euros)	31/12/2017	31/12/2016
Very low-level and low and medium-level waste	1,161	1,066
Long-lived low-level waste	265	256
Long-lived medium and high-level waste (1)	7,388	7,644
PROVISIONS FOR LONG-TERM RADIOACTIVE WASTE MANAGEMENT	8,814	8,966

(1) At 31 December 2016, provisions for long-lived medium and high-level waste included €581 million of provisions for waste removal and conditioning, which are now reported separately.

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.

Following the initial geological investigations, in July 2015 ANDRA remitted a report on the proposed storage centre for long-lived low-level waste on a site located in the Soulaines region (Aube) in France. This report was submitted to the ASN for its opinion. Uncertainties remain about the site's capacity to accommodate all of the waste included in the baseline inventory of the long-lived low-level waste storage facility. Further studies are planned under the 2016-2018 National Plan for the Management of Radioactive Materials and Waste, concerning both the feasibility of this storage centre and the search for additional waste management solutions. A general industrial plan for management of all long-lived low-level radioactive waste is also to be remitted by the end of 2019.

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.

Until June 2015 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 (now Orano), 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 2012 ANDRA carried out preliminary conceptional studies for the Cigéo geological storage project, after discussing the technical optimisations proposed by the producers of waste.

On this basis, ANDRA drew up figures which, in compliance with the Law of 28 June 2006, were subjected to a consultation process with waste producers started in late 2014 by the French Department for Energy and Climate *(Direction Générale de l'Énergie et du Climat* or DGEC). In April 2015 EDF and the other producers sent the DGEC their comments on ANDRA's report and a joint estimation of the target Cigéo storage cost due to divergent approaches. All this information was included, together with the ASN's opinion, in a report submitted to the Minister for Ecology, Sustainable Development and Energy.

On 15 January 2016 the Ministry of Ecology, Sustainable Development and Energy issued a Ministerial Order setting the target cost for the Cigéo storage project at €25 billion under 2011 economic conditions. 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 and stakeholders. They include technical and economic optimisation and the responses to the safety option report sent by ANDRA to the ASN in April 2016. The law of 11 July 2016 also clarified the concept of reversibility. In 2017 ANDRA opted for a new configuration to provide the basis for the preliminary project.

Under the schedule prepared by ANDRA, the application to built Cigéo (classified as a basic nuclear facility) should be made during 2019 and permission is expected to be granted in 2022. After an industrial pilot phase starting in 2026, the first waste packages should be received in 2031.

On 15 January 2018, the ASN issued its opinion on the Cigéo safety option report (DOS Cigéo). It considers that the project has reached satisfactory overall technological maturity at this stage and requires examination of alternatives to the current proposals for storage of bituminous waste at Cigéo.

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 ongoing operations concern plants that were constructed and operated before the current nuclear fleet ("first-generation" plants), and the Superphenix plant and Irradiated Materials Workshop at Chinon. These operations cover four different technologies: a heavy water reactor (Brennilis), a sodium-cooled fast-neutron reactor (the Superphenix at Creys-Malville), natural uranium graphite gas-cooled (UNGG) reactors (at Chinon, Saint Laurent and Bugey) and a pressurised water reactor (PWR at Chooz). Each of them is a first for EDF, and apart from the PWR, they concern reactor technologies for which there is little or no international experience. They therefore require development of new methods and technologies that are riskier than technologies for which feedback already exists. Decommissioning of the Chooz PWR is benefiting from past experience (essentially in the US and limited), but the reactor has the specificity of being located in a cave, making this a unique operation, generating experience that is not immediately transposable and involves specific risks.

The experience gained from dismantling the Chooz PWR will make the studies and estimates of future decommissioning of the nuclear fleet currently in operation ("second-generation" plants) as robust as possible. But so far, neither EDF nor any other operator has begun a decommissioning programme on a scale comparable to the current PWR fleet, and as a result the estimates include both opportunities and risks, especially the risks associated with the scale effect.

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

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

(in millions of Euros)	31/12/2016	Increases	Decreases	Discount effect	Other movements	31/12/2017
Provisions for decommissioning nuclear plants in operation	10,899	2	(13)	461	267	11,616
Provisions for decommissioning permanently shut-down nuclear plants	3,223	-	(118)	197	2	3,304
DECOMMISSIONING PROVISIONS FOR NUCLEAR POWER PLANTS	**14,122**	**2**	**(131)**	**658**	**269**	**14,920**

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. These estimates had been confirmed from 2009 by a detailed study of decommissioning costs conducted by EDF at the representative site of Dampierre (four 900MW units), and its results were corroborated by an intercomparison with the study carried out by consultants La Guardia, based mainly on the Maine Yankee reactor in the US.

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. For this revision, the decommissioning provisions for plants in operation were based on costs resulting from the Dampierre study, in order to incorporate best estimates and feedback from inside 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 involved in future decommissioning 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, estimated for each series based on transposition coefficients applied to the baseline costs for the initial 900MW unit, and the series and mutualisation effects, as these costs and effects are inherent to the fleet's size and configuration.

The natures of the principal mutualisation and series effects used to arrive at the estimate are explained below.

There are several types of mutualisation effects:

- some of them relate to the fact that several reactors may share common buildings and facilities on the same site, and these buildings and facilities will not have to be decommissioned twice. Structurally, decommissioning a pair of reactors on the same site costs less than decommissioning two standalone reactors on two different sites. In France, unlike other countries, there are no single reactors but sites with two or four, and in one case six reactors;
- certain costs are no higher when 2 or 4 reactors are decommissioned on the same site. This is usually the case for surveillance costs and cost of maintaining safe operating conditions on the site;
- waste processing in centralised facilities (for example for dismantling major components) costs less than having several waste processing facilities at the decommissioning location.

Series effects are mainly of two types:

- first, in a fleet using the same technology, many of the studies do not need to be repeated each time;
- second, in a fleet using the same technology, robots and tooling can be largely reused from one site to another.

Such series effects are comparable in nature to the effects observed during construction of the fleet, in terms of studies or component manufacturing plants.

For example, for the 900MW fleet, a series effect of approximately 20% is expected between the first-of-kind reactor with 2 units and an average 2-units reactor.

Series and mutualisation effects in particular explain why it is not appropriate simply to compare the average decommissioning cost per reactor between the French fleet and other countries' nuclear fleets.

The figures only marginally reflect changes in productivity and the learning effect. The external audit of the decommissioning cost for the fleet currently in operation, ordered by the DGEC, considered that the learning effect incorporated into the estimate was conservative.

For reasons of prudence, the estimate also includes an assessment of risks, contingencies and uncertainties.

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 this detailed approach led to limited changes overall in the cost 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 1st January 2016, and the effect of changes in discount rates at 31 December 2016, *i.e.*:

- 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,
- 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.

After its revision in 2016, it was decided that the estimate would be reviewed annually. The 2017 review led to non-significant adjustments.

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 decommissioning 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). Several new technical developments showed that the alternative "in-air" dismantling solution for the caissons would improve industrial control of operations and was apparently more favourable in terms of safety, radioprotection and environmental impact. The company therefore selected a new "in-air" dismantling scenario as the benchmark strategy for all six caissons.

This scenario includes a consolidation phase, building on experience acquired from dismantling the first caisson before beginning work on the other five. The decommissioning phase will ultimately be longer than previously planned, leading to higher contractor quotes due to the induced operating costs.

The amended industrial scenario was presented to the ASN's commissioners on 29 March 2016.

At the request of the ASN, an independent expert review was ordered in the first quarter of 2017 to analyse EDF's chosen solutions for decommissioning of its 6 UNGG reactors. The conclusions did not challenge the main options chosen. A meeting took place with the ASN commissioners in June 2017 based on these conclusions and a justification file remitted by EDF in March.

This led to a further presentation in 2018 after EDF remitted another file presenting a detailed schedule for operations to be undertaken in the next 15 years, and the findings of a large number of studies concerning the stability of reactor buildings in the long term.

The strategy file and the safety option report concerning establishment of a secure configuration were sent to the ASN in late December 2017, together with the detailed timetable for operations over the period 2017-2032.

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.

The 2016 review led to non-significant adjustments, apart from one increase of €125 million for a specific installation (the Irradiated Materials Workshop at Chinon). The 2017 review led to non-significant adjustments.

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 4.1% at 31 December 2017, assuming inflation of 1.5% (4.2% and 1.5% respectively at 31 December 2016), giving a real discount rate of 2.6% at 31 December 2017 (2.7% at 31 December 2016).

Regulatory discount rate limit

The discount rate applied must also comply with two regulatory limits. Under the amended decree of 23 February 2007 and the ministerial order of 21 March 2007, itself modified by the order of 29 December 2017, the discount rate must be lower than:

- a regulatory maximum, set until 31 December 2026 as the weighted average of two terms, the first set at 4.3%, and the second corresponding to the arithmetic average over the 48 most recent months of the TEC 30-year rate plus 100 points. The weighting given to the first constant term of 4.3% reduces on a straight-line basis from 100% at 31 December 2016 to 0% at 31 December 2026;
- and the expected rate of return on assets covering the liability (dedicated assets).

The ceiling rate based on the TEC 30-year rate is 4.1% at 31 December 2017 (4.3% at 31 December 2016).

The discount rate used at 31 December 2017 is 4.1%

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.

	31/12/2017		31/12/2016	
(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	19,058	10,786	18,460	10,658
Waste removal and conditioning	1,203	726	-	-
Long-term radioactive waste management	29,396	8,814	29,631	8,966
BACK-END NUCLEAR CYCLE EXPENSES	**49,657**	**20,326**	**48,091**	**19,624**
Decommissioning provisions for nuclear plants in operation	20,563	11,616	20,185	10,889
Decommissioning provisions for shut-down nuclear plants	6,472	3,304	6,431	3,223
Provisions for last cores	4,332	2,387	4,344	2,287
DECOMMISSIONING AND LAST CORE EXPENSES	**31,367**	**17,307**	**30,960**	**16,409**

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 2017:

(in millions of Euros)	Amounts in provisions at present value	Sensitivity to discount rate			
		Balance sheet provisions		Pre-tax net income	
		+0.20%	-0.20%	+0.20%	-0.20%
Back-end nuclear cycle expenses:					
- spent fuel management	10,786	(221)	238	190	(206)
- waste removal and conditioning	726	(22)	24	13	(14)
- long-term radioactive waste management	8,814	(497)	562	407	(464)
Decommissioning and last core expenses:					
- decommissioning of nuclear plants in operation	11,616	(477)	501	7	(7)
- decommissioning provisions for shut-down nuclear plants	3,304	(125)	135	125	(135)
- last cores	2,387	(85)	90	-	-
TOTAL	**37,633**	**(1,427)**	**1,550**	**742**	**(826)**

At 31 December 2016:

(in millions of Euros)	Amounts in provisions at present value	Sensitivity to discount rate			
		Balance sheet provisions		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 core expenses:					
- 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)**

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 €10,264 million at 31 December 2017;
- 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 €8,650 million at 31 December 2017 (€8,743 million at 31 December 2016).

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)	31/12/2016	Increases	Decreases	Discount effect	Translation adjustments	Other movements (1)	31/12/2017
Provisions for spent fuel management	1,771	10	(258)	103	(60)	1	1,567
Provisions for waste removal and conditioning	-	2	-	16	(4)	301	315
Provisions for long-term radioactive waste management	888	2	-	34	(28)	(251)	6,45
Provisions for the back-end of the nuclear cycle	**2,659**	**14**	**(258)**	**153**	**(92)**	**51**	2,527
Provisions for nuclear plant decommissioning	6,190	-	(15)	329	(220)	(51)	6,233
Provisions for last cores	1,373	-	-	67	(50)	114	1,504
Provisions for decommissioning and last cores	**7,563**	**-**	**(15)**	**396**	**(270)**	**63**	7,737
PROVISIONS RELATED TO NUCLEAR GENERATION	10,222	14	(273)	549	(362)	114	10,264

(1) Other movements mainly include the reclassification at 1st January 2017 of the provisions for waste removal and conditioning, which were previously included in the provisions for long-term radioactive waste management, in the amount of €301 million.

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 1st 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 €122 million at 31 December 2017;
- £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.

	31/12/2017		31/12/2016	
(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	2,829	1,567	3,101	1,771
Waste removal and conditioning	1,827	315	-	-
Long-term radioactive waste management	3,589	645	5,326	888
BACK-END NUCLEAR CYCLE EXPENSES	**8,245**	**2,527**	**8,427**	**2,659**

29.2.3 Provisions for nuclear plant decommissioning

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 2016 (3-year revision) and approved in 2013 and assume that plants will be decommissioned and the land will ultimately be reused.

	31/12/2017		31/12/2016	
(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	**15,520**	**6,111**	**15,803**	**6,059**

The table above concerns decommissioning obligations excluding the present value of decommissioning contributions payable to the NLF, which is €122 million at 31 December 2017 (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 a long-term forecast of adjusted retail prices (the UK's CPIH index).

At 31 December 2017, EDF Energy applied a real discount rate of 2.7% to nuclear liabilities in the United Kingdom (2.7% at 31 December 2016).

Note 30 Other provisions for decommissioning

The breakdown by company is as follows:

(in millions of Euros)	EDF	EDF Energy	Edison	Framatome [1]	Other entities [2]	Total
OTHER PROVISIONS FOR DECOMMISSIONING AT 31/12/2017 [2]	626	130	692	347	262	2,057
Other provisions for decommissioning at 31/12/2016	617	90	667	-	195	1,569

(1) Including €81 million of provisions concerning basic nuclear facilities in France.
(2) Including €43 million of provisions concerning Socodei's basic nuclear facilities in France.

Other provisions for decommissioning principally concern fossil-fired power plants, hydrocarbon production assets and installations for the production of nuclear fuel assemblies.

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 2017 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)	31/12/2017	31/12/2016
Provisions for employee benefits - current portion	1,106	1,100
Provisions for employee benefits - non-current portion	20,630	21,234
PROVISIONS FOR EMPLOYEE BENEFITS	21,736	22,334

31.1.1 Breakdown of the change in the net liability

(in millions of Euros)	Obligations	Fund assets	Net Liability
Balance at 31/12/2016 [1]	42,683	(20,917)	21,766
Net expense for 2017	1,961	(470)	1,491
Actuarial gains and losses	(400)	(721)	(1,121)
Employer's contributions to funds	-	(438)	(438)
Employees' contributions to funds	14	(14)	-
Benefits paid	(1,848)	811	(1,037)
Translation adjustment	(316)	333	17
Changes in scope of consolidation [2]	630	(479)	151
Other movements	(3)	-	(3)
BALANCE AT 31/12/2017	42,721	(21,895)	20,826
Including:			
Provisions for employee benefits			21,736
Non-current financial assets			(910)

(1) The net liability at 31 December 2016 comprised €22,334 million for the provisions for employee benefits and €(568) million of non-current financial assets, giving a net liability amount of €21,766 million.
(2) Changes in the scope of consolidation at 31 December 2017 principally comprise pension commitment and other long-term employee benefits related to the acquisition of Framatome, representing a net liability of €149 million.

Actuarial gains and losses on obligations amount to €(400) million for 2017, essentially comprising €194 million in the United Kingdom associated with changes in the discount and inflation rates and €(598) million in France, mainly attributable to experience adjustments.

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.

31.1.2 Post-employment and other long-term employee benefit expenses

(in millions of Euros)	2017	2016
Current service cost	(1,010)	(890)
Past service cost	-	38
Actuarial gains and losses – long-term benefits	(67)	(177)
Net expenses recorded as operating expenses	**(1,077)**	**(1,029)**
Interest expense (discount effect)	(884)	(1,048)
Return on fund assets	470	547
Net interest expense included in financial result	**(414)**	**(501)**
EMPLOYEE BENEFIT EXPENSES RECORDED IN THE INCOME STATEMENT	(1,491)	(1,530)
Actuarial gains and losses – post-employment benefits	400	(2,041)
Actuarial gains and losses on fund assets	721	2,602
Actuarial gains and losses	**1,121**	**561**
Translation adjustments	**(17)**	(5)
GAINS AND LOSSES ON EMPLOYEE BENEFITS RECORDED DIRECTLY IN EQUITY	1,104	556

31.1.3 Net employee benefit liability by geographical area

(in millions of Euros)	France [1]	United Kingdom	Other	Total
Obligations at 31/12/2016	**33,373**	**8,891**	**419**	**42,683**
Net expense for 2017	1,427	511	23	1,961
Actuarial gains and losses	(598)	194	4	(400)
Employees' contributions to funds	-	14	-	14
Benefits paid	(1,501)	(338)	(9)	(1,848)
Translation adjustment	-	(316)	-	(316)
Changes in scope of consolidation	-	-	630	630
Other movements	-	-	(3)	(3)
OBLIGATIONS AT 31/12/2017	32,701	8,956	1,064	42,721
Fair value of fund assets	(11,621)	(9,684)	(588)	(21,895)
NET EMPLOYEE BENEFIT LIABILITY AT 31/12/2017	21,080	(728)	474	20,826
Including:				
Provisions for employee benefits	21,080	182	474	21,736
Non-current financial assets [2]	-	(910)	-	(910)

(1) France comprises the two operating segments "France – Generation and Supply" and "France – Regulated activities" (see note 31.2).
(2) At 31 December 2017, EDF Energy recognised surplus funding on its EEGSG and BEGG pension schemes (see note 31.3.1).
(3) Changes in the scope of consolidation at 31 December 2017 principally comprise pension commitment and other long-term employee benefits related to the acquisition of Framatome, amounting to €629 million.

(in millions of Euros)	France [1]	United Kingdom	Other	Total
Obligations au 31/12/2016	**33,373**	**8,891**	**419**	**42,683**
Fair value of fund assets	(11,566)	(9,248)	(103)	(20,917)
PROVISIONS FOR RMPLOYEE BENEFITS AT 31/12/2016	**21,807**	**(357)**	**316**	**21,766**
Including:				
Provisions for employee benefits	21,807	211	316	22,334
Non-current financial assets	-	(568)	-	(568)

(1) France comprises the two operating segments "France – Generation and Supply" and "France – Regulated activities" (see note 31.2).

31.2 FRANCE (REGULATED ACTIVITIES, AND GENERATION AND SUPPLY)

Given the strong similarities between their pension schemes, the two 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 provisions

(in millions of Euros)	Obligations	Fund assets	Provisions in the balance sheet
Balances at 31/12/2016	**33,373**	**(11,566)**	**21,807**
Net expense for 2017	1,427	(220)	1,207
Actuarial gains and losses	(598)	(161)	(759)
Contributions to funds	-	(145)	(145)
Benefits paid	(1,501)	471	(1,030)
BALANCES AT 31/12/2017	**32,701**	**(11,621)**	**21,080**

31.2.2 Post-employment and other long-term employee benefit expenses

(in millions of Euros)	2017	2016
Current service cost	(725)	(659)
Past service cost	-	-
Actuarial gains and losses – other long-term benefits	(68)	(177)
Net expenses recorded as operating expenses	***(793)***	***(836)***
Interest expense (discount effect)	(634)	(739)
Return on fund assets	220	252
Net interest expense included in financial result	***(414)***	***(487)***
EMPLOYEE BENEFIT EXPENSES RECORDED IN THE INCOME STATEMENT	**(1,207)**	**(1,323)**
Actuarial gains and losses – post-employment benefits	598	(643)
Actuarial gains and losses on fund assets	161	854
Actuarial gains and losses	***759***	***211***
GAINS AND LOSSES ON EMPLOYEE BENEFITS RECORDED DIRECTLY IN EQUITY	**759**	**211**

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

(in millions of Euros)	2017	2016
Experience adjustments	462	(165)
Changes in demographic assumptions	-	23
Changes in financial assumptions [1]	68	(678)
Actuarial gains and losses on obligations	**530**	**(820)**
Including:		
-Actuarial gains and losses on post-employment benefits	598	(643)
-Actuarial gains and losses on other long-term benefits	(68)	(177)

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

The actuarial gains and losses on obligations generated over 2017 amount to €530 million, and are mainly attributable to experience adjustments.

In 2016, actuarial gains and losses on obligations amounted to €(820) million, mainly related to the effect of revised financial assumptions (including the changes in assumptions for the discount rate and inflation).

31.2.3 Provisions for employee benefits by nature

At 31 December 2017:

(in millions of Euros)	Obligations	Fund assets	Provisions in the balance sheet
Provisions for post-employment benefits at 31/12/2017	**31,214**	**(11,621)**	**19,593**
Comprising:			
Pensions	24,266	(10,859)	13,407
Benefits in kind (electricity/gas)	4,758	-	4,758
Retirement gratuities	873	(747)	126
Other	1,317	(15)	1,302
Provisions for other long-term employee benefits at 31/12/2017	**1,487**	**-**	**1,487**
Comprising:			
Annuities following work-related accident and illness, and invalidity	1,250	-	1,250
Long service awards	208	-	208
Other	29	-	29
PROVISIONS FOR EMPLOYEE BENEFITS AT 31/12/2017	**32,701**	**(11,621)**	**21,080**

At 31 December 2016:

(in millions of Euros)	Obligations	Fund assets	Provisions 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

31.2.4 Breakdown of obligations by type of beneficiary

(in millions of Euros)	31/12/2017	31/12/2016
Current employees	18,577	19,918
Retirees	14,124	13,455
OBLIGATIONS	32,701	33,373

31.2.5 Fund assets

For France, fund assets, managed under an asset/liability model, amount to €11,621 million at 31 December 2017 (€11,566 million at 31 December 2016) 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)	31/12/2017	31/12/2016
FUND ASSETS	11,621	11,566
Assets funding special pension benefits	*10,859*	*10,810*
Comprising (%)		
Listed equity instruments (shares)	31%	31%
Listed debt instruments (bonds)	69%	69%
Assets funding retirement gratuities	*747*	*741*
Comprising (%)		
Listed equity instruments (shares)	32%	33%
Listed debt instruments (bonds)	68%	67%
Other fund assets	*15*	*15*

At 31 December 2017, the equities held as part of fund assets are distributed as follows:

- approximately 53% of the total are shares in North American companies;
- approximately 24% of the total are shares in European companies;
- approximately 23% 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 2016.

At 31 December 2017, the bonds held as part of fund assets are distributed as follows:

- approximately 90% of the total are AAA and AA-rated bonds;
- approximately 10% of the total are bonds with A, BBB and other ratings.

Around 84% 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 relatively stable compared to the distribution at 31 December 2016.

The performance of pension fund assets in France is +3.1% in 2017.

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 provisions (present value)
Less than one year	1,480	1,467
One to five years	5,583	5,260
Five to ten years	5,383	4,621
More than ten years	40,829	21,353
CASH FLOWS RELATED TO EMPLOYEE BENEFITS	**53,275**	**32,701**

At 31 December 2017, the average duration of employee benefit commitments in France is 19.2 years.

31.2.7 Actuarial assumptions

(in %)	**31/12/2017**	31/12/2016
Discount rate/rate of return on assets [(1)]	1.90%	1.90%
Inflation rate	1.50%	1.50%
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. For longer durations, the calculation also takes into consideration data from a wider selection of corporate bonds adjusted for comparability with the high-quality bonds, since 2017 saw a reduction in the number of such bonds with these durations.

Changes at 31 December 2017 in the economic and market parameters used have led the Group to set the discount rate at 1.90% at 31 December 2017 (identical to the rate at 31 December 2016).

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 2017 is an average 1.50% (identical to the rate at 31 December 2016).

31.2.8 Sensitivity analysis

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

(in %)	31/12/2017
Impact of a 25bp increase or decrease in the discount rate	-4.6% / +5.0%
Impact of a 25bp increase or decrease in the wage increase rate	+3.8% / -3.8%
Impact of a 25bp increase or decrease in the inflation rate	+4.7% / -4.4%

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 31/12/2016	**8,891**	**(9,248)**	**(357)**
Net expense for 2017	511	(249)	262
Actuarial gains and losses	194	(558)	(364)
Employer's contributions to funds	-	(286)	(286)
Employees' contributions to funds	14	(14)	-
Benefits paid	(338)	338	-
Translation adjustment	(316)	333	17
BALANCES AT 31/12/2017	8,956	(9,684)	(728)
Including:	-	-	-
Provisions for employee benefits	-	-	182
Non-current financial assets	-	-	(910)

At 31 December 2017, EDF Energy's EEGSG and BEGG pension schemes (see note 1.3.22.2.2) were overfunded to the extent of €910 million compared to €568 million at 31 December 2016.

This excess funding, which has increased due to the good performance by fund assets, is recognised in balance sheet assets as "non-current financial assets".

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

(in millions of Euros)	2017	2016
Current service cost	(267)	(224)
Past service cost	-	40
Actuarial gains and losses – other long-term benefits	-	-
Net expenses recorded as operating expenses	**(267)**	**(184)**
Interest expense (discount effect)	(244)	(302)
Return on fund assets	249	294
Net interest expense included in financial result	5	**(8)**
EMPLOYEE BENEFIT EXPENSES RECORDED IN THE INCOME STATEMENT	**(262)**	**(192)**
Actuarial gains and losses – post-employment benefits	(194)	(1,349)
Actuarial gains and losses on fund assets	558	1,717
Actuarial gains and losses	**364**	**368**
Translation adjustments	**(17)**	**(5)**
GAINS AND LOSSES ON EMPLOYEE BENEFITS RECORDED DIRECTLY IN EQUITY	**347**	**363**

31.3.3 Breakdown of obligations by type of beneficiary

(in millions of Euros)	31/12/2017	31/12/2016
Current employees	5,412	5,195
Retirees	3,544	3,696
OBLIGATIONS	**8,956**	**8,891**

31.3.4 Fund assets

Pension obligations in the United Kingdom are partly covered by external funds with a present value of €9,685 million at 31 December 2017 (€9,248 million at 31 December 2016).

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)	31/12/2017	31/12/2016
BEGG pension fund	7,597	7,454
EEGSG pension fund	1,283	1,059
EEPS pension fund	804	735
FUND ASSETS	**9,684**	**9,248**
Comprising (%)		
Listed equity instruments (shares)	27%	27%
Listed debt instruments (bonds)	50%	52%
Real estate properties	7%	6%
Cash and cash equivalents	1%	3%
Other	15%	12%

At 31 December 2017, the equities held as part of fund assets are distributed as follows:

- approximately 28% of the total are shares in North American companies;
- approximately 48% 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 2016.

At 31 December 2017, the bonds held as part of fund assets are distributed as follows:

- approximately 65% of the total are AAA and AA-rated bonds;
- approximately 35% of the total are bonds with A, BBB and other ratings.

Around 65% 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 3% lower than at 31 December 2016.

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 provisions (present value)
Less than one year	256	255
One to five years	1,043	1,004
Five to ten years	1,480	1,292
More than ten years	13,443	6,405
CASH FLOWS RELATED TO EMPLOYEE BENEFITS	**16,222**	**8,956**

The contribution to funds for 2018 is estimated at approximately €293 million (€278 million contributed by the employer and €15 million by the employees).

The average weighted duration of funds in the United Kingdom is 21.0 years at 31 December 2017.

31.3.6 Actuarial assumptions

(in %)	**31/12/2017**	31/12/2016
Discount rate/rate of return on assets [(1)]	2.56 %	2.76 %
Inflation rate	3.00 %	3.05 %
Wage increase rate	2.40 %	2.45 %

(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 %)	**31/12/2017**
Impact of a 25bp increase or decrease in the discount rate	-4.8% / +5.3%
Impact of a 25bp increase or decrease in the wage increase rate	+0.5% / -0.5%
Impact of a 25bp increase or decrease in the inflation rate	+3.6% / -3.7%

Note 32 Other provisions

Details of changes in other provisions are as follows:

(in millions of Euros)	31/12/2016	Increases	Decreases		Changes in scope[3]	Other Changes	31/12/2017
			Utilisations	Reversals			
Provisions for contingencies related to subsidiaries and investments	1,037	-	(122)	(18)	6	10	913
Provisions for tax liabilities	518	90	(27)	(8)	1	(1)	573
Provisions for litigation	532	87	(23)	(13)	1	5	589
Provisions for onerous contracts and losses on completion	342	47	(94)	(93)	63	8	273
Provisions related to environmental schemes [1]	834	1,239	(1,172)	(3)	-	3	901
Other provisions for risks and liabilities [2]	1,286	451	(417)	(115)	430	1	1,636
TOTAL	4,549	1,914	(1,855)	(250)	501	26	4,885

(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). None of these provisions is significant individually.
(3) Changes in scope mainly relate to the acquisition of Framatome (see note 3.2).

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)	31/12/2017	31/12/2016
Value in kind of assets [1]	47,813	46,497
Unamortised financing by the operator	(24,172)	(23,160)
Rights in existing assets - net value	**23,641**	**23,337**
Amortisation of financing by the grantor	13,149	12,613
Provisions for renewal	9,533	9,742
Rights in assets to be replaced	**22,682**	**22,355**
SPECIAL FRENCH PUBLIC ELECTRICITY DISTRIBUTION CONCESSION LIABILITIES	46,323	45,692

(1) Including contributions received to finance concession assets, amounting to €144 million (€143 million in 2016).

Note 34 Trade payables

(in millions of Euros)	31/12/2017	31/12/2016
Trade payables - excluding EDF Trading	10,738	9,770
Trade payables - EDF Trading	3,256	3,261
TRADE PAYABLES	13,994	13,031

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)	31/12/2017	31/12/2016
Advances and progress payments received	8,387	7,793
Liabilities related to property, plant and equipment	3,711	3,247
Tax liabilities	7,014	7,098
Social charges	4,171	4,010
Deferred income on long-term contracts	3,606	3,438
Other deferred income	499	729
Other [1]	2,436	2,909
OTHER LIABILITIES	29,824	29,224
Non-current portion	4,864	4,810
Current portion	24,960	24,414

(1) Other items include investment subsidies received, amounting to €348 million in 2017 (€417 million in 2016).

35.1 ADVANCES AND PROGRESS PAYMENTS RECEIVED

At 31 December 2017 advances and progress payments received include:

- monthly standing order payments by EDF's residential and business customers amounting to €6,568 million (€6,828 million at 31 December 2016);
- payments made by Framatome's customers amounting to €738 million.

35.2 TAX LIABILITIES

At 31 December 2017 tax liabilities mainly include an amount of €1,562 million for the CSPE to be collected by EDF on energy supplied but not yet billed (€1,633 million at 31 December 2016).

35.3 DEFERRED INCOME ON LONG-TERM CONTRACTS

EDF's deferred income on long-term contracts at 31 December 2017 comprises €1,711 million (€1,822 million at 31 December 2016) 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.

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:

	31/12/2017			31/12/2016		
(in millions of Euros)	Current	Non-current	**Total**	Current	Non-current	**Total**
Financial assets at fair value through profit or loss	2,614	-	**2,614**	3,813	-	**3,813**
Available-for-sale financial assets	19,312	21,612	**40,924**	22,402	17,888	**40,290**
Positive fair value of hedging derivatives	837	2,743	**3,580**	2,157	3,899	**6,056**
Loans and financial receivables	2,190	12,432	**14,622**	1,614	13,342	**14,956**
CURRENT AND NON-CURRENT FINANCIAL ASSETS[1]	24,953	36,787	61,740	29,986	35,129	65,115

(1) Including impairment of €(547) million at 31 December 2017 (€(566) million at 31 December 2016).

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)	**31/12/2017**	31/12/2016
Positive fair value of trading derivatives	2,614	3,813
Fair value of financial assets held for trading	-	-
FINANCIAL ASSETS CARRIED AT FAIR VALUE WITH CHANGES IN FAIR VALUE INCLUDED IN INCOME	2,614	3,813

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

	31/12/2017			31/12/2016		
(in millions of Euros)	Equities [1]	Debt securities	**Total**	Equities [1]	Debt securities	**Total**
EDF dedicated assets	11,462	9,386	**20,848**	9,201	7,766	**16,967**
Liquid assets	3,145	15,818	**18,963**	4,507	17,759	**22,266**
Other securities	1,007	106	**1,113**	944	113	**1,057**
AVAILABLE-FOR-SALE FINANCIAL ASSETS	15,614	25,310	40,924	14,652	25,638	40,290

(1) Equities or Undertakings 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:

	2017		2016	
(in millions of Euros)	Gross changes in fair value recorded in equity [1]	Gross changes in fair value transferred to income [2]	Gross changes in fair value recorded in equity [1]	Gross changes in fair value transferred to income [2]
EDF dedicated assets	807	673	760	488
Liquid assets	22	34	63	12
Other securities	(5)	10	(5)	-
AVAILABLE-FOR-SALE FINANCIAL ASSETS [3]	**824**	**717**	**818**	**500**

(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 2017 and 2016 principally concern EDF.

No significant impairment was recorded in 2017.

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 €2,646 million at 31 December 2017 (€3,955 million at 31 December 2016).

36.3 LOANS AND FINANCIAL RECEIVABLES

Loans and financial receivables are recorded at amortised cost.

(in millions of Euros)	31/12/2017	31/12/2016
Loans and financial receivables - amounts receivable from the NLF	8,650	8,743
Loans and financial receivables – CSPE [1]	3,294	4,185
Loans and financial receivables - other	2,678	2,028
LOANS AND FINANCIAL RECEIVABLES	**14,622**	**14,956**

(1) Including €3,294 million allocated to dedicated assets at 31 December 2017 (€4,185 million at 31 December 2016).

Loans and financial receivables include:

- amounts representing reimbursements receivable from the NLF and the British government for coverage of long-term nuclear obligations, totalling €8,650 million at 31 December 2017 (€8,743 million at 31 December 2016), 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 2016 and the costs of bearing that shortfall. Reimbursements received during 2017 amounted to €954 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.

36.4 CHANGE IN FINANCIAL ASSETS OTHER THAN DERIVATIVES

The variation in financial assets is as follows:

36.4.1 At 31 December 2017

(in millions of Euros)	31/12/2016	Net increases	Changes in fair value	Discount effect	Changes in scope	Translation adjustments	Other	31/12/2017
Available-for-sale financial assets	**40,290**	344	588	-	144	(137)	(305)	**40,924**
Loans and financial receivables	**14,956**	(979)	-	442	174	(377)	406	**14,622**

"Net increases" in loans and financial receivables include the €(890) million change in the CSPE receivable.

Other changes in loans and financial receivables mainly correspond to the change in the financial asset reflecting the overfunding of EDF Energy's EEGSG and BEGG pension plans (€916 million at 31 December 2017, compared to €568 million at 31 December 2016).

36.4.2 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**

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)	31/12/2017	31/12/2016
Cash	3,328	2,651
Cash equivalents [(1)]	364	242
Financial current accounts	-	-
CASH AND CASH EQUIVALENTS	3,692	2,893

(1) Items stated at fair value amount to €364 million at 31 December 2017 (€235 million at 31 December 2016).

Cash restrictions

Cash and cash equivalents include €298 million of cash subject to restrictions at 31 December 2017 (€243 million at 31 December 2016) (see note 1.3.26).

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:

	31/12/2017			31/12/2016		
(in millions of Euros)	Non-current	Current	**Total**	Non-current	Current	**Total**
Loans and other financial liabilities	49,734	7,112	**56,846**	52,992	12,203	**65,195**
Negative fair value of derivatives held for trading	-	2,787	**2,787**	-	4,485	**4,485**
Negative fair value of hedging derivatives	1,631	1,243	**2,874**	1,284	1,601	**2,885**
FINANCIAL LIABILITIES	51,365	11,142	62,507	54,276	18,289	72,565

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 31/12/2016	**51,864**	**4,180**	**7,380**	**420**	**1,351**	**65,195**
Increases	1,509	365	1,027	-	121	3,022
Decreases	(3,033)	(301)	(3,219)	(57)	(129)	(6,739)
Translation adjustments	(625)	(94)	(127)	-	(3)	(849)
Changes in scope of consolidation	4	(1,187)	49	-	(2)	(1,136)
Changes in fair value	(2,396)	-	(251)	4	-	(2,643)
Other changes	2	131	(134)	1	(4)	(4)
BALANCES AT 31/12/2017	47,325	3,094	4,725	368	1,334	56,846

Increases and decreases in loans and other financial liabilities (excluding accrued interest) shown in the above table do not include monetary variations (incuded in the Cash flow statement) of €306 million on settlement of hedging instruments.

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

(in millions of Euros)	**31/12/2017**	31/12/2016
EDF and other related subsidiaries [1]	44,367	52,811
EDF Energy [2]	6,118	5,268
EDF Énergies Nouvelles	5,276	4,642
Edison [3]	241	1,214
Other	844	1,260
LOANS AND OTHER FINANCIAL LIABILITIES	56,846	65,195

(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 2017, none of these entities had defaulted on any borrowing.

The Group's principal borrowings at 31 December 2017 are as follows:

Type of borrowing *(in millions of currencies)*	Entity	Issue [1]	Maturity	Issue amount	Currency	Rate
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%
Bond	EDF	01/2017	01/2027	107,900	JPY	1.09%
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.

On 20 January 2017, EDF raised ¥137 billion, *i.e.* around €1.1 billion, through 4 senior bond issues on the Japanese market ("Samurai bonds") (see note 3.5).

At 31 December 2017, 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 2017:

(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	1,557	549	3,881	52	1,073	**7,112**
From one to five years	13,021	653	50	147	71	**13,942**
More than five years	32,747	1,892	794	169	190	**35,792**
LOANS AND OTHER FINANCIAL LIABILITIES AT 31/12/2017	**47,325**	**3,094**	**4,725**	**368**	**1,334**	**56,846**

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**

38.2.3 Breakdown of loans and other financial liabilities by currency

	31/12/2017			31/12/2016		
(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)	27,609	18,454	46,063	31,204	20,220	51,424
American dollar (USD)	17,224	(14,752)	2,472	22,239	(19,314)	2,925
Pound sterling (GBP)	9,495	(2,331)	7,164	9,824	(827)	8,997
Other	2,518	(1,371)	1,147	1,928	(79)	1,849
LOANS AND OTHER FINANCIAL LIABILITIES	**56,846**	**-**	**56,846**	**65,195**	**-**	**65,195**

(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

	31/12/2017			31/12/2016		
(in millions of Euros)	Initial debt structure	Impact of derivatives	Final debt structure	Initial debt structure	Impact of derivatives	Final debt structure
Fixed rates	52,900	(21,469)	31,431	58,650	(23,710)	34,940
Floating rates	3,946	21,469	25,415	6,545	23,710	30,255
LOANS AND OTHER FINANCIAL LIABILITIES	**56,846**	**-**	**56,846**	**65,195**	**-**	**65,195**

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 2017, the Group has unused credit lines with various banks totalling €11,943 million (€11,709 million at 31 December 2016).

	31/12/2017				31/12/2016
	Total	Maturity			Total
(in millions of Euros)		< 1 year	1-5 years	> 5 years	
CONFIRMED CREDIT LINES	**11,943**	2,149	9,759	35	**11,709**

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.

Two borrowings with a combined total of €725 million contain a review clause stipulating that if the borrower's rating falls below a certain level, the borrower and the lender must review and possibly renegotiate the terms of the loan, and the borrower may voluntarily proceed to early repayment.

No early repayment took place in 2017 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	31/12/2017	31/12/2016
Loans and other financial liabilities	38.2.1	56,846	65,195
Derivatives used to hedge liabilities	41	(1,176)	(3,965)
Cash and cash equivalents	37	(3,692)	(2,893)
Available-for-sale financial assets - liquid assets	36.2.2	(18,963)	(22,266)
Net indebtedness of assets held for sale		-	1,354
NET INDEBTEDNESS		**33,015**	**37,425**

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 2017

(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]	**2,614**	2,614	233	2,252	129
Available-for-sale financial assets	**40,924**	40,924	2,499	37,792	633
Positive fair value of hedging derivatives	**3,580**	3,580	21	3,559	-
Cash equivalents carried at fair value	**364**	364	198	166	-
Financial assets carried at fair value in the balance sheet	**47,482**	**47,482**	**2,951**	**43,769**	**762**
Loans and financial receivables - assets receivable from the NLF	**8,650**	8,650	-	8,650	-
Loans and financial receivables - CSPE	**3,294**	3,349	-	3,349	-
Other loans and financial receivables	**2,678**	2,678	-	2,678	-
Financial assets recorded at amortised cost	**14,622**	**14,677**	**-**	**14,677**	**-**
Negative fair value of hedging derivatives	**2,874**	2,874	75	2,799	-
Negative fair value of trading derivatives	**2,787**	2,787	200	2,467	120
Financial liabilities carried at fair value in the balance sheet	**5,661**	**5,661**	**275**	**5,266**	**120**
Loans and other financial liabilities [2]	**56,846**	63,334	-	63,334	-
Financial liabilities recorded at amortised cost	**56,846**	**63,334**	**-**	**63,334**	**-**

(1) Including €2,614 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 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.

39.2 OFFSETTING OF FINANCIAL ASSETS AND LIABILITIES

39.2.1 At 31 December 2017

	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		
(in millions of Euros)			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	**6,194**	**234**	11,067	(5,107)	**5,960**	(1,652)	(1,073)	**3,235**
Fair value of derivatives - liabilities	**(5,661)**	**(844)**	(9,924)	5,107	**(4,817)**	1,652	768	**(2,397)**

39.2.2 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)**

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 CO_2 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 29.1.5.2 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	31/12/2017	31/12/2016
Positive fair value of hedging derivatives	36.1	3,580	6,056
Negative fair value of hedging derivatives	38.1	(2,874)	(2,885)
FAIR VALUE OF HEDGING DERIVATIVES		706	3,171
Interest rate hedging derivatives	41.4.1	1,689	2,023
Exchange rate hedging derivatives	41.4.2	(606)	2,122
Commodity-related cash flow hedges	41.4.3	(411)	(995)
Commodity-related fair value hedges	41.5	34	21

An alternative breakdown of hedging derivatives is shown below:

(*in millions* of Euros)	Notes	31/12/2017	31/12/2016
Fair value of derivatives hedging liabilities	38.3	1,176	3,965
Fair value of derivatives hedging net foreign investments		90	14
Fair value of other hedging derivatives (commodities)		(560)	(808)
FAIR VALUE OF HEDGING DERIVATIVES		706	3,171

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 2017, the ineffective portion of fair value hedges represents a gain of €37 million (loss of €(11) million in 2016), 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 2017 is nil (also nil in 2016).

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:

	2017			2016		
(in millions of Euros)	Gross changes in fair value recorded in equity[1]	Gross changes in fair value transferred to income - Recycling [2]	Gross changes in fair value transferred to income - Ineffectiveness	Gross changes in fair value recorded in equity [1]	Gross changes in fair value transferred to income - Recycling[2]	Gross changes in fair value transferred to income - Ineffectiveness
Interest rate hedging	31	-	-	6	-	1
Exchange rate hedging	(1,588)	(1,331)	(3)	70	288	(4)
Net foreign investment hedging	518	(120)	-	1,352	-	-
Commodity hedging	(613)	(1,714)	5	(489)	361	31
HEDGING DERIVATIVES [3]	**(1,652)**	**(3,165)**	**2**	**939**	**649**	**28**

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

41.4.1 Interest rate hedging derivatives

Interest rate hedging derivatives break down as follows:

	Notional at 31/12/2017				Notional at 31/12/2016	Fair value	
(in millions of Euros)	< 1 year	1-5 years	> 5 years	**Total**	Total	**31/12/2017**	31/12/2016
Fixed rate payer/floating rate receiver	106	711	331	1,148	1,342	(75)	(62)
Floating rate payer/fixed rate receiver	-	4,769	17,971	22,740	24,906	1,928	2,299
Floating rate/floating rate	-	-	1,252	1,252	2,022	(9)	4
Fixed rate/fixed rate	528	5,269	4,265	10,062	10,327	(155)	(218)
Interest rate swaps	**634**	**10,749**	**23,819**	**35,202**	**38,597**	**1,689**	**2,023**
INTEREST RATE HEDGING DERIVATIVES	**634**	**10,749**	**23,819**	**35,202**	**38,597**	**1,689**	**2,023**

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 2017:

	Notional amount to be received at 31/12/2017				Notional amount to be given at 31/12/2017				Fair value
(in millions of Euros)	< 1 year	1-5 years	> 5 years	**Total**	< 1 year	1-5 years	> 5 years	**Total**	**31/12/2017**
Forward exchange transactions	2,478	518	-	2,996	2,475	514	-	2,989	-
Swaps	12,469	10,614	12,724	35,807	12,592	10,384	13,155	36,131	(606)
EXCHANGE RATE HEDGING DERIVATIVES	**14,947**	**11,132**	**12,724**	**38,803**	**15,067**	**10,898**	**13,155**	**39,120**	**(606)**

At 31 December 2016:

	Notional amount to be received at 31/12/2016				Notional amount to be given at 31/12/2016				Fair value
(in millions of Euros)	< 1 year	1-5 years	> 5 years	**Total**	< 1 year	1-5 years	> 5 years	**Total**	**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**

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)	**31/12/2017**	31/12/2016
Electricity hedging contracts	(916)	(2,610)
Gas hedging contracts	69	(316)
Coal hedging contracts	36	9
Oil product hedging contracts	149	2,007
CO_2 emission rights hedging contracts	49	421
CHANGES IN FAIR VALUE BEFORE TAXES	**(613)**	**(489)**

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

(in millions of Euros)	**31/12/2017**	31/12/2016
Electricity hedging contracts	(1,744)	1,276
Gas hedging contracts	50	(943)
Coal hedging contracts	31	(72)
Oil product hedging contracts	(66)	86
CO_2 emission rights hedging contracts	15	14
CHANGES IN FAIR VALUE BEFORE TAXES	**(1,714)**	**361**

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

		31/12/2017					31/12/2016	
(in millions of Euros)	Units of measure	Net notional				Fair value	Net notional	Fair value
		< 1 year	1-5 years	> 5 years	Total			
Swaps		2	-	-	2	58	5	(3)
Forwards/futures		(2)	(70)	-	(72)	(688)	(89)	(1,174)
Electricity	**TWh**	**-**	**(70)**	**-**	**(70)**	**(630)**	**(84)**	**(1,177)**
Swaps		(193)	(40)	-	(233)	(16)	(531)	(4)
Forwards/futures		1,052	399	-	1,451	65	1,685	109
Gas	**Millions of therms**	**859**	**359**	**-**	**1,218**	**49**	**1,154**	**105**
Swaps		8,528	5,647	-	14,175	109	25,158	69
Options		379	-	-	379	2	-	-
Oil products	**Thousands of barrels**	**8,907**	**5,647**	**-**	**14,554**	**111**	**25,158**	**69**
Swaps		-	-	-	-	40	-	-
Coal	**Millions of tonnes**	**-**	**-**	**-**	**-**	**40**	**-**	**-**
Swaps		-	-	-	-	-	-	-
Forwards/futures		5,821	13,755	-	19,576	19	21,702	8
CO_2	**Thousands of tonnes**	**5,821**	**13,755**	**-**	**19,576**	**19**	**21,702**	**8**
COMMODITY-RELATED CASH FLOW HEDGES						(411)		(995)

41.5 COMMODITY-RELATED FAIR VALUE HEDGES

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

		31/12/2017		31/12/2016	
(in millions of Euros)	Units of measure	Net notional	Fair value	Net notional	Fair value
Coal and freight	Millions of tonnes	4	3	4	3
Gas	Millions of therms	(583)	31	(307)	18
COMMODITY-RELATED FAIR VALUE HEDGES			34		21

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	31/12/2017	31/12/2016
Positive fair value of trading derivatives	36.2.1	2,614	3,813
Negative fair value of trading derivatives	38.1	(2,787)	(4,485)
FAIR VALUE OF TRADING DERIVATIVES		(173)	(672)
Interest rate derivatives held for trading	42.1	(33)	(55)
Currency derivatives held for trading	42.2	73	(179)
Non-hedging commodity derivatives	42.3	(213)	(438)

42.1 INTEREST RATE DERIVATIVES HELD FOR TRADING

Interest rate derivatives held for trading break down as follows:

	Notional at 31/12/2017				Notional at 31/12/2016	Fair value	
(in millions of Euros)	< 1 year	1-5 years	> 5 years	Total	Total	31/12/2017	31/12/2016
Purchases of options	-	-	519	519	517	15	22
Interest rate operations	**-**	**-**	**519**	**519**	**517**	**15**	**22**
Fixed rate payer/floating rate receiver	1,366	1,280	332	2,978	742	(42)	(77)
Floating rate payer/fixed rate receiver	-	330	86	416	406	(8)	(2)
Floating rate/floating rate	-	351	-	351	910	1	1
Fixed rate/fixed rate	194	70	74	338	418	1	1
Interest rate swaps	**1,560**	**2,031**	**492**	**4,083**	**2,476**	**(48)**	**(77)**
INTEREST RATE DERIVATIVES HELD FOR TRADING	**1,560**	**2,031**	**1,011**	**4,602**	**2,993**	**(33)**	**(55)**

42.2 CURRENCY DERIVATIVES HELD FOR TRADING

Currency derivatives held for trading break down as follows:

At 31 December 2017:

	Notional amount to be received at 31/12/2017				Notional amount to be given at 31/12/2017				Fair value
(in millions of Euros)	< 1 year	1-5 years	> 5 years	Total	< 1 year	1-5 years	> 5 years	Total	31/12/2017
Forward transactions	2,438	1,079	8	3,525	2,443	1,089	9	3,541	(23)
Swaps	11,986	4,823	74	16,883	11,960	4,764	73	16,797	96
CURRENCY DERIVATIVES HELD FOR TRADING	**14,424**	**5,902**	**82**	**20,408**	**14,403**	**5,853**	**82**	**20,338**	**73**

At 31 December 2016:

	Notional amount to be received at 31/12/2016				Notional amount to be given at 31/12/2016				Fair value
(in millions of Euros)	< 1 year	1-5 years	> 5 years	Total	< 1 year	1-5 years	> 5 years	Total	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)**

42.3 NON-HEDGING COMMODITY DERIVATIVES

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

		31/12/2017		31/12/2016	
(in millions of Euros)	Unit of measure	Net notional	Fair value	Net notional	Fair value
Swaps		(5)	479	(18)	52
Options		4	106	4	118
Forwards/futures		(54)	(403)	(45)	(406)
Electricity	**TWh**	**(55)**	**182**	**(59)**	**(236)**
Swaps		894	(132)	8,253	114
Options		(68)	171	338	38
Forwards/futures		19,784	57	(4,169)	(205)
Gas	**Millions of therms**	**20,610**	**96**	**4,422**	**(53)**
Swaps		3,400	94	11,159	27
Options		1,920	3	(247)	(14)
Forwards/futures		108	(3)	(10)	(2)
Oil products	**Thousands of barrels**	**5,428**	**94**	**10,902**	**11**
Swaps		(1)	(151)	-	(205)
Options		3	(1)	-	-
Forwards/futures		4	9	45	105
Freight		(4)	17	7	31
Coal and freight	**Millions of tonnes**	**2**	**(126)**	**52**	**(69)**
Swaps		43	-	113	-
Options		-	-	-	-
Forwards/futures		35,583	(57)	2,906	(42)
CO_2	**Thousands of tonnes**	**35,626**	**(57)**	**3,019**	**(42)**
Swaps/options			(56)		258
Forwards/futures			(346)		(308)
Other commodities			**(402)**		**(50)**
Embedded commodity derivatives			**-**		**1**
NON-HEDGING COMMODITY DERIVATIVES			(213)		(438)

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)	2017	2016
Change in inventories	543	6
Change in the receivable for Contribution to the Public Electricity Service (CSPE)	499	(9)
Change in trade receivables	636	(1,487)
Change in trade payables	550	91
Change in other receivables and payables (excluding CSPE)	(752)	(536)
CHANGE IN WORKING CAPITAL	1,476	(1,935)

43.2 INVESTMENTS IN INTANGIBLE AND TANGIBLE ASSETS

(in millions of Euros)	2017	2016
Acquisitions of intangible assets	(1,165)	(1,038)
Acquisitions of tangible assets	(14,329)	(13,217)
Change in payables to suppliers of fixed assets	747	(142)
INVESTMENTS IN INTANGIBLE AND TANGIBLE ASSETS	(14,747)	(14,397)

Note 44 Off-balance sheet commitments

This note presents off-balance sheet commitments given and received by the Group at 31 December 2017. 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	31/12/2017	31/12/2016
Operating commitments given	44.1.1	44,705	46,560
Investment commitments given	44.1.2	17,222	18,605
Financing commitments given	44.1.3	5,123	5,535
TOTAL COMMITMENTS GIVEN		67,050	70,700

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 2017 are as follows:

(in millions of Euros)	**31/12/2017**	31/12/2016
Fuel and energy purchase commitments [1]	26,728	32,669
Operating contract performance commitments given	13,739	10,260
Operating lease commitments as lessee	4,238	3,631
TOTAL OPERATING COMMITMENTS GIVEN	44,705	46,560

(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 2017, fuel and energy purchase commitments mature as follows:

	31/12/2017					31/12/2016
	Total	Maturity				Total
(in millions of Euros)		< 1 year	1-5 years	5-10 years	> 10 years	
Electricity purchases and related services [1]	**9,767**	1,601	3,310	2,274	2,582	9,267
Other energy and commodity purchases [2]	**391**	83	213	95	-	662
Nuclear fuel purchases	**16,570**	1,414	6,151	5,285	3,720	22,740
FUEL AND ENERGY PURCHASE COMMITMENTS	26,728	3,098	9,674	7,654	6,302	32,669

(1) Including commitments given by controlled entities to joint ventures, amounting to €606 million at 31 December 2017 (€643 million at 31 December 2016).
(2) Excluding gas purchases and related services – see note 44.1.1.1.4.

The decrease in fuel and energy purchases mainly relates to the portion of intragroup commitments following the acquisition of Framatome, and the decline 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 47TWh for 2017 (43TWh for 2016), including 6TWh for co-generation (6TWh for 2016), 23TWh for wind power (20TWh for 2016), 9TWh for photovoltaic power (8TWh for 2016) and 3TWh for hydropower (3TWh for 2016).

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 decrease in these commitments in 2017 is mainly explained by the acquisition of Framatome (see note 3.2) and elimination of intragroup commitments, as EDF is a significant customer of Framatome.

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 2017 are as follows:

	31/12/2017				31/12/2016
	Total	Maturity			Total
(in billions of m³)		< 1 year	1-5 years	> 5 years	
Edison	154	14	43	97	167
EDF	24	1	7	16	26

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.

Under the contract with Terminale GNL Adriatico, 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 2017, these commitments mature as follows:

	31/12/2017				31/12/2016
	Total	Maturity			Total
(in millions of Euros)		< 1 year	1-5 years	> 5 years	
Operating guarantees given	7,074	3,215	2,294	1,565	5,883
Operating purchase commitments [1]	6,460	3,655	2,117	688	4,212
Other operating commitments	205	84	102	19	165
OPERATING CONTRACT PERFORMANCE COMMITMENTS GIVEN [2]	13,739	6,954	4,513	2,272	10,260

(1) Excluding fuel and energy.
(2) Including commitments given by controlled entities to joint ventures, amounting to €835 million at 31 December 2017 (€1,121 million at 31 December 2016).

The increase in operating contract performance commitments given relates to consolidation of the activities of Framatome (see note 3.2).

44.1.1.2.1 Operating guarantees given

Operating guarantees given are as follows:

(in millions of Euros)	31/12/2017	31/12/2016
EDF	2,270	1,612
EDF Énergies Nouvelles	1,363	1,617
Edison	1,215	1,432
EDF Energy	732	630
Framatome	714	-
Other entities	780	592
TOTAL	7,074	5,883

The change since 31 December 2016 in operating guarantees given is mainly explained by the transfer of guarantees in the acquisition of Framatome.

44.1.1.2.2 Operating purchase commitments

Operating purchase commitments are as follows:

(in millions of Euros)	31/12/2017	31/12/2016
EDF	2,480	2,434
Framatome	1,878	-
EDF Energy	627	608
Enedis	601	598
Other entities	874	572
TOTAL	6,460	4,212

The increase in operating purchase commitments relates to the acquisition of Framatome.

44.1.1.3 Operating lease commitments as lessee

At 31 December 2017, operating lease commitments as lessee break down as follows:

	31/12/2017				31/12/2016
	Total	Maturity			Total
(in millions of Euros)		< 1 year	1-5 years	> 5 years	
OPERATING LEASE COMMITMENTS AS LESSEE	4,238	748	1,923	1,567	3,631

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 2017, details of investment commitments are as follows:

	31/12/2017				31/12/2016
	Total	Maturity			Total
(in millions of Euros)		< 1 year	1-5 years	> 5 years	
Commitments related to acquisition of tangible and intangible assets	**15,827**	6,798	8,224	805	17,351
Commitments related to acquisition of financial assets	**569**	390	173	6	406
Other commitments related to investments	**826**	411	415	-	848
TOTAL INVESTMENT COMMITMENTS GIVEN [1]	17,222	7,599	8,812	811	18,605

(1) Including commitments given by controlled entities to joint ventures, amounting to €428 million at 31 December 2017 (€548 million at 31 December 2016).

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)	31/12/2017	31/12/2016
EDF	4,689	7,556
EDF Energy	6,428	5,837
Enedis	2,383	2,621
EDF Énergies Nouvelles	1,242	977
Framatome	562	-
Other entities	523	360
TOTAL	15,827	17,351

The decrease in commitments given by EDF for acquisition of tangible and intangible assets mainly reflects the elimination of what are now intragroup transactions due to the acquisition of Framatome, and progress on the Flamanville 3 EPR project. The increase in commitments given by EDF Energy concerns the signature of new contracts for construction of the Hinkley Point C reactor.

44.1.2.2 Commitments related to acquisition of financial assets

The increase in commitments related to acquisition of financial assets at 31 December 2017 principally results from the acquisition of Gas Natural Vendita Italia (GNVI).

On 13 October 2017 Edison and Gas Natural Fenosa signed a binding agreement for the acquisition by Edison of GNVI and the Shah Deniz II gas contract.

Edison will acquire 100% of the capital of GNVI, a subsidiary of Gas Natural Fenosa which supplies natural gas and electricity across Italy. The purchase price is set at €193 million corresponding to an Enterprise Value of €263 million after debt repayment and provisions.

The acquisition of Gas Natural Vendita Italia is subject to European Competition authority clearance, which was obtained on 6 February 2018, and the transaction should be finalised during the first half-year of 2018.

As part of the agreement and subject to completion of the acquisition of Gas Natural Vendita Italia, Edison will also acquire a 11TWh long-term gas supply contract from the Shah Deniz II field. Gas imports from Shah Deniz II are expected to start at the end of 2020 once the Trans Adriatic Pipeline (TAP) is completed.

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 32, 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 2017, 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 2017 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 2017 comprise the following:

	31/12/2017				31/12/2016
	Total	Maturity			Total
(in millions of Euros)		< 1 year	1-5 years	> 5 years	
Security interests in real property	**4,250**	76	731	3,443	4,637
Guarantees related to borrowings	**613**	349	144	120	644
Other financing commitments	**260**	245	15	-	254
TOTAL FINANCING COMMITMENTS GIVEN [1]	5,123	670	890	3,563	5,535

(1) Including commitments given by controlled entities to joint ventures, amounting to €692 million at 31 December 2017 (€673 million at 31 December 2016). 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	31/12/2017	31/12/2016
Operating commitments received [1]	44.2.1	3,635	3,430
Investment commitments received	44.2.2	214	3,663
Financing commitments received	44.2.3	72	24
TOTAL COMMITMENTS RECEIVED [2]		3,921	7,117

(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 2017 comprise the following:

	31/12/2017				31/12/2016
	Total	Maturity			Total
(in millions of Euros)		< 1 year	1-5 years	> 5 years	
Operating lease commitments as lessor	780	121	430	229	911
Operating sale commitments	1,326	181	750	395	829
Operating guarantees received	1,483	1,042	253	188	1,637
Other operating commitments received	46	16	22	8	53
OPERATING COMMITMENTS RECEIVED	3,635	1,360	1,455	820	3,430

44.2.1.1 Operating lease commitments as lessor

The Group benefits from commitments as lessor in operating leases amounting to €780 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.

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

(in millions of Euros)	31/12/2017 Total	Maturity < 1 year	Maturity 1-5 years	Maturity > 5 years	31/12/2016 Total
INVESTMENT COMMITMENTS RECEIVED	214	20	72	122	3,663

The decrease in investment commitments over the first half of 2017 reflects the completion of operations initiated before 31 December 2016 as part of the asset disposal plan (see note 3.4).

At 31 December 2016, investment commitments received mainly included a commitment of €2,566 million relating to the future sale of 49.9% of its subsidiary RTE *via* the company CTE. Other notable investment commitments received concerned the future sale of EDF Démász Zrt and EDF Trading's coal trading and freight businesses.

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 2017.

44.2.3 Financing commitments received

(in millions of Euros)	31/12/2017 Total	Maturity < 1 an	Maturity 1-5 years	Maturity > 5 years	31/12/2016 Total
FINANCING COMMITMENTS RECEIVED	72	51	1	20	24

Note 45 Contingent liabilities

In addition to the matters reported in note 4.2, the principal contingent liabilities at 31 December 2017 are the following.

45.1 TAX INSPECTIONS

EDF

Following inspections of previous years' accounts, the French tax authorities disputed the tax-deductibility of the provision for annuities following work-related accidents and illness paid by the Company. As this issue related to the special gas and electricity (IEG) statutes, it also concerned RTE, Enedis and Électricité de Strasbourg as well as other entities. In two rulings of 22 November 2017, the Council of State definitively validated the Company's position and recognised the tax-deductible nature of these provisions, putting an end to all the related litigations.

For the period 2008 to 2015, EDF was notified of proposed tax adjustments, notably concerning the tax-deductibility of certain long-term liabilities. This recurrent reassessment, which is applied for each year, represents a cumulative financial risk of some €536 million in income taxes at 31 December 2017. In September 2017 the Montreuil Administrative Court issued two rulings that recognised the tax-deductibility of these liabilities and validated the position taken by the Company.

For the years 2012 and 2015, the French tax authorities notified the Company of certain recurrent tax reassessments concerning the *Contribution sur la Valeur ajoutée des Entreprises* (tax on corporate value added), and questioned the deductibility of long-term provisions.

EDF International

Following the tax inspections of EDF International for the years 2009 to 2014, the French tax authorities questioned the valuation of the bond convertible into shares issued to refinance the acquisition of British Energy. The total amount concerned is approximately €310 million. EDF International has contested this reassessment, and considers it has good chances of winning the dispute.

45.2 LABOUR LITIGATION

EDF is party to a number of labour lawsuits, 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 (although the risk has been mitigated by the signature of the agreement on fixed numbers of working days in 2016).

45.3 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 connection applications (since at the time the applicable tariff depended on the date at which a complete connection application was filed). Several successive ministerial orders were issued reducing purchase prices.

As these price decreases were not sufficient to stem the flow of connection applications, by a decree of 9 December 2010 the Government suspended the conclusion of new contracts for a three-month period, and stated that if the financial and technical proposal for a request had not been approved by 2 December 2010, a new connection//contract application would have to be submitted at the end of this three-month period.

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 continued to refuse to make any payouts on the other pending cases.

In an order of 15 March 2017, the CJEU confirmed that the decisions of 10 July 2006 and 12 January 2010 setting the purchase tariffs for photovoltaic energy constitute "intervention by the State or using State resources", one of the four criteria that characterise State aid. The Court stated that such a support measure, implemented without prior notification to the Commission, is illegal. It is now up to the national courts to act accordingly, particularly by banning application of these illegal decisions.

France's commercial courts and Appeal Courts will issue their decisions in the coming months.

EDF and Enedis dispute their liability, and:

- have decided to take action to group insurance for all claims to their insurers relating to the same damaging event with the same technical cause (connection//contract applications issued between 24 and 31 August 2010), known as "serial losses"; or
- are filing appeals for the most unfavourable first-instance judgments issued against them;
- are using the CJEU order as grounds to argue that the producers' prejudices stem from illegal decisions and thus are not legally reparable.

45.3.1 SUN'R

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 connecting

its photovoltaic facilities and EDF of delays in the establishment 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

On 12 January 2018 the ADLC's investigation departments sent the parties a proposal to dismiss the matter due to the absence of anticompetitive practices by EDF, Enedis and RTE. This proposal is not an indication of the ADLC's future final decision.

Concurrently with its complaint to the ADLC in 2012, 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 asked the Court to suspend proceedings pending the ADLC's decision on the merits of the case, and claimed 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 asked the Court to suspend proceedings pending the ADLC's decision on the merits of the case. In a ruling of 4 December 2017, the Paris Commercial Court rejected claims for provisional compensation made by Sun West, Azimut 56 and JB Solar and suspended proceedings until the ADLC issues a decision on the merits of the case.

Note 46 Assets held for sale and related liabilities

(in millions of Euros)	31/12/2017	31/12/2016
ASSETS HELD FOR SALE	-	5,220
LIABILITIES RELATED TO ASSETS HELD FOR SALE	-	2,109

The decrease in assets held for sale and related liabilities since 31 December 2016 results from the following operations under the disposal plan:

- Sale to Caisse des Dépôts and CNP Assurances of 49.9% of the balance sheet items of CTE (principally comprising RTE shares and a bond) (see note 3.4.1);
- Sale of EDF Polska's assets (see note 3.4.2);
- Sale of EDF Démász's assets (see note 3.4.3);
- Sale of EDF Trading's coal trading and freight business (see note 3.4.4).

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 CTE, which holds 100% of the capital of RTE, to the portfolio of dedicated assets at 31 December 2017 (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 portion of the CSPE receivable that was allocated to dedicated assets (€894 million) has been reinvested in dedicated assets, in the same way as the reimbursements received (see note 3.7.4).

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 2017, the assets managed by EDF Invest represent a realisable value of €5,408 million, particularly including:

- 50.1% of the Group's shares in CTE, the joint venture that owns RTE, in compliance with Decree 2016-1781 of 19 December 2016 amending the Decree of 23 February 2007. These shares amount to €2,705 million at 31 December 2017 (€3,905 million for 75.93% of the shares in CTE, at 31 December 2016) (see note 3.4.1);
- the Group's investment in TIGF, Porterbrook, Autostrade and Q-Park presented in available-for-sale financial assets in the consolidated balance sheet;
- the Group's investments in Madrileña Red de Gas (MRG), Géosel, Thyssengas, Aéroports de la Côte d'Azur and Central Sicaf 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:

		31/12/2017		31/12/2016	
(in millions of Euros)	Consolidated balance sheet presentation	**Book value**	**Realisable value**	Book value	Realisable value
Equities		9,942	9,942	8,010	8,010
Debt instruments		9,282	9,282	6,866	6,866
Cash portfolio		104	104	900	900
Dedicated assets – equities and debt instruments	Available-for-sale financial assets	***19,328***	***19,328***	***15,776***	***15,776***
Derivatives	Fair value of derivatives	30	30	(18)	(18)
Other	Available-for-sale financial assets	-	-	-	-
Diversified equity and bond investments		**19,358**	**19,358**	**15,758**	**15,758**
CSPE receivable [(1)]	Loans and financial receivables	3,294	3,349	4,185	4,288
Derivatives	Fair value of derivatives	-	-	(2)	(2)
CSPE receivable after derivatives		**3,294**	**3,349**	**4,183**	**4,286**
CTE [(2)]	Investments in associates [(3)]	1,241	2,705	1,852	3,905
Other associates	Investments in associates [(3)]	893	944	487	537
Other assets [(5)]	Available-for-sale financial assets and other net assets [(5)]	1,716	1,759	1,191	1,191
Unlisted assets (EDF Invest)		**3,850**	**5,408**	**3,530**	**5,633**
TOTAL DEDICATED ASSETS [(4)]		26,502	28,115	23,471	25,677

(1) The receivable consisting of accumulated shortfalls in compensation at 31 December 2015, less the portion assigned on 22 December 2016 and reimbursements received in 2017, in line with the repayment schedule. The realisable value of the CSPE receivable is estimated based on market rates.

(2) In 2017, the Group's investment of 50.1% of CTE (formerly C25), the company that holds 100% of the shares in RTE. In 2016, 75.93% of the Group's investment in CTE.
The CTE shares are included at their equity value in the consolidated financial statements (book value in the table). The realisable value shown in this table is based on the sale transaction price of 31 March 2017 (see note 3.4.1).

(3) Including the value of the share in equity of the controlled companies owning these investments.

(4) Limiting the value of certain investments in compliance with article 16 of Decree 2007-243 concerning calculation of the regulatory realisable value of dedicated assets, has no effect at 31 December 2017. 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 was reduced to €24,312 million at 31 December 2016.

(5) Including the value of the share in equity of other controlled companies.

Structured entities - Investment funds

The investment funds held by the Group (see note 1.3.2.9) reported in the table under "Available-for-sale financial assets" 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 €3,294 million at 31 December 2017 (€1,548 million at 31 December 2016). The funds mainly consist of 12 listed funds with total value of €2,906 million (at 31 December 2016, 9 listed funds with total value of €1,297 million).

47.4 CHANGES IN DEDICATED ASSETS IN 2017

At 31 December 2017, the degree of coverage of provisions by dedicated assets was 108.5% applying the regulatory calculations.

The regulatory limit on the realisable value of certain investments (decree 2007-243) has no effect at 31 December 2017.

At 31 December 2016, provisions were 99.8% covered by dedicated assets applying the regulatory calculations. Without application of the regulatory limits set by Decree 2007-243, the provision coverage rate was 105.4%.

Withdrawals from dedicated assets totalled €378 million, equivalent to the payments made in respect of the long-term nuclear obligations to be covered in 2017 (€377 million in 2016).

The regulatory allocation to dedicated assets (required by article 2-IV of decree 2007-243, amended) for 2016, amounting to €1,095 million, was made during the first half of 2017 in compliance with the ministerial letter of 10 February 2017 (no allocations were made in 2016). The regulatory allocation to dedicated assets for 2017 amounts to €386 million and will be made during 2018.

2017 was a remarkable year for the equity markets, which were boosted by simultaneous worldwide economic growth and monetary policies that remained generous, and the financial portfolio achieved excellent results, outperforming its strategic benchmark index. This good performance was primarily driven by prudent positioning in terms of sensitivity and exposure to government bonds in core Euro zone countries, as long rates on government bonds rose slightly. The credit portfolio also outperformed its benchmark, particularly thanks to subordinated bank notes. The very slight overexposure on equities maintained over the year was beneficial, and so were the active management approaches selected.

On 31 March 2017, EDF finalised the sale of a 49.9% stake in CTE, the company which has held 100% of the shares of RTE since December 2016. Since completion, EDF's entire investment in CTE, *i.e.* 50.1%, has been allocated to dedicated assets (see note 3.4.1).

For the unlisted asset portfolio, EDF Invest continued over 2017 to build up a portfolio of infrastructures, real estate property and investment funds.

On 26 July 2017 EDF Invest completed the acquisition by the consortium consisting of Allianz (60%), EDF Invest (20 %) and the investment fund DIF (20%), of 6.94% of the capital of Autostrade per l'Italia, one of Europe's largest motorway concession operators.

In June and September 2017, EDF Invest, together with Beni Stabili, the Italian subsidiary of Foncière des Régions, and Predica, acquired a non-controlling interest in Central Sicaf, which manages a portfolio of offices and technical premises that are all leased to Telecom Italia and were previously owned 100% by Beni Stabili.

In October 2017, EDF Invest, together with KKR Infrastructure, finalised the acquisition of a minority interest in the Dutch carpark operator Q-Park NV, one of Europe's largest carpark operators.

In December 2017, EDF Invest acquired 50% of the Ecowest real estate development in Levallois-Perret, which is leased principally to L'Oreal's Luxury division.

These investments are allocated to EDF Invest's Infrastructures pocket, alongside other investments including TIGF, Porterbrook, MRG, Géosel, CTE (the company that owns RTE) Aéroports de la Côte d'Azur and Thyssengas.

A total of €985 million in net gains on disposals from the financial portfolio was recorded in the financial result in 2017 (€428 million in 2016).

The difference between the fair value and acquisition cost of diversified bond and equity investments included in equity was a positive €2,118 million before taxes at 31 December 2017 (€1,984 million at 31 December 2016).

The Group's assessment of the value of the dedicated asset portfolio did not lead to recognition of any impairment in 2017.

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 related to nuclear generation are included in the EDF group's consolidated financial statements at the following values:

(in millions of Euros)	**31/12/2017**	31/12/2016
Provisions for spent fuel management – portion unrelated to the operating cycle as defined in the regulations	983	820
Provisions for long-term radioactive waste management [(1)]	8,814	8,966
Provisions for waste removal and conditioning	726	
Provisions for nuclear plant decommissioning	14,920	14,122
Provisions for last cores - portion for future long-term radioactive waste management	467	450
PRESENT COST OF LONG-TERM NUCLEAR OBLIGATIONS	**25,910**	**24,358**

(1) At 31 December 2016, provisions for long-term radioactive waste management included the provision for waste removal and conditioning which amounted to €581 million.

47.6 DEDICATED ASSETS OF FRAMATOME AND SOCODEI

The dedicated assets of Framatome and Socodei relating to Basic nuclear facilities (INB) in France have realisable values of €84 million and €49 million respectively and the degree of coverage of provisions according to the regulations is 103.9% for Framatome and 114.7% for Socodei (calculated using EDF group discount and inflation rates for nuclear provisions in France – see note 30).

These two entities' long-term nuclear obligations in France concerned by the regulations for dedicated assets are included the EDF group's consolidated financial statements at the amounts of €81 million for Framatome and €43 million for Socodei (see note 30).

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) (2)]		Group Total	
(in millions of Euros)	**31/12/2017**	31/12/2016	**31/12/2017**	31/12/2016	**31/12/2017**	31/12/2016	**31/12/2017**	31/12/2016
Sales	580	547	-	-	1,549	1,328	2,129	1,875
Energy purchases	3,817	3,651	4	4	2,313	2,418	6,134	6,073
External purchases	9	4	4	4	1,163	1,065	1,176	1,073
Financial assets	238	106	-	-	-	-	238	106
Other assets	729	575	-	-	596	754	1,325	1,329
Financial liabilities	-	-	-	-	-	-	-	-
Other liabilities	1,282	1,106	1	-	552	880	1,835	1,986

(1) Excluding tax and social liabilities and the CSPE receivable.
(2) As a result of the Group's acquisition of Framatome on 31 December 2017 (see note 3.2), income and expense items between the Group and Framatome are still partly reported in Related Parties for 2017, whereas assets and liabilities are eliminated at the year-end.

48.1 TRANSACTIONS WITH ENTITIES INCLUDED IN THE SCOPE OF CONSOLIDATION

Transactions with the principal associates (CTE, (the company that owns RTE), CENG, Taishan 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 83.50% of the capital of EDF at 31 December 2017, 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 two entities belonging to the former AREVA group (Orano and Framatome). The EDF group took over Framatome (see note 3.2) at 31 December 2017, and relations with that company continued up to that date.

Transactions with Orano concern:

- the front-end of the nuclear fuel cycle (uranium supplies, conversion and enrichment services);
- the back-end of the nuclear fuel cycle (transportation, storage, processing and recycling services for spent fuel);

Transactions with Framatome are described in note 3.2.

Front-end of the cycle

Several important agreements were negotiated between EDF and Orano:

- for supplies of natural uranium: AREVA Mines (now Orano Mining) contracts 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 (now Orano Cycle) 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 (Orano) signed a uranium contract with AREVA Mines (Orano Mining), and a conversion contract and enrichment contract with AREVA NC (Orano Cycle).

Back-end of the cycle

Relations between EDF and AREVA (Orano) concerning transportation, processing and recycling of spent fuels are described in note 29.1.1.

Relations with Framatome

In December 2014, EDF and Framatome signed a contract for supplies of enriched-uranium fuel assemblies over the period 2015-2021.

Another agreement with Framatome was signed for the supply of initial core assemblies for the Flamanville 3 EPR.

A contract for the supply of control rod clusters was also signed with Framatome for the period 2018-2020.

As part of the plan to construct two EPRs in the United Kingdom at the Hinkley Point site, EDF signed a fabrication contract with Framatome.

EDF and Framatome have signed the following main contracts for the 900MW, 1300MW and N4 nuclear power plants:

- in 2011, a contract for supply of 32 steam generators and a contract for renewal of the instrumentation and control systems;
- in August 2012, a contract for services related to replacement operations for the first steam generators.
- In mid-2017, a framework contract concerning EDF's rights to use AREVA intellectual property. This contract will be applied through specific agreements such as the one signed in December 2017 for the nuclear fleet;
- In late 2017, a framework agreement with no financial commitment, for the provision of engineering, design and production services relating to the steam supply system.

In 2013, EDF and Framatome signed two amendments to the initial 2007 contract for the Flamanville EPR steam supply system, covering the period from development studies to industrial commissioning.

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 2017 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 €12.2 million in 2017 (€12.1 million in 2016). 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, and EDF Luminus.

In 2017, the Group surrendered 38 million tonnes in respect of emissions generated in 2016. In 2016, the Group surrendered 46 million tonnes in respect of emissions generated in 2015.

The Group's total emission rights allocation for 2017 recorded in the national registers is 3 million tonnes (5 million tonnes for 2016).

The volume of emissions at 31 December 2017 stood at 40 million tonnes (38 million tonnes for 2016). The provision resulting from over-quota emissions amounts to €120 million at 31 December 2017 (€90 million at 31 December 2016).

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 1st 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 1st 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.

A fourth three-year period of energy savings obligations will begin on 1st January 2018 (see note 4.6).

49.3 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 and Belgium).

The renewable energy certificates system may apply to:

- non-obligated electricity producers when the obligation applies to energy sales (EDF Énergies Nouvelles);
- obligated electricity producers when the obligation applies to generation;
- producers who are also sellers of electricity when the obligation applies to energy sales (EDF Energy, EDF Luminus).

Through the renewable energy certificates scheme, the EDF group has an obligation to surrender renewable energy certificates, particularly in the United Kingdom and Belgium.

At 31 December 2017, a provision of €781 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

Developments since the year-end that are not presented in other notes are reported below.

50.1 CONFIRMATION OF THE EUROPEAN COMMISSION DECISION ON THE TAX TREATMENT OF PROVISIONS ESTABLISHED BETWEEN 1987 AND 1996 FOR RENEWAL OF GENERAL NETWORK FACILITIES

On 16 January 2018, the General Court of the European Union rejected EDF's appeal against the European Commission's decision of 22 July 2015 classifying the tax treatment of provisions established between 1987 and 1996 for renewal of General Network facilities as state aid, and ordering that it be recovered by the French State.

Following this decision by the Commission, on 13 October 2015, EDF repaid €1.383 billion, corresponding to the amount of state aid including interest. ENEDIS and RTE contributed their respective shares.

In its ruling, the General Court upheld the European Commission's decision of 22 July 2015 classifying the tax treatment of provisions established for renewal of General Network as state aid. As EDF had already repaid €1.383 billion on 13 October 2015, the execution of this ruling will not entail any additional payment.

The Commission had previously issued a similar decision on 16 December 2003. That decision was cancelled by the Court of Justice of the European Union in a ruling on 5 June 2012, confirming a ruling by the General Court of the European Union dated 15 December 2009. Following that ruling, the Commission reopened an inquiry into state aid, at the end of which it issued the decision of 22 July 2015 which was challenged by EDF.

EDF acknowledges this decision and will consider the advisability of submitting an appeal to the Court of Justice of the European Union.

Note 51 Scope of consolidation at 31 December 2017

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;
- **"Reactors and Services (Framatome)"** (R): services and production of equipment and fuel for nuclear reactors;
- **"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.). This activity also includes EDF Invest's holding companies and entities that are classified as dedicated assets.

51.1 FULLY CONSOLIDATED COMPANIES

		Percentage of ownership at 31/12/2017	Percentage of ownership at 31/12/2016	Business sector
France–Generation and Supply				
Electricité de France – Parent Company		100.00	100.00	G,D,O
Group Support Services (G2S)		100.00	100.00	O
Edvance		95.10	-	O
Immo C47[1]		100.00	100.00	O
Other holding companies (EDF Invest)		100.00	100.00	O
France – Regulated activities				
Enedis		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
Reactors and Services (Framatome)				
Framatome [2]	France	75.50	-	R
United Kingdom				
EDF Energy Holdings Limited (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	97.45	G, O
Transalpina di Energia SpA (TdE SpA)		100.00	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	G, D,O
EDF Paliwa Sp. z o.o. (Energokrak)	Poland	-	99.51	O
EDF Polska SA	Poland	-	99.51	G
Zec Kogeneracja SA (Kogeneracja)	Poland	-	49.91	G, O
Elektrocieplownia Zielona Gora SA (Zielona Gora)	Poland	-	49.11	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	100.00	G

Business segments: G = Generation, D = Distribution, T = Transmission, R = Reactors, O = Other

(1) Immo C47 was accounted for under the equity method at 31 December 2016.

(2) Acquisition of Framatome on 31 December 2017 (see note 3.2).

Other activities		Percentage of ownership at 31/12/2017	Percentage of ownership at 31/12/2016	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
Société Française d'Ingénierie Electronucléaire et d'Assistance (SOFINEL)	France	88.98	55.00	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, R = Reactors, O = Other.

51.2 COMPANY HELD IN THE FORM OF JOINT OPERATIONS

Other activities		Percentage of ownership at 31/12/2017	Percentage of ownership at 31/12/2016	Business sector
Friedeburger Speicherbetriebsgesellschaft GmbH (Crystal)	Germany	50.00	50.00	O

Business segments: G = Generation, D = Distribution, T = Transmission, R = Reactors, O = Other.

51.3 COMPANIES ACCOUNTED FOR BY THE EQUITY METHOD

France –Generation and Supply		Percentage of ownership at 31/12/2017	Percentage of ownership at 31/12/2016	Business sector
CTE (formerly C25)[1]	France	50.10	100.00	O
Elisandra IV (Madrileña Red de Gas Holding) (EDF Invest)	Spain	20.00	20.00	O
Alba Real Estate SCS (EDF Invest)	Luxembourg	46.50	46.50	O
Géosel Manosque (EDF Invest)	France	38.35	25.00	O
Transport Stockage Hydrocarbures (TSH) (EDF Invest)	France	50.00	50.00	O
Central Sicaf (EDF Invest)	Italy	20.00	-	O
Thyssengaz (EDF Invest)	Germany	50.00	-	O
Aéroports Côte d'Azur (EDF Invest)	France	19.40	-	O
France –Regulated activities				
RTE Réseau de Transport d'Electricité (RTE)[2]	France	n.a.	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
Taishan 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, R = Reactors, O = Other
n.a: not applicable.

(1) Coentreprise de Transport d'Electricité or CTE (formerly C25), the company holding 100% of RTE. This joint venture was fully consolidated at 31 December 2016.
(2) At 31 December 2017 is now consolidated as part of the CTE subgroup, in the France-Generation and Supply segment.

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 31/12/2017	Percentage of voting rights at 31/12/2017
Edison SpA	97.45	99.48
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 2017:

(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	3,103	22.0	3,012	19.7
Controlled entities [1]	5,133	36.4	10,024	65.6
Sub-total	8,236	58.5	13,036	85.3
Non-audit services [2]				
EDF	906	6.4	778	5.1
Controlled entities [1]	4,944	35.1	1,473	9.6
Sub-total	5,850	41.5	2,251	14.7
TOTAL	14,086	100	15,287	100

(1) Fully consolidated subsidiaries and jointly controlled entities whose auditors' fees are included in the consolidated income statement.
(2) Services required by laws and regulations, and services supplied at the request of the Group. Non-audit services mainly correspond to (i) due diligence work for the capital increase of March 2017, (ii) certifications of financial and accounting information or Independent Reports on social, environmental and societal information required under article L.225-102-1 of the French Commercial Code, (iii) services relating to disposals of entities, (iv) tax services authorised by local legislation, and (v) operating process reviews and information system consulting services that are unrelated to the production of accounting and financial information.

Statutory Auditors' fees for 2016

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
Controlled entities	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
Controlled entities	4,507	26.6	951	7.0
Sub-total	6,480	38.2	1,399	10.3
TOTAL	16,968	100	13,573	100