French société anonyme
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EDF group

2019 MANAGEMENT REPORT

GROUP RESULTS

SOMMAIRE

1 KEY FIGURES

Pursuant to European regulation no. 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 2019 are prepared under the international accounting standards published by the IASB and approved by the European Union for application at 31 December 2019. These international standards are IAS (International Accounting Standards), IFRS (International Financial Reporting Standards), and SIC and IFRIC interpretations.

The Group's accounting policies are presented in note 1 to the consolidated financial statements for the year ended 31 December 2019.

The figures presented in this document are taken from the EDF group's consolidated financial statements at 31 December 2019.

Since 1 January 2019, the Group has applied IFRS 16 "Leases" under the modified retrospective approach. Restatement of comparative figures for the impacts of application of IFRS 16 is not required. Consequently, the financial statements at 31 December 2019 are prepared with no prior year restatements (see note 2.1 to the 2019 consolidated financial statements).

The sale of Edison's Exploration and Production (E&P) operations was classified as a discontinued operation as defined by IFRS 5 from 1 January 2019. As a result, the net income of discontinued operations is reported on a specific line of the income statement for the periods published. The impact of application of IFRS 5 on the figures published in 2018 is presented in note 2.3 to the 2019 consolidated financial statements.

The Group's key figures for 2019 are shown in the following tables:

EXTRACT FROM THE CONSOLIDATED INCOME STATEMENT

(in millions of Euros)	**2019** (1)	**2018** (2)	**Variation**	**Variation (%)**	**Organic growth (%)**
Sales	71,317	68,546	2,771	+4.0	+3.5
Operating profit before depreciation and amortisation (EBITDA)	16,708	14,898	1,810	+12.1	+8.4
Operating profit (EBIT)	6,760	5,454	1,306	+23.9	+25.4
Income before taxes of consolidated companies	6,399	656	5,743	n.a.	n.a.
EDF net income	5,155	1,177	3,978	n.a.	n.a.
Net income excluding non-recurring items (3)	3,871	2,452	1,419	+57.9	+60.8

n.a.: not applicable.

(1) The financial statements at 31 December 2019 apply IFRS 16 from 1 January 2019. In accordance with the new standard's transition provisions, the comparative figures have not been restated.

(2) The published figures for 2018 have been restated due to the impact of presenting the E&P operations as discontinued operations.

(3) Net income excluding non-recurring items is not defined by IFRS, and is not directly visible in the Group's consolidated income statement. It corresponds to the Group's share of net income (EDF net income) excluding non-recurring items, net changes in the fair value of energy and commodity derivatives (excluding trading activities), and net changes in the fair value of debt and equity instruments, net of tax (see section 5.10 "Net income excluding non-recurring items").

FROM EDF NET INCOME TO NET INCOME EXCLUDING NON-RECURRING ITEMS

(in millions of Euros)	**2019**	**2018**
EDF net income	5,155	1,177
Other, including net changes in fair value on energy and commodity derivatives, excluding trading activities and changes in the fair value of debt and equity instruments	(2,167)	777
Impairment	883	498
Including impairment booked by Edison related to the sale of E&P operations (in application of IFRS 5)	*500*	*228*
NET INCOME EXCLUDING NON-RECURRING ITEMS	**3,871**	**2,452**
Payments to bearers of perpetual subordinated bonds	(589)	(584)
NET INCOME EXCLUDING NON-RECURRING ITEMS, ADJUSTED FOR PAYMENTS ON HYBRID BONDS	**3,282**	**1,868**

EXTRACT FROM THE CONSOLIDATED BALANCE SHEET

(in millions of Euros)	31/12/2019 [(1)]	31/12/2018 [(2)]
Intangible and tangible assets	174,345	162,219
Other non-current assets	55,120	48,165
Non-current assets	**229,465**	**210,384**
Inventories and trade receivables	29,655	30,137
Other current assets	36,568	39,358
Cash and cash equivalents	3,934	3,290
Current assets	**70,157**	**72,785**
Assets held for sale	3,662	-
TOTAL ASSETS	**303,284**	**283,169**
Equity (EDF's share)	46,466	44,469
Equity (non-controlling interests)	9,324	8,177
Total equity	**55,790**	**52,646**
Non-current provisions	80,760	71,772
Special concession assets	47,465	46,924
Non-current other liabilities	64,225	59,012
Non current liabilities	**192,450**	**177,708**
Current liabilities	**54,001**	**52,815**
Liabilities related to assets classified as held for sale	1,043	-
TOTAL EQUITY AND LIABILITIES	**303,284**	**283,169**

(1) The financial statements at 31 December 2019 apply IFRS 16 from 1 January 2019 (see note 2.1 to the 2019 consolidated financial statements).

GROUP CASH FLOW

(in millions of Euros)	2019	2018 [(1)]	Variation	Variation (%)
Group cash flow [(2)] [(3)]	(791)	(601)	(190)	-31.6

(1) The published figures for 2018 have been restated due to the impact of presenting the E&P operations as discontinued operations.

(2) The financial statements at 31 December 2019 apply IFRS 16 from 1 January 2019. The comparative figures have not been restated. The impact on Group cash flow would have been +€609 million.

(3) Group cash flow is not an aggregate defined by IFRS as a measure of financial performance, and is not comparable with indicators of the same name reported by other companies. It is equivalent to the operating cash flow less asset disposals, income taxes paid, net financial expenses disbursed, allocations to dedicated assets, dividend paid in cash, and investments related to Hinkley Point C and Linky projects (see section 6 of this financial report).

DETAILS OF NET INDEBTEDNESS

(in millions of Euros)	31/12/2019	31/12/2018	Variation	Variation (%)
Loans and other financial liabilities	67,380	59,188	8,192	+13.8
Derivatives used to hedge liabilities	(3,387)	(1,972)	(1,415)	+71.8
Cash and cash equivalents	(3,934)	(3,290)	(644)	+19.6
Available-for-sale financial assets - Liquid assets	(18,900)	(20,538)	1,638	-8.0
Net indebtedness of assets held for sale	(26)	-	(26)	n.a.
NET INDEBTEDNESS [(1)] [(2)]	**41,133**	**33,388**	**7,745**	**+23.2**

n.a.: not applicable.

(1) Net indebtedness is not defined in the accounting standards and is not directly visible in the Group's 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 securities with initial maturity of over three months that are readily convertible into cash and are managed according to a liquidity-oriented policy. The calculation of net indebtedness is presented in note 41.3 to the 2019 consolidated financial statements.

(2) Net indebtedness at 31 December 2019 include IFRS 16 from 1 January 2019 for €4,492 million.

2 ECONOMIC ENVIRONMENT

2.1 Market prices for electricity and the principal energy sources

In an interconnected European market, analysis of market prices in France and the rest of Europe provides important context.
Spot electricity prices in Europe were lower in 2019 than 2018.

2.1.1 Spot electricity prices in Europe (1)

	France	United Kingdom	Italy	Germany	Belgium
Average baseload price for 2019 *(€/MWh)*	39.4	49.0	52.3	37.7	39.3
Variation in average baseload prices, 2019/2018	-21.4%	-24.5%	-14.7%	-15.3%	-28.8%
Average peakload price for 2019 *(€/MWh)*	46.3	53.5	58.4	44.5	46.3
Variation in average peakload prices, 2019/2018	-21.6%	-23.6%	-14.0%	-14.7%	-28.6%

The comments below concern baseload prices.

In **France**, average spot electricity prices for 2019 stood at €39.4/MWh (baseload) and €46.3/MWh (peakload), respectively €10.7/MWh and €12.8/MWh lower than in 2018. The primary explanation for this decrease is the lower coal and gas prices over the last three quarters of the year, partly offset by higher CO_2 prices. Wind and solar power output was also up compared to 2018.

The downward trend in spot prices began at the end of the winter, when temperatures were well above normal in contrast to the previous year's late cold spell. Between June and December, the decrease observed in spot prices was €20/MWh more than in the corresponding period of 2018. Below-normal rainfall levels from the start of the year were followed by surplus precipitation in the final three months of the year, which helped to keep spot prices down during that quarter.

However, this decrease was mitigated by a significant year-on-year rise in spot prices in January, caused by temperatures that were almost 4°C lower than in 2018 and thus induced higher consumption (+5.4TWh). The average price for January was thus €61.2/MWh, €26.2/MWh higher than the previous year. The same effect, although on a more moderate scale, was observed in April and May when prices increased (+€4.5/MWh and +€2.8/MWh respectively, baseload) due to lower temperatures than in 2018, and consumption was 3TWh higher in total over the period. Lower hydropower generation also contributed to a rise in spot prices in those months.

In 2019, demand in France stood at 469.7TWh, down by 6.5TWh from 2018. More use was made of gas-fired plants (+7.9TWh) as nuclear plant availability (and therefore generation) and hydropower output both declined (by -13.7TWh and -5.7TWh respectively compared to 2018). Wind and solar power generation, meanwhile, increased by 5.9TWh and 1.7TWh to reach the respective levels of 32.7TWh and 11.4TWh in 2019.

France's export balance was 4.4TWh (2) lower in 2019 than 2018. It decreased significantly in January (-6.0TWh) due to lower year-on-year temperatures and hydro conditions. Although milder temperatures in February and March then led to a 6TWh rise in net exports compared to 2018, exports were down throughout the rest of the year. This is explained by lower interconnection availability with the United Kingdom and Spain in the spring, high wind power generation in Germany in 2019, and less nuclear plant availability at the end of the year.

In the **United Kingdom**, average spot electricity prices were €15.9/MWh lower than in 2018, standing at €49.0/MWh for 2019. The downturn was first observed in February, in sharp contrast with the record levels of February and March 2018. This was accentuated when the 1GW NEMO UK-Belgium interconnection service came on line. Subsequently, declining gas prices pulled spot electricity prices downwards from April, when average monthly prices began a general decline taking them 32% below 2018 levels (-€21/MWh on average).

In **Italy**, average spot prices were down by €9.0/MWh from 2018, to an average €52.3/MWh for 2019. The decrease principally concerned the months of August to December, when prices were 30% below 2018 levels in the wake of declining gas prices. Early in the year, January prices were 38% higher year-on-year, due to the colder temperatures of 2019.

In **Germany**, spot prices for electricity decreased by €6.8/MWh from 2018 to an average €37.7/MWh in 2019. However, prices registered a rise at the start of the year. This rise was very pronounced in January, when prices were €19.9/MWh higher than in 2018 due to lower temperatures. Apart from March, when prices were down by €6.7/MWh because of very windy conditions (average +7.2GW of wind power compared to 2018), prices moved in line with CO_2 and coal prices during the rest of the year. Until July, the sharp rise in CO_2 quota prices drove prices upwards as coal prices saw a smaller decrease. From August onwards, there was a substantial downturn in prices echoing movements in coal prices, which became the dominant factor over the CO_2 price increase. Since then, monthly spot electricity prices have fallen by almost €17.3/MWh compared to the same period of 2018. Wind power output was up by 15.2TWh from 2018, reaching 123.8TWh in 2019, while photovoltaic power output was up by 0.7TWh to 41.9TWh in 2019. At 31 December 2019, Germany's total installed wind power and photovoltaic power capacities were around 61GW and 49GW respectively. Several periods of significant wind and photovoltaic power generation led to negative prices (211 hours in 2019 against 134 hours in 2018). The lowest hourly price was -€90.0/MWh, registered on 8 June.

In **Belgium**, spot prices retreated by €15.9/MWh from 2018, with an average price of €39.3/MWh for 2019. The decrease principally concerned the months of June to December, when prices were around 45% lower than in 2018, in line with lower fuel prices and better nuclear plant availability than the previous year, although January prices were nearly 65% higher due to colder temperatures.

*(1)**France** and **Germany:** average previous day EPEXSPOT price for same-day delivery;*
***Belgium**: average previous day Belpex price for same-day delivery;*
***United Kingdom**: average previous day EDF Trading OTC price for same-day delivery;*
***Italy**: average previous day GME price for same-day delivery.*
(2) Source: ENTSO-E Transparency Website.

2.1.2 Forward electricity prices in Europe [1]

	France	United Kingdom	Italy	Germany	Belgium
Average forward baseload price under the 2020 annual contract for 2019 *(€/MWh)*	50.9	58.4	59.8	47.8	51.0
Variation in average forward baseload price under the annual contracts, 2019/2018	+4.0%	-2.8%	+1.3%	+8.6%	+0.0%
Forward baseload price under the 2020 annual contract at 31 December 2019 *(€/MWh)*	44.1	51.2	50.9	41.3	41.9
Average forward peakload price under the 2020 annual contract for 2019 *(€/MWh)*	63.6	64.8	66.8	57.7	62.5
Variation in average forward peakload price under the annual contracts, 2019/2018	+2.4%	-1.6%	0.0%	+6.5%	-2.0%
Forward peakload price under the 2020 annual contract at 31 December 2019 *(€/MWh)*	54.2	57.1	59.7	50.0	52.3

Average annual contract prices for baseload and peakload electricity were higher in 2019 than 2018 all over Europe in the first half of the year, then turned downwards in the second half. This downturn was principally due to the decline of coal and gas prices. The two contrasting trends neutralised each other overall, leading to relative stability in the average price of the year-ahead annual contract in 2019.

In **France**, the average annual contract baseload price for next-year delivery was €50.9/MWh, 4% higher than in 2018. This moderate increase comprised a period of substantial rises in the first half of the year, driven by the significant increase in CO_2 prices, and a period of substantial decrease, associated with the pronounced decline in fuel prices in the second half of the year and a smaller increase in CO_2 prices, as coal prices dropped by an average $25.9/t and gas prices by €5.5/MWh during that period. The Calendar N+1 contract price ended the year 2019 at €44.1/MWh.

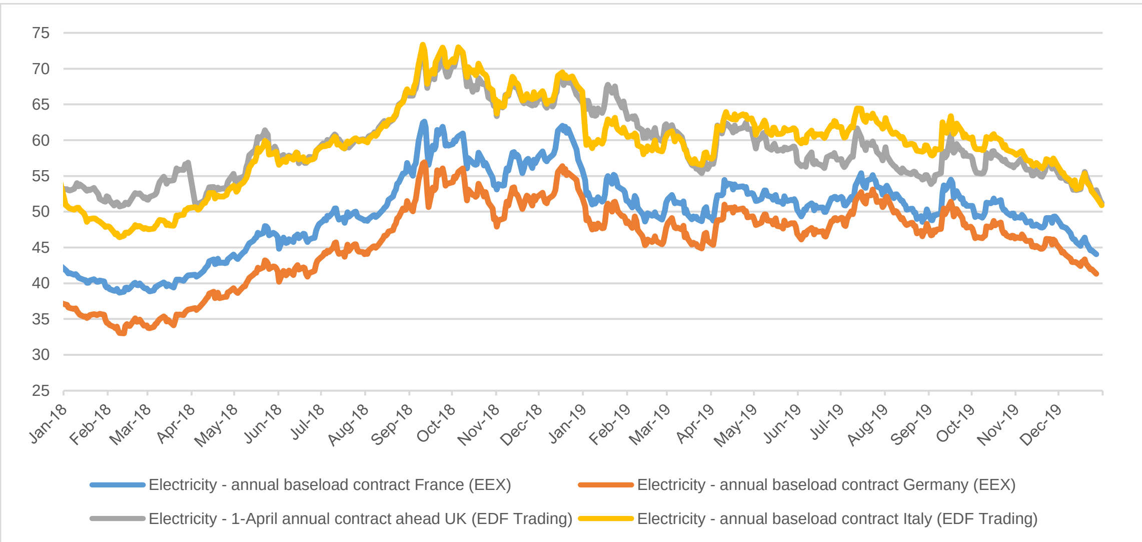
In the **United Kingdom**, the April Ahead contract baseload price for 1 April Y+1 to 31 March Y+2 decreased by 2.8% from 2018 to an average €58.4/MWh for 2019. Similar to the situation in France, this price saw a strong rise in the first half of the year compared to 2018, then a substantial decrease associated in particular with the decline in gas prices, as gas-fired facilities make a significant contribution to the formation of British electricity prices.

In **Italy**, the annual contract baseload price for next-year delivery increased, to an average €59.8/MWh for 2019, 1.3% higher than in 2018. Here again this stability masks an upward trend in the first half of the year followed by a strong downward trend in the second half, in the wake of fuel prices.

In **Germany**, the average annual contract baseload price for next-year delivery was up by 8.6% from 2018, to €47.8/MWh in 2019. This increase is explained by the significant rises in CO_2 prices, since coal-fired facilities still make a significant contribution to the formation of German electricity prices, and are more strongly affected than gas-fired facilities by higher CO_2 prices.

In **Belgium**, the annual contract baseload price for next-year delivery was stable compared to 2018, standing at an average €51.0/MWh in 2019. There was a particularly sharp decrease in the second half of the year, echoing movements in fuel prices against a background of better nuclear plant availability than the previous year.

→ Principal forward electricity prices in Europe (baseload year ahead)



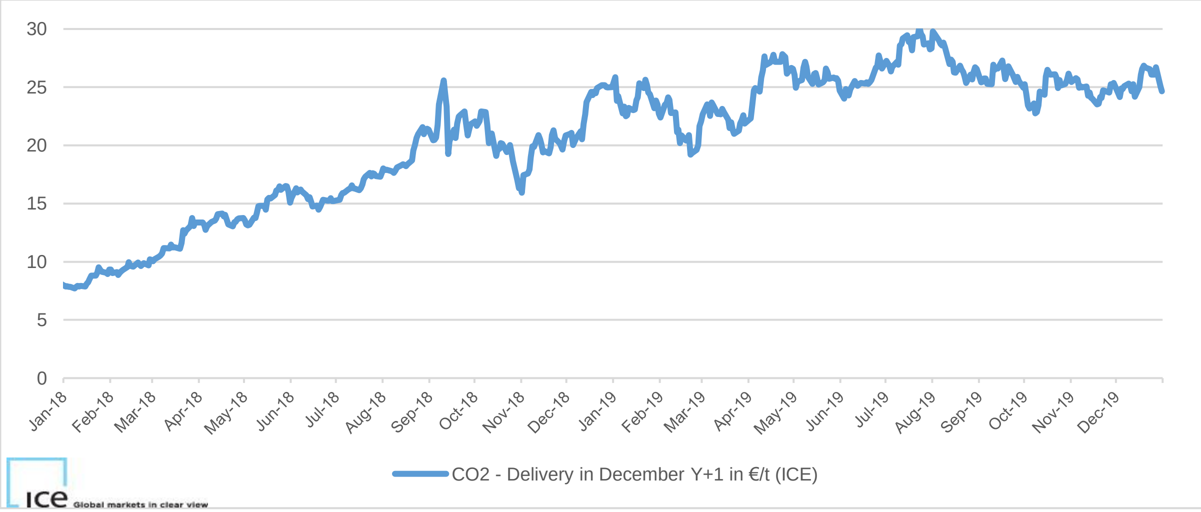
*(1) **France** and **Germany**: average year-ahead EEX price;*
***Belgium** and **Italy**: average year-ahead EDF Trading price;*
***United Kingdom**: average ICE annual contract prices, April 2019 then April 2020 (in the UK, annual contract deliveries take place from 1 April to 31 March).*

2.1.3 CO_2 emission rights prices (1)

The price of CO_2 emission rights for delivery in December Y+1 ended the year at €24.6/t, down by €0.4/t compared to December 2018. Quota prices declined substantially in the early part of the year, falling to €19.2/t in mid-February. This decrease is explained by the announcement of a plan to close 12.5GW of coal-fired power plants while cancellation of the corresponding quotas had not been confirmed. Prices were also affected at this stage by anticipation of a "hard Brexit" and the United Kingdom's possible departure from the EU-ETS system end of 2019.

CO_2 prices then progressed strongly, rising to €30.2/t in mid-July level in ten years, boosted by the deferral of Brexit to the end of October. Another downward movement then followed, to €22.8/t in mid-October, and afterwards CO_2 prices remained around the €25/t mark until the end of the year.

→ CO_2 emission rights prices



2.1.4 Fossil fuel prices (2)

	Coal *(US$/t)*	Oil *(US$/bbl)*	Natural gas *(€/MWhg)*
Average price for 2019	69.5	64.2	18.4
Average price variation, 2019/2018	-20.1%	-10.5%	-11.8%
Highest price in 2019	87.0	74.6	21.8
Lowest price in 2019	56.3	54.9	15.9
Closing price, 2019	56.4	66.0	16.0
Closing price, 2018	85.9	53.8	20.4

Coal prices for next-year delivery in Europe stood at an average US$69.5/t in 2019 (-20.1% or -US$17.5/t compared to 2018).

The decline is principally attributable to sluggish demand in Asia, high stocks from the start of the year, and more competition from gas since CO_2 prices were much higher than in 2018. In September, coal prices rose briefly under the impetus of a spike in oil prices, and because announcements about the deviations from technical standards noted in Framatome's component manufacturing processes had led to fears of greater use of thermal plants. In the fourth quarter the price declined again, due to anticipation of mild temperatures and the prospect of temporary coal-fired plant closures in South Korea in the winter.

Oil prices stood at an average US$64.2/bbl for 2019 (-10.5% or -US$7.5/bbl compared to 2018).

Over the year, price movements were mostly driven by the prospect of plentiful supplies and low demand. Focusing on world growth, the market modulated the general downward trend in response to successive announcements about progress on the US-China trade deal.

American shale oil production rose all year, and in September the United States became the world's biggest producer of oil. Against this influx of oil, the OPEC confirmed at the meetings of 1 July and 6 December that it wanted to support prices by reducing production. This curbed fears about production levels, although several incidents in the Middle East sent prices soaring, particularly on 20 June when an American drone was shot down by Tehran, in July when tensions escalated between Washington and Tehran, and on 14 September when there were attacks on Saudi Arabian oil facilities.

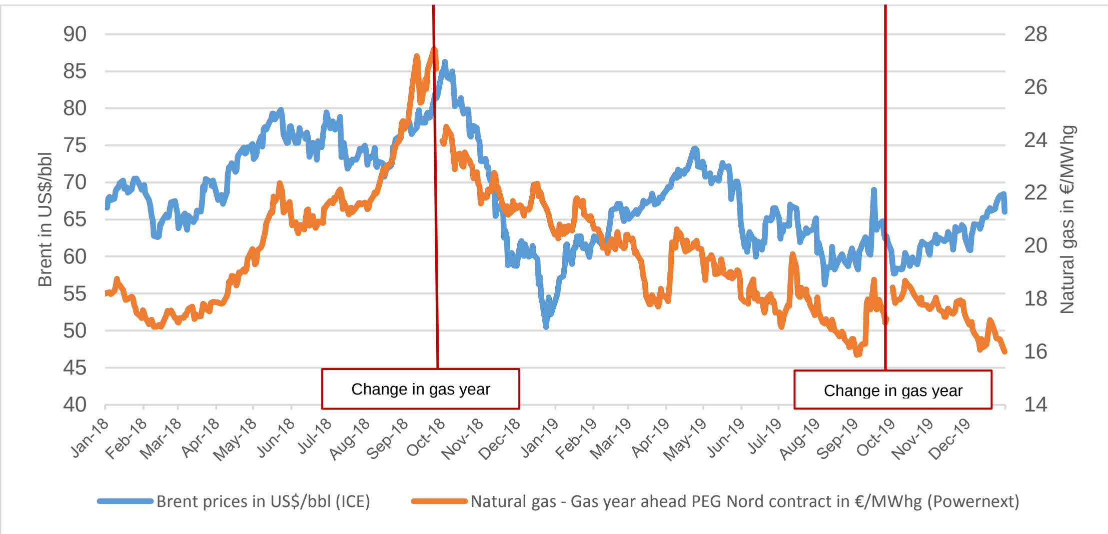
The annual gas contract for next-year delivery in the PEG zone traded at an average €18.4/MWh in 2019 (-11.8% or -€2.5/MWh compared to 2018).

(1) Average ICE prices for the annual contract, Phase III (2013-2020).
*(2) **Coal**: average ICE prices for delivery in Europe (CIF ARA) for the next calendar year (US$/t);*
***Oil**: Brent first reference crude oil barrel, IPE index (front month) (US$/barrel);*
***Natural gas**: average ICE OTC prices, for delivery starting from October of the following year in France (PEG Nord) (€/MWhg).*

The price of **gas** declined almost constantly over the year, affected by three main factors: the level of stocks, mild temperatures, and arrivals of LNG in Europe.

The massive influx of LNG into Europe particularly resulted from the boom in North American production, and a preference for the European rather the Asian market to sell some of the LNG produced, given the geographical proximity to the North-East American coast and the price levels in the two zones. Meanwhile, European demand remained moderate as the late winter was milder than the previous year. Stock levels rose, reaching saturation point in October, and stayed at record levels throughout the final quarter (95% during the quarter on average, compared to 86% in 2018).

→ Natural gas and oil prices



2.2 Electricity and gas consumption

2.2.1 Electricity and gas consumption in France

Electricity consumption in **France** (1) reached 473.7TWh in 2019, down from 2018 (-1.0%). Only the second quarter of 2019 showed a year-on-year increase (+3.0%). After correction for weather effects, electricity consumption in France was slightly lower than in 2018 (-0.5%).

Natural gas consumption in **France** (2) increased by +1.9% between 2018 and 2019 to 479.0TWh. In January 2019, lower year-on-year temperatures drove demand for heating up. Consumption rose overall in 2019 due to higher use of gas-fired plants for electricity generation throughout the year (+7.9TWh).

2.2.2 Electricity and gas consumption in Italy

Electricity consumption in **Italy** (3) in 2019 totalled 319.6TWh, down slightly (-0.6%) from 2018. The lower level of hydropower output, principally resulting from unfavourable weather conditions in the first half of 2019, was offset by an increase in thermoelectric, wind power and solar power generation. Net imports were down by 13.1%.

Domestic demand for natural gas in **Italy** (4) increased by 2.2% after the rise in gas-fired thermal generation. The milder temperatures of the first quarter of 2019 resulted in a 1.9% downturn in consumption on the residential market. Industrial consumption decreased by 1.9%.

2.3 Electricity and natural gas sales tariffs

In **France**, the regulated tariffs were raised as follows:

- the "blue" tariffs for residential and non-residential customers were raised by + 7.7% (excluding taxes) from 1 June 2019;
- the "blue" tariffs were raised by + 1.47% (excluding taxes) for residential customers and +1.34% (excluding taxes) for non-residential customers from 1 August 2019

(see note 4.2 to the 2019 consolidated financial statements).

In the **United Kingdom**, a cap on variable residential tariffs for electricity and gas was introduced on 1 January 2019. The cap was raised by 10% on 1 April 2019, then reduced by 6% from 1 October 2019 to reflect developments in wholesale market prices.

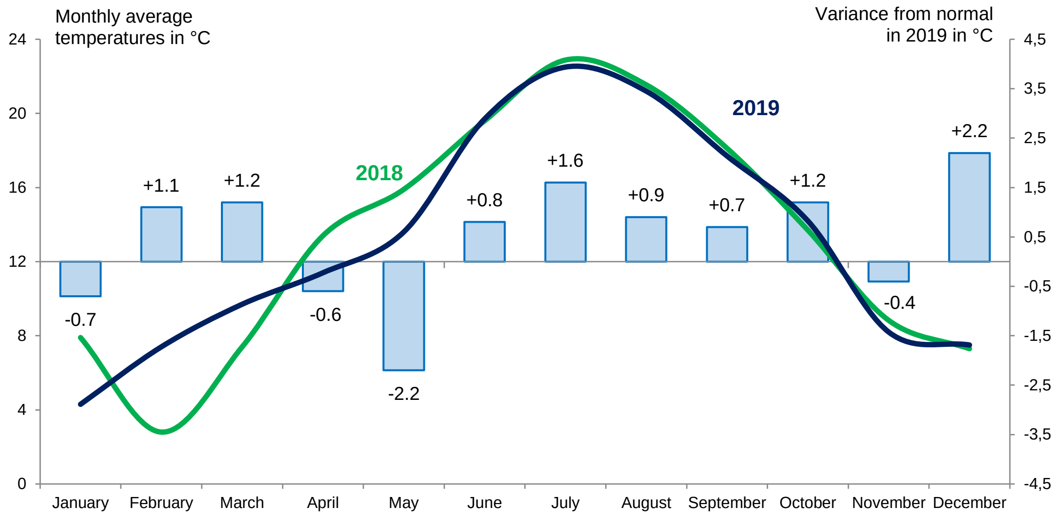
*(1) Sources for **France**: unadjusted data and data adjusted for weather effects provided by RTE (data for December 2019 are estimates as final figures are not yet available).*
*(2) Sources for **France**: unadjusted data provided by Smart GRTgaz.*
*(3) Sources for **Italy**: unadjusted data and data provided by Terna, the Italian national grid operator, and adjusted by Edison.*
*(4) Sources for **Italy**: Ministry for Economic Development (MSE), Snam Rete Gas data adjusted by Edison on the basis of 1Bcm = 10.76TWh.*

2.4 Weather conditions: temperatures and rainfall

2.4.1 Temperatures

2019 was a warm year, with temperatures 0.5°C above normal overall. The average annual temperature in France was 13.1°C, just behind 2018 (average 13.4°C). December was particularly mild, registering temperatures 2.2° higher than normal.

→ Temperatures [(1)(2)] in France in 2019 and 2018



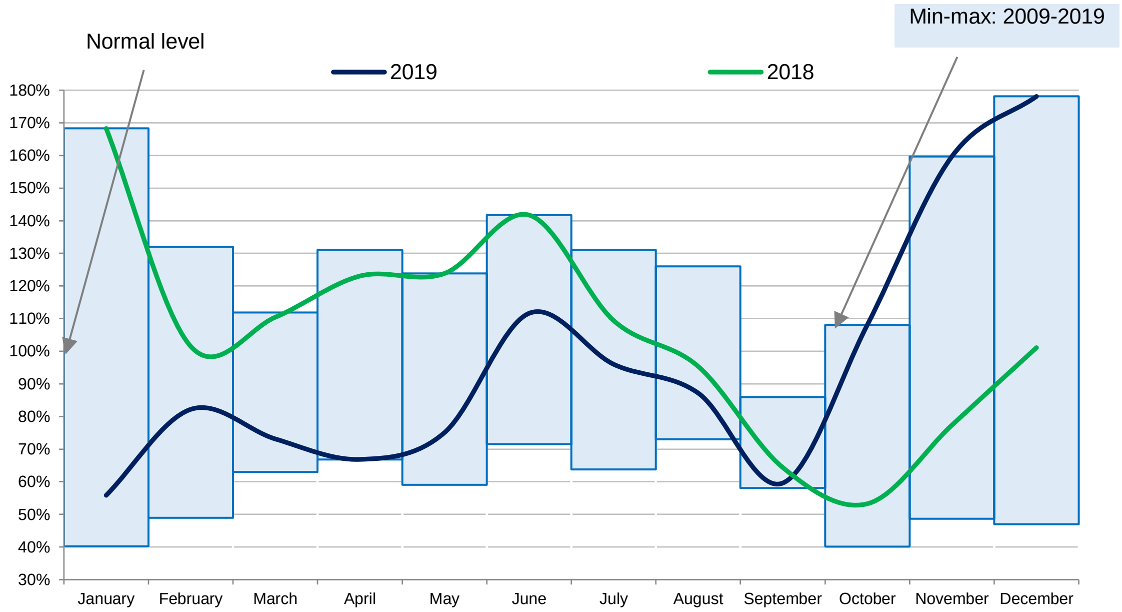
(1) Average temperatures recorded in 32 cities weighted by electricity consumption.
(2) Source: Miréor (data from Météo-France).

2.4.2 Rainfall

2019 was another year of contrasts in terms of rainfall:

- in the first half of the year and the summer, there was a shortage of precipitation over much of the southern half of Europe (including France), as well as in Germany and part of Central Europe, while precipitation levels were close to normal in North Europe;
- the autumn was particularly rainy (especially in the south-east of France).

WATER FLOW COEFFICIENTS IN FRANCE IN 2019 AND 2018 [(1)]



(1) Weekly monitoring by EDF's OSGE energy observatory of French reservoir levels (Miréor project) as far as the coast.

France suffered a shortfall of precipitation in the first eight months of the year (particularly in February, June and September) and snowfall varied widely between different mountain ranges. The summer was hot and dry once again, with two intense but relatively short heatwaves in less than a month, resulting in fairly harsh summer droughts across a very large area of the Massif Central and in North-East France. The drought was ended in October by abundant rainfall in all zones from the middle of the month. By the end of the year, cumulative precipitation was very high.

As a result of these contrasting weather conditions, water flow coefficients in France were below normal in the first eight months of the year (except in June which benefited from a concentrated thaw), until the situation improved substantially in mid-October. In the last two months of 2019, the aggregate coefficient for France was the highest recorded in more than 50 years (higher than 1992 and 2002). Over the year as a whole, however, it remained slightly (3%) below normal.

3 SIGNIFICANT EVENTS OF 2019 (1)

This chapter reports on significant events following the publication, on 15 March 2019, of the 2018 Reference Document (see section 5.1.3 "Significant events of 2018" and 5.2 "Subsequent events").

3.1 Major events

3.1.1 Sustainable development and Group Renewables

EDF Renewables (2)

- The EDF group moved into Ireland by acquiring 50% of the Codling offshore wind project (see press release of 11 February 2020).
- The EDF group launched the construction of Neart na Gaoithe 450 MW offshore wind farm along with new Irish partner, ESB which took a 50% stake in the project (see press release of 28 November 2019 and note 3.4.5 to the 2019 consolidated financial statements).
- United Kingdom: EDF Group accelerates its development of battery storage and electric vehicle (EV) charging infrastructure by acquiring Pivot Power (see press release of 4 November 2019 and note 3.4.7 to the 2019 consolidated financial statements).
- EDF Renewables acquired a significant pipeline of 300MW wind projects under development in Germany (see press release of 12 September 2019 and note 3.4.6 to the 2019 consolidated financial statements).
- EDF Renewables acquired PowerFlex Systems to accelerate deployment of large scale electric vehicle infrastructure in the United States (see press release of 3 September 2019).
- The Council of State approved the final administrative permits for the Fécamp and Courseulles-sur-Mer offshore wind farm projects (see press release of 24 July 2019 and note 3.4.1 to the 2019 consolidated financial statements).
- EDF-led consortium selected for the Dunkirk offshore wind power project (see press release of 14 June 2019 and note 3.4.1 to the 2019 consolidated financial statements).
- The Council of State approved the Saint-Nazaire offshore wind farm operating permit (see press release of 7 June 2019 and note 3.4.1 to the 2019 consolidated financial statements).
- Consortium of EDF, Masdar and Green of Africa named as successful bidder for Morocco's landmark Noor Midelt I solar project (see press release of 22 May 2019 and note 3.4.4 to the 2019 consolidated financial statements).
- EDF Renewables completed the acquisition of LUXEL Group, a French utility that develops and operates solar projects (see press release of 1 April 2019 and note 3.4.2 to the 2019 consolidated financial statements).
- EDF signed agreement to build and operate two offshore wind farms in China and to optimize a heating and air-conditioning networks in the city of Wuhan (see press release of 25 March 2019 and note 3.4.3 to the 2019 consolidated financial statements).
- In 2019, EDF Renewables commissioned new facilities, signed electricity sales agreements and undertook new projects.

Hydropower

- Inauguration of the "La Coche" hydro plant (Savoie): 20% of additional power in support of energy storage (see press release of 14 October 2019).

EDF Pulse Croissance

- EDF acquired Energy2market (e2m) and strengthened its position in the field of decentralized energy management in Europe (see press release of 13 June 2019).
- EDF launched DREEV, its new subsidiary to turn innovative smart charging solutions into a reality (see press release of 20 May 2019).
- EDF launched Hynamics, a subsidiary to produce and market low-carbon hydrogen (see press release of 2 April 2019).

Other

- The EDF group acquired Pod Point, one of the UK's largest electric vehicle charging companies (see press release of 13 February 2020).

3.1.2 Nuclear industry

- EDF unveiled "excell", an excellence plan for the nuclear industry (see press release of 13 December 2019).
- EDF and Véolia announced the creation of Graphitech (see press release of 10 December 2019).
- Update on the outlook for nuclear output for 2019 (see press release of 14 November 2019).
- Update on EDF's nuclear plants (see press release of 25 October 2019):
  - discrepancies in relation to the technical framework for the production of nuclear reactor components by Framatome;
  - outlook for nuclear production in France for 2019.

(1) A full list of press releases is available from the EDF website: www.edf.fr
(2) A full list of press releases is available from the EDF Renewables website: www.edf-renouvelables.com

- Flamanville EPR: EDF has adopted a scenario for upgrading the main secondary system penetration welds with robots and has adjusted the construction schedule and estimated cost accordingly (1). The second hot functional test phase has started on site (see press release of 9 October 2019 and note 3.1.1 to the 2019 consolidated financial statements).
- The second EPR reactor at China's Taishan nuclear power plant about to enter into commercial operation (see press release of 6 September 2019). Commercial commissioning on 7 September 2019 (see note 3.1.4 to the 2019 consolidated financial statements).
- Closure of Fessenheim nuclear power plant (see press release of 30 September 2019 and note 3.1.6 to the 2019 consolidated financial statements).
- Hinkley Point C:
  - update on Hinkley Point C project: a detailed review of the project's costs, schedule and organisation was performed (see press release of 25 September 2019 and note 3.1.3 to the 2019 consolidated financial statements);
  - Hinkley Point C hit its biggest milestone yet with the completion of the base for the first reactor (see EDF Energy's press release of 28 June 2019, available on the website www.edfenergy.com).
- CEA, EDF, Naval Group and TechnicAtome unveiled "NUWARD"™, their jointly developed SMR project (see press release of 17 September 2019 and note 3.1.5 to the 2019 consolidated financial statements).

3.2 Assets disposal plan

- EDF notified the exercise of its put option on its stake in CENG (see press release of 20 November 2019 and note 3.2.2 to the 2019 consolidated financial statements).
- Edison announced the signing of the agreement to sell its exploration and production of gas to Energean Oil and Gas (see press release of 4 July 2019 available on Edison website www.edison.it and note 2.3 to the 2019 consolidated financial statements).
- EDF announced the completion of the disposal of its 25% stake in Alpiq (see press release of 28 May 2019 and note 3.2.1 to the 2019 consolidated financial statements).

3.3 Financial structure

- EDF announced the final results of its tender offer for US dollar-denominated hybrid notes launched on 26 November 2019 (see press release of 12 December 2019 and note 3.3.3 to the 2019 consolidated financial statements).
- EDF raised €1.25 billion at 30 years as part of its EMTN program (see press release of 3 December 2019 and note 3.3.4 to the 2019 consolidated financial statements).
- EDF raised US$2 billion at 50 year as part of its EMTN program (see press release of 28 November 2019 and note 3.3.4 to the 2019 consolidated financial statements).
- EDF raised its €500 million hybrid note offering (see press release of 26 November 2019 and note 3.3.2 to the 2019 consolidated financial statements).
- EDF signed two bilateral sustainable revolving credit facilities with Crédit Agricole CIB and Societe Generale CIB, bringing the total of its sustainability-linked loans to over €5 billion (see press release of 22 July 2019 and note 3.3.1 to the 2019 consolidated financial statements).
- EDF and BBVA signed a €300 million sustainability-linked revolving credit facility (RCF) which incorporates a pricing adjustment based on EDF's sustainability performance linked to CO_2 emissions and energy efficiency (see press release of 22 March 2019 and note 3.3.1 to the 2019 consolidated financial statements).

3.4 Regulatory environment

Regulatory changes are described in detail in the following notes to the 2019 consolidated financial statements:

- note 4.1 "France's multi-year energy programme (PPE) and The Energy and Climate law"
- note 4.2 "Regulated electricity sales tariffs in France";
- note 4.3 "TURPE network access tariffs";
- note 4.4 "Compensation for public energy service charges (CSPE)";
- note 4.5 "French capacity mechanism";
- note 4.6 "Energy savings certificates";
- note 4.7 "ARENH".

3.5 Other significant events

- Béatrice Buffon was appointed as Executive Director in charge of EDF's International Division, succeeding Marianne Laigneau, who was appointed Chair of the Enedis Management Board (see press release of 4 February 2020).
- Véronique Bédague-Hamilius was appointed as a member of the EDF Board of Directors, replacing Anne Rigail (see press release of 18 December 2019).
- EDF announced the results of the option to receive the 2019 interim dividend in shares (see press release of 16 December 2019).
- The EDF group successfully completed its share offer reserved for employees and former employees (see press release of 10 July 2019).

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(1) In 2015 Euros and excluding interim interest.

- Directors representing employees took up their functions on 23 November 2019: Christine Chabauty and Christophe Cuvilliez (CGT), were replaced by Karine Migliorini and Claire Bordenave. Vincent Rodet succeeded Marie-Hélène Meyling (CFDT). The terms of office of Jacky Chorin (FO), Jean-Paul Rignac (CGT) and Christian Taxil (CFE-CGC) were renewed.
- At its meeting of 28 June 2019 the Board of Directors provisionally appointed François Delattre as director to replace Maurice Gourdault-Montagne.
- EDF announced the results of the option for payment of the balance of the 2018 dividend (see press release of 17 June 2019 and note 30.3 to the 2019 consolidated financial statements).
- The following changes occurred in the EDF Group's Executive Committee (see press release of 20 May 2019):
  - Marc BENAYOUN was appointed Group Senior Executive Vice President in charge of Customers, Services and Regional Action, whilst remaining in charge of the Gas and Italy business;
  - Cédric LEWANDOWSKI was appointed Group Senior Executive Vice President in charge of the Nuclear and Thermal business;
  - Alexandre PERRA was appointed Group Senior Executive Vice President in charge of Innovation, Corporate Social Responsibility and Strategy.
- The following changes occurred in EDF's Board of Directors (see press release of 16 May 2019):
  - renewal of Jean-Bernard Lévy's term of office as director;
  - appointment of Anne Rigail, Bruno Crémel, Gilles Denoyel and Philippe Petitcolin as directors;
  - renewal of the terms of office of Marie-Christine Lepetit, Colette Lewiner, Laurence Parisot, Michèle Rousseau and Maurice Gourdault-Montagne.

4 SUBSEQUENT EVENT

There were no developments after the year-end apart from those presented in the other sections of this management report.

5 ANALYSIS OF THE BUSINESS AND THE CONSOLIDATED INCOME STATEMENT FOR 2018 AND 2019

Presentation and analysis of the consolidated income statement for 2018 and 2019 is shown at two levels of analysis for Sales and EBITDA: a first focusing on the Group, then a second reporting on the different business segments (France - Generation and supply activities, France - Regulated activities, EDF Renewables, Dalkia, Framatome, United Kingdom, Italy, Other international and Other activities). EBIT (operating profit) and net income are analysed from a general standpoint.

(in millions of Euros)	2019 (1)	2018 (2)
Sales	**71,317**	**68,546**
Fuel and energy purchases	(35,091)	(33,056)
Other external purchases	(8,619)	(9,262)
Personnel expenses	(13,793)	(13,642)
Taxes other than income taxes	(3,798)	(3,690)
Other operating income and expenses	6,692	6,002
Operating profit before depreciation and amortisation (EBITDA)	**16,708**	**14,898**
Net changes in fair value on Energy and Commodity derivatives, excluding trading activities	642	(224)
Net depreciation and amortisation	(9,994)	(8,775)
Net increases in provisions for renewal of property, plant and equipment operated under concessions	(8)	(50)
(Impairment)/reversals	(403)	(290)
Other income and expenses	(185)	(105)
Operating profit (EBIT)	**6,760**	**5,454**
Cost of gross financial indebtedness	(1,806)	(1,712)
Discount effect	(3,161)	(3,464)
Other financial income and expenses	4,606	378
Financial result	**(361)**	**(4,798)**
Income before taxes of consolidated companies	**6,399**	**656**
Income taxes	(1,581)	178
Share in net income of associates and joint ventures	818	569
Net income of discontinued operations	(454)	(212)
CONSOLIDATED NET INCOME	**5,182**	**1,191**
EDF net income	**5,155**	**1,177**
Net income of continuing operations	5,597	1,384
Net income of discontinued operations	(442)	(207)
Net income attributable to non-controlling interests	**27**	**14**
Net income of continuing operations	39	19
Net income of discontinued operations	(12)	(5)
EARNINGS PER SHARE (EDF SHARE) IN EUROS		
Basic earnings per share	1.50	0.20
Diluted earnings per share	1.50	0.20
Earnings per share of continuing operations	1.65	0.27
Diluted earnings per share of continuing operations	1.65	0.27

(1) The financial statements at 31 December 2019 apply IFRS 16 from 1 January 2019. In accordance with the new standard's transition provisions, the comparative figures have not been restated.
(2) The published figures for 2018 have been restated due to the impact of presenting the E&P operations as discontinued operations.

5.1 Sales

Consolidated sales were up by 4.0% corresponding to an organic increase of 3.5%.

5.1.1 Change in Group sales

(in millions of Euros)	2019	2018 (1)	Variation	Variation (%)	Organic growth (%)
Sales	**71,317**	**68,546**	**2,771**	**+4.0**	**+3.5**

(1) The published figures for 2018 have been restated due to the impact of presenting the E&P operations as discontinued operations.

Sales amounted to €71,317 million in 2019, up by €2,771 million (+4.0%) from 2018. Excluding the effects of exchange rates (+€151 million) and changes in the scope of consolidation (+€198 million), consolidated sales showed organic growth of 3.5%.

5.1.2 Change in sales by segment

The following table shows sales by segment, excluding inter-segment eliminations.

(in millions of Euros)	2019	2018 (1)	Variation	Variation (%)	Organic growth (%)
France - Generation and supply activities (2)	27,870	26,096	1,774	+6.8	+6.5
France - Regulated activities (3)	16,087	16,048	39	+0.2	+0.2
EDF Renewables	1,565	1,505	60	+4.0	+2.9
Dalkia	4,281	4,189	92	+2.2	+1.6
Framatome	3,377	3,313	64	+1.9	+0.6
United Kingdom	9,574	8,970	604	+6.7	+5.9
Italy	7,567	8,077	(510)	-6.3	-8.1
Other international	2,690	2,411	279	+11.6	+10.9
Other activities	2,728	2,601	127	+4.9	+6.8
Eliminations	(4,422)	(4,664)	242	-5.2	-5.2
GROUP SALES	**71,317**	**68,546**	**2,771**	**+4.0**	**+3.5**

(1) The published figures for 2018 have been restated due to the impact of presenting the E&P operations as discontinued operations.
(2) Generation, supply and optimisation in mainland France, and sales of engineering and consulting services.
(3) Regulated activities comprise distribution in mainland France, which is carried out by Enedis (1), EDF's island activities and the activities of Électricité de Strasbourg. In mainland France, distribution network activities are regulated via the network access tariff TURPE (Tarifs d'Utilisation des Réseaux Publics d'Électricité)*.*

5.1.2.1 France – Generation and supply activities

Sales by the **France - Generation and supply activities** segment amounted to €27,870 million, an organic increase of €1,691 million (+6.5%) from 2018.

Downstream market conditions had a positive effect estimated at +€757 million on sales. The negative effect of market share erosion was outweighed by positive price effects for electricity and capacity, as well as by growth in revenues from gas supply activities. The changes in the non-delivery component of regulated sale tariffs (2) had a positive impact of around +€588 million due to higher electricity prices and capacity prices.

The increase in the price of energy savings certificates led to an estimated +€132 million increase in sales, with no equivalent effect on the margin.

Resales of electricity subject to purchase obligations saw a negative change of -€112 million, mainly caused by declining market prices in the second half of the year (with a neutral effect on EBITDA because expenses relating to purchase obligations are compensated by the CSPE mechanism).

The volumes sold under the ARENH mechanism and the balance of purchases and sales on the wholesale markets (excluding purchase obligations and long-term contracts) had an estimated -€50 million negative impact on sales.

A number of other factors contributed to the favourable change in sales, including long-term contracts and structured sales.

(1) Enedis is an independent EDF subsidiary as defined in the French Energy Code.
(2) Tariff changes in 2019: from 1 August 2019: +1.47% excluding taxes on blue tariffs for residential customers and +1.34% excluding taxes on blue tariffs for non-residential customers (incorporating an indexed adjustment of +3.04% to the TURPE 5 distribution tariff); from 1 June 2019: +7.7% excluding taxes on blue tariffs for residential and non-residential customers.
Tariff changes in 2018: +0.7% on blue tariffs for residential customers, +1.6% on blue tariffs for non-residential customers from 1 February 2018, and -0.5% on blue tariffs for residential customers and +1.1% on blue tariffs for non-residential customers from 1 August 2018 (incorporating an indexed adjustment of -0.21% to the TURPE 5 distribution tariff at 1 August 2018).

Electricity generation

Nuclear output totalled 379.5TWh in 2019, down by 13.7TWh from 2018. This decrease is notably explained by the nuclear plant fleet's lower availability in 2019: there were more shutdown extensions than in 2018 as a large number of 10-year inspections were scheduled.

Hydropower output stood at 39.7TWh [1], a decrease of 14.7% compared to 2018 (-6.8TWh) caused by the fact that hydrological conditions were very favourable in 2018 and unfavourable in 2019 (see section 2.4 "Weather conditions: temperatures and rainfall").

Thermal generation facilities were used slightly less than in 2018. Their output declined by -1.1TWh to 9.9TWh.

Sales volumes to final customers (a market segment that includes local distribution companies and excludes foreign operators) were down by -20.3TWh, including -15.6TWh reflecting the impact of losses of customers.

EDF was a net seller on the wholesale markets to the extent of 62.9TWh. The -15.8TWh decline in net sales on these markets compared to 2018 is mainly explained by the lower level of nuclear and hydropower generation.

5.1.2.2 France – Regulated activities

Sales by the **France - Regulated activities** segment amounted to €16,087 million, with an organic rise of €39 million (+0.2%) from 2018.

Sales essentially benefited, for Enedis [2], from favourable effects relating to tariff changes [3] including the tariff optimisation operated by suppliers, and the increase in network connection services.

The impacts of unfavourable weather effect on sales is estimated at -€80 million.

5.1.2.3 EDF Renewables

EDF Renewables' sales totalled €1,565 million in 2019, with an organic increase of €43 million (+2.9%) from 2018.

This rise was mainly driven by generation activities, which benefited from positive price effects although output volumes showed an organic decline of -0.3TWh (-2.0%) compared to the previous year due to the disposals undertaken in late 2018 and early 2019, despite better wind conditions, particularly in France and the United States.

5.1.2.4 Dalkia

Dalkia's contribution to Group sales in 2019 was €4,281 million, corresponding to an organic growth of €68 million (+1.6%) compared to 2018.

This development is mainly explained by business growth, especially in France with the conclusion and renewal of contracts, for example the new 15.5-year public service delegation for urban heating in Grande Île at Vaulx-en-Velin and Villeurbanne, and in the United Kingdom. Sales revenues were also adversely affected by a year-on-year decrease in gas prices.

5.1.2.5 Framatome

Framatome's sales amounted to €3,377 million in 2019, with an organic increase of 0.6% over 2018. A significant portion of sales concern Group entities.

Order intake amounted to €3.3 billion in 2019 (more than 60% of orders were from non-Group entities).

In commercial developments, Rosatom awarded Framatome the contract to supply the principal instrumentation and control (I&C) system for the Hanhikivi-1 nuclear plant in Finland and the PAKS2 nuclear plant in Hungary. In the United States, the acquisition of FoxGuard Solutions, a leading cybersecurity and industrial IT company, was completed on 1 October 2019.

5.1.2.6 United Kingdom

The **United Kingdom**'s contribution to Group sales in 2019 amounted to €9,574 million, up by €604 million from 2018. Excluding foreign exchange effects (€75 million), the organic growth in sales compared to 2018 was 5.9%.

The rise in UK sales is primarily explained by tariff increases on the residential and business markets, the higher realised sales prices for nuclear power, and an increase in capacity revenue. These effects were partly offset by a decrease in sales volumes on the wholesale markets, due to the lower nuclear power output, and a decrease in gas sales volumes, since there was no equivalent in 2019 to the cold weather experienced in the first half of 2018.

5.1.2.7 Italy

Italy contributed €7,567 million to Group sales, with an organic decrease (-8.1%) from 2018.

In the gas activities, sales were down due to the lower prices across all markets (this had only a limited impact on the margin), and a decline in volumes sold on the wholesale markets, which was partly counterbalanced by an increase in volumes sold to industrial customers.

In the electricity activities, sales were up, mainly as a result of higher sales volumes and prices to business and residential customers, and increases in hydropower and wind power generation.

5.1.2.8 Other international

The **Other international** segment principally covers operations in Belgium, the United States, Brazil and Asia (China, Vietnam and Laos).

Sales by this segment amounted to €2,690 million in 2019, with an organic increase of €263 million (+10.9%) compared to 2018.

In Belgium [4], sales amounted to €1,909 million, corresponding to an organic year-on-year growth of +4.8%, including a price increase for electricity and gas sales and a decrease in volumes supplied due to the intensely competitive market.

In energy generation, wind power capacities rose to 519MW (gross) in Belgium, up by +18% from 2018. Winter 2018 was affected by

(1) After deduction of pumped volumes, hydropower production for 2019 stood at 33.4TWh (39.2TWh for 2018).
(2) Enedis is an independent EDF subsidiary as defined in the French Energy Code.
(3) Indexed adjustments of the TURPE 5 distribution tariff +3.04 % from 1 August 2019 and -0.21% from 1 August 2018.
(4) Belgium comprises EDF Luminus and EDF Belgium.

lengthy shutdowns of nuclear reactors operated by the Engie group, which had no equivalent in 2019. The nuclear fleet's availability improved accordingly, with fewer unscheduled outages and early resumption of operations by units 3 at Tihange and Doel.

In Brazil**,** sales amounted to €563 million, an organic increase of +35.8% from 2018. This rise reflects changes (with no impact on EBITDA) in the IMCS tax [(1)], and the positive effect of annual revision of EDF Norte Fluminense's electricity sale contract tariff.

5.1.2.9 Other activities

Other activities comprise, among other entities, EDF Trading and the gas activities.

Sales by this segment amounted to €2,728 million in 2019, with an organic increase of €178 million (+6.8%) from 2018.

Sales by the gas activities amounted to €1,221 million. The positive environment for LNG activities led to a +€376 million (+42.4%) organic rise in sales by the gas activities, reflecting better use of Group capacities.

EDF Trading's sales totalled €1,026 million, corresponding to an organic growth of 18.9%. This growth reflects a good performance throughout the year, associated with volatility on the commodity markets in a down trending market and favourable positions on electricity and gas markets in Europe. Good business levels in the United States, LNG (liquefied natural gas) trading and optimisation at worldwide level and LPG (liquid petroleum gas) activities also contributed to this performance.

5.2 Operating profit before depreciation and amortisation (EBITDA)

EBITDA increased by 12.1%, and registered an organic growth of +8.4%.

(in millions of Euros)	**2019 [(1)]**	**2018 [(2)]**	**Variation**	**Variation (%)**	**Organic growth (%)**
Sales	**71,317**	**68,546**	**2,771**	**+4.0**	**+3.5**
Fuel and energy purchases	(35,091)	(33,056)	(2,035)	+6.2	+5.8
Other external expenses	(8,619)	(9,262)	643	-6.9	-1.2
Personnel expenses	(13,793)	(13,642)	(151)	+1.1	+0.6
Taxes other than income taxes	(3,798)	(3,690)	(108)	+2.9	+3.3
Other operating income and expenses	6,692	6,002	690	+11.5	+14.2
EBITDA	**16,708**	**14,898**	**1,810**	**+12.1**	**+8.4**

(1) The financial statements at 31 December 2019 apply IFRS 16 from 1 January 2019. In accordance with the new standard's transition provisions, the comparative figures have not been restated.

(2) The published figures for 2018 have been restated due to the impact of presenting the E&P operations as discontinued operations.

5.2.1 Change in consolidated EBITDA and analysis

The Group's consolidated **EBITDA** for 2019 amounted to €16,708 million, with an increase of 12.1% from 2018. Excluding the effects of application of IFRS 16 (+€517 million), foreign exchange effects (+€34 million) and changes in the scope of consolidation (+€1 million), EBITDA showed organic growth of +8.4%.

The Group's **fuel and energy purchases** amounted to €35,091 million in 2019, up by €2,035 million (+6.2%) from 2018, or an organic increase of €1,926 million (+5.8%):

- In the **France - Generation and supply activities** segment, fuel and energy purchases stood at €12,821 million, corresponding to organic growth of €1,437 million (+12.6%) from 2018, mainly driven by higher purchase obligations for photovoltaic power, wind power and cogeneration, an increase in purchases to cover downturns in nuclear and hydropower generation, and the capacity mechanism.
- In the **United Kingdom,** the organic increase of €475 million (+8.2%) mainly relates to the rise in energy prices, which was partly offset by the decrease in gas prices, since 2019 had no equivalent to the cold weather experienced in the first half of 2018, and lower consumption of nuclear fuel as a result of lower generation output.
- **Italy** saw an organic decrease of €787 million (-11.6%) in fuel and energy purchases, essentially reflecting lower gas prices and gas sales volumes (on the wholesale market).

Other external expenses amounted to €8,619 million, down by -€643 million from 2018 (-6.9%). Excluding the effects of application of IFRS16 (+€683 million), foreign exchange effects (-€41 million) and changes in the scope of consolidation (-€109 million), other external expenses showed an organic decline of -1.2%.

- In the **France - Generation and supply activities** segment, other external expenses totalled €2,426 million. The organic decrease of €195 million (-6.8%) notably reflects continued cost-cutting actions as part of performance improvement plans across all areas of business.
- In the **France – Regulated activities** segment, other external expenses totalled €1,557 million. The organic decrease of €40 million (-2.3%) notably reflects continued cost-cutting actions as part of performance improvement plans across all areas of business.
- **Dalkia** registered a €57 million organic increase in other external expenses (+3.7%), reflecting the expansion of its service activities.

The Group's **personnel expenses** totalled €13,793 million, up by €151 million from 2018, corresponding to an organic growth of €77 million (+0.6%).

- In the **France - Generation and supply activities** segment, personnel expenses totalled €6,032 million, down slightly from 2018 as a result of the efforts made to control payroll costs. The average workforce shrank by 1.4% [(2)] from its 2018 level, with decreases in

(1) Tax on Circulation of Merchandise and Services in Brazil.
(2) Excluding apprentices and work-study contracts.

all areas of business.

- In the **France - Regulated activities** segment, personnel expenses were stable compared to 2018 at €3,139 million. Average workforce numbers at Enedis decreased slightly (-0.2% year-on-year).
- **EDF Renewables** registered a €36 million organic increase in personnel expenses which is principally explained by an increase in its workforce, in line with the level of activity in development and construction.
- **Dalkia** registered a €29 million organic increase in personnel expenses which reflects its expanding service activities.

Taxes other than income taxes amounted to €3,798 million for 2019, up by €108 million (+2.9%) compared to 2018 (organic growth of +3.3%).

- The €127 million increase in Brazil is principally attributable to the ICMS tax (with no impact on EBITDA).

Other operating income and expenses generated net income of €6,692 million in 2019, up by €690 million from 2018 (an organic change of +€851 million or +14.2%).

- In the **France - Generation and supply activities** segment, there was an organic increase in net income of €628 million (+15.8%) which mainly relates to the CSPE.
- **EDF Renewables** registered an organic increase of +€275 million in other operating income and expenses, principally generated by the sale to the Irish electricity company ESB of 50% of the Neart na Gaoithe (NnG) Scottish offshore wind farm project.

5.2.2 Change in consolidated EBITDA and analysis by segment

(in millions of Euros)	**2019 (1)**	**2018 (2)**	**Variation**	**Variation (%)**	**Organic growth (%)**
France - Generation and supply activities	7,615	6,327	1,288	+20.4	+16.1
France - Regulated activities	5,101	4,916	185	+3.8	+0.4
EDF Renewables	1,193	856	337	+39.4	+33.5
Dalkia	349	292	57	+19.5	+4.8
Framatome	256	202	54	+26.7	+3.0
United Kingdom	772	783	(11)	-1.4	-4.6
Italy	578	424	154	+36.3	+20.8
Other international	339	240	99	+41.3	+36.3
Other activities	505	858	(353)	-41.1	-26.2
GROUP EBITDA	**16,708**	**14,898**	**1,810**	**+12.1**	**+8.4**

(1) The financial statements at 31 December 2019 apply IFRS 16 from 1 January 2019. In accordance with the new standard's transition provisions, the comparative figures have not been restated.

(2) The published figures for 2018 have been restated due to the impact of presenting the E&P operations as discontinued operations.

5.2.2.1 France – Generation and supply activities

EBITDA for the **France - Generation and supply activities** segment amounted to €7,615 million, corresponding to an organic increase of €1,019 million (+16.1%) from 2018.

This substantial increase is mainly due to favourable energy price effects totalling an estimated +€2,230 million, which is related to the positive market price movements and the +7.7% (excluding taxes) rise in regulated sales tariffs on 1 June 2019.

The decrease in generation, mainly, of nuclear power (-13.7TWh) and hydropower (-5.8TWh after pumping) had an unfavourable effect estimated at -€889 million.

The erosion of market shares and the end of the tariff catch-up component in regulated tariffs, which had a favourable effect in 2018 with no equivalent in 2019, had an estimated -€211 million unfavourable effect on EBITDA.

Operating expenses [1] were cut by €342 million (-3.9%) through control of purchases and payroll costs. These measures are being implemented across all entities: they notably helped lower support function costs and adjust selling costs, as well as reduce operating costs for the nuclear, hydropower and thermal power plant fleet.

A number of other factors, principally changes in nuclear provisions and employee benefit commitments, had a total effect of -€443 million on EBITDA. The lower volumes of nuclear fuel consumed due to lower production levels had a small favourable impact.

(1) Sum of personnel expenses and other external expenses. Based on comparable scope, standard and exchange rates and constant discount rates for pensions. Excluding changes in operating expenses of the service activities.

5.2.2.2 France - Regulated activities

EBITDA for the **France - Regulated activities** segment stood at €5,101 million, with an organic increase of €18 million (+0.4%) from 2018.

Price changes had a positive effect of +€65 million: indexed adjustments to the TURPE 5 distribution and transmission tariffs (1) on 1 August 2019 were partly counterbalanced by the tariff optimisation operated by suppliers.

Business growth in network connection services is continuing, and made a positive contribution estimated at +€25 million to EBITDA in 2019.

The rise in EBITDA also benefited from the decrease in operating expenses (2) (+€83 million).

However, the unfavourable climate effect over the entire year and the exceptional weather events in the second half of the year affected EBITDA to the extent of approximately -€95 million.

Other factors had a combined estimated negative impact of -€60 million on EBITDA.

5.2.2.3 EDF Renewables

EDF Renewables' contribution to Group EBITDA for 2019 was €1,193 million. The organic year-on-year growth of +€287 million (+33.5%) was driven by development and sales of structured assets, and essentially reflects the sale to the Irish electricity company ESB of 50% of the Neart na Gaoithe (NnG) Scottish offshore wind farm project.

EBITDA from generation was affected by the disposals that took place in late 2018 and early 2019, and stood at €917 million, an organic decline of -0.9% compared to 2018 despite a positive price effect (portfolio effect).

At 31 December 2019, net installed capacities totalled 8.1GW compared to 8.3GW at 31 December 2018. Excluding transfers of assets inside the EDF group, capacities increased by +0.6GW (+7.8%). The gross portfolio of projects under construction reached a record level of 5.0GW with 3.4GW for wind power (including 0.9GW for offshore wind farms in France and Scotland) and 1.5GW for solar power.

Development and support function costs were on the rise, in order to keep pace with business growth together with expansion into new areas, and to support innovative and digitalisation projects.

5.2.2.4 Dalkia

Dalkia's EBITDA for 2019 amounted to €349 million, reflecting organic growth of €14 million (+4.8%). This increase was driven by improved competitivity resulting from the operational performance plan, and good control of overheads.

The rise in EBITDA also reflects Dalkia's dynamic sales activity with in particular the renewal of many contracts (80% were renewed during the year). Dalkia signed and renewed a large number of contracts, including energy performance and heat network contracts in France (a new 26-site multiservice contract with Safran, and a new 15.5-year public service delegation for urban heating in Grande Île at Vaulx-en-Velin and Villeurbanne).

Sales of energy saving certificates improved compared to 2018.

5.2.2.5 Framatome

Framatome's EBITDA was €527 million (including the margin realised with other EDF group entities), corresponding to organic growth of +3.0% between 2018 and 2019.

Framatome's contribution to Group EBITDA for 2019 stood at €256 million, with a year-on-year organic increase of +3.0%. This includes the effects of a non-recurring €42 million expense in 2018 related to the revaluation of inventories undertaken to determine Framatome's acquisition balance sheet at 31 December 2017.

In a highly competitive market, Framatome's "Installed base" and "Instrumentation & Control" businesses registered better performances in the United States and Germany (80% exports). "Installed base" business was affected by rising execution costs on certain French and export projects.

Profitability of the "Components manufacturing" business improved thanks to a step-up in production of equipment to replace steam generators, and equipment for new projects.

The "Fuel" business benefited from sustained production levels, and fuel assembly deliveries for the Taishan EPRs in China.

There was growth in the "Large projects" business as the Hinkley Point C EPR project in United Kingdom was ramping up (with no impact on Group EBITDA), compensating for the decline in business activity after the Taishan EPRs commissioning in China.

Framatome's EBITDA also benefited from continuation of its overhead cost reduction plan.

5.2.2.6 United Kingdom

The **United Kingdom**'s contribution to Group EBITDA for 2019 was €772 million, with an organic decline of 4.6% from 2018.

EBITDA in the United Kingdom was impacted by the downturn in nuclear power generation and the introduction at 1 January 2019 of a cap on residential tariffs for electricity and gas (the Standard Variable Tariff). These unfavourable factors were partly counterbalanced by an increase in capacity revenue (€309 million (3) recorded in 2019) following reinstatement of the capacity market in October 2019, and the higher realised prices for nuclear power (around +£4/MWh).

Nuclear generation output totalled 51TWh in 2019, down by 8.1TWh from 2018. The downturn is explained by the extensions of the Hunterston B and Dungeness B outages in 2019.

Despite intense competitive pressure, the residential customer portfolio increased slightly (+2% compared to 2018), thanks to the transfer

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(1) Indexed adjustments of TURPE 5 distribution tariff of +3.04% on 1 August 2019 (-0.21% on 1 August 2018) and of the TURPE 5 transmission tariff of +2.16% at 1 August 2019 (+3.0% at 1 August 2018).

(2) Sum of personnel expenses and other external expenses. Based on comparable scope, standard and exchange rates, and constant discount rates for pensions. Excluding changes in operating expenses of the service activities.

(3) Including revenue for the 4th quarter of 2018.

of Toto Energy's [1] customer base, with the business customer segment also performing well with increased margins.

5.2.2.7 Italy

Italy's contribution to Group EBITDA for 2019 amounted to €578 million, corresponding to an organic growth of €88 million (+20.8%) compared to 2018.

EBITDA for the electricity activities was up, essentially due to the good performance of electricity ancillary services, hydropower generation and new wind farms generation (+165MW).

EBITDA for the gas activities was also up, mainly as a result of better optimisation of long-term contracts for gas supplies via pipeline in 2019. In 2018 this EBITDA was affected by tensions over supplies and purchases at high prices.

The contribution by the sales activities was lower than in 2018 due to smaller margins on the residential customer segment for both electricity and gas.

In the service activities, results were affected by a slight decline in margins on key account customers and by favourable non-recurring items in 2018.

5.2.2.8 Other international

EBITDA for the **Other international** segment stood at €339 million in 2019, with an organic increase of €87 million (+36.3%) compared to 2018.

In Belgium, EBITDA showed organic growth of €54 million (+38.6%). The principal factor in this growth was a higher nuclear plant availability, which had been very low in 2018, and the increase in wind power generation. Gross wind power capacities were up by +18.0% compared to the previous year, at 519MW. Retail activities remained resilient despite a strongly competitive environment.

EBITDA in Brazil also showed organic growth of +€48 million (+60.0%), largely due to the +16% adjustment to the Power Purchase Agreement (PPA) price in November 2018 relating to the Norte Fluminense plant. This growth also reflected a good operating performance with a record level of availability, a smaller maintenance programme than in 2018 and better gas supply conditions.

5.2.2.9 Other activities

The **Other activities** segment contributed €505 million to Group EBITDA for 2019, with an organic decrease of €225 million (-26.2%) from 2018.

A capital gain on a real estate sale in 2018, for which there was no equivalent in 2019, also affected the evolution of this segment's EBITDA.

Gas activity was impacted by a provision for onerous contracts, booked in view of the downward revision of medium-term and long-term spreads. However, there was a high level of gas activities in 2019 thanks to growing competitivity in European gas-fired generation, and better use of the Group's capacities.

EBITDA at EDF Trading amounted to €733 million in 2019, with a year-on-year organic increase of €113 million (+17.9%). This rise follows the increase in the trading margin mentioned earlier in the discussion of sales (see section 5.1.2.9), which was driven by high volatility on the markets and favourable positions on the electricity and gas markets in Europe, together with a good level of business in the United States. Thanks to the joint venture formed on 2 April 2019 with JERA, LNG (liquefied natural gas) trading and optimisation at worldwide level
and LPG (liquid petroleum gas) activities also contributed to this performance.

5.3 Operating profit (EBIT)

EBIT was up by 23.9% from 2018.

(in millions of Euros)	2019 [1]	2018 [2]	Variation	Variation (%)
EBITDA	**16,708**	**14,898**	**1,810**	**+12.1**
Net changes in fair value on Energy and Commodity derivatives, excluding trading activities	642	(224)	866	n.a.
Net depreciation and amortisation	(9,994)	(8,775)	(1,219)	+13.9
Net increases in provisions for renewal of property, plant and equipment operated under concessions	(8)	(50)	42	-84.0
(Impairment)/reversals	(403)	(290)	(113)	+39.0
Other income and expenses	(185)	(105)	(80)	+76.2
EBIT	**6,760**	**5,454**	**1,306**	**+23.9**

n. a.: not applicable

(1) The financial statements at 31 December 2019 apply IFRS 16 from 1 January 2019. In accordance with the new standard's transition provisions, the comparative figures have not been restated.

(2) The published figures for 2018 have been restated due to the impact of presenting the E&P operations as discontinued operations.

(1) This transfer was decided by Ofgem, the British regulator for gas and electricity markets, when Toto Energy lost its licence.

The Group's consolidated **EBIT** amounted to €6,760 million in 2019, up by +€1,306 million from 2018. This development is essentially explained by the growth in EBITDA and the favourable impact of net changes in fair value on energy and commodity derivatives, excluding trading activities. It was partly offset by a rise in net depreciation and amortisation.

5.3.1 Net changes in fair value on Energy and Commodity derivatives, excluding trading activities

The net changes in fair value on Energy and Commodity derivatives, excluding trading activities, increased from -€224 million in 2018 to +€642 million in 2019, principally reflecting the higher price volatility on commodity transactions, particularly concerning Edison's gas positions.

5.3.2 Net depreciation and amortisation

Net depreciation and amortisation was €1,219 million higher than in 2018. Excluding the effects of application of IFRS 16 (-€634 million), foreign exchange effects (-€25 million) and changes in the scope of consolidation (+€27 million), net depreciation and amortisation was up by €587 million.

The **France – Generation and supply activities** segment registered a €740 million increase in net depreciation and amortisation. After adjustment for the effect of application of IFRS 16, the increase in net depreciation and amortisation was €450 million. This rise is essentially explained by a volume effect related to newly-commissioned facilities in the nuclear fleet, and to a lesser degree accelerated depreciation of the coal-fired fleet from 1 June 2019.

The **France – Regulated activities** segment registered a €250 million increase in net depreciation and amortisation. After adjustment for the effect of application of IFRS 16, the increase in net depreciation and amortisation was €92 million, principally attributable to the step-up in the Linky (1) project and investments in connections and network reinforcements.

5.3.3 Net increases in provisions for renewal of property, plant and equipment operated under concessions

The €42 million decrease between 2018 and 2019 in net increases in provisions for renewal of property, plant and equipment operated under concessions is attributable to the **France - Regulated activities** segment.

5.3.4 Impairment/reversals

In 2019, impairment amounted to €403 million (see note 14 to the 2019 consolidated financial statements).

In 2018, impairment amounted to €290 (2) million.

5.3.5 Other income and expenses

In 2019, other income and expenses amounted to -€185 million. This particularly includes the expense for the preferential employee reserved offer which took place during the first half of 2019 (see note 15 to the 2019 consolidated financial statements), and restructuring provisions in certain Group entities.

In 2018, other income and expenses amounted to -€105 million.

5.4 Financial result

(in millions of Euros)	2019 (1)	2018 (2)	Variation	Variation (%)
Cost of gross financial indebtedness	(1,806)	(1,712)	(94)	+5.5
Discount effect	(3,161)	(3,464)	303	-8.7
Other financial income and expenses	4,606	378	4,228	n.a.
FINANCIAL RESULT	**(361)**	**(4,798)**	**4,437**	**-92.5**

(1) The financial statements at 31 December 2019 apply IFRS 16 from 1 January 2019. In accordance with the new standard's transition provisions, the comparative figures have not been restated.

(2) The published figures for 2018 have been restated due to the impact of presenting the E&P operations as discontinued operations.

The financial result for 2019 corresponds to a financial expense of €361 million, with an improvement of €4,437 million from 2018. This change is explained by:

- an increase in the cost of gross financial indebtedness. Excluding the effect of application of IFRS 16 (-€74 million), the cost of gross financial indebtedness is stable;
- a favourable change of €303 million in the discount effect, principally due to a smaller year-on-year decrease in the discount rate used for nuclear provisions in France. At 31 December 2019 the discount rate for nuclear provisions was 3.7% incorporating an assumed inflation rate of 1.4% (respectively 3.9% and 1.5% at 31 December 2018).
- a €4,228 million increase in other financial income and expenses, primarily due to the favourable change in the dedicated asset portfolio (€3,534 million) reflecting stronger performances on the equity and bond markets in 2019 than in 2018.

(1) Linky is a project led by Enedis, an independent EDF subsidiary as defined in the French Energy Code.
(2) The published figures for 2018 have been restated due to the impact of presenting the E&P operations as discontinued operations.

5.5 Income taxes

Income taxes amounted to -€1,581 million in 2019, corresponding to an effective tax rate of 24.71% (compared to an income of +€178 million in 2018 corresponding to an effective tax rate of -27.13% [(2)]). The €1,759 million increase in the Group's tax charge between 2019 and 2018 essentially reflects the higher net income before taxes, which rose by €5,743 million (notably resulting from the increase in EBITDA and changes in unrealised gains and losses on EDF SA's portfolio of financial assets), which generated an additional tax charge of €1,977 million in application of the French income tax rate of 34.43%.

After eliminating non-recurring items (mainly changes in unrealised gains and losses on EDF SA's portfolio of financial assets, impairment and disposals), the effective tax rate for 2019 is 19.1%, compared to 22.6% [(2)] for 2018.

5.6 Share in net income of associates and joint ventures

The Group's share in net income of associates and joint ventures was a positive €818 million in 2019, compared to €569 million in 2018.

This +€249 million change is mainly explained by the increase in CENG's net income.

The share in net income of associates in 2019 includes impairment totalling -€73 million. Details of this impairment are given in note 26 to the 2019 consolidated financial statements, "Investments in associates and joint ventures".

5.7 Net income of discontinued operations

The specific line "Net income of discontinued operations" comprises items from the income statement of Edison's E&P operations for 2018 and 2019, and impairment on these assets recognised in those two periods (see note 19 to the 2019 consolidated financial statements).

5.8 Net income attributable to non-controlling interests

Net income attributable to non-controlling interests amounted to €27 million in 2019, up by €13 million compared to 2018.

5.9 EDF net income

EDF net income totalled €5,155 million in 2019, an increase of +€3,978 million in comparison to 2018, notably due to improvement of the financial result.

5.10 Net income excluding non-recurring items

The Group's net income excluding non-recurring items [(1)] stood at €3,871 million in 2019, up by 57.9% compared to 2018.

(1) EDF net income excluding: non-recurring items, net changes in fair value on energy and commodity derivatives (excluding trading activities), and net changes in the fair value of debt and equity instruments, net of tax.
Amount of non-recurring items, net changes in fair value on energy and commodity derivatives, excluding trading activities, and net changes in the fair value of debt and equity instruments, net of tax:

- *-€986 million of impairment and other non-recurring items in 2019, compared to -€385 million in 2018;*
- *+€490 million of net changes in the fair value of energy and commodity derivatives, excluding trading activities, net of tax in 2019, compared to -€145 million in 2018;*
- *+€1,780 million of net changes in the fair value of debt and equity instruments in 2019, compared to -€745 million in 2018.*

6 CASH FLOW AND NET INDEBTEDNESS

6.1 Cash flow

(in millions of euros)	2019 (1)	2018 (2)	Variation	Variation (%)
Net cash flow from operating activities	**14,022**	**13,364**	**658**	**+4.9**
Net cash flow used in investing activities	**(15,650)**	**(17,165)**	**1,515**	**-8.8**
Net cash flow from financing activities	**2,223**	**3,530**	**(1,307)**	**-37.0**
NET INCREASE (DECREASE) IN CASH AND CASH EQUIVALENTS	**595**	**(271)**	**866**	**n.a.**
Cash and cash equivalents - opening balance	**3,290**	**3,692**	**(402)**	**-10.9**
Net increase (decrease) in cash and cash equivalents	595	(271)	866	n.a.
Effect of currency fluctuations	(5)	(95)	90	-94.7
Financial income on cash and cash equivalents	17	13	4	+30.8
Effect of reclassifications	37	(49)	86	n.a.
CASH AND CASH EQUIVALENTS - CLOSING BALANCE	**3,934**	**3,290**	**644**	**+19.6**

n.a.: not applicable.

(1) The financial statements at 31 December 2019 apply IFRS 16 from 1 January 2019 (see note 2.1 to the 2019 consolidated financial statements).

(2) The published figures for 2018 have been restated due to the impact of presenting the E&P operations as discontinued operations.

6.1.1 Net cash flow from operating activities

(in millions of euros)	2019 (1)	2018 (2)	Variation	Variation (%)
Income before taxes of consolidated companies	**5,983**	**473**	**5,510**	**n.a.**
Income before taxes of continuing operations	**(416)**	**(183)**	**(233)**	**n.a.**
Income before taxes of consolidated companies	**6,399**	**656**	**5,743**	**n.a.**
(Impairment)/reversals	403	290	113	+39.0
Accumulated depreciation and amortisation, provisions and changes in fair value	8,328	12,957	(4,629)	-35.7
Financial income and expenses	97	718	(621)	-86.5
Dividends received from associates and joint ventures	349	387	(38)	-9.8
Capital gains/losses	(508)	(1,014)	506	-49.9
Change in working capital	452	470	(18)	-3.8
Net cash flow from operations	**15,520**	**14,464**	**1,056**	**+7.3**
Net financial expenses disbursed	(798)	(1,048)	250	-23.9
Income taxes paid	(922)	(309)	(613)	n.a.
NET CASH FLOW FROM CONTINUING OPERATING ACTIVITIES	**13,800**	**13,107**	**693**	**+5.3**
NET CASH FLOW FROM OPERATING ACTIVITIES RELATING TO DISCONTINUED OPERATIONS	**222**	**257**	**(35)**	**-13.6**
NET CASH FLOW FROM OPERATING ACTIVITIES	**14,022**	**13,364**	**658**	**+4.9**

(1) The financial statements at 31 December 2019 apply IFRS 16 from 1 January 2019 (see note 2.1 to the 2019 consolidated financial statements).

(2) The published figures for 2018 have been restated due to the impact of presenting the E&P operations as discontinued operations.

The net cash flow from operating activities amounted to €14,022 million in 2019, up by €658 million from 2018.

This change primarily reflects a €1,056 million increase in the net cash flow from continuing operating activities, resulting from:

- the change in the income before taxes of consolidated companies after correction for impairment, depreciation, provisions and changes in fair value, which totalled €15,130 million in 2019 compared to €13,903 million in 2018, with an increase of €1,227 million;
- the lower financial expenses (-€621 million compared to 2018);
- a decrease in capital gains (+€506 million), essentially reflecting the lower level of gains in 2019 (mainly resulting from the sale of NnG in renewable energies) compared to 2018 (when they mainly concerned sales of real estate and Dunkerque LNG).

6.1.2 Net cash flow used in investing activities

The net cash outflow for investing activities in 2019 amounted to €15,650 million, compared to €17,165 million in 2018. The following table sets forth the breakdown of the net cash flow used in investing activities between purchases and disposals of property, plant and equipment and intangible assets, acquisitions and disposals of companies net of cash acquired/transferred, and the change in financial assets:

(in millions of euros)	**2019 (1)**	**2018 (2)**	**Variation**	**Variation (%)**
Investments in intangible assets and property, plant and equipment	(16,709)	(16,016)	(693)	+4.3
Net proceeds from sale of intangible assets and property, plant and equipment	94	577	(483)	-83.7
Net capex	**(16,615)**	**(15,439)**	**(1,176)**	**+7.6**
Acquisitions of equity investments, net of cash acquired	(456)	(484)	28	-5.8
Disposals of equity investments, net of cash transferred	293	1,261	(968)	-76.8
Changes in financial assets	1,294	(2,367)	3,661	n.a.
NET CASH FLOW FROM CONTINUING INVESTING ACTIVITIES	**(15,484)**	**(17,029)**	**1,545**	**-9.1**
NET CASH FLOW FROM INVESTING ACTIVITIES RELATING TO DISCONTINUED OPERATIONS	**(166)**	**(136)**	**(30)**	**+22.1**
NET CASH FLOW USED IN INVESTING ACTIVITIES	**(15,650)**	**(17,165)**	**1,515**	**-8.8**

n.a.: not applicable.

(1) The financial statements at 31 December 2019 apply IFRS 16 from 1 January 2019 (see note 2.1 to the 2019 consolidated financial statements).

(2) The published figures for 2018 have been restated due to the impact of presenting the E&P operations as discontinued operations.

Net capex

Net capital expenditure amounted to -€16,615 million in 2019, up by €1,176 million (+7.6%) from 2018.

Changes in the Group's net capital expenditure over the period were as follows:

(in millions of euros)	**2019**	**2018**	**Variation**	**Variation (%)**
France - Generation and supply activities	(6,074)	(5,507)	(567)	+10.3
France - Regulated activities	(4,601)	(4,308)	(293)	+6.8
EDF Renewables	(1,598)	(1,898)	300	-15.8
Dalkia	(269)	(385)	116	-30.1
Framatome	(208)	(261)	53	-20.3
United Kingdom	(3,345)	(2,938)	(407)	+13.9
Italy	(286)	(271)	(15)	+5.5
Other international	(223)	(199)	(24)	+12.1
Other activities	(11)	328	(339)	n.a.
NET CAPEX	**(16,615)**	**(15,439)**	**(1,176)**	**+7.6**

n.a.: not applicable.

Capital expenditure is one of the components of net investments for which details are given in section 6.2.1.2 "Net investments (excluding 2019-2020 disposals, Hinkley Point C and Linky projects)".

Acquisitions/disposals of equity investments, net of cash acquired/transferred

New investments in 2019, net of cash acquired, amounted to €456 million and chiefly concerned acquisition of companies by EDF Renewables.

Disposals of investments, net of cash transferred, were down by €968 million from 2018 to €293 million in 2019. This change primarily reflects the sale of Dunkerque LNG in 2018.

Changes in financial assets

The change in financial assets in 2019 was an increase of +€1,294 million, principally corresponding to sales of liquid assets (other than dedicated assets).

The change in financial assets in 2018 was a decrease of -€2,367 million, principally corresponding to acquisitions of liquid assets (other than dedicated assets).

6.1.3 Net cash flow from financing activities

(in millions of euros)	2019 (1)	2018 (2)	Variation	Variation (%)
Transactions with non-controlling interests (3)	1,055	1,548	(493)	-31.8
Dividends paid by parent company	(58)	(511)	453	-88.6
Dividends paid to non-controlling interests	(155)	(183)	28	-15.3
Purchases/sales of treasury shares	(14)	(3)	(11)	n.a.
Cash flows with shareholders	**828**	**851**	**(23)**	**-2.7**
Issuance of borrowings	9,080	5,711	3,369	+59.0
Repayment of borrowings	(6,976)	(2,724)	(4,252)	n.a.
Issuance of perpetual subordinated bonds	493	1,243	(750)	-60.3
Redemptions of perpetual subordinated bonds	(1,280)	(1,329)	49	-3.7
Issuance of perpetual subordinated bonds	(589)	(584)	(5)	+0.9
Funding contributions received for assets operated under concessions	143	131	12	+9.2
Investment subsidies	543	351	192	+54.7
Other cash flows from financing activities	**1,414**	**2,799**	**(1,385)**	**-49.5**
NET CASH FLOW FROM CONTINUING FINANCING ACTIVITIES	**2,242**	**3,650**	**(1,408)**	**-38.6**
NET CASH FLOW FROM FINANCING ACTIVITIES RELATING TO DISCONTINUED OPERATIONS	**(19)**	**(120)**	**101**	**-84.2**
NET CASH FLOW FROM FINANCING ACTIVITIES	**2,223**	**3,530**	**(1,307)**	**-37.0**

n.a.: not applicable.

(1) The financial statements at 31 December 2019 apply IFRS 16 from 1 January 2019 (see note 2.1 to the 2019 consolidated financial statements).

(2) The published figures for 2018 have been restated due to the impact of presenting the E&P operations as discontinued operations.

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

Cash flows related to financing activities generated a net inflow of €2,223 million in 2019, down by €1,307 million from 2018. This change is primarily attributable to the following:

- transactions with non-controlling interests, which decreased by €493 million. In 2019, these transactions include €951 million corresponding to CGN's contribution to the Hinkley Point C capital increases. In 2018, transactions with non-controlling interests included £701 million received for the sale to Dalmore Capital Limited and Pensions Infrastructure Platform of a 49% stake in twenty-four UK wind farms (around 550MW), and €743 million corresponding to CGN's contribution to the Hinkley Point C capital increases;
- dividends paid by the parent company, which were down by €453 million. In 2019, dividends paid comprised a cash dividend of €(31) million and an interim dividend of €(27) million. In 2018, dividends paid comprised a cash dividend of €(60) million and an interim dividend of €(451) million;
- issuance of perpetual subordinated bonds, which decreased by €750 million. This change reflects the issuance of a €500 million hybrid bond on 26 November 2019, and a €1.25 billion "reset perpetual 6 year non-call hybrid note" on 25 September 2018;
- issues (see section 7.1.1.2) and redemption of bonds, which were down by €883 million compared to 2018.

6.2 Net indebtedness

Net indebtedness comprises total loans and financial liabilities, less cash and cash equivalents and liquid assets. Liquid assets are financial assets consisting of funds or securities with initial maturity of over three months that are readily convertible into cash and are managed according to a liquidity-oriented policy.

The Group's net indebtedness stood at €41,133 million in 2019 and include IFRS 16 from 1 January 2019 for €4,492 million. It stood at €33,388 million at 31 December 2018.

(in millions of Euros)	2019 (1)	2018 (2)	Variation	Variation (%)
Operating profit before depreciation and amortisation (EBITDA)	**16,708**	**14,898**	**1,810**	**+12.1**
Cancellation of non-monetary items included in EBITDA	(1,943)	(1,245)		
CASH EBITDA	**14,765**	**13,653**		
Change in working capital	452	470		
Net investments (3) (excluding 2019-2020 asset disposals, Hinkley Point C and Linky projects)	(11,345)	(11,508)		
Other items including dividends received from associates and joint ventures	303	383		
Operating cash flow (4)	**4,175**	**2,998**	**1,177**	**+39.3**
Asset disposals	531	1,937		
Income taxes paid	(922)	(309)		
Net financial expenses disbursed	(798)	(1,048)		
Dedicated assets	(394)	(501)		
Dividends paid in cash	(801)	(1,278)		
Operating cash flow before Hinkley Point C and Linky projects	**1,791**	**1,799**		
Hinkley Point C and Linky projects	(2,582)	(2,400)		
Group Cash flow (5)	**(791)**	**(601)**		
Issuance of perpetual subordinated bonds	493	1,243		
Redemptions of perpetual subordinated bonds	(1,618)	(1,329)		
Other monetary changes	(470)	(22)		
(Increase)/decrease in net indebtedness, excluding the impact of changes in exchange rate	**(2,386)**	**(709)**		
Effect of change in exchange rates	(341)	96		
Effect of other non-monetary changes	(5,039)	121		
(Increase)/decrease in net indebtedness of continuing operations	**(7,766)**	**(492)**		
(Increase)/decrease in net indebtedness of discontinued operations (6)	**21**	**119**		
Net indebtedness at beginning of period	**33,388**	**33,015**		
NET INDEBTEDNESS AT END OF PERIOD	**41,133**	**33,388**		

(1) The statements as of 31 December 2019 have been prepared in accordance with IFRS 16 (see note 2.1 to the 2019 consolidated financial statements).

(2) The published figures for 2018 have been restated due to the impact of presenting the E&P operations as discontinued operations.

(3) Net investments are operating investments and financial investments for growth, net of disposals. They also include net debts acquired or transferred in acquisitions or disposals of securities, investment subsidies received and non-Group partner investments. They do not include the 2019-2020 asset disposals, Hinkley Point C and Linky projects

(4) Operating cash flow is not an aggregate defined by IFRS as a measure of financial performance, and is not directly comparable with indicators of the same name reported by other companies. This indicator, also known as Funds From Operations ("FFO"), is equivalent to net cash flow from operating activities, changes in working capital after adjustment where relevant for the impact of non-recurring effects, net investments (excluding 2019-2020 asset disposals, Hinkley Point C and Linky projects) and other items including dividends received from associates and joint ventures.

(5) Group cash flow is not an aggregate defined by IFRS as a measure of financial performance, and is not comparable with indicators of the same name reported by other companies. It is equivalent to the operating cash flow less cash asset disposals, income taxes paid, net financial expenses disbursed, dedicated assets, dividend paid in cash, Hinkley Point C and Linky projects.

(6) This corresponds to the net indebtedness of Edison's E&P operations (discontinued operations).

6.2.1 Operating cash flow

The operating cash flow amounted to €4,175 million in 2019 compared to €2,998 million in 2018, with an increase of €1,177 million.

EBITDA (see section 5.2) adjusted for non-cash items amounted to €14,765 million, up by €1,112 million from 2018.

The increase in non-cash items (-€698 million) principally results from the change in the fair value of EDF Trading's financial instruments, in coherence with the growth in its activity.

6.2.1.1 Change in working capital

Working capital improved by €452 million in 2019.

This change was mainly due to the favourable development of working capital from the optimisation/trading activity.

The difference between the 2018 and 2019 change in working capital (-€18 million) is essentially explained by:

- an increase in CSPE expenses (-€1,104 million),
- the optimisation/trading activity (+€593 million),
- a favourable timing effect for social security liabilities (+€630 million).

6.2.1.2 Net investments (excluding 2019-2020 disposals, Hinkley Point C and Linky projects)

Net investments amounted to €11,345 million in 2019 compared to €11,508 million in 2018, a decrease of -€163 million (-1.4%). Details are as follows:

(in millions of Euros)	2019	2018 (1)	Variation	Variation (%)
France - Generation and supply activities	6,329	5,349	980	+18.3
France - Regulated activities	3,622	3,371	251	+7.4
EDF Renewables	(276)	506	(782)	n.a.
Dalkia	138	293	(155)	-52.9
Framatome	134	261	(127)	-48.7
United Kingdom	659	606	53	+8.7
Italy	344	705	(361)	-51.2
Other international	309	373	(64)	-17.2
Other activities	86	44	42	+95.5
NET INVESTMENTS	**11,345**	**11,508**	**(163)**	**-1.4**

n.a.: not applicable.

(1) The published figures for 2018 have been restated due to the impact of presenting the E&P operations as discontinued operations and and the reclassification of investments included in New Developments in 2018 (excluding Hinkley Point C and Linky projects).

Net investments by the **France – Generation and supply activities** segment rose by €980 million (+18.3%). This increase is mainly attributable to investments in nuclear maintenance, in line with the schedule for plant inspections.

Net investments by the **France – Regulated activities** segment were up by €251 million (+7.4%), primarily as a result of higher expenditure for customer connections, reinforcement of the network and improvement of the quality of service.

Net investments by **EDF Renewables** decreased by €782 million, mainly as a result of the partial sale of the Scottish "Neart na Gaoithe" offshore wind farm (leading to deconsolidation of the debt relating to the acquisition that took place in 2018). Higher volumes of subsidies in the United States also contributed to the decrease.

In **Italy**, net investments were down by €361 million, principally due to the acquisition in 2018 of Gas Natural Vendita Italia and Zephyro, as there was no equivalent operation in 2019.

6.2.2 Cash flow before Hinkley Point C and Linky projects

The cash flow before Hinkley Point C and Linky projects consequently amounted to €1,791 million in 2019 (compared to €1,799 million [1] in 2018).

6.2.2.1 2019-2020 asset disposals

Asset disposals concern EDF's sale of its 25.04% investment in the Swiss energy operator Alpiq.

6.2.2.2 Dedicated assets

In compliance with the French Law no. 2006-739 of 28 June 2006 on the sustainable management of radioactive materials and waste, EDF has built up a portfolio of dedicated assets for secure financing of its long-term nuclear obligations which amounted to €29,844 million at 31 December 2019.

Overall, the changes in dedicated assets comprise:

- allocations to reach full coverage of obligations;
- reinvestment of financial income (dividends and interest) generated by these assets;
- withdrawals of assets corresponding to the costs incurred over the period to meet long-term nuclear obligations falling within the scope of the Law of 28 June 2006;
- exceptional withdrawals proposed to the governance bodies in charge of managing dedicated assets when the value of the portfolio exceeds the amount of the obligations to be financed; such withdrawals must be validated by these bodies.

The net change of -€394 million in dedicated assets in 2019 corresponds to the first three categories above.

(1) Application of IFRS 16 at 31 December 2019 would have increased the cash flow before Hinkley Point C and Linky projects by approximately +€609 million.

6.2.2.3 Dividends paid in cash

Dividends paid in cash during 2019 (-€801 million) comprise:

- the balance of the 2018 dividend (-€31 million) and an interim dividend for 2019 (-€27 million), the major share of dividends having been paid in the form of a scrip dividend;
- payments made in 2019 to bearers of perpetual subordinated bonds for the "hybrid" bond issues of January 2013 and January 2014 (-€589 million);
- dividends paid by Group subsidiaries to their minority shareholders (-€154 million).

6.2.3 Group cash flow

The Group cash flow amounted to -€791 million at 31 December 2019, versus -€601 million at 31 December 2018.

6.2.4 Effect of change in exchange rates

The foreign exchange effect (mainly the rise of the pound sterling and the US dollar against the euro [1]) had an unfavourable impact of -€341 million on the Group's net indebtedness at 31 December 2019.

6.2.5 Other non-monetary changes

Other non-monetary changes declined by -€5,160 million compared to 2018, principally reflecting the application of IFRS 16 from 1 January 2019 (-€4,878 million, comprising -€4,492 for the initial liability recognised at 1 January 2019 and -€386 million of changes in IFRS 16 liabilities in 2019).

6.3 Financial ratios

	2019	2018 (1)	2017
Net indebtedness/EBITDA	2.46	2.24	2.40
Net indebtedness/(Net indebtedness + equity) (2)	42%	39%	40%

(1) The published figures for 2018 have been restated due to the impact of presenting the E&P operations as discontinued operations and the reclassification of investments included in New Developments in 2018 (excluding the Hinkley Point C and Linky projects).

(2) Equity including non-controlling interests.

(1) The pound sterling rose by 5.1% against the Euro, from €1.118/£1 at 31 December 2018 to €1.175 /£1 at 31 December 2019.
The US dollar rose by 1.9% against the euro, from €0.873/$1 at 31 December 2018 to €0.89/$1 at 31 December 2019.

7 MANAGEMENT AND CONTROL OF MARKET RISKS

7.1 Management and control of financial risks

This section sets forth the policies and principles for management of the Group's financial risks defined in the Strategic financial management framework (liquidity, interest rate, foreign exchange rate and equity risks), and the Group counterparty risk management policy set up by the EDF group. These principles apply only to EDF and operationally controlled subsidiaries or subsidiaries that do not benefit by law from specific guarantees of independent management such as Enedis. In compliance with IFRS 7, the following paragraphs describe the nature of risks resulting from financial instruments, based on analyses of sensitivities and credit (counterparty) risks.

Since 2002, a dedicated body - the Financial Risks Control department *(Département Contrôle des Risques Financiers et Investissements - CRFI)* - has been in charge of financial risk control at Group level, mainly by ensuring correct application of the principles of the Strategic Financial Management Framework (July 2015). This department, which has reported to the Group's Risk Division since 2008, is an independent unit that also has the task of carrying out a second-level check of the risk of counterparty default (methodology and organisation) for EDF entities and operationally controlled Group subsidiaries (excluding Enedis), and a first-level check of financing activities by EDF SA's Trading room. The CRFI department also carries out a second-level check of management activities concerning the dedicated asset portfolio.

The CRFI department issues daily and weekly monitoring reports of risk indicators relevant to activities in EDF SA's trading room.

Regular internal audits are carried out to ensure controls are actually applied and are effective.

7.1.1 Liquidity position and management of liquidity risk

7.1.1.1 Liquidity position

At 31 December 2019, the Group's liquidities, consisting of liquid assets, cash and cash equivalents, totalled €22,895 million and available credit lines amounted to €10,490 million.

For 2020, the Group's scheduled debt repayments (principal and interest) are forecast at 31 December 2019 at €13,357 million, including €3,836 million for bonds (excluding hybrid bonds).

No Group company was in default on any borrowing at 31 December 2019.

7.1.1.2 Management of liquidity risk

On 27 November 2019, EDF raised $2 billion through issuance of a US dollar-denominated senior bond with 50-year maturity and a fixed coupon of 4.50%. This transaction demonstrates the Group's capacity to attract a highly diversified investor base at the long end of the credit curve.

In addition, on 2 December 2019, EDF raised €1.25 billion through issuance of a euro-denominated senior bond, with 30-year maturity and a fixed coupon of 2.00%. This is the largest amount raised by a corporate issuer on this maturity in the Euro market.

Details of the Group's bond borrowings are given in note 41.2 to the 2019 consolidated financial statements "Loans and other financial liabilities".

The average maturity of the Group's gross debt was 15.4 years at 31 December 2019, compared to 13.6 years at 31 December 2018. For EDF SA, the average maturity was 15.9 years at 31 December 2019, against 14.2 years at 31 December 2018.

At 31 December 2019, the residual maturities of financial liabilities (including interest payments) are as follows under IFR 9 (valued on the basis of exchange and interest rates at 31 December 2019):

31 December 2019		**Hedging instruments [1]**		
(in millions of Euros)	**Debt**	**Interest rate swaps**	**Currency swaps**	**Guarantee given on borrowings**
2019	13,369	(283)	(420)	77
2020-2023	22,276	(942)	(1,437)	475
2024 and later	79,998	(920)	(4,068)	478
Total	**115,643**	**(2,145)**	**(5,925)**	**1,030**
debt repayment	66,049			
interest expense	49,594			

(1) Data on hedging instruments include both assets and liabilities.

The EDF group was able to meet its financing needs by conservative liquidity management, and has obtained financing on satisfactory terms.

A range of specific levers are used to manage the Group's liquidity risk:

- the Group's cash pooling system, which centralises cash management for controlled subsidiaries. The subsidiaries' cash balances are made available to EDF SA in return for interest, so as to optimise the Group's cash management and provide subsidiaries with a system that guarantees them market-equivalent financial terms;
- centralisation of financing for controlled subsidiaries at the level of the Group's cash management department. Changes in subsidiaries' working capital are financed by this department in the form of stand-by credit lines provided for subsidiaries, which may also be granted revolving credit from the Group. EDF SA and the investment subsidiary EDF Investissements Groupe (EDF IG), set up in partnership with the bank Natixis Belgique Investissements, also provide medium and long-term financing for EDF group operations outside France, arranged by EDF SA and EDF IG on a totally independent basis: each company sets its own terms, which are the same as the

subsidiary would have in an arm's-length market transaction;

- active management and diversification of financing sources used by the Group: the Group has access to short-term resources on various markets through programmes for French commercial paper *(billets de trésorerie)* and US commercial paper. For EDF, the ceilings for these programmes are €6 billion for the NEU CP programmes and $10 billion for its US commercial paper.

At 31 December 2019, the amount of the Group's commercial paper outstanding was €785 million for French commercial paper, and US$1,175 million for US commercial paper. EDF has access to the world's main bond markets: the Euro markets through its EMTN programme, which currently has a ceiling of €45 billion, particularly for Euro and sterling issues; and the domestic markets used for stand-alone issues in US dollars (144A bonds), yen (Samurai bonds) and Swiss francs.

The Group's main borrowings at 31 December 2019 are as follows:

Type of borrowing *(in millions of currency units)*	**Entity**	**Issue date (1)**	**Maturity**	**Nominal amount**	**Currency**	**Rate**
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%
Bond	EDF	09/2018	09/2028	1,800	USD	4.50%
Euro MTN	EDF	04/2010	04/2030	1,500	EUR	4.63%
Euro MTN	EDF	10/2018	10/2030	1,000	EUR	2.00%
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	09/2018	09/2038	650	USD	4.88%
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%
Bond	EDF	09/2018	09/2048	1,300	USD	5.00%
Euro MTN	EDF	12/2019	12/2049	1,250	EUR	2.00%
Euro MTN	EDF	09/2010	09/2050	1,000	GBP	5.13%
Euro MTN	EDF	10/2016	10/2056	2,164	USD	499%
Euro MTN	EDF	11/2019	12/2069	2,000	USD	4,50%
Bond	EDF	01/2014	01/2114	1,350	GBP	6,00%

(1) Date funds were received

At 31 December 2019, EDF has an overall amount of €10,067 million in available credit facilities (syndicated credit and bilateral lines):

- the syndicated credit line amounts to €4 billion and expires in December 2024. No drawings had been made on this syndicated credit line at 31 December 2019;
- bilateral lines represent an available amount of €6,067 million, with expiry dates extending to June 2024. The level of this available financing is very frequently reviewed to ensure the Group has sufficient backup credit facilities;
- the amount available from the credit lines with the European Investment Bank is nil. Four credit lines were fully drawn at 31 December 2019 for amounts of €500 million, €225 million, €500 million and €250 million.

EDF Chile has a syndicated credit facility for €107 million (expiring in September 2024). At 31 December 2019, this credit facility was fully drawn.

Edison has a credit line with the European Investment Bank for €257 million (available amount €40 million) and a credit line with a pool of banks for €100 million, which was drawn to the extent of €50 million at 31 December 2019.

7.1.2 Credit rating

The financial ratings agencies Standard & Poor's, Moody's and Fitch Ratings attributed the following long-term and short-term ratings to EDF group entities at 31 December 2019:

Company	Agency	Long-term rating	Short-term rating
	Standard & Poor's	A-, negative outlook (1)	A-2
	Moody's	A3, stable outlook	P-2
EDF	Fitch Ratings	A-, stable outlook	F2
EDF Trading	Moody's	Baa2, stable outlook	n.a.
EDF Energy	Standard & Poor's	BBB-, negative outlook	A-3
	Standard & Poor's	BBB-, stable outlook	A-3
Edison	Moody's	Baa3, positive outlook (2)	n.a.

n.a.= not applicable.
(1) S&P revised EDF outlook from stable to negative on 10 October 2019.
(2) Moody's revised EDISON's outlook from stable to positive on 19 September 2019.

7.1.3 Management of foreign exchange risk

Due to the diversification of its activities and geographical locations, the Group is exposed to the risk of exchange rate fluctuations, which may have an impact on the translation differences affecting balance sheet items, Group financial expenses, equity and net income.

To limit exposure to foreign exchange risks, the Group has introduced the following management principles:

- local currency financing: to the extent possible given the local financial markets' capacities, each entity finances its activities in its own functional currency. When financing is contracted in other currencies, derivatives may be used to limit foreign exchange risk;
- matching of assets and liabilities: the net assets of subsidiaries located outside the Euro zone expose the Group to a foreign exchange risk. The foreign exchange risk in the consolidated balance sheet is managed by market hedging involving use of financial derivatives. Hedging of net assets in foreign currencies complies with risk/return targets, and the hedging ratio varies depending on the currency, ranging from 34% to 86% for the principal exposures. If no hedging instruments are available, or if hedging costs are prohibitive, the foreign exchange positions remain open and the risk on such positions is monitored by sensitivity calculations;
- hedging of operating cash flows in foreign currencies: in general, the operating cash flows of EDF and its subsidiaries are in the relevant local currencies, with the exception of flows related to fuel purchases which are primarily in US dollars, and certain flows related to purchases of equipment, which concern lower amounts. Under the principles laid down in the Strategic financial management framework, EDF and the main subsidiaries concerned by foreign exchange risks (EDF Energy, EDF Trading, Edison, EDF Renewables) are required to hedge firm or highly probable commitments related to these future operating cash flows.

As a result of the financing and foreign exchange risk hedging policy, the Group's gross debt at 31 December 2019 breaks down as follows by currency after hedging:

GROSS DEBT STRUCTURE BY CURRENCY BEFORE AND AFTER HEDGING

31 December 2019 *(in millions of Euros)*	**Initial debt structure**	**Impact of hedging instruments (1)**	**Debt structure after hedges**	**% of debt**
Borrowings in EUR	33,360	18,491	51,851	77%
Borrowings in USD	20,867	(14,814)	6,053	9%
Borrowings in GBP	10,269	(1,705)	8,564	13%
Borrowings in other currencies	2,884	(1,972)	912	1%
TOTAL DEBT	**67,380**	**-**	**67,380**	**100%**

(1) Hedges of liabilities and net assets of foreign subsidiaries.

The table below presents the impact on equity of a variation in exchange rates on the Group's gross debt at 31 December 2019:

EXCHANGE RATE SENSITIVITY OF THE GROUP'S GROSS DEBT

31 December 2019 *(in millions of Euros)*	**Debt after hedging instruments converted into Euros**	**Impact of a 10% unfavourable variation in exchange rates**	**Debt after a 10% unfavourable variation in exchange rates**
Borrowings in EUR	51,851	-	51,851
Borrowings in USD	6,053	605	6,658
Borrowings in GBP	8,564	856	9,420
Borrowings in other currencies	912	91	1,003
TOTAL DEBT	**67,380**	**1,552**	**68,932**

Due to the Group's hedging policy for foreign exchange risk on the Group's gross debt, the income statement for companies controlled by the Group is marginally exposed to foreign exchange rate risk.

The table below sets forth the foreign exchange position relating to net assets in foreign currencies of the Group's subsidiaries.

NET ASSET POSITION

31 December 2019 [(1)] *(in millions of Euros)*	**Net assets**	**Bonds**	**Derivatives**	**Net assets after management**
USD	5,613	2,850	1,974	789
CHF (Switzerland)	29	-	28	1
GBP (United Kingdom)	17,717	5,435	504	11,778
PLN (Poland)	294	-	153	141
BRL (Brazil)	1,202	-	-	1,202
CNY (China)	11,148	-	-	11,148

(1) Net assets as stated at 31 December 2019; bonds and derivatives as stated at 31 December 2019. The net positions shown exclude certain non-significant exposures.

The above table shows the assets of the Group's foreign subsidiaries in foreign currencies, adjusted for changes in the fair value of cash flow hedges and of debt and equity instruments recorded in equity, and changes in the fair value of financial instruments recorded in income.

The following table sets forth the risk for equity of foreign exchange losses on net assets in foreign currencies of the Group's principal subsidiaries at 31 December 2019, assuming unfavourable, uniform exchange rate variations of 10% against the Euro. Net assets are converted at the closing rate and impacts are reported in absolute value.

EXCHANGE RATE SENSITIVITY OF NET ASSETS

	At 31 December 2019			**At 31 December 2018**		
(in millions of currency units)	**Net assets after management into currency**	**Net assets after management converted into Euros**	**Impact on equity of a 10% variation in exchange rates**	**Net assets after management into currency**	**Net assets after management converted into Euros**	**Impact on equity of a 10% variation in exchange rates**
USD	789	702	70	2,107	1,840	184
CHF (Switzerland)	1	1	-	202	179	18
GBP (United Kingdom)	11,778	13,843	1,384	11,085	12,392	1,239
CLP (Chile)	-	-	-	(6,663)	(8)	(1)
PLN (Poland)	141	33	3	154	36	4
BRL (Brazil)	1,202	266	27	1,164	262	26
CNY (China)	11,148	1,425	143	9,932	1,261	126

The foreign exchange risk on available-for-sale securities is mostly concentrated in EDF's dedicated asset portfolio, which is discussed in section 7.1.6 "Management of financial risk on EDF SA's dedicated asset portfolio".

The foreign exchange risk associated with short-term investments and operating liabilities in foreign currencies remains restricted for the Group at 31 December 2019.

7.1.4 Management of interest rate risk

The exposure of the Group's net indebtedness to interest rate fluctuations covers two types of risk: a risk of change in the net financial expenses on floating-rate financial assets and liabilities, and a risk of change in the value of financial assets invested at fixed rates. These risks are managed by monitoring the floating-rate portion of net indebtedness, defined by reference to the risk/return for net financial expenses, taking into consideration expected movements in interest rates.

Some of the debt is variabilised and the Group may use interest rate derivatives for hedging purposes. The distribution of exposure between fixed and floating rates is monitored.

The Group's debt after hedging instruments at 31 December 2019 comprised 61.0% at fixed rates and 39.0% at floating rates.

A 1% uniform annual rise in interest rates would generate an approximate €263 million increase in financial expenses at 31 December 2019, based on gross floating-rate debt after hedging.

The average cost of Group debt (weighted interest rate on outstanding amounts) was 2.69% at the end of 2019.

The table below sets forth the structure of Group debt and the impact of a 1% variation in interest rates at 31 December 2019. The impact of the change in interest rates is stable in comparison to 2018.

STRUCTURE AND INTEREST RATE SENSITIVITY OF GROUP'S DEBT

31 December 2019 *(in millions of Euros)*	**Initial debt structure**	**Impact of hedging instruments**	**Debt structure after hedging**	**Impact on income of a 1% variation in interest rates**
Fixed rate	62,128	(21,035)	41,093	-
Floating rate	5,252	21,035	26,287	263
TOTAL	**67,380**	**-**	**67,380**	**263**

Concerning financial assets, the table below presents the interest rate risk on the floating-rate notes and short-term deposits held by EDF, and their sensitivity to interest rate risks (impact on net income).

INTEREST RATE SENSITIVITY OF FLOATING-RATE INSTRUMENTS

31 December 2019 *(in millions of Euros)*	**Value**	**Impact on income of a 1% variation of interest rates**	**Value after a 1% variation in interest rates**
FLOATING-RATE INSTRUMENTS	**2,487**	**(25)**	**2,462**

The Group's interest rate risk notably relates to the value of the Group's long-term nuclear obligations (see note 32 to the 2019 consolidated financial statements) and its pension and other specific employee benefit obligations (see note 34 to the 2019 consolidated financial statements), which are adjusted to present value using discount rates that depend on interest rates at various time horizons, and debt securities held in connection with the management of the dedicated assets set aside to cover these obligations (see section 7.1.6 "Management of financial risk on EDF's dedicated asset portfolio").

7.1.5 Management of equity risks

The equity risk is concentrated in the following areas:

Coverage of EDF's nuclear obligations

Analysis of the equity risk is presented in section 7.1.6 "Management of financial risk on EDF SA's dedicated asset portfolio".

Coverage of employee benefit obligations for EDF SA, EDF Energy and British Energy

Assets covering EDF's employee benefit liabilities are partly invested on the international and European equities markets. Market trends therefore affect the value of these assets, and a downturn in equity prices would lead to a rise in balance sheet provisions.

31.6% of the assets covering EDF's employee benefit obligations were invested in equities at 31 December 2019, representing an amount of €4 billion of equities.

At 31 December 2019, the two pension funds sponsored by EDF Energy (EDF Energy Pension Scheme and EDF Energy Group Electricity Supply Pension Scheme) were invested to the extent of 14.3% in equities and 8.4% in equity funds, representing an amount of £237 million of equities.

At 31 December 2019, the British Energy pension funds were invested to the extent of 11.1% in equities and equity funds, representing an amount of £768 million of equities.

CENG fund

CENG is exposed to equity risks in the management of its funds established to cover nuclear decommissioning expenses.

EDF's long-term cash management

As part of its long-term cash management policy, EDF has continued its strategy to reduce the portion of equity-correlated investments, resulting in a non-significant position well below €1 million at 31 December 2019.

7.1.6 Management of financial risk on EDF's dedicated asset portfolio

Dedicated assets have been built up progressively by EDF since 1999 for secure financing of its long-term nuclear obligations. The Law of 28 June 2006 and its implementing regulations defined provisions not related to the operating cycle, which must therefore be covered by dedicated assets; they are listed in note 48 to the 2019 consolidated financial statements, "EDF's dedicated assets".

The dedicated asset portfolio is managed under the supervision of the Board of Directors and its advisory committees (Nuclear commitments monitoring committee, Audit committee).

The **Nuclear Commitments Monitoring Committee (CSEN)** is a specialised Committee set up by EDF's Board of Directors in 2007.

A **Nuclear Commitments Financial Expertise Committee (CEFEN)** exists to assist the company and its governance bodies on questions of matching assets and liabilities and asset management. The members of this Committee are independent of EDF. They are selected for their skills and diversity of experience, particularly in the fields of asset/liability management, economic and financial research, and asset management.

Governance and management principles

The governance principles setting forth the structure of dedicated assets, and the relevant decision-making and control processes for their management, are validated by EDF's Board of Directors. These principles also lay down rules for the asset portfolio's structure, selection of financial managers, and the legal, accounting and tax structure of the funds.

Strategic asset allocation is based on asset/liability reviews carried out to define the most appropriate target portfolio for financing long-term nuclear expenses. Strategic allocation is validated by EDF's Board of Directors and reviewed every three years unless circumstances require otherwise. A new strategic allocation was validated during 2018. This target allocation consists of a yield portfolio, a growth portfolio and a fixed-income portfolio, respectively accounting for 30%, 40% and 30% of the total portfolio. The yield portfolio consists of real estate assets and infrastructure assets; the growth portfolio consists of equities and equity funds (both listed and unlisted); the fixed-income portfolio consists of bonds, debt funds (both listed and unlisted), the CSPE receivable and cash. These portfolios are managed by the Listed Asset Management division and by EDF Invest (formed in 2013 following the decree of 24 July 2013).

The "cash" pocket of the portfolio exists to provide secure coverage for future disbursements related to the purpose of the asset covered, and may be reinforced tactically, particularly when a conservative approach is required in the event of a market crisis.

The CSPE receivable was allocated to dedicated assets on 13 February 2013 (see note 48 to the 2019 consolidated financial statements).

Tactical management of the growth assets and fixed-income assets has several focal areas:

- monitoring of exposure between growth assets and fixed-income assets;
- within each sub-portfolio, allocation by "secondary asset class";
- selection of investment funds, aiming for diversification:
  - by style (growth securities, unlisted securities, yield securities),
  - by capitalisation (major stocks, medium and small stocks),
  - by investment process (macroeconomic and sector-based approach, selection of securities on a "quantitative" basis, etc.),
  - by investment vehicle (for compliance with maximum investment ratios);
- for bonds, a choice of securities held directly, through brokers, or via investment funds incorporating the concern for diversification:
  - by type of issue (fixed income, indexed income),
  - by type of instrument (government or supranational bonds, covered bonds and similar, corporate bonds),
  - by issuer and by maturity.

The allocation policy between growth assets and fixed-income assets was developed by the Operational Management Committee [(1)] on the basis of the economic and financial outlook for each market and geographical area, a review of market appreciation in different markets and market segments, and risk analyses produced by the CRFI department.

Content and performance of EDF's dedicated asset portfolio

BREAKDOWN OF THE PORTFOLIO

	31/12/2019	31/12/2018
Yield assets	19.2%	19.3 %
Growth assets	42.1%	36.5 %
Fixed-income assets	38.7%	44.2 %
TOTAL	**100%**	**100%**

At 31 December 2019, the total value of the portfolio was €31,624 million compared to €27,689 million in 2018.

The content of the financial portfolio is also presented in note 48 to the 2019 consolidated financial statements, "Dedicated assets".

(1) A permanent internal committee for evaluation, consultation and operational decision-making in the management of dedicated assets.

PORTFOLIO CONTENT UNDER THE CLASSIFICATION FROM ARTICLE 4, DECREE 2007-243 OF 23 FEBRUARY 2007

Categories *(in millions of Euros)*	**31 December 2019** Net book value (1)	Realisable value	**31 December 2018** Net book value (1)	Realisable value
CTE (the holding company that holds 100% of RTE) (2)	2,705	2,926	2,705	2,738
Derivatives	(10)	(10)	-	-
Other unlisted securities	2,826	3,164	2,333	2,618
YIELD ASSETS	**5,521**	**6,080**	**5,038**	**5,356**
Funds not exclusively invested in OECD bonds	10,865	12,978	9,370	9,844
Hedges, deposits, amounts receivable	-	46	20	45
Other unlisted securities	263	276	198	219
GROWTH ASSETS	**11,128**	**13,300**	**9,588**	**10,108**
OECD government bonds and similar	4,338	4,548	4,362	4,443
OECD corporate (non-government) bonds	1,793	1,827	946	950
Funds investing in the above two categories	4,830	5,038	4,580	4,647
CSPE after funding	684	688	2,060	2,080
Other unlisted securities	146	142	114	105
Derivatives	5	1	-	-
FIXED INCOME ASSETS	**11,796**	**12,244**	**12,062**	**12,225**
TOTAL DEDICATED ASSETS	**28,445**	**31,624**	**26,688**	**27,689**

(1) Net book value in the parent company financial statements.

(2) In 2019 and 2018, dedicated assets include 50.1% of Coentreprise de Transport d'Électricité (CTE).

PERFORMANCE OF EDF'S DEDICATED ASSET PORTFOLIO

The table below presents the performance by portfolio at 31 December 2019 and 31 December 2018:

(in millions of Euros)	**31/12/2019** Stock market or realisable value	**Performance for 2019** Portfolio	**31/12/2018** Stock market or realisable value	**Performance for 2018** Portfolio
Yield assets	6,080	8.9%	5,356	7.0%
Growth assets	13,300	25.9%	10,108	-7.0%
Fixed income assets	12,244	5.2%	12,225	-0.4%
TOTAL DEDICATED ASSETS	**31,624**	**13.5%**	**27,689**	**-1.6%**

BREAKDOWN OF PORTFOLIO PERFORMANCE UNDER THE CLASSIFICATION FROM ARTICLE 4, DECREE 2007-243 OF 23 FEBRUARY 2007

(in millions of Euros)	**31/12/2019** Stock market or realisable value	**Performance for 2019** Portfolio	**31/12/2018** Stock market or realisable value	**Performance for 2018** Portfolio
CTE (the holding company that holds 100% of RTE) (1)	2,926	12.6%	2,738	7.0%
Other unlisted securities(2) (3)	3,572	6.0%	2,942	7.9%
Equity funds including derivatives (3)	13,024	26.3%	9,889	-7.4%
Bonds, negotiable debt securities and bond funds (3)	11,226	6.1%	10,010	-0.8%
Monetary funds	188	-0.3%	30	-0.3%
CSPE after funding	688	0.6%	2,080	0.4%
TOTAL DEDICATED ASSETS	**31,624**	**13.5%**	**27,689**	**-1.6%**

(1) In 2019 and 2018, dedicated assets include 50.1% of Coentreprise de Transport d'Électricité (CTE).

(2) EDF Invest without CTE. The performance of EDF Invest including CTE is 9.0% in 2019 and 7.5% in 2018.

(3) Including derivatives.

Changes in the portfolio during 2019

After a difficult 2018, the stock markets had a better year in 2019. With the exceptions of May and August, the equities markets registered practically continuous growth that took them to new record levels, helped by the conciliatory tone of the principal central banks.

The Fed and the ECB lowered their base rates, and the ECB also revitalised its asset purchase programme. Growth stabilised and there were hopes of a more positive outlook for corporate results. These decisive moves by the central banks also had a major impact on the bond markets. Contrary to most investors' expectations, the rates on government bonds in the Euro zone decreased significantly until the end of August before embarking on a gradual increase that gathered pace at the end of the year. It was nonetheless a positive year overall for the bond markets, considering that 10-year German rates moved from +0.25% to -0.19% after hitting a low point at -0.71% in late August. The performance of the riskiest bond assets was even more pronounced: credit spreads retreated substantially, as did the spread on Italian government instruments (-0.9%).

In 2019, the overall after-tax performance of dedicated assets (impacts on reserves and net income) was +€2,758 million, comprising +€16 million for the CSPE (+€24 million before tax), +€308 million for the CTE shares allocated to dedicated assets, and +€2,434 million for other securities (+€3,450 million before tax).

EDF continued to invest the amounts received in repayment of the CSPE receivable, maintaining a prudent allocation, with lower volatility than the benchmark indexes, but an equivalent performance. The overall performance of the dedicated asset portfolio, comprising yield assets, growth assets and fixed-income assets, was +13.5%.

In May 2019, the rest of the minority stake in Nam Theun Power Company (NTPC, a hydroelectric dam in operation in Laos) acquired by EDF Invest in December 2018 was allocated to dedicated assets. In December 2019, EDF SA acquired an investment in US solar power and wind power facilities from EDF Renewables US, and some of that investment was allocated to dedicated assets at 31 December 2019. These new investments were added to EDF Invest's "Infrastructures" asset class, diversifying its portfolio into renewable energies. EDF Invest also purchased an office building in Germany in early 2019 and a portfolio of hotel buildings in France and Italy in December 2019. The unlisted assets managed by EDF Invest are distributed between yield assets, growth assets and fixed-income assets. The total value of this portfolio, including CTE, was €6.5 billion at 31 December 2019 compared to €5.7 billion at 31 December 2018. The annual performance of EDF Invest's portfolio including CTE for 2019 was 9%.

Thanks to the rise on the listed equity and bond markets, the growth asset pocket, which exceeded its target 40% proportion all year, produced an overall performance of +25.9%, comprising +26.3% for listed equities and +9.6% for growth funds. Regarding listed equities, the selected Japanese and emerging funds outperformed their respective indexes. In the North American pocket where asset funds generally had lower performances, continued passive management for more than 85% of assets kept the performance close to the index, despite the presence of low-volatility funds. The European pocket's performance also declined slightly, although at the end of the year the chosen funds began to catch up with their benchmark index. Finally, currency management had positive results, particularly due to the above-target concentration on the pound sterling.

The performance of fixed-income assets was satisfactory in both absolute (+5.2%) and relative terms. The listed bond portfolio achieved growth of +6.1%, just below its benchmark index. The high proportion of credit assets, which began to be built up at the start of the year and was subsequently accentuated, combined with a good performance by the management systems, made up for the interest rate effect. Meanwhile, bond funds registered a performance of +9.7% and the performance by the portfolio of short-term receivables, which primarily consists of the CSPE receivable, was +0.4%.

Dedicated assets' exposure to risks

EDF is exposed to equity risks, interest rate risks and foreign exchange risks through its dedicated asset portfolio.

The market value of the listed equities in EDF's dedicated asset portfolio was €13,024 million at 31 December 2019. The volatility of the listed equities at the same date was 9.2% based on 52 weekly performances, compared to 14.3% at 31 December 2018. Applying this volatility to the value of listed equity assets at the same date, the Group estimates the annual volatility of the equities portion of dedicated assets at €1,198 million.

At 31 December 2019, the sensitivity of the listed bonds (€11,226 million) was 6.1, i.e. a uniform 100 base point rise in interest rates would result in a €682 million decline in market value. This sensitivity was 5.3 at 31 December 2018.

7.1.7 Management of counterparty/credit 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.

The Group has a counterparty risk management policy which applies to EDF and all operationally controlled subsidiaries. This policy sets out the governance associated with monitoring for this type of risk, and organisation of the counterparty risk management and monitoring. The policy also involves monthly consolidation of the Group's exposures, updated monthly for financial and energy market activities and quarterly for other activities. The CRFI (Financial Risks Control) department closely monitors Group counterparties (daily review of alerts, special cautionary measures for certain counterparties).

The table below gives details, by rating, of the EDF group's consolidated exposure to counterparty risk. At 30 September 2019, 90% of the Group's exposure concerns "investment grade" counterparties, mainly as a result of the predominance of exposures generated by the cash and asset management activity, as most short-term investments concern low-risk assets:

	Good credit rating	Poor credit rating	No internal rating	Total
31/03/2019	90%	8%	2%	100%
30/09/2019	90%	9%	1%	100%

The exposure to counterparty risk by nature of activity is distributed as follows:

	Purchases	Insurance	Distribution and sales	Cash and asset management	Fuel purchases and energy trading	Total
31/03/2019	6%	1%	10%	77%	6%	100%
30/09/2019	7%	-	11%	76%	6%	100%

Exposure in the energy trading activities is concentrated in EDF Trading, where each counterparty is assigned a limit that depends on its financial robustness. A range of methods are used to reduce counterparty risk at EDF Trading, primarily position netting agreements, cash-collateral agreements and establishment of guarantees from banks or affiliates.

For counterparties dealing with EDF's trading room, the CRFI department has drawn up a framework specifying counterparty authorisation procedures and the methodology for calculation of allocated limits. The level of exposure can be consulted in real time and is systematically monitored on a daily basis. The suitability of limits is reviewed without delay in the event of an alert or unfavourable development affecting a counterparty.

As the political and financial situation in the Euro zone is still uncertain, EDF has continued to apply a conservative management policy for its cash investments in non-core countries. Only banking, sovereign and corporate counterparties with good credit ratings are authorised, for limited amounts and maturities.

7.2 Management and control of energy market

7.2.1 Management and control of energy market risks

In keeping with the opening of the final customer market, the growth of wholesale markets and its international development, the EDF group is exposed to price variations on the energy market which can significantly affect its financial statements (see chapter 2.2.2D of the Universal Registration Document, "Energy market risks").

Consequently, the Group has an "energy markets" risk policy for all energy commodities, applicable to EDF and entities over which it has operational control.

The purpose of this policy is to:

- define the general framework for management of energy market risks, governing the various Group entities' asset portfolio management activities (energy generation, optimisation and sale), and trading for EDF Trading;
- define the responsibilities of asset managers and traders, and the various levels of control of activities;
- implement a coordinated Group-wide hedging policy that is coherent with the Group's financial commitments;
- consolidate the exposure of the various entities operationally controlled by EDF on the structured energy-related markets.

The Group Risk Division presents an annual report on the implementation of this policy to the Board of Directors' Audit Committee.

At entities not operationally controlled by EDF, the risk management framework is reviewed by the governance bodies.

7.2.2 Organisation of risk control and general risk hedging principle

The process for controlling energy market risks for entities operationally controlled by the Group is based on:

- a governance and market risk exposure measurement system, clearly separating management and risk control responsibilities;
- an express delegation to each entity, defining hedging strategies and establishing the associated risk limits. This enables the Executive Committee to set out and monitor an annual Group risk profile consistent with the financial objectives, and thus direct operational management of energy market risks over market horizons (generally three years).

The basic principle for hedging is:

- netting of upstream/downstream positions; wherever possible, sales to final customers are hedged by Internal sales;
- gradual closing of positions before the end of the budget year, based on a predefined hedging trajectory (1) that captures an average price, potentially with overweighting of year N-1 in view of liquidity constraints on the forward markets.

On the French electricity market, EDF is exposed to very high uncertainty over its net exposure due to the fact that the ARENH mechanism is optional and uncertainty regarding possible changes to the relevant regulations (in particular, the risk that the ceiling for volumes made available could be raised to 150TWh under the Energy and Climate law adopted in 2019). Since the volumes subscribed are only known shortly before the delivery period, EDF is obliged to use assumptions for ARENH subscriptions, which include prudence margins. EDF thus remains subject to risks that the assumptions may not correspond to reality, such that during the year it could find itself obliged to sell reserved volumes that in the end were not actually subscribed, or conversely to purchase volumes sold before the ARENH bids took place on the assumption that there would be no subscriptions. This risk is particularly high as the energy + capacity price on the wholesale market is close to the ARENH price (€42/MWh).

Given its close interaction with the decisions made in the generation, supply and trading activities, the energy risk management process involves Group management and is based on a risk indicator and measurement system incorporating escalation procedures in the event risk limits are exceeded.

The Group's exposure to energy market risks through operationally controlled entities is reported four times a year to the Executive Committee. The control processes are regularly evaluated and audited.

(1) The risk management frameworks, which are approved annually by the Group for each entity with exposure to energy market risks, may include acceleration or deceleration plans allowing departures from these trajectories if predefined price thresholds are exceeded. Since these plans do not comply with the general principle of gradual hedging, they can only be applied under strict conditions.

7.2.3 Principles for operational management and control of energy market risks

The principles for operational management and control of energy market risks for the Group's operationally controlled entities are based on strict segregation of responsibilities for managing those risks, distinguishing between management of assets (generation and supply) and trading.

The operators of generation and supply assets are responsible for implementing a risk management strategy that smoothes the impact of energy market risks on the variability of their financial statements (the accounting classifications of the hedges used are described in note 44 to the 2019 consolidated financial statements, "Derivatives and Hedge accounting"). However, they are still exposed to structural price trends to the extent of volumes that are not yet hedged, and uncertainties over volumes (relating to the ARENH system, generation plant availability, and customer consumption).

For operationally controlled entities in the Group, positions on the energy markets are taken predominantly by EDF Trading, the Group's trading entity, which operates on the markets on behalf of other Group entities and for the purposes of its own trading activity associated with the Group's industrial assets. Consequently, EDF Trading is subject to a strict governance and control framework, particularly the European regulations on trading companies.

EDF Trading trades on organised or OTC markets in derivatives such as futures, forwards, swaps and options (regardless of the accounting classification applied at Group level). Its exposure on the energy markets is strictly controlled through daily limit monitoring overseen by the subsidiary's management and by the division in charge of energy market risk control at Group level. Automatic escalation procedures also exist to inform members of EDF Trading's Board of Directors of any breach of risk limits (value at risk limit) or losses (stop-loss limits). Value at Risk (VaR) is a statistical measure of the potential maximum loss in market value on a portfolio in the event of unfavourable market movements, over a given time horizon and with a given confidence interval (1). Specific Capital at Risk (CaR) limits are also used in certain areas (operations on illiquid markets, long-term contracts and structured contracts) where VaR is difficult to apply. The stop-loss limit stipulates the acceptable risk for the trading business, setting a maximum level of loss over a rolling three-month period. If these limits are exceeded, EDF Trading's Board of Directors takes appropriate action, which may include closing certain positions.

In 2019, EDF Trading's commitment on the markets was subject to a VaR limit of €35 million, a CaR limit for long-term contracts and a CaR limit for operations on illiquid markets of €250 million each, and a stop-loss limit of €180 million.

Only the CaR limit for operations on illiquid markets was exceeded in 2019, temporarily and by a very small amount. The stop-loss has never been triggered since its introduction.

For an analysis of fair value hedges of the Group's commodities, see note 44.5 to the 2019 consolidated financial statements. For details of commodity derivatives not classified as hedges by the Group, see note 45.3 to the same consolidated financial statements.

8 TRANSACTIONS WITH RELATED PARTIES

The types of transaction undertaken with related parties are detailed in note 51 to the 2019 consolidated financial statements, "Related parties".

9 SCOPE OF CONSOLIDATION

A list of all consolidated companies is presented in note 53 to the 2019 consolidated financial statements; "Scope of consolidation".

10 PRINCIPAL RISKS AND UNCERTAINTIES

The principal risk factors to which the EDF group considers itself exposed are presented in section 2 of the 2019 Universal Registration Document.

The Group's policies for risk management and control are described in section 2 of the 2019 Universal Registration Document.

This presentation of the principal risks describes the major risks and uncertainties affecting the Group. The Group remains subject to the usual risks specific to its business.

(1) EDF Trading estimates the VaR by the "Monte Carlo" method, which is based on volatilities and historical correlations measured using observed market prices over the 40 most recent business days. The VaR limit applies to the total EDF Trading portfolio.

11 OUTLOOK

2020 Targets

- **EBITDA** [(1)]: between €17.5 billion and €18.0 billion;
- **Operating expenses** [(2)]: stable in $€_{2019}$
- **Total net investments** excluding acquisitions and 2019-2020 Group disposals: around €15.5 billion per year;
- **2019-2020 Group disposals** [(3)]**:** between €2 billion and €3 billion;
- **Net financial debt/EBITDA** [(1)] **:** ≤ 2.6x;
- **Targeted payout ratio,** based on net income excluding non-recurring items [(4)] [(5)]: 45% - 50%.

2021 Ambitions

- **Net financial debt/EBITDA** [(1)] **:** ≤ 2.7x;
- **Targeted payout ratio,** based on net income excluding non-recurring items [(4)]: 45% - 50%.

(1) On the basis of the scope and exchange rates at 01/01/2019 and of an assumption of a 375-390TWh range for French nuclear generation for 2020.
(2) Sum of personnel expenses and other external expenses. At comparable scope, standard and exchange rates. At constant pension discount rates. Excluding change in operating expenses of the service activities.
(3) The target includes the execution of the CENG shares put-option in 2020. The closing maybe postponed to 2021, depending on the timing of regulatory approvals.
(4) Adjusted for the remuneration of hybrid bonds accounted for in equity.
(5) French State committed to scrip for the balance of the 2019 dividend and dividends relating to 2020 full year.