French Société anonyme
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EDF group

HALF-YEAR FINANCIAL REPORT
AT 30 JUNE 2023

At its meeting of 26 July 2023, EDF's Board of Directors approved this Half-year financial report and the condensed consolidated financial statements for the half-year ended 30 June 2023 included in it.

This report contains information relating to the markets in which the EDF group is present. This information has been taken from surveys carried out by external sources. Considering the very rapid changes that characterise the energy sector in France and worldwide, it is possible that this information could turn out to be mistaken or outdated. Developments in the Group's activities could consequently differ from those described in this Half-year financial report and the declarations and information presented in this report could prove to be erroneous.

The forward-looking statements contained in this Half-year financial report, particularly in section 6 of the Management Report, "Financial Outlook", are based on assumptions and estimates that could evolve or be modified due to risks, uncertainties (relating notably to the economic, financial, competition, regulatory, and climate environment), or other factors that could cause the future results, performances and achievements of the Group to differ significantly from the objectives expressed and suggested here. These factors may include changes in the economic and business environment and in regulations, and the factors discussed in section 2 of the EDF group's 2022 Universal Registration Document, "Risk factors and control framework".

Pursuant to European and French legislation, the entities responsible for the transmission and distribution of electricity within the EDF group are not allowed to communicate certain information collected in the course of their activities to other Group entities, including the Group's Management. Similarly, certain data specific to generation and supply activities cannot be communicated to the entities responsible for transmission and distribution. This Half-year financial report has been prepared by the EDF group in compliance with these rules.

CONTENTS OF THE HALF-YEAR FINANCIAL REPORT

CERTIFICATION BY THE PERSON RESPONSIBLE FOR THE 2023 HALF-YEAR FINANCIAL REPORT

I certify that, to the best of my knowledge, the condensed consolidated half-year financial statements at 30 June 2023 are prepared in accordance with the applicable accounting standards and give a true and fair view of the assets and liabilities, financial position and net income of the company and of all the companies included in the scope of consolidation, and that the attached Half-year management report presents a true and fair view of the important events of the first six months of the financial year and their impact on the financial statements, the main related party transactions, and a description of the principal risks and uncertainties for the remaining six months of the financial year.

Paris, 26 July 2023

Luc Rémont

Chairman and Chief Executive Officer of EDF

HALF-YEAR MANAGEMENT REPORT AT 30 JUNE 2023

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Note 1 SIGNIFICANT EVENTS AND KEY FIGURES

Substantially higher EBITDA and stabilisation of net financial debt
Gradual return to better nuclear fleet availability
Good overall operational performance

Nuclear

- Stress corrosion: the ASN considered appropriate the timetable proposed by EDF in March 2023 related to the evolution in the stress corrosion control strategy, taking into account the elements identified on the weld repaired at Penly [1]
- The estimate of nuclear output in France is confirmed at 300-330TWh for 2023 ; 315-345TWh for 2024 and 335-365TWh for 2025[2].
- Creation of NUWARD, a subsidiary to support the development of the SMR and its transition from the conceptual design phase to the basic design phase
- Requests have been filed for authorisation to build the first pair of EPR2 reactors at the Penly site
- Bugey has been chosen as the site for 2 future EPR2 reactors, after Penly and Gravelines
- Flamanville 3: objective of fuel loading maintained in Q1 2024, and vessel head replacement date at the end of the 1st operating cycle (H2 2025)
- Hinkley Point C: delivery of the reactor n°1 pressure vessel and completion of internal containment concrete for the Unit 1 reactor building

Hydropower

- Start of reservoir impoundment at the Nachtigal dam in Cameroon (420MW)
- EDF and its consortium were selected to develop the Mphanda Nkuwa dam in Mozambique (1.5GW)

Renewables

- EDF winner of the Manche Normandie offshore project tender (1GW), in partnership

Thermal

- Final shutdown of EDF's last coal-fired power plant in the United Kingdom, West Burton A, on 31 March 2023

Customers

- French regulated tariffs to rise by 10% on 1 August 2023 as the tariff shield is phasing out: no significant impact in EBITDA as the tariff cap is funded by the CSPE mechanism

Enedis

- Announcement of €96bn investment perspectives by 2040 under the Grid Development Plan. Acceleration of annual investments from €4.4bn in 2022 to €5bn by 2032[3], driven by the connections of renewable energy plants and electric vehicle charging infrastructures
- Enedis has become a *"entreprise à mission"* and has added its *raison d'être* to its bylaws: "Acting for an innovative, effective, supportive public electricity distribution service. Connecting society to the collective challenge of building a sustainable world"

Dalkia

- Inauguration of a low-carbon geothermal heat network in the Paris region powered 77% by renewable energies, avoiding 11,000 tonnes of carbon emissions per year

Edison

- Inauguration of the Marghera Levante 780MW CCGT plant, which produces 30% less carbon emissions than the average for Italian thermal plants, and has the technological ability to run on up to 50% hydrogen

Finalisation of the simplified public tender offer

- All the shares of EDF were acquired by the French State through the squeeze-out on 8 June 2023

Financing

- Implementation of the 2023 financing programme: ~€6bn of senior bond issues on various markets and a US$1.5bn hybrid note issue during the first half of 2023
- Conversion in equity of all the OCEANE bonds maturing in 2024, amounting to €2.4bn
- Confirmation of credit ratings with stable outlook by the three agencies S&P, Moody's and Fitch [4]

(1) See the ASN's press release of 25 April 2023.
(2) Estimate of nuclear output from its currently operating fleet.
(3) Figures stated in 2021 euros.
(4) Credit rating stable after a 1-notch outlook upgrade in relation with support from the French State, and a 1-notch downgrade of the standalone rating.

Group key figures for the first half of 2023

The figures presented in this document are taken from the EDF group's condensed consolidated half-year financial statements at 30 June 2023.

(in millions of euros)	**H1 2023**	**H1 2022**	**Variation**	**Variation (%)**	**Organic variation (%)**
Sales	75,499	66,262	9,237	13.9	14.4
EBITDA	16,106	2,672	13,434	n.a.	n.a.
Operating profit (EBIT)	8,614	(4,496)	13,110	n.a.	n.a.
Income before taxes of consolidated companies	7,084	(7,443)	14,527	n.a.	n.a.
EDF net income – Group share	5,808	(5,293)	11,101	n.a.	n.a.
Net income excluding non-recurring items (1)	6,267	(1,312)	7,579	n.a.	n.a.
Group cash flow (2)	(1,589)	(3,981)	2,392	n.a.	n.a.
Net financial debt (3)	64,796	42,771	22,025	51.5	51.5

n.a : not applicable

(1) 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 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 4.6 "Net income excluding non-recurring items").

(2) 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 equal to the operating cash flow less asset disposals, income taxes paid, net financial expenses disbursed, net allocations to dedicated assets, dividends paid in cash, and investments in the Hinkley Point C and Linky projects (see section 5).

(3) Net financial debt is not defined in the accounting standards and is not directly visible in the Group's consolidated balance sheet (see section 5.1).

Note 2 ECONOMIC ENVIRONMENT

2.1 Market prices for electricity and the principal energy sources

Spot electricity prices in Europe (1)

	France	United Kingdom	Italy	Belgium
Average baseload price for H1 2023 *(€/MWh)*	110.8	123.2	137.5	110.0
Variation in average H1 baseload prices, 2023/2022	- 51.6%	- 41.3%	- 45.2%	- 45.2%
Average peakload H1 price for 2023 *(€/MWh)*	121.7	133.4	148 .1	120.0
Variation in average H1 peakload prices, 2023/2022	- 51.8%	- 42.6%	- 45.8%	- 45.4%

In France, spot electricity prices stood at an average €110.8/MWh (baseload) and €121.7/MWh (peakload) in the first half of 2023, a decrease of €118.1/MWh and €130.9/MWh respectively following the exceptional price rises of the first half of 2022. The main drivers of this downturn were the decline in commodity prices, particularly for gas, lower consumption (-6.5%), and higher electricity output in France, with increased production of wind power (+27.1%) and solar power (+23.2%).

During the first quarter, the increase in electricity generation was boosted by particularly high wind power output (+87.4% in January 2023 compared to January 2022), reaching record levels of close to 15GW. In the second quarter, the increase was sustained by a significant rise in nuclear generation (+16.8% vs Q2 2022). Use of fossil-fired generation facilities, in contrast, declined across the whole half-year for gas (-21.6% vs. H1 2022) and coal (-65.0% vs. H1 2022).

France was a net exporter in the first half of 2023 (+18.1TWh) whereas it was a net importer in the first half of 2022. This is explained by the increase in the country's electricity output, which reached 238.3TWh for the period despite demand falling to 220.4TWh. This situation led to higher exports (+57.0% vs. H1 2022) and lower imports (-13.8% vs. H1 2022). Exports were principally to the United Kingdom (11.3TWh), Italy and Switzerland (10.9TWh each) and the CWE zone (8.7TWh). Imports were principally from the CWE zone (12.8TWh) and Spain (7.1TWh).

In the United Kingdom, average spot electricity prices also decreased, by €86.6/MWh (baseload) compared to the first half of 2022, to an average €123.2/MWh for the first half of 2023. The downward movement was observed throughout the half-year, mainly reflecting a loosening of the gas and coal markets, and a gradual rise in temperatures.

In Italy, average spot prices fell by €113.6/MWh year on year to reach an average €137.5/MWh, as tension eased on the commodity markets.

In Belgium, average spot prices were down by €90.9/MWh compared to the first half of 2022, standing at an average €110.0/MWh. Belgian spot prices were particularly volatile in the first half of 2023, fluctuating widely between €13/MWh and €205/MWh due to the variability in output of renewable energy, particularly wind power.

On several days in May and June 2023, spot electricity prices were negative for several hours in a number of European countries. For example, the spot price in the Netherlands was -€236/MWh at 1pm on 28 May and the Swiss spot price was -€21.6/MWh at 1pm on 11 June. These negative prices were mainly caused by low consumption combined with high wind and solar power output. In France, for instance, the lowest spot price of H1 2023 (-€37.1/MWh, on 28 May) was recorded when solar power production was near its peak for the period.

*(1) **France:** 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.*

Forward electricity prices in Europe (1)

	France	United Kingdom	Italy	Belgium
Average forward baseload price under the 2024 annual contract for H1 2023 *(€/MWh)*	189.3	157.4	156.3	137.3
Variation in average H1 forward baseload price under the annual contracts, 2023/2022	- 15.9%	- 28.6%	- 15.4%	- 14.8%
Forward baseload price under the 2024 annual contract at 30 June 2023 *(€/MWh)*	174.33	139.78	151.26	135.93
Average forward peakload price under the 2024 annual contract for H1 2023 *(€/MWh)*	299.5	190.0	179.7	159.1
Variation in average H1 forward peakload price under the annual contracts, 2023/2022	- 17.1%	- 27.6%	- 12.0%	- 18.6%
Forward peakload price under the 2024 annual contract at 30 June 2023 *(€/MWh)*	274.30	161.47	171.26	157.50

There was a general Europe-wide downturn in average forward prices for baseload and peakload electricity under annual contracts, principally due to loosening of the commodity markets (gas, coal and CO_2).

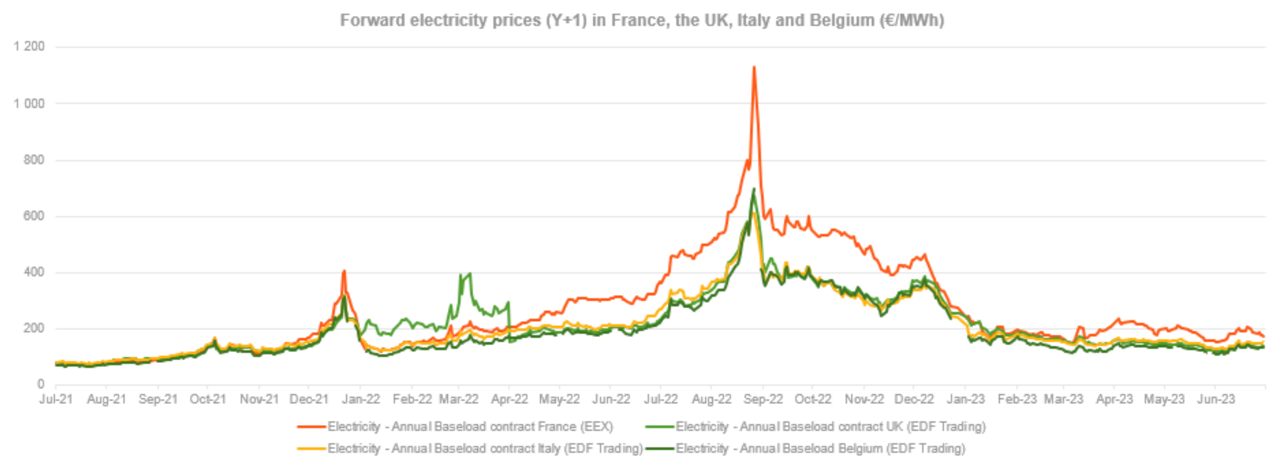
In **France**, the average annual contract baseload price for next-year delivery was €189.3/MWh for the first half of 2023, down by 15.9% compared to the first half of 2022. The market responded to several factors throughout the period: a downward trend in gas and coal prices, persistently lower demand, and the return to operation of several nuclear reactors. Nonetheless, the dynamics remained different for summer and winter. In particular, 2024 Q1 prices were very volatile during the first half of 2023, fluctuating widely between €222.0/MWh and €453.0/MWh, under the effect of announcements about the stress corrosion phenomenon.

In the **United Kingdom**, the April Ahead contract baseload price for the period 1 April Y+1 to 31 March Y+2 dropped by 28.6% year on year to an average €157.4/MWh for the first half of 2023, gradually decreasing over the whole period in the wake of commodity prices.

In **Italy**, the annual contract baseload price for next-year delivery was down to an average €156.3/MWh for the first half of 2023, -15.4% lower than in the first half of 2022. This decrease was also driven by the easing of commodity prices.

In **Belgium**, the annual contract baseload price for next-year delivery was 14.8% lower than in the first half of 2022, at an average €137.3/MWh. The Belgian annual contract price was relatively stable over the period compared to its European counterparts presented above.

Principal forward electricity prices in Europe (baseload year ahead), in €/MWh



CO_2 emission quota prices

The price of CO_2 emission quotas for delivery in December Y+1 stood at an average €93.5/t for the first half of 2023 (up by +9.5% or +€8.1/t vs. H1 2022). This price showed considerable volatility and was relatively high for the whole half-year, with quotas trading within a range of €81.2/t and €105.1/t (a record price, attained on 27 February).

The high volatility on the quota market was decorrelated from commodity price trends, indicating its occasionally speculative nature. The fact that this market reacted to events concerning the banking sector in March, particularly the collapse of Silicon Valley Bank in the United States, reveals the influence of position-taking by purely financial actors.

In general, CO_2 emission quota prices were kept high partly by the action of the MSR (Market Stability Reserve) which provides a legislative framework and long-term visibility for the quota volumes traded. In March the European Parliament announced that it was maintaining the intake rate for surplus CO_2 quotas transferred to the MSR at 24% instead of the 12% initially decided for the period 2024-2030. This legislative support is intended to make the system more resilient to major shocks by adjusting the supply of quotas available at auction.

*(1) **France**: average year-ahead EEX price;*
__Belgium__ and __Italy__: average year-ahead EDF Trading price;
__United Kingdom__: average ICE annual contract prices, April 2022 then April 2023 (in the UK, annual contract deliveries take place from 1 April to 31 March).

The markets also rose in response to the European Commission's announcement in May that auctions of certain REPOwerEU project Innovation Fund quotas would be deferred to 2024.

CO_2 emission quota prices in €/t for next-year deliveries in December [(1)]

Fossil fuel prices [(2)]

	Coal *(US$/t)*	Oil *(US$/bbl)*	Natural gas *(€/MWhg)*
Average price for H1 2023	133.6	80.0	52.6
Average H1 price variation, 2023/2022	- 28 .6%	- 23.8%	- 29.7%
Highest price in H1 2023	178.0	88.2	72.0
Lowest price in H1 2023	92.1	71.8	39.7
Price at 30 June 2023	122.9	74.9	50.1
Price at 30 June 2022	252.0	114.8	109.9

Coal prices for next-year delivery in Europe stood at an average $133.6/t in the first half of 2023 (-28.6% or -$53.5/t vs. H1 2022). These prices followed a downward trend from the very start of the year, as mild temperatures led to less use of coal-fired plants, supplies were robust and stocks were high. At the end of May, year-ahead prices were back where they were in January 2022, before the Russia-Ukraine conflict.
The first half of 2023 confirmed the success of the EU's diversification strategy following the embargo on coal. Fears about gas supplies also subsided over the period, and tensions eased on the coal market. Stocks remained high in the three principal European ports (Amsterdam, Rotterdam and Antwerp), and satisfactory wind power output limited the use of coal-fired facilities during the half-year. Finally, the decline in gas prices spurred a decline in coal prices.

Oil prices stood at an average $80.0/bbl for the first half of 2023 (-23.8% or -$25.0/bbl vs. H1 2022). Rather than following a clear trend during the period, the market rose and fell in reaction to several announcements.
Early in the half-year, the lifting of Covid restrictions in China triggered a leap in oil prices as travel resumed. Conversely, the collapse of three American banks (Silvergate Bank, Silicon Valley Bank and Signature Bank) and the troubles of Crédit Suisse in March brought prices crashing down, and on 17 March they reached their lowest level for 15 months. In response, on 2 April eight of the 23 producers belonging to OPEC+ announced cuts to their oil production, which have been extended to the end of 2024. The OPEC's published forecasts of worldwide demand still predict growth compared to 2022.

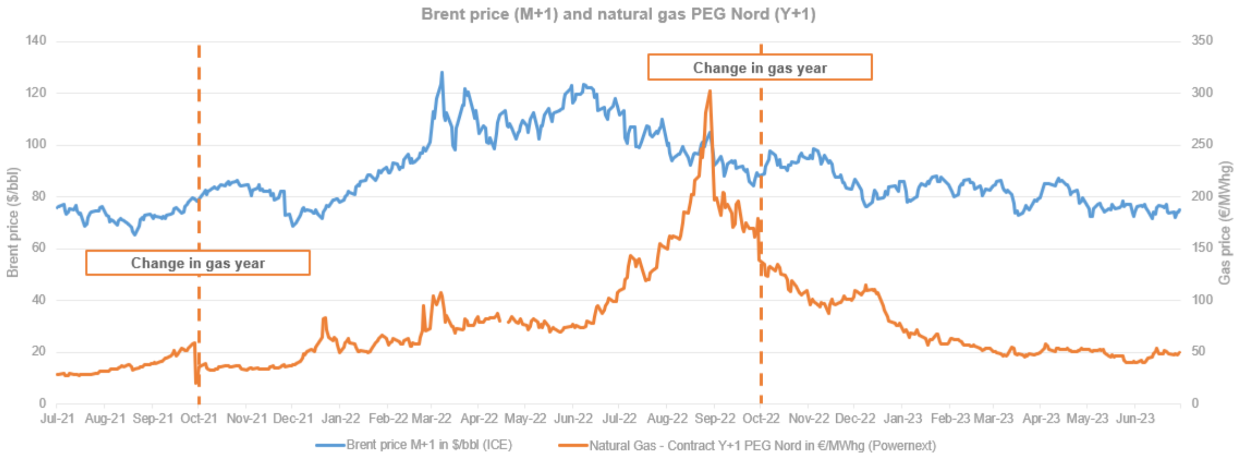
The **annual gas contract price** for next-year delivery at the French PEG hub was €52.6/MWh on average for the first half of 2023, a substantial decrease (-29.7% or -22.3/MWh vs. H1 2022).
The loosening of the gas markets observed throughout the first half-year stems from a combination of several factors:

- Stock levels were maintained at record highs, and this gradually reassured market actors that Europe would be able to complete its stocks before the winter. At 30 June, stock targets were 77% fulfilled for Europe and 62% for France.
- LNG supplies remained robust throughout the period, reflecting the diversification of gas imports in response to measures taken against Russia. In France, a strike in March at the four gas terminals temporarily slowed the accumulation of gas stocks but did not affect gas prices, because the cargo ships were able to unload at other European ports.
- Temperatures slightly above seasonal norms and continuing energy-sufficient behaviour led to a decrease in consumption, and lower drawings on stocks.

(1) Average ICE prices for the annual contract, Phase IV (2021-2030).
*(2) **Coal**: average ICE prices for delivery in Europe (CIF ARA) for the next calendar year (US$/t);*
***Oil**: ICE price for Brent crude oil barrel (front month) (US$/bbl);*
***Natural gas**: average ICE OTC prices, for delivery starting from October of the following year in France (PEG Nord - €/MWhg)*

Against this general easing of the situation, other factors should be noted. First, a spread was observed between winter and summer prices, reflecting persistent fears for next winter despite the forecasts that stocks will be completed before the winter period begins. Those fears mainly focus on temperatures and wind power output, and the possibility of greater competition with Asia for winter supplies of LNG.

Natural gas and oil prices



2.2 Consumption of electricity and natural gas

Consumption of electricity and gas in France

Electricity consumption in France showed a very strong downturn in the first half of 2023, and was -13.1TWh (-5.5%) lower than in the first half of 2022. The energy-sufficient behaviours encouraged by the public authorities, and lower levels of business in certain sectors, resulted in a -14TWh reduction in consumption. The small differences in temperature had a low impact, estimated at +1.2TWh.

Gas consumption in France during the first half of 2023 was down by 26.9TWh (-11.1%) compared to the first half of 2022, with a larger decrease in the second quarter (-13.7%) than the first (-9.8%). Here too the main drivers of this trend were energy-sufficient behaviour and lower levels of business in certain sectors.

Consumption of electricity and gas in the United Kingdom

Electricity consumption in the UK fell by around 3% in the first half of 2023 compared with the first half of 2022, while **gas consumption** fell by around 8% (unadjusted for climate effect). These trends took place against a backdrop of sharply rising energy prices for consumers.

Consumption of electricity and gas in Italy

Electricity consumption in Italy in the first half of 2023 totalled 150.5TWh, down by 5.3% from the first half of 2022. This decrease is explained by the effect of high prices, lower demand from industrial customers, and a substantial increase in self-consumption. Mild temperatures also contributed to the reduction in consumption.

Consumption of natural gas in Italy in the first half-year declined by 15.2% compared to the first half of 2022. Residential consumption was down by 14.7% due to mild weather and the energy sufficiency encouraged by the Italian government. Industrial consumption decreased by 10.7%, mainly due to substantial price rises.

2.3 Sales tariffs for electricity and natural gas

In **France**, the government decided to extend its tariff cap (*bouclier tarifaire*) into 2023, limiting the increase in regulated sales tariffs from the prices at 31 December 2022 for all categories of eligible consumers. As a result, the "blue" tariffs for residential and business customers were raised on 1 February 2023 by 15% including taxes (respectively 20% and 19.9% excluding taxes).

In the **United Kingdom**, an Energy Price Cap on the variable electricity and gas tariffs (Standard Variable Tariff – SVT) for residential consumers was first introduced on 1 January 2019. This cap is revised every three months to take account of the costs, risks, and uncertainties facing suppliers.

After the fall in market prices since the beginning of the year, the Energy Price Cap was reduced by 23% on 1 April 2023, then 37% on 1 July 2023, and is now set at an annual £2,074 for a standard residental electricity and gas customer.

Given the particularly high level of the energy price cap (£4,279 a year at 1 January 2023) the British government introduced an Energy Price Guarantee to cap households' electricity and gas bills, with the difference between this and the Energy Price Cap being borne by the government. The maximum amount payable by a standard residental customer in the United Kingdom was thus £2,500 a year between 1 October 2022 and 31 March 2023, raised to £3,000 a year betwen 1 April 2023 and 31 March 2024. In view of the current level of the Energy Price Cap, this system will no longer be active from 1 July 2023.

A similar mechanism for businesses and organisations, the Energy Bill Relief Scheme, was introduced on 1 October 2022 and replaced on 1 April 2023 by the Energy Bills Discount Scheme which will run until 31 March 2024.

The British government also introduced a one-off £400 rebate on energy bills (the Energy Bill Support Scheme), which was given to all households between 1 October 2022 and 31 March 2023.

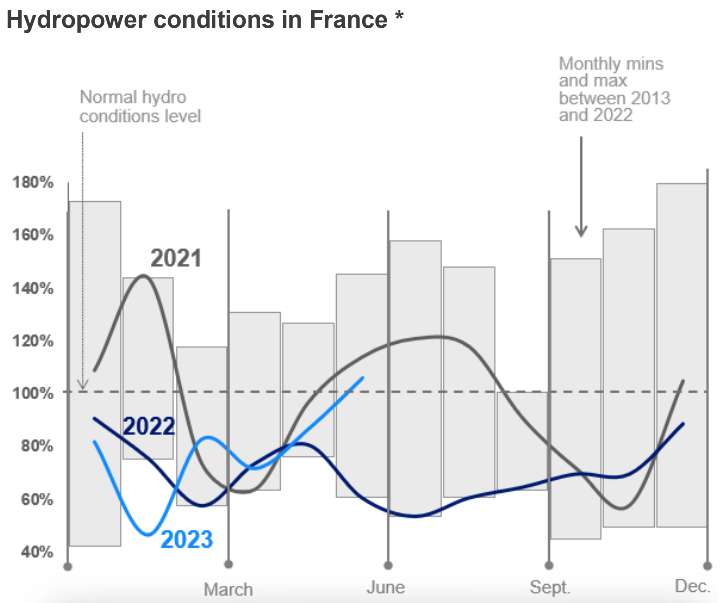
2.4 Weather conditions: temperatures and rainfall

Temperatures in France

The first half of 2023 was generally warm (+0.6°C above seasonal norms on average), like the first half of 2022. The three winter months were particularly mild, and there was no early hot period in spring. In June, however, the weather in France was much warmer (an average +2.3°C above seasonal norms).

Rainfall in France

The first half of 2023 was marked by contrasting rainfall levels, alternating between very long dry spells (from mid-January to early March) and periods of heavy rain in the spring.
Mountain snow levels were well below normal until early March in the Alps and Pyrenees. They returned to nearly normal levels in April in the Alps, while remaining very low in the Pyrenees at the end of the winter.
Water flow coefficients were consistently below normal except in June, when the thaw in the Alps and rainfall in the southern half of France resulted in slightly above-normal conditions. Consequently, the average water level index for the first half of 2023 reached 0.83 (compared to 0.73 for the first half of 2022) and hydropower stocks reached 82% at 30 June 2023, 8 points above historical average.



* Weekly monitoring of French reservoir levels by the EDF group's statistical observatory (Miréor project) as far as the coast

Note 3 SIGNIFICANT EVENTS

In addition to the highlights given in section 1, details of significant events during the first half of 2023 are presented in note 2 to the condensed consolidated half-year financial statements at 30 June 2023, “Summary of significant events”.

3.1 Regulatory environment

Details of changes in regulations are provided in notes 5.1.1 and 5.3 to the condensed consolidated half-year financial statements at 30 June 2023.

3.2 Corporate governance

As Claire Bordenave, a Director elected by the employees (sponsored by the CGT trade union), had informed the board of her decision to resign as director with effect from the end of the Board of Directors’ meeting of 16 February 2023, Fabrice Guyon succeeded her as a Director elected by the employees (sponsored by the CGT trade union) from that date for the rest of her term of office, i.e. until 22 November 2023. Article 16 of the French law of 26 July 1983 on the democratisation of the public sector stipulates that when a seat on the Board becomes vacant for any reason, the departing member is replaced by the next person on the list of candidates after the last elected candidate.

At the General Shareholder’s Meeting of 28 June 2023, the shareholders ratified the Board of Directors’ co-option of Luc Rémont and Anne-Marie Descotes as Directors, respectively replacing François Delattre and Jean-Bernard Lévy. They also renewed the appointments of Anne-Marie Descotes, Claire Pedini, Bruno Cremel, Gilles Denoyel and Philippe Petitcolin for a 4-year term, until the of the General Shareholders’ Meeting called to approve the financial statements for the year ended 31 December 2026.

On 23 May 2023 EDF’s Board of Directors decided to introduce a specific preparation and development process for its work relating to elaboration of the Group’s mission statement. It set up a working group of directors to monitor elaboration of the Group’s mission statement in liaison with EDF’s management, examine the features of the statement in light of EDF’s corporate interest and its key strategic, industrial, financial and social concerns. This working group is headed by an independent director and consists of three independent directors, the director representing the French State, and one director elected by the employees.

The Board created a new Board of Directors’ committee on 28 June 2023, called the Commitments Committee. This committee is headed by an independent director, and its mission is to give the Board of Directors an opinion concerning external growth, divestment and organic growth operations and stock market operations undertaken by EDF or its subsidiaries that exceed certain thresholds, defined in the Board of Directors’ internal rules of procedure, before those operations are submitted to the Board for approval. The committee can also examine any other operations or commitments the Chairman and CEO may decide to submit to it, particularly when they are of a strategically important nature.

Note 4 ANALYSIS OF THE BUSINESS AND THE CONSOLIDATED INCOME STATEMENT FOR THE FIRST HALF-YEARS OF 2023 AND 2022

Presentation and analysis of the consolidated income statement for the first half-years of 2023 and 2022 is broken down by business segment for sales and EBITDA (France – Generation and supply, France – Regulated activities, EDF Renewables, Dalkia, Framatome, United Kingdom, Italy, Other international and Other activities). EBIT (operating profit) and net income are analysed without any breakdown.

(in millions of euros)	H1 2023	H1 2022
Sales	**75,499**	**66,262**
Fuel and energy purchases	(48,899)	(48,238)
Other external purchases (1)	(4,117)	(3,919)
Personnel expenses	(8,201)	(7,286)
Taxes other than income taxes	(2,714)	(2,383)
Other operating income and expenses	4,538	(1,764)
Operating profit before depreciation and amortisation (EBITDA)	**16,106**	**2,672**
Net changes in fair value on Energy and Commodity derivatives, excluding trading activities	(276)	(993)
Net depreciation and amortisation (2)	(5,472)	(5,534)
(Impairment)/reversals	(48)	(253)
Other income and expenses	(1,696)	(388)
Operating profit (EBIT)	**8,614**	**(4,496)**
Cost of gross financial indebtedness	(1,857)	(728)
Discount effect	(1,977)	502
Other financial income and expenses	2,304	(2,721)
Financial result	**(1,530)**	**(2,947)**
Income before taxes of consolidated companies	**7,084**	**(7,443)**
Income taxes	(1,323)	1,840
Share in net income of associates and joint ventures	142	444
Net income of discontinued operations	-	4
CONSOLIDATED NET INCOME	**5,903**	**(5,155)**
EDF net income – Group share	**5,808**	**(5,293)**
EDF net income - continuing operations	5,808	(5,297)
EDF net income - discontinued operations	-	4
Net income attributable to non-controlling interests	**95**	**138**
Net income attributable to non-controlling interests - continuing operations	95	138
Net income attributable to non-controlling interests - discontinued operations	-	-

(1) Other external expenses are reported net of capitalised production.

(2) Including net increases in provisions for renewal of property, plant and equipment operated under concessions.

4.1 Sales

Sales amounted to €75,499 million in the first half of 2023, up by €9,237 million (+13.9%) from the first half of 2022. Excluding the effect of movements in exchange rates (-€278 million) and changes in the scope of consolidation (-€37 million), sales registered organic growth of 14.4%.

(in millions of euros)	H1 2023	H1 2022	Variation	Variation (%)	Organic variation (%)
Sales	**75,499**	**66,262**	**9,237**	**13.9**	**14.4**

Change in Group sales and breakdown by segment

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

(in millions of euros)	H1 2023	H1 2022	Variation	Variation (%)	Organic variation (%)
France - Generation and supply [(1)]	**34,622**	23,762	10,860	45.7	45.7
France - Regulated activities [(2)]	**9,978**	9,578	400	4.2	4.2
EDF Renewables	**985**	1,051	(66)	- 6.3	1.9
Dalkia	**3,411**	3,211	200	6.2	5.0
Framatome	**1,959**	1,977	(18)	- 0.9	- 3.1
United Kingdom	**12,140**	6,904	5,236	75.8	79.8
Italy	**9,543**	13,017	(3,474)	- 26.7	- 27.3
Other international	**3,099**	2,585	514	19.9	19.2
Other activities	**4,655**	7,697	(3,042)	- 39.5	- 37.6
Inter-segment eliminations	**(4,893)**	(3,520)	(1,373)	39.0	39.0
GROUP SALES	**75,499**	**66,262**	**9,237**	**13.9**	**14.4**

(1) *Generation, supply and optimisation in mainland France, plus sales of engineering, services and consulting.*

(2) *Regulated activities comprise distribution in mainland France, which is carried out by Enedis, 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). *Enedis is an independent EDF subsidiary as defined in the French Energy Code.*

France – Generation and supply

Sales by the **France – Generation and supply** segment amounted to €34,622 million in the first half of 2023, an organic increase of €10,849 million (+45.7%) compared to the first half of 2022.

On the downstream market, electricity income was up by +€7,946 million, principally due to the strong rise in market prices. However, this increase was limited by application of the government's regulatory measures, particularly its decision to extend the tariff cap that restricted tariff rises to 15% including taxes from 1 February 2023 (a compensation of €7.2 billion for loss of income has been recorded in Other operating income and expenses).

The mild weather in 2023 had a small positive impact of +€43 million.

Income from ARENH scheme sales to alternative suppliers was down by -€286 million because the additional volumes made available in 2022 (through the ARENH+ scheme) had no equivalent in 2023.

Resales of electricity subject to purchase obligations increased by +€2,841 million, mainly due to a practically continuous rise in forward market prices since the third quarter of 2021 (the effect on EBITDA was neutral because expenses relating to purchase obligations are compensated by the CSPE mechanism).

Capacity auction sales concerning EDF facilities had a negative impact of -€178 million, as no auctions were held in the first half of 2023 for deliveries in 2025, whereas there were auctions for 2024 deliveries during the first half of 2022.

Gas sales contributed +€979 million to the increase in sales. Sales by the energy aggregation subsidiaries were down by -€330 million (with no significant effect on EBITDA).

Electricity generation

Nuclear generation in France produced 158.1TWh in the first half of 2023, 4.0TWh more than in the first half of 2022. This increase results from better availability of the fleet and a well-managed outage schedule, partly counterbalanced by the impact of social movements, particularly early in the year.

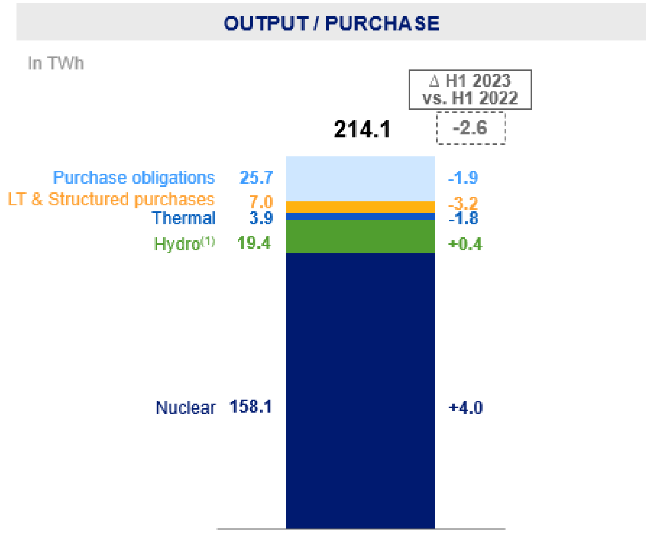
Gross hydropower output stood at 19.4TWh [(1)], up by 0.5TWh year on year, mainly due to slightly more favourable hydropower conditions in June 2023 compared to June 2022 (see section 2.4 "Weather conditions: temperatures and rainfall").

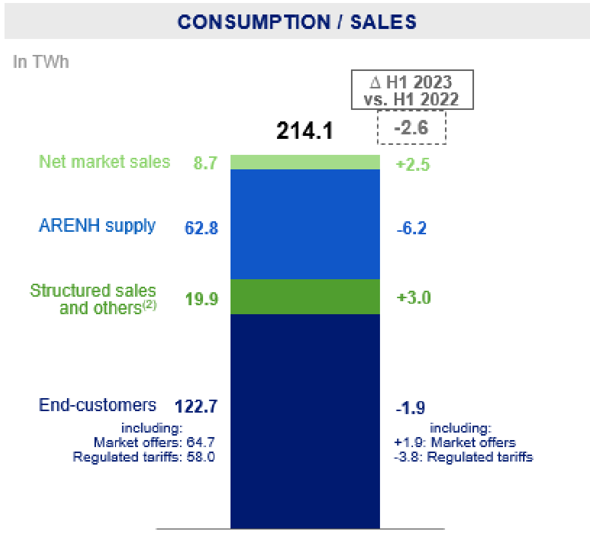
Fossil-fired generation plants were used to produce 3.9TWh, down by -1.8TWh from the first half of 2022, in a context of narrowing spreads.

Sales volumes to final customers (a market segment that includes the local distribution companies and excludes foreign operators) decreased by -1.9TWh, including +0.7TWh attributable to weather effects.

EDF is a net seller on the wholesale markets (including purchase obligations) to the extent of 8.7TWh, up by 2.5TWh compared to the first half of 2022.

(1) Hydropower output excluding the island activities, before deduction of pumped-storage volumes. Total cumulative hydropower production after deduction of pumped-storage hydropower was 16.6TWh in the first half of 2023 (15.5TWh in the first half of 2022).





NB: EDF excluding French islands electrical activities.
(1) Hydro output after deduction of pumped volumes: 16.6TWh in H1 2023 / 15.5TWh in H1 2022.
(2) Including hydro pumped volumes of 2.8TWh in H1 2023 / 3.4TWh in H1 2022.

France – Regulated activities

Sales by the **France – Regulated activities** segment in the first half of 2023 amounted to €9,978 million, an organic increase of +€400 million (+4.2%) compared to the first half of 2022. Sales by Électricité de Strasbourg and SEI-PEI were up by +€346 million, reflecting the increase in prices on the gas market, and the rise in regulated sales tariffs excluding taxes.
Sales by **Enedis** showed an organic increase of €55 million (+0.7%). Connections of renewable energy facilities were significantly higher than in the first half of 2022, but volumes transported were down reflecting lower consumption.

EDF Renewables

EDF Renewables' sales totalled €985 million, registering an organic increase of €20 million (+1.9%) compared to the first half of 2022, driven by the output of plants in operation, and maintenance work for third parties. A total volume of 11.4TWh of energy was produced during the half-year, up by 5.6% year on year. The positive impact of new capacities commissioned during the second half of 2022 was mitigated by unfavourable wind conditions in North America and the United Kingdom.

Dalkia

Sales by **Dalkia** amounted to €3,411 million for the first half of 2023, an organic increase of €160 million (+5.0%) compared to H1 2022. This growth principally resulted from dynamic business activity in France, and one-off sales of generation assets on the market. However, sales revenues were penalised by lower gas prices, which almost halved compared to the first half of 2022.

Framatome

Framatome's sales amounted to €1,959 million, an organic decrease of €61 million (-3.1%) compared to the first half of 2022. A significant portion of sales are made within the Group. One important factor in the observed downturn was the lower level of business in the United States, where sales were adversely affected by difficulties relating to an Instrumentation & Control contract, a decline in fuel deliveries, and the end of an Installed Base contract.

United Kingdom

The **United Kingdom** registered sales of €12,140 million, an organic increase of €5,508 million (+79.8%) compared to the first half of 2022. This rise was mainly attributable to the rising price of energy on regulated sales tariffs for gas and electricity.
The nuclear output in the United Kingdom amounts to 18.2TWh, down by 5TWh from H1 2022, due to the closure shutdown of Hinkley Point B in August 2022 (-3.7TWh) and a busier maintenance programme in 2023.

Italy

The **Italy** segment's sales totalled €9,543 million for the first half of 2023, an organic decrease of €3,555 million (-27.3%) compared to H1 2022 principally resulting from lower prices and sales volumes for gas.

Other international

The **Other international** segment principally covers operations in Belgium, Latin America (Brazil and Chile), Asia (China, Vietnam and Laos), and the United States. Sales by this segment amounted to €3,099 million in the first half of 2023, an organic increase of €497 million (+19.2%) from the first half of 2022.

In **Belgium**(1), sales registered organic growth of €571 million (+27.9%) compared to first-half 2022. This change essentially resulted from the increase in electricity and gas prices. Volumes sold to residential and industrial customers declined due to customers' efforts to use less energy. The nuclear fleet benefited from the Chooz plant coming back online. The wind power fleet continued to expand, reaching net installed capacity of 620MWh at 30 June 2023 (2). Weather conditions also boosted the performance by wind power and hydropower facilities.

Sales in **Brazil** decreased in organic terms by €52 million (-14.0%), principally due to the lower volumes sold on the market, as the start of 2022 had benefited from favourable market conditions. This decrease was partly counterbalanced by a 6% rise in November 2022 in the Power Purchase Agreement (PPA) attached to EDF's Norte Fluminense power plant. The foreign exchange effect was unfavourable (the Brazilian real declined against the euro).

Other activities

Other activities comprise, among other entities, EDF Trading and the gas activities. Sales by this segment amounted to €4,655 million in the first half of 2023, an organic decrease of €2,893 million compared to the first half of 2022 (-37.6%).

- Sales by the **gas activities** amounted to €2,311 million, an organic decrease of €3,113 million compared to H1 2022. This significant downturn is explained both by a decline in the gas volumes handled compared to first-half 2022, and substantially lower market prices.
- **EDF Trading's** sales totalled €2,233 million, showing organic growth of 10.0% compared to the first half of 2022 despite the drop in prices and volatility on the wholesale markets. The performance of trading and optimisation activities remained strong, in a context of reduced market and counterparty risks.

4.2 EBITDA

In a context of recovery of nuclear generation in France, the significant €13.4 billion increase in EBITDA is essentially explained by the higher electricity sale prices of the first half of 2023. The impact of the exceptional regulatory measures introduced in France in 2022 to limit price rises for consumers had no equivalent in 2023. However, the cost of purchases to cover network losses was driven up significantly by high market prices. Operating expenses were also up due to the inflationary environment.

(in millions of euros)	**H1 2023**	**H1 2022**	**Variation**	**Variation (%)**	**Organic variation (%)**
Sales	**75,499**	**66,262**	**9,237**	**13.9**	**14.4**
Fuel and energy purchases	(48,899)	(48,238)	(661)	1.4	1.8
Other external expenses	(4,117)	(3,919)	(198)	5.1	6.1
Personnel expenses	(8,201)	(7,286)	(915)	12.6	12.8
Taxes other than income taxes	(2,714)	(2,383)	(331)	13.9	13.9
Other operating income and expenses	4,538	(1,764)	6,302	n.a.	n.a.
EBITDA	**16,106**	**2,672**	**13,434**	**N.A.**	**N.A.**

n.a: not applicable

Change in Group EBITDA and analysis

- The Group's **fuel and energy purchases** amounted to €48,899 million in the first half of 2023, an organic increase of €849 million (+1.8%) compared to the first half of 2022.
  - In the **France - Generation and supply** segment, fuel and energy purchases registered an organic increase of €1,416 million due to the higher price of energy purchases, partly offset by the lower level of purchases to provide alternative suppliers with ARENH volumes, as no additional ARENH volumes were delivered in 2023.
  - In the **United Kingdom**, the organic increase of €3,752 million (+71.0%) in fuel and energy purchases principally reflects the unfavourable impact of rising market prices on energy purchases.
  - In **Italy**, the organic decline of €3,780 million (-31.9%) essentially results from a decrease in gas prices and volumes.
  - In the **Other activities** segment, fuel and energy purchases registered an organic decrease of €3,048 million (-60.1%) driven by falling market prices.

(1) Belgium comprises Luminus and EDF Belgium.
(2) Net capacity for Luminus. Gross installed wind power totalled 698MW (664MW at 30 June 2022).

- The Group's **other external expenses** amounted to €4,117 million in the first half of 2023, an organic increase of €239 million (+6.1%) compared to H1 2022.
  - In the **France – Generation and supply** segment, other external expenses saw an organic increase of €154 million (+15.2%). This increase mainly reflects purchases associated with customer management and IT developments, as well as the general effect of price rises, offset by an increase in capitalised production.
  - **EDF Renewables** registered a €55 million (+15.5%) organic increase in other external expenses, principally due to growth in sales and the larger portion of prospecting expenses in the United Kingdom and the United States.
  - **Dalkia**'s other external expenses showed an organic increase of €65 million (+7.4%) in line with steady business growth, particularly for site work in the United Kingdom and France.

- The Group's **personnel expenses** for the first half of 2023 totalled €8,201 million, an organic increase of €931 million (+12.8%) from the first half of 2022.
  - In the **France – Generation and supply** segment, personnel expenses registered an organic increase of €424 million (+15.0%) principally resulting from wage negotiations and the respective changes in the discount rate in the first half-years of 2022 and 2023.
  - In the **France – Regulated activities** segment, personnel expenses were up by €194 million (+12.5%), also due to wage negotiations and changes in the discount rate.
  - **EDF Renewables** registered a €46 million (+17.2%) organic increase in personnel expenses that is explained by the rise in workforce numbers, notably for development and construction in high-growth zones, and also by wage inflation.
  - **Dalkia** saw an organic increase of €57 million (+9.0%) in its personnel expenses, in a period marked by wage inflation and a workforce increase linked to growth in the services and site work businesses.
  - At **Framatome,** there was an organic increase of €96 million (+11.3%) in personnel expenses, reflecting higher workforce numbers and wage increases.

- **Taxes other than income taxes** amounted to €2,714 million for the first half of 2023, an organic increase of €332 million (+13.9%) compared to the first half of 2022.
  - In the **France – Generation and supply** segment, the €156 million (+10.0%) organic increase is mainly attributable to value added taxes applicable to the segment's profits.
  - In the **Other international** segment, the organic increase of €132 million mainly concerned Belgium and resulted from introduction of the EU inframarginal revenue cap on electricity production revenues (€154 million).

- **Other operating income and expenses** generated net income of €4,538 in the first half of 2023, an organic increase of €6,291 million compared to H1 2022.
  - In the **France – Generation and supply** segment, the organic increase in net other operating income and expenses amounted to €6,500 million. This is principally attributable to the CSPE compensation for the tariff cap for gas and electricity.
  - In the **United Kingdom** segment, other operating income and expenses registered an organic decrease of €243 million. This change mainly relates to the recognition in 2022 of a public subsidy for taking on Utility Point customers under the supplier of last resort mechanism, and higher recoveries of provisions for onerous contracts in first-half 2022 than first-half 2023. Provisions for doubtful receivables also rose during the first half of 2023.

Change in consolidated EBITDA and analysis by segment

(in millions of euros)	H1 2023	H1 2022	Variation	Variation (%)	Organic variation (%)
France - Generation and supply	8,641	(4,988)	13,629	n.a.	n.a.
France - Regulated activities	1,176	3,171	(1,995)	- 62.9	- 62.9
EDF Renewables	433	500	(67)	- 13.4	- 14.6
Dalkia	220	185	35	18.9	20.0
Framatome	110	186	(76)	- 40.9	- 44.1
United Kingdom	2,266	860	1,406	n.a.	n.a.
Italy	828	622	206	33.1	30.2
Other international	508	291	217	74.6	73.5
Other activities	1,924	1,845	79	4.3	6.7
GROUP EBITDA	**16,106**	**2,672**	**13,434**	**N.A.**	**N.A.**

n.a.: not applicable

France - Generation and supply

The significant increase in EBITDA is explained by the following factors:

It was boosted by a favourable price effect estimated at €10 billion, as France's tariff cap for 2023 has no significant impact on EBITDA. In 2022, exceptional regulatory measures introduced by the French government to limit rises in sales prices to consumers during the year had an adverse effect in EBITDA estimated at -€6.2 billion.

Operating expenses were up by €0.6 billion in a context of inflation in 2023.

France - Regulated activities

The decrease in EBITDA is principally explained by a negative price effect estimated at -€1.8 billion caused by purchases of network losses being made at very high market prices. However, changes in the TURPE network access tariff had a favourable effect estimated at €0.3 billion(1).

The 10.9TWh decline in volumes distributed (excluding the weather impact), comprising -5.1TWh in the business market and -5.8TWh in the residential market, had a negative impact in EBITDA estimated at €0.3 billion.

EDF Renewables

The downturn in EBITDA for generation was caused by operating expenses in the first half of 2023 that had no equivalent in the first half of 2022. Output volumes nonetheless increased by 5.6% thanks to the commissioning of new plants in 2022.

Development expenses associated with growth in the project portfolio also increased in a context of inflation.

Dalkia

The rise in EBITDA is attributable to business activity in France and the operation of co-generation plants over the while of the first quarter in 2023 (in 2022 Dalkia was affected by an early shutdown of co-generation due to a shortened winter tariff period).

Framatome

The lower EBITDA resulted from difficulties with an Instrumentation & Control contract in the United States, and a decline in fuel sales.

Order intake amounted to approximately €2.2 billion at 30 June 2023, a slight increase compared to 30 June 2022, notably attributable to the Installed Base business in North America.

United Kingdom

The rise in EBITDA is essentially explained by a recovery of margins in the supply business, driven mainly by allowances in the UK domestic default tariff cap allowing suppliers to recover costs incurred through the market turbulence of previous years.

Sales performance was sound, consolidating margins and market shares in the small and medium business segment, as well as in the Generation business where the higher realised nuclear prices were partially counterbalanced by lower power output following the shutdown of Hinkley Point B in August 2022, and a busier maintenance programme in the first half of 2023.

Italy

The increase in EBITDA is primarily explained by the sales activity's return to positive margins for residential electricity customers, after the losses of 2022.

In the electricity generation activities, the unfavourable price effect related to thermal plants, despite the positive contribution of the capacity market, was partly offset by the positive price effect related to renewable energies.

Finally, the gas business benefited from portfolio optimisation and more favourable prices.

Other international

The rise in EBITDA in Belgium is due to increased output of wind power (+15.1%), hydropower (+17.4%) and nuclear power (+5.1%), and a favourable price effect.

In Brazil, EBITDA was down slightly due to the downturn in system services.

Other activities

EBITDA for the gas activities decreased slightly. Volumes sold were down, due to the lower level of business at the Dunkirk terminal, after an exceptional year in 2022 with very high prices on the wholesale markets. The downturn was limited by purchases of LNG at lower prices in first-half 2023 than first-half 2022.
Despite the drop in prices and volatility on the wholesale markets compared to last year, EDF Trading's EBITDA for the first-half 2023 is up vs. the first half 2022. The performance of trading and optimisation activities remains strong, in a context of reduced market and counterparty risks.

(1) Indexed adjustment to the TURPE 6 distribution tariff: +2.26% at 1 August 2022.

4.3 EBIT

The Group's consolidated **EBIT** for the first half of 2023 amounted to €8,614 million, up by €13,110 million compared to the first half 2022.

(in millions of euros)	**H1 2023**	**H1 2022**	**Variation**	**Variation (%)**
EBITDA	**16,106**	**2,672**	**13,434**	**n.a.**
Net changes in fair value on Energy and Commodity derivatives, excluding trading activities	(276)	(993)	717	n.a.
Net depreciation and amortisation *	(5,472)	(5,534)	62	- 1.1
(Impairment)/reversals	(48)	(253)	205	n.a.
Other income and expenses	(1,696)	(388)	(1,308)	n.a.
EBIT	**8,614**	**(4,496)**	**13,110**	**N.A.**

n.a.: not applicable

** Including net increases to provisions for replacement of concession assets*

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, stood at -€276 million in first-half 2023 compared to -€993 million in first-half 2022, mainly due to lower price volatility in 2023 as market commodity prices followed a downward trend that contrasted with the situation in the first half of 2022.

Net depreciation and amortisation

Net depreciation and amortisation totalled €5,472 million, down by €35 million in organic terms compared to the first half of 2022. In the **France – Generation and supply** segment, the organic decrease of €81 million was essentially driven by lower depreciation for the Cordemais power plant.

Other income and expenses

Other income and expenses amounted to -€1,696 million for the first half of 2023, including -€1,257 million concerning the **France – Generation and supply** segment. This expense is principally due to an allocation to provisions for contingencies as the contract with Orano is currently in renegotiation.

4.4 Financial result

(in millions of euros)	**H1 2023**	**H1 2022**	**Variation**	**Variation (%)**
Cost of gross financial indebtedness	(1,857)	(728)	(1,129)	n.a.
Discount effect	(1,977)	502	(2,479)	n.a.
Other financial income and expenses	2,304	(2,721)	5,025	n.a.
FINANCIAL RESULT	**(1,530)**	**(2,947)**	**1,417**	**- 48.1**

n.a.: not applicable

The financial result for the first half of 2023 is a financial expense of €1,530 million, an improvement of €1,417 million compared to the first half of 2022. This change is primarily explained by:

- a €5,025 million improvement in other financial income and expenses, principally due to a better performance by the dedicated asset portfolio whose return of 5.5% (vs -8.9% in H1 2022) reflects trends on the financial markets in the first half of 2023 (see section 7.1.6),
- an unfavourable effect caused by the cost of unwinding the discount (-€2,479 million), as the real discount rate applied for nuclear provisions remained stable between December 2022 and June 2023 (at 2.5%), after a 30bp rate increase between December 2021 and June 2022;
- a €1,129 million deterioration in the cost of gross financial indebtedness, due to rising interest rates and the level of financial debt.

4.5 Income taxes

The income tax expense amounts to €1,323 million at 30 June 2023, corresponding to an effective tax rate of 18.7% (compared to an income tax credit of €1,840 million at 30 June 2022, corresponding to an effective tax rate of 24.7%).

The -€3,163 million change between the tax credit in 2022 and the tax expense in 2023 essentially reflects the €14,527 million increase in the Group's pre-tax income, generating additional tax of -€3,751 million.

The income tax expense was also affected by recognition of deferred tax assets on the loss reported in 2022 by the French tax group (EDF SA, Enedis, PEI and other French subsidiaries owned more than 95%), and by the absence in 2023 of unfavourable effects resulting from the "windfall tax" on electricity-producing companies introduced in Italy, or tax litigation.

In addition to the deferred tax asset of €7,872 million recognised at the 2022 year-end on the French tax group's 2022 loss, €385 million of the €1,060 million of deferred tax assets unrecognised at 31 December 2022 has now also been recognised, in view of favourable prospects for 2023.

After elimination of non-recurring items (principally changes in unrealised gains and losses on the financial asset portfolio and commodities), the effective tax rate is 18.90% at 30 June 2023, compared to 26.1% at 30 June 2022.

4.6 Net income excluding non-recurring items

The Group's net income excluding non-recurring items [(1)] stood at €6,267 million in the first half of 2023, up by €7,579 million compared to the first half of 2022 (see note 18.1 to the condensed consolidated half-year financial statements at 30 June 2023, "Net income excluding non-recurring items"). This change principally reflects the substantial rise in EBITDA and the associated income tax effect.

4.7 EDF net income – Group share

EDF net income totalled €5,808 million at 30 June 2023, up by €11,101 million year on year. This result mainly includes the following items after tax:

- -€1,295 million of impairment and other non-recurring items;
- -€210 million of net changes in fair value on Energy and Commodity derivatives excluding trading activities;
- €1,046 million of net changes in the fair value of debt and equity instruments.

(1) Net income excluding non-recurring items, net changes in the fair value of energy and commodities derivatives (excluding trading activities and net changes in the fair value of debt and equity instruments net of tax).

Note 5 NET FINANCIAL DEBT, CASH FLOWS AND INVESTMENTS

(in millions of euros)	H1 2023	H1 2022	Variation	Variation (%)
EBITDA	**16,106**	**2,672**	**13,434**	
Cancellation of non-monetary items included in EBITDA	2,011	(3,343)	5,354	
Cash EBITDA	**18,117**	**(671)**	**18,788**	
Change in working capital	(8,020)	6,804	(14,824)	
Net investments (1)	(9,141)	(8,474)	(667)	
Other items including dividends received from associates and joint ventures	38	(510)	548	
Operating cash flow (2)	**994**	**(2,851)**	**3,845**	
Asset disposals	(3)	9	(12)	
Income taxes paid	(1,125)	(202)	(923)	
Net financial expenses disbursed	(1,083)	(424)	(659)	
Dedicated assets	118	30	88	
Dividends paid in cash	(490)	(543)	53	
Group cash flow (3)	**(1,589)**	**(3,981)**	**2,392**	
Issues of hybrid notes	1,377	-	1,377	
Redemption of hybrid notes	(1,371)	-	(1,371)	
Other monetary changes	(137)	3,230	(3,367)	
(Increase)/decrease in net indebtedness, excluding the impact of changes in exchange rate	**(1,720)**	**(751)**	**(969)**	
Effect of change in exchange rates	(176)	(113)	(63)	
Effect of other non-monetary changes	1,600	1,081	519	
(Increase)/decrease in net indebtedness of continuing operations	**(296)**	**217**	**(513)**	
(Increase)/decrease in net indebtedness of discontinued operations	**-**	**-**	**-**	
Net indebtedness at beginning of year	**64,500**	**42,988**	**21,512**	**50.0**
NET INDEBTEDNESS AT END OF YEAR	**64,796**	**42,771**	**22,025**	**51.5**

(1) 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 Group's disposals.

(2) 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, and other items, including dividends received from associates and joint ventures.

(3) Group 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. It is equal to the operating cash flow defined in note (2) less asset disposals, income taxes paid, net financial expenses disbursed, net allocations to dedicated assets, and dividends paid in cash.

5.1 Net financial debt

Net financial debt 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 financial debt was €64,796 million at 30 June 2023, compared to €42,771 million at 30 June 2022.

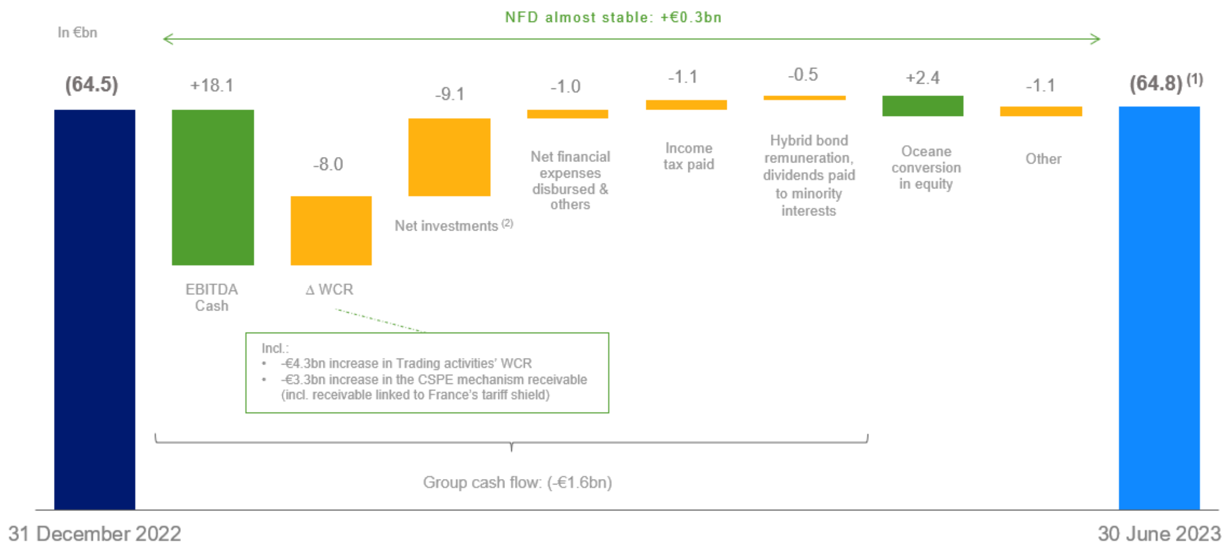
(in millions of euros)	**H1 2023**	**H1 2022**	**Variation**	**Variation (%)**
Loans and other financial liabilities	93,717	77,425	16,292	21
Derivatives used to hedge liabilities	(1,445)	(3,893)	2,448	- 63
Cash and cash equivalents	(8,074)	(7,418)	(656)	9
Debt and equity securities - liquid assets	(19,314)	(23,323)	4,009	- 17
Net indebtedness of assets held for sale	(88)	(20)	(68)	n.a.
NET FINANCIAL DEBT (1)	**64,796**	**42,771**	**22,025**	**51**

n.a : not applicable

(1) Net financial debt is not defined in the accounting standards and is not directly visible in the Group's consolidated balance sheet.

Net financial debt was practically stable compared to 31 December 2022 (increasing by €296 million). The operating cash flow of €994 million for the first half of 2023 and the favourable €2,390 million effect of the conversion of OCEANE bonds into shares by the French State were counterbalanced by the income taxes paid, net financial expenses disbursed, and other monetary and non-monetary changes.

Change in net financial debt between 31 December 2022 and 30 June 2023



NB: figures rounded to the nearest whole number.

(1) Restated of the €0.6bn not tendered in the offer of $1.5bn hybrid notes, still in process at 30 June 2023 (reclassified from equity to other financial debts), the Net Financial Debt would have been €0.3bn lower at 30 June 2023 than at 30 December 2022 (see press release of 7 July 2023).

(2) Net investments excluding Group disposals.

5.2 Operating cash flow

The operating cash flow was €994 million for the first half of 2023 compared to -€2,851 million for the first half of 2022, a significant increase of €3,845 million. However, this improvement was counterbalanced by the reversal of the change in working capital, particularly due to the CSPE mechanism.

Cash EBITDA

EBITDA after adjustment for non-cash items amounted to €18,117 million, up by €18,788 million from the first half of 2022, principally as a result of:

- an increase in the gross margin generated by the **France – Generation and Supply** segment, mainly due to a price effect on sales to final customers, and the impacts of regulatory measures in 2022 making additional ARENH volumes available, that had no equivalent in 2023;
- an increase in **EDF Energy's** cash EBITDA, primarily reflecting the recovery of margins on business with residential customers, whereas 2022 was a year of substantial losses in an energy crisis environment. Sales margins and market shares in the small and medium business segment were also consolidated;

- an increase in **EDF Trading'**s cash EBITDA, explained by the performance of the trading and optimisation activities, which remained strong in the first half of 2023 in a context of reduced market and counterparty risks. This variation was offset by the change in working capital.

Change in working capital

The change in working capital for the first half of 2023 was -€8,020 million, mainly reflecting EDF Trading's business and margin calls (-€4,349 million), but also a shortfall in CSPE compensation (-€3,299 million).

Similarly, the variation in the change in working capital between June 2022 and June 2023 (-€14,824 million) is principally attributable to the trading activities (-€10,122 million) and the CSPE compensation (-€5,120 million).

Net investments

Net investments amounted to €9,141 million for the first half of 2023, an increase of €667 million compared to H1 2022.

(in millions of euros)	H1 2023	H1 2022	Variation	Variation (%)
France - Generation and supply	3,185	2,850	335	12
France - Regulated activities	2,490	2,310	180	8
EDF Renewables	1,300	1,384	(85)	- 6
Dalkia	93	78	15	20
Framatome	116	112	4	3
United Kingdom	1,803	1,396	407	29
Italy	167	256	(89)	- 35
Other international	(24)	78	(102)	- 131
Other activities	12	10	1	13
NET INVESTMENTS	**9,141**	**8,474**	**667**	**8**

Net investments by the **France - Generation and supply** segment were up by €335 million, due notably to costs incurred to address the stress corrosion phenomenon.
Net investments by the **France – Regulated activities** segment were up by €180 million. This rise mainly relates to work on connections and network modernisation.
In the **United Kingdom**, net investments were up by €407 million, principally due to costs for the HPC project.
At **EDF Renewables**, the €85 million decrease is essentially attributable to the level of investments in the United States.
In **Italy**, net investments were down by €89 million, notably due to completion of construction work for two CCG plants.

5.3 Group cash flow

Group cash flow for the first half of 2023 amounted to -€1,589 million, an improvement from the -€3,981 million recorded for the first half of 2023.

Dedicated assets

In compliance with 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 to secure financing of its long-term nuclear obligations (see section 7.1.6).

In general, the cash flows concerning dedicated assets comprise:

- allocations to reach full coverage of obligations;
- reinvestments 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 cash flow of €118 million for dedicated assets at 30 June 2023 corresponds to the second and third of these categories.

Dividends paid in cash

Cash dividends paid by EDF during the first half of 2023 amounted to €490 million, comprising:

- payments made in 2023 to holders of perpetual subordinated bonds (the "hybrid note" issues) totalling €300 million;
- dividends paid by Group subsidiaries to their minority shareholders, amounting to €193 million.

5.4 Effect of change in exchange rates

The foreign exchange effect (mainly the rise of the pound sterling and fall of the US dollar against the euro [(1)]) had an unfavourable impact of €176 million on the Group's net financial debt.

5.5 Other non-monetary changes

Other non-monetary changes had an effect of €1,600 million in the first half of 2023, compared to €1,081 million in the first half of 2022. They mainly comprise the conversion of OCEANE bonds into shares by the French State, new leases (IFRS 16) and changes in the fair value of debt instruments.

Note 6 FINANCIAL OUTLOOK

2023 targets upgraded [(2)]

Net financial debt / EBITDA: ≤ 2.5x

Adjusted economic net debt / Adjusted EBITDA [(3)]: ≤ 4x

Note 7 MANAGEMENT AND CONTROL OF MARKET RISKS

See also section 2.2.2. "Management of financial and market risks" of the 2022 Universal Registration Document.

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 EDF. 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.

An independent unit in the Group's Risk Division, the Financial Risks Control Department (CRFI), is in charge of financial risk control at Group level, mainly by ensuring correct application of the principles of the strategic financial management framework. It 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

Liquidity position

The Group's liquidities at 30 June 2023, consisting of liquid assets, cash and cash equivalents, totalled €27,388 million and available credit lines amounted to €14,947 million.

At 30 June 2023, the Group's loans and other financial liabilities maturing within one year totalled €21,105 million and included €940 million relating to bonds, including accrued interest not yet due. This amount also comprises the negative cash position (including €1,829 million for margin calls on derivatives) and the liability relating to lease obligations (see note 17.2.2.3 to the condensed consolidated half-year financial statements at 30 June 2023). The associated requirements may when necessary be funded by the Group's liquidities and available credit lines mentioned above, and other short-term resources mentioned below.

No Group company was in default on any external financing at 30 June 2023.

Management of liquidity risk

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

- On 3 January, then 10 January 2023, EDF arranged two bilateral loans: one 3-year loan of €500 million and one 2-year loan of €250 million.
- On 25 January 2023, EDF undertook a multi-tranche senior bond issue for the amount of €2 billion and £950 million. The Euro tranches are of €1 billion each with 9-year and 20-year maturity, and a 4.250% and 4.625% coupon respectively. The sterling

(1) The pound sterling rose by 3.34% against the Euro, from €1.1275 /£1 at 31 December 2022 to €1.1651 /£1 at 30 June 2023. The US dollar fell by 1.84% against the Euro, from €0.9376/$1 at 31 December 2022 to €0.9203/$1 at 30 June 2023.

(2) Based on scope and exchange rates as at 1 January 2023, and assuming a constant regulatory and tax environment, financing of the tariff cap by the CSPE (contribution to the public energy services), French nuclear output of 300-330TWh, and the current power generation schedule.

(3) Applying constant S&P methodology on the ratio.

tranches comprise one 12-year tranche of £450 million and one 30-year tranche of £500 million, with respective coupons of 5.5% and 5.625%.

- On 28 March 2023 EDF added to the 30-year sterling bond tranche issued on 25 January 2023 with a tap issue of £99 million (5.625% coupon).
- On 17 May 2023, EDF undertook a multi-tranche senior bond issue for the amount of US$3 billion and CAD500 million. The US dollar tranches are of US$1 billion each, with maturities of 5, 10 and 30 years and respective coupons of 5.7%, 6.25% and 6.9%. The Canadian dollar tranches comprise one 7-year tranche of CAD 300 million and one 30-year tranche of CAD 200 million, with respective coupons of 5.993% and 6.492%.
- On 8 June 2023, EDF issued US$ 1,500 million of perpetual hybrid notes with an initial coupon of 9.125%.
- On 22 June 2023, EDF undertook a multi-tranche senior bond issue for the total amount of ¥33 billion: a 5-year ¥25.3 billion tranche with a coupon of 1.059%; a 7-year ¥2.2 billion tranche with a coupon of 1.355%; a 10-year ¥4.4 billion tranche with a coupon of 1.695%; and a 20-year ¥1.1 billion tranche with a coupon of 2.328%.

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: changes in subsidiaries' working capital are financed by the Group's cash management department through stand-by credit lines provided for subsidiaries, which can thus have revolving credit from the Group;
- 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), Negotiable European Commercial Paper (NEU CP), and US commercial paper (US CP). For EDF, the ceilings are €12 billion for the NEU CP programme and US$10 billion for US commercial paper;
- transfer of bond liabilities to banking counterparties under cash repurchase agreements.

At 30 June 2023, the amount of the Group's commercial paper outstanding was €7,970 million for NEU CP, and US$2,492 million for US CP.

EDF has access to the world's main bond markets:

- the Euromarkets through its EMTN programme, which currently has a ceiling of €50 billion, particularly for euro and sterling issues;
- and domestic markets used for stand-alone issues in US dollars (144A bonds), yen (Samurai bonds) and Swiss francs.

The average maturity of the Group's gross debt was 10.53 years at 30 June 2023, compared to 9.36 years at 31 December 2022.

At 30 June 2023, EDF SA had a total amount of €13,457 million in available credit facilities (syndicated credit and bilateral lines):

- a syndicated credit line of €4 billion that expires in December 2025. No drawings had been made on this syndicated credit line at 30 June 2023;
- a syndicated social credit facility of €1.5 billion signed in December 2021, with an initial term of three years (expiring in December 2024), renewable for two 1-year periods. No drawings had been made on this facility at 30 June 2023;
- bilateral credit lines representing an available amount of €7,957 million, with expiry dates extending to December 2026. The level of this available financing is very frequently reviewed to ensure the Group has sufficient backup credit facilities.

The 7 credit lines with the European Investment Bank were all fully drawn by EDF SA at 30 June 2023, for a total amount of €2,675 million.

Among other facilities, Edison has a credit line with the European Investment Bank (available amount of €300 million at 30 June 2023).

7.1.2 Credit rating

At 30 June 2023, the three financial ratings agencies Standard & Poor's, Moody's and Fitch Ratings attributed the following long-term and short-term ratings to EDF group entities. On 1 June 2023 Moody's changed the outlook for all these entities from negative to stable. It upgraded the outlook of EDF by one notch in view of the high probability of support from the French State as sole shareholder, but downgraded the standalone credit rating by one notch.

The Group's rating may be affected by the risks described in Chapter 2 of the 2022 Universal Registration Document, particularly risk 1A: "Changes in public policies and the regulatory framework in France and Europe, particularly ARENH" and risk 2D: "Risk of access to liquidity".

Company	Agency	Long-term rating	Short-term rating
EDF	Standard & Poor's	BBB/ stable outlook	A-2
	Moody's	Baa1/ stable outlook	P-2
	Fitch Ratings	BBB+/ stable outlook	F2
EDF Trading	Moody's	Baa3/ stable outlook	n. a.
EDF Energy	Standard & Poor's	BB-/ stable outlook	B
	Moody's	Baa3/ stable outlook	n. a.
	Fitch Ratings	BBB-/ stable outlook	n. a.
Edison	Standard & Poor's	BBB/stable outlook	A-2
	Moody's	Baa3/ stable outlook	n. a.

n. a. = not applicable.

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, net income and the IRR of projects.

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 through debt issued or contracted in foreign currencies, or 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. 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 their 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 30 June 2023 breaks down as follows by currency after hedging:

GROSS DEBT STRUCTURE BY CURRENCY BEFORE AND AFTER HEDGING STRUCTURE

30 June 2023 *(in millions of euros)*	**Initial debt structure**	**Impact of hedging instruments***	**Debt structure after hedges**	**% of debt**
Borrowings in euros (EUR)	56,761	22,225	78,986	84
Borrowings in US dollars (USD)	23,347	(17,490)	5,857	6
Borrowings in pounds sterling (GBP)	9,354	(1,787)	7,567	8
Borrowings in other currencies	4,255	(2,948)	1,307	2
TOTAL DEBT	**93,717**	**0**	**93,717**	**100**

** Hedges of liabilities and net foreign investments.*

The table below presents the impact on equity of a variation in exchange rates on the Group's gross debt at 30 June 2023:

EXCHANGE RATE SENSITIVITY OF THE GROUP'S GROSS DEBT

30 June 2023 *(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 euros (EUR)	78,986	-	78,986
Borrowings in US dollars (USD)	5,857	586	6,443
Borrowings in pounds sterling (GBP)	7,567	758	8,325
Borrowings in other currencies	1,307	131	1,438
TOTAL DEBT	**93,717**	**1,475**	**95,192**

Due to the Group's hedging policy for foreign exchange risk on the Group's gross debt, the income statement of 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

30 June 2023 * *(in millions of currency units)*	**Net assets**	**Bonds**	**Derivatives**	**Net assets after management**
USD	4,547	2,950	(283)	1,880
CHF (Switzerland)	20	-	18	2
PLN (Poland)	302	-	153	149
GBP (United Kingdom)	23,416	6,084	4,975	12,357
BRL (Brazil)	2,084	-	-	2,084
CNY (China)	9,112	-	4,632	4,480

* *Net assets as at 30 June 2023; bonds and derivatives as at 30 June 2023. 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 debt and equity instruments recorded in equity, and changes in the fair value of financial instruments recorded in income.

7.1.4 Management of interest rate risk

The exposure of the Group's net financial debt 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 financial debt, defined by reference to the risk/return for net financial expenses, taking into consideration expected movements in interest rates.

Under this policy, some of the debt is variabilised and the Group may use interest rate derivatives for hedging purposes.

The Group's debt after hedging instruments at 30 June 2023 comprised 67% at fixed rates and 33% at floating rates.

A 1% uniform annual rise in interest rates would generate an approximate €305 million increase in financial expenses at 30 June 2023 based on gross floating-rate debt after hedging.

The average cost of Group debt (weighted interest rate on outstanding amounts) was 3.84% at 30 June 2023.

STRUCTURE AND INTEREST RATE SENSITIVITY OF GROUP DEBT

30 June 2023 *(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	75,075	(11,902)	63,173	-
Floating rate	18,642	11,902	30,544	305
TOTAL	**93,717**	**0**	**93,717**	**305**

The Group's interest rate risk notably relates to the value of the Group's long-term nuclear obligations (see note 14 to the condensed consolidated half-year financial statements at 30 June 2023) and its pension and other specific employee benefit obligations (see note 15 to the condensed consolidated half-year financial statements at 30 June 2023), which are adjusted to present value using discount rates that depend on interest rates for various time horizons, and debt securities held for management of the dedicated assets set aside to cover these obligations (see section 7.1.6).

7.1.5 Management of equity risk

Coverage of EDF's nuclear obligations

Analysis of the equity risk is presented in the section 7.1.6.

Coverage of employee benefit obligations for EDF SA and EDF 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.

31.7% of the assets covering EDF SA's employee benefit obligations were invested in equities at 30 June 2023, representing an amount of €3.1 billion.

At 30 June 2023, the EDF Energy employees' pension scheme EDFG (EDF Group) has an allocation of the assets close to 6% (5.8%) in equities and equity funds (excluding diversified growth funds), compared to less than 1% at the 2022 year-end, and now totals £346 million.

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

Dedicated assets have been built up progressively by EDF since 1999 to ensure secure financing of its long-term nuclear obligations. The Law of 28 June 2006, codified in France's Environment code (Articles L. 5 94-1 to 14) and its implementing regulations, defined the provisions that are not related to the operating cycle, and must therefore be covered by dedicated assets. They are listed in note 14.3 to the condensed consolidated half-year financial statements at 30 June 2023, "Coverage of EDF's long-term nuclear obligations".

The dedicated asset portfolio is managed under the supervision of the Board of Directors and its advisory committees (Nuclear Commitments Monitoring Committee (CSEN), Audit Committee).

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.

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 under a policy for ensuring secure financing of nuclear expenses, in compliance with the regulations. 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 obligations. 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 in 2021 to take account of changes in the fixed-income markets. 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), and cash. These portfolios are managed by EDF Gestion (formerly the Listed Asset Management Division) and by EDF Invest.

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 Financial Risks Control department.

At 30 June 2023, the total value of the portfolio was €35,436 million compared to €33,904 million at 31 December 2022. Changes in dedicated assets in the first half of 2023 are described in note 14.1.2 to the condensed consolidated half-year financial statements at 30 June 2023, and details of their realisable value and book value are also presented in note 14.2.2.

CONTENT AND PERFORMANCE OF EDF'S DEDICATED ASSET PORTFOLIO

	30/06/2023			31/12/2022		
(in millions of euros)	Share of portfolio	Stock market or realisable value	Performance for H1 2023	Share of portfolio	Stock market or realisable value	Performance for 2022
Yield assets	24.9%	8,829	2.4%	25.9%	8,772	11.2%
Growth assets	37.1%	13,133	11.0%	36.1%	12,251	- 15.8%
Fixed-income assets	38.0%	13,474	2.4%	38.0%	12,881	- 12.1%
TOTAL DEDICATED ASSETS	**100%**	**35,436**	**5.5%**	**100%**	**33,904**	- 8.5%

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 €12,570 million at 30 June 2023. The volatility of the listed equities at the same date was 14.49% based on 52 weekly performances, compared to 17.04% at 31 December 2022. Applying this volatility to the value of listed equity assets at 30 June 2023, the Group estimates the annual volatility of the equities portion of dedicated assets at €1,784 million.

At 30 June 2023, the sensitivity of the listed bonds (€11,441 million) was 5.2, i.e. a uniform 100 base point rise in interest rates would result in a €590 million decline in market value. This sensitivity was 4.9 at 31 December 2022.

Assessment of the expected rate of return on dedicated assets

In compliance with the applicable regulations, based on the target allocation for dedicated assets stated above, studies to simulate the expected rate of return for the next few years, particularly the next twenty years (a horizon close to the duration of nuclear provisions), show with high probability that the average projected rate of return is higher than the discount rate used to calculate nuclear provisions, estimated at 4.8% at 30 June 2023 (see note 14.1 to the condensed consolidated half-year financial statements at that date).

The average annualised performance of dedicated assets since 2004, the year when their value first exceeded €1 billion, was 5.8% at 30 June 2023.

Currently valid dispensations and prescriptions granted by the administrative authority, in application of articles D.594-6 and D.594-7 of the Environment Code

EDF received ministerial authorisation on 31 May 2018 to increase the portion of unlisted assets in its dedicated assets from 10% to 15% subject to conditions (this does not apply to the shares of CTE or real estate assets).

(1) An internal committee and permanent body for evaluation, consultation and operational decision-making for dedicated asset management.

7.1.7 Management of counterparty/credit risk

Counterparty risk represents the potential loss the EDF group would sustain in the event of future default by its counterparty. 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 quarterly consolidation of the Group's exposures. The Financial Risks Control (CRFI) department closely monitors Group counterparties (daily review of alerts, special cautionary measures for certain counterparties).

The table below gives details, by rating category, of the EDF group's consolidated exposure to counterparty risk. At 31 March 2023, 89% of the Group's exposure concerned "investment grade" counterparties, mainly due to 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
At 31/12/2022	88%	11%	1%	100%
At 31/03/2023	89%	11%	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
At 31/12/2022	8%	0.5%	17%	54%	20.5%	100%
At 31/03/2023	9%	0.5%	13%	61%	16.5%	100%

Exposure in the energy trading activities is concentrated in EDF Trading. The decrease in exposure since December 2022 was due to the decline in commodity prices over the period.

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. 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 risks

7.2.1 Energy market risk policy

Through its generation and supply activities, the EDF group has operations on deregulated energy markets, principally in Europe, which expose it to price variations on the energy market that can significantly affect its financial statements.

Consequently, the Group has an energy market 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 risks on the energy markets where the Group entities carry out their asset portfolio management activities (energy generation, optimisation and sale), and trading activities in the case of 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 of the current hedging policy is:

- netting of upstream/downstream positions; wherever possible, sales to final customers are hedged by internal sales;
- gradual closing of most positions before the end of the budget year, based on a predefined hedging trajectory (1) that captures an average price.

(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.

The energy risk control process involves the Group's Risk Management department and is based on a risk indicator and measurement system incorporating escalation procedures in the event risk limits are exceeded.

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 smooths the impact of energy market risks on the variability of their financial statements (the accounting classifications of the hedges used are described in note 18.7 to the 2022 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 customers' consumption).

For operationally controlled entities in the Group, positions on the energy markets are taken predominantly by EDF Trading, which as the Group's trading entity executes most of the Group's purchase/sale orders on the wholesale markets. 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 limits for risks (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 in relation to the trading margin 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 the first half of 2023, EDF Trading's commitment on the markets was subject to a VaR limit of €57 million from 1 January, 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.

The VaR indicator remained below its limit throughout the first half of 2023.

See also note 6 to the 2022 consolidated financial statements. For details of commodity derivatives, see note 18.7.4 to the 2022 consolidated financial statements.

Note 8 TRANSACTIONS WITH RELATED PARTIES

The types of transaction undertaken with related parties are detailed in note 3.2 to the condensed consolidated half-year financial statements at 30 June 2023, "Related parties".

Note 9 PRINCIPAL RISKS AND UNCERTAINTIES FOR THE SECOND HALF-YEAR OF 2023

The principal risk factors to which the EDF group considers itself exposed, and the Group's policies for risk management and control, are described in chapter 2 of the 2022 Universal Registration Document, "Risk Factors and Control Framework". The Universal Registration Document was filed with the *Autorité des Marchés Financiers* (French Financial Markets Authority or AMF) on 21 March 2023 and is available from the AMF website (www.amf-france.org) and the EDF group website (www.edf.com).

As the Group remains subject to the identified risks specific to its business, the presentation of the major risks contained in the 2022 Universal Registration Document remains valid at the date of publication of this report for assessment of the principal risks and uncertainties to which the Group is exposed at 30 June 2023 or which could affect it during the second half of the current financial year.

Note 10 SIGNIFICANT EVENTS RELATED TO LITIGATION IN PROCESS

The principal litigations concerning the EDF group are presented in section 7.1.5 of the 2022 Universal Registration Document (URD). Information is provided below on litigations which have seen significant developments since the release of the URD, in addition to the developments reported in note 16.3 to the condensed consolidated half-year financial statements at 30 June 2023.

CRE/REMIT investigation

On 14 December 2017, the French energy regulator CRE launched an investigation to establish whether EDF and its subsidiaries EDF Trading Limited and EDFT Markets Limited had, between 1 January 2017 and 30 June 2018, engaged in practices that could constitute breaches of the provisions of Regulation (EU) No. 1227/2011 of 25 October 2011 on wholesale energy market integrity and transparency

(1) *EDF Trading estimates the VaR by a "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.*

(REMIT). The CRE informed EDF in a letter dated 14 April 2023 that it had referred the matter to the Settlement of Disputes and Sanctions Committee (CoRDis). This is no indication as to the outcome of the proceedings.

Legal action by NGOs and associations against authorisations for power plants

A certain number of authorisations and permits for the Group's power plants (ASN clearance, decisions by the Prefecture, decrees, orders, etc.) have been challenged before the courts, in most cases by environmental associations.

CGN Arbitration

In application of the shareholder pact of TNPJVC Guangdong Taishan Nuclear Power Company Limited, formed for the construction, operation, maintenance and management of the Taishan nuclear power plant with two 1750MW reactors, EDF began an "interpretation" arbitration procedure in January 2021 in the Singapore International Chamber of Commerce (SIAC) against its partners China General Nuclear Power Co. Ltd, Guangdong Nuclear Power Investments Co. Ltd and Taishan Nuclear Power Industry Investments Co. Ltd. (collectively CGN). The disagreement concerned the accounting policy for the power plant, particularly its depreciation period. EDF wanted a 60-year period in line with the plant's operating lifetime, while CGN considered the depreciation period should be limited to the duration of the entity TNPJVC. On 6 June 2023, the SIAC's Court of Arbitration ruled in favour of EDF.

Litigation relating to the simplified tender offer

Associations defending the interests of EDF minority shareholders initiated several legal challenges to the simplified tender offer for EDF securities filed by the French government with the AMF on 4 October 2022, stipulating a price of €12 per share and €15.52 per OCEANE bond.

On 24 November 2022, the Supervisory Board of the employee's mutual fund ("FCPE Actions EDF") and the shareholders' association *Énergie En Actions* initiated accelerated proceedings on the merits of the matter before the Paris Commercial Court (*Tribunal de Commerce de Paris*), seeking cancellation of the resolution passed by EDF's Board of Directors on 27 October 2022 which issued an opinion on the French government's offer. This action was dismissed by the Paris Commercial Court on 16 December 2022.

In addition, on 2 December 2022, the same two funds, together with the *Association pour la Défense des Actionnaires Minoritaires* (Association for the Defence of Minority Shareholders or "ADAM"), brought an action before the Paris Court of Appeal seeking annulment of the French Financial Markets Authority's decision of 22 November 2022 which declared that the French government's simplied tender offer was compliant with the applicable laws and regulations. This action was dismissed by the Paris Court of Appeal on 2 May 2023.

Framatome

Arbitration proceedings are in process between Framatome SAS and Eskom Holding SOC Limited (Eskom) in connection with the contract for replacement of steam generators on reactors 1 and 2 at the Koeberg power plant in South Africa. The dispute concerns the consequences for Framatome and its subcontractors of the postponement, due to delays attributable to Eskom, of the steam generator replacement, which was initially due to take place during reactor outages in 2018.

Note 11 SUBSEQUENT EVENTS

Subsequent events are described in note 20 to the condensed consolidated half-year financial statements at 30 June 2023.

ELECTRICITE DE FRANCE

Statutory Auditors' Review Report on the Half-yearly Financial Information

(For the period from January 1 to June 30, 2023)

PricewaterhouseCoopers Audit
63, rue de Villiers
92208 Neuilly-sur-Seine Cedex
France

KPMG SA
Tour EQHO
92006 Paris le Défense Cedex
France

This is a free translation into English of the statutory auditors' review report on the half-yearly financial information issued in French and is provided solely for the convenience of English-speaking users. This report includes information relating to the specific verification of information given in the Group's half-yearly management report. This report should be read in conjunction with, and construed in accordance with, French law and professional standards applicable in France.

Statutory Auditors' Review Report
on the Half-yearly Financial Information

(For the period from January 1 to June 30, 2023)

To the Shareholders
ELECTRICITE DE FRANCE S.A.
22-30 AVENUE DE WAGRAM
75382 PARIS CEDEX 08

In compliance with the assignment entrusted to us by your General Meeting and in accordance with the requirements of article L. 451-1-2 III of the French Monetary and Financial Code ("Code monétaire et financier"), we hereby report to you on:

- the review of the accompanying condensed half-yearly consolidated financial statements of ELECTRICITE DE FRANCE S.A., for the period from January 1st to June 30, 2023,
- the verification of the information presented in the half-yearly management report.

These condensed half-yearly consolidated financial statements are the responsibility of the Board of Directors. Our role is to express a conclusion on these financial statements based on our review.

I. Conclusion on the financial statements

We conducted our review in accordance with professional standards applicable in France.

A review of interim financial information consists of making inquiries, primarily of persons responsible for financial and accounting matters, and applying analytical and other review procedures. A review is substantially less in scope than an audit conducted in accordance with professional standards applicable in France and consequently does not enable us to obtain assurance that we would become aware of all significant matters that might be identified in an audit. Accordingly, we do not express an audit opinion.

Based on our review, nothing has come to our attention that causes us to believe that the accompanying condensed half-yearly consolidated financial statements are not prepared, in all material respects, in accordance with IAS 34 - standard of the IFRSs as adopted by the European Union applicable to interim financial information.

II. Specific verification

We have also verified the information presented in the half-yearly management report on the condensed half-yearly consolidated financial statements subject to our review. We have no matters to report as to its fair presentation and consistency with the condensed half-yearly consolidated financial statements.

Neuilly-sur-Seine and Paris La Défense, on July 26, 2023

The Statutory Auditors

PricewaterhouseCoopers Audit SAS		KPMG SA	
Séverine SCHEER	Cédric HAASER	Marie GUILLEMOT	Jacques-François LETHU

CONDENSED CONSOLIDATED
HALF-YEAR FINANCIAL STATEMENTS
AT 30 JUNE 2023

CONSOLIDATED INCOME STATEMENT

(in millions of euros)	Notes	H1 2023	H1 2022
Sales	5.1	75,499	66,262
Fuel and energy purchases	5.2	(48,899)	(48,238)
Other external expenses[1]		(4,117)	(3,919)
Personnel expenses		(8,201)	(7,286)
Taxes other than income taxes	5.3	(2,714)	(2,383)
Other operating income and expenses	5.4	4,538	(1,764)
Operating profit before depreciation and amortisation	**5**	**16,106**	**2,672**
Net changes in fair value on energy and commodity derivatives, excluding trading activities	6	(276)	(993)
Net depreciation and amortisation		(5,472)	(5,534)
(Impairment)/reversals	10.4	(48)	(253)
Other income and expenses	7	(1,696)	(388)
Operating profit		**8,614**	**(4,496)**
Cost of gross financial indebtedness	8.1	(1,857)	(728)
Discount effect	8.2	(1,977)	502
Other financial income and expenses	8.3	2,304	(2,721)
Financial result	**8**	**(1,530)**	**(2,947)**
Income before taxes of consolidated companies		**7,084**	**(7,443)**
Income taxes	9	(1,323)	1,840
Share in net income of associates and joint ventures	11	142	444
Net income of discontinued operations		-	4
CONSOLIDATED NET INCOME		5,903	(5,155)
EDF net income		**5,808**	**(5,293)**
EDF net income – continuing operations		5,808	(5,297)
EDF net income – discontinued operations		-	4
Net income attributable to non-controlling interests		**95**	**138**
Net income attributable to non-controlling interests – continuing operations		95	138
Net income attributable to non-controlling interests – discontinued operations		-	-

[1] Other external expenses are reported net of capitalised production costs.

CONSOLIDATED STATEMENT OF COMPREHENSIVE INCOME

		H1 2023			H1 2022		
(in millions of euros)	Notes	EDF net income	Net income attributable to non-controlling interests	Total	EDF net income	Net income attributable to non-controlling interests	Total
Consolidated net income		**5,808**	**95**	**5,903**	**(5,293)**	**138**	**(5,155)**
Fair value of cash flow hedges							
Fair value of cash flow hedges - gross change	17.5	6,552	42	6,594	3,589	22	3,611
Fair value of cash flow hedges - tax effects		(1,692)	(35)	(1,727)	(919)	(5)	(924)
Fair value of net investment hedges							
Fair value of net investment hedges - gross change	17.5	(341)	-	(341)	(74)	-	(74)
Fair value of net investment hedges - tax effects		147	-	147	58	-	58
Change in fair value of debt instruments							
Gross change in fair value of debt instruments	17.1.2	279	-	279	(1,204)	-	(1,204)
Related tax effect		(72)	-	(72)	311	-	311
Fair value of hedging costs (foreign currency basis spread)							
Fair value of hedging costs (foreign currency basis spread) - gross change	17.5	(17)	-	(17)	-	-	-
Fair value of hedging costs (foreign currency basis spread) - tax effects		-	-	-	-	-	-
Translation adjustments – controlled entities		**746**	**355**	**1,101**	**(196)**	**(202)**	**(398)**
Share in net income of associates and joint ventures – items that can be recycled to profit and loss		**(132)**	**-**	**(132)**	**614**	**-**	**614**
Gains and losses recorded in equity with recycling		**5,470**	**362**	**5,832**	***2,179***	***(185)***	***1,994***
Change in fair value of equity instruments							
Gross change in fair value of equity instruments	17.1.2	3	-	3	(4)	-	(4)
Related tax effect		-	-	-	-	-	-
Change in actuarial gains and losses on post-employment benefits							
Gross change in actuarial gains and losses on post-employment benefits[1]	15.1.2	499	(64)	435	9,104	38	9,142
Related tax effect[1]		58	16	74	(208)	(10)	(218)
Share in net income of associates and joint ventures – items that cannot be recycled to profit and loss		**18**	**-**	**18**	**340**	**-**	**340**
Gains and losses recorded in equity with no recycling		**578**	**(48)**	**530**	***9,232***	**28**	**9,260**
Total gains and losses recorded in equity		**6,048**	**314**	**6,362**	**11,411**	**(157)**	**11,254**
CONSOLIDATED COMPREHENSIVE INCOME		11,856	409	12,265	6,118	(19)	6,099
Comprehensive income of continuing operations		11,856	409	12,265	6,114	(19)	6,095
Comprehensive income of discontinued operations		-	-	-	4	-	4

[1] Actuarial gains included in equity principally concern France (see note 15.1.1). They have a limited tax effect because most of the actuarial gains recognised concern the portion of the provision for employee benefits which will reverse after more than 10 years, and for which no corresponding deferred tax amount has been recognised, in line with the Group's recognition policy for deferred taxes.

CONSOLIDATED BALANCE SHEET

ASSETS *(in millions of euros)*	Notes	30/06/2023	31/12/2022
Goodwill	10.1	9,717	9,513
Other intangible assets	10.1	11,068	10,619
Property, plant and equipment used in generation and other tangible assets owned by the Group, including right-of-use assets	10.2	106,126	101,126
Property, plant and equipment operated under French public electricity distribution concessions	10	64,900	63,966
Property, plant and equipment operated under concessions other than French public electricity distribution concessions	10	6,769	6,816
Investments in associates and joint ventures	11	9,047	9,421
Non-current financial assets	17.1	44,878	48,512
Other non-current receivables	12.3	2,088	2,165
Deferred tax assets	9	8,742	8,696
Non-current assets		**263,335**	**260,834**
Inventories		17,621	17,661
Trade receivables	12.2	24,641	24,844
Current financial assets	17.1	46,954	58,033
Current tax assets		689	497
Other current receivables	12.3	8,328	15,165
Cash and cash equivalents		8,074	10,948
Current assets		**106,307**	**127,148**
Assets classified as held for sale		138	150
TOTAL ASSETS		369,780	388,132

EQUITY AND LIABILITIES *(in millions of euros)*	Notes	30/06/2023	31/12/2022
Capital	13	2,085	1,944
EDF net income and consolidated reserves		45,868	32,396
Equity (EDF share)		***47,953***	***34,340***
Equity (non-controlling interests)	13.5	13,712	12,272
Total equity	**13**	**61,665**	**46,612**
Provisions related to nuclear generation – back-end of the nuclear cycle, plant decommissioning and last cores	14	56,455	56,021
Provisions for employee benefits	15	15,507	16,231
Other provisions	16	5,077	4,671
Non-current provisions		***77,039***	***76,923***
Special French public electricity distribution concession liabilities		49,738	49,459
Non-current financial liabilities	17.2	75,504	71,058
Other non-current liabilities	12.5	5,492	4,968
Deferred tax liabilities		2,810	1,533
Non-current liabilities		**210,583**	**203,941**
Current provisions	14, 15 and 16	10,033	7,943
Trade payables		15,901	23,284
Current financial liabilities	17.2	44,060	71,844
Current tax liabilities		1,662	967
Other current liabilities	12.5	25,841	33,504
Current liabilities		**97,497**	**137,542**
Liabilities classified as held for sale		35	37
TOTAL EQUITY AND LIABILITIES		369,780	388,132

CONSOLIDATED CASH FLOW STATEMENT

(in millions of euros)	Notes	H1 2023	H1 2022
Operating activities:			
Consolidated net income		**5,903**	**(5,155)**
Net income of discontinued operations		**-**	**4**
Net income of continuing operations		**5,903**	**(5,159)**
Impairment/(reversals)		45	253
Accumulated depreciation and amortisation, provisions and changes in fair value		9,389	5,713
Financial income and expenses		1,096	96
Dividends received from associates and joint ventures		384	98
Capital gains/losses		157	103
Income taxes		1,322	(1,841)
Share in net income of associates and joint ventures		(141)	(444)
Change in working capital	12.1.2	(8,020)	6,804
Net cash flow from operations		***10,135***	***5,623***
Net financial expenses disbursed		(1,083)	(424)
Income taxes paid		(1,125)	(202)
Net cash flow from continuing operating activities		**7,927**	**4,997**
Net cash flow from operating activities relating to discontinued operations		**-**	**-**
Net cash flow from operating activities		**7,927**	**4,997**
Investing activities:			
Acquisitions of equity investments, net of cash acquired		33	(70)
Disposals of equity investments, net of cash transferred		62	122
Investments in intangible assets and property, plant and equipment	10.3	(10,052)	(8,703)
Net proceeds from sale of intangible assets and property, plant and equipment		79	26
Changes in financial assets		(1,070)	(11,553)
Net cash flow from continuing investing activities		**(10,948)**	**(20,178)**
Net cash flow from investing activities relating to discontinued operations		**-**	**-**
Net cash flow from investing activities		**(10 948)**	**(20,178)**
Financing activities:			
EDF capital increase	13.1	-	3,148
Transactions with non-controlling interests[1]		862	581
Dividends paid by parent company	13.2	-	(72)
Dividends paid to non-controlling interests		(190)	(139)
Purchases/sales of treasury shares		-	(2)
Cash flows with shareholders		***672***	***3,516***
Issuance of borrowings	17.2.2.1	9,465	15,370
Repayment of borrowings	17.2.2.1	(10,498)	(5,983)
Issuance of perpetual subordinated bonds	13.3	1,377	-
Redemptions of perpetual subordinated bonds	13.3	(820)	-
Payments to bearers of perpetual subordinated bonds	13.3	(300)	(332)
Funding contributions received for assets operated under concessions and investment subsidies		101	169
Other cash flows from financing activities		***(675)***	***9,224***
Net cash flow from continuing financing activities		**(3)**	**12,740**
Net cash flow from financing activities relating to discontinued operations		**-**	**-**
Net cash flow from financing activities		**(3)**	**12,740**
Net cash flow from continuing operations		(3,024)	(2,441)
Net cash flow from discontinued operations		-	-
Net increase/(decrease) in cash and cash equivalents		**(3,024)**	**(2,441)**
CASH AND CASH EQUIVALENTS - OPENING BALANCE		10,948	9,919
Net increase/(decrease) in cash and cash equivalents		(3,024)	(2,441)
Currency fluctuations		36	(99)
Financial income on cash and cash equivalents		96	28
Other non-monetary changes		18	11
CASH AND CASH EQUIVALENTS - CLOSING BALANCE		8,074	7,418

[1] In 2023 these transactions include an amount of €776 million corresponding to CGN's capital injections into NNB Holding Company (HPC) Ltd, and the UK government's capital injection into Sizewell C (Holding) Ltd. In 2022 they included an amount of €613 million relating to CGN's contributions to capital increases by the same companies.

CHANGE IN CONSOLIDATED EQUITY

Details of the change in equity between 1 January and 30 June 2023 are as follows:

(in millions of euros)	Capital	Treasury shares	Translation adjustments	Fair value adjustment of financial instruments (OCI with recycling)[1]	Other consolidated reserves and net income[2]	Equity (EDF share)	Equity (non-controlling interests)	Total equity
Equity at 31/12/2022	1,944	(7)	(175)	(7,451)	40,029	34,340	12,272	46,612
Gains and losses recorded in equity	-	-	616	4,843	592	6,051	314	**6,365**
Net income	-	-	-		5,808	5,808	95	**5,903**
Consolidated comprehensive income	**-**	**-**	**616**	**4,843**	**6,400**	**11,859**	**409**	**12,268**
Payments on perpetual subordinated bonds	-	-	-	-	(300)	(300)	-	**(300)**
Issuance/Redemption of perpetual subordinated bonds and OCEANE bonds	141	-	-	-	2,258	2,399	-	**2,399**
Dividends paid	-	-	-	-	-	-	(209)	**(209)**
Other changes[3]	-	-	-	(1)	(344)	(345)	1,240	**895**
EQUITY AT 30/06/2023	2 085	(7)	441	(2,609)	48,043	47,953	13,712	61,665

[1]Changes in reserves recorded in OCI (Other Comprehensive Income) with recycling are shown in the Statement of Comprehensive Income. They correspond to the effects of fair value adjustments of debt securities and financial instruments hedging cash flows and net foreign investments, and amounts recycled to profit and loss in respect of terminated contracts and debt instruments transferred. They also include changes in the value of hedging costs resulting from the foreign currency basis spread on cross-currency swaps.

[2]Fair value changes recorded in OCI with no recycling are presented in this column.

[3]In the first half of 2023, "Other changes" in equity (non-controlling interests) include the capital increases funded by CGN for NNB Holding (HPC) Ltd. (€525 million) and by the UK Government for NNB Holding (SZC) Ltd (€251 million).

Details of the change in equity between 1 January and 30 June 2022 are as follows:

(in millions of euros)	Capital	Treasury shares	Translation adjustments	Fair value adjustment of financial instruments (OCI with recycling)[1]	Other consolidated reserves and net income[2]	Equity (EDF share)	Equity (non-controlling interests)	Total equity
Equity at 31/12/2021	1,619	(14)	828	(4,474)	52,252	50,211	11,778	61,989
Gains and losses recorded in equity	-	-	131	2,048	9,232	**11,411**	(157)	**11,254**
Net income	-	-	-	-	(5,293)	**(5,293)**	138	**(5,155)**
Consolidated comprehensive income	**-**	**-**	**131**	**2,048**	**3,939**	**6,118**	**(19)**	**6,099**
Payments on perpetual subordinated bonds	-	-	-	-	(332)	**(332)**	-	**(332)**
Dividends paid	-	-	-	-	(1,050)	**(1,050)**	(159)	**(1,209)**
Purchases/sales of treasury shares	-	(2)	-	-	-	**(2)**	-	**(2)**
EDF capital increase (see note 13.1)	315	-	-	-	3,812	**4,127**	-	**4,127**
Other changes[3]	-	-	-	-	35	**35**	611	**646**
EQUITY AT 30/06/2022	1,934	(16)	959	(2,426)	58,656	59,107	12,211	71,318

[1]Changes in reserves recorded in OCI (Other Comprehensive Income) with recycling are shown in the Statement of Comprehensive Income. They correspond to the effects of fair value adjustments of debt securities and financial instruments hedging cash flows and net foreign investments, and amounts recycled to profit and loss in respect of terminated contracts and debt instruments transferred.

[2]Fair value changes recorded in OCI with no recycling are presented in this column.

[3]In the first half of 2022, "Other changes" in equity (non-controlling interests) include the effect of capital increases funded by CGN for NNB Holding Ltd. and Sizewell C Holding Co. amounting to €613 million.
"Other changes" also include a €44 million difference corresponding to the expense of the Employee Reserved Offering (ERO) (see note 7).

NOTES TO THE CONSOLIDATED FINANCIAL STATEMENTS

NOTES TO THE CONSOLIDATED FINANCIAL STATEMENTS

Electricité de France (EDF or the “Company”) is a French *société anonyme* governed by French law, and registered in France (22-30, avenue de Wagram, 75008 Paris).

The condensed consolidated financial statements (hereafter called "the consolidated financial statements") reflect the accounting position of the Company and its subsidiaries (which together form the “Group”) and the Group’s interests in associates, joint arrangements classified as joint operations, and joint ventures, for the half-year ended 30 June 2023.

The Group is an integrated energy operator engaged in all aspects of the energy business: power generation (nuclear power, hydropower, wind and solar power, thermal energy, etc.), transmission, distribution, supply, trading, energy services, production of equipment and fuel assemblies, and reactor services.

The Group’s consolidated financial statements at 30 June 2023 were prepared under the responsibility of the Board of Directors and approved by the Directors at the Board meeting held on 26 July 2023.

NOTE 1 GROUP ACCOUNTING POLICIES

1.1 DECLARATION OF CONFORMITY AND GROUP ACCOUNTING POLICIES

Pursuant to European regulation 1606/2002 of 19 July 2002 on the adoption of international accounting standards, the EDF group’s consolidated financial statements at 30 June 2023 are prepared under the presentation, recognition and measurement rules set out in the international accounting standards published by the IASB and approved by the European Union for application at 30 June 2023. These international standards are IAS (International Accounting Standards), IFRS (International Financial Reporting Standards), and SIC and IFRIC interpretations.

The consolidated half-year financial statements comply with standard IAS 34 “Interim financial reporting”. They do not therefore include all the information required for full annual financial statements and are to be read in conjunction with the consolidated financial statements at 31 December 2022.

Apart from changes in accounting standards, detailed in note 1.2, and the valuation methods specific to interim financial reporting described in note 1.4, the accounting principles and valuation methods are identical to those applied and described in note 1.3 and in individual notes to the consolidated financial statements at 31 December 2022.

1.2 CHANGES IN ACCOUNTING STANDARDS

1.2.1 Amendments to IAS 12 “Income taxes" - Deferred tax related to assets and liabilities arising from a single transaction

As of 1 January 2023, entities are required to recognise deferred taxes on transactions that give rise upon initial recognition to equal amounts of taxable and deductible temporary differences.

The amendments to IAS 12 are intended to clarify the treatment of deferred taxes associated with lease agreements and decommissioning costs. They make it mandatory to recognise a deferred tax asset and a deferred tax liability for all deductible and taxable temporary differences on such transactions.

As the Group already recognised a net deferred tax amount equal to the difference between deductible and taxable temporary differences on lease agreements and decommissioning costs. Application of these amendments does not have any material impact on its consolidated financial statements. The only change will concern the breakdown of deferred taxes by nature to be provided in the notes to the annual financial statements, starting from the 2023 year-end.

1.2.2 IFRS 17 “Insurance contracts”

IFRS 17 defines the recognition, measurement, presentation and disclosure principles for insurance contracts that fall within the standard’s scope of application.

The Group has not noted any material impact resulting from application of this standard, largely because the insurance operations of captive companies are internal to the Group since the only beneficiaries are subsidiaries, and are therefore eliminated in consolidation.

1.2.3 Other amendments

The following amendments, which have been applicable since 1 January 2023, have no impact on the Group's financial statements:

- IAS 1 "Presentation of financial statements" – Disclosure of accounting policies;
- IAS 8 "Accounting policies, changes in accounting estimates and errors" - Definition of accounting estimates.

1.2.4 Interest Rate Benchmark Reform - Amendments to IFRS 9, IAS 39, IFRS 7, IFRS 4 and IFRS 16

These amendments have been applicable since 1 January 2021 to financial assets and liabilities for which contractual modifications result directly from the interest rate reform.

This reform is applied prospectively, with no impact on profit and loss, keeping the hedging relationships for the instruments concerned. Its effects are mainly operational (renegotiation of contracts, fallback provisions, information system upgrades).

The replacement operations for the last benchmark rate, USD Libor, were completed in line with its cessation at 30 June 2023.

1.3 MANAGEMENT JUDGMENTS AND ESTIMATES

The preparation of the financial statements requires the use of judgments, best estimates and assumptions in determining the value of assets and liabilities, income and expenses recorded for the period, considering positive and negative contingencies existing at the closing date. The figures in the Group's future financial statements could differ significantly from current estimates due to changes in these assumptions or economic conditions.

In a context characterised by financial and energy market volatility, the parameters used to prepare estimates are based on macro-economic assumptions appropriate to the very long-term cycle of Group assets.

The Group's main estimates and judgments are described in note 1.3.4 to the consolidated financial statements at 31 December 2022.

1.4 VALUATION METHODS SPECIFIC TO INTERIM FINANCIAL STATEMENTS

The following valuation methods specific to interim financial statements have been applied:

1.4.1 Employee benefits

The amount of the obligation corresponding to post-employment benefits and other long-term benefits at 30 June is calculated by projecting the prior year obligation over one half-year, taking into account the benefits paid out and the changes in fund assets, adjusted due to plan modifications where relevant.

In the event of amendment, curtailment or settlement during the accounting period, the actuarial assumptions and the amount of the obligation are updated at the date of the change. The current service cost and the net interest expense on defined benefits are adjusted accordingly from that date.

In all other situations, the actuarial assumptions used to calculate employee benefits for interim financial statements differ from those used for the previous annual financial statements if significant developments arise for certain parameters (for example the discount rate) (see note 15.2).

1.4.2 Income taxes

For interim financial statements, income tax (current and deferred) is generally calculated by applying the last known estimated effective tax rate for the current year, for each entity or tax group, to the relevant companies' pre-tax income.

1.5 SEASONAL NATURE OF THE BUSINESS

Interim sales and operating profit before depreciation and amortisation are affected by significant seasonal factors in the calendar year, principally in France. The variations observed are mainly associated with nuclear power generation, weather conditions, the regulated tariff structure and changes in market prices specific to each period.

NOTE 2 SUMMARY OF SIGNIFICANT EVENTS

The main significant events and transactions for the Group **in the first half of 2023** are the following:

- **Operation on the Group's capital:**
  - Decision of the Paris Court of Appeal dismissing the claim lodged by minority shareholders seeking the annulment of the AMF clearance decision – Reopening of the simplified public tender offer for the equity securities of EDF (see the Group press release of 2 May 2023);
  - The result of the reopened simplified public tender offer for the equity securities of EDF was published (see the Group press release of 23 May 2023, and note 13 to the consolidated financial statements at 30 June 2023);
  - Implementation of the squeeze-out procedure in respect of the equity securities of EDF (see the Group press release of 8 June 2023, and note 13 to the consolidated financial statements at 30 June 2023).
- **Nuclear developments:**
  - EDF proposed an update to its strategy for controlling stress corrosion (see the Group press releases of 16 March and 26 April 2023, and note 10.2 to the consolidated financial statements at 30 June 2023);
  - EDF announced the creation of its subsidiary NUWARD to boost development of its SMR, which is now entering the basic design phase (see the Group press release of 30 March 2023, and note 10.2 to the consolidated financial statements at 30 June 2023);
  - EDF and Trimet signed a long-term contract for electricity supply (see the Group press releases of 26 June 2023);
  - The EDF Group filed requests for authorisations to build the first pair of EPR2 reactors on the Penly site (see the Group press release of 29 June 2023, and note 10.2 to the consolidated financial statements at 30 June 2023).
- **Financing operations:**
  - EDF announced a successful senior multi-tranche bond issue with nominal value of €2 billion and £950 million (see the Group press release of 19 January 2023, and note 17.2.2.2 to the consolidated financial statements at 30 June 2023);
  - The French State requested conversion of EDF's OCEANE bonds by 2024 (see the Group press releases of 28 February 2023 and 24 May 2023, and note 13.4 to the consolidated financial statements at 30 June 2023);
  - EDF announced a senior multi-tranche bond issue for a nominal amount of US$3 billion and CAD500 million (see the Group press release of 18 May 2023, and note 17.2.2.1 to the consolidated financial statements at 30 June 2023);
  - EDF intends to issue new US dollar-denominated hybrid notes and launches a tender offer on outstanding US dollar-denominated hybrid notes (see the Group press release of 6 June 2023, and note 13.3 to the consolidated financial statements at 30 June 2023);
  - EDF announces the success of its hybrid notes issue for a nominal amount of $1.5 billion and the ongoing tender offer to purchase notes for cash announced on 6 June 2023 (see the Group press release of 9 June 2023, and note 13.3 to the consolidated financial statements at 30 June 2023);
  - EDF announced the success of its senior multi-tranche bond issue for a nominal amount of ¥33 billion (see the Group press release of 22 June 2023);
  - EDF announced the final results of its tender offer for outstanding US dollar-denominated hybrid notes (see the Group press release of 7 July 2023, and note 13.3 to the consolidated financial statements at 30 June 2023).
- **Disposals:**
  - EDF completed the sale of its interest in the Sloe CCGT plant (870MW) in the Netherlands (see the Group press release of 25 January 2023, and note 3.1.1 to the consolidated financial statements at 30 June 2023);
  - Imtech, a Dalkia group company in the United Kingdom, completed an agreement with Duke Street for the sale of its subsidiary Suir Engineering (see the Dalkia press releases of 1 February 2023, and note 3.1.1 to the consolidated financial statements at 30 June 2023).
- **Renewable energies:**
  - The EDF group and Maple Power were awarded a 1GW offshore wind project wind off the coast of Normandy (see EDF Renewables and the Group press release of 27 March 2023; and note 11.2 to the consolidated financial statements at 30 June 2023).
- **Other significant events for the Group:**
  - Decision of the Conseil d'Etat on the appeal concerning the cancellation of the allocation of 20TWh of electricity additional ARENH for 2022 (see the Group press release of 5 February 2023, and note 5.1.1 to the consolidated financial statements at 30 June 2023).

The main significant events and transactions for the Group **in 2022** were the following:

- **Operation on the Group's capital:**
  - The simplified public tender offer for the equity securities of EDF opened (see the Group press release of 23 November 2022);
  - The result of the simplified public tender offer for the equity securities of EDF was published (see the Group press release of 8 February 2023, and notes 13.1 and 3.2 to the consolidated financial statements at 31 December 2022).;
- **Nuclear developments:**
  - Zero-carbon electricity generation ended and defueling began at Hunterston B (see the EDF Energy press releases of 7 January 2022 and 17 May 2022, and note 15 to the consolidated financial statements at 31 December 2022);
  - Flamanville EPR updates were released (see the Group press releases of 12 January and 16 December 2022, and note 10.2 to the consolidated financial statements at 31 December 2022) ;
  - EDF updated its estimated nuclear output in France for 2022 in accordance with the Group press releases of 13 January, 7 February, 11 February, 15 September and 3 November 2022;
  - An update was released on the stress corrosion phenomenon and the 2022 French nuclear output estimate was adjusted (see the Group press release of 19 May 2022, and notes 5 and 10.6 to the consolidated financial statements at 31 December 2022);
  - Hinkley Point C update: the project schedule and costs were reviewed (see the Group press release of 19 May 2022, and notes 10.6 and 10.8 to the consolidated financial statements at 31 December 2022);
  - Sizewell C updates were released: A major milestone was reached as the UK Government granted the Development Consent Order to Sizewell C (see the EDF Energy press release of 20 July 2022) and EDF welcomed the UK government's decision to cofinance development of the Sizewell C project (see the Group press release of 29 November 2022, and note 10.6 to the consolidated financial statements at 31 December 2022);
  - EDF signed an exclusive agreement to acquire part of GE Steam Power's Nuclear Activities (see the Group press release of 10 February 2022 and 4 November 2022, and note 3.1.2 to the consolidated financial statements at 31 December 2022).
- **Disposals:**
  - Edison signed an agreement to sell its stake in North Reggane to Repsol and Wintershall Dea (see the Edison press releases of 5 May 2022 and 29 June 2022, and note 3.1.2 to the consolidated financial statements at 31 December 2022);
  - EDF Trading sold its north American retail business to bp (see the EDF Trading press release of 12 September and 30 November 2022, and note 3.1.2 to the consolidated financial statements at 31 December 2022);
  - EDF completed the sale of its interest in the Sloe CCGT plant (870MW) in the Netherlands (see the Group press releases of 27 September 2022, and note 3.1.2 to the consolidated financial statements at 31 December 2022);
  - Imtech, a Dalkia group company in the United Kingdom, signed an agreement with Duke Street for the sale of its subsidiary Suir Engineering (see the Dalkia press releases of 14 November 2022, and note 3.1.2 to the consolidated financial statements at 31 December 2022).
- **Other significant events:**
  - Exceptional measures were announced by the French Government (see the Group press release of 13 January 2022, and note 5 to the consolidated financial statements at 31 December 2022);
  - EDF issued a statement concerning the decision made by the French Competition Authority (see the Group press release of 22 February 2022, and note 17 to the consolidated financial statements at 31 December 2022);
  - Following publication of the decree and orders relating to the additional allocation of 20TWh of ARENH volumes for 2022, an update of the impact on the 2022 EBITDA outlook was released (see the Group press release of 14 March 2022, and notes 5 and 17.2 to the consolidated financial statements at 31 December 2022 to the consolidated financial statements at 31 December 2022);
  - An appeal was filed concerning the allocation of additional ARENH electricity volumes for 2022 (see the Group press release of 9 August 2022 and 27 October 2022, and note 5.1.1 to the consolidated financial statements at 31 December 2022 to the consolidated financial statements at 31 December 2022).

NOTE 3 SCOPE OF CONSOLIDATION

3.1 CHANGES IN THE SCOPE OF CONSOLIDATION

3.1.1 Changes in the scope of consolidation in the first half of 2023

The following main changes took place in the Group's scope of consolidation during the first half of 2023:

- sale of the investment in the Sloe CCGT plant in the Netherlands to EPH, an energy producer and operator of the Czech electricity grid, on 25 January 2023. EDF was a 50% owner and operator of the plant, alongside its partner Pzem.

  This transaction has an impact of €0.2 billion on the Group's income statement in 2022 (principally due to reversal of a provision for onerous contracts that is no longer relevant) and will have a non-significant impact on the Group's net indebtedness in 2023.
- sale of 100% of Suir Engineering by Imtech to the private equity fund Duke Street on 1 February 2023. This transaction has a positive impact of €0.1 billion on the Group's net indebtedness in 2023, and a non-material impact on consolidated net income.

The following operations for which binding agreements were signed in 2022 are still in progress:

- sale by Edison of its stake in the North Reggane licence in Algeria;

On 4 May 2022, Edison announced that it had signed an agreement with Wintershall Dea Algeria Gmbh for the sale of its 11.25% stake in the North Reggane gas field licence in Algeria, completing the divestment of all its Exploration and Production (E&P) operations.

On 29 June 2022, after Repsol exercised its pre-emption right, this agreement was amended to reflect the sale of Edison's stake in the North Reggane licence to Repsol (6.75%) and Wintershall Dea (4.50%).

The corresponding assets and liabilities were classified as assets held for sale and related liabilities at 31 December 2022 (see note 3.2 to the consolidated financial statements at 31 December 2022). Completion of the sale requires certain authorisations, which are expected in the second half of 2023.

- acquisition by EDF of GE Steam Power's nuclear activities

On 4 November 2022, GE and EDF signed a final agreement related to EDF's acquisition of GE Steam Power's nuclear activities. These activities include the manufacturing of conventional island equipment for new nuclear power plants, including the Arabelle steam turbine as well as maintenance and upgrade activities for existing nuclear power plants in all regions other than the Americas. The transaction also includes steam turbine technology for first and second-generation European pressurized reactors (EPR and EPR2) and small modular reactors (SMR).

This acquisition will enable EDF group to strengthen the conventional island technologies and skills, which are essential for the durability of the existing nuclear fleet and future projects.

The transaction is expected to close in the second half of 2023 and is subject to customary closing conditions including regulatory approvals. So far, the French, British, Finnish, Moroccan and South African competition authorities have given it unconditional clearance. Foreign investment approval has also been granted by Sweden and Romania. The operation is still awaiting foreign investment approval from the UK and regulatory authorisations from Russia.

3.1.2 Changes in the scope of consolidation in 2022

The following changes in the Group's scope of consolidation took place during 2022 (see note 3.1.1 to the consolidated financial statements at 31 December 2022):

- acquisition by Imtech (a Dalkia subsidiary) of SPIE UK on 19 December 2022. This acquisition has no significant impact on the Group's financial statements;
- EDF Trading Limited sold its subsidiary EDF Energy Services LLC (EDFES), which covers the retail businesses of EDF Trading North America, on 30 November 2022. EDF Trading's business in Europe and Asia and its wholesale trading business in North America were unaffected by this transaction, which reduced the Group's net indebtedness by €0.5 billion in 2022.

3.2 RELATED PARTIES

There have been no significant changes since 31 December 2022 in the types of transaction undertaken with related parties. In particular, the Group has significant ongoing relationships with public-sector enterprises, primarily the Orano Group for the supply, transport and reprocessing of nuclear fuel.

NOTE 4 SEGMENT REPORTING

Segment reporting presentation complies with IFRS 8 "Operating segments".

Segment reporting is determined before inter-segment eliminations and where applicable comprises the effects on profit and loss of asset and liability revaluations due to business combinations, in accordance with IFRS 3.

At 30 June 2023

(in millions of euros)	France – Generation and Supply	France – Regulated activities	Framatome	United Kingdom	Italy	Other international	EDF Renewables	Dalkia	Other activities(1)	Inter-segment eliminations	Total
Income statement:											
External sales	32,104	9,948	955	12,112	9,541	2,856	698	3,023	4,262	-	75,499
Inter-segment sales	2,518	30	1,004	28	2	243	287	388	393	(4,893)	-
TOTAL SALES	**34,622**	**9,978**	**1,959**	**12,140**	**9,543**	**3,099**	**985**	**3,411**	**4,655**	**(4,893)**	**75,499**
OPERATING PROFIT BEFORE DEPRECIATION AND AMORTISATION	**8,641**	**1,176**	**307**	**2,266**	**828**	**508**	**433**	**220**	**1,924**	**(197)**	**16,106**
OPERATING PROFIT	**5,451**	**(595)**	**144**	**1,893**	**442**	**(5)**	**88**	**5**	**1,528**	**(197)**	**8,754**
Goodwill	**132**	**223**	**1,450**	**6,758**	**155**	**50**	**187**	**620**	**142**	**-**	**9,717**
Intangible assets and property, plant and equipment	**62,066**	**69,818**	**2,891**	**30,786**	**5,906**	**2,244**	**12,372**	**2,316**	**464**	**-**	**188,863**
Investments in intangible assets and property, plant and equipment	**3,180**	**2,562**	**122**	**2,580**	**158**	**155**	**1,173**	**111**	**11**	**-**	**10,052**
- Purchases of assets	2,700	2,408	141	2,712	157	157	1,051	109	11	-	9,446
- Change in liabilities related to purchases of assets	480	154	(19)	(132)	1	(2)	122	2	-	-	606

(1) Sales by the "Other activities" segment include the €2,233 million trading margin realised by EDF Trading.

At 30 June 2022

(in millions of euros)	France – Generation and Supply	France – Regulated activities	Framatome	United Kingdom	Italy	Other international	EDF Renewables	Dalkia	Other activities(1)	Inter-segment eliminations	Total
Income statement:											
External sales	22,804	9,475	989	6,898	12,996	2,473	640	2,726	7,261	-	**66,262**
Inter-segment sales	958	103	988	6	21	112	411	485	436	(3,520)	**-**
TOTAL SALES	**23,762**	**9,578**	**1,977**	**6,904**	**13,017**	**2,585**	**1,051**	**3,211**	**7,697**	**(3,520)**	**66,262**
OPERATING PROFIT BEFORE DEPRECIATION AND AMORTISATION	**(4,988)**	**3,171**	**321**	**860**	**622**	**291**	**500**	**185**	**1,845**	**(135)**	**2,672**
OPERATING PROFIT	**(8,054)**	**1,364**	**172**	**298**	**345**	**99**	**111**	**(98)**	**1,402**	**(135)**	**(4,496)**
Goodwill	**127**	**223**	**1,450**	**7,928**	**125**	**50**	**187**	**588**	**142**	**-**	**10,820**
Intangible assets and property, plant and equipment	**60,198**	**67,803**	**2,821**	**25,993**	**5,769**	**1,980**	**11,486**	**2,237**	**505**	**-**	**178,792**
Investments in intangible assets and property, plant and equipment	**2,842**	**2,385**	**102**	**2,010**	**202**	**60**	**1,012**	**78**	**12**	**-**	**8,703**
- Purchases of assets	2,395	2,234	123	2,126	201	68	853	88	11	-	***8,099***
- Change in liabilities related to purchases of assets	447	151	(21)	(116)	1	(8)	159	(10)	1	-	***604***

(1) Sales by the "Other activities" segment include the €2,098 million trading margin realised by EDF Trading.

NOTE 5 OPERATING PROFIT BEFORE DEPRECIATION AND AMORTISATION

(in millions of euros)	Notes	30/06/2023	30/06/2022
Sales	**5.1**	**75,499**	**66,262**
Fuel and energy purchases	**5.2**	**(48,899)**	**(48,238)**
External services		(7,866)	(6,774)
Other purchases (excluding external services, fuel and energy)		(2,117)	(2,056)
Change in inventories and capitalised production		5,736	4,785
(Increase)/decrease in provisions on other external expenses		130	126
Other external expenses[(1)]		**(4,117)**	**(3,919)**
Personnel expenses		**(8,201)**	**(7,286)**
Taxes other than income taxes	**5.3**	**(2,714)**	**(2,383)**
Other operating income and expenses	**5.4**	**4,538**	**(1,764)**
Operating profit before depreciation and amortisation		16,106	2,672

The Group's consolidated operating profit before depreciation and amortisation for the first half of 2023 amounts to €16,106 million, up by €13,434 million compared to the first half of 2022.

After elimination of foreign exchange effects and changes in the scope of consolidation, the Group's operating profit before depreciation and amortisation showed an organic increase of +€13,492 million. This growth is principally explained by the contributions of the France - Generation and Supply segment (+€13,639 million) and the United Kingdom segment (+€1,440 million), in opposition, a decrease on the France - Regulated activities (€(1,995) million).

The change in consolidated operating profit before depreciation and amortisation includes an increase in personnel expenses (€(931) million) or 12.8%, reflecting pay measures adopted in environments marked by inflation.

In the **France – Generation and Supply** segment, the organic increase of +€13,639 million in the operating profit before depreciation and amortisation is mainly explained by favourable price effects, since in the first half of 2023, unlike the first half of 2022, there were no exceptional regulatory measures penalising the Group, and the caps and buffers introduced in 2022 to limit tariffs (which penalised sales revenues) have now been compensated by the State through the CSPE mechanism (in other operating income and expenses). The operating profit before depreciation and amortisation was also boosted by higher output of nuclear power (+4.0TWh) and hydropower (+1.1TWh) compared to the first half of 2022.

The organic growth of +€1,440 million in the **United Kingdom** segment's operating profit before depreciation and amortisation is essentially due to price effects (realised nuclear prices rose by +£12/MWh), despite a 5.1TWh decrease in nuclear power output that was mostly attributable to the closure of the Hinkley Point B plant in August 2022.

In the **France – Regulated activities** segment, the organic decline of €(1,995) million in operating profit before depreciation and amortisation is mainly due to a price effect at Enedis, relating to purchases to compensate for 2023 network losses contractualised in 2022 in a high market price environment, which had no equivalent in the first half of 2022.

5.1 SALES

5.1.1 Regulatory changes in France

Regulated electricity sales tariffs in France – "Blue" tariffs

The framework for the "blue" regulated electricity sales tariffs is described in note 5.1.1 to the consolidated financial statements at 31 December 2022.

Tariff changes

In accordance with article L. 337-4 of the French Energy Code, the French Energy Regulatory Commission "CRE" (*Commission de Régulation de l'Énergie*) is responsible for sending the Ministers for the Economy and Energy its reasoned proposals for regulated sales tariffs for electricity. If no objections are made within three months, the proposals are deemed to have been approved.

The comparability of sales revenues between the first half-years of 2022 and 2023 is affected by the following tariff changes:

Date of the CRE proposal	Increase in "blue" residential customer tariffs (inc. taxes / excl. taxes)	Increase in "blue" non- residential customer tariffs (inc. taxes/excl. taxes)	Date of the tariff decision	Date of application
08/07/2021	0.48% / 1.08%	0.38% / 0.84%	29/07/2021	01/08/2021
18/01/2022	4% / 24.3%	4% / 23.6%	28/01/2022	01/02/2022
07/07/2022	No change	No change	28/07/2022	01/08/2022
19/01/2023	15% / 20%	15% / 19.9%	31/01/2023	01/02/2023
22/06/2023	10% / 10%	10% / 10%	forthcoming(1)	01/08/2023

(1) *Subject to approval.*

From 1 February 2023, the French government decided to prolong the tariff cap, limiting the increase in regulated electricity sales tariffs to 15% (including taxes) above prices since 1 February 2022, for all categories of eligible consumers.

The proposal submitted on 17 July 2023 to the Higher Energy Council (*Conseil supérieur de l'énergie*) for its meeting of 25 July 2023 confirms the prolongation of the tariff cap, but with a further increase in regulated sales tariffs for electricity, of 10% including taxes compared to prices at 30 June 2023.

Article 181 of the Finance Law for 2023, adopted on 30 December 2022, thus stipulates that if the reasoned proposals for regulated sales tariffs presented by the CRE lead to tariffs defined under article R.337-18 of the same code that are more than 15% higher than the tariffs applicable at 31 December 2022, the Ministers for the Economy, Energy and the Budget may object to the CRE's proposals and by joint decision set a lower level accounting for 95% of the tariff applied for customers' consumption, in order to serve the objective of price stability.

In such an event, the law defines a mechanism to compensate EDF and the local distribution companies for the loss of income on their regulated-tariff offerings, and to compensate all suppliers for the loss of income on market-price offerings for residential and non-residential customers eligible for regulated sales tariffs, *via* the compensation for public service charges (CSPE).

In a decision of 19 January 2023, the CRE proposed an increase of 99.36% including taxes (108.91% excluding taxes) in the "blue" tariffs for residential customers and 97.94% including taxes (106.88% excluding taxes) in the "blue" tariffs for non-residential customers from 1 February 2023. This proposed increase was primarily justified by:

- the exceptionally high prices on the wholesale markets for delivery in 2023, which have been at record levels for more than a year;
- the outstanding consequences of the tariff cap applied in 2022, to reflect the ultimate reality of the costs involved in the "cost stacking" including the effects of the additional 20TWh of ARENH supplies.

In line with the tariff cap, this proposal was rejected by the Ministers for the Economy and Energy, who set the increase in the "blue" tariffs for residential and non-residential customers at 15% including taxes (20% and 19.9% respectively excluding taxes) through tariff orders of 30 January 2023, published in the *Journal officiel* of 31 January 2023 and implemented from 1 February 2023.

The Group therefore recognised compensation receivable in the income statement at 30 June 2023, for the €6.5 billion loss of income (see note 5.4).

In a decision of 22 June 2023, the CRE proposed an increase of 0.88% including taxes (0.84% excluding taxes) in the "blue" tariffs for residential customers, and a decrease of 0.32% including taxes (0.35% excluding taxes) in the "blue" tariffs for non-residential customers from 1 August 2023. This proposal was justified primarily by the change in the TURPE tariffs for access to the public electricity network from 1 August 2023, which was partly offset by a downward revision to the catch-up adjustment for 2022, particularly for non-residential customers.

These developments led the CRE to consider the theoretical tariff to be 74.5% higher (including taxes) than the frozen tariffs in place since 1 February 2023.

In view of the above, by virtue of article 181 of France's Finance Law adopted on 30 December 2022 for 2023, the government submitted a proposal to the Higher Energy Council (*Conseil supérieur de l'énergie*) on 25 July 2023 in a consultative capacity. This proposal recommends an average increase of 10% (including taxes) in the "blue" residential and non-residential tariffs from 1 August 2023.

Section IX of article 181 of France's Finance Law adopted on 30 December 2022 for 2023 introduced an "electricity buffer" mechanism to help businesses and local authorities that were not eligible for the national tariff cap cope with the increase in their contracted electricity prices in 2023. This support is applicable to very small businesses with subscribed power above 36kVA, small and medium businesses, and local authorities.

Decree 2022-1774 of 31 December 2022 defined the terms for application of the electricity buffer: eligible customers benefit from a 50% reduction in the price of volumes consumed over a given month (up to a maximum of 90% of regular levels based on their past consumption), calculated as the difference between the average price of the variable component of their contract for 2023, excluding taxes and the TURPE charge, and the reference price of €180/MWh. The reduction is capped at €320/MWh.

In addition to this mechanism, decree 2023-61 of 3 February 2023 amending decree 2022-1774 of 31 December 2022 changed the parameters for applying the buffer to very small businesses' sites with subscribed power of over 36kVA where the average variable price component per MWh excluding taxes and delivery under their 2023 power supply contract is above the annual average of €280/MWh. In such cases the price reduction applies to 100% of the volume consumed, and is calculated as the difference between the average price of the variable component of their contract and the reference price of €230/MWh, with a cap of €1500/MWh (instead of €320/MWh).

At 30 June 2023 the "electricity buffer" represented a loss of income of €642 million, and the corresponding compensation receivable has been recorded in operating subsidies.

"TURPE" Network access tariffs

The costs borne by the network operators Enedis and RTE for management of the public electricity distribution and transmission networks are covered, provided they are in line with the costs of an efficient network operator, by the "TURPE" tariffs for using the networks, as stipulated in Articles L. 341 - 2 and following of the French Energy Code.

These tariffs apply to users connected to the distribution and transmission networks.

TURPE 6 Distribution and Transmission tariffs

The CRE issued two decisions of 21 January 2021 (published in France's *Journal Officiel* 0096 of 23 April 2021) on the TURPE 6 Transmission (high voltage) and TURPE 6 Distribution (medium voltage – low voltage), after the Higher Energy Council (*Conseil supérieur de l'énergie*) gave its approval. These tariffs apply from 1 August 2021 for a period of approximately 4 years.

For distribution expenses, in its tariff decision 2021-13 of 21 January 2021, the CRE set the margin on assets at 2.5% and the additional return on regulated equity at 2.3%. The average tariff increase was +0.91% at 1 August 2021. In decision 2022-158 of 9 June 2022, the CRE set the increase in the average TURPE Distribution tariff from 1 August 2022 at +2.26%. In its decision 2023-137 of 31 May 2023, the rise in the average TURPE Distribution tariff from 1 August 2023 was set at +6.51%.

For transmission expenses, in its tariff decision 2021-12 of 21 January 2021, the CRE set a nominal pre-tax weighted average cost of capital (WACC) of 4.6% for the return on RTE's regulated asset base. The average tariff increase was +1.09% at 1 August 2021. In decision 2022-157 of 9 June 2022, the CRE set the change in the average TURPE Transmission tariff from 1 August 2022 at -0.01%. In its decision 2023-136 of 31 May 2023, the rise in the average TURPE Transmission tariff from 1 August 2023 was set at +6.69%.

In its decision 2022 - 317 of 1 December 2022, the CRE adapted the price regulation framework to make the TURPE 6 (high voltage) and TURPE 6 (medium voltage – low voltage) tariffs incorporate the impact of wholesale electricity prices on the business of RTE and Enedis, particularly by refocusing certain incentives on purchase volumes and losses, rather than on prices.

In another decision, 2022 - 323 of 8 December 2022, the CRE decided to put in place an exceptional advance payment, to users of the public electricity transmission network, of part of the balance of RTE's income and expense adjustment account (CRCP). This surplus paid into the CRCP for 2022 essentially resulted from particularly high interconnection income in a context of significant growth and volatility in wholesale electricity prices at European level. The exceptional payment has had a direct effect for users connected to France's public transmission network operated by RTE, including Enedis, who received a one-off payment from RTE before 15 March 2023. The Group therefore recognised a sales credit receivable from RTE at 31 December 2022, amounting to €1,723 million (see note 13.3.4 to the consolidated financial statements at 31 December 2022).

ARENH

General description of the scheme

The ARENH (*Accès régulé à l'énergie nucléaire historique*) scheme for regulated access to historic nuclear power, set up in 2011 and due to end on 31 December 2025, allows alternative suppliers to purchase electricity from EDF to supply their final customers, after signing a framework agreement, at a regulated price for set quantities determined under the provisions of the French Energy Code. This scheme is also open to network operators to cover their energy losses.

The ARENH price, determined by the Ministers for Energy and the Economy following a proposal by the CRE, has been fixed at €42/MWh since January 2012. This includes delivery of the electricity and has incorporated the associated capacity guarantees since 2017.

The maximum total ARENH volume that can be sold by law to suppliers who apply to the scheme to cover the needs of their final customers is set by ministerial order and cannot exceed a legal ceiling. Until 31 December 2019, the ceiling was 100TWh per year. It was then raised to 150TWh by the Energy and Climate law of 8 November 2019.

The "MUPPA" law of 16 August 2022 law introducing urgent measures to protect purchasing power reduced this official ceiling to 120TWh. The MUPPA law also set a minimum ARENH price of €49.50/MWh, although its application is conditional on prior approval by the European Commission.

Additional ARENH scheme measures for 2022

On 13 January 2022 the French government announced further exceptional measures to limit the rise in electricity prices for consumers in 2022. These measures included EDF making an additional 20TWH of ARENH volume available to eligible suppliers over the period 1 April to 31 December 2022, at the price of €46.20/MW

The terms for application of this measure were laid down in a decree of 11 March 2022 and four ministerial orders. Eligible suppliers wishing to benefit from these additional volumes at the price of €46.20/MWh during the period 1 April to 31 December 2022 were required by the decree to sell EDF an equivalent volume to the volume sold to them by EDF under the ARENH scheme, at the price of €256.98/MWh (the average wholesale market price between 2 and 23 December 2021 for baseload electricity for delivery in mainland France in 2022). To allocate the additional volumes between suppliers, the CRE applied the same method as for the delivery period that began on 1 January 2022. In practice, the CRE gave notice of 19.5TWh of additional ARENH volumes allocated.

Applying the procedure set out in its decision 2022-98 of 31 March 2022, the CRE set up a mechanism to monitor and control the way eligible suppliers passed on the effect of their reduced sourcing costs (resulting from allocation of additional ARENH volumes at the price of €46.20/MWh) through their customer invoicing. In accordance with that CRE decision, EDF was obliged to replicate the terms imposed on alternative suppliers in its own market-price contracts.

This measure thus had two main effects for the Group:

- the Group was obliged to purchase the additional 19.5TWh of electricity from eligible suppliers at the price of €256.98/MWh (€5.011 billion in total), and concurrently sell them equivalent volumes of electricity at the price of €46.20/MWh (€900 million in total), resulting in a net cost (including the cost of capacity guarantees) of €4.1 billion for the period 1 April 2022 to 31 December 2022; and
- the sale prices to customers on both regulated-tariff and market-price contracts were lower, due to the increased ARENH portion in relation to the market-price portion in the cost stacking system used to calculate regulated tariffs and market-price offers. The incremental impact on regulated-tariff contracts in 2022 was limited because of application of the tariff cap described above, which already limited increases in the regulated electricity tariffs, but this situation also narrowed the gap between the frozen tariff and the tariff that would have applied in the absence of the tariff cap in 2022. In its press release of 13 January 2022, EDF announced that it would take all appropriate measures to protect its interests in view of the decree of 11 March 2022 and the four orders making up the rest of this measure.

  As the overall measure caused very significant prejudice for the company, EDF made a request to the State in May 2022 for withdrawal of the Measure consisting of the decree of 11 March 2022 and the associated orders. The State did not reply within 2 months, indicating an implicit rejection, and on 9 August 2022 EDF filed an appeal against the decree and orders before the Council of State, on the grounds that the State had exceeded its powers. In parallel, EDF sent the Prime Minister a prior claim for compensation for the prejudice resulting from introduction of this government measure, estimated at €8.34 billion. The State did not reply within 2 months, indicating an implicit rejection, and on 27 October 2022 EDF filed a claim before the Paris Administrative Court for full reparation by the State for the prejudices borne as a result of the Measure.

The purpose of this claim before the Paris Administrative Court is to obtain compensation from the State for the prejudices borne by EDF as a direct result of introduction of the Measure. The total amount of these prejudices is estimated at €8.34 billion, the principal causes being :

- the cost of the operation in which EDF purchased volumes of electricity (at the price of €256.98/MWh) which it then sold on to alternative suppliers (at the price of €46.2/MWh), and the associated capacity guarantees in application of the Measure;
- the direct and certain effects of the Measure on the level of regulated electricity sales tariffs (EDF is France's principal supplier of regulated-tariff electricity) due to the calculation methods for these tariffs defined in the French Energy Code;
- the direct and certain effects of the Measure's repercussions on the prices of EDF's market-price contracts in application of the CRE's decision of 31 March 2022 setting out the terms for passing on the effects of the Measure to customers through power supply contracts.

On 3 February 2023, the Council of State rejected EDF's appeal filed on 9 August 2022 (see note 2). The proceedings relating to EDF's claim before the Paris Administrative Court for full reparation from the State for the prejudices borne by EDF as a result of the Measure are continuing.

The ARENH scheme in 2023

Regarding ARENH allocations for 2023, in decision 2022-287 of 10 November 2022, as required by the Energy Code (article R.336-14 of the Energy Code modified by decree 2022-1380 of 29 October 2022), the CRE set out the method for allocating ARENH volumes if applications exceed the maximum total volume defined for 2023. In view of the current exceptional crisis in the electricity market, it also introduced reinforced checks and special rules for accepting the ARENH volumes applied for by suppliers.

The CRE stated that any applications by EDF-controlled subsidiaries (except network operators) taking the total volume above the limit would be fully curtailed, and they could enter into contracts with their parent company that replicate the ARENH scheme and terms of supply, including the curtailment rate for alternative suppliers.

During 2022, the CRE notified EDF that ARENH deliveries to three alternative suppliers had ceased due to their court-ordered liquidation or suspension of their governmental licence to supply electricity. 21.9MWh of ARENH volumes in the May 2022 session were not delivered by EDF due to (i) defaulting suppliers being placed in liquidation and (ii) non-implementation of the procedure to transfer their ARENH entitlements to the suppliers of last resort, and the CRE reallocated all these volumes to the November session.

ARENH applications during the November 2022 session for delivery in 2023 totalled 148.87TWh (excluding applications from EDF subsidiaries and network operators). The CRE scaled down certain applications (- 0.56TWh in total), bringing the total application volumes validated by the CRE to 148.30TWh, and curtailed each supplier's application, to respect the ARENH ceiling of 100TWh. Further volumes were also sold by EDF to its subsidiaries through contracts that replicate the ARENH scheme, and to compensate for network electricity losses (26.6TWh).

Capacity mechanism

The French capacity mechanism took effect on 1 January 2017. It was introduced by France's Energy Code to ensure secure national power supplies and is described in note 5.1 to the consolidated financial statements at 31 December 2022.

Another consultation phase concerning structural changes to the French capacity mechanism has been in progress since April 2022. The future mechanism could be introduced from the electricity industry winter 2026/2027, subject to approval by the European Commission after the necessary examination period.

For the delivery years shown below the mean market prices resulting from capacity auctions ahead of the delivery year were as follows:

Delivery year	2017	2018	2019	2020	2021	2022	2023
Price (€/kW)	10	9.3	17.4	19.5	31.2	26.2	45.6

For the delivery year 2024, seven auctions have been held: four in 2022, with the following results: €20/kW in April and June, €34.1/kW in October, and €23.1/kW in December 2022; and three in 2023, with the following results: €29.9/kW in March, €34.5/kW in April and €35/kW in June 2023.

5.1.2 Sales

Sales are comprised of:

(in millions of euros)	H1 2023	H1 2022
Sales of energy and energy-related services	70,325	61,194
– energy[(1)]	59,346	*50,582*
– energy-related services (including delivery[(2)])	10,979	10,612
Other sales of goods and services	2,941	2,970
Trading	2,233	2,098
SALES	**75,499**	**66,262**

[(1)]Sales of energy include €3,157 million of sales related to optimisation operations on the wholesale gas and electricity markets in the first half of 2023 (€6,251 million in the first half of 2022). These operations are carried out by certain Group entities to balance supply and demand, in compliance with the group's risk management policy. In 2023, the principal operating segments with a net short position in euros on the markets are France – Generation and Supply (gas), Italy (electricity) and Dalkia (electricity). In 2022, they were France – Generation and Supply (gas) and Italy (electricity).

[(2)]Delivery services included in this item concern the distribution network operators Enedis, Electricité de Strasbourg and EDF SA for non-interconnected zones. However, delivery services concerning EDF Energy and Edison are included in Sales of energy, because those entities are classified as the principal under IFRS 15 for both supply and delivery. The delivery services by EDF Energy and Edison have no impact on net income because they are included in "Transmission and delivery expenses" in note 5.2.

After elimination of foreign exchange effects and changes in the scope of consolidation, the Group's sales for the first half of 2023 were up by 14.4% or +€9.6 billion. This principally reflects increases in the France – Generation and Supply segment (+€9.3 billion or +40.7%) and the United Kingdom segment (+€5.5 billion or +79.5%), which were partly offset by lower sales in the Italy segment (€(3.5) billion or -27.2%) and the Other activities segment (€(2.9) billion or -39.3%).

Sales by the **France – Generation and supply** segment showed organic growth of +€9.3 billion. This increase is mainly explained by favourable price effects on regulated-tariff and market-price sales, despite tariffs being limited by government measures (the tariff cap and electricity buffer). It is also attributable to favourable energy market price effects of +€2.8 billion on purchase obligations (the effect on operating income before depreciation and amortisation was neutral due to the CSPE compensation mechanism covering expenses related to purchase obligations).

Sales in the **United Kingdom** segment registered an organic increase of €+5.5 billion, principally attributable to the impact of rising energy prices on customer sales tariffs, despite the lower nuclear power output in the first half of 2023.

The organic downturn in sales by the **Italy** segment reached €(3.5) billion ~~higher~~ in the first half of 2023. This decrease is essentially explained by unfavourable volume and price effects for gas (€(3.2) billion), observed across all markets.

The €(2.9) billion organic contraction in sales by the **Other activities** segment is essentially attributable to the gas activities (€(3.1) billion) due to the decrease in wholesale gas prices and the small rise (+€0.2 billion) in EDF Trading's trading margin, which was penalised by lower volatility on the markets as prices followed a downward trend, counterbalanced by a decrease in the systemic credit risk.

5.2 FUEL AND ENERGY PURCHASES

Fuel and energy purchases comprise:

(in millions of euros)	H1 2023	H1 2022
Fuel purchases used – power generation[1]	(11,794)	(15,230)
Energy purchases[1]	(32,727)	(29,149)
Transmission and delivery expenses	(4,219)	(4,087)
Gain/loss on hedge accounting	(218)	6
(Increase)/decrease in provisions related to nuclear fuels and energy purchases	59	222
Fuel and energy purchases	**(48,899)**	**(48,238)**

[1] At 30 June 2023, fuel and energy purchases used and include respectively €1,500 million and €18 507 million for optimisation operations on the wholesale gas and electricity markets (respectively €1,414 million and €15,087 million in the first half of 2022 At 30 June 2023 the principal operating segments with net long positions in euros on the markets are France – Generation and supply (electricity and gas), the United Kingdom (gas and electricity), Other international (Luminus – gas and electricity) and Dalkia (gas). At 30 June 2022, the same segments were concerned.

"Fuel purchases" used include costs relating to raw materials for energy generation (gas, nuclear fuels and fissile materials and a non-significant proportion of coal and oil), purchases of services related to the nuclear fuel cycle, and costs associated with environmental schemes (mainly greenhouse gas emission rights and renewable energy certificates).

"Energy purchases" include purchases made under the purchase obligation mechanism in France.

After elimination of foreign exchange effects and changes in the scope of consolidation, the Group's fuel and energy purchases were up by €(0.8) billion year on year compared to 2022, principally in the France-Generation and Supply segment (€(1.4) billion, essentially electricity purchases), the France - Regulated activities segment (€(2.2) billion, essentially purchases to cover network losses) and the United Kingdom segment (€(3.8) billion). These increases were offset by decreases observed in the Italy segment (€3.8 billion, related to lower volumes and market prices) and the Other activities segment (€3 billion, mainly in the gas businesses).

5.3 TAXES OTHER THAN INCOME TAXES

(in millions of euros)	H1 2023	H1 2022
Payroll taxes	(187)	(171)
Energy taxes	(1,275)	(1,344)
Other non-income taxes	(1,252)	(868)
Taxes other than income taxes	**(2,714)**	**(2,383)**

After elimination of changes in foreign exchange rates and scope of consolidation, taxes other than income taxes showed an organic increase of €(332) million or 13.9%, reflecting the introduction of the Inframarginal revenue cap on electricity production, which had an effect of €(175) million in the first half of 2023, principally in the other international segment (€154 million). The impact of the Inframarginal revenue cap on electricity production during the first half of 2023 is not comparable with 2022 because it did not yet apply.

The increase in taxes other than income taxes is also attributable to the France – Generation and supply segment. In contrast to 2023, EDF's fiscal value added was negative in 2022, and as a result the company was not liable for the French business tax on value added, and benefited from a cap on its business tax on land.

The EU Inframarginal revenue cap on electricity production

On 6 October 2022 the **European Union** adopted a regulation for harmonised action to address the energy price crisis. Among other measures, this regulation set targets for reducing energy consumption during the winter of 2023, and introduced state aid for businesses and households, funded by a windfall tax on the fossil fuel sectors, and an inframarginal revenue cap on electricity production.

This inframarginal revenue cap is a compulsory tax measure requiring electricity producers to pay to the State all revenues above a threshold expressed in €/MWh. Under the EU regulation, this cap was applicable from 1 December 2022 to 30 June 2023 with a threshold of €180/MWh, but many EU member states decided to lengthen the application period and set different thresholds, well below the EU level, for different power generation technologies.

In the **EDF Group**, this regulation concerned activities in France, Belgium, Italy and the United Kingdom.

In **France**, a 90% tax applies to inframarginal rents during three periods: July - November 2022, December 2022-June 2023, and July - December 2023. Any deficit in one period may be carried over to the next.

Separate inframarginal rent thresholds (in €/MWh) are set for each electricity generation technology (8 different categories), principally €90/MWh for nuclear power, €100/MWh for wind and solar power, and €80-€140/MWh (depending on plant capacity) for hydropower. France has also opted to tax gas-fired power plants (including cogeneration plants), which are subject to thresholds of €40-€110/MWh, plus fuel costs.

Consequently, in the EDF Group in **France**, the inframarginal revenue cap concerns EDF SA and the French entities of the Dalkia group (€7.9 million), and EDF Renewables (€9.1 million), respectively for their cogeneration and renewable energy output in the first half of 2023.

EDF SA made a significant deficit (that could be carried forward) for the first cap period in 2022, and also for the month of December 2022, reflecting purchases made on high-price markets due to the very substantial downturn in nuclear power output over that period (-€81.7TWh). Due to the carry-forward mechanism, EDF does not expect to pay anything for the first two periods of France's inframarginal revenue cap.

In **Belgium,** the inframarginal revenue cap concerns EDF's nuclear and renewable power output: its liable for €154 million in 2023 in application of the country's 100% tax above a threshold of €130/MWh.

Other similar mechanisms in the Group

The **United Kingdom** has also introduced a tax on electricity generation called the Electricity Generator Levy (EGL). It is payable by entities producing electricity from coal, renewable and nuclear sources but does not apply to revenues attributable to gas-fired power plants. Trading activities are not concerned. This 45% tax on revenues received by producers in excess of £75/MWh is scheduled to apply from 1 January 2023 until 30 March 2028. It is designed to limit the revenues of electricity producers and has not given rise to any expense for EDF Energy during the first half of 2023. This amount is an estimate and will be reviewed during the second half of the year once complementary legislation has been passed at the end of July 2023.

5.4 OTHER OPERATING INCOME AND EXPENSES

Other operating income and expenses mainly include the amount received or receivable by EDF under the CSPE (*Contribution au Service Public de l'Energie* - Contribution to the Public Energy Service) mechanism. The laws and regulations governing that mechanism are described in note 5.5.1 to the consolidated financial statements at 31 December 2022.

This mechanism is reflected in recognition of income of €5,551 million in 2023 (€1,339 million in 2022).

At 30 June 2023, the compensation for purchase obligations is recognised as an expense of €2,694 million (compared to income of €195 million at 30 June 2022), because the public service charges to be covered for purchase obligations have decreased significantly since the end of 2022 and are now negative due to very high market prices which exceed the price guaranteed by the State.

Conversely, the compensation for public energy charges includes an amount of €7,194 million to cover losses of income caused by support schemes for final customers (this has no equivalent in the first half of 2022 except for the gas scheme providing €28 million). €6,458 million were received in compensation for the electricity tariff cap and €642 million in compensation for the electricity buffer (see note 3.1), while the compensation for the gas tariff cap amounted to €94 million.

The income generated by the CSPE mechanism at 30 June 2023 gives rise to recognition of a corresponding item in "Other liabilities" (see note 12.5).

Other operating income and expenses also include, to a lesser extent, expenses related to energy savings certificates (see note 5.5.1 to the consolidated financial statements at 31 December 2022 for a description of this mechanism), losses on non-recoverable operating receivables, royalties related to French hydropower concessions, additional remuneration paid to producers of renewable energy in France, and income and expenses associated with the closure of the two Fessenheim reactors (see note 5.4.3 to the consolidated financial statements at 31 December 2022).

At 30 June 2022, other operating income and expenses included a provision of €2,749 million for the cost in the second half of 2022 of the specific additional 20TWh ARENH scheme, introduced by the decree of 11 March 2022 and its implementing orders (see note 2). The related laws and regulations placed EDF under a concurrent obligation to buy and sell electricity with predetermined volumes and prices for the period from April to December 2022: sales of 19.5TWh of ARENH volumes to eligible suppliers at the price of €46.2/MWh, and purchases of 19.5TWh from the same eligible suppliers at the price of €256.98/MWh, in coordination with the Caisse des Dépôts et Consignation and RTE, under the supervision of the CRE. This mechanism generated a definite net cost of €4,110 million for EDF for the year 2022.

NOTE 6 NET CHANGES IN FAIR VALUE ON ENERGY AND COMMODITY DERIVATIVES, EXCLUDING TRADING ACTIVITIES

(in millions of euros)	H1 2023	H1 2022
NET CHANGES IN FAIR VALUE ON ENERGY AND COMMODITY DERIVATIVES, EXCLUDING TRADING ACTIVITIES	(276)	(993)

Net changes in fair value on Energy and Commodity derivatives, excluding trading activities, decreased from €(993) million in the first half of 2022 to €(276) million in the first half of 2023, mainly as a result of lower price volatility in 2023 as market prices for commodities decreased, in contrast to the first half of 2022.

NOTE 7 OTHER INCOME AND EXPENSES

Other income and expenses amount to €(1,696) million for the first half of 2023. They principally comprise:

- exceptional additional costs relating to work for repairs to the main secondary circuit welds at the Flamanville 3 EPR, totalling €(226) million (these are defined by IAS 16.22 as abnormal costs and cannot be included in the cost of assets in progress);
- an exceptional additional allocation of €1,026 million to provisions for risks and charges for negotiations on a contract in progress (see notes 14.A and 16.2);
- an increase of €354 million in provisions following the interim agreement between Engie and the Belgian government on the transfer of all obligations concerning nuclear waste to the Belgian government (see note 14.1). This amount is an estimate and is likely to be adjusted once the final agreements have been reached.

In the first half of 2022, other income and expenses amounted to €(388) million. They principally comprised :

- the expense of the Employee Reserved Offer (ERO) during the period, amounting to €(64) million;
- exceptional additional costs relating to work for repairs to the main secondary circuit welds at the Flamanville 3 EPR, totalling €(308) million (these are defined by IAS 16.22 as abnormal costs and cannot be included in the cost of assets in progress);
- the €(15) million loss on the sale of Dalkia Russia.

NOTE 8 FINANCIAL RESULT

8.1 COST OF GROSS FINANCIAL INDEBTEDNESS

The cost of gross financial indebtedness was €(1,857) million at 30 June 2023 compared to €(728) million at 30 June 2022. This increase is partly explained by a base effect on financing put in place during the second half of 2022 and the first half of 2023 (net indebtedness is €64.8 billion at 30 June 2023 (see note 18.2) versus €42.8 billion at 30 June 2022), and partly by an interest rate effect reflecting the higher rates observed.

8.2 DISCOUNT EFFECT

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

Details of the final discount effect are as follows:

(in millions of euros)	H1 2023	H1 2022
Provisions for long-term and post-employment employee benefits[(1)]	(664)	(335)
Provisions for the back-end of the nuclear cycle, decommissioning and last cores[(2)]	(1,291)	753
Other provisions and advances	(22)	84
DISCOUNT EFFECT	**(1,977)**	**502**

[(1)]See note 15.1.2.

[(2)]Including the effect of discounting the receivable corresponding to amounts reimbursable by the NLF (see note 17.1.3).

The increase in the discount effect on provisions for long-term and post-employment employee benefits on the first half of 2023 is explained by the higher discount rate applicable at 1 January 2023 (in France: 3.9%, against 1.3% at 1 January 2022), partly offset by a lower volume of commitments at 1 January 2023.

The increase in the discount expenses on nuclear provisions in the first half of 2023 results mainly from a rate effect of €(1,596) million attributable to the stability of the real discount rate in France over the period, compared to the 30 base point increase in the discount rate in the first half of 2022 (see note 14.1). The cost of unwinding the discount in the first half of 2022 was more than offset by a favourable discount effect caused by this change in the rate.

8.3 OTHER FINANCIAL INCOME AND EXPENSES

Other financial income and expenses comprise:

(in millions of euros)	H1 2023	H1 2022
Gains/(losses) on financial assets	412	294
Changes in financial instruments carried at fair value through profit and loss	1,333	(3,252)
Other	559	237
OTHER FINANCIAL INCOME AND EXPENSES	**2,304**	**(2,721)**

Gains and losses on financial assets consist of income on cash and cash equivalents, income and expenses on debt and equity securities, and other financial assets.

At 30 June 2023, changes in the fair value of financial instruments include €1,392 million concerning dedicated assets (see note 14.2.1). Other items include €(136) million of gains and losses on sale of debt securities carried at fair value through OCI with recycling (€(60)) million of which concern dedicated assets).

At 30 June 2022, changes in the fair value of financial instruments include €(3,196) million concerning dedicated assets (see note 14.2.1). Other items include €(43) million of gains and losses on sale of debt securities carried at fair value through OCI with recycling (€(115) million of which concern dedicated assets).

NOTE 9 INCOME TAXES

The income tax expense amounts to €1,323 million at 30 June 2023, corresponding to an effective tax rate of 18.7% (compared to an income tax credit of €1,840 million at 30 June 2022, corresponding to an effective tax rate of 24.7%).

(in millions of euros)	H1 2023	H1 2022
Income of consolidated companies before tax	7,084	(7,443)
Income tax rate applicable to the parent company	25.82%	25.82%
Theoretical tax expense	(1,829)	1,922
Differences in tax rate[1]	21	43
Permanent differences	(15)	(25)
Taxes without basis[2]	112	(49)
Unrecognised deferred tax assets[3]	389	(51)
Other	(1)	-
ACTUAL TAX EXPENSE	**(1,323)**	**1,840**
EFFECTIVE TAX RATE	**18.68%**	**24.70%**

The €(3,163) million change between the tax income in 2022 and the tax expense in 2023 essentially reflects the €14,527 million increase in the Group's pre-tax income, generating additional tax of €(3,751) million.

The tax expense is also affected by recognition of deferred tax assets on the loss reported in 2022 by the French tax group (EDF SA, Enedis, PEI and other French subsidiaries owned more than 95%), and by the absence in 2023 of unfavourable effects resulting from the "windfall tax" on electricity-producing companies introduced in Italy and tax litigation.

In addition to the deferred tax asset of €7,872 million recognised at the 2022 year-end on the French tax group's 2022 loss, €385 million of the €1,060 million of unrecognised deferred tax assets at 31 December 2022 has now been recognised, in view of favourable prospects for 2023.

After elimination of non-recurring items (principally changes in unrealised gains and losses on the financial asset portfolio and commodities), the effective current tax rate is 18.9% at 30 June 2023, compared to 26.1% at 30 June 2022.

The difference between the theoretical tax rate and the effective rate is explained by the mainly following factors:

At 30 June 2023:

- (1)the favourable €71 million impact of tax rate differences in the United Kingdom, where the average normative tax rate applicable in 2023 is 23.5%, offset by the unfavourable €(41) million impact of tax rate differences in Italy, where the normative tax rate applicable in 2023 is 27.9%;
- (2)the favourable impact of deduction of the payments made to bearers of perpetual subordinated bonds, amounting to €78 million;
- (3)the favourable impact of recognition/recovery of deferred tax assets on the EDF SA tax group, amounting to €385 million, in view of improved prospects of utilisation within a 10-year period.

At 30 June 2022:

- (1)the unfavourable impact of tax rate differences, amounting to €43 million, mainly relating to the United Kingdom where the normative tax rate applicable in 2022 is 19%;
- (2)the favourable impact of deduction of the payments made to bearers of perpetual subordinated bonds (amounting to €85 million), offset by the unfavourable impact of the "windfall tax" on electricity-producing companies in Italy (€(71) million) and tax litigation (€(59) million);
- (3)the effect of non-recognition of deferred tax assets, amounting to €(51) million, mainly relating to the EDF SA tax consolidation which recognises deferred tax assets in full for temporary differences that are expected to reverse within 10 years, and to the extent of concurrent deferred tax liabilities for temporary differences that are expected to reverse after that horizon.

Pillar Two rules

Following the European Union's adoption of the "Pillar Two" directive on 15 December 2022, on 20 December the OECD published simplified procedures which will only apply for financial years beginning on or before 31 December 2026 (which in practice for the Group means financial years 2024 to 2026). During that transition period, provided certain requirements are met in the country of operation, groups will be exempt from calculating top-up tax under the Pillar Two rules.

During the first half of 2023, the Group continued its work to implement and evaluate the Pillar 2 rules. The expected impact is the same as stated in note 9 to the financial statements at 31 December 2022.

NOTE 10 PROPERTY, PLANT AND EQUIPMENT AND INTANGIBLE ASSETS

Details of property, plant and equipment and intangible assets are as follows:

(in millions of euros)	Notes	30/06/2023	Assets in progress	31/12/2022	Assets in progress
Goodwill	10.1	9,717	*n.a.*	9,513	*n.a.*
Other intangible assets	10.1	11,068	2,489	10,619	2,110
Property, plant and equipment used in generation and other tangible assets owned by the Group, including right-of-use assets	10.2	106,126	55,001	101,126	49,700
- Right-of-use assets		*4,256*	*n.a.*	*4,051*	*n.a.*
Property, plant and equipment operated under concessions other than French electricity distribution concessions		6,769	695	6,816	668
Property, plant and equipment operated under French public electricity distribution concessions		64,900	2,582	63,966	2,204
TOTAL PROPERTY, PLANT AND EQUIPMENT AND INTANGIBLE ASSETS		**198,580**	**60,767**	**192,040**	**54,682**

n.a.: not applicable.

10.1 GOODWILL AND OTHER INTANGIBLE ASSETS

At 30 June 2023, goodwill primarily relates to EDF Energy (€6,758 million) and Framatome (€1,451 million).

The changes in goodwill in the first half of 2023 primarily relate to translation adjustments (€220 million) resulting chiefly by the rise of the pound sterling against the Euro.

Other intangible assets in progress at 30 June 2023 include €1,256 million for studies concerning the EPR2 (€1,055 million at 31 December 2022) and €169 million for Small Modular Reactors (€142 million at 31 December 2022), see note 10.6 to the consolidated financial statements at 31 December 2022.

10.2 PROPERTY, PLANT AND EQUIPMENT USED IN GENERATION AND OTHER TANGIBLE ASSETS OWNED BY THE GROUP

At 30 June 2023, property, plant and equipment used in generation and other tangible assets owned by the Group and in progress mainly comprise:

- Investments for the Flamanville 3 EPR amounting to €15,360 million, including capitalised interim interest of €3,471 million (€15,245 million at 31 December 2022, including capitalised interim interest of €3,471 million). The amount capitalised for the Flamanville 3 project in the financial statements at 30 June 2023 is €15,581 million, of which €214 million concern assets that have been commissioned, including €23 million of interim interest.

  This capitalised amount of €15,581 million including capitalised interim interest, includes the following in addition to the construction cost:

  - an inventory of spare parts and capitalised amounts totalling €671 million for related projects (notably the initial comprehensive inspection and North Area development);
  - €912 million of pre-operating expenses and other property, plant and equipment related to the Flamanville project;
  - and the elimination of internal balances on balance sheet items and margins between Framatome and EDF SA in connection with the Flamanville 3 EPR project (€384 million, essentially consisting of advances and progress payments),

  giving a construction cost at historical value of €10,504 million in the consolidated financial statements at 30 June 2023, and a construction cost at completion (excluding interim interest) of €13,2 billion (in 2015 euros) (see the Group press release of 16 December 2022).

  The additional exceptional costs induced by the necessary repairs to welds on the main secondary circuit (see the Group's press release of 9 October 2019) and the costs of the associated stress-relieving heat treatment on the repaired welds (see the press release of 16 December 2022) are recognised in other income and expenses in the amount of €226 million at 30 June 2023, compared to €638 million in 2022 (see note 7).
- investments relating to Hinkley Point C, amounting to €25,021 million including capitalised interim interest of €1,392 million (€21,647 million at 31 December 2022 including capitalised interim interest of €1,110 million). In the first half of 2023, investments in this project (including CGN's share and foreign exchange effects) amounted to €3,374 million (€1,717 million in the first half of 2022);
- studies concerning Sizewell C amounting to €1,107 million (€808 million in 2022) ;
- studies concerning the EPR2 project amounting to €1,285 million (€1,068 million in 2022).

The balance of property, plant and equipment in progress (excluding assets operated under concessions), *i.e.* €13,513 million, principally concerns EDF SA's existing nuclear plants (73%) in line with the *Grand Carénage* programme (replacement of major components, particularly steam generators; work in connection with periodical and 10-year inspections), and to a lesser extent (around 16%) EDF Renewables (power plants in development in Europe, North America and emerging countries).

Property, plant and equipment in progress increased by €5 301 million as the level of investment in 2022 is significantly higher than the amount of assets brought into service during the first half of the year.

The changes observed in property, plant and equipment used in generation and other tangible assets owned by the Group include a €912 million translation adjustment (resulting from a €950 million rise by the pound sterling against the euro, counterbalanced by a €(50) million decline in the US dollar) and €473 million of other changes, mainly related to re-estimation of provisions for decommissioning (adjustment of economic conditions, and re-estimations in France and the United Kingdom) with an effect of €377 million.

The net value of property, plant and equipment used in generation and other tangible assets owned by the Group, including right-of-use assets breaks down as follows:

(in millions of euros)	Land and buildings	Nuclear power plants	Fossil-fired and hydropower plants	Other installations, plant, machinery, equipment and other	Right-of-use assets	Assets in progress	Total
NET VALUES AT 30/06/2023	5,748	23,920	4,541	12,660	4,256	55,001	106,126
NET VALUES AT 31/12/2022	5,772	24,178	4,783	12,642	4,051	49,700	101,126

Principal projects in progress and investments during the half year

Grand Carénage programme

Since 2014 EDF has been implementing its *Grand Carénage* industrial refurbishment programme for the French nuclear fleet, designed to enhance reactor safety and extend their operating lifetimes significantly beyond 40 years. The most recent estimate of the programme's cost for the period 2014-2025, established in late 2021, is €50.2 billion in current euros. This cost factors in the third 10-year inspections for the Group's 1300MW reactors, a significant portion of the safety improvements undertaken following lessons learned from the Fukushima incident, including construction and operation of 56 emergency diesel generators, creation of auxiliary feedwater pumps at each nuclear plant in operation, and performance of the fourth 10 - year inspections of the Group's 900MW reactors.

To continue the investments necessary to operate the Group's nuclear fleet in complete safety significantly beyond 40 years, on 31 March 2022, EDF's Board of Directors validated a new roadmap for the *Grand Carénage* programme running from 2022 to 2028. The cost estimate for this new period is €33 billion in current euros (based on inflation assumptions known since 2022), or an average annual expenditure of €4.7 billion. The extended programme will enable the Group to conduct studies and carry out the fourth 10-year inspections of the 1300MW series, conduct preliminary studies for continuing operation of the 900MW reactors beyond 50 years, in accordance with the multi-year energy programme adopted by France in April 2020, and complete the still substantial maintenance and renovation work on major components, so that power plants can remain in operation for more than 50 years.

The third 10-year inspections of 1300MW reactors are entering their final phase (the last 5 are scheduled in 2023 and 2024). In the 900MW series, eleven fourth 10-year inspections have been successfully completed and four are in progress. In the 1450MW series, the final second 10-year inspection was completed in April 2023.

Examination with the ASN of the generic phase of the fourth 10-year inspections of the 1300MW series, which began in 2021, is still ongoing and inspection of the first reactor is expected in 2026. Examination with the ASN of procedures for passing the 30-year milestone of the 1450MW series has also begun, and inspection of the first reactor is expected in 2029.

Additionally, major investments have been made following the lessons of Fukushima: 56 emergency diesel generators have been constructed and put into operation, and every power plant has a permanent or provisional auxiliary feedwater system. Major components (including steam generators and main unit transformers) have also been replaced at many production units.

Stress corrosion

In late 2021, during preventive maintenance checks on reactor 1 at the Civaux nuclear power plant, scheduled as part of its 10-year inspection, defects were detected close to welds on the pipes of the safety injection system (SIS) circuit. Preventive checks were then carried out on the Civaux 2, Chooz 1 and Chooz 2 reactors, which also belong to the N4 series, and similar defects were identified. Preventive maintenance checks conducted during the 10-year inspection of reactor 1 at the Penly nuclear power plant also found similar defects on the SIS circuit.

Through expert assessments and analyses conducted during 2022, EDF identified the reactors where the SIS circuit pipes are the most susceptible to stress corrosion. They are the 16 most recent reactors: the four N4 reactors, and twelve P'4 1300MW reactors.

In a press release of 27 July 2022, the ASN declared its position reached on 26 July 2022 regarding EDF's proposed inspection strategy for the stress corrosion affecting its reactors. The ASN considered EDF's strategy appropriate given the knowledge learned about this phenomenon, and the related safety issues.

Given the outages for inspections and repairs, in 2022 EDF regularly released information about adjustments to its nuclear output estimates (see the press releases of 13 January, 7 February, and 19 May, and note 2). As stated in a press release of 3 November 2022, all this information finally led EDF to revise its nuclear power output estimate for 2022 downwards, to a range of 275-285 TWh. The final volume produced was 279TWh, down by 81.7TWh or 23% from 2021.

Following the results of an expert assessment in early 2023 of a weld at the Penly 1 reactor that was repaired twice during reactor construction, on 10 March 2023 EDF sent the ASN a proposed update to its strategy. The aim is to accelerate the pace of inspections of welds repaired at the time of construction, which will take place during scheduled reactor outages for maintenance due to take place in 2023, 2024 and 2025.

In mid-March 2023 the ASN indicated that it had taken note of the updated strategy and would continue technical discussions with EDF to ensure that the intended timetable was appropriate[1]. In a bulletin published on 25 April 2023, the ASN validated EDF's proposed timetable.

EDF has made a commitment to inspect 92% of repaired welds identified as high-priority because of the conditions in which they were repaired during construction, by the end of 2023. The rest will be inspected in the first quarter of 2024. These inspections will be carried out during maintenance outages that are already scheduled, and EDF does not expect any additional or ad hoc outages.

60% of the welds repaired during reactor construction have been inspected to date, in line with the plan for 2023.

The welds on the N4 series have been repaired, and the N4 reactors were brought back online during the first half of 2023.

Repair work has also been completed at the P'4 1300MW reactors Penly 1, Penly 2, Cattenom 2, Cattenom 3, Golfech 1, Golfech 2 and Nogent 2. Repairs are in progress at Cattenom 1 and Belleville 2. Repairs are scheduled for the reactors at Belleville 1 and Nogent 1. For Cattenom 4, they will be undertaken during the reactor's 10-year inspection.

At the current date, based on EDF's proposed inspection strategy, estimated nuclear power output in France for 2023 remains in the range of 300-330TWh.

Flamanville 3 EPR

Developments in 2022

The main progress on the Flamanville 3 project in 2022 were:

- continuation of weld repairs on the main secondary circuit;
- completion of full pool testing;
- completion of the last functional tests of the open reactor vessel;
- closure of the vessel head after the reactor vessel has been drained and cleaned, and testing the control rod drives.

As announced in January 2022, inspections of the Taishan 1 reactor's fuel assemblies following the technical issue encountered during its second operating cycle showed mechanical wear on certain assembly components. This kind of wear has already been observed in several reactors of the French nuclear fleet. For the future commissioning of Flamanville 3, a solution has been examined with the ASN. EDF's proposed strategy for the Flamanville EPR (supply of around sixty reinforced fuel assemblies) was presented to the High Committee for Transparency and Information on Nuclear Safety (*Haut comité pour la transparence et l'information sur la sécurité nucléaire*, HCTISN) on 7 June 2022. In January 2023, the IRSN issued a favourable opinion of EDF's proposed strategy, and the ASN will finalise its examination by the end of the first quarter of 2023.

1 *See press release of the ASN of 16 March 2023*

Repair work to the main secondary circuit welds continued at a good pace during the first half of the year. 122 welds are concerned (36 penetration welds and 86 non-penetration welds). At 31 December 2022, 56% had been repaired, 65% had been approved for stress-relieving heat treatment, and 32% were completed and valid after stress-relieving heat treatment. Work is totally finished on the welds on the reactor containment building, which were the most complex cases, and they have been declared valid.

Concerning the SIS (Safety injection system)/CHR (Containment Heat Removal) filtration sumps, EDF proposed a new filtration system which has been trialled and produced results considered satisfactory by the IRSN. Following these trials, in September 2022 EDF replaced the existing filters with finer filters. EDF also decided to reduce the quantities of potential debris that is known to clog up filters. The work to reduce potential debris is practically complete, and should be finished by the end of the first quarter of 2023.

After corrosion was observed on pressuriser valves at the Olkiluto EPR (Finland), EDF and Framatome carried out equipment checks and also detected traces of corrosion on the Flamanville EPR's valves. EDF and Framatome decided to respond to this finding by changing the material used for certain components of the pilot control valves. Several corrosion stress tests were conducted to select the best material. The components have been made and will be installed in the reactor building in early 2023. Apart from this difficulty, the ASN is continuing its examination of the operation and reliability of the pressuriser valves.

On 16 December 2022, EDF adjusted the schedule for the Flamanville 3 project: the nuclear fuel loading is now scheduled for the 1st quarter of 2024[1]. The estimated cost at completion has been raised from €12.7 billion to €13.2 billion[2].

This schedule update is mainly due to supplementary studies that were needed to establish a new process for the stress-relieving heat treatment (SRHT)[3] of some welds that have been upgraded in the last two years, which are located close to sensitive equipment for the nuclear plant's operation.

After the nuclear fuel loading, the start-up operations will continue, including notably inspections of all the reactor safety systems, equipment testing and qualification all the way through the temperature and pressure increases of the nuclear steam supply system, and then during the reactor ramping up. At 25% of nominal power, the reactor will be connected to the national electricity grid.

Developments in 2023

The main developments in the Flamanville project during the first half of 2023 were as follows:

- continuation of weld repairs on the main secondary circuit;
- continuation of outstanding work before fuel loading and transfers of facilities to the operators (more than 85% of facilities have now been handed over and are in pre-operating mode);
- preparations for Overall Requalification Tests (ERE2023) of the plant, which are due to begin in September and last 2 months.

Focus on repair work to the main secondary circuit welds

This work concerns around a hundred welds and is now in the home straight. The welding phase has been completed for all necessary repairs, and 92% of the welds have been validated after analysis of checks following stress-relieving heat treatment. These checks are currently being analysed for the 10% of welds not yet formally validated.

EDF aims to finalise analysis of the last post-stress-relieving heat treatment checks by the end of July, and then formally issue the assembly completion reports for the main secondary circuit, in order to have final clearance to proceed with hydraulic testing.

The last stage of the repair work project will be the requalification of the whole of the main secondary circuit, after the hydraulic testing, which is expected to take place during the summer.

1 See EDF's press release of 16 December 2022.

2 In 2015 euros and excluding interim interest.

3 Stress-relieving heat treatment (SRHT) is a process carried out after welding to relieve residual welding stresses and achieve the right mechanical characteristics for the welded part.

Relations with the ASN

On 16 May 2023, the ASN issued a decision authorising use of Flamanville's current reactor vessel head, until "the reactor shutdown during which the first complete requalification of the primary circuit takes place".

- This decision was given in response to Framatome's request to the ASN in late 2022 for an extension to the deadline for replacing the vessel head (31 December 2024).
- As a result, the reference scenario for EDF now assumes that the vessel head will be replaced during the first scheduled shutdown for inspection, which should begin in mid-2025 at the end of the reactor's first operating cycle.
- The decision also states "in the event that the project again experiences a significant delay, the operator must re-examine the possibility of replacing the vessel head before commissioning the reactor".

From 22 to 26 May, the ASN conducted an on-site inspection to assess the level of preparation for plant operation. Its conclusions will be stated in a letter to be published during the summer. The principal positive conclusions concerning the condition of the plant and the competence and dedication of personnel were discussed at the time with the inspectors.

Hinkley Point C

Following the final investment decision (FID) made by EDF's Board of Directors on 28 July 2016, EDF and China General Nuclear Power Corporation (CGN) signed contracts with the UK government for the construction and operation of two EPR reactors at the Hinkley Point site in Somerset (the "Hinkley Point C" or "HPC" project). EDF's share in HPC is 66.5% and CGN's share is 33.5%.

Work on this project continued during the first half of 2023. Particular achievements were completion of the concrete internal containment building for Unit 1, ready for installation of the reactor dome, and the concrete platform in the turbine hall that will hold the turbine and generator for Unit 1. It will now be possible to proceed to installation of a 300-tonne bridge crane.

There was no change during the first half of 2023 in the target schedule, completion cost, or estimated risk of delay for HPC announced at 31 December 2022.

The start of electricity generation by HPC Unit 1 is still expected in June 2027. Difficulties encountered during the civil engineering work and electromechanical assemblies confirm the existence of a risk of delay to the construction schedule. That delay was estimated at 15 months in May 2022 and currently remains unchanged.

Regarding funding of the project:

- in 2016 the agreements signed by EDF Energy and CGN include a mechanism for compensation by EDF of certain additional costs in the event of initial budget overruns or delays. This mechanism was activated in January 2023. EDF paid compensation in the form of a contribution of funding for the project that is recognised as an issue premium and has no impact on its ownership percentage. The exact terms of the compensation mechanism were agreed in a contract between EDF Energy and CGN in September 2016 and are confidential;
- since the project's total funding requirements are higher than the shareholders' contractual commitments (committed equity), the shareholders will be asked to contribute additional funding (voluntary equity) from the fourth quarter of 2023. The probability that CGN will not provide project funding above its maximum committed equity is high. Financing solutions are being investigated, in the event that CGN does not allocate its voluntary equity

Sizewell C

Sizewell C is a project to build a nuclear power plant with two EPRs at Sizewell in Suffolk, England. The Sizewell C plant will have total capacity of 3.26GW, to supply electricity for 6 million households for around 60 years. The project is founded on a strategy of replication of HPC, as far as possible copying the design and logistics chain of the HPC project.

On 29 November 2022, the UK government announced its decision to make a direct investment of about £700 million in Sizewell C to support the project's ongoing development, and to increase its share in the project to 50%, equal to EDF's share. At 30 June 2023, EDF owned 53% of the project and the UK government owned the other 47%. On 24 July 2023, the UK Government confirmed a further £170 million investment.

Project development continued in the first half of 2023, with a view to reaching a final investment decision (FID) expected in 2024. EDF and the UK government are working together to finalise the remaining steps and make the project ready for further investments.

At the date of the FID, EDF intends to reduce its stake in Sizewell C to a maximum 19.99%, and to deconsolidate the project in the Group's financial statements (including removing it from ratings agencies' calculation of debt). If the FID goes ahead, EDF will supply the Sizewell C project with the design of the British EPR, key major components via Framatome, steam turbines (through EDF's forthcoming acquisition of GE Steam Power), fuel assemblies for at least the first few cycles, and ancillary services.

EDF's ability to reach a FID and contribute to funding for the construction phase depends on the fulfilment of conditions which are not guaranteed at this date.

New nuclear reactors in France: the EPR 2 project

The EPR 2 project concerns a new pressurised water nuclear reactor that meets the objectives for third-generation reactor safety. Its aim is to incorporate design, construction and commissioning experience acquired from EPR reactors and the nuclear reactors currently in operation.

On 16 July 2019, the ASN issued an opinion that the safety levels of EDF's key design options for its EPR 2 were satisfactory. It stated that "the general safety objectives, the safety baseline requirements and the main design options are on the whole satisfactory".

The EPR 2 will offer a superior operating performance in terms of power (1650MW compared to 1450MW for the most powerful current reactor), output, availability and manoeuvrability.

In 2021, EDF, working with the French authorities, finalised its contribution to the government-supervised work programme for formal provision of feedback from construction of the first EPRs, and demonstration of the French nuclear sector's ability to handle an industrial programme to build 3 pairs of reactors (using an adjusted EPR model incorporating experience from the earliest EPR projects in France and internationally).

The analysis conducted covered justification of the need, an action plan to mobilise actors in the nuclear sector, estimation of anticipated costs, analysis of the possible options for the programme's leadership and funding (and their consequences as regards regulation and changes in the legal framework), pre-identification of certain potential sites, consideration of questions relating to management of the waste produced by a new nuclear fleet and action to be taken, including interaction with the European Commission and public consultation.

In the summer of 2021, the DGEC audited the parts of this analysis relating to the programme and validated the methods used to estimate the schedule and costs.

On 10 February 2022, during a visit to Belfort in eastern France, the French President announced the launch of a programme to construct 6 EPR 2 reactors by 2035, and begin studies for an additional 8 EPR 2 reactors by 2050. He also observed that it was necessary to aim to have the first new reactor commissioned by 2035, and said that these new EPR2 units will be built and operated by EDF.

EDF was authorised by its Board of Directors on 31 March 2022 to continue working on this project until the end of 2023, with a cumulative budget of approximately €1.6 billion.

Since the summer of 2022, the New Nuclear (France) Programme Department has been in charge of establishing appropriate legal, economic, and financial frameworks and suitable conditions for realisation of EPR2 projects. It also makes sure that project management respects the cost, lead time, and performance targets for these projects. It controls and validates all the authorisations required by the EPR2 project, and for that purpose initiated a detailed review of EPR2 costing in September 2022. This was followed by a financial audit by the State, to analyse the revised costs and the related schedules for the EPR2 programme.

The first analysis work will end in late July, in time to present an initial cost perspective at the Board of Directors' meeting to be held on 26 July 2023.

The final conclusions of this audit will be reported after a broader review of the project which started in early 2023. The Review Committee, consisting of government-appointed independent experts and members of EDF (who are not direct stakeholders in the EPR2 project) will issue its conclusions in late 2023, following the general maturity review that should take place in October.

Meanwhile, EDF is in the process of launching a competitiveness plan to optimise project costs. This plan will be examined during phase 2 of the audit, in November 2023.

A final investment decision will be possible once the programme's funding arrangements have been established.

On 29 June 2023, EDF announced that it was making the applications for approval to launch construction of the first pair of EPR 2 reactors at Penly, and starting other administrative procedures required for their completion and connection to the electricity transmission network. EDF's objective is to begin preparatory work in mid-2024. EDF is proposing to build three pairs of EPR 2 reactors, at Penly (Normandy), Gravelines (Hauts de France) and Bugey (Auvergne Rhône-Alpes) (see the press release by the French President's Office of 19 July 2023).

NUWARD, France's Small Modular Reactor (SMR) project

Development of the NUWARD™ Small Modular Reactor (SMR) continued in the first half of 2023, with the end of the Conceptual Design phase and the start of the Basic Design phase in late March. The NUWARD™ SMR is a third-generation model pressurised water plant consisting of two 170MW modules, designed to be built in large numbers and widely exportable. Its main target is as a replacement for fossil-fired plants in the next few decades. Sales will be backed up by a model plant in France that is due to start construction by 2030.

The design of the NUWARD™ SMR is being preassessed by the ASN in collaboration with the Czech and Finnish safety authorities SUJB and STUK. The purpose of this assessment is to accelerate the granting of international licences for SMRs while also giving a new impetus to regulatory harmonisation.

In March 2023, EDF and Ansaldo signed a letter of intent for joint development of new nuclear facilities in Europe, especially SMRs, and to promote the spread of SMRs, particularly in Italy in the long term.

Another milestone in the first half of 2023 was the formation of the new subsidiary NUWARD, to reinforce development of its SMR which is in the basic design phase. This company will manage the investments for the SMR project.

A €50 million subsidy granted under the "France 2030" plan was received from the French State in December 2022, after due notification and authorisation from the European Commission. In May 2023, another French State subsidy of €300 million was received to finance the Basic Design phase. Prior notification of this state aid to the European Commission is currently in process. It is the first tranche of the €500 million additional State support announced by the French President in his speech given at Belfort on 10 February 2022 for the NUWARD™ project.

10.3 INVESTMENTS IN INTANGIBLE ASSETS AND PROPERTY, PLANT AND EQUIPMENT

The table below provides a breakdown of the investments in intangible assets and property, plant and equipment presented in the cash flow statement:

(in millions of euros)	30/06/2023	30/06/2022
Acquisitions of intangible assets	(868)	(730)
Acquisitions of property, plant and equipment	(8,578)	(7,369)
Change in payables to suppliers of fixed assets	(606)	(604)
IINVESTMENTS IN INTANGIBLE ASSETS AND PROPERTY, PLANT AND EQUIPMENT	**(10,052)**	**(8,703)**

Investments in property, plant and equipment and intangible assets during the first half of 2023 mainly concern:

- the France – Generation and Supply segment: €3,180 million, primarily the investments in the nuclear fleet currently in operation, essentially made under the "*Grand Carénage"* programme and including €214 million for work to address the stress corrosion phenomenon, investments for the Flamanville 3 EPR, and investments in hydropower generation;
- the France – Regulated activities segment: €2,562 million, essentially investments related to connections for customers and producers, but also investments for network renewal and modernisation, and quality;
- the United Kingdom segment: €2,580 million, mainly concerning investments made for the Hinkley Point C project;
- the EDF Renewables segment: €1,173 million.

10.4 IMPAIRMENT / REVERSALS

Impairment tests are conducted for the half-year financial statements when there is an indication of loss of value.

At 30 June 2023, impairment tests were conducted on certain specific assets in various CGUs where indications of impairment had been identified. Following these tests, impairment of €(48) million was recognised at 30 June 2023. This includes €(36) million concerning two EDF Renewables wind farms in China commissioned in 2021, for which the confirmed risk of non-reception of subsidies has a substantial impact on the projects' profitability.

€(15) million of impairment of associates (see note 11) was also recognised at 30 June 2023, in respect of two wind farms owned by EDF Renewables in Mexico.

At 30 June 2022, impairment tests led to recognition of €(253) million on specific assets, particularly relating to EDF Renewables (a wind farm in Texas and a wind farm in Mexico) and the United Kingdom (non-industrial land).

It was not considered necessary to update the tests performed at 31 December 2022 on the CGUs of the Italy, Framatome, Other international, Dalkia, and Other activities segments (with total tangible and intangible assets of €16,238 million at 30 June 2023 – see note 4), given the headroom existing at 31 December 2022 and the associated sensitivity analyses, and the fact that there was no triggering event at operational, regulatory or financial value in these CGUs during the first half of 2023.

Also, in the course of internal Group processes, impairment tests at 31 December 2022 were updated to take account of any changes that arose during the first half of 2023 in the power generation fleet in France, and in certain CGUs in the United Kingdom.These updates, which did not result in identifying new impairment, were realised::

- in the French generation fleet, due to the materiality of the CGU (total tangible and intangible assets: €62,198 million at 30 June 2023 – see note 4);
- in the United Kingdom (total tangible and intangible assets: €37,544 million at 30 June 2023 – see note 4), due to the impairment booked in 2022 on the HPC CGU and goodwill, and recoveries of impairment on the Nuclear assets (power generation) CGU in 2022.

General assumptions

The Group's impairment testing methodology is described in note 10.8 to the consolidated financial statements at 31 December 2022.

For future cash flows used to calculate value in use, a specific approach is used for half-year closings since there is no update to the Medium-Term Plan at that date. Cash flows are estimated based on the best current estimates, considering budget adjustments for the current year.

Electricity prices

Over the market horizon (generally three years), the forward prices used in impairment testing are the market prices observed at 30 June. The assumptions used for impairment test updates thus take account of the current market environment, in which forward electricity prices have decreased since the 2022 year-end. For example, the annual 2024 price (CAL 24 index) at 30 June 2023 is €174/MWh, compared to €240/MWh at 31 December 2022.

Over the long-term horizon, these tests use price curves constructed analytically by assembling blocks of assumptions and fundamental models of the supply-demand balance, in an annually updated process that is subject to specific internal governance. For the half-year closing, only the assumptions concerning commodities have been updated (for coal, oil, gas and CO_2 quotas).

As a result of updates to the fundamental assumptions for long-term changes in commodity prices, American gas prices were revised downwards over the whole time horizon, notably reflecting adoption of the Inflation Reduction Act that reduced demand for gas in the United States. European gas prices, meanwhile, are slightly higher at the very beginning of the horizon before rejoining the long-term curve calculated at the 2022 year-end, as the effects of the Ukraine crisis are perceptible both on the offer side (lower flows from Russia to US projects) and on the demand side. Long-term coal and CO2 prices have been revised upwards, in line respectively with the rise in production costs, and the accelerated decarbonisation goals of the EU's Fit for 55 package.

Due to these developments with their contrasting effects on electricity prices, and the general trend of increasing decarbonisation targets, subject to regulatory changes, the Group does not anticipate any risk to the value of assets based on long-term electricity price scenarios. Those scenarios will be updated as usual during the second half-year, and used in the impairment tests conducted at 31 December 2023.

Discount rates

The discount rates used in impairment testing were adjusted at 30 June 2023. As these rates are sensitive, among other factors, to changes in risk-free rates, they are generally slightly higher than the rates used at 31 December 2022.

United Kingdom – EDF Energy (Goodwill and tangible and intangible assets: €37,544 million at 30 June 2023 – see note 4 – including goodwill net of impairment: €6,758 million – see note 10.1)

The recoverable value of EDF Energy is determined by discounting future cash flows over the assets' expected useful life, taking into consideration the two EPRs with a 60-year useful life currently under construction at the Hinkley Point site. Future cash flows from these plants are determined by reference to the Contract for Difference (CfD) between the Group and the UK government. The CfD sets stable, predictable prices for EDF Energy for a period of 35 years from the date the two EPRs are first commissioned (see note 10.8.2 to the consolidated financial statements at 31 December 2022).

As the Group stated in its press release of 19 May 2022, the start of electricity generation is expected in June 2027 for HPC Unit 1 and June 2028 for Unit 2. The Group also announced the risk of a 15-month delay in delivery of the two units (which was integrated into the impairment testing model). Completion costs for the project are estimated at £25-26 billion in 2015 sterling.

The WACC determined for HPC is a hybrid rate that reflects the specificity of the cash flows being regulated by the CfD for 35 years, then exposed to market prices for the 25 subsequent years. The rate applicable to the project was 6.7% at 31 December 2022. The WACC used to test EDF Energy goodwill takes account of the WACC applicable to each of the company's CGUs (HPC, Nuclear assets (plants in operation), Sales and Supply). Given the respective importance of cash flows from each CGU, the overall WACC for EDF Energy was also 6.7% at 31 December 2022.

For the HPC CGU, construction of the reactors continued during the first half of 2023 (see note 10.2) and there was no development affecting progress or change in key factors (industrial or operational factors, or macro-economic assumptions including the discount rate) that generated a risk of additional impairment to the impairment booked at 31 December 2022 (€551 million). The book value of the HPC project is now sensitive to any unfavourable variation in assumptions.

For example, a +/-10bp variation in discount rates (compared to a 6.7% rate) causes a variation of approximately £700 million in the result of the HPC impairment test.

For the Nuclear assets (plants in operation) CGU, the impairment tests at 31 December 2022 showed significant headroom. Those tests were updated during the first half of 2023 to take account of a decline in forward prices, which was partly offset by the effect of the Electricity Generator Levy (EGL), and the impact of the 2-year extension to the operating lifetimes of the Hartlepool and Heysham 1 plants (see the EDF Energy press release of 9 March 2023). The updated test result showed lower but still significant headroom at 30 June 2023. The sensitivities reported in the financial statements at 31 December 2022 remain valid at 30 June 2023 and do not entail a risk of impairment.

For the Sales and Supply CGU, downstream margins improved in the first half of 2023 compared to budget assumptions, mainly due to lower sourcing costs. The headroom identified in the year-end 2022 impairment tests was thus confirmed.

At 31 December 2022, in consideration of the revised HPC project cost, which was notably affected by higher discount rates, partial impairment of €(1,176) million was recognised on EDF Energy goodwill despite the greater headroom observed for EDF Energy's Nuclear assets (plants in operation) and Sales and Supply CGUs. Based on the information presented concerning the company's CGUs and the absence of any major development during the half-year (including in macro-economic assumptions), no risk of additional goodwill impairment since 2022 has been identified. The book value of the EDF Energy goodwill is now sensitive to any unfavourable variation in assumptions.

France- Generation and supply

The impairment testing principles for the power plant fleet in France are described in detail in note 10.8.2 to the consolidated financial statements at 31 December 2022.

For nuclear assets, the Group's reference model for impairment testing assumes an operating lifetime of 50 years for 900MW and 1300MW-series plants and 40 years for N4-series plants, based on the current depreciation period, although it is the Group's strategy to keep plants in operation well beyond 50 years.

For the period 2023-2025, the key assumptions concerning price and regulation include an ARENH volume of 100TWh and price of €42/MWh, and where relevant a tariff cap for final consumers that will be funded by the French State budget in accordance with the current Finance Law (and therefore causes no loss of cash flow for EDF). From 2026, when the ARENH scheme ends, since to date there is no regulation of the existing French nuclear power fleet and more generally no measures concerning market design, the reference impairment test framework applies an assumption of full market exposure in constructing tariffs and prices.

The impairment test result at 31 December 2022 showed that the recoverable value was well above the net book value. Individual and combined sensitivity analyses of the various key hypotheses did not call this headroom into question.

The impairment test of 31 December 2022 was updated at 30 June 2023 to incorporate the following changes in assumptions: a decrease in forward prices; prospects of higher back-end costs in the long term; and to a lesser degree, an increase in the WACC, and the updated nuclear power output estimate for 2023-2025. The headroom shown by the test was smaller, but still substantially positive.

As mentioned earlier, the result of the impairment test for the power plant fleet in France is primarily sensitive to the price scenario used after 2025, and the assumed operating lifetime of nuclear plants.

NOTE 11 INVESTMENTS IN ASSOCIATES AND JOINT VENTURES

Principal investments in associates and joint ventures are as follows:

(in millions of euros)	Notes	30/06/2023 Ownership%	30/06/2023 Share of net equity	30/06/2023 Share of net income	30/06/2022 Share of net income	31/12/2022 Share of net equity	31/12/2022 Share of net income
CTE[1]		50.10%	1,580	(60)	246	1,766	250
Taishan (TNPJVC)[2]	11.1	30.00%	n.c	n.c	(18)	1,084	(102)
Other investments held by EDF SA	11.2	*n.a.*	1,929	(1)	45	1,944	79
Investments held by EDF Renewables	11.2	*n.a.*	2,617	(22)	(121)	2,519	(52)
Other investments in associates and joint ventures	11.2	*n.a.*	*n.c*	*n.c*	292	2,108	584
TOTAL			**9,047**	**142**	**444**	**9,421**	**759**

n.a. : not applicable

n.c. = not communicated.

[1]CTE's affiliate, RTE (Réseau de Transport d'Électricité), is responsible for managing the high voltage and very high voltage public electricity transmission network. Enedis uses RTE's network to convey energy to the distribution network.

[2]The financial data for Taishan at 30 June 2023 are not reported in this table as CGN (Taishan's parent company) publishes its consolidated financial statements later than the Group.

11.1 TAISHAN

EDF owns 30% of Taishan Nuclear Power Joint Venture Company Limited (TNPJVC), which was set up to build and operate two EPR nuclear reactors in Taishan, in the province of Guangdong in China. Comprising two 1750MW EPR reactors, Taishan nuclear power plant is the biggest cooperation project between China and France in the energy sector. CGN holds a 51% stake and Guangdong Energy Group a 19% stake.

Following the start of commercial operation by the first reactor on 13 December 2018, the second reactor began commercial operation on 7 September 2019.

On 20 March 2019, the NDRC (National Development and Reform Commission) attributed regulated tariffs to the first three third-generation nuclear projects in China, one of which is Taishan. The tariff attributed to Taishan was set at RMB435/MWh until the end of 2021, with retroactive effect to the date the first unit was commissioned (13 December 2018). The indexing mechanisms applicable from 2022 were not set out in this decision and are still currently unknown. The NDRC announced that the current tariffs would be extended for third-generation plants (including Taishan) until further notice.

On 14 June 2021, during its second cycle of operation, a build-up of noble gases was detected in the primary circuit of reactor 1 at the Taishan plant. The Chinese ministry for ecology and the environment stated that this was due to a few unsealed fuel rods. Following an initial analysis of the situation, on 30 July 2021 the operator of the Taishan plant decided to shut down reactor 1 to assess the situation in more detail, prevent it from progressing, and take remedial action. Defueling operations were completed on 22 August 2021. Inspections carried out on the fuel assemblies of Taishan reactor 1 following the technical issue encountered during its second operating cycle showed mechanical wear on certain assembly components. This phenomenon has already been encountered in several reactors in the French nuclear fleet. During the first half of 2022, EDF and Framatome contributed to drawing up the documentation to safely restart Taishan reactor 1, and supported TNPJVC while it was examined by the Chinese authorities. On 15 August 2022, Taishan reactor 1 was reconnected to the Chinese electricity network after the final inspection by the competent Chinese authorities at the end of July 2022.

During the first quarter of 2023, Taishan reactor 1 was taken offline for a scheduled refuelling outage. As CGN stated in a press release of 9 June 2023, during that outage TNPJVC added some inspections and tests to collect data and experience for the unit's stable long-term operation. Reactor 1 was still offline at 30 June 2023.

Under the TNPJVC shareholder pact, EDF began an "interpretation" arbitration procedure in January 2021 in the Singapore International Chamber of Commerce against its partner CGN. The disagreement concerned the accounting policy for the power plant, particularly its depreciation period. EDF wanted a 60-year period in line with the plant's operating lifetime, while CGN considered it should be 41 years, ending at the same time as the entity TNPJVC. This accounting policy could influence the remuneration received by the EDF group through this partnership, particularly the residual interest when it ends. The decision issued on 6 June 2023 validated EDF's position.

A provision has been established in consideration of the persistent uncertainties about the level of tariff changes, and the risk of an extended outage at unit 1, both factors that could threaten the recoverable value of the investment in Taishan accounted for by the equity method (this provision is included in "Provisions for contingencies related to subsidiaries and investments" in note 16.2).

11.2 OTHER INVESTMENTS

The other investments held by EDF SA are included in dedicated assets (see note 14.2).

The other investments held by EDF Renewables are mainly located in North America, and to a lesser degree in Europe, China and Brazil. The increase in these investments over the first half of the year is mainly attributable to the Desert Harvest I and II projects.

Other investments in associates and joint ventures principally concern:

- JERA Global Markets (JERA GM), 33%-owned by EDF Trading, a company specializing in trading and optimization activities, particularly for liquified natural gas (LNG);
- the supercritical coal-fired plant owned by Jiangxi Datang International Fuzhou Power Generation Company Ltd. in China, 49%-owned by the Group;
- the dam owned by Compagnie Énergétique de Sinop (CES) in Brazil, 51%-owned by the Group;
- the Nachtigal dam in Cameroon, 40%-owned by the Group. Reservoir impoundment began on 18 July 2023 and the whole power plant will be commissioned in the second half of 2024.

During the first half of 2023, €(50) million of impairment was booked in respect of investments in associates and joint ventures principally concerning dedicated assets (€(30) million).

During the first half of 2022, €(137) million of impairment was booked in respect of investments in associates and joint ventures principally concerning wind power assets belonging to EDF Renewables in the United States.

NOTE 12 WORKING CAPITAL

12.1 WORKING CAPITAL: COMPOSITION AND CHANGE

12.1.1 Composition of working capital

Changes in net working capital during the first half of 2023 are as follows:

(in millions of euros)	Notes	31/12/2022	Monetary changes	Non-monetary changes	30/06/2023
Inventories and work-in-process		**(17,661)**	(73)	113	**(17,621)**
Trade receivables net of provisions	12.2	**(24,844)**	86	117	**(24,641)**
Trade payables	12.4	**23,284**	(7,347)	(36)	**15,901**
Compensation receivable for Public Energy Service charges (CSPE payable)	12.5.4	**6,074**	(3,502)	-	**2,572**
Other receivables and payables[(1)]	12.3 and 12.5	**9,007**	2,956	1,124	**13,086**
Other components of working capital[(2)]		**(117)**	(140)	(1,459)	**(1,716)**
NET WORKING CAPITAL		**(4,257)**	**(8,020)**	**(141)**	**(12,418)**

[(1)] *Excluding receivables and payables on acquisition/disposal of assets and investment subsidies.*

[(2)] *The other components of working capital includes CO_2 emission rights and green certificates presented in intangible assets in the balance sheet, and operating derivatives.*

12.1.2 Monetary changes in working capital

(in millions of euros)	Notes	30/06/2023	31/12/2022
Change in inventories		(73)	(1,894)
Change in trade receivables	12.2	86	(3,643)
Change in trade payables	12.4	(7,347)	4,524
Change in the Compensation receivable for Public Energy Service charges (CSPE payable)	12.5.4	(3,502)	5,780
Change in other receivables and payables[1]	12.3 and 12.5	2,816	3,534
CHANGE IN WORKING CAPITAL		**(8,020)**	**8,301**

The change in other receivables and payables is explained by higher amounts receivable in additional remuneration for purchase obligations (€1.7 billion), the receipt by Enedis of the payment of the CRCP surplus from RTE (€1.2 billion), tax and social liabilities (€0.8 billion), and a decrease in net margin calls in the trading activities (€(0.9) billion).

The change in other receivables and payables includes monetary changes in CO2 emission rights and green certificates presented in intangible assets in the balance sheet, and operating derivatives.

12.1.3 Non-monetary changes in working capital

Non-monetary changes include the effect of changes in the scope of consolidation, foreign exchange effects, changes in fair values and the effect of reclassifications. The variation in non-monetary changes in the first half of 2023 is mainly explained by the change in fair value of inventories and operating derivatives totalling €(219) million and other effects amounting to €85 million, mainly associated with the adjustment for loaded fuel.

12.2 TRADE RECEIVABLES

Details of net trade receivables are as follows:

(in millions of euros)	30/06/2023	31/12/2022
Trade receivables, gross value – excluding EDF Trading	22,181	21,568
- contract assets[1]	538	*441*
Trade receivables, gross value – EDF Trading	4,052	4,598
Impairment	(1,592)	(1,322)
Trade receivables - net value	**24,641**	**24,844**

[1]Contract assets represent an amount of €538 million at 30 June 2023 (€441 million at 31 December 2022), and mainly concern the Framatome, Dalkia, EDF Renewables and Other international operating segments.

Most trade receivables mature within one year.

Advances received from customers in France who pay in regular monthly instalments, amounting to €7,951 million at 30 June 2023 (€7,423 million at 31 December 2022), are deducted from trade receivables.

Trade receivables were stable overall between 31 December 2022 and 30 June 2023, but the variations in the segments differed substantially in keeping with their respective sales: France – Generation and supply: €3.0 billion, Italy: €(1.5) billion, France – Regulated activities: €(0.6) billion and Dalkia €(0.5) billion.

12.2.1 Trade receivables due and not yet due

(in millions of euros)	30/06/2023 Gross value	Provision	Net value	31/12/2022 Gross value	Provision	Net value
Trade receivables	**26,233**	**(1,592)**	**24,641**	**26,166**	**(1,322)**	**24,844**
overdue by up to 6 months	2,485	(365)	2,120	2,037	(183)	**1,854**
overdue by 6-12 months	779	(250)	529	678	(242)	**436**
overdue by more than 12 months	1,072	(576)	496	1,117	(551)	**566**
Trade receivables due	**4,336**	**(1,191)**	**3145**	**3,832**	**(976)**	**2,856**
Trade receivables not yet due	**21,897**	**(401)**	**21,496**	**22,334**	**(346)**	**21,988**

12.2.2 Assignment of receivables

(in millions of euros)	30/06/2023	31/12/2022
Trade receivables assigned and wholly retained in the balance sheet	53	324
Trade receivables assigned and wholly derecognised	1,871	2,470

The Group assigned trade receivables for a total of €1,871 million at 30 June 2023, mainly concerning EDF SA, Edison, Luminus and Dalkia (€2,470 million at 31 December 2022).

As most assignment operations are carried out on a recurrent, without-recourse basis, the corresponding receivables are no longer carried in the Group's consolidated balance sheet.

12.3 OTHER RECEIVABLES

At 30 June 2023, other operating receivables include €2.2 billion of margin calls made in the trading activity (€5.2 billion in 2022), which decreased essentially as a result of the decline in market prices and volatility observed over the half-year. The amounts of margin calls recognised in assets cannot be netted with the margin calls recognised in liabilities (see note 12.5.4).

At 30 June 2023, other receivables also include tax receivables of €1 902 million (€2 242 million at 31 December 2022) and prepaid expenses of €1 601 million (€1,592 million at 31 December 2022).

12.4 TRADE PAYABLES

(in millions of euros)	30/06/2023	31/12/2022
Trade payables – excluding EDF Trading	12,299	16,001
Trade payables – EDF Trading	3,602	7,283
TRADE PAYABLES	**15,901**	**23,284**

The €3.7 billion decrease in trade payables excluding EDF Trading in the first half year of 2023 notably includes €1.6 billion concerning Edison.

The Group has a reverse factoring programme allowing suppliers to transfer their receivables on EDF to a factoring company, at their own initiative. For the Group, this programme does not cause any change in the substance and features of the receivables held by suppliers on EDF. In particular it does not affect the sequences of operating cash flows. The associated liabilities are therefore included in "trade payables" in the Group's financial statements.

12.5 OTHER LIABILITIES

Details of other liabilities are as follows:

(in millions of euros)	30/06/2023	Including contract liabilities	31/12/2022	Including contract liabilities
Advances and progress payments received	3,350	2,087	3,973	2,025
Liabilities related to property, plant and equipment	4,109	-	4,631	-
Tax liabilities	4,221	-	3,488	-
Social charges	5,896	-	5,865	-
Deferred income on long-term contracts	3,481	3,481	3,180	3,144
Other deferred income(1)	1,254	766	1,172	694
Other	9,022	-	16,163	-
OTHER LIABILITIES	**31,333**	**6,334**	**38,472**	**5,863**
Non-current portion	5,492	3,416	*4,968*	*2,929*
Current portion	25,841	2,919	*33,504*	*2,934*

(1)Including the initial payment made under the Fessenheim compensation protocol received in 2020.

12.5.1 Advances and progress payments received

At 30 June 2023, advances and progress payments received comprise €596 million of payments made by the customers in Framatome's long-term contracts (€630 million at 31 December 2022).

12.5.2 Tax liabilities

At 30 June 2023, tax liabilities mainly include an amount of €95 million for the CSPE tax to be collected by EDF on energy supplied but not yet billed, less the CSPE tax collected on advances from customers who pay in regular monthly instalments (€116 million at 31 December 2022).

12.5.3 Deferred income on long-term contracts

EDF's deferred income on long-term contracts at 30 June 2023 comprises €2,141 million of partner advances made to EDF under the nuclear plant financing plans (€1,777 million at 31 December 2022). This €364 million increase is explained by the fact that a partner exercised an extension option.

Deferred income on long-term contracts also includes an advance of €1.7 billion paid to the EDF group in 2010 under the agreement with the Exeltium consortium. This advance is transferred to the income statement progressively over the term of the contract (24 years).

12.5.4 Other

At 30 June 2023, other operating liabilities include €2.0 billion of margin calls made in the trading activity (€5.9 billion in 2022). The decrease is due to the lower volatility and commodity prices observed in Europe in the first half of 2023. The amounts of margins calls recognised in liabilities cannot be netted with margin calls recognised in assets (see note 12.3).

Other liabilities at 30 June 2023 also include a €2 572 million operating liability due to the State in connection with the CSPE (€6,074 million at 31 December 2022).

The final line of the table of other liabilities includes investment subsidies received during the first half of 2023, amounting to €36 million (€108 million for the first half of 2022). Investment subsidies received by Group companies are included in liabilities under the heading "Other liabilities" and transferred to income as and when the economic benefits of the corresponding assets are utilised.

EDF's public service charges

The amount of charges to be compensated to EDF SA for the first half of 2023 is €5,551 million:

- Public service charges to be covered in connection with purchase obligations were negative in the first half of 2023 at €(2,694) million because of high market prices, which were above the energy costs sustained by EDF;
- Conversely, the public service charges to be covered in the first half of 2023 include an amount of €7,194 million for the sales revenue shortfall caused by the cap on sale prices to final customers (which had no equivalent in the first half of 2022, except for the gas tariff cap mechanism with an effect of €28 million). The electricity tariff cap gave rise to compensation of €6,458 million and the electricity buffer gave rise to compensation of €642 million, while the compensation for the gas tariff cap amounted to €94 million.
- The public service charges to be compensated for non-interconnected zones amount to €1,037 million.

The amounts received in 2023 out of the State's General Budget totalled €2,053 million, corresponding to the balance of payments receivable for the year 2022. The total amount for 2022 was fixed in the CRE decision of July 2021 at €6,625 million.

However, at 30 June 2023, EDF SA has a €2,581 million operating liability to the State (€6,074 million at 31 December 2022).

The compensation mechanism for public energy service charges in France is presented in note 5.5.1 to the consolidated financial statements at 31 December 2022.

12.5.5 Contract liabilities

Contract liabilities represent an entity's obligations to provide customers with goods or services for which it has already been paid, or for which payment is due.

Changes in contract liabilities were as follows:

(in millions of euros)	31/12/2022	Amounts recorded during the period	Amounts transferred to sales during the period	Amounts cancelled during the period with no impact on sales	Effect of unwinding the discount	Change in scope of consolidation	Foreign exchange effect	30/06/2023
Advance payments received	**2,025**	1,600	(1,559)	(14)	3	-	32	**2,087**
Deferred income on long-term contracts	**3,144**	874	(557)	-	23	-	(4)	**3,481**
Other deferred income	**694**	577	(547)	-	-	42	1	**766**

These liabilities comprise the majority of advances and progress payments received, amounting to €2,087 million (principally concerning the Framatome, United Kingdom and France – Regulated Activities segments), and the majority of deferred income (on long-term and other contracts), amounting to €4,247 million (principally concerning the France – Generation and Supply segment). They thus total €6,334 million at 30 June 2023 (€5,863 million at 31 December 2022).

Contracts expiring in more than one year on which obligations are unfulfilled or partially fulfilled at the reporting date should generate sales revenues of approximately €13,250 million which have not yet been recognised. €945 million of these sales revenues will be recognised progressively until 2034 on the Exeltium contract, and the balance will be recognised over the operating period for contracts relating to jointly-operated power plants, and over the term of the contract for other firm sale contracts (excluding energy sales).

NOTE 13 EQUITY

13.1 SHARE CAPITAL

At 30 June 2023, EDF's share capital amounts to €2,084,809,296.50 comprising 4,169,618,593 fully subscribed and paid-up shares with nominal value of €0.50, owned 99.98% by the French State, with 0.02% held by EDF as treasury shares.

During the first half of 2023, all of the 218,696,799 OCEANE bonds were converted, leading to successive capital increases totalling €140,950,086.50 after the issuance of 281,900,173 new shares (see note 13.4).

13.2 DIVIDENDS

At the General Shareholders' Meeting of 28 June 2023 it was decided not to pay out any dividend in 2023 in respect of 2022.

13.3 PERPETUAL SUBORDINATED BONDS

13.3.1 Composition of the perpetual subordinated bonds outstanding at 30 June 2023

At 30 June 2023, perpetual subordinated bonds carried in equity amounted to €12,009 million (less net-of-tax transaction costs) (compared to €11,722 million at 31 December 2022).

On 8 June 2023, the Group issued hybrid notes that were recognised in equity at the value of €1,377 million (see note 13.3.2). In parallel, EDF launched a contractual cash redemption offer for the outstanding bonds of the $1,500 million perpetual subordinated bond issue of January 2014, that were included in equity at the value of €1,093 million at 31 December 2022. The redemption value totalled $901 million (€820 million) at 21 June 2023 (see note 13.3.2). The outstanding bonds concerned by this offer, amounting to €551 million, were reclassified as financial liabilities at 30 June 2023 at a value that includes the corresponding foreign exchange effects (see the press release of 7 July 2023). EDF confirmed on 7 July 2023, when the results of the redemption offer were announced, that it was proceeding with an additional redemption of $3 million with a settlement date of 10 July 2023. After the offer closed, the nominal value of the outstanding bonds was $596 million. This will be added back to equity in July 2023.

Interest paid by EDF to the bearers of perpetual subordinated bonds issued totalled €300 million in the first half of 2023, compared to €332 million in the first half of 2022 and €606 million in 2022. The resulting cash payout is reflected in a corresponding reduction in Group equity.

In the second half of 2023, EDF paid interest of €85 million to the bearers of perpetual subordinated bonds in July 2023, compared to €166 million in July 2022.

13.3.2 Changes in perpetual subordinated bonds during the first half of 2023

On 8 June 2023 EDF issued a US dollar-denominated ¨1.5 billion perpetual hybrid bonds at an initial 9.125% coupon and a first call date at EDF's discretion in 2033. EDF will be able to redeem these hybrid bonds for cash at any time during the 3-month period preceding the first interest reset date, which is expected to be in 10 years (i.e. in 2033), and on every 5 years thereafter.

The proceeds of this issue will be used for the total or partial redemption of a series of US dollar-denominated perpetual super-subordinated bonds, and to finance the Group's general requirements. Settlement and delivery took place on 15 June 2023, the date on which the hybrid bonds were admitted to trading on the multilateral trading facility operated by the Luxembourg Stock Exchange (Euro MTF). This issue was recorded in equity upon reception of the funds, at the net value of €1,377 million.

EDF launched a contractual redemption offer on 6 June 2023 to purchase all or some of its €1.5 billion of US dollar-denominated perpetual subordinated bonds, which are admitted to trading on the regulated market at the Luxembourg Stock Exchange. The redemption value totalled $901 million (€820 million) at 21 June 2023 and €551 million were reclassified as financial liabilities at 30 June 2023, since the offer was open until 6 July 2023.

13.4 CONVERTIBLE GREEN BONDS *(OCÉANES)*

On 8 September 2020, EDF made an issuance of Green Bonds convertible into new shares and/or exchangeable for existing shares (*OCEANEs Vertes*) with the nominal amount of €2,400 million and an issue value of €2,569 million.

882,340 OCEANE bonds were converted into new shares during 2022, giving rise to creation of 1,137,336 shares and a €9,65 million increase in the Group's equity, including €0.57 million of share capital.

Through its public tender offer (see note 2), the French government acquired 127,147,355 OCEANE bonds through this Simplified Tender Offer, with the result that it held 214,979,011 OCEANE bonds or 98.30% of the total portfolio of OCEANEs at 31 December 2022.

On 26 January 2023, conversion of 201 OCEANE bonds led to the issuance of 259 new shares.

On 22 February 2023, the French State requested the conversion into shares of 87,831,655 OCEANE bonds. This conversion led to the issuance of 113,215,003 new shares.

On 24 May 2023, the French State requested the conversion into shares of 130,784,645 OCEANE bonds. This conversion led to the issuance of 168,581,407 new shares.

Following the squeeze-out on 8 June 2023, the remaining 80,298 OCEANE bonds that had not been tendered to the offer were transferred to the State, giving rise to conversion of all those bonds on 13 June 2013, and delisting of EDF's OCEANE bonds from Euronext Access. This last conversion led to the issuance of 103,504 new shares.

These successive operations during the first half of 2023 caused an increase of €2,390 million in the Group's equity, including a €141 million increase in the share capital.

13.5 NON-CONTROLLING INTERESTS (MINORITY INTERESTS)

	30/06/2023			30/06/2022	
(in millions of euros)	Ownership %	Equity (non-controlling interests)	Net income attributable to non-controlling interests	Equity (non-controlling interests)	Net income attributable to non-controlling interests
Principal non-controlling interests:					
EDF Energy Nuclear Generation Ltd.	20.00%	2,231	79	2,583	50
NNB Holding Company (HPC) Ltd.	33.50%	7,515	(23)	6,747	(14)
NNB Holding Company (SZC) Ltd.	46.86%	1,206	-	400	-
EDF Investissements Groupe SA	7.54%	519	6	518	5
Luminus SA	31.37%	616	(26)	389	4
Framatome	24.50%	216	(19)	85	1
Other non-controlling interests		**1,409**	**81**	**1,489**	**92**
TOTAL		**13,712**	**98**	**12,211**	**138**

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

Non-controlling interests in NNB Holding Company (HPC) Ltd, the holding company for the Hinkley Point C project, which is owned 66.50% by the Group *via* EDF Energy, correspond to CGN's share.

Non-controlling interests in NNB Holding Company (SZC) Ltd, the holding company for the Sizewell C project, which is owned 53,14% by the Group *via* EDF Energy, correspond to the British government's share in the project at 30 June 2023 after its investment made on 30 November 2022 and the withdrawal at the same date of CGN, which held a 20% share (see note 10.2).

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

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

Non-controlling interests in Framatome, owned 75.5% by the Group *via* EDF SA, correspond to the 19.5% share held by Mitsubishi Heavy Industries and the 5% share held by Assystem.

Other non-controlling interests are mainly minority interests in subsidiaries of the Edison and EDF Renewables subgroups.

They also include instruments in the form of bonds convertible into shares, issued by the Dalkia group and subscribed by minority interests, amounting to a total €98 million at 30 June 2023 (€131 million in the first half of 2022).

NOTE 14 PROVISIONS RELATED TO NUCLEAR GENERATION AND DEDICATED ASSETS

The breakdown between current and non-current provisions related to nuclear generation is as follows:

	30/06/2023			31/12/2022		
(in millions of euros)	Current	Non-current	Total	Current	Non-current	Total
Provisions for the back-end of the nuclear cycle	1,921	25,488	**27,409**	1,602	24,982	**26,584**
Provisions for decommissioning and last cores	2,245	30,967	**33,212**	1,539	31,039	**32,578**
Provisions related to nuclear generation	**4,166**	**56,455**	**60,621**	**3,141**	**56,021**	**59,162**

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

(in millions of euros)	31/12/2022	Increases	Decreases	Discount effect	Translation adjustments	Other movements	30/06/2023
Provisions for spent fuel management	**12,663**	213	(436)	330	42	(70)	**12,742**
Provisions for waste removal and conditioning	**373**	-	-	16	12	(15)	**386**
Provisions for long-term radioactive waste management	**13,548**	380	(197)	485	36	29	**14,281**
Provisions for the back-end of the nuclear cycle	**26,584**	**593**	**(633)**	**831**	**90**	**(56)**	**27,409**
Provisions for nuclear plant decommissioning	**29,015**	105	(447)	928	366	(466)	**29,501**
Provisions for last cores	**3,563**	-	-	87	39	22	**3 711**
Provisions for decommissioning and last cores	**32,578**	**105**	**(447)**	**1,015**	**405**	**(444)**	**33,212**
PROVISIONS RELATED TO NUCLEAR GENERATION	**59,162**	**698**	**(1,080)**	**1 846**	**495**	**(500)**	**60,621**
EDF SA	**43,382**	337	(660)	1,242	-	189	**44,490**
- provisions within the scope of the Law of 28 June 2006	***42,187***	*332*	*(637)*	*1,212*	-	*189*	***43,283***
United Kingdom	**15,148**	9	(402)	594	495	(676)	**15,168**
Belgium	**632**	352	(18)	10	-	(13)	**963**

The change in the first half of 2023 in provisions related to nuclear generation is mainly explained by:

- an increase in the real discount rate in the United Kingdom (particularly +20 base points on provisions for the back-end of the nuclear cycle and decommissioning) the corresponding effects are presented in "Other movements" €(439) million for changes in these provisions backed by assets (specifically, the receivable representing reimbursements due from the Nuclear Liabilities Fund (NLF) and the British government in the case of provisions for the back-end of the nuclear cycle and decommissioning, or associated assets and underlying assets in the case of provisions for last cores);
- an increase of €335 million in provisions in Belgium, mainly reflecting the effects of Engie's agreement signed with the Belgian government on all the nuclear waste-related obligations of EDF Luminus and EDF Belgium (see note 7), and extension of the operating lifetimes of Tihange 3 and Doel 4.

The regulatory and contractual framework related to EDF's provisions for the back-end of the nuclear cycle and decommissioning of EDF Energy's power plants is described in note 15.2 to the consolidated financial statements at 31 December 2022.

14.1 NUCLEAR PROVISIONS IN FRANCE

The measurement of provisions for the back-end of the nuclear cycle, plant decommissioning and last cores is sensitive to assumptions concerning industrial scenarios and technical processes, costs, inflation rates, long-term discount rates, depreciation periods of plants currently in operation and disbursement schedules. The regulatory and contractual framework for nuclear provisions in France and the main calculation methods used for provisions are described in note 15.1.1 to the consolidated financial statements at 31 December 2022.

The expenses to be covered by provisions for spent fuel management are estimated based on forecast physical flows at the closing date, with reference to the contracts with Orano Recyclage which define the terms of the framework agreement for the period 2008-2040. The most recent contract, signed on 5 February 2016, covers the period 2016-2023.

Negotiations with Orano Recyclage concerning the amendment for the period 2024-2026 have been ongoing since September 2020. In view of these negotiations, at 31 December 2022 EDF recognised a provision for contingencies and losses of €854 million, the best estimate at that date of the probable outcome of the negotiations based on the parties' most recent interactions. Discussions resumed during the first half of 2023 following new requests by Orano Recyclage, and no agreement had been reached at 30 June 2023. The provision was increased by €1,026 million during the first half of the year to €1,880 million at 30 June 2023 (see note 16.2), in addition to the provision related to the processing and recycling agreement included in the provision for spent fuel management, which amounts to €8.3 billion at 30 June 2023. This reflects EDF's best assessment of how the outcome of the negotiations will affect its provisions, based on EDF's latest counter-proposal to Orano Recyclage made in April 2023. The counter-proposal notably offered a 27% average increase in contract fees (in 2024 euros) compared to the average defined for the period 2016-2023 (in 2020 euros). It takes account of changes in the economic conditions underlying the contract and the requirements expressed by Orano Recyclage regarding the necessary operating costs to enhance its plants' performance.

Once the negotiations have been completed, it will be possible to take the consequences into account directly in the provisions for spent fuel management (rather than in the provision for contingencies and losses as currently).

Regarding provisions for long-term radioactive waste management, decommissioning and last cores, there was no regulatory, industrial, operational or financial event during the first half of 2023 that is likely to lead to a notable change in cost estimates and provisions.

Regarding the CIGEO storage centre, following ANDRA's application to the Ministry for the Energy Transition for authorisation to create the centre, on 22 June 2023 the ASN published an announcement confirming that the application was admissible. This made it possible to begin technical examination of the application. The decree authorising creation is expected in 2027.

Discount rate and inflation rate

The methods for calculation of the discount rate and inflation rate are described in note 15.1.1.5 to the consolidated financial statements at 31 December 2022.

Applying these methods, the discount rate is 4.8% at 30 June 2023 (4.8% at 31 December 2022), assuming inflation of 2.3% (2.3% at 31 December 2022), *i.e.* a real discount rate of 2.5% at 30 June 2023 (2.5% at 31 December 2022).

The stability of the discount rate reflects the relative stability of both OAT bond rates for maturities of over 10 years, and spreads for corporate bonds since 31 December 2022.

Regulatory discount rate limit

The discount rate must comply with two regulatory limits. Under the decree of 1 July 2020 on secure financing for nuclear expenses (which codified and updated the initial decree of 23 February 2007 as part of the Environmental Code) and the ministerial order of 1 July 2020 on secure financing for nuclear expenses (which amended the initial ministerial order of 21 March 2007), it must be lower than:

- a regulatory maximum, expressed in real value, *i.e.* net of inflation; this value is equal to the unrounded value representative of expectations concerning the real long-term interest rate, as used for the calculation of the Ultimate Forward Rate (UFR) applicable at the date concerned published by the European Insurance and Occupational Pensions Authority (EIOPA), plus 150 bp. This maximum is applicable from 2024. Until 2024, the maximum is the weighted average of 2.3% and the above calculation. The weighting applied to the 2.3% rate is set at 50% for 2020, 25% for 2021, 12.5% for 2022 and 6.25% for 2023;
- and the expected rate of return on assets covering the liability (dedicated assets).

The maximum discount rate calculated by reference to the UFR in application of the order that took effect on 1 July 2020 is 2.82% at 30 June 2023 (2.85% at 31 December 2022).

Studies incorporating the risk-return profile of the different asset classes show a 20-year average forecast return on dedicated assets that is close to the average annualised return of 5.8% observed between 1 January 2004 and 30 June 2023, and thus higher than the discount rate.

Sensitivity to assumptions concerning costs, inflation rate, discount rate, and disbursement schedules can be estimated through comparison of the gross amount estimated under year-end economic conditions with the present value of the amount.

Provisions related to nuclear generation within the scope of the Law of 28 June 2006	**30/06/2023**		**31/12/2022**	
(in millions of euros)	**Costs based on year-end economic conditions**	**Amounts in provisions at present value**	**Costs based on year-end economic conditions**	**Amounts in provisions at present value**
Spent fuel management	16,083	10,246	16,194	10,184
- amount unrelated to the operating cycle	*3,448*	*1,633*	*3,417*	*1,607*
Long-term radioactive waste management	37,906	12,790	36,996	12,475
BACK-END NUCLEAR CYCLE EXPENSES	**53,989**	**23,036**	**53,190**	**22,659**
Decommissioning of nuclear plants in operation	21,936	12,590	21,381	12,125
Decommissioning of shut-down nuclear plants	8,454	5,168	8,219	4,969
Last cores	4,244	2,489	4,189	2,434
DECOMMISSIONING AND LAST CORE EXPENSES	**34,634**	**20,247**	**33,789**	**19,528**
PROVISIONS RELATED TO NUCLEAR GENERATION within the scope of the law of 28 June 2006		***43,283***		***42,187***

In addition to sensitivity analyses, the table below shows the estimated impact of a +/-20 base point change in the discount rate on the present value of EDF's provisions for the back-end of the nuclear cycle, decommissioning and last cores:

At 30 June 2023

	Amounts in provisions at present value	**Sensitivity to discount rate**			
		Balance sheet provisions		**Pre-tax net income**	
(in millions of euros)		**+ 0.20%**	**- 0.20%**	**+ 0.20%**	**- 0.20 %**
Back-end nuclear cycle expenses:	**24,243**	**(890)**	**976**	**717**	**(790)**
- spent fuel management	11,453	(199)	212	170	(182)
- long-term radioactive waste management	12,790	(691)	764	547	(608)
Decommissioning and last core expenses:	**20,247**	**(757)**	**798**	**153**	**(164)**
- decommissioning of nuclear plants in operation	12,590	(519)	544	0	(0)
- decommissioning of shut-down nuclear plants	5,168	(153)	164	153	(164)
- last cores	2,489	(85)	90	0	0
TOTAL	**44,490**	**(1,647)**	**1,774**	**870**	**(954)**
Amount covered by dedicated assets	***32,664***	***(1,467)***	***1,585***	***769***	***(847)***

The impact of a +/-10 base point variation in discount rates on the present value of provisions for the back-end of the nuclear cycle, decommissioning and last cores is estimated at €(840)/875 million, including €446/(470) on the pre-tax net income.

14.2 EDF'S DEDICATED ASSETS

As required by French regulations, EDF has built up a portfolio of financial assets dedicated to secure financing of long-term nuclear obligations, in particular decommissioning of its power plants and long-term management of radioactive waste.

The key features of this portfolio, the principles governing its management and the applicable regulations are presented in note 15.1.2 to the consolidated financial statements at 31 December 2022.

14.2.1 Changes in dedicated assets in the first half of 2023

As the coverage of provisions by dedicated assets was above 100% at 31 December 2022 (107.1%), EDF has no obligation to add to the dedicated asset portfolio in 2023, and no allocation was made during the first half of the year (in 2022, there was also no such obligation and no allocation to dedicated assets was made).

High-risk assets recovered in the first half of 2023, making up much of the ground lost in 2022.

This development reflects a marked improvement in macro-economic expectations, and investors' growing belief, in contrast to their cautiousness of late 2022, that the global economy would have a soft landing and a harsh recession would be avoided. There was also a notable slowdown in inflation: the rolling 12-month inflation rate in the US returned to 4.0% in May 2023, compared to 9.1% in June 2022. This ebb in inflation has fuelled the idea that the central banks will soon be able to relax their monetary policies, paving the way for subsequent easing. But the central banks remain vigilant, particularly because inflation for items other than food and energy remains high (rolling 12-month inflation was 5.3% in May in the United States, and also in the Euro zone).

These favourable macro-economic trends were also reflected in better-than-expected business results, especially by major technology sector stocks, which made a significant contribution to index rises.

Against this background, between the start of the year and 30 June, the MSCI World All Countries equities index increased by 12.1% in Euros, the FTSE EMU GBI bond index increased by 2.6%, and the FTSE EuroBIG Corporate increased by 2.3%.

The performances by growth assets (+11%, including +11.6% for listed assets) and fixed-income assets (+2.4%, including +2.6% for listed bonds) have closely followed the index performances since the start of the year.

Positive changes in the fair value of the dedicated asset portfolio (investment funds, equities) amounting to +€1,392 million were consequently recognised in the financial result in the first half of 2023 (see note 8.3), compared to negative changes amounting to €(3,196) million in the first half of 2022 and €(3,096) million in 2022. Similarly, positive changes in the fair value of the bonds in the dedicated asset portfolio amounting to +€141 million were recognised in OCI in the first half of 2023 (see note 17.1.2), compared to negative changes amounting to €(637) million in the first half of 2022 and €(875) million for the year 2022.

In the first half of 2023, EDF Invest continued to diversify into different classes of unlisted assets covered by its mandate (infrastructures, real estate and investment funds).

Withdrawals from dedicated assets in the first half of 2023 totalled €309 million, equivalent to payments made in respect of the long-term nuclear obligations to be covered during the first half of 2023 (€273 million in the first half of 2022 and €416 million in 2022).

14.2.2 Valuation of EDF's dedicated assets

Details of EDF's dedicated assets are as follows:

(in millions of euros)	Consolidated balance sheet presentation	30/06/2023		31/12/2022	
		Book value	Realisable value	Book value	Realisable value
Yield assets (EDF Invest)		**6,133**	**8,829**	**6,477**	**8,772**
CTE	Investments in associates[1]	1,580	4,035	1,766	3,791
Other associates	Investments in associates[2]	2,148	2,364	2,268	2,495
Other unlisted assets	Debt and equity securities and other net assets[3]	2,407	2,432	2,422	2,465
Derivatives	Fair value of derivatives	(2)	(2)	21	21
Growth assets		**13,133**	**13,133**	**12,251**	**12,251**
Equities (investment funds)	Debt securities	12,552	12,552	11,625	11,625
Unlisted equity funds (EDF Invest)	Debt securities	563	563	553	553
Derivatives	Fair value of derivatives	18	18	73	73
Fixed-income assets		**13,474**	**13,474**	**12,881**	**12,881**
Bonds	Debt securities	11,444	11,444	11,101	11,101
Unlisted debt funds (EDF Invest)	Debt securities	219	219	215	215
Cash portfolio	Debt securities	1,488	1,488	1,414	1,414
Fonds diversifiés de dettes	Debt securities	326	326	163	163
Derivatives	Fair value of derivatives	(3)	(3)	(12)	(12)
TOTAL EDF DEDICATED ASSETS		**32,740**	**35,436**	**31,609**	**33,904**

[1]The Group's investment of 50.1% of CTE, the company that holds 100% of the shares in RTE. The CTE shares are included at their equity value in the consolidated financial statements (book value in the table). The realisable value of CTE in the above table has been determined by an independent assessor, in the same way as for EDF Invest's other assets.

[2]Including the value of the share in equity of the controlled companies owning these investments.

[3]Including debt and equity securities amounting to €2,284 million and the value of the share in equity of other controlled companies.

14.3 COVERAGE OF EDF'S LONG-TERM NUCLEAR OBLIGATIONS

The Group's long-term nuclear obligations in France concerned by the regulations for dedicated assets related to nuclear generation are included in the EDF group's consolidated financial statements at the following values:

(in millions of euros)	30/06/2023	31/12/2022
Provisions for spent fuel management – portion unrelated to the operating cycle as defined in the regulations	1,633	1,607
Provisions for long-term radioactive waste management	12,790	12,475
Provisions for nuclear plant decommissioning	17,758	17,094
Provisions for last cores – portion for future long-term radioactive waste management	483	473
PRESENT COST OF LONG-TERM NUCLEAR OBLIGATIONS	**32,664**	**31,649**
REALISABLE VALUE OF DEDICATED ASSETS	**35,436**	**33,904**
REGULATORY COVERAGE RATE	**108.5%**	**107.1 %**

At 30 June 2023, by the regulatory calculations provisions are 108.5% covered by dedicated assets. The regulatory caps on the realisable value of certain investments set in the Environment Code were not applied at 30 June 2023.

At 31 December 2022, by the regulatory calculations provisions were 107.1% covered by dedicated assets. Again, the regulatory caps were not applicable.

NOTE 15 PROVISIONS FOR EMPLOYEE BENEFITS

15.1 GROUP PROVISIONS FOR EMPLOYEE BENEFITS

(in millions of euros)	30/06/2023	31/12/2022
Provisions for employee benefits – current portion	740	790
Provisions for employee benefits – non-current portion	15,507	16,231
PROVISIONS FOR EMPLOYEE BENEFITS	**16,247**	**17,021**

15.1.1 Breakdown of the change in the provision: obligations, fund assets, net liability

(in millions of euros)	Obligations	Fund assets	Net liability
Net employee benefit liability at 31/12/2022[1]	**33,230**	**(16,884)**	**16,346**
Net expense for first half 2023	845	(351)	494
Actuarial gains and losses	(412)	(23)	(435)
Employer's contributions to funds	-	(40)	(40)
Employees' contributions to funds	2	(1)	1
Benefits paid	(765)	175	(590)
Translation adjustment	207	(226)	(19)
Other movements	(1)	5	4
NET EMPLOYEE BENEFIT LIABILITY AT 30/06/2023	**33,106**	**(17,345)**	**15,761**
Including:			
Provisions for employee benefits			16,247
Non-current financial assets			(486)

[1] The net liability at 31 December 2022 comprised a €17,021 million provision for employee benefits and €(675) million of non-current financial assets, giving a net amount of €16,346 million.

The breakdown of the net liability by geographical area is as follows:

(in millions of euros)	Obligations	Fund assets	Net liability
France	25,795	(9,920)	15,875
United Kingdom	6,523	(6,988)	(465)
Other countries	788	(437)	351
Net employee benefit liability at 30/06/2023	**33,106**	**(17,345)**	**15,761**
Including:			
Provisions for employee benefits			*16,247*
Non-current financial assets			*(486)*

(in millions of euros)	Obligations	Fund assets	Net liability
France	26,054	(9,398)	16,656
United Kingdom	6,401	(7,039)	(638)
Other countries	775	(447)	328
Net employee benefit liability at 31/12/2022	**33,230**	**(16,884)**	**16,346**
Including:			
Provisions for employee benefits			*17,021*
Non-current financial assets			(675)

Actuarial gains and losses on obligations amount to €(412) million for the first half of 2023, including:

- €(419) million in France as a result of the change in the discount rate (+10 bp);
- €(10) million in the United Kingdom, essentially associated with changes in the discount and inflation rates (see note 15.2).

Actuarial gains and losses on fund assets amount to €(23) million for the first half of 2023. They mainly result from a €(343) million change in France, due to the good performance by the equity markets over the period, and a €323 million change in the United Kingdom due to a pronounced rise in UK sovereign rates.

15.1.2 Post-employment and other long-term employee benefits

(in millions of euros)	H1 2023	H1 2022
Current service cost	(224)	(427)
Past service cost	91	-
Actuarial gains and losses – other long-term benefits	(38)	302
Effect of plan curtailment or settlement	(10)	-
Net expenses recorded as operating expenses	**(181)**	**(125)**
Interest expense (discount effect)	(664)	(335)
Return on fund assets	351	214
Net interest expense included in financial result	**(313)**	**(121)**
EMPLOYEE BENEFIT EXPENSES RECORDED IN THE INCOME STATEMENT	**(494)**	**(246)**
Actuarial gains and losses – post-employment benefits	412	15,620
Actuarial gains and losses on fund assets	23	(6,478)
Actuarial gains and losses	**435**	**9,142**
Translation adjustments	**19**	**(60)**
GAINS AND LOSSES ON EMPLOYEE BENEFITS RECORDED DIRECTLY IN EQUITY	**454**	**9,082**

15.1.3 Impact of the pension reform in France

French law 2023-270 amending social security funding for 2023, adopted on 14 April 2023, introduced changes to France's general pension system. The principal measures are a gradual rise in the standard retirement age from 62 to 64, and an increase in the contribution period required to qualify for a full pension.

Under this law, the special pension system for the electricity and gas sector (IEG) will be closed to employees joining the sector from 1 September 2023.

The timing and details of application of the new measures for employees currently affiliated to the special IEG pension system will be specified in decrees, taking account of the implementation schedule for France's previous pension reform (Law 2010-1330 of 9 November 2010).

Until the implementing decrees are published, the Group is not in a position to estimate the impacts of the reform on its employee benefit pensions with sufficient reliability to reflect their effects in the financial statements at 30 June 2023. However, based on the information collected at the closing date, including simulations of a range of scenarios by the CNIEG, the Group expects a limited net increase of less than €300 million in its obligations.

15.2 ACTUARIAL ASSUMPTIONS

The methods for determining actuarial assumptions are unchanged from 31 December 2022.

The principal assumptions used to value employee benefits are the following:

	France		United Kingdom	
(in %)	30/06/2023	31/12/2022	30/06/2023	31/12/2022
Discount rate/rate of return on assets[1]	4.00%	3.90%	5.05%	4.75%
Inflation rate	2.30%	2.30%	3.10%	2.90%
Wage increase rate[2]	3.70%	3.70%	2.85%	2.65%

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

[2] Average wage increase rate, including inflation and projected over a full career.

NOTE 16 OTHER PROVISIONS AND CONTINGENT LIABILITIES

(in millions of euros)	Note	30/06/2023			31/12/2022		
		Current	Non-current	Total	Current	Non-current	Total
Other provisions for decommissioning	16.1	175	1,964	**2,139**	127	2,006	**2,133**
Other provisions	16.2	4,952	3,113	**8,065**	3,885	2,665	**6,550**
OTHER PROVISIONS		5,127	5,077	10,204	4,012	4,671	8,683

16.1 OTHER PROVISIONS FOR DECOMMISSIONING

The composition of other provisions for decommissioning is presented in note 17.1 to the consolidated financial statements at 31 December 2022.

16.2 OTHER PROVISIONS

Details of changes in other provisions are as follows:

(in millions of euros)	31/12/2022	Increases	Decreases		Changes in scope	Other changes	30/06/2023
			Utilisations	Reversals			
Provisions for contingencies related to subsidiaries and investments	**605**	70	(45)	-	-	7	**637**
Provisions for tax liabilities (other than income tax)	**49**	1	(15)	(3)	-	3	**35**
Provisions for litigation	**321**	56	(53)	(41)	-	1	**284**
Provisions for onerous contracts and losses on completion	**638**	56	(91)	-	2	(4)	**601**
Provisions related to environmental schemes	**1,926**	1,323	(1,011)	-	-	46	**2,284**
Other provisions for contingencies and losses	**3,011**	1402	(302)	(26)	3	136	**4,224**
TOTAL	6,550	2,908	(1,517)	(70)	5	189	8,065

Provisions for onerous contracts

Provisions for onerous contracts are mainly attributable to the Group's LNG activities (a long-term regasification contract with Dunkerque LNG).

Provisions related to environmental schemes

Provisions related to environmental schemes include provisions for greenhouse gas emission rights, renewable energy certificates and energy savings certificates, where relevant. The increase in provisions over the half-year principally corresponds to allocations for renewable energy certificates in the United Kingdomand energy savings certificates in Italy, offset by decreases in provisions in France. Many of the obligations under the renewable energy certificates scheme are covered by purchased certificates recorded as intangible assets.

Other provisions for contingencies and losses

At 31 December 2022, a provision for contingencies was recognised in connection with ongoing negotiations with Orano Recyclage for the 2024-2026 amendment to the framework contract. An exceptional additional amount of €1,026 million was allocated to the provision during the first half of 2023, bringing the total provision to €1,880 million at 30 June 2023 (see note 14.1).

These other provisions also cover various contingencies and losses related to operations (restructuring operations, contractual maintenance obligations, etc.). No individual provision is significant.

In extremely rare cases, specific litigation covered by a provision may be unmentioned in the notes to the financial statements if such disclosure could cause serious prejudice to the Group.

16.3 CONTINGENT LIABILITIES

Apart from proceedings mentioned below, no significant change was observed during the first half of 2023 in the Group's contingent liabilities as presented in note 17.3 to the consolidated financial statements at 31 December 2022.

16.3.1 Tax inspections of EDF

For the period 2008 to 2019, EDF was notified of proposed tax adjustments, notably concerning the tax-deductibility of certain long-term nuclear liabilities. In two rulings made in 2017 and one in 2019, Montreuil Administrative Court recognised the tax-deductibility of these liabilities and validated the position taken by the Company. The Minister of Finance appealed against two of these rulings. In January 2020, the Versailles Administrative Court upheld EDF's position for the year 2008, but the Minister appealed. In a decision of 11 December 2020 the Council of State overturned the Versailles court's decision and sent the case back before the same court. On 17 June 2021 the Administrative Appeal Court found against the Company and cancelled the first-instance rulings that had been in its favour. The Company lodged a further appeal before the Council of State, which was deemed admissible in late 2022. In a ruling of 31 March 2023, the Council of State rejected the Company's claims and definitively confirmed that these nuclear liabilities are not tax-deductible. This decision was reflected in the Company's financial statements in 2022.

For the years 2012 to 2019, the French tax authorities questioned the tax-deductibility of certain long-term nuclear provisions. In a ruling of 29 August 2022, Montreuil Administrative Court validated the Company's position for one of the contested provisions, but upheld the tax adjustment for the other. In execution of this decision, the Company paid €297 million (see note 9.2 to the consolidated financial statements at 31 December 2022) and filed an appeal against the unfavourable part of the ruling. The Minister has also appealed against the part of the ruling that was favourable to the Company.

16.3.2 Litigation with photovoltaic producers

Announcements in France in 2010 of a cut in purchase tariffs for photovoltaic electricity (the PV purchase tariff) triggered an upsurge in connection applications submitted to distribution network operators. By a decree of 9 December 2010 (the "moratorium decree") the French Government suspended the conclusion of new contracts with purchase obligations for a three-month period, and stated that any applications not approved by 2 December 2010 would have to be resubmitted, based on a new tariff. The decision setting that tariff was issued on 4 March 2011, and significantly reduced the PV purchase tariffs. A tender system was developed in parallel.

A ruling given by the French Council of State on 16 November 2011 rejecting appeals against the moratorium decree generated a large volume of legal proceedings against Enedis and EDF in late 2011 which continued until 2015. Since March 2016, new actions for compensation relating to the photovoltaic moratorium have been definitively barred.

In response to an application for a preliminary ruling, on 15 March 2017 the Court of Justice of the European Union (CJEU) confirmed that the decisions of 10 July 2006 and 12 January 2010 setting the PV purchase tariffs constituted State aid that had been implemented without prior notification to the European Commission, and was therefore illegal. The CJEU concluded that it was now up to the national courts to take the appropriate action.

On 18 September 2019, the Court of Cassation issued several decisions rejecting claims concerning both Enedis and EDF, judging the aid illegal because it had not been notified; consequently, the prejudice of producers who could not benefit from that aid was deemed not legally reparable. Since then, further Court of Cassation decisions have essentially confirmed this ruling and rejected producers' appeals founded on state aid arguments.

Since court decisions were consistently following this precedent, some producers brought actions before administrative courts, claiming reparation from the State. To date the administrative courts have dismissed the producers' claims.

In parallel to the compensation claims before civil courts, EDF and Enedis sought to apply their Civil Liability insurance policy, but the insurers refused their claim. The French Court of Cassation considered in a ruling of 9 June 2015 (for the Green Yellow case) that the insurance payment was due and that the distribution network operator was at fault. Following that ruling, Enedis and EDF brought action against their insurers in April 2017, applying to the courts for formal recognition of two partial serial claims. If the courts were to recognise the existence of two partial serial claims, a single excess and a single limit would apply for all claims with the same technical cause. On 23 October 2019 the Paris Commercial Court ordered that the EDF and Enedis cases should be combined. In view of the favourable developments in cases before the Court of Cassation, EDF and Enedis decided to apply for this case to be removed from the court list on 17 February 2021, to suspend the procedure for 2 years in order to draw up the final list of claims still outstanding. EDF and Enedis presented updated submissions in February 2023 so as to suspend the time limit on this civil action. An initial procedural hearing took place on 15 March 2023, and a second procedural hearing is scheduled for 6 September 2023.

16.3.3 ARENH dispute – *Force majeure*

In the crisis caused by the Covid-19 pandemic, some suppliers requested total suspension of their ARENH deliveries, or partial suspension to the extent of the decrease in electricity consumption by their customer portfolio during the crisis, citing the *force majeure* clause contained in the master ARENH agreement signed with EDF.

Seven cases concerning the substance of the matter were brought by suppliers, claiming compensation from EDF for the prejudice caused by its allegedly unlawful refusal to apply the *force majeure* clause. The suppliers concerned are Hydroption, Vattenfall, Priméo Energie Grands Comptes and Priméo Energie Solutions, Arcelor Mittal Energy, Plüm Energy et Entreprises et Collectivités, TotalEnergies and Ekwateur.

On 13 April 2021, the Paris Commercial Court issued a first judgement on the merits in the Hydroption case, ordering EDF to pay the claimant €5.88 million in damages. On 15 October 2021, the Paris Court of Appeal overturned the Commercial Court's judgement insofar as it considered EDF liable and ordered it to pay damages to Hydroption, considering that the exemption clause of *force majeure* was not established, and that EDF was not obliged to satisfy a request for suspension of the contract. On 2 December 2021, the Toulon Commercial Court placed Hydroption SAS in liquidation. The liquidator filed an appeal before the Court of Cassation on 19 January 2022. In a ruling of 22 March 2023, the Court of Cassation overturned and cancelled all the terms of the Paris Court of Appeal's verdict, solely on procedural grounds, and sent the case back before the Court of Appeal. EDF thus filed a new declaration of appeal at that court, and the proceedings are still ongoing.

On 30 November 2021 the Paris Commercial Court issued two more judgements on the merits in the cases brought by TotalEnergies et Ekwateur, ordering EDF to pay damages of €53.93 million to TotalEnergies and €1.77 million to Ekwateur. EDF has appealed against these two judgments, and the proceedings are still ongoing.

On 6 December 2022, the Paris Commercial Court issued two further judgements on the merits in the cases brought by Priméo Energie Grands Comptes and Priméo Energie Solutions, ordering EDF to pay these two companies damages of €1.73 million and €2.36 million respectively. EDF has appealed against these two judgments, and the proceedings are still ongoing.

On 27 March 2023, the Paris Commercial Court took note of the withdrawal by Plüm Energy et Entreprises et Collectivités from the litigation with EDF.

On 24 May 2023, the same court dismissed Arcelor Mittal's claim. This judgement is open to appeal.

The Vattenfall case before the Paris Commercial Court is still pending.

16.3.4 Investigations by France's Competition Authority ("ADLC")

At 31 December 2021 France's Competition Authority (the ADLC) was investigating the EDF group in relation to four separate matters (the ENGIE complaint, the referral concerning heat networks, the Plüm complaint, the Xélan complaint), which are described in the note 17.3.6 to the consolidated financial statements at 31 December 2021.

In the investigation following an ex-officio referral to the ADLC on 4 November 2019 concerning the formation of a partnership for heat network operations, EDF, Dalkia, Électricité de Strasbourg, ES Services Energétiques and EDEV received initial notification of the ADLC's objections on 3 May 2021, and an additional notification of objections on 8 July 2022. These notifications were the first step in a procedure that allows both sides to present their arguments. On 15 February 2023 the Rapporteur of the ADLC sent EDF her report in response to the observations made by the parties. The Group replied with its observations on 12 April 2023. The procedure will continue in 2023 with a hearing before the ADLC Board, and there is no indication as yet of the final outcome.

There were no significant developments in the other ADLC investigations.

NOTE 17 FINANCIAL ASSETS AND LIABILITIES

17.1 FINANCIAL ASSETS

17.1.1 Breakdown between current and non-current financial assets

Current and non-current financial assets break down as follows:

	30/06/2023			31/12/2022		
(in millions of euros)	Current	Non-current	Total	Current	Non-current	Total
Instruments at fair value through OCI with recycling	17,607	5,129	**22,736**	17,014	4,982	**21,996**
Instruments at fair value through OCI with no recycling	-	249	**249**	36	207	**243**
Instruments at fair value through profit and loss	1,496	24,949	**26,445**	1,409	23,490	**24,899**
Debt and equity securities	***19,103***	***30,327***	***49,430***	***18,459***	***28,679***	**47,138**
Trading derivatives – Positive fair value	17,546	-	**17,546**	30,566	-	**30,566**
Hedging derivatives – Positive fair value [(1)]	4,292	4,212	**8,504**	6,903	5,376	**12,279**
Loans and financial receivables[(2)]	6,013	10,339	**16,352**	2,105	14,457	**16,562**
CURRENT AND NON-CURRENT FINANCIAL ASSETS	**46,954**	**44,878**	**91,832**	**58,033**	**48,512**	**106,545**

[(1)] *Including €3 632 million of derivatives hedging liabilities included in net indebtedness (see note 18.2).*

[(2)]*Including impairment of €(400) million at 30 June 2023 (€(386) million at 31 December 2022).*

The decrease in the positive fair value of trading derivatives (€(13) billion) is explained by the decline in the value of derivatives used in trading activities, mainly as a result of the fall in commodity market prices and volatility observed in the first half of 2023.

17.1.2 Debt and equity securities

Details of debt and equity securities are shown in the table below:

	30/06/2023				31/12/2022
(in millions of euros)	At fair value through OCI with recycling	At fair value through OCI with no recycling	At fair value through profit and loss	Total	Total
Debt and equity securities					
EDF dedicated assets	4,712	-	24,164	**28,876**	**27,369**
Liquid assets	17,863	-	1,451	**19,314**	**18,507**
Other assets[(1)]	161	249	830	**1,240**	**1,262**
TOTAL	**22,736**	**249**	**26,445**	**49,430**	**47,138**

[(1)]*Investments in non-consolidated companies.*

Information on EDF's dedicated assets is given in note 14.2. The general management policy for dedicated assets is presented in note 15.1.2 of the consolidated financial statements for the year ended 31 December 2022.

Changes in fair value recorded in equity

Changes in the fair value of debt and equity securities were recorded in equity (EDF share) over the period as follows:

	H1 2023			H1 2022		
(in millions of euros)	Gross changes in fair value recorded in OCI with recycling(1)	Gross changes in fair value recorded in OCI with no recycling(1)	Gross changes in fair value recycled to profit and loss(2)	Gross changes in fair value recorded in OCI with recycling(1)	Gross changes in fair value recorded in OCI with no recycling(1)	Gross changes in fair value recycled to profit and loss(2)
EDF dedicated assets	98	-	(43)	(753)	-	(116)
Liquid assets	138	-	-	(591)	-	(24)
Other assets	-	3	-	-	(4)	-
DEBT AND EQUITY SECURITIES(3)	**236**	**3**	**(43)**	**(1,344)**	**(4)**	**(140)**

(1) + / ( ): increase / (decrease) in equity (EDF share).

(2) + / ( ): increase / (decrease) in income (EDF share).

(3) Excluding associates and joint ventures.

In the first half of 2023, gross changes in fair value recorded in OCI with recycling (before reclassification to profit and loss) principally concern EDF (+€279 million, including +€141 million for dedicated assets). In the first half of 2022, gross changes in fair value recorded in OCI with recycling (before reclassification to profit and loss) principally concern EDF (€(1,204) million, including €(637) million for dedicated assets).

No significant impairment was recorded in the first half of 2023.

17.1.3 Loans and financial receivables

Loans and financial receivables consist of the following:

(in millions of euros)	30/06/2023	31/12/2022
Amounts receivable from the NLF	13,930	14,000
Loans and financial receivables – other	2,422	2,562
LOANS AND FINANCIAL RECEIVABLES	**16,352**	**16,562**

At 30 June 2023 loans and financial receivables mainly include:

- amounts representing reimbursements receivable from the Nuclear Liabilities Fund (NLF) and the British government for coverage of long-term nuclear obligations, totalling €13,930 million at 30 June 2023 (€14,000 million at 31 December 2022), discounted at the same rate as the provisions they finance (see note 14);
- other loans and financial receivables notably include:
  - the overfunding of EDF Energy's EDFG (EDF Group of the ESPS) pension schemes by €479 million at 30 June 2023, compared to €658 million at 31 December 2022,
  - an amount of €256 million representing the advance payments made by Luminus to Synatom to cover long-term nuclear obligations (€253 million at 31 December 2022). In Luminus' financial statements these amounts are discounted at the same rate as the provisions they fund. This receivable is equal to the fair value of the amounts held by Synatom on behalf of Luminus as fund assets,
  - loans made by EDF Renewables in the course of its project development activity, mainly in connection with wind farms in France and North America, amounting to €881 million at 30 June 2023 compared to €823 million at 31 December 2022.

17.2 FINANCIAL LIABILITIES

17.2.1 Breakdown between current and non-current financial liabilities

Current and non-current financial liabilities break down as follows:

	30/06/2023			31/12/2022		
(in millions of euros)	Non-current	Current	Total	Non-current	Current	Total
Loans and other financial liabilities	72,612	21,105	**93,717**	67,340	28,713	96,053
Trading derivatives - negative fair value	-	16,439	**16,439**	-	28,884	28,884
Hedging derivatives - negative fair value[1]	2,892	6,516	**9,408**	3,718	14,247	17,965
FINANCIAL LIABILITIES	**75,504**	**44,060**	**119,564**	**71,058**	**71,844**	**142,902**

[1] Including €2,187 million of derivatives used to hedge liabilities included in net indebtedness (see note 18.2).

The decrease in the negative fair value of trading derivatives (€(12.4) billion) is explained by a decrease in the value of derivatives used in the trading activity, principally associated with the decline in commodity market prices and volatility observed in the first half of 2023.

17.2.2 Loans and other financial liabilities

17.2.2.1 Changes in loans and other financial liabilities

(in millions of euros)	Bonds	Loans from financial institutions	Other financial liabilities	Lease liability	Accrued Interest	Total
Balances at 31/12/2022	**45,150**	**20,278**	**25,115**	**4,269**	**1,241**	**96,053**
Increases	6,442	1,288	1,734	329	356	**10,149**
Decreases	(1,979)	(270)	(7,872)	(377)	(76)	**(10,574)**
Translation adjustments	193	(37)	(14)	5	(39)	**108**
Changes in scope of consolidation	-	177	(3)	5	-	**179**
Changes in fair value	(422)	(36)	(37)	-	-	**(495)**
Other changes	(2,390)	(21)	528	160	20	**(1,703)**
BALANCES AT 30/06/2023	**46,994**	**21,379**	**19,451**	**4,391**	**1,502**	**93,717**

The principal operations in the first half of 2023 concerning **bonds** were:

- Senior bond issues during the period with total gross value of €6,4 billion: €3,0 billion in January, €0.1 billion in March, €3.1 billion in May and €0.2 billion in June (see note 17.2.2.2);
- A bond redemption of €2,0 billion in March 2023.

The principal operations in the first half of 2023 concerning **loans from financial institutions** relate to drawings on credit lines totalling €900 million (€750 million on 3 bilateral credit lines concluded in 2023, and €150 million on a credit line concluded in 2022), and a partial repayment of €40 million to two European Investment Bank credit lines.

At 30 June 2023, EDF's **other financial liabilities** include negotiable debt instruments amounting to €9,965 million, and an amount of €4,765 million recognised in respect of the cash received for debt securities transferred to several banks under repurchase agreements. These operations do not affect the net indebtedness.

A breakdown of the issuance and repayments of borrowings as presented in the cash flow statement is presented below:

(in millions of euros)	Bonds	Loans from financial institutions	Other financial liabilities	Lease liability	Termination of hedging derivatives	30/06/2023
Issuance of borrowings	6,442	1,288	1,734	-	1	**9,465**
Repayments of borrowings	(1,979)	(270)	(7,872)	(377)	-	**(10,498)**

17.2.2.2 Principal borrowings of the Group

At 30 June 2023, the Group's principal borrowings of more than €750 million or equivalent value at the time of issuance (excluding green bonds and OCEANEs) are as follows. The Yen bond issue of the first half of 2023 is not shown as it is below this threshold (see note 2).

Type of borrowing *(in millions of currencies)*	Entity	Issue[1]	Maturity	Issue amount	Currency	Rate
Euro MTN	EDF	09/2009	09/2024	2,500	EUR	4.63%
Euro MTN	EDF	11/2010	11/2025	750	EUR	4.00%
Bond	EDF	10/2022	12/2026	750	EUR	3.88%
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	05/2023	05/2028	1,000	USD	5.70%
Bond	EDF	09/2018	09/2028	1,800	USD	4.50%
Bond	EDF	10/2022	12/2026	1,000	EUR	4.38%
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	01/2023	01/2032	1,000	EUR	4.25%
Euro MTN	EDF	02/2003	02/2033	850	EUR	5.63%
Bond	EDF	05/2023	05/2033	1,000	USD	6.25%
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%
Bond	EDF	01/2010	01/2040	850	USD	5.60%
Euro MTN	EDF	11/2010	11/2040	750	EUR	4.50%
Euro MTN	EDF	10/2011	10/2041	1,250	GBP	5.50%
Euro MTN	EDF	01/2023	01/2043	1,000	EUR	4.63%
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%
Bond	EDF	05/2023	05/2053	1,000	USD	6.90%
Euro MTN	EDF	10/2016	10/2056	2,164	USD	4.99%
Euro MTN	EDF	11/2019	12/2069	2,000	USD	4.50%
Bond	EDF	01/2014	01/2114	700	USD	6.00%
Bond	EDF	01/2014	01/2114	1,350	GBP	6.00%

At 30 June 2023, the Group's principal Green Bonds are as follows:

Type of borrowing *(in millions of currencies)*	Entity	Issue	Maturity	Issue amount	Currency	Rate
Bond (Green Bond)	EDF	10/2015	10/2025	1,250	USD	3.63%
Euro MTN (Green Bond)	EDF	10/2016	10/2026	1,750	EUR	1.00%
Euro MTN (Green Bond)	EDF	11/2021	11/2033	1,850	EUR	1.00%
Bond (green bond)	EDF	10/2022	10/2034	1,250	EUR	4.75 %

17.2.2.3 Maturity of loans and financial liabilities

(in millions of euros)	Bonds	Loans from financial institutions	Other financial liabilities	Lease liability	Accrued Interest	Total
Less than one year	45	532	18,707	694	1,127	21,105
From one to five years	10,579	18,869	117	2,188	93	31,846
More than five years	36,370	1,978	627	1,509	282	40,766
LOANS AND OTHER FINANCIAL LIABILITIES AT 30/06/2023	46,994	21,379	19,451	4,391	1,502	93,717

17.3 UNUSED CREDIT LINES

At 30 June 2023, the Group has unused credit lines with various banks totalling €14,947 million (€14,051 million at 31 December 2022). This total includes €10,076 million of credit lines indexed on ESG criteria, which were totally undrawn at 30 June 2023 (€10,053 million at 31 December 2022).

The increase in these credit lines notably relates to the €1 billion credit line granted to Edison by a pool of banks, which is guaranteed to the extent of 70% by Italy's national export credit agency SACE.

	30/06/2023				31/12/2022
	Total	Maturity			Total
(in millions of euros)		< 1 year	1-5 years	> 5 years	
CONFIRMED CREDIT LINES	14,947	1,462	13,462	23	14,051

17.4 FAIR VALUE OF LOANS AND OTHER FINANCIAL LIABILITIES

	30/06/2023		31/12/2022	
(in millions of euros)	Fair value	Balance sheet value	Fair value	Balance sheet value
LOANS AND OTHER FINANCIAL LIABILITIES	89,284	93,717	93,264	96,053

17.5 FAIR VALUE OF HEDGING DERIVATIVES

Changes in the fair value of hedging derivatives included in equity (EDF share) and profit and loss are detailed below:

	H1 2023			H1 2022			2022		
(in millions of euros)	Gross changes in fair value recorded in equity[1]	Gross changes in fair value transferred to income - Recycling[2]	Gross changes in fair value transferred to income - Ineffectiveness	Gross changes in fair value recorded in equity[1]	Gross changes in fair value transferred to income - Recycling[2]	Gross changes in fair value transferred to income - Ineffectiveness	Gross changes in fair value recorded in equity[1]	Gross changes in fair value transferred to income - Recycling[2]	Gross changes in fair value transferred to income - Ineffectiveness
Interest rate hedging	(1)	-	5	148	(4)	(1)	392	-	(1)
Exchange rate hedging	(409)	(264)	4	2,779	773	(70)	2,653	598	92
Net foreign investment hedging	(341)	-	-	(74)	-	-	308	-	-
Commodity hedging	5,278	(1,403)	(84)	(1,396)	(2,827)	(133)	(9,002)	(3,131)	(2)
HEDGING DERIVATIVES[3]	4,527	(1,667)	(75)	1,457	(2,058)	(204)	(5,649)	(2,533)	89

[1] *+/( ): increase/(decrease) in equity (EDF share).*

[2] *+/( ): increase/(decrease) in net income (EDF share).*

[3] *Excluding associates and joint ventures.*

The gross change in the fair value of hedging instruments recognised in equity (EDF share), including recycling, is +€6,194 million in the first half of 2023 (+€3,515 million in the first half of 2022 and €(3,116) million in 2022).

In 2023 this change is explained by the gross fair value changes in net foreign investment hedges, amounting to €(341) million (€(74) million in the first half of 2022 and €308 million in 2022), and interest rate, exchange rate and commodity hedges, amounting to +€6,401 million (+€3,589 million in the first half of 2022 and €(3,579) million in 2022) – see the consolidated statement of comprehensive income.

The amount transferred to operating profit before depreciation and amortisation in the first half of 2023 in respect of commodity hedges is €(1,403) million, comprising:

- €(1,104) million for electricity hedging contracts, mainly concerning the France - Generation and Supply and the United Kingdom segments;
- €(321) million for gas hedging contracts, mainly concerning the France - Generation and Supply and United Kingdom segments;
- +€22 million for other hedging contracts.

NOTE 18 FINANCIAL INDICATORS

The financial indicators are not defined by the accounting standards and are not directly visible in the Group's financial statements. The principal financial indicators are the following.

18.1 NET INCOME EXCLUDING NON-RECURRING ITEMS

Net income excluding non-recurring items 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.

The following tables show the transition from EDF net income to net income excluding non-recurring items:

At 30 June 2023

		H1 2023			
(in millions of euros)	Notes	Gross value	Income taxes	Non-controlling interests	EDF net income
Net income					**5,808**
Changes in the fair value of debt and equity instruments[1]	**8.3**	**(1,412)**	**364**	**(2)**	**(1,046)**
Net changes in fair value on energy and commodity derivatives, excluding trading activities	**6**	**276**	**(63)**	**3**	**210**
Impairment		**98**	**(13)**	**1**	**83**
- impairment of fixed assets[2]	*10.4*	48	(13)	-	35
- impairment of investments in associates and joint ventures[3]	*11.2*	50	-	1	49
Other items		**1,702**	**(420)**	**71**	**1,211**
- other income and expenses[4]	*7*	1,696	(420)	71	1,205
- other		6	-	-	6
NET INCOME EXCLUDING NON-RECURRING ITEMS					**6,267**

[1] Including fair value hedges of dedicated assets.

[2] At 30 June 2023, this impairment notably concerns wind farms in China (€(36) million).

[3] At 30 June 2023, this impairment principally concerns entities included in dedicated assets (€(30) million) and wind farms in Mexico (€(15) million).

[4] At 30 June 2023 other income and expenses notably include the additional provision of €(1,026) million in connection with the framework agreement contract with Orano for waste processing, the exceptional additional costs of €(226) million for repairs to the main secondary circuit welds at the Flamanville 3 EPR,and €(335) million for re-estimation of provisions in Belgium, principally reflecting the effects for Luminus and EDF Belgium of the agreement signed by Engie with the Belgian government They also include income of +€91 million resulting from EDF Energy's decision to limit inflation-linked pension increases, in accordance with the terms of the pension scheme.

At 30 June 2022

(in millions of euros)	Notes	H1 2022 Gross value	Income taxes	Non-controlling interests	EDF net income
Net income					**(5,293)**
Changes in the fair value of debt and equity instruments[1]	**8.3**	**3,289**	**(850)**	**(10)**	**2,429**
Net changes in fair value on energy and commodity derivatives, excluding trading activities	**6**	**993**	**(247)**	**-**	**746**
Impairment		**390**	**(98)**	**(25)**	**267**
- impairment of fixed assets[2]	*10.4*	253	(66)	(25)	162
- impairment of investments in associates and joint ventures[3]	*11.2*	137	(32)	-	105
Other items		**577**	**(37)**	**(1)**	**539**
- other income and expenses[4]	*7*	388	(109)	(1)	278
- tax on exceptional profits (Italy)	9	-	71	-	71
NET INCOME EXCLUDING NON-RECURRING ITEMS					**(1,312)**

[1]Including fair value hedges of dedicated assets.

[2]At 30 June 2022, this impairment notably concerned wind farms in the United States and Mexico (€(100) million) and impairment of land in the United Kingdom (€(121) million).

(3)At 30 June 2022, this impairment principally concerned wind farms in the United States (€(134) million.

(4)At 30 June 2022 other income and expenses notably included exceptional additional costs relating to work for repairs to the main secondary circuit welds at the Flamanville 3 EPR, totalling €(308)) million, the expense of the employee reserved offer (ERO), amounting to €(64) million, and the €(15) million loss on the sale of Dalkia Russia.

The net income excluding non-recurring items amounts to €6,267 million at 30 June 2023, an increase of €7,579 million compared to the first half of 2022.

18.2 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 interest rate instruments with initial maturity of over three months that are readily convertible into cash and are managed according to a liquidity-oriented policy.

Net indebtedness are as follows:

(in millions of euros)	Notes	30/06/2023	31/12/2022
Loans and other financial liabilities	17.2.2	93,717	96,053
Derivatives used to hedge liabilities	17.1.1 and 17.2.1	(1,445)	(2,024)
Cash and cash equivalents		(8,074)	(10,948)
Debt and equity securities – liquid assets	17.1.2	(19,314)	(18,507)
Derivatives hedging assets		(88)	(74)
NET INDEBTEDNESS		**64,796**	**64,500**

On 8 June 2023, the Group issued hybrid notes that were recognised in equity and in parallel, EDF launched a contractual cash redemption offer for the outstanding US dollar-denominated perpetual subordinated bonds (see note 13.3). The outstanding bonds concerned by this offer, amounting to €551 million, were reclassified as financial liabilities at 30 June 2023.

EDF confirmed on 7 July 2023, when the results of the redemption offer were announced, that it was proceeding with an additional redemption of $3 million with a settlement date of 10 July 2023. After the offer closed, the nominal value of the outstanding bonds was $596 million. This will be added back to equity in July 2023.

NOTE 19 OFF-BALANCE SHEET COMMITMENTS

This note presents off-balance sheet commitments given and received by the Group at 30 June 2023. The amounts of commitments correspond to non-discounted contractual values.

19.1 COMMITMENTS GIVEN

(in millions of euros)	Notes	30/06/2023	31/12/2022
Operating commitments given[1]	19.1.1	18,706	17,456
Investment commitments given	19.1.2	18,725	16,900
Financing commitments given	19.1.3	6,070	6,345
TOTAL COMMITMENTS GIVEN		**43,501**	**40,701**

(1)Excluding fuel and energy purchases and leases as lessee.

In almost all cases, these are reciprocal commitments, and the third parties concerned are under a contractual obligation to supply the Group with assets or services related to operating, investment and financing activities.

19.1.1 Operating commitments given

19.1.1.1 Fuel and energy purchase commitments

Commitments to purchase commodities, energy and nuclear fuel (excluding purchases of gas and related services) amounted to €43,863 million at 31 December 2022.

These commitments were relatively stable over the first half of 2023, as the upward effect of commodity price movements was counterbalanced by the downward effect of electricity price forecasts for the next 10 years.

19.1.1.2 Operating contract performance commitments given

At 30 June 2023, these commitments mature as follows:

	30/06/2023				31/12/2022
	Total	Maturity			Total
(in millions of euros)		< 1 year	1 to 5 years	> 5 years	
Operating guarantees given	**10,332**	4,020	3,246	3,066	9,648
Operating purchase commitments[1]	**8,142**	5,164	2,343	635	7,611
Other operating commitments	**232**	75	120	37	197
OPERATING CONTRACT PERFORMANCE COMMITMENTS GIVEN[2]	**18,706**	**9,259**	**5,709**	**3,738**	**17,456**

(1)Excluding energy and lease commitments as lessee.

(2)Including commitments related to joint ventures, amounting to €1,960 million at 30 June 2023 (€1,912 million at 31 December 2022).

In the course of its business, the Group provides contract performance guarantees, generally through the intermediary of banks.

Operating guarantees given at 30 June 2023 mainly consist of guarantees given by EDF Renewables in connection with its development projects, and by Edison, EDF and Framatome. The change in these guarantees is essentially explained by new EDF Renewables projects in development, particularly in the United States and France, and Dalkia's acquisition of Spie UK.

The increase in operating purchase commitments (excluding fuel and energy) principally concerns EDF, particularly commitments made for maintenance of its generation fleet, Edvance, and EDF Renewables, essentially for projects in Brazil.

19.1.1.3 Lease commitments as lessee

Lease commitments as lessee that are not recognised in the balance sheet amounted to €671 million at 31 December 2022, including €588 million for assets not yet available to the Group (principally real estate properties and LNG carriers currently in construction).

Leases for this type of assets decreased by around €140 million over the first half of 2023, notably after Edison took delivery of an LNG carrier.

19.1.2 Investment commitments given

At 30 June 2023, details of investment commitments are as follows:

(in millions of euros)	30/06/2023 Total	Maturity < 1 year	Maturity 1 to 5 years	Maturity > 5 years	31/12/2022 Total
Commitments related to acquisition of tangible and intangible assets	**17,643**	12,007	5,187	449	15,867
Commitments related to acquisition of financial assets	**785**	7	690	88	864
Other commitments related to investments	**297**	169	126	2	169
TOTAL INVESTMENT COMMITMENTS GIVEN[1]	**18,725**	**12,183**	**6,003**	**539**	**16,900**

[1] *Including commitments given by controlled entities to joint ventures, amounting to €180 million at 30 June 2023 (€183 million at 31 December 2022).*

Commitments related to acquisition of tangible and intangible assets principally concern EDF Energy (mainly commitments related to HPC), EDF SA (including commitments for the *Grand Carénage* industrial refurbishment programme, Flamanville 3 and a small amount for the EPR 2 project), Enedis and EDF Renewables (notably commitments for projects in the United States, Brazil and the United Kingdom). For the EPR 2 project, until the final investment decision is made, the amounts recorded in off-balance sheet commitments correspond to the unavoidable commitment for EDF, not the total value of the contracts signed.

19.1.3 Financing commitments given

Financing commitments given by the Group at 30 June 2023 comprise the following:

(in millions of euros)	30/06/2023 Total	Maturity < 1 year	Maturity 1 to 5 years	Maturity > 5 years	31/12/2022 Total
Security interests in real property	**3,699**	1,301	505	1 893	3,616
Guarantees related to borrowings	**1,281**	39	774	468	1,587
Other financing commitments	**1,090**	1,002	30	58	1,142
TOTAL FINANCING COMMITMENTS GIVEN[1]	**6,070**	**2,342**	**1,309**	**2 419**	**6,345**

[1] *Including commitments related to joint ventures, amounting to €2 296 million at 30 June 2023 (€2,609 million at 31 December 2022). These financing commitments to joint ventures mainly concern EDF Renewables and EDF Trading*

Security interests and assets provided as guarantees mainly concern pledges or mortgages of tangible assets and shares representing investments in consolidated subsidiaries which hold property, plant and equipment of EDF Renewables.

The increase in guarantees related to borrowings principally concerns guarantees given by EDF Renewables in connection with its project funding.

The decrease in financing commitments given principally reflects the release of EDF Renewables' financial guarantee in France for the Saint Nazaire offshore wind farm project.

19.2 COMMITMENTS RECEIVED

The table below shows off-balance sheet commitments received by the Group that have been valued.

(in millions of euros)	30/06/2023	31/12/2022
Operating commitments received[1]	9,016	8,407
Investment / divestment commitments received	230	317
Financing commitments received	20	22
TOTAL COMMITMENTS RECEIVED[2]	**9,266**	**8,746**

[1]Excluding commitments related to supplies of energy and related services and operating lease commitments as lessor (€509 million at 31 December 2022).

[2]Excluding commitments related to credit lines, which are described in note 17.3.

Operating sale commitments received exclude energy deliveries and principally concern firm orders made through contracts recorded on a percentage-of-completion basis at Framatome (construction and engineering contracts) and EDF Renewables (agreements for operation services, maintenance services, and development and sale of structured assets).

The decrease in investment/divestment commitments received is attributable to the sale by Dalkia of its Suir subsidiaries in 2022.

NOTE 20 SUBSEQUENT EVENTS

No event has arisen subsequent to the year-end apart from those presented in note 2.