



# **SALES AND HIGHLIGHTS**

9 MONTHS 2021

BOOK OF THE PRESENTATION

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# TABLE OF CONTENTS

**P.4**

**STRATEGY AND  
INVESTMENTS**

**P.15**

**ESG**

**P.17**

**RENEWABLES**

**P.23**

**REGULATED**

**P.25**

**FRANCE –  
GENERATION AND  
SUPPLY**

**P.38**

**FINANCIAL  
CONSOLIDATED  
STATEMENTS**

**P.48**

**OPERATIONAL  
DATA &  
MARKETS**

# SALES AND HIGHLIGHTS

## 9 MONTHS 2021

### STRATEGY AND INVESTMENTS





# FLAMANVILLE 3 EPR (1,650MW) (1/2)

## CONSTRUCTION PROGRESS

All the fuel required for the first loading now received. First regulatory inspection performed by Euratom in August 2021.

Transfer to the operator on-going: 90% completion rate in the reactor building, in the machine room, and in the diesel rooms.



## UPDATE ON THE MAIN SECONDARY CIRCUIT WELDS (AT END-OCT 2021)

### Penetration welds: Repairing the welds located on the pipes within the double concrete containment building

- Number of welds to be upgraded: 8 VVP <sup>(1)</sup> and 4 ARE <sup>(2)</sup>
- Status: 8 penetration welds repaired, of which 6 are checked as compliant by EDF group prior to stress-relieving heat treatment, the last two checks being in progress; 4 ARE welds in line with nominal planning

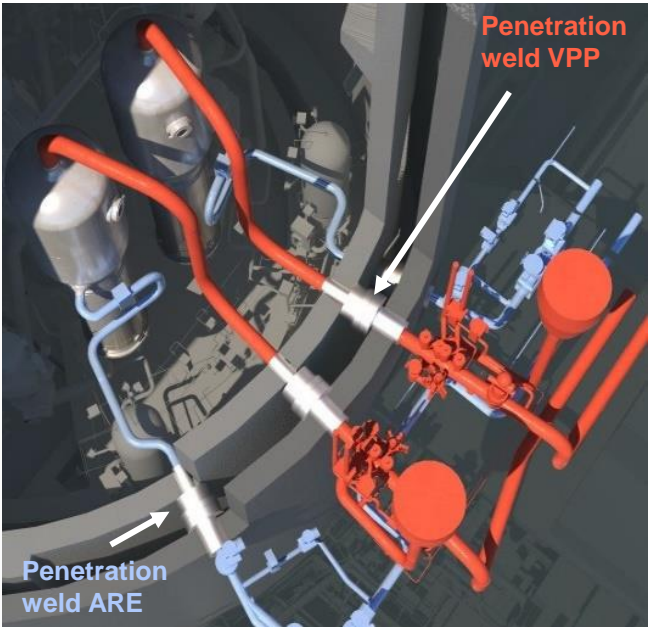
### Other welds: Upgrading and repairing welds along the pipes

- Number of welds to be upgraded: 51 VVP <sup>(1)</sup> and 26 ARE<sup>(2)</sup>
- Status : 12 VVP welds completed, ARE welds repair starting

### Stress-relieving heat treatment

- Penetration welds: Process qualification for VVP welds validated by the ASN, with an additional request regarding control of temperature gradients
- Other welds: Action plan initiated following the impact of the reported gap on the historical Framatome process

Welding authorisations obtained on a deferred basis due to ASN investigation timeline - last authorisations planned for the end of 2021



VVP   
ARE 

# FLAMANVILLE 3 EPR (1,650MW) (2/2)

<div> <div>TECHNICAL ISSUES (EXCLUDING MAIN SECONDARY CIRCUIT)</div> </div>	<div> <div> Main primary circuit: three nozzles will be excluded from the “break preclusion” referential. </div> <div> <p>In a letter dated 8 October 2021, the ASN confirmed that it has no objection in principle to the solution proposed by EDF, which consists in installing a Retainer Clamp for the treatment of the three nozzles. EDF will provide the necessary elements for its technical investigation, particularly regarding the design of the retainer clamps, their value in the safety demonstration and the justification of the quality of the existing welds</p> </div> <div> <div>Filtration sump</div> <ul style="list-style-type: none"> <li>• Test results in July/August 2021 carried out at ASN's request before start-up: unexpected clogging phenomena of fuel assemblies.</li> <li>• Action plan has been defined</li> <li>• At stake: potential modifications to the installation before start-up, which must be decided in anticipation of the outcome of the IRSN's instruction.</li> </ul> </div> <div> <div>Taishan: Reactor 1 assemblies review still ongoing.</div> <p>The analysis of the potential impact of the studies in progress in Taishan on the start-up of Flamanville 3 is ongoing.</p> </div> </div>
<div> <div>SCHEDULE AND COSTS</div> </div>	<div> <div> <p>On 9 October 2019 <sup>(1)</sup>, the Group submitted a new schedule and a new estimate of construction completion cost <sup>(2)</sup> for Flamanville 3 EPR and indicated that provisional schedule for implementing the repairing of the penetration welds, considering the agreement of the ASN, would mean the fuel being loaded at end-2022 and a revised construction completion cost of €12.4 billion <sup>(2)</sup> <sup>(3)</sup>. At end-2020, a review of the first lockdown’s impact on site work did not result in a change of targets regarding the fuel-loading date and construction costs announced in October 2019. The numbers and the timetable above remain very sensitive to the ongoing action plan put in place. The risks regarding the project schedule and construction completion costs are therefore very high.</p> <p>Three critical paths exist:</p> <ul style="list-style-type: none"> <li>• repair of the main secondary circuit,</li> <li>• completion of the installation,</li> <li>• get all the necessary authorisations (licensing schedule very tight – last authorisation scheduled end-2022)</li> </ul> <p>The project has no margin neither in terms of schedule nor costs. Financial risks to this timetable amount to around €<sub>2015</sub>0.3bn.</p> </div> </div>

(1) See press release of 9 October 2019

(2) In 2015 euros, excluding interim interest (see note 10.2 of the Groupe financial statements)

(3) The construction cost at completion is €12,434m if defined at current prices

# HINKLEY POINT C

## MANAGEMENT OF THE PANDEMIC

- Measures implemented since the beginning of the pandemic have enabled to keep on-site staff and local community safe and allow the project to continue
- On 19 July 2021, measures on site were relaxed in line with Government guidance, allowing to increase capacity on site. Some prevention measures remain in place. The productivity of the project is still affected
- Number of people working on site has increased from c. 5,000 to 6,800 in the first nine months of 2021 and is expected to increase further by the end of the year

## PROGRESS ON SITE

- First slab of Unit 1 achieved in August; second slab expected in December
- Slab of the Turbine Hall of Unit 1 to be achieved at end-2021
- Completion of the outfall tunnel drive and 6 intake and outfall heads achieved
- First containment liner of Unit 2 ready to be installed



Unit 1 reactor building

## REMINDER ON KEY DATA <sup>(1)</sup>

- The current status of the project in terms of schedule and costs is the following <sup>(1)</sup>:
  - The target for the start of electricity generation from Unit 1 has been set at June 2026, compared to end-2025 as initially announced in 2016
  - The project completion costs are estimated to date at £22 to 23bn <sup>(2)</sup> in 2015 pounds corresponding to £26 to 27bn in current pounds <sup>(3)</sup>.
  - The risk of COD delay for Units 1 and 2 is respectively 15 and 9 months. The probability of this risk is high. Such a delay would incur potential additional costs in the magnitude of £<sub>2015</sub> 0.7bn.
- The objective is to install the dome and the vessel of Unit 1 before mid-2023.
- The current schedule is very tight due to the continuing impact of Covid beyond Q1 2021, to a weaker civil engineering performance, to tensions on global commodity markets and to Brexit. The delay is estimated at around 3-4 months. A plan is being developed to address this delay and specifically to improve civil engineering performance. Due to this context, costs and planning are sensitive to the ongoing action plan put in place
- The risks to the cost to completion are therefore increasing.
- The agreements between EDF and CGN include a capped compensation mechanism between both shareholders in case of cost overruns or delays. Given the expected level of completion costs, this mechanism is applicable and will be triggered when the time comes. This arrangement is part of the agreements signed between EDF and CGN in September 2016 and is subject to a confidentiality clause.
- The project's total financing needs exceed the contractual commitment of the shareholders, which could result in difficulty in funding the project in the event of shareholder misalignment and lead the Group to assume a portion of the financing needs greater than its share.

(1) See press release published by EDF on 27 January 2021 on the revision of costs and schedule in the context of the Covid crisis

(2) Costs net of operational action plans, in 2015 sterling, excluding interim interest and excluding forex effect versus the reference exchange rate for the project of £1 = €1.23. Costs calculated on 27 January 2021 by deflating estimated costs in nominal terms using the British Construction OPI – Output Price Index – for all new work.

(3) Costs calculated using a 2% inflation assumption for the construction period

# SIZEWELL C

## MAIN ASPECTS

- Project of **2 UK European Pressurised Reactors** (EPR) at Sizewell on the Suffolk coast for a total capacity of **3.2GW**
- Power supply to **6 million homes** and electricity generation for 60 years
- Project would be based on EPR technology, **replicating as much as possible the station at Hinkley Point C**
- As of today, **EDF's stake is 80%** and CGN's is 20%. During the development phase preceding FID <sup>(1)</sup>, EDF has planned to pre-finance development up to its share of a £480m budget



(1) Final Investment Decision  
 (2) Regulated Asset Base  
 (3) Announcement made on 27 October 2021 as part of the 2022-2025 UK government's spending review

## KEY ELEMENTS

- Development Consent Order** (DCO): examination ended on 14 October 2021. Decision expected mid-2022 by the UK's Secretary of State.
- Regulation:** Introduction by the UK government of a legislation to establish a funding scheme (RAB) <sup>(2)</sup> on 26 October 2021 for new nuclear projects. Under this mechanism, consumers will contribute to the cost of the projects during the construction phase, lowering the cost of financing.
- Financing:**
- Announcement <sup>(3)</sup> of a direct UK Government funding of up to £1.7bn to enable a large-scale nuclear project to reach a final investment decision. The government is in active negotiations with EDF on the Sizewell C project.
  - Review with credit agencies to be performed in 2022 aiming at obtaining an investment grade rating
  - At the date of the FID at the latest, EDF aims at becoming a minority shareholder (up to a maximum of 20%) with corresponding limited rights and to deconsolidate the project from the Group's financial statements (including in the calculation of the economic indebtedness by the rating agencies). EDF's objective is that third party investors enter the project at or before the date of the FID.
- Schedule:**
- Government Investment Decision expected in 2022
  - FID expected in 2023
- Risks:**
- EDF's ability to make a FID on Sizewell C depends in particular on the existence of an appropriate risk-sharing and financing mechanism over the project lifecycle, on the sufficient availability of investors and lender interested in the project and the ability to embed lessons learned from the Hinkley Point C project. At this stage, it is not certain that all these conditions will be met.
  - Failure in implementing the regulation or in obtaining the appropriate financing framework could lead the Group not to make an investment decision



# JAITAPUR

Through the Jaitapur project, the EDF group has been involved in Franco-Indian civil nuclear cooperation since 2010 within the framework of bilateral agreements signed between France and India. It is directly based on the energy transition objectives of the Indian government, set out during the Paris Conference in 2015, which aim to drive forward the increased share of renewable and nuclear energies in the country. Jaitapur is in Maharashtra state and will be the largest nuclear power site in the world

Acting as head of the French nuclear power sector, EDF entered into exclusive negotiations with NPCIL in 2016



- In March 2018, EDF signed a non-binding industrial cooperation agreement (IWFA <sup>(1)</sup>) with Indian national electricity firm Nuclear Power Corp. of India Ltd. (NPCIL) for the construction of six EPR reactors in Jaitapur. This agreement sets out the industrial plan, the roles and responsibilities of partners, and the next steps of the project
- In this regard, the EDF group and its partners would supply all the studies and equipment for the nuclear island, the conventional island, the auxiliary systems, and the cooling source and galleries
- EDF does not intend to invest equity in this project

- In its capacity as the owner and future operator of the Jaitapur Nuclear Power Station, NPCIL is expected to be responsible for obtaining all authorisations and certifications required in India, and for constructing all six reactors and site infrastructures. EDF and its industrial partners would assist NPCIL during the construction phase
- In accordance with the process set out in the IWFA <sup>(1)</sup>, EDF submitted a non-binding complete technical-commercial offer to NPCIL on 14 December 2018. EDF has submitted a binding offer in April 2021
- Discussions are ongoing on this basis

(1) IWFA: International Way Forward Agreement

# NACHTIGAL HYDROELECTRIC DAM IN CAMEROON <sup>(1)</sup>

## MAIN ASPECTS OF THE PROJECT

- Design, construction and operation for a period of 35 years of a 420MW run-of-the-river hydropower plant on the Sanaga river near the Nachtigal Falls
- Construction of a 50-km power transmission line
- Project will be owned and operated by NHPC (Nachtigal Hydro Power Company), currently comprising EDF (40%) <sup>(2)</sup>, IFC (20%), the Republic of Cameroon (15%), Africa50 (15%) and STOA (10%)
- Expected annual power generation of 3TWh, i.e. 30% of the country's electricity generation output
- Substantial economic benefits: up to 3,000 direct jobs during peak construction periods, of which 65% will be locally sourced within a 65km radius of the construction site. The project will generate dozens of permanent jobs

## FINANCING STRUCTURE

- Project's expected total cost: €1.2 billion
- Shareholders' equity to fund a quarter of the project, lenders to fund the rest
- The lender group includes 11 Development Finance Institutions (DFI) and 4 local commercial banks <sup>(3)</sup>
- The largest hydropower project ever built in Africa through non-recourse project finance debt

## TIMELINE

- Final and binding agreements signed on 8 November 2018, financial closing on 24 December 2018
- Start of construction in March 2019, 47.6% of civil engineering achieved at 30/09/2021
- Covid impact: slowdown of the construction between April and June 2020. Delay in commissioning currently estimated at 4.5 months
- Operational commissioning expected early 2024



(1) Refer to the press release published by EDF on 8 November 2018

(2) Equity consolidation method

(3) Including: AfDB, IFC (International Finance Corporation) – member of the World Bank Group, CDC, European DFI coordinated by Proparco (AFD, DEG and FMO), EIB, OFID, EAIF, AFC. Local banks include: Attijari/SCB, BICEC, SG Cameroun and Standard Chartered

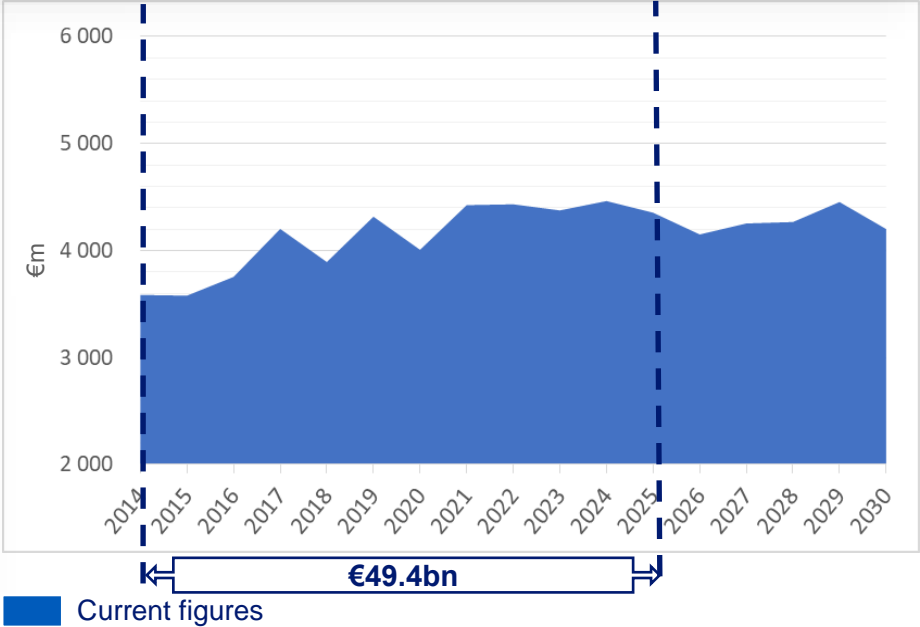
# EXISTING NUCLEAR FLEET AND “GRAND CARÉNAGE” PROGRAMME

## INDUSTRIAL STRATEGY

- Industrial strategy to continue the operation of plants after 40 years for a competitive energy mix:
- Technical capacity of the plants to operate beyond 40 years supported by international benchmarks for similar technologies
  - Extension from 40 to 50 years of the depreciation period of the 900MW nuclear fleet (except Fessenheim) accounted as of 1 January 2016: 4 reactors successfully completed their 4th ten-yearly inspection and thus passed the 40-year milestone (Tricastin 1, Tricastin 2, Bugey 2 and Bugey 4)
  - Extension from 40 to 50 years of the depreciation period for the 1,300MW nuclear fleet from 1 January 2021, following, among other facts, the generic decision published on 23 February 2021 by the ASN on the 4th ten-yearly inspections of the 900MW series and the success of the first 40-years inspection of Tricastin 1
  - Strategy confirmed by the guidelines given by multi-year energy programme for France (PPE)

## GRAND CARÉNAGE PROGRAMME

- Programme integrating the quasi totality of the investments in the existing nuclear fleet over the 2014-2025 period, and beyond.
- In 2015, initial investment programme on the 2014-2025 period was estimated at €<sub>2013</sub>55bn <sup>(1)</sup> and was optimised and revised to €<sub>2013</sub>45bn (€48.2bn in current euros) in 2018.
- In October 2020 <sup>(2)</sup>, it was adjusted to €49.4bn in current euros on the same 2014-2025 period. The new cost estimate accounts mainly for the first findings on the works to be conducted in the context of the ongoing review process related to the fourth periodic safety review of the Group's 900MW reactors of which an important step was taken with the generic opinion issued by the ASN on 23 February 2021. This estimate will be updated regularly in order to integrate in particular the changes in the work scope and the supply costs.
- Investments will remain significant in this program beyond 2025, in particular with a view to extending the life of the 1,300 MW nuclear fleet to 50 years and, if it is decided, to extend the operating life to over 50 years.



(1) The figures presented by the French Cour des comptes in its report of 10 February 2016 cover a longer time horizon, up to 2030, and included, beyond the investment, operating and maintenance expenses. Both assessments are consistent, as stated by the Cour des comptes in its report. Indeed, among the overall estimates calculated by the Cour des comptes and amounting to close to €<sub>2013</sub>100 billion for the 2014-2030 period, the investment-expenditures estimated at €<sub>2013</sub>74.73 billion should be distinguished from the operating expenditures estimated at €<sub>2013</sub>25.16 billion. Within the €<sub>2013</sub>74.73 billion of investment expenses between 2014 and 2030, €<sub>2013</sub>55 billion are dedicated to the 2014-2025 period, which allows the two estimates established by the EDF group and the Cour des comptes to be connected

(2) See press release of the 29 October 2020



# EDF, ACTOR IN THE HYDROGEN SECTOR

Hydrogen is a key vector in the energy transition: it could meet 20% of worldwide energy demand in 2050 <sup>(1)</sup>

## Complementarity with the EDF's low carbon mix

- EDF group's positioning on this market in line with its objective of carbon neutrality

## Favourable context

- Government incentives in several European countries, including France (€7.2bn within the scope of the national strategy for the development of decarbonised hydrogen + the objective of becoming the leader in green hydrogen among the 10 objectives of the "France 2030" investment plan)



GROUP'S SUBSIDIARY PRESENT  
ACROSS THE VALUE CHAIN

### 2021 achievements

- Commissioning of the largest hydrogen production and distribution station in France to fuel the buses of an urban transport network in Auxerre city, inaugurated on 13 October 2021.
- Prenotification of 830MW electrolysis capacity as part of the IPCEI programme <sup>(2)</sup> made of two projects:
  - the **Hynovi project** which is developed in partnership with the cement company Vicat and located in the Auvergne-Rhône-Alpes region, has a 330MW capacity and will be used to produce syngas.
  - The **Hyscale 100 project** is being developed by the teams at Hynamics Deutschland (see opposite).
- Strategic industrial and commercial partnerships with Vicat, SNCF, Gaussin and Alstom.

(1) McKinsey report – *Hydrogen Council 2019*  
 (2) Important Project of Common European Interest

HYDROGEN IN THE WORLD

**In Germany:**

- Hynamics, key partner in a 30MW electrolyser project in Germany: H<sub>2</sub> production from offshore wind power for a refinery
- In partnership with Orsted, the Heide refinery and Holcim Lafarge, a 500MW industrial project by Hynamics prenotified by the German authorities as part of the IPCEI programme <sup>(2)</sup>.

**In the UK :**

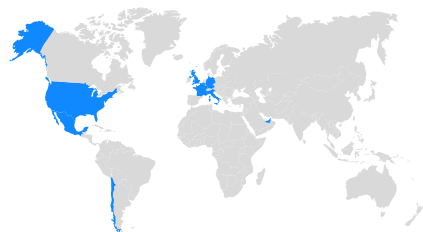
- Implementation of a Hynamics Business Developer in order to develop its presence in the UK


**In Italy:**

- Edison develops, in partnership, five green hydrogen projects, of which refineries or steelworks decarbonation and distribution and alimentation of hydrogen in public transport (trains and buses)

**In USA, Chile, Saudi Arabia:**

- Hynamics business supports for EDF group's subsidiaries (mainly EDF Renewables)





EDF STAKE IN McPHY  
(14.4% OWNED TO DATE BY EDF)

Leading player in the hydrogen sector

A complete range of solutions:

- Electrolysers
- Hydrogen charging stations
- Storage

McPhy has been prenotified as part of the IPCEI programme <sup>(2)</sup> for the financing of an electrolyser Gigafactory with a production capacity of several hundreds of MW/yr.

Two strategic partners, Technip and Chart Industries, also acquired stakes in McPhy in November 2020 and are playing their support role.

# DALKIA: INNOVATIVE PROJECTS

## SIGNATURE OF A PUBLIC-PRIVATE PARTNERSHIP WITH **SNCF GARES & CONNEXIONS** <sup>(1)</sup> TO DEVELOP A NEW SOLUTION FOR THE MANAGEMENT OF THE RAIL STATIONS

- **Objectives:** 12-year partnership to design, develop and roll out the "BIM OMM" tool, aiming at transforming and simplifying Operation & Maintenance of train stations. The platform will provide, in real time, digital twins of 122 rail stations, this making possible to rethink in a more sustainable, economical and ecological way the management of all buildings
- **BIM OMM technology:** process of updating and using data <sup>(3)</sup> from the digital model, through which all data on building's current state and new development are collected in real time. This is known as digital twinning. BIM OMM enable to plan, predict and optimise all type of technical work on rail stations

## PARTNERSHIP WITH **FUTUROSCOPE** <sup>(2)</sup> FOR THE CREATION OF A GREEN HEATING AND AIR CONDITIONING NETWORK

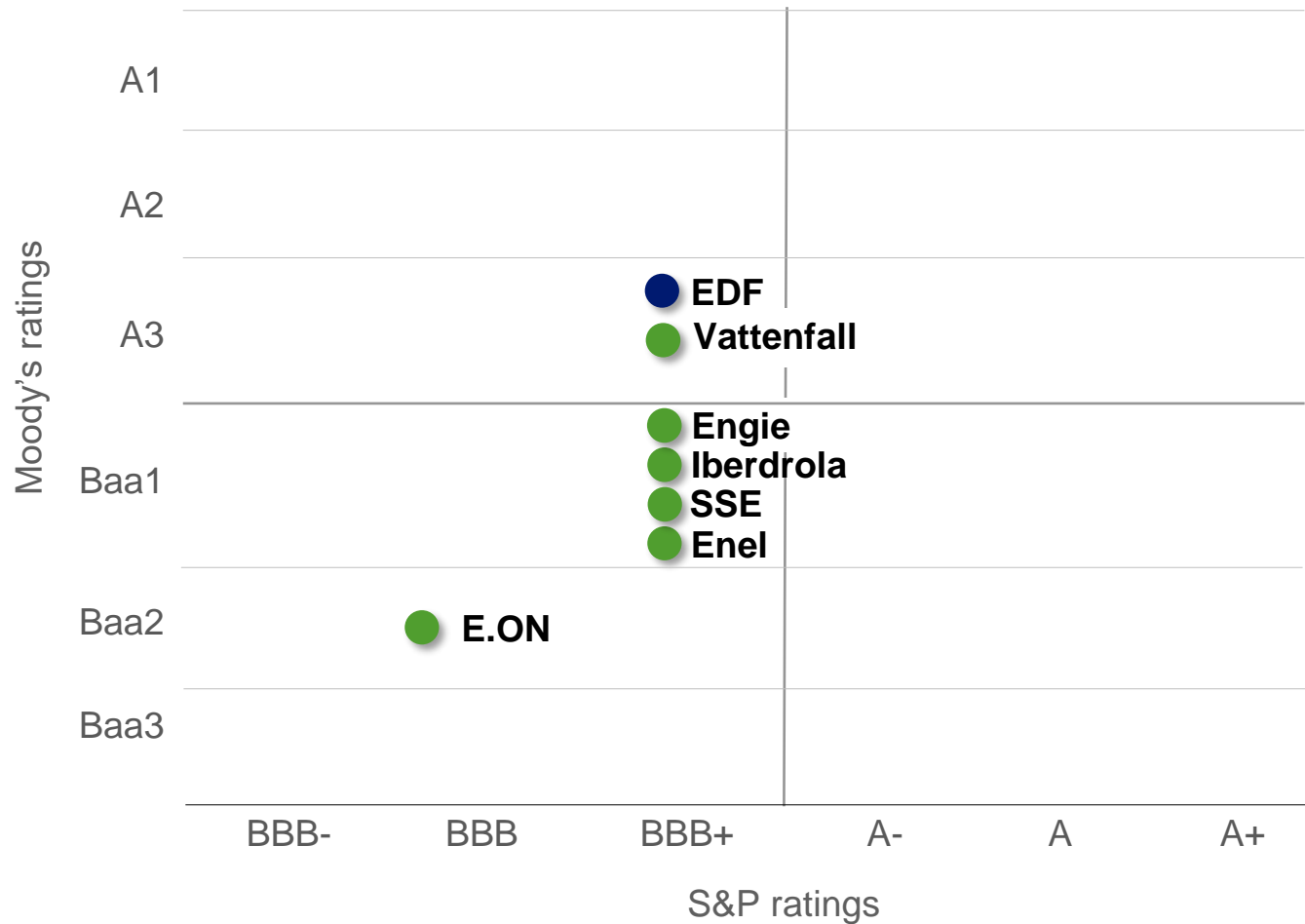
- **Objectives:** Environmental programme, digital management solutions and energy performance upgrades will allow to reduce Futuroscope's greenhouse gas emissions by 40% and to reduce its fossil fuel consumption by 30%
- **Technologies:** heat and cold will be produced by thermorefrigerating pumps (technology similar to heat pumps). It will use a local renewable energy collecting heat from an aquifer via a heat exchanger. Production plant will itself be powered by solar electricity from canopies with photovoltaic panels in the Futuroscope carpark

(1) For more information, see Dalkia's press release of 2 September 2021

(2) For more information, see Dalkia's press release of 3 September 2021

(3) From the boiler model to the location of the windows and all the cables and pipes in the building

# COMPARATIVE CREDIT RATINGS



	S&P ratings	Moody's ratings	Fitch ratings
EDF	BBB+ stable <sup>(1)</sup>	A3 stable <sup>(2)</sup>	A- negative <sup>(3)</sup>
Engie	BBB+ stable	Baa1 stable	A- stable
Vattenfall	BBB+ stable	A3 stable	n.d.
SSE	BBB+ stable	Baa1 negative	BBB stable
Iberdrola	BBB+ stable	Baa1 stable	BBB+ stable
Enel	BBB+ stable	Baa1 stable	A- stable
E.ON	BBB stable	Baa2 stable	BBB+ stable
Uniper	BBB stable	n.d.	n.d.
RWE	n.d	Baa2 stable	BBB+ stable

Sources: rating agencies as of 09/11/2021

(1) Update of the rating and outlook of EDF Group by S&P on 30 June 2021

(2) Update of the rating and outlook of EDF Group by Moody's on 27 August 2021

(3) Update of the rating and outlook of EDF Group by Fitch on 19 July 2021



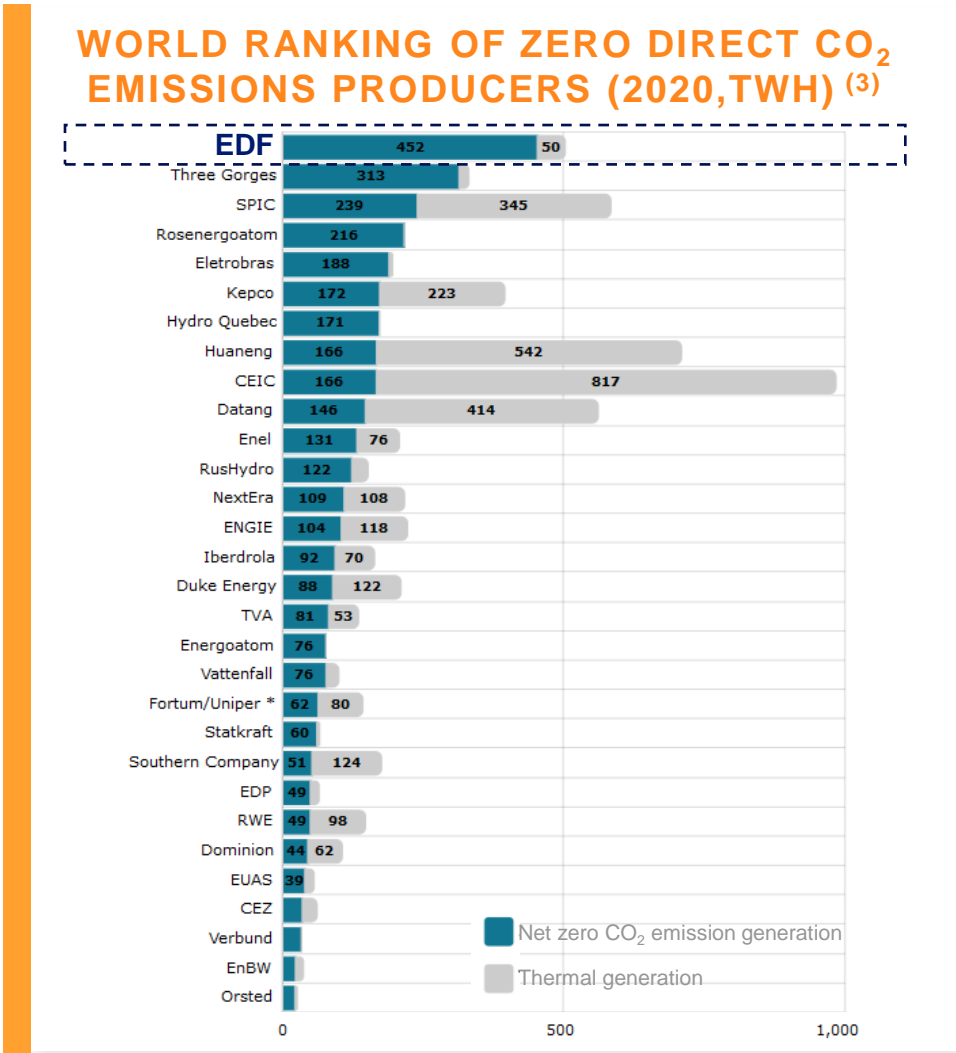
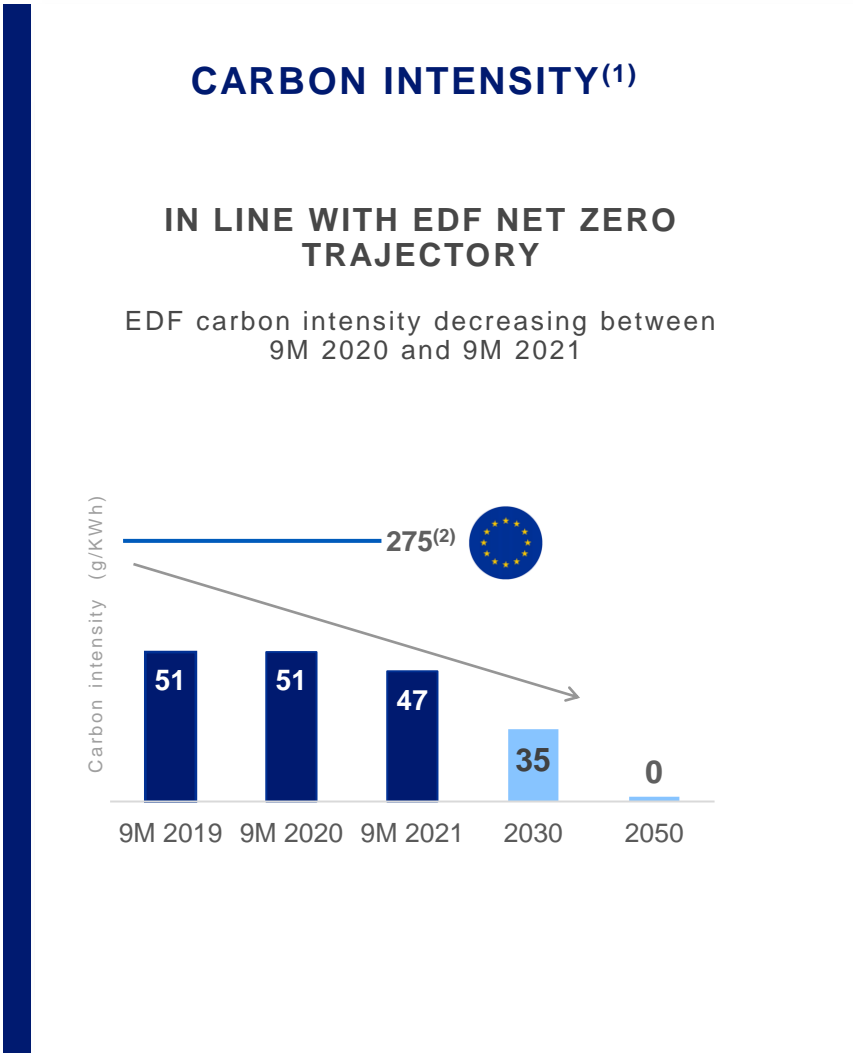
# SALES AND HIGHLIGHTS

## 9 MONTHS 2021

ESG



# ENVIRONMENTAL ACHIEVEMENTS AND TARGETS



# SALES AND HIGHLIGHTS

## 9 MONTHS 2021

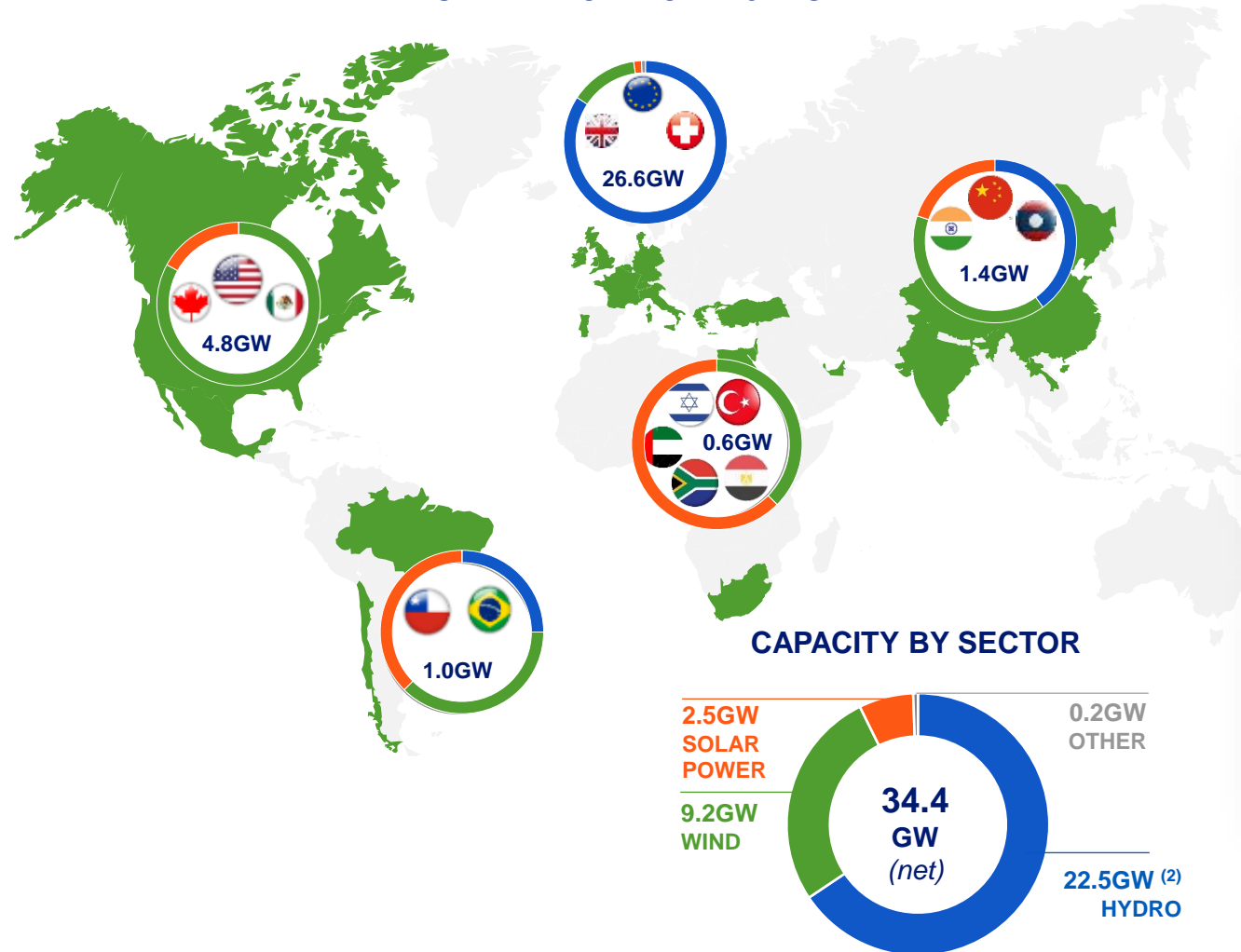
### RENEWABLES





# EDF, THE EUROPEAN LEADER IN RENEWABLE ENERGY

NET INSTALLED CAPACITY: 34.4GW <sup>(1)</sup>



A DIVERSIFIED MIX WITH 34.4GW IN OPERATION

- 22.5GW of hydropower
- 11.7GW of wind and solar power
- 0.2GW others (biomass, geothermy, ...)

HYDROPOWER

- Leading European producer of hydropower
- More than 400 production sites worldwide

A GLOBAL LEADER IN WIND AND SOLAR ENERGY

- 1.5GW gross commissioned in 9M 2021
- 8.4GW gross currently under construction (1.9GW in onshore wind power, 2.1GW in offshore wind power, 4.4GW in solar power)

(1) Installed capacity shown as net, corresponding to the consolidated data based on EDF's participation in Group companies, including investments in affiliates and joint ventures

(2) Including sea energy: 0.24GW

# A PORTFOLIO OF WIND AND SOLAR PROJECTS OF ~66GW <sup>(1)</sup>

A PROJECT PORTFOLIO THAT IS **DIVERSIFIED GEOGRAPHICALLY...**



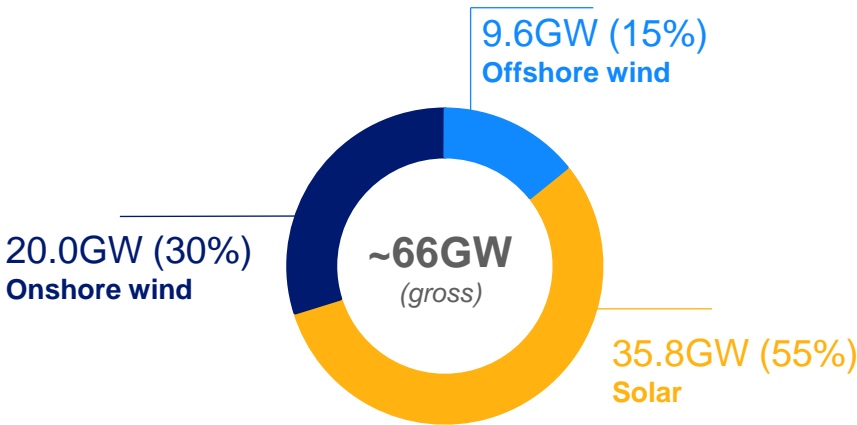
**NB: situation at 30/06/2021**, usually not updated for the 9M

(1) Pipeline excluding capacities under construction. Gross data corresponding to 100% of the capacity of the projects concerned.

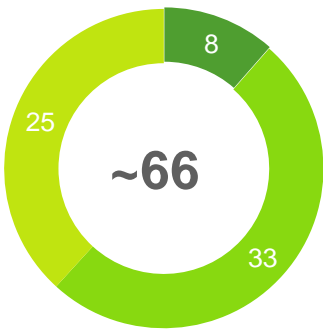
(2) All the projects in prospection phase included in the pipeline, starting 2020

(3) 2020 portfolio start of construction potential, not probability-based

... AND **BALANCED BETWEEN WIND AND SOLAR**



Portfolio of projects <sup>(2)</sup> in GW



■ Secured \*\*\*

■ Under development \*\*

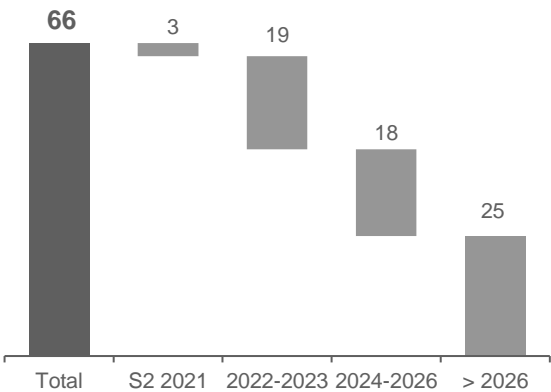
■ Prospection phase \*

\* Start of land identification and preliminary studies

\*\* Sufficient land securisation and start of technical studies

\*\*\* Securing a power purchase agreement (following a call for tenders, auction, OTC negotiation)

Pipeline breakdown by date of start of construction in GW <sup>(3)</sup>



# DESERT QUARTZITE: PPA OF 15 YEARS

## 377MW SOLAR CAPACITY & 600MWh STORAGE SYSTEM

**Key dates:**

- **September 2021:** Signature of a 15-years PPA between EDF Renewables and Clean Power Alliance to build and operate the project
- **End-2021:** Start of construction
- **Early 2023:** Commissioning of the facility

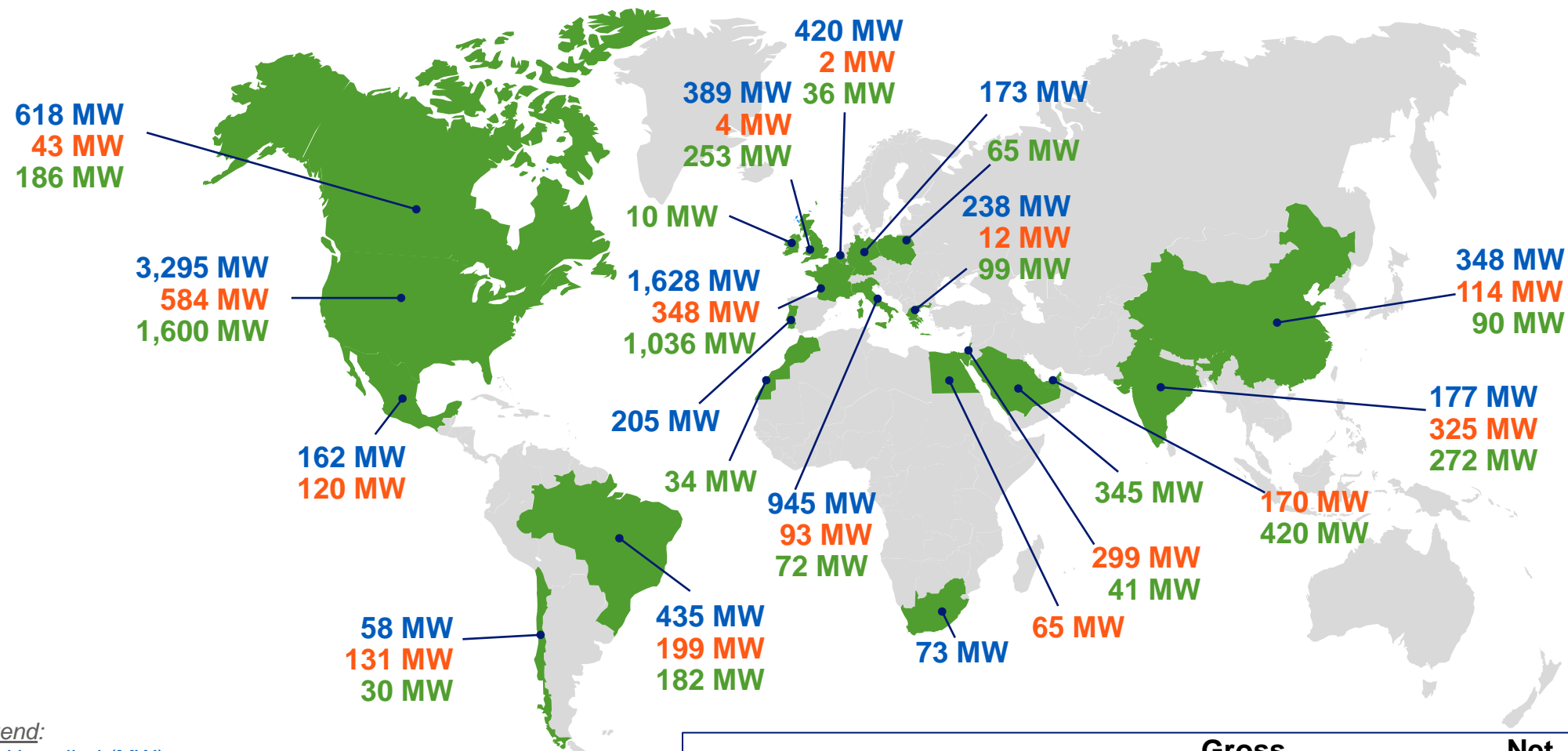
**Key data:**

- **Location:** Riverside County in California (in a solar-energy development park)
- **Capacity:** 377MW of solar energy combined with a 600MWh energy storage system using batteries, able to supply 163,000 households with electricity every year
- **Technology:** single-axis horizontal photovoltaic panels combined with a battery system with a duration of 4 hours.





## NET INSTALLED AND UNDER CONSTRUCTION CAPACITY – 30 SEPTEMBER 2021



Legend:

Wind installed (MW)

Solar installed (MW)

Wind and solar under construction (MW)

	Gross	Net
Installed capacity	18,035 MW	11,672 MW
Capacity under construction	8,445 MW	4,771 MW
<b>Total</b>	<b>26,480 MW</b>	<b>16,443 MW</b>

# INSTALLED CAPACITY AND CAPACITY UNDER CONSTRUCTION, WIND & SOLAR, AS OF 30 SEPTEMBER 2021

(in MW)	Gross <sup>(1)</sup>		Net <sup>(2)</sup>	
	31/12/2020	30/09/2021	31/12/2020	30/09/2021
Wind	12,889	13,225	8,379	9,165
Solar	4,254	4,810	2,199	2,507
<b>Total installed capacity</b>	<b>17,142</b>	<b>18,035</b>	<b>10,578</b>	<b>11,672</b>
Wind under construction	4,126	4,013	2,814	2,447
Solar under construction	3,865	4,432	1,928	2,324
<b>Total capacity under construction</b>	<b>7,990</b>	<b>8,445</b>	<b>4,743</b>	<b>4,771</b>

NB: The values correspond to the expression to the first decimal or integer closest to the sum of the precise values, taking into account rounding

(1) Gross capacity: total capacity of the facilities in which EDF Renewables has a stake

(2) Net capacity: capacity corresponding to EDF's stake

# SALES AND HIGHLIGHTS

## 9 MONTHS 2021

REGULATED





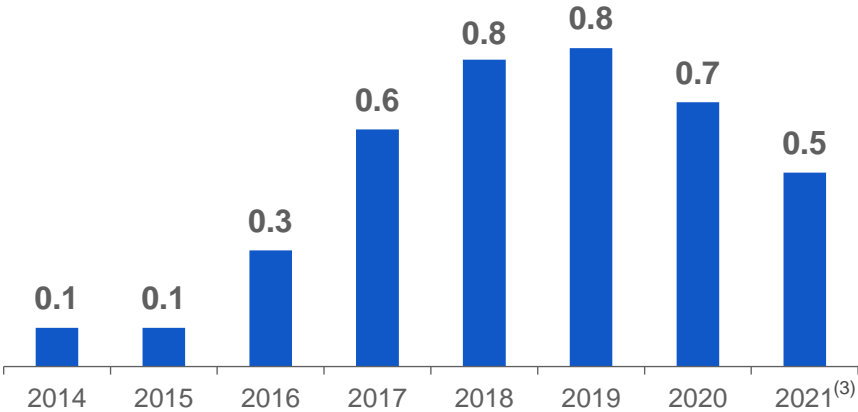
# LINKY <sup>(1)</sup> : AN INCENTIVE TARIFF FRAMEWORK

LINKY: THE ROLLOUT PROGRAM FOR NEW SMART METERS

AN ATTRACTIVE REMUNERATION STAGGERED OVER TIME

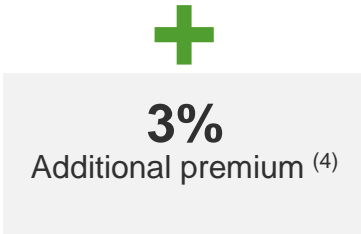


2014-2021 Investment pattern  
in €bn



Linky – Remuneration

7.25%  
Nominal rate of return on assets before tax



→ Projected result at end-2021 very favourable at this stage

<sup>(1)</sup> Linky is a project led by Enedis, an independent EDF subsidiary as defined in the French Energy Code  
<sup>(2)</sup> At completion of the program, costs were revised downwards after latest negotiated prices

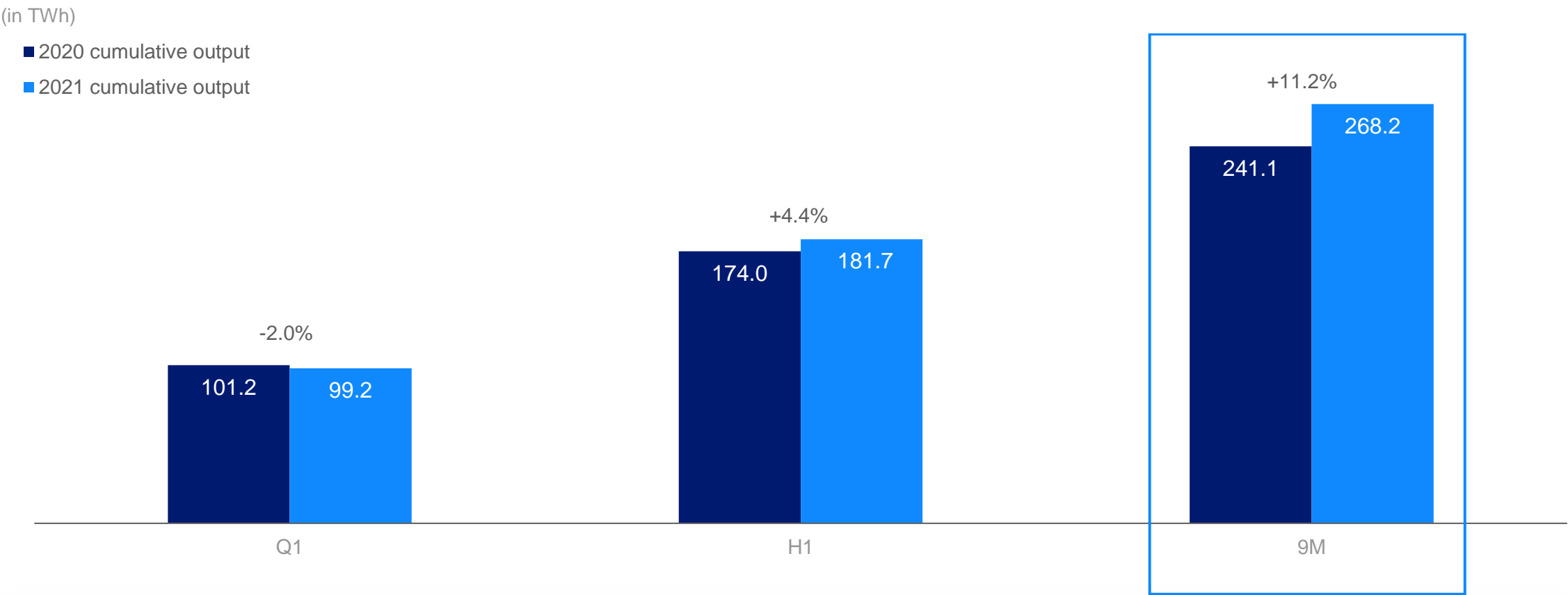
<sup>(3)</sup> Estimated figures  
<sup>(4)</sup> Additional premium of 3% / Penalties of -2 %, depending on the respect of costs, deadlines and performance of the system during the deployment phase

# 2021 HALF-YEAR RESULTS

FRANCE – GENERATION AND SUPPLY



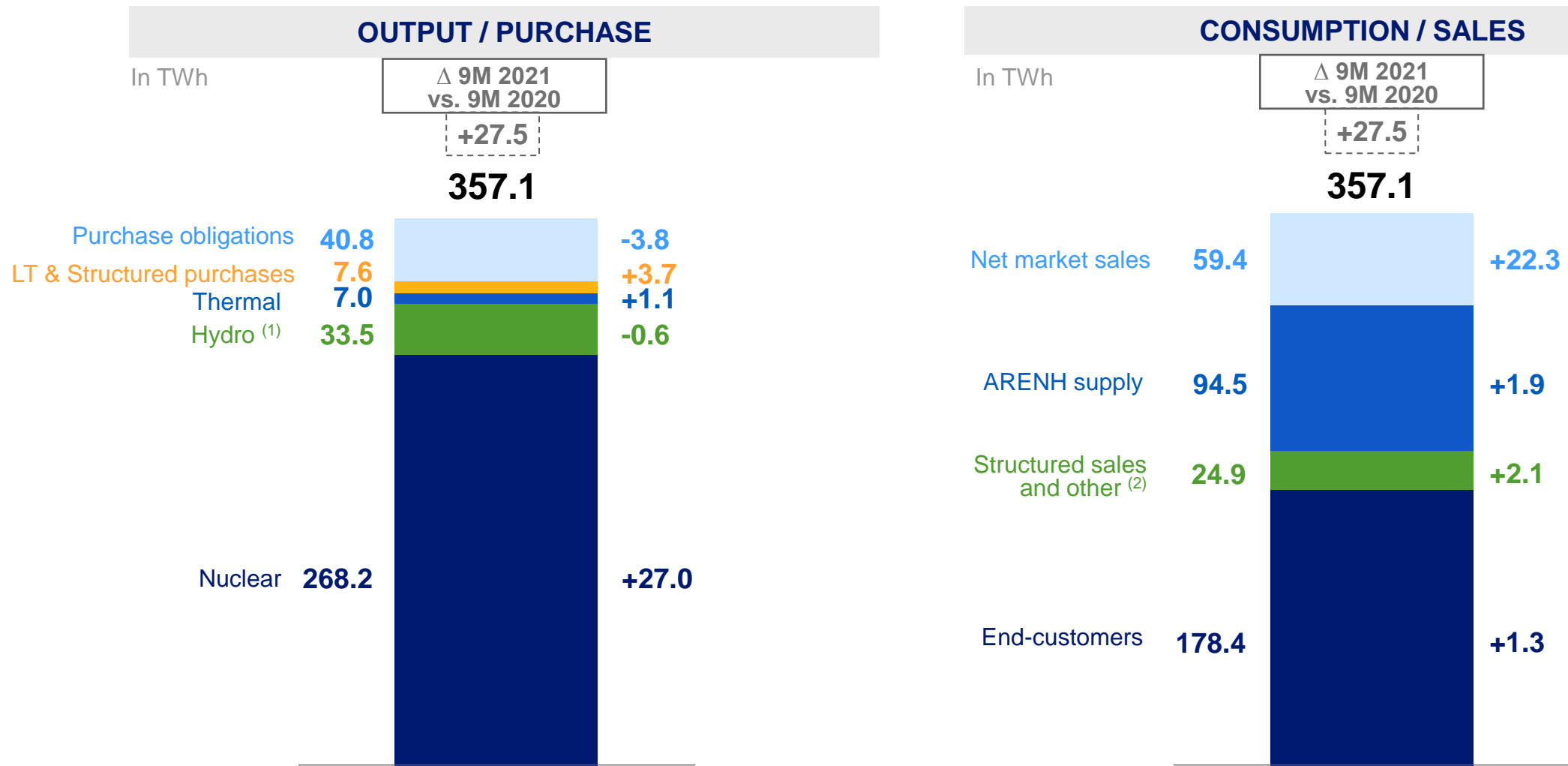
# FRANCE 9M NUCLEAR OUTPUT



➤ **Nuclear output of 268.2TWh for 9M 2021, up 27TWh** from 9M 2020 despite the closure of the two reactors at Fessenheim. This is mainly explained by lower modulation due both to climate and demand, and by a better availability of the nuclear fleet.



FRANCE: UPSTREAM / DOWNSTREAM ELECTRICITY BALANCE



NB: EDF excluding French islands electrical activities

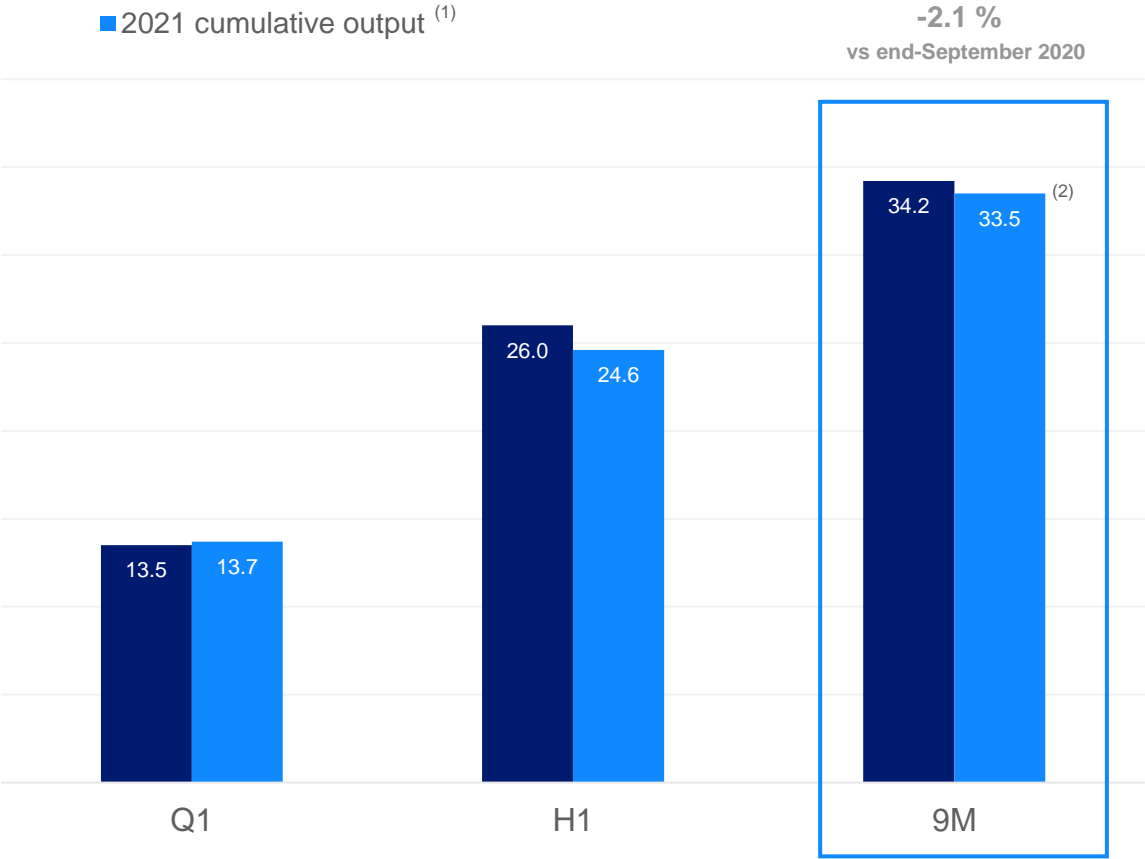
(1) Hydro output after deduction of pumped volumes: 29.7TWh on 9M 2021 / 29.6TWh on 9M 2020

(2) Including hydro pumped volumes of 3.8TWh on H1 2021 / 4.4TWh on H1 2020

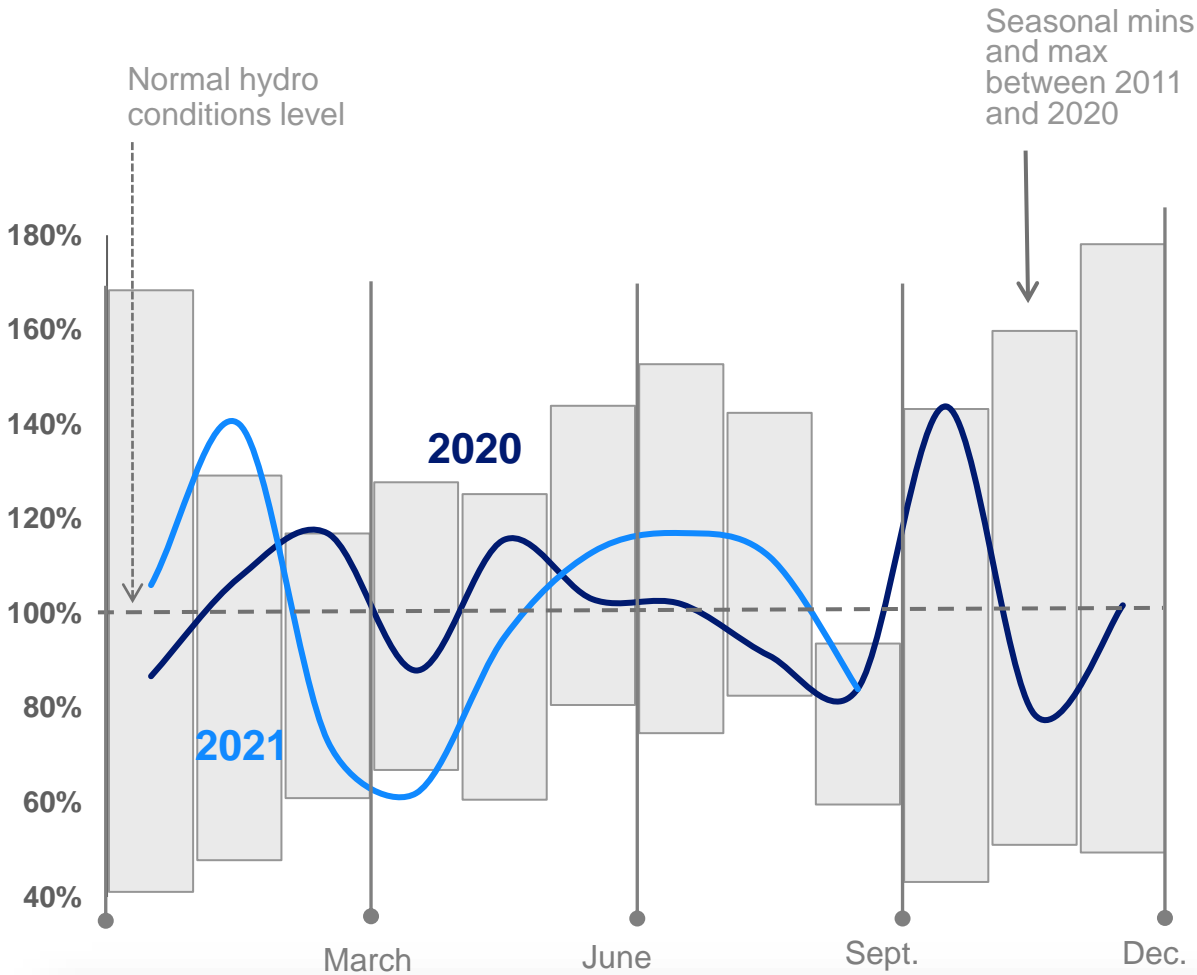
# FRANCE HYDRO OUTPUT

(in TWh)

- 2020 cumulative output <sup>(1)</sup>
- 2021 cumulative output <sup>(1)</sup>



(1) Hydropower excluding electrical activities on French islands, before deduction of pumped volume consumption.  
 (2) Production after deduction of pumped volume consumption: 29.8TWh in 9M 2020, and 29.7TWh in 9M 2021.

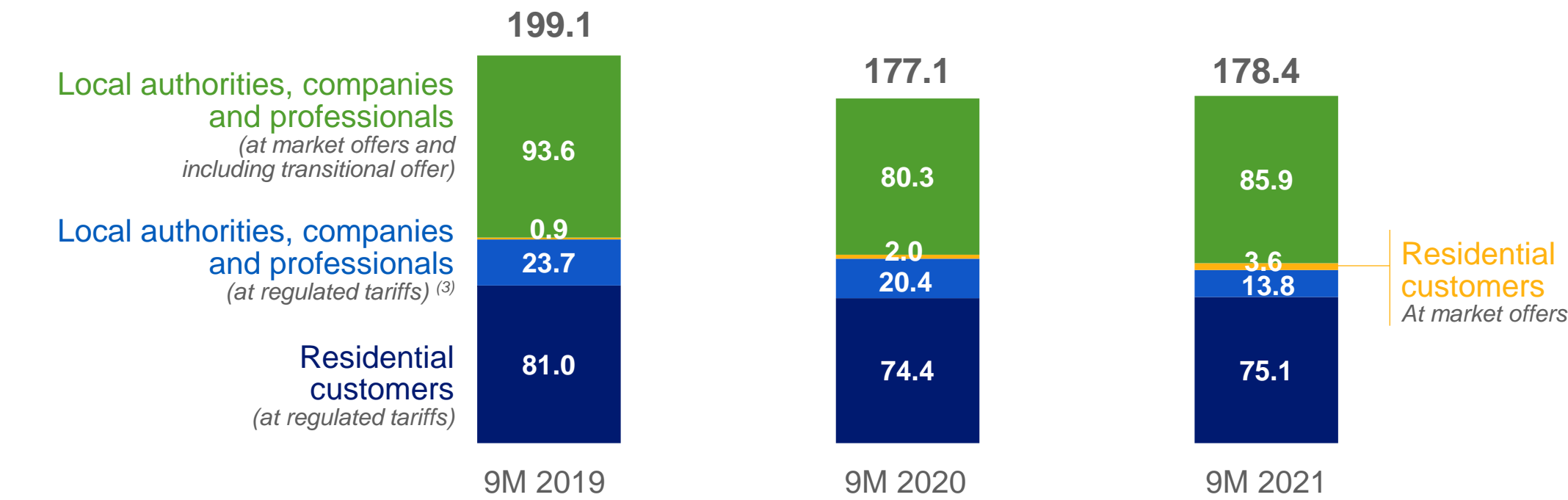


- Hydro conditions in 9M 2021 quasi-normal and slightly lower than 9M 2020
- Hydraulic reservoirs filling rate in France at 72.8% at end-September 2021: -3.7 points vs historical average

# ELECTRICITY SUPPLY IN FRANCE

## SALES TO END CUSTOMERS <sup>(1) (2)</sup>

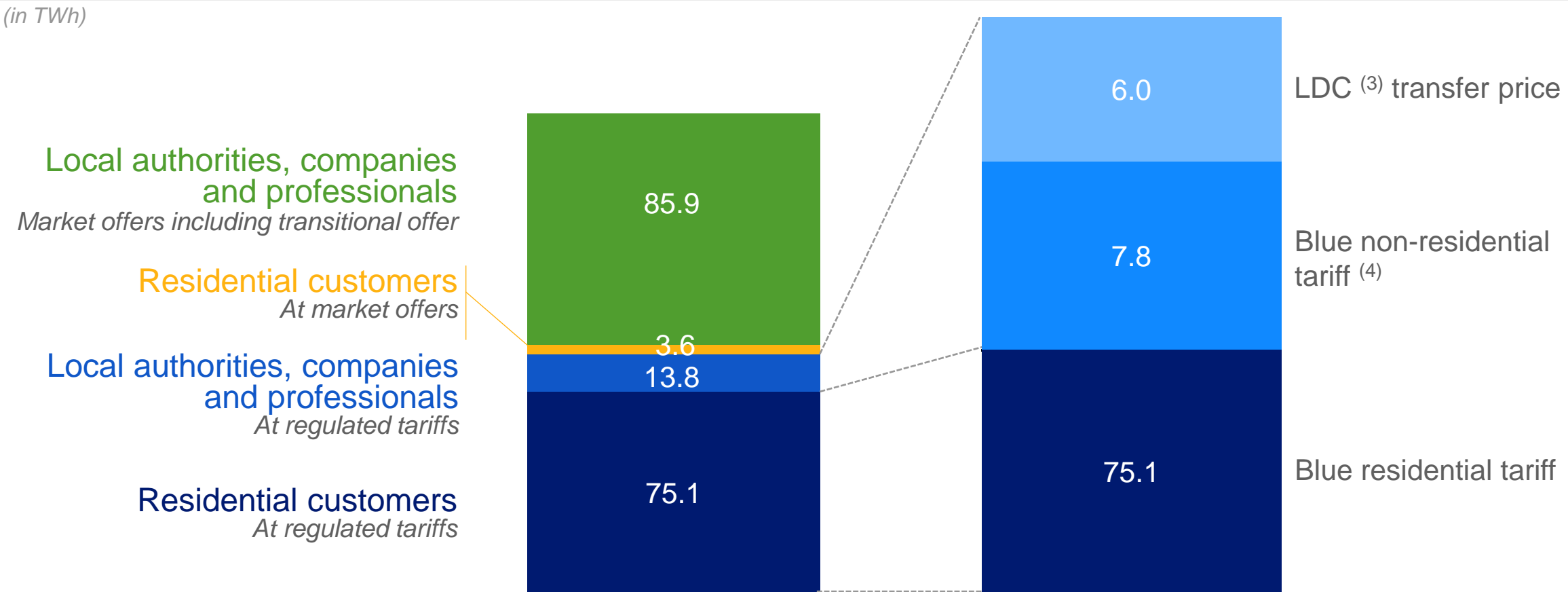
(in TWh)



(1) Rounded to the nearest tenth  
(2) Including EDF's own consumption  
(3) Blue professional tariff, LDC (Local Distribution Companies) at transfer price and Yellow and Green tariffs, below 36kVA that persist beyond 2015

# ELECTRICITY SUPPLY IN FRANCE – SALES UNDER REGULATED TARIFFS SPLIT

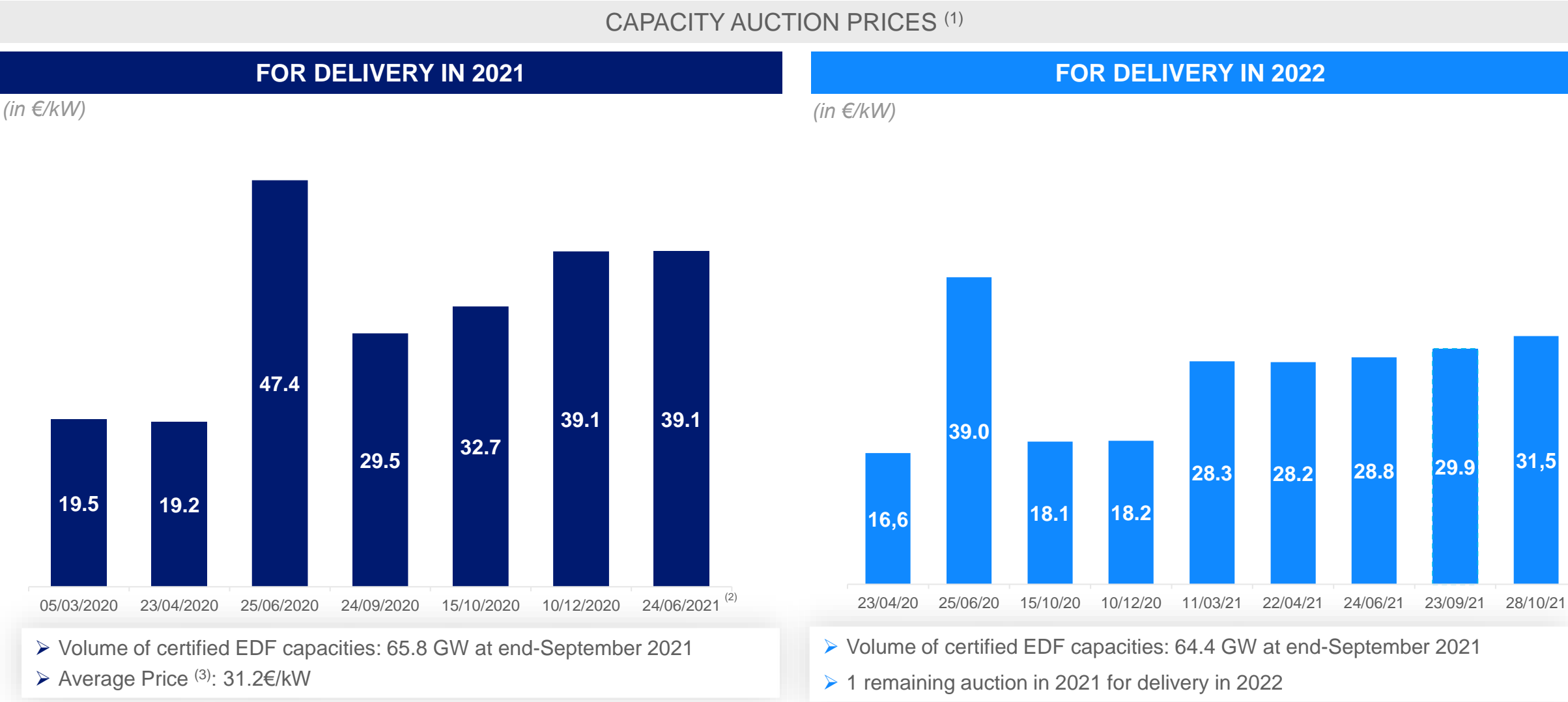
SALES TO END CUSTOMERS FOR 9M 2021 <sup>(1) (2)</sup>



(1) Rounded to the nearest tenth  
(2) Including EDF's own consumption  
(3) Local Distribution Companies (LDCs)  
(4) Of which Yellow and Green tariffs for 0.05TWh - Tariffs lower than 36 kVA



# CAPACITY MARKET IN FRANCE



(1) Data rounded to nearest tenth

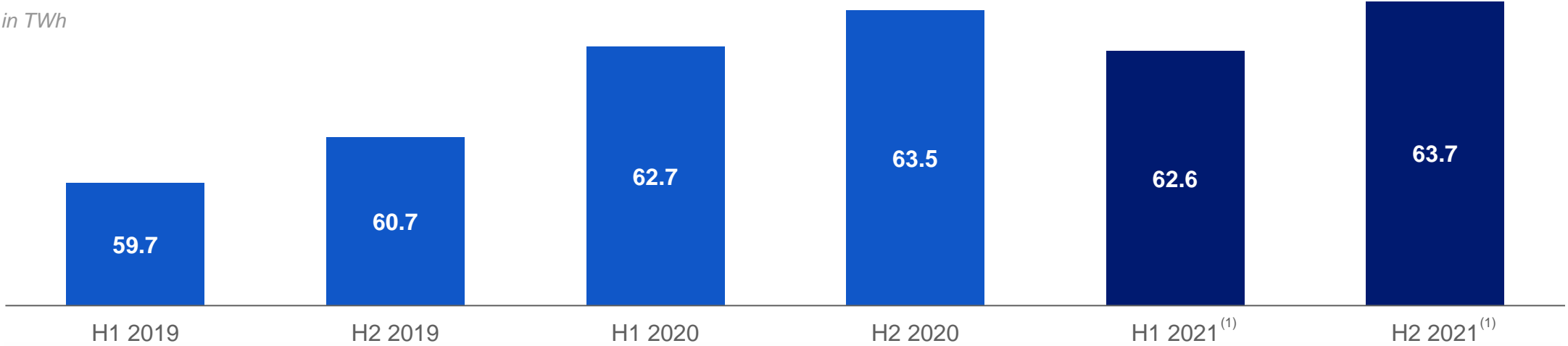
(2) Rebalance session

(3) Does not take into account rebalance sessions

# CAPACITY MARKET: THEORETICAL YEAR <sup>(1)</sup>

Valuation method for certificates	Timing of EBITDA impact	Certificates concerned	Price	Volumes concerned <sup>(2)</sup>
Generation				
Certificate sales on the market (via auctions or OTC, up to 25% of volumes must be proposed during auctions)	At the time of closing of the transactions	Any certificate	Auction price (or negotiated price for OTC sales)	~ 15GW for DY+1 ~ 15GW for DY+2
Internal sales to the obligated actor (o/w ARENH share of supply contracts and tariffs)	None	Any certificate	N/A	~ 15GW by DY
Non-monetised transfers relating to ARENH volumes	None	Certificates for delivery year Y+1	N/A	~ 15GW by DY
Supply				
Certificate purchases on the market (via auctions or OTC)	None (entry into stock)	Any certificate	Auction price (or negotiated price for OTC sales)	~ 30GW by DY (~15GW for DY+1 and ~15GW for DY+2)
Outflow from stock of volumes purchased	At the time of energy delivery	Certificates for delivery year Y	Calculated from auctions prices	~30GW by DY (~15GW for DY-1 and ~15GW for DY-2)
Pass through of the capacity price to end customers (market component of supply contracts and tariffs)	At the time of energy delivery	Certificates for delivery year Y	Calculated from auctions prices	~ 48GW (o/w ~ 35GW valued)

# ARENH: VOLUMES ALLOCATED



- Maximum annual sales volume of 100TWh<sup>(2)</sup> by EDF to alternative suppliers and ~25TWh for network losses coverage
- In November 2020, ARENH requests from alternative suppliers for 2021 amounted to 146.2TWh.
- The volume for 2021 was therefore capped at the legal ceiling of 100TWh generating a 32% “cropping effect” in the tariff
- At end-May 2021, the supplied volume was not changed for 2021
- Volume sold for 2021, including 26.3TWh sold for network losses coverage:
  - 62.6TWh for H1
  - 63.7TWh for H2
- Pending litigation regarding the implementation of a Force Majeure in the ARENH contract between EDF and some alternative suppliers

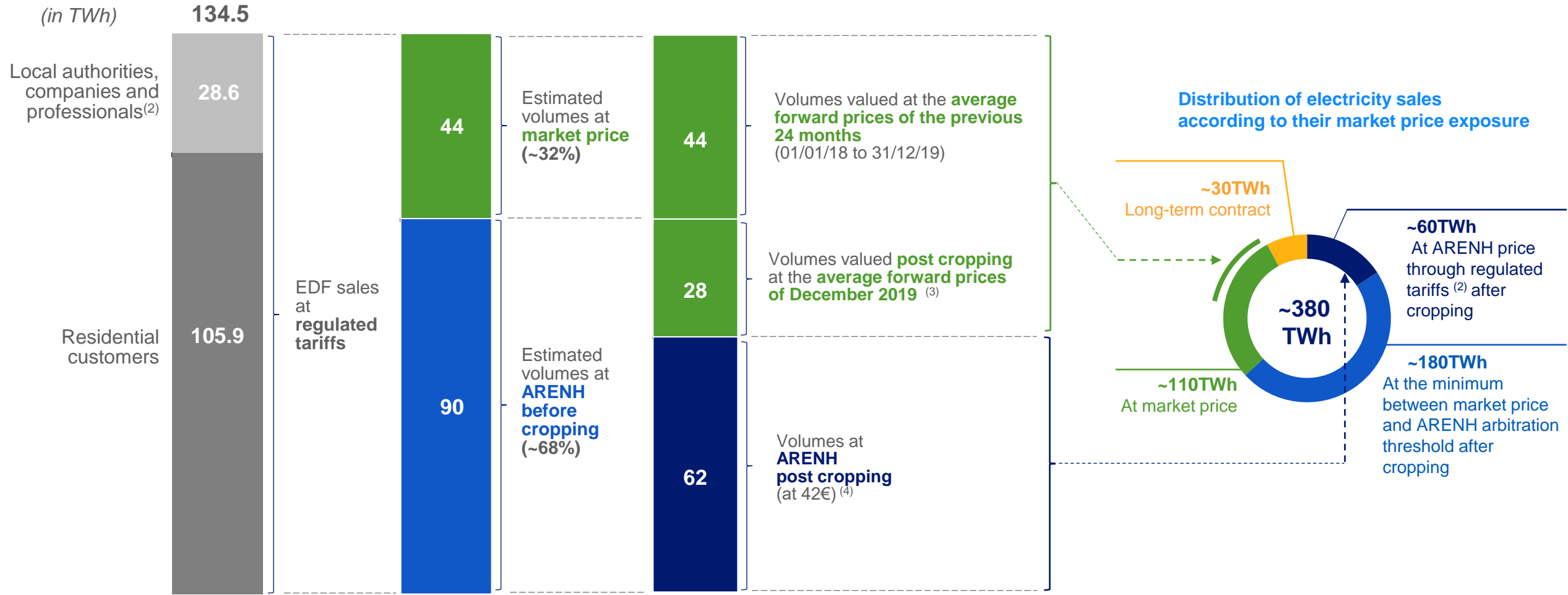
Source: CRE

(1) Difference between half year estimated by EDF, from the annual data provided by the CRE, and likely to change during the year through the application of legal, regulatory and contractual provisions (sub-annual window, cancellations, defaults, etc.)

(2) The Energy and Climate Change law of 8 September 2019, provides the government with the possibility of raising the cap for global maximal volumes via a ministerial order, from 100 to 150TWh as of 1 January 2020. The law also allows the government to revise the ARENH price. However, the government announced early November 2020 a status quo for both ARENH volumes and ARENH price for 2021

# ILLUSTRATION OF THE ENERGY PART CALCULATION IN THE REGULATED TARIFFS

SALES TO END CUSTOMERS AT REGULATED TARIFFS IN 2020 <sup>(1)</sup>



2020

NB: Volumes sold at market offer follow the same kind of pattern. The share of electricity coming from nuclear is more important as industrial customers have a more baseload consumption profile. Also, the valuation of the volumes can be different as some customers may have long term supply contracts at fixed prices.

(1) Rounded to the nearest tenth  
 (2) Blue professional tariff, LDC (Local Distribution Companies) at transfer price and Yellow and Green tariffs, below 36kVA that persist beyond 2015.  
 (3) 01/12/19 to 24/12/19, post results of the ARENH auction of November (46TWh to be sourced on the market out of a request of 146TWh, corresponding to the so called "cropping effect").  
 (4) Post results of the ARENH auction of November (100TWh delivered at ARENH price out of a request of 146TWh).

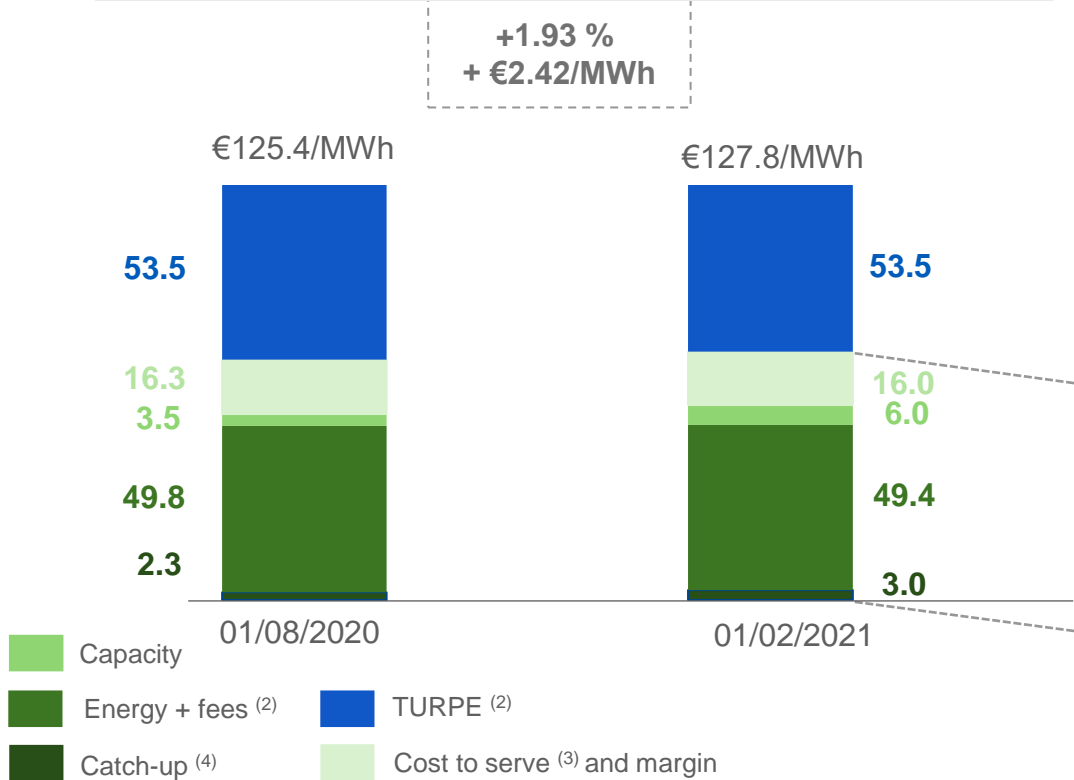


# REGULATED SALES TARIFFS IN FRANCE (1/3)

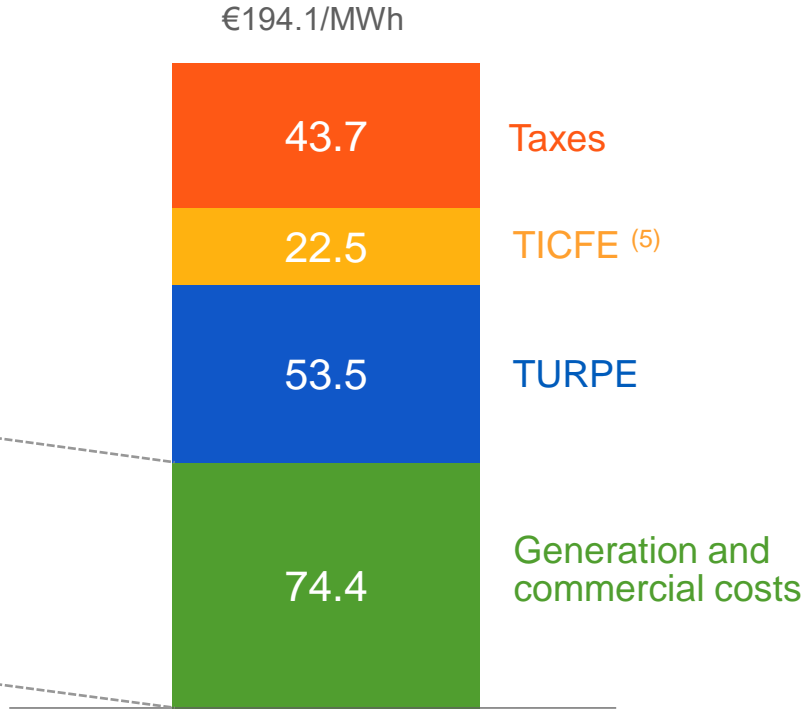
Change in Blue tariff				
Date	Change in Residential Blue tariff		Change in Non-Residential Blue tariff	
	(VAT excluded)	(including VAT)	(VAT excluded)	(including VAT)
01/02/2018	+0.7%	+ 0.6%	+1.6%	+ 1.3%
01/08/2018	-0.5%	- 0.3%	+1.1%	+ 0.9%
01/06/2019	+7.7%	+ 5.9%	+7.7%	+ 5.9%
01/08/2019	+1.49%	+ 1.26%	+1.34%	+1.1%
01/02/2020	+3.0 %	+2.4%	+3.1%	+2.4%
01/08/2020	+1.82%	+1.54%	+1.81%	+ 1.58%
01/02/2021	+1.93%	+1.61%	+3.23%	+2.61%
01/08/2021	+1.08%	+0.48%	+0.84%	+0.38%

# REGULATED SALES TARIFFS IN FRANCE : CHANGE IN FEBRUARY 2021 (2/3)

RESIDENTIAL BLUE TARIFF EXCLUDING TAXES <sup>(1)</sup>



AVERAGE BILL BREAKDOWN. VAT INCLUDED  
(BLUE RESIDENTIAL CUSTOMER)



(1) Source: Data from the 14 January 2021 deliberation of the CRE, approved by official decision published at the Journal Officiel on 31 January 2021

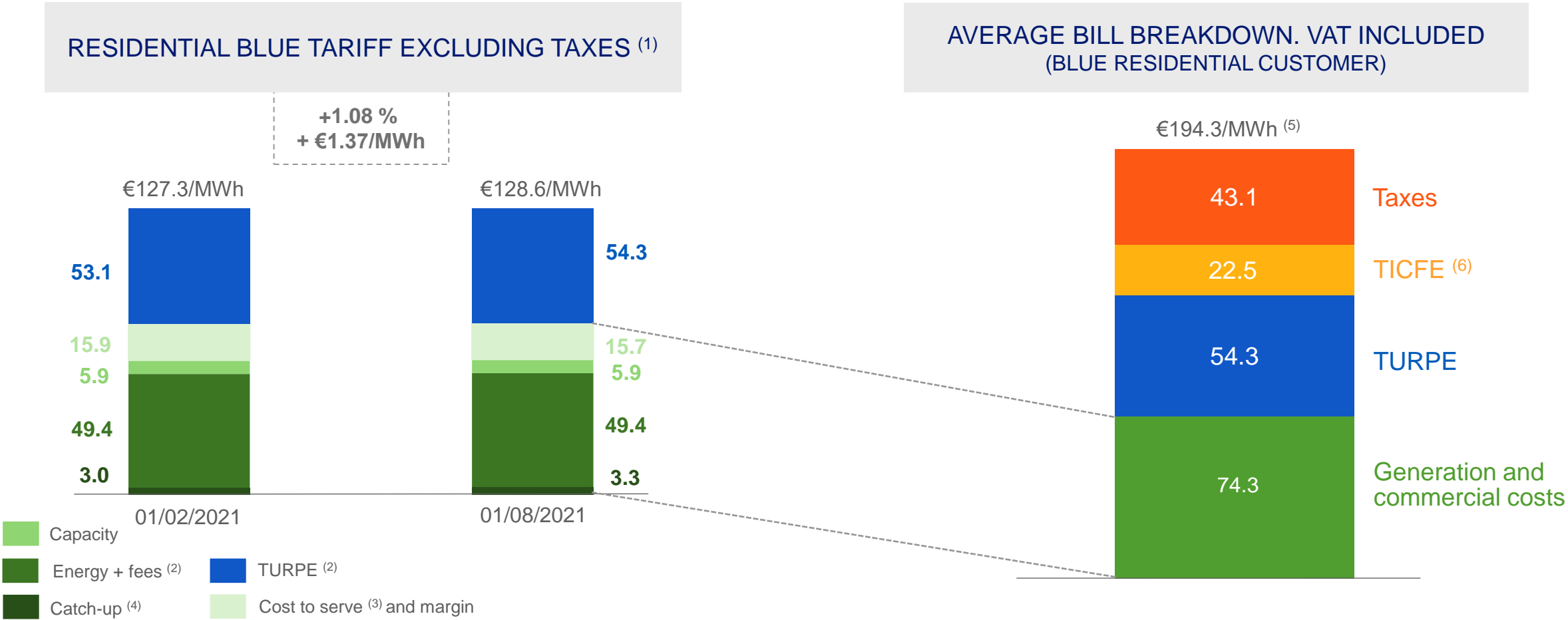
(2) At August 2020 and February 2021, the “Energy + fees” and “TURPE” figures are based on an average calculation on customers portfolio at the Regulated Sales Tariffs at end-2019 (base calculation for the CRE deliberation of 14/01/2021)

(3) Including cost of Energy Efficiency Certificates

(4) Catch-up due to tariffs freeze at the beginning of 2019 + balance of cost to serve 2020

(5) Ex-CSPE

# REGULATED SALES TARIFFS IN FRANCE : CHANGE IN AUGUST 2021 (3/3)



(1) Source: Data from the 8 July 2021 deliberation of the CRE, approved by official decision published at the Journal Officiel on 31 July 2021

(2) At August 2021 and February 2021, the “Energy + fees” and “TURPE” figures are based on an average calculation on customers portfolio at the Regulated Sales Tariffs at end-2020 (base calculation for the CRE deliberation of 08/07/2021)

(3) Including cost of Energy Efficiency Certificates

(4) Balance of over-coverage 2018 – catch up due to tariff freeze at the beggining of 2019 +commercial costs 2020

(5) Due to rounding, the total is not strictly equal to the sum of the components

(6) Ex-CSPE

# **SALES AND HIGHLIGHTS**

## **9 MONTHS 2021**

CONSOLIDATED FINANCIAL STATEMENTS





CHANGE IN SALES <sup>(1)</sup>

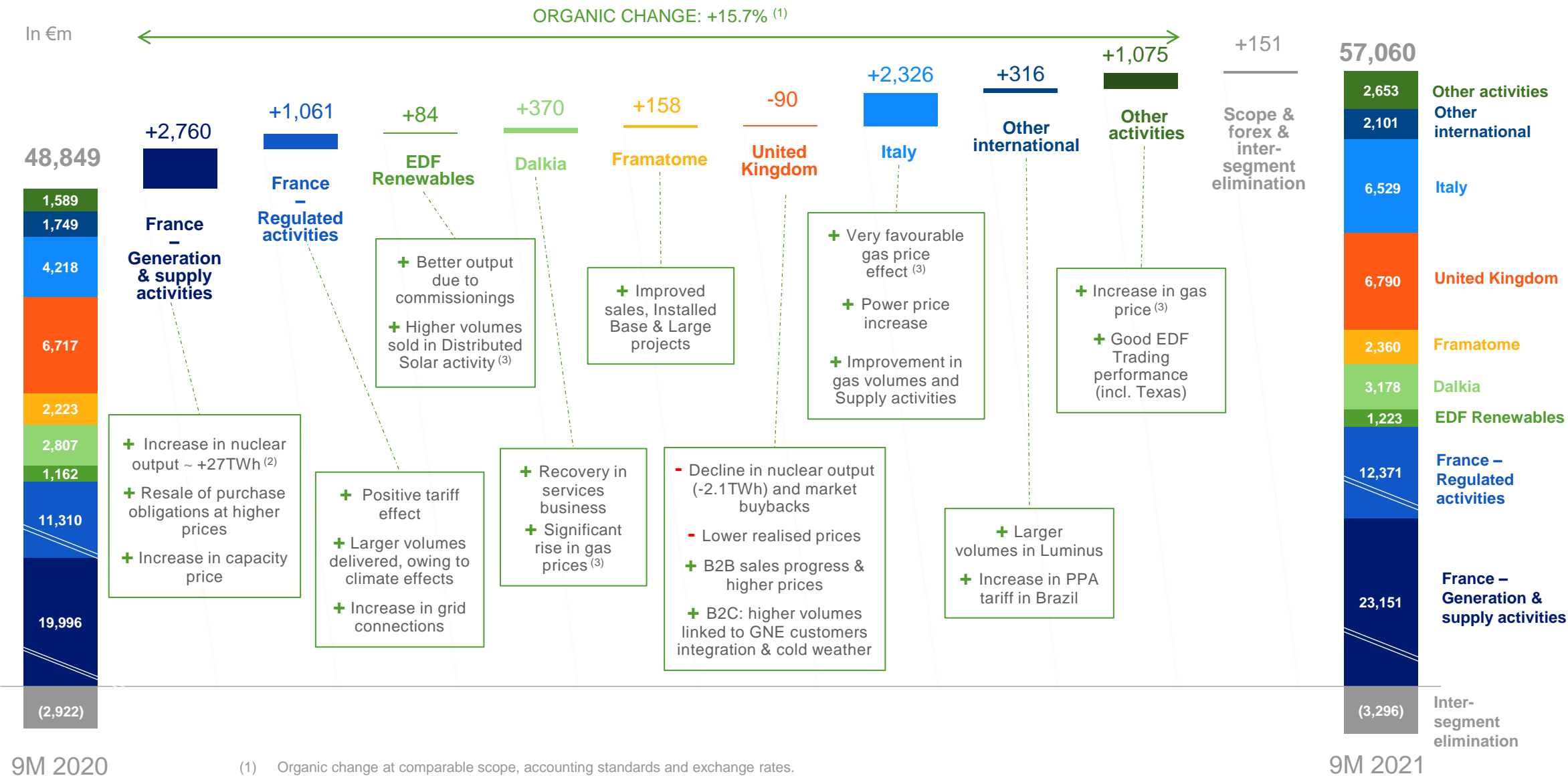
In €m	9M 2020	Forex	Scope	Organic growth	9M 2021	Δ% org. <sup>(2)</sup>
France – Generation and supply activities	19,996	-	395	2,760	23,151	+13.8
France – Regulated activities <sup>(3)</sup>	11,310	-	-	1,061	12,371	+9.4
Framatome	2,223	(30)	9	158	2,360	+7.1
United Kingdom	6,717	158	5	(90)	6,790	(1.3)
Italy	4,218	-	(15)	2,326	6,529	+55.1
Other international	1,749	(46)	82	316	2,101	+18.1
EDF Renewables	1,162	(20)	(3)	84	1,223	+7.2
Dalkia	2,807	5	(4)	370	3,178	+13.2
Other activities	1,589	(9)	(2)	1,075	2,653	+67.7
Inter-segment eliminations	(2,922)	-	-	(374)	(3,296)	+12.8
<b>Total Group</b>	<b>48,849</b>	<b>58</b>	<b>467</b>	<b>7,686</b>	<b>57,060</b>	<b>+15.7</b>

(1) Breakdown of sales across the segments, before inter-segment eliminations

(2) Organic change at constant scope and exchange rates

(3) Regulated activities: Enedis, ÉS and island activities; Enedis, an independant EDF subsidiary as defined in the French energy code

9M 2021 GROUP SALES



(1) Organic change at comparable scope, accounting standards and exchange rates.

(2) Estimated figures.

(3) With limited margin impacts

RENEWABLES ENERGIES

EDF RENEWABLES				
In €m	9M 2020	9M 2021	Δ%	Δ% Org. <sup>(1)</sup>
Sales	1,162	1,223	+5.2	+7.2

GROUP RENEWABLES <sup>(2)</sup>				
In €m	9M 2020	9M 2021	Δ%	Δ% Org. <sup>(1)</sup>
Sales <sup>(2)</sup>	2,972	4,556	+53.3	+54.5

- **Output** of 12.5TWh, +10.9% thanks to growth in commissioned capacity
- **Growth** in distributed solar activity in the USA with limited margin impact and in Operation & Maintenance in the USA and Europe

- **Hydro France:** Significant increase in spot prices <sup>(2)</sup>. Output of 29.7TWh <sup>(3)</sup> (stable at -0.1TWh vs. 9M 2020, and normal hydraulic conditions)
- Hydro Italy: Better output and contribution to sales



GROUP RENEWABLES: **PROJECTS UNDER CONSTRUCTION AT 8.4GW GROSS**, WIND AND SOLAR AT END-SEPTEMBER 2021, +0.4GW VS. END-DECEMBER 2020

(1) Organic change at comparable scope, exchange rates and standards.

(2) For the optimised renewable electricity generation activities within a larger portfolio of generation assets, in particular relating to France’s hydropower fleet, Sales and EBITDA are estimated, by convention, as the valuation of the output generated at market prices (or the purchase obligation tariff), without taking into account hedging effects, and taking into account the valuation of the capacity, if applicable. This convention is the best reflection of the use of the hydro fleet and differs

from the convention used to assess price effects within the Sales and EBITDA of the France-Generation and supply activities segment, in which all output (nuclear, hydro, thermal, etc.) is valued on the basis of an average hedged price for the generation fleet.

(3) Production after deducting consumption of pumped volumes.

ENERGY SERVICES

DALKIA				
In €m	9M 2020	9M 2021	Δ%	Δ% Org. <sup>(1)</sup>
Sales	2,807	3,178	+13.2	+13.2

- Recovery in business for services and construction
- Strong increase in gas price (with no material impact on margin)
- Favourable impact of commercial activity in France (industrial refrigeration) and in the United Kingdom
- Colder temperatures in 9M 2021 vs 9M 2020



INNOVATIVE SOLUTION <sup>(2)</sup> PROVIDED TO FRENCH RAILWAYS TO MONITOR O&M FOR 122 STATIONS

(1) Organic change at comparable scope, exchange rates and standards.

(2) BIM OMM solution, BIM = Building Information Modeling. OMM = Operation & Maintenance Management

GROUP ENERGY SERVICES <sup>(3)</sup>				
In €m	9M 2020	9M 2021	Δ%	Δ% Org. <sup>(1)</sup>
Sales	3,717	4,256	+14.5	+14.2

- Recovery of Dalkia and Edison businesses after the 2020 health crisis and dynamic residential customer sales in France
- Organic growth mainly linked to gas price increase for Dalkia (with limited margin impact) and to growth of energy services in France, Italy, Belgium and United Kingdom



CONTRACT SIGNATURE WITH FUTUROSCOPE: CREATION OF A GREEN HEATING & AIR CONDITIONING NETWORK


(3) The Group Energy services include Dalkia, Citelum, CHAM, Sowee and Izivia and the service businesses of EDF Energy, Edison, Luminus and EDF SA. They consist in particular of street lighting, heating networks, decentralised low-carbon generation based on local resources, energy consumption management and electric mobility.



FRAMATOME

In €m	9M 2020	9M 2021	Δ%	Δ% Org. <sup>(1)</sup>
Sales <sup>(2)</sup>	2,223	2,360	+6.2	+7.1
Sales EDF Group contribution	1,294	1,323	+2.2	+3.9

- Higher sales volumes for “Installed Base” business mainly linked to the recovery of business after the 2020 Covid crisis



ACQUISITION  
COMPLETION OF  
THE  
INSTRUMENTATION  
& CONTROL  
ACTIVITY OF  
ROLLS-ROYCE



ACQUISITION OF  
THE NUCLEAR  
DIVISION OF RCM  
TECHNOLOGIES  
CANADA CORP

(1) Organic change at comparable scope, exchange rates and standards.  
 (2) At Framatome perimeter

# UNITED KINGDOM

In €m	9M 2020	9M 2021	Δ%	Δ% Org. <sup>(1)</sup>
Sales	6,717	6,790	+1.1	-1.3

➤ **Generation**

- Nuclear output at 30.5TWh, -2.1TWh vs 9M 2020, due to the outage calendar and extended outages
- Sharp decline in realised nuclear prices (-11.5€/MWh), mainly due to the need to buy back electricity at high prices

➤ **Supply** in a context of high volatility of power & gas prices and multiple supplier bankrupts

- Growth in the B2B segment (higher prices and higher volumes after the 2020 Covid crisis)
- Increase in B2C volumes (following GNE customers integration and cold weather) with limited margin impact
- Pod Point sales x2



**POD POINT: IPO COMPLETED <sup>(3)</sup> & c. 140,000 CHARGING POINTS<sup>(2)</sup> ROLLED OUT** END-SEPTEMBER 2021, **+47% VS END-DECEMBER 2020**



**TAKE-OVER OF THE UTILITY POINT CUSTOMER PORTFOLIO (220,000 CUSTOMERS) ACCORDING TO THE SoLR MECHANISM**

(1) Organic change at comparable scope, standards and exchange rates.  
 (2) Charging stations also known as “sockets” by Pod Point  
 (3) Trading started on 04/11/2021


ITALY

In €m	9M 2020	9M 2021	Δ%	Δ% Org. <sup>(1)</sup>
Sales	4,218	6,529	+54.8	+55.1


- Gas business
 
  - Very strong positive price effect (spot prices increase), with limited margin impact

➤ Electricity business
 
  - Favourable power price effect
  - Thermal: good performance in ancillary services
  - Increase in the renewable generation (hydro & wind)

➤ Downstream business
 
  - Recovery in economic activity and rise in sales prices related to the commodity market, in particular in the B2B segment
  - Colder weather in 2021: increase especially in B2C volume sales



EXCLUSIVITY GRANTED TO SHORT-LISTED BUYER ON EDISON'S RENEWABLE PLATFORM 49% SELL-DOWN ; CLOSING EXPECTED BY YEAR-END



MOODY'S UPGRADES EDISON'S OUTLOOK TO STABLE FROM NEGATIVE AND CONFIRMS THE RATING TO BAA 2

(1) Organic change at comparable scope, standards and exchange rates.

OTHER INTERNATIONAL


In €m	9M 2020	9M 2021	Δ%	Δ% Org. <sup>(1)</sup>
Sales	1,749	2,101	+20.1	+18.1
o/w Belgium <sup>(2)</sup>	1,241	1,448	+16.7	+10.1
o/w Brazil	345	454	+31.6	+42.3

> Belgium <sup>(2)</sup>


- Positive volume effect in B2B segment for power and in B2C segment for gas
- Increase in service system sales linked to more thermal capacity sales

> Brazil
 

- Favourable tariff move in November 2020 (PPA) for EDF Norte Fluminense
- Sales on spot markets at high prices
- Unfavourable forex movements (BRL depreciation versus Euro)



COMPLETION OF THE FINANCING OF AN INNOVATIVE SOLAR & GAS PROJECT BASED ON A 480MW SOLAR PLANT, THE LARGEST TO DATE IN CHILE



NET WIND INSTALLED CAPACITY 572MW <sup>(3)</sup>

(1) Organic change at comparable scope, standards and exchange rates.  
 (2) Luminus and EDF Belgium.

(3) Net capacity at Luminus perimeter. 630MW in gross capacity (7% growth vs. end-2020).



OTHER ACTIVITIES

In €m	9M 2020	9M 2021	Δ%	Δ% Org. <sup>(1)</sup>
Sales	1,589	2,653	+67.0	+67.7
o/w Gas activities	544	1,163	+113.8	+113.8
o/w EDF Trading	693	1,116	+61.0	+62.5

- Gas business
  - Significant favourable effect on gas wholesale market prices, with limited margin impact
- EDF Trading
  - Substantial performance in Europe and in the USA linked to exceptional global commodity market volatility

(1) Organic change at comparable scope, standards and exchange rates.

# SALES AND HIGHLIGHTS

## 9 MONTHS 2021

OPERATIONAL DATA & MARKETS



# INSTALLED CAPACITY AS OF 30 SEPTEMBER 2021

<i>(in GW)</i>	Total net capacities of EDF Group, including shares in associates and joint ventures		Investments in associates and joint ventures	Consolidated capacities of EDF Group	
Nuclear <sup>(1)</sup>	69.5	56 %	-0.6	70.1	59 %
Hydro <sup>(2)</sup>	22.5	18 %	1.0	21.5	18 %
ENR	11.9	10 %	3.2	8.6	7 %
Gas <sup>(3)</sup>	11.2	9 %	0.2	11.0	9 %
Fuel oil	3.8	3 %	0.2	3.6	3 %
Coal <sup>(4)</sup>	5.2	4 %	2.0	3.2	3 %
<b>Total</b>	<b>124.1</b>	<b>100 %</b>	<b>6.1</b>	<b>117.9</b>	<b>100 %</b>

NB: The values correspond to the expression to the first decimal or integer closest to the sum of the precise values, taking into account rounding

(1) Taking into consideration the shutdown of Dungeness B nuclear power plant in the UK and the disposal of CENG

(2) Including sea energy: 0.24GW

(3) Taking into account the disposal of the West Burton B CCGT plant

(4) Taking into consideration the shutdown of Le Havre coal power plant

# ELECTRICITY OUTPUT

Output from fully consolidated entities

<i>(in TWh)</i>	9M 2020		9M 2021	
Nuclear	276.0	76%	304.3	78 %
Hydro <sup>(1)</sup>	37.5	10%	36.9	9 %
ENR	14.1	4%	15.2	4 %
Gas	31.1	9%	28.7	7 %
Fuel oil	3.7	1%	3.8	1 %
Coal	1.5	0%	2.3	1 %
<b>Group</b>	<b>363.9</b>	<b>100%</b>	<b>391.1</b>	<b>100 %</b>

NB: The values correspond to the expression to the first decimal or integer closest to the sum of the precise values, taking into account rounding

(1) Hydro output includes tidal energy for 406GWh in 9M 2020 and 411GWh in 9M 2021. Hydro output after deduction of pumped volumes is 33.0TWh in 9M 2020 and 33.1TWh in 9M 2021

# HEAT OUTPUT

Output from fully consolidated entities

(in TWh)	9M 2020		9M 2021	
ENR <sup>(1)</sup>	4.5	22%	3.5	18 %
Gas	13.2	63%	14.2	72 %
Fuel oil	0.1	1%	0.1	1 %
Coal	0.6	3%	0.6	3 %
Others <sup>(2)</sup>	2.4	11%	1.3	7 %
<b>Group</b>	<b>20.8</b>	<b>100%</b>	<b>19.8</b>	<b>100 %</b>

NB. The values correspond to the expression to the first decimal or integer closest to the sum of the precise values, taking into account rounding

(1) Category corresponding to installations operating with woody biomass, landfill gas, sewage incineration, sewage treatment plant gas and biogases

(2) Category combining part of the heat generation by incineration non classified as RE, gas mine and the recovery of heat and electricity from other industrial processes



# RENEWABLE OUTPUT

Output from fully consolidated entities

<i>(in TWh)</i>	9M 2020		9M 2021	
Hydro <sup>(1)</sup>	37.5	73%	36.9	71 %
Wind	12.4	24%	13.2	25 %
Solar	0.9	2%	1.5	3 %
Biomass	0.8	1%	0.5	1 %
<b>Total electricity Group</b>	<b>51.6</b>	<b>100%</b>	<b>52.0</b>	<b>100 %</b>
<b>Total heat Group</b>	<b>4.5</b>	<b>100%</b>	<b>3.5</b>	<b>100 %</b>

NB: The values correspond to the expression to the first decimal or integer closest to the sum of the precise values, taking into account rounding

(1) Hydro output includes tidal energy for 406GWh in 9M 2020 and 411GWh in 9M 2021. Hydro output after deduction of pumped volumes is 33.0TWh in 9M 2020 and 33.1TWh in 9M 2021

CO<sub>2</sub> EMISSIONS <sup>(1)</sup>

CO<sub>2</sub> emissions from fully consolidated entities

Emissions from the heat and power generation by segment	In kt				In g/kWh	
	9M 2020		9M 2021		9M 2020	9M 2021
France – Generation and supply activities	2,704	14%	3,574	18 %	10	13
France – Island regulated activities <sup>(2)</sup>	2,325	12%	2,297	12 %	540	508
Dalkia	3,948	20%	3,928	20 %	185	197
United Kingdom	2,279	11%	1,678	9 %	61	50
Italy	4,662	24%	4,231	22 %	282	271
Other international	3,764	19%	3,650	19 %	291	229
<b>Group <sup>(3)</sup></b>	<b>19,709</b>	<b>100%</b>	<b>19,381</b>	<b>100 %</b>	<b>51</b>	<b>47</b>

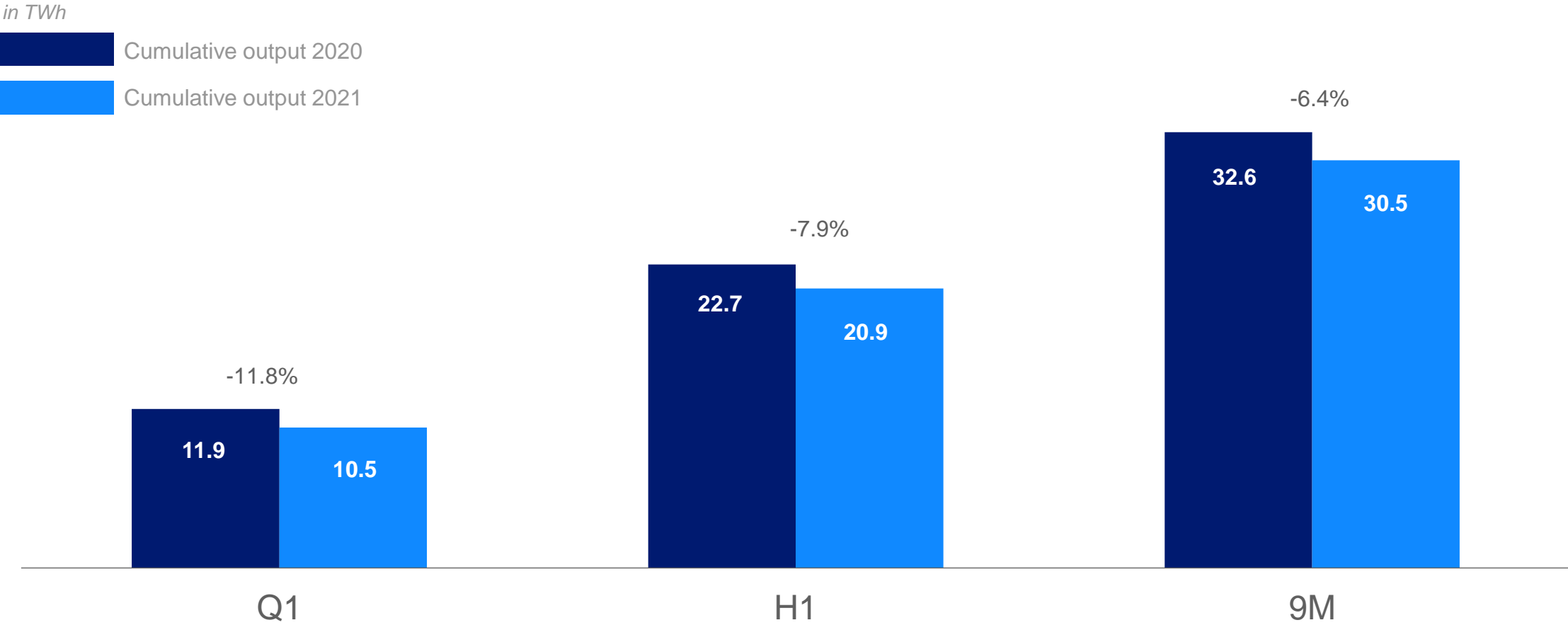
NB: The values correspond to the expression to the first decimal or integer closest to the sum of the precise values, taking into account rounding

(1) Including direct CO<sub>2</sub> emissions, excluding life cycle analysis (LCA) of fuel and production means

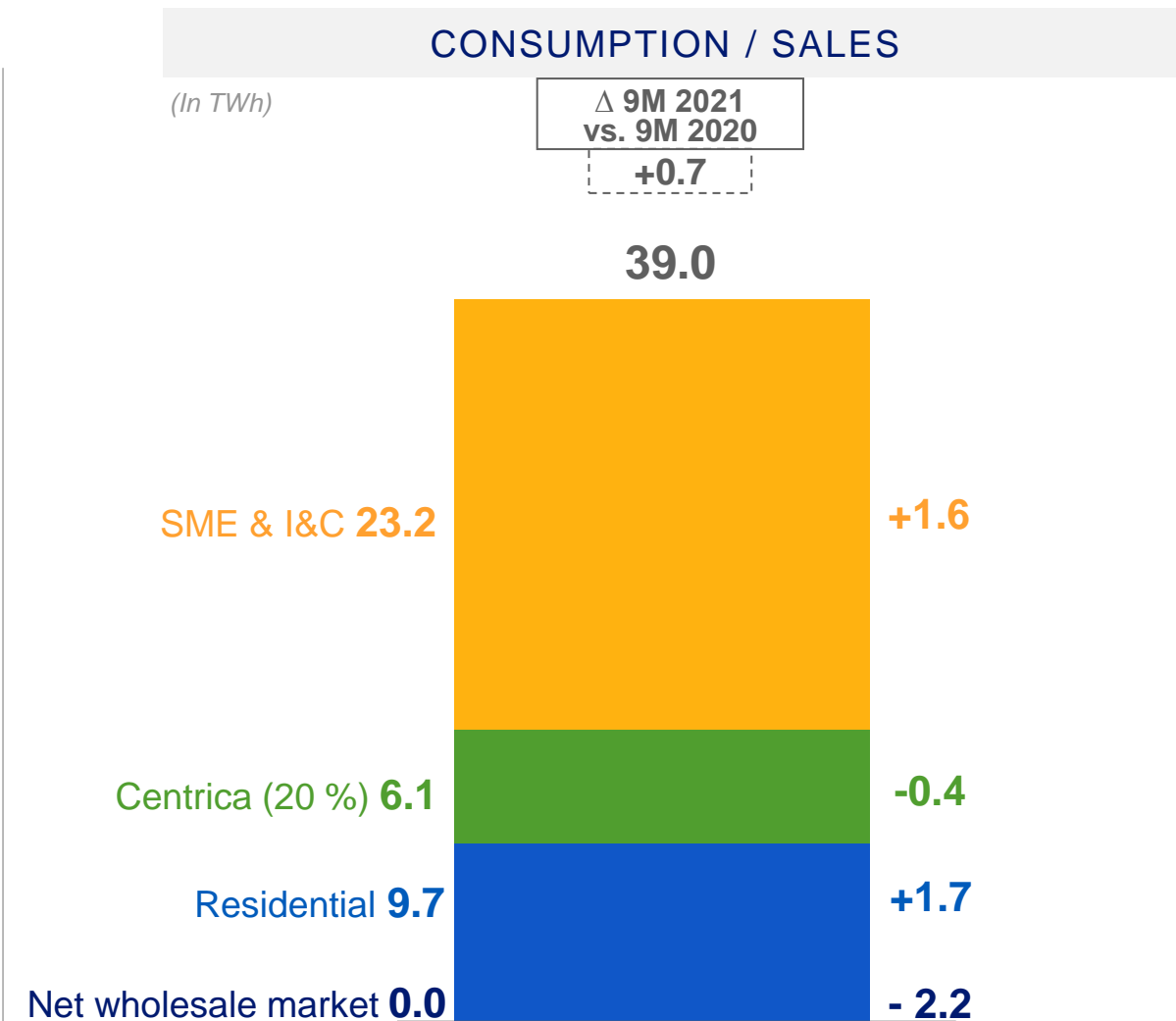
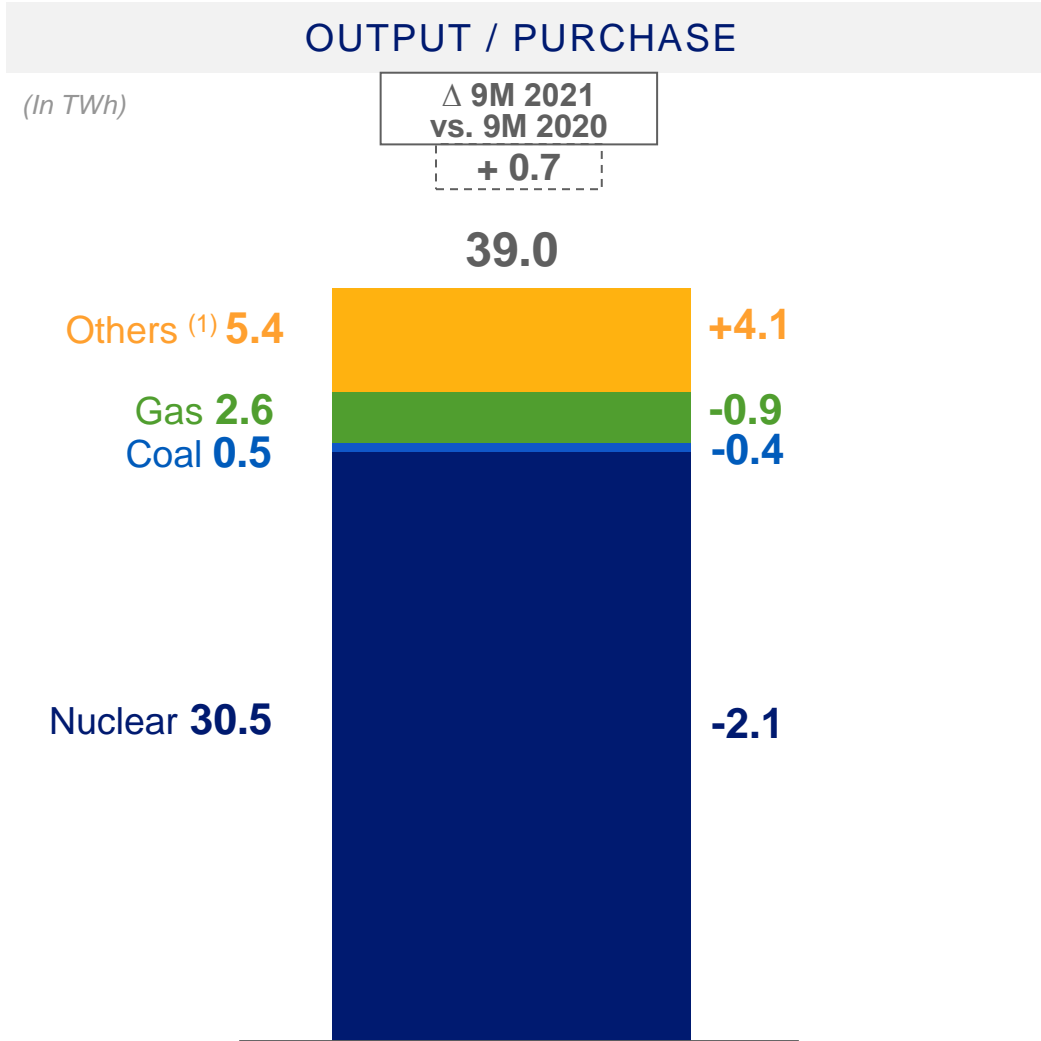
(2) Power generation in ZNI: « Zones non interconnectées » corresponding to overseas departments and Corsica - (mainly island territories) and Electricité de Strasbourg (ES)

(3) Framatome contributes to 27kt CO<sub>2</sub> in 9M 2020 and 23kt CO<sub>2</sub> in 9M 2021. The direct CO<sub>2</sub> emissions from “Others activities” segments are not significant compared to Group total emissions

# UNITED KINGDOM: 9M NUCLEAR OUTPUT



# UNITED KINGDOM: UPSTREAM / DOWNSTREAM ELECTRICITY BALANCE



# GREAT BRITAIN CAPACITY AUCTION RESULTS FOR EDF ENERGY (1)

All capacity agreements for 1 year unless otherwise stated

	Clearing price £/kW/an	Nuclear	Coal	CCGT (2)	OCGT (3)	Battery	Demand-side Response (DSR)
2015 Q4 (2019/2020)	18.0 (2014/2015 prices)	All 16 units (4) (7.6GW)	0 unit	All 3 units (1.2GW)	All 2 units (37MW)	N/A	N/A
2016 Q4 (2020/2021)	22.5 (2015/2016 prices)	All 16 units (7.9GW)	3 of 8 units (1.8GW)	All 3 units (1.2GW)	All 2 units (38MW)	1 unit (5) (47MW)	N/A
2018 Q4 (2021/2022)	8.4 (2016/2017 prices)	All 16 units (7.9GW)	0 unit	All 3 units (1.2GW)	0 unit	N/A	5 units (32.1MW)
2020 Q3 (2022/2023)	6.4 (no indexation)	12 units (5.9GW)	0 unit	All 3 units (1.2GW)	0 unit	N/A	0 unit
2021 Q1 (2023/2024)	16.0 (2018/2019 prices)	8 units (4.0GW)	0 unit	All 3 units (1.2GW)	0 unit	N/A	4 units (21.5MW)
2021 Q1 (2024/2025)	18.0 (2019/2020 prices)	4 units (2.0GW)	0 unit	All 3 units (1.2GW)	0 unit	4 units (60MW)	0 unit

(1) Following a judgement by the General Court of Justice of the European Union which removed the European Commission’s State aid approval of Great Britain’s Capacity Market (CM) on 15 November 2018, the UK Government suspended the operation of the scheme. It was subsequently re-approved and reinstalled on 24 October 2019

(2) Combine Cycle Gas Turbine

(3) Open Cycle Gas Turbine

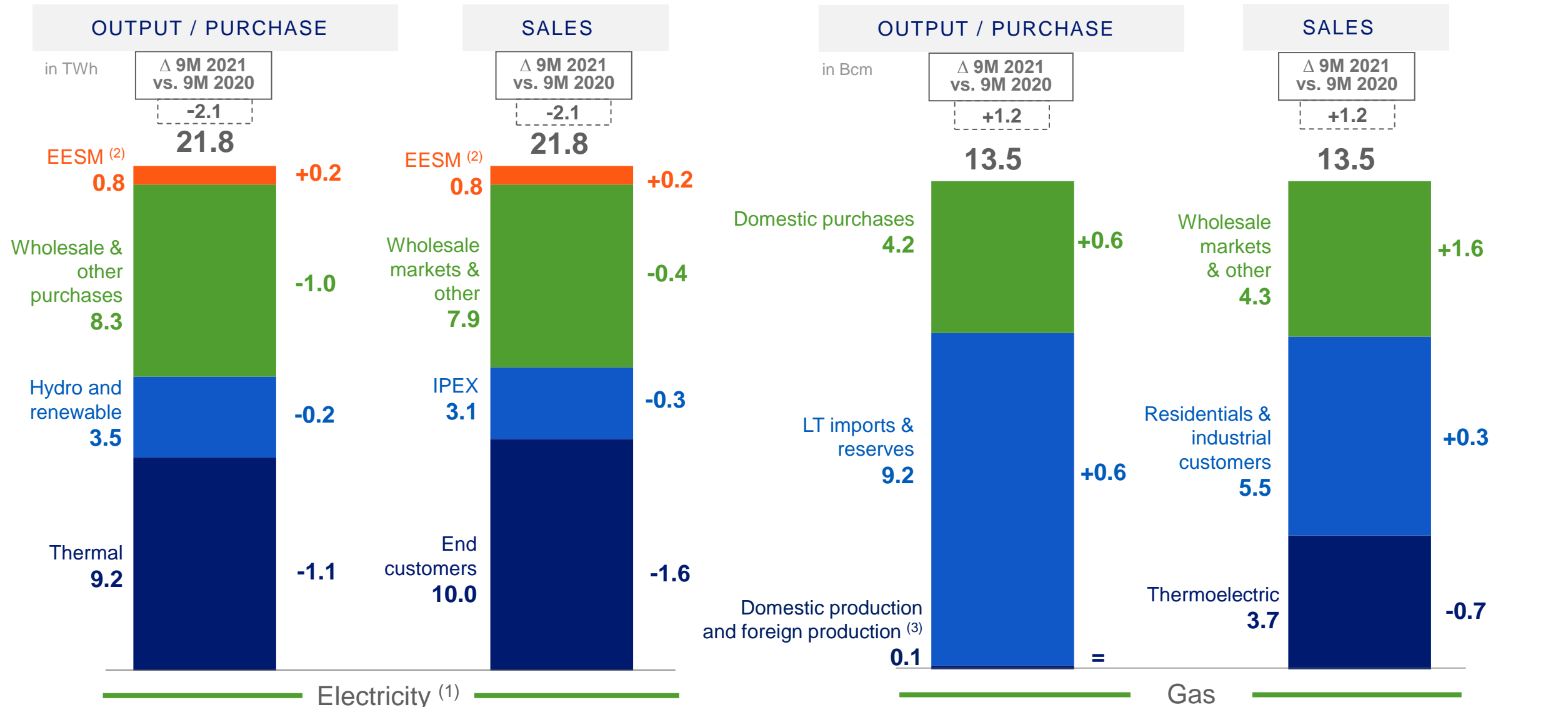
(4) Q4 2015 had a lower total connection capacity for Nuclear units

(5) 15-years capacity agreement for new build battery

N/A: not applicable

The slide includes capacities for which agreements were awarded (de-rated capacity). For DSR this equates to bidding capacities in the context of auctions

# EDISON: UPSTREAM/DOWNSTREAM ELECTRICITY AND GAS BALANCES

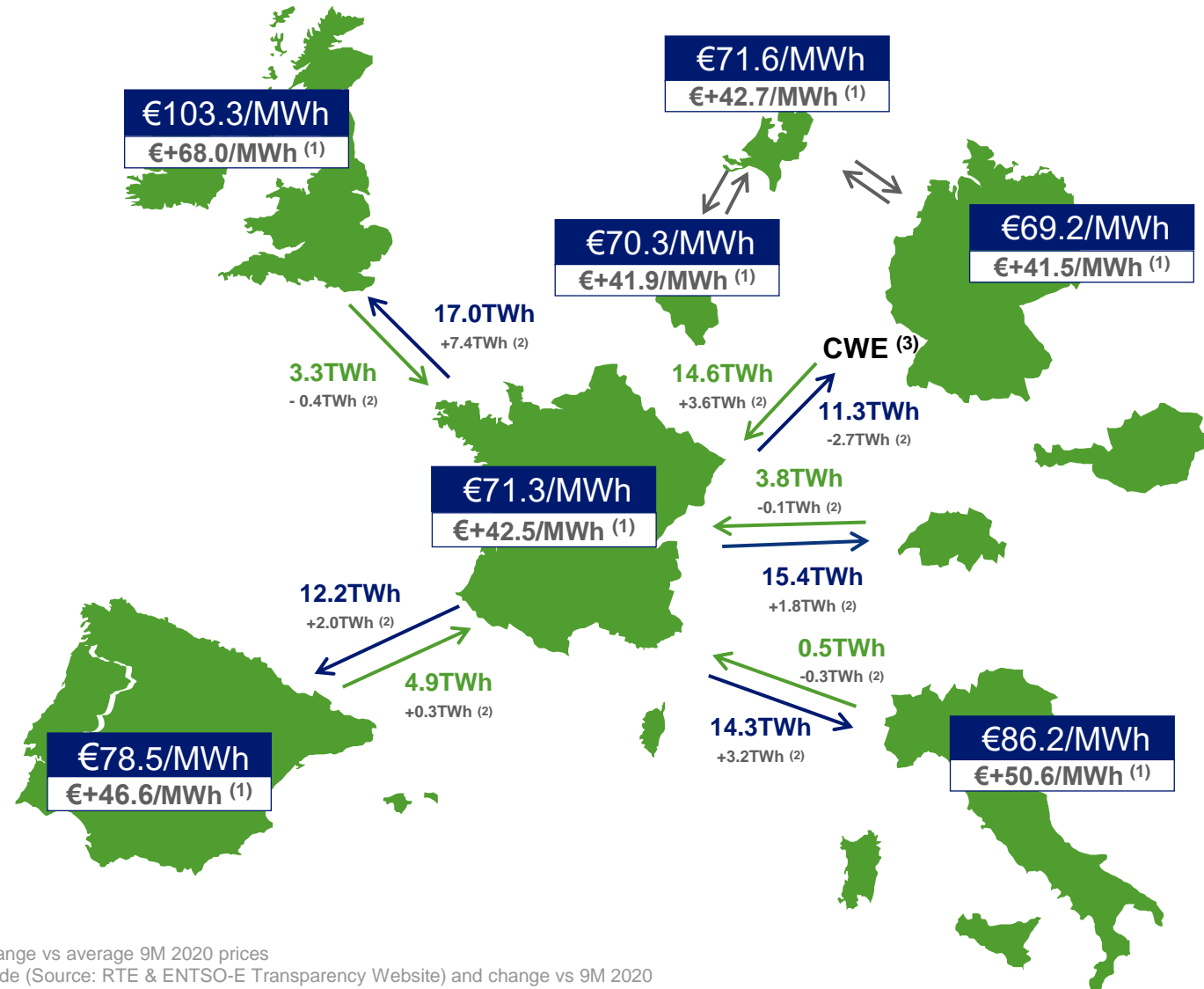


9M 2021 SALES

(1) Excluding optimisation volumes  
(2) EESM Energy & Environmental Services Market Division  
(3) Production by Edison Stocaggio and production relating to the concession in Algeria



# AVERAGE SPOT PRICES IN 9M 2021



The strong increase was driven primarily by Q2 and Q3:

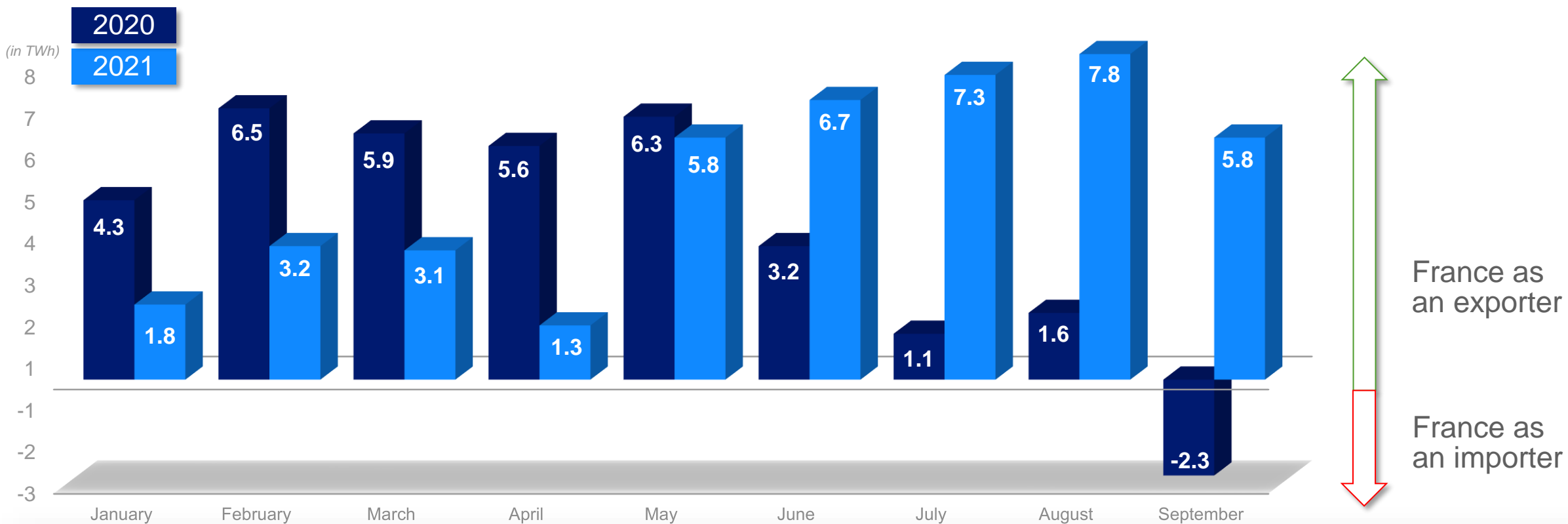
- Higher demand in Q2 2021 stemming from the economic recovery after the lockdowns in Europe in Q2 2020
- Low renewable generation in Germany and France in Q1 and Q3, favouring the use of thermal power plants
- Sharp rise in the price of gas, carbon and CO<sub>2</sub> commodities, leading to a substantial increase in the price of electricity produced using fossil-fuel resources against a backdrop of low gas stocks in Europe

The coupling of markets has enabled a certain degree of price convergence, though still limited by available interconnection capacities at borders.

Average observed spot market price for 9M 2021:

- EPEXSPOT: France & Germany
- N2EX: United-Kingdom
- OMIE: Spain
- GME: Italy (Prezzo Unico Nazionale)
- APX: Netherlands
- BELPEX: Belgium

# CROSS-BORDER ELECTRICITY TRADE BALANCE



France’s export balance stood at 43.2TWh between January and September 2021 (+8.7TWh vs. Q1-Q3 2020). Despite an increase in consumption over the same period, the considerable recovery in production generated a positive export balance similar to that in pre-COVID years. Export flows increased across most borders, with the exception of the CWE region, where they contracted by 3.7TWh. The largest rise was to the UK, with a +7.8TWh increase in the export balance (for a 127.9% increase over the period vs. Q1-Q3 2020). Totalling 27.1TWh for the period, imports rose from the CWE region (+3.6TWh) and Spain (+0.3TWh).

Source : RTE and ENTSO-E data  
(1) CWE flow-based coupling zone composed of Germany, Belgium, France, Luxembourg and Netherlands, set up in May 2015

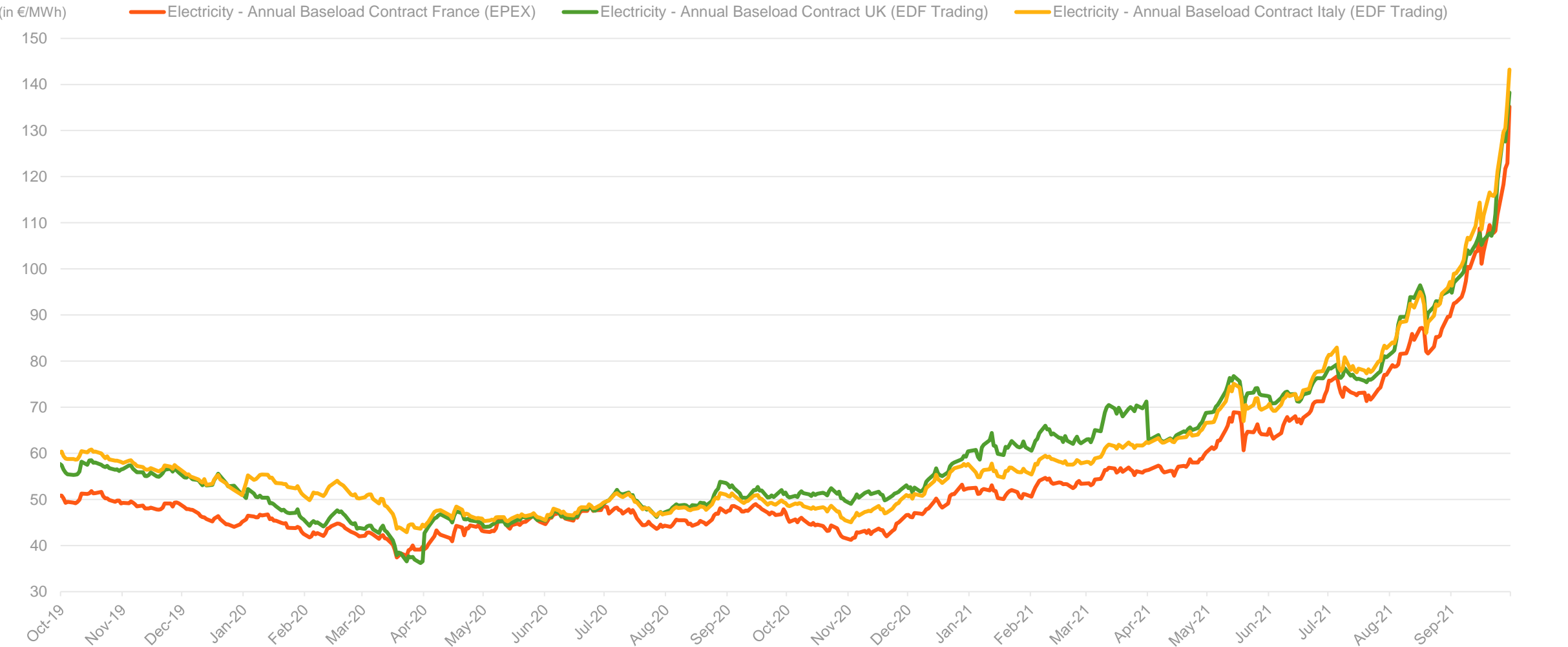
FRENCH POWER TRADE BALANCES AT ITS BORDERS

(in TWh <sup>(1)</sup>)

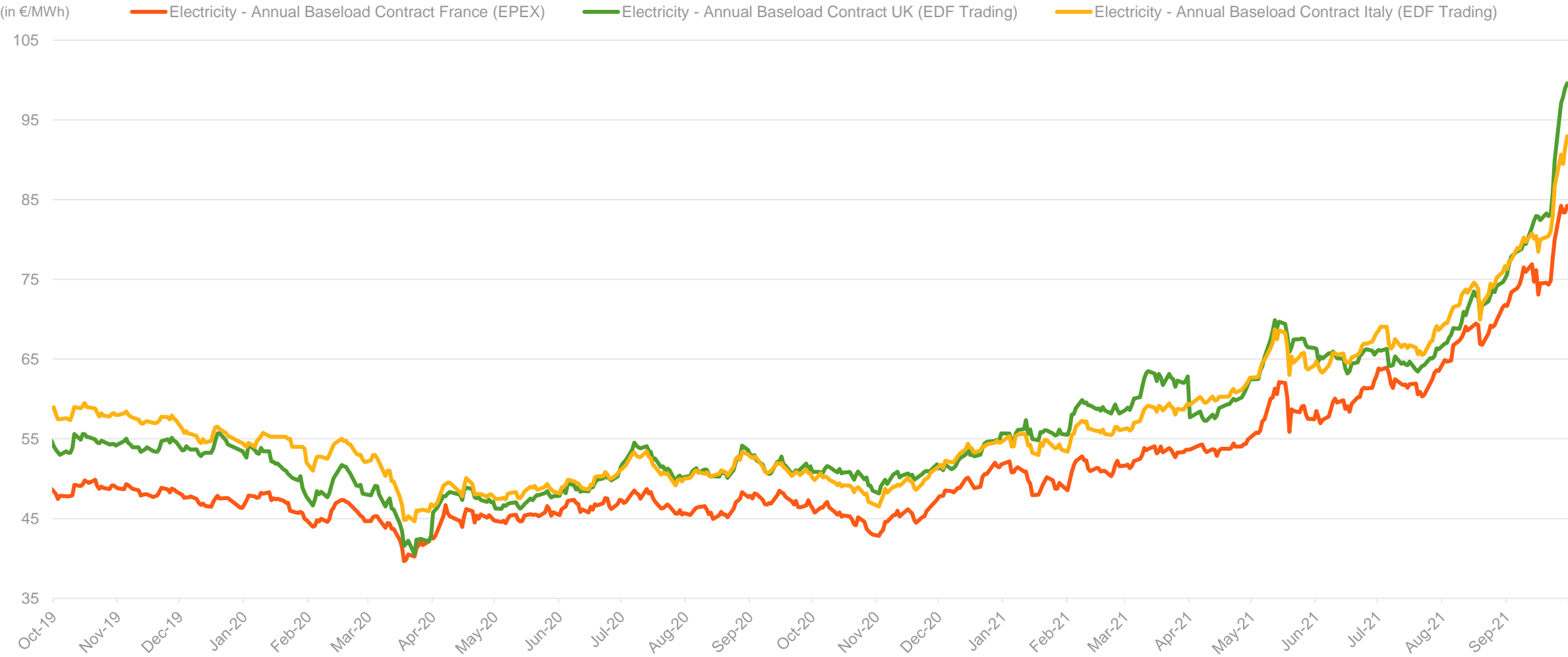
		9M 2020				9M 2021			
		Q1	Q2	Q3	Total	Q1	Q2	Q3	Total
United Kingdom	exports	3.7	3.7	3.2	10.6	5.6	5.8	5.7	17.1
	imports	0.6	1.4	2.6	4.5	1.3	1.1	0.8	3.3
	balance	3.1	2.3	0.7	6.0	4.2	4.6	4.9	13.8
Spain	exports	4.1	4.1	2.8	11.0	2.8	4.6	5.2	12.6
	imports	1.2	1.2	4.4	6.7	3.1	1.7	0.5	5.3
	balance	2.9	2.9	-1.5	4.3	-0.3	2.9	4.8	7.3
Italy	exports	5.9	2.1	4.4	12.4	4.2	4.4	5.7	14.3
	imports	0.1	0.2	0.6	1.0	0.3	0.3	0.0	0.6
	balance	5.8	1.9	3.7	11.4	3.9	4.2	5.7	13.7
Switzerland	exports	6.4	4.8	3.5	14.7	5.6	4.9	5.3	15.8
	imports	1.3	1.2	3.5	6.0	1.6	1.8	1.3	4.7
	balance	5.2	3.6	0.0	8.8	4.0	3.0	4.1	11.1
CWE <sup>(2)</sup>	exports	3.9	6.5	3.6	14.0	3.0	3.9	4.2	11.1
	imports	4.3	2.1	6.0	12.4	6.7	4.9	2.8	14.4
	balance	-0.3	4.4	-2.5	1.6	-3.7	-0.9	1.4	-3.3
TOTAL	exports	24.0	21.1	17.5	62.6	21.2	23.6	26.2	71.0
	imports	7.3	6.1	17.1	30.5	13.1	9.8	5.4	28.3
	balance	16.7	15.1	0.4	32.1	8.1	13.8	20.8	47.2

Source: RTE  
(1) Rounded to the nearest tenth  
(2) CWE flow-based coupling zone composed of Germany, Belgium, France, Luxembourg and Netherlands, set up in May 2015

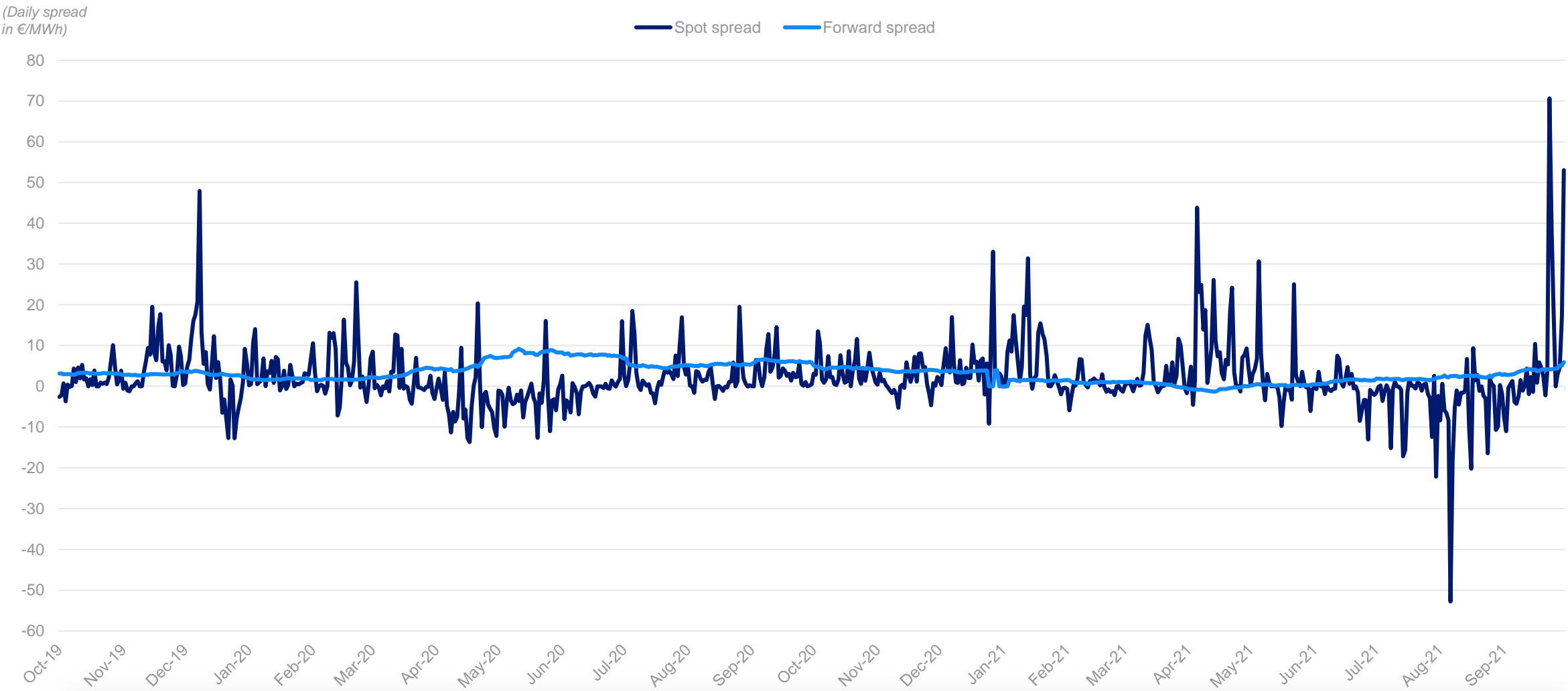
# FORWARD ELECTRICITY PRICES IN FRANCE, THE UK AND ITALY (Y+1) FROM 01/10/2019 TO 30/09/2021



# FORWARD ELECTRICITY PRICES IN FRANCE, THE UK AND ITALY (Y+2) FROM 01/10/2019 TO 30/09/2021



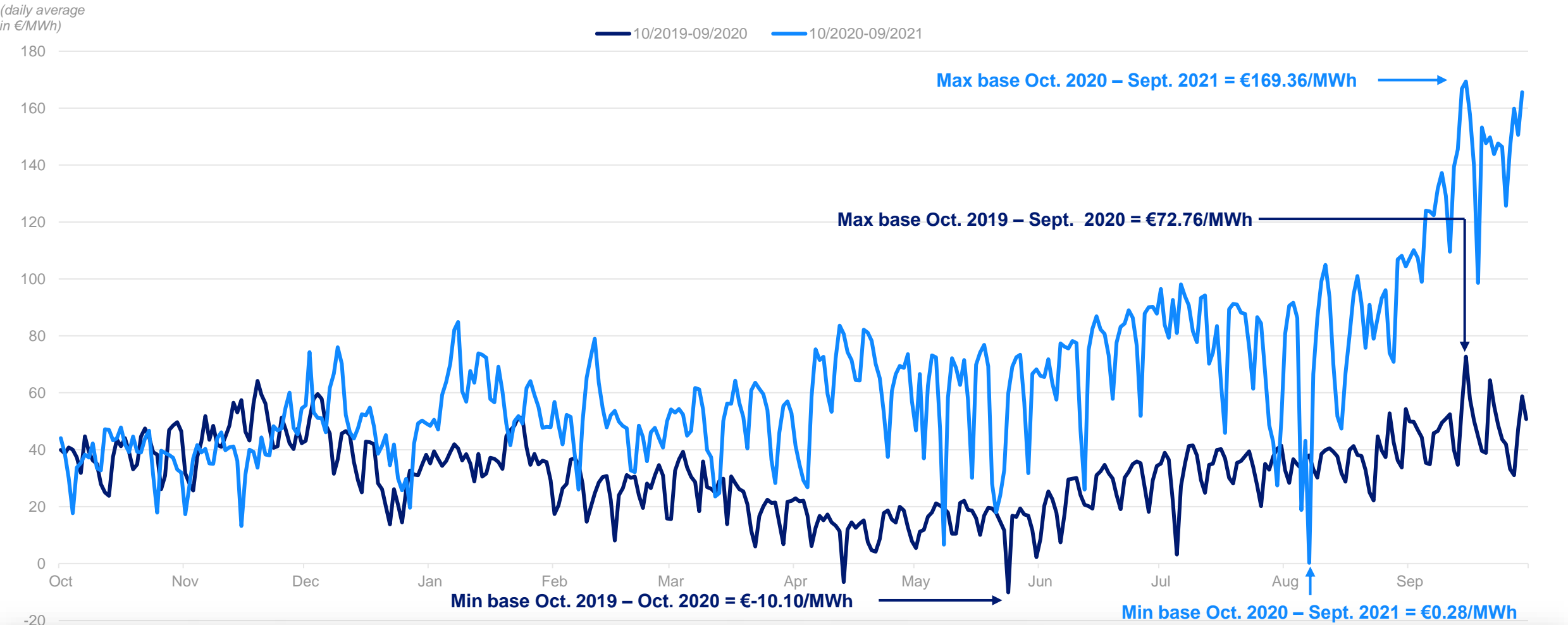
# FRANCE/GERMANY SPREAD FROM 01/10/2019 TO 30/09/2021



Note: Over the period, the France/Germany spread reached its minimum on 6 August 2021 at €-52.80/MWh, and its maximum on 23 September 2021 at €70.65/MWh

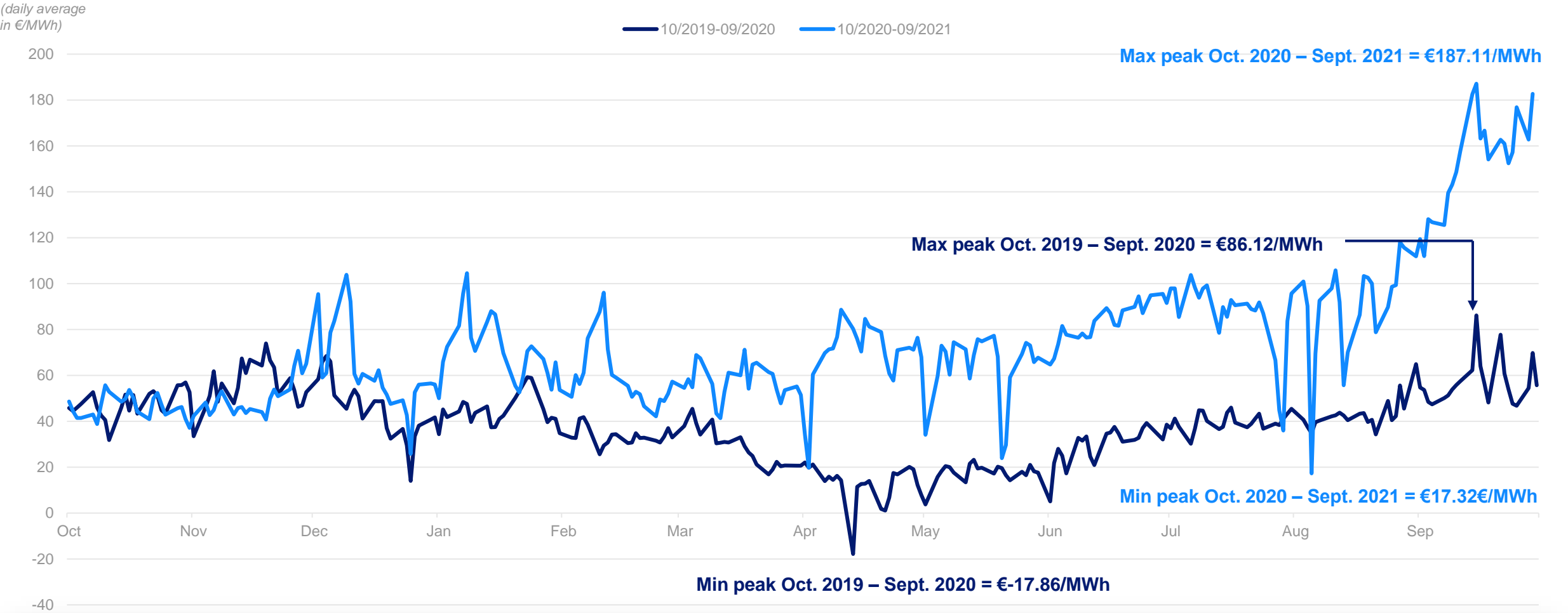


# FRANCE: BASELOAD ELECTRICITY SPOT PRICES



Between January and September 2021, baseload electricity spot prices came out at an average €71.3/MWh (+€42.5/MWh vs. Q1-Q3 2020). The substantial gain resulted from three factors: an increase in consumption (+17.0TWh vs. Q1-Q3 2020), particularly in Q2 2021, combined with lower renewable generation than in 2020 (-14.5% in Q1 and -4.8% in Q3) and a strong increase in commodities prices in Q3 2021, which led to a considerable rise in the cost of electricity production using fossil-fuel resources.

FRANCE: PEAKLOAD ELECTRICITY SPOT PRICES



Peakload electricity spot prices averaged €81.2/MWh in Q1-Q3 2021 (+€46.9/MWh vs. Q1-Q3 2020). As with baseload prices, the increase resulted from the rise in demand combined with the sharp increase in commodities prices and the increased use of fossil-fuel resources.

# COAL PRICES (Y+1) FROM 01/10/2019 TO 30/09/2021



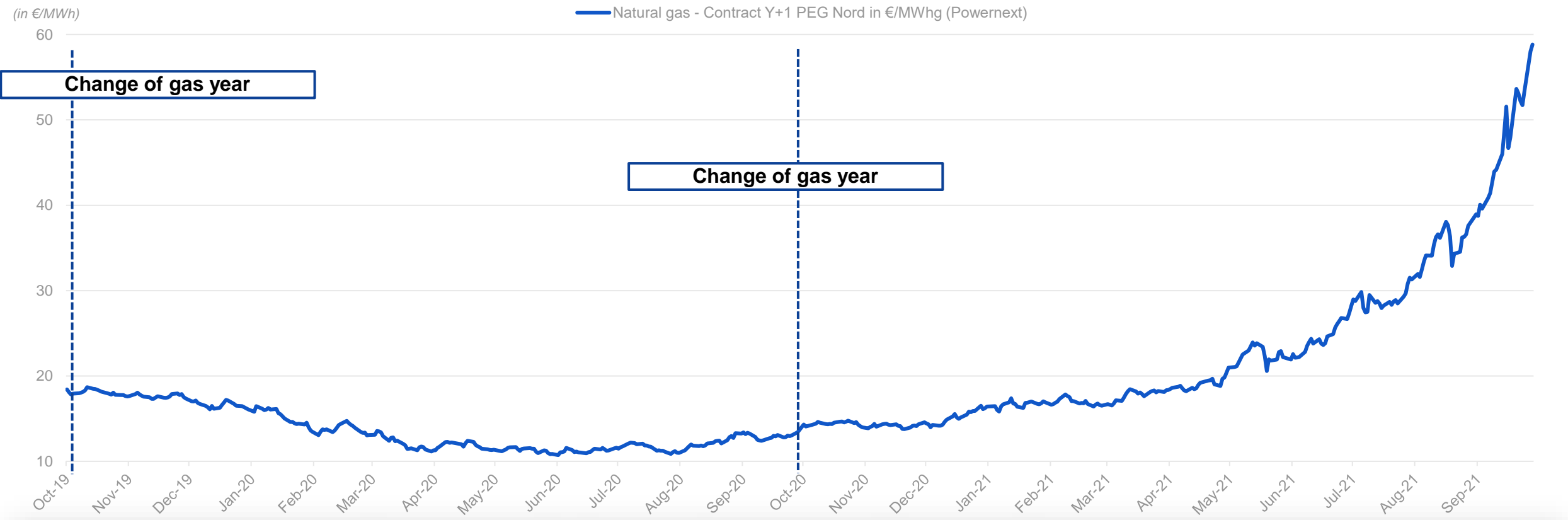
The Y+1 delivered price of coal price in Europe averaged \$85.3/t in Q1-Q3 2021 (+49.6% or \$28.3/t vs. Q1-Q3 2020), pursuing the uptrend initiated in early 2021. The economic recovery pushed prices higher throughout the period, combined with a cold winter in Asia and a long winter in Europe. Supply failed to keep pace with demand following disruptions which impacted mines and transport infrastructure in some producer countries (China, Australia, Colombia), as well as maintenance and incidents in Russia and South Africa. Demand was particularly high in Q3 2021 after the surge in gas prices. This made coal more competitive than previously, despite a 86.9% year-on-year increase in the price over Q1-Q3.

# BRENT PRICES <sup>(1)</sup> FROM 01/10/2019 TO 30/09/2021



The oil price averaged \$68.0/bbl in Q1-Q3 2021 (+59.8% or \$25.4/bbl vs. Q1-Q3 2020). Since February, the Brent price has continued to rise year on year. Through their monthly negotiations, OPEC+ countries reached an agreement on a production cap, which served to increase the barrel price. With the economic recovery over the period and controlled supply, the price surged, particularly in April 2021 (+145.0% vs. April 2020), reaching \$65.2/bbl on average. At the end of Q3 2021, Brent approached the \$80 mark as commodities prices soared.

# GAS PRICES<sup>(1)</sup> (Y+1) FROM 01/10/2019 TO 30/09/2021



The price of the annual gas contract for Y+1 PEG delivery averaged €25.4/MWh in Q1-Q3 2021 (+104.2% or +€13.0/MWh vs. Q1-Q3 2020). The gas price rose considerably over the period owing to three factors:

- Weather: the long winter in Europe negatively impacted restocking across the continent. In Asia, the winter was extremely cold and the summer hot, resulting in high gas
- Geopolitical: tensions between Beijing and Canberra led China to discontinue Australian coal imports, increasing its dependence on gas for electricity production. In addition, uncertainties remain over how Gazprom intends to use the Nordstream 2 pipeline. At end-August, the Russian company said that Nordstream 2 would replace the flows currently passing through Ukraine;
- Economic: Asia and Europe continued to battle to attract LNG cargoes, which led to an increase in prices.

With winter on its way, gas prices surged in Q3 by an average 203.6% compared to Q3 2020 against a backdrop of strong increases in commodities prices and of European storage levels that remained below their 10-year minimum.

(1) Price of France PEG Nord gas

EDF

9M 2021 SALES

CO<sub>2</sub> MARKET



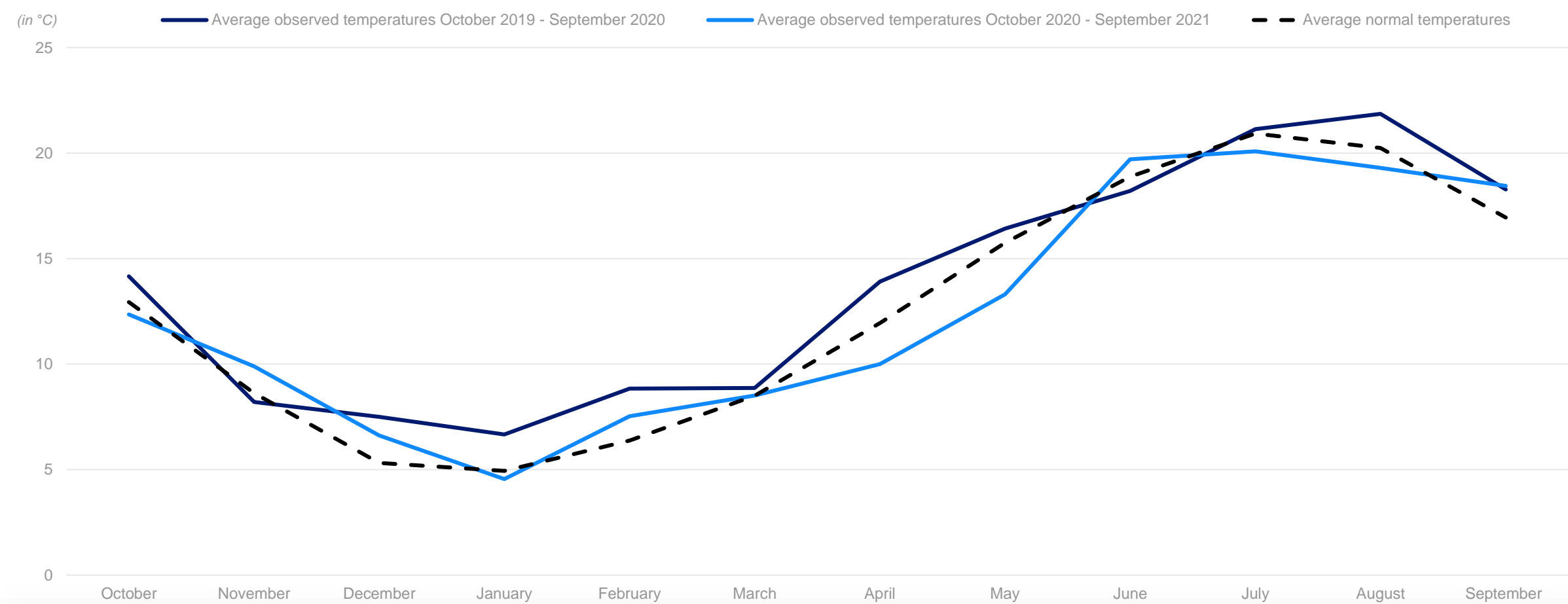
The price of the **emission certificate** for delivery in December Y+1 averaged €48.8/t in Q1-Q3 2021 (+101.9% or +€24.6/t vs. Q1-Q3 2020). The CO<sub>2</sub> quota price, still highly volatile, has trended upwards substantially since the start of the year. The emissions quota began the year in a favourable political environment following the US government’s announcement that it would be rejoining the Paris Agreement and a delay in the allocation of free quotas usually distributed in February. The price of the emissions certificate thus benefitted from a favourable market environment from February onwards. On 14 July, Europe revealed its project on measures to boost the GHG emissions reduction target to 55% by 2030, compared with the initial 40% goal. These measures were anticipated by markets. In Q3, the surge in the gas price amid fears over European stocks drove coal-fired production and needs for emissions certificates to be purchased before April 2022.

The price of electricity – set at the level of the marginal cost of generation – is therefore sensitive to variations in the price of CO<sub>2</sub> that influence the cost of generating electricity from gas and coal

Sensitivity of the wholesale price of electricity in France to the price of CO<sub>2</sub>, currently in the order of €0.5-0.6/MWh for €1/tonne of CO<sub>2</sub>

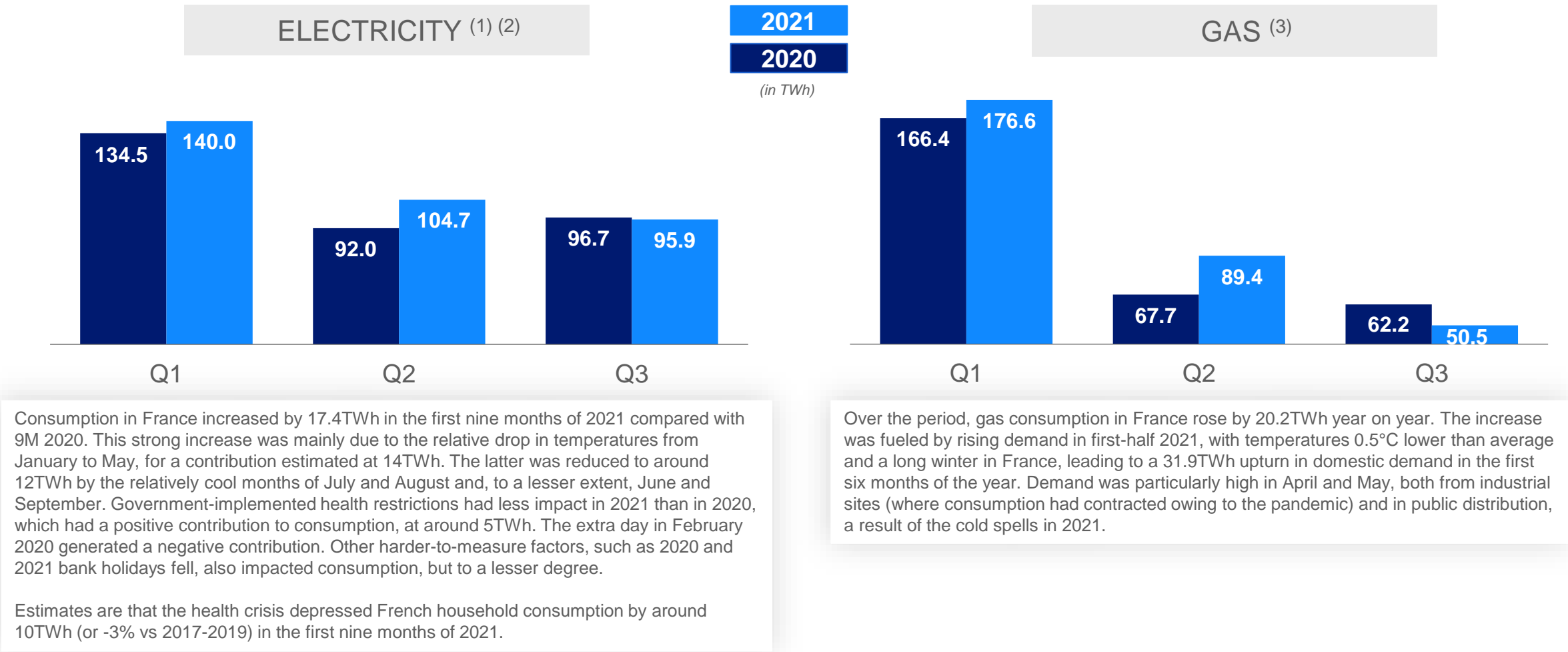


# AVERAGE MONTHLY TEMPERATURES <sup>(1)</sup> IN FRANCE



Weather conditions were highly contrasted in first-half 2021, with a cold spell in late January and February, one of the coldest Mays in the last 25 years and spring-like weather on several winter days (end-January, end-February and end-March). The same contrasted trend continued in the third quarter. September was warm overall (1.5°C above average), while July and August were cool (overall, 0.9% below average, and up to 3.9°C below average on some days; 1.8°C below average temperatures in July/August 2020). The last time temperatures in both July and August were below the average was in 2014.

# FRANCE: ELECTRICITY AND GAS OUTPUT



GAS (3)

Quarter	2021 (TWh)	2020 (TWh)
Q1	176.6	166.4
Q2	89.4	67.7
Q3	50.5	62.2

Over the period, gas consumption in France rose by 20.2TWh year on year. The increase was fueled by rising demand in first-half 2021, with temperatures 0.5°C lower than average and a long winter in France, leading to a 31.9TWh upturn in domestic demand in the first six months of the year. Demand was particularly high in April and May, both from industrial sites (where consumption had contracted owing to the pandemic) and in public distribution, a result of the cold spells in 2021.

(1) Data unadjusted from weather effect and 29 February, including Corsica

(2) Source 2020-2021: RTE monthly overview – Sept 2021 : ETR + Corsica consumption

(3) Source: energy monthly data, Service des données et études statistiques, Ministère de la Transition Écologique et Solidaire  
Sept 2021 GRT gaz and TERECA (ex: TIGF)



# **SALES AND HIGHLIGHTS**

9 MONTHS 2021  
BOOK