



**Newsletter**

Power & Utilities in Europe

November 2021

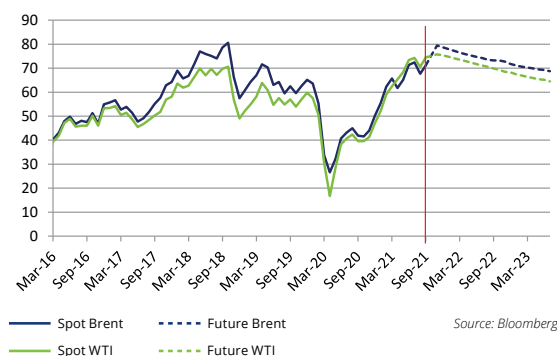


# Newsletter Power & Utilities in Europe

## Commodities



Crude oil (\$/bbl)



**Oil prices continued to rebound in Q3 2021 to 2-year highs, driven by both demand and supply side shocks.** The price of both WTI and Brent reached \$74.55/bbl and \$71.23/bbl respectively on average across September 2021, underlying an approximate 35% price rise since the start of the year. A combination of factors drove prices to their highest level since 2019.

**Demand expectations for oil have risen in the US and globally, creating an upward pressure on crude oil prices.** Travel consumption and associated oil demand rebounded following the roll-out of mass vaccination programmes across the world and a return towards normality as countries relaxed COVID-19 restrictions. Expectations, however, were briefly hindered in July 2021 by the uncertainty surrounding the Delta COVID-19 variant and news of slowing economic growth in China, suppressing upward price pressures.

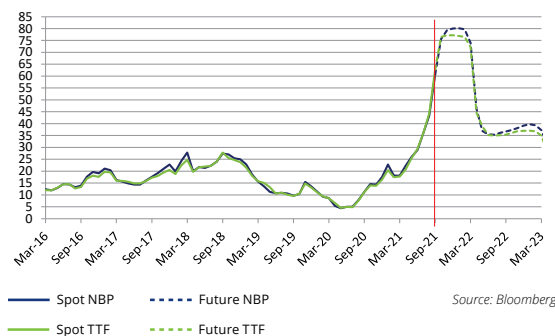
In July 2021, Opec negotiations ended in a deadlock as the UAE held out against a deal to restrict increases in oil supply to 400,000 b/d each month, rather than the 500,000b/d initially proposed. **This may have generated supply uncertainty, with the threat of fuel scarcity amid demand booms generating additional upward price pressures.**

This uncertainty gave way to supply assurances at the end of July 2021 following international political pressures, with Opec and allies reaching an extended deal to supply an additional 400,000 b/d each month until December 2022. However, In August 2021 Hurricane Ida caused oil production in the Gulf of Mexico to halt and resulted in a 15% contraction in crude oil production, leading to a material reduction in overall WTI supply.

Counter to this upward influence in price, in early September China announced its plans to sell oil from its natural reserves for the first time. This led to increased expectations of global oil supply, which may have reduced the upward pressure on price.



## Gas (€/MWh)



Gas prices have surged over the quarter to record levels, with both the UK's NBP gas benchmark and the Dutch TTF equivalent rising dramatically relative to last quarter, reaching averages of €60.64/MWh and €62.72/MWh respectively.

On the demand-side, recovery from COVID-19 coupled with exceptionally low renewable electricity generation drove European demand for natural gas to significant highs. Furthermore, demand for LNG gas imports in Asia this quarter were driven by booming consumption requirements and were compounded by exceptional intercontinental demand for LNG driven by Latin American droughts throughout the Summer. Brazil, for instance, faced the worst drought in a century, lowering hydropower generation that normally provide over 60% of the country's electricity.

**Major supply-side limitations reinforced the upward price trend suggested by increased demand. Low temperatures across Europe in Winter 2020/21 saw gas reserves being extensively used which have not been fully recovered.** Stilted supply to Europe and a steep drop in domestic production driven by COVID-19 prevented the replenishment of these gas reserves. Geopolitical pressures surrounding the approval of the Nord Stream 2 pipeline may also have distorted supply incentives in Russia, leading to the exacerbation of supply shortages. As a result, as the close of the quarter, European gas in storage was at its lowest in 10 years for this time of year.

In addition to the significant supply side shortages observed across the quarter, the EU's climate plan laid out plans to limit natural gas use and transition towards renewables, creating further downward pressure on supply expectations. **With carbon prices rising in conjunction with the EU's plans, and the price of coal itself increasing significantly across the quarter, the influence of coal in alleviating the pressure on natural gas at these high prices has been partly inhibited, with dark spreads remaining uncompetitive against spark spreads.**



## Coal (\$/metric ton)



The price of coal continued to rise sharply in the last quarter, with the Amsterdam-Rotterdam-Antwerp (ARA) index jumping from \$129.86/metric tonne at the end of July 2021, to over \$170/metric tonne by the end of September 2021. This is an increase of over 200% compared to last year.

**Despite the ongoing shift towards renewable energy and the impact of the COVID-19 pandemic, a combination of surging demand and restricted supply triggered a trend of rising coal prices across the quarter.**

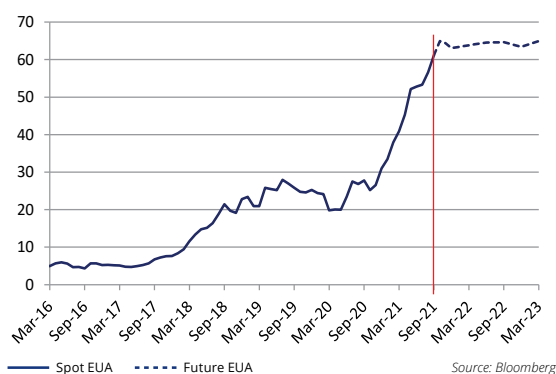
Global coal demand rose sharply over the quarter as high natural gas prices forced power producers to burn more coal to fulfil energy demands. Climate talks this quarter have reinforced focus toward substitution into renewables, though renewables' output performance has been insufficient to keep pace with rising demand for electricity as economic recovery from COVID-19 measures drove demand upwards. As a result, fossil fuels like coal are being utilised to maintain total energy supply.

Coupling the expansionary demand dynamics observed in coal markets, restricted supply has rallied prices further. **China relies on coal as its largest electricity generation source and has seen growing domestic demand in recent months despite a push towards carbon neutrality, but heatwaves across the country across the quarter led to significant supply chain disruptions, exacerbating shortages and price increases.**

In September, President Xi Jinping pledged to end the financing of new overseas coal power plants, introducing contractionary supply expectations to the market. Though Chinese industrial users attempted to turn to coal imports, supply of coal was hampered by weather externalities across the quarter in the markets of Indonesia, Russia and South Africa. Across in Europe, regulations on carbon price charges have been introduced to increase the cost of coal power. As input costs rise for coal producers and demand falls, supply will be increasingly disincentivised.



### Carbon (€/ton)



Carbon prices in Europe soared to more than €60.00 per tonne in September 2021 – the highest prices on record. The rally observed over the quarter was primarily driven by the global gas crunch and the global development of decarbonisation policies. **The cost of EU carbon allowances hit a record high of €61.25 on average across September 2021 versus an average of €27.78 in September 2020, signifying a substantial increase of 120% in the price of emitting one tonne of carbon for companies in Europe.**

A key influence on the observed price increase across the quarter stemmed from increased demand for coal amid the anticipation of tight gas supplies in Europe, which applied upward pressure to carbon price with polluters demanding additional carbon credits to cover emissions for increased use of coal power plants.

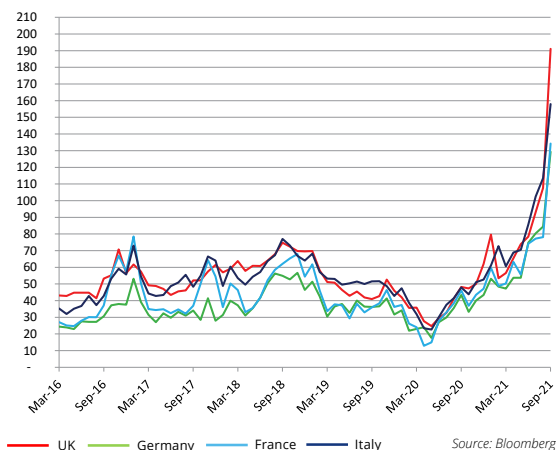
**Uncertain supply expectations for carbon credits may also have applied upward price pressure.** Governments ramped up climate pledges this period in preparation for the COP26 meeting next quarter. Thus, speculation surrounding possible supply restrictions of carbon credits may have fuelled sentiment among traders seeking to purchase credits prior to implementation of further restrictions, and otherwise reduced supply expectations with an upward influence on price.

Elsewhere, China launched the world's largest carbon market in July and, akin to the EU's ETS at its inception, there was an initial oversupply of credits. **This may have led to indirect downward pressure on EU ETS carbon prices but was likely mitigated by the lack of integration across global carbon markets and outweighed by the constrictive supply expectations across the rest of the world.**

Global legislative discussions towards international carbon market alignment may have had an influence on both the expected demand and supply of carbon this quarter. In July, the EU's Carbon Border Adjustment Mechanism (CBAM), a carbon tax on imports from industry competitors outside of the bloc, was proposed to prevent carbon leakage and create a level playing field. In addition to this, G20 finance ministers have collectively endorsed the idea of a global carbon price for the first time, whilst the IMF have also proposed an international price floor to apply globally by 2030. Discussions toward a globalised carbon market generate expectations of increased demand by creating a larger market, but likely less-than-proportional increases in supply. This may have contributed towards expectations of a higher carbon price.



## Baseload Spot Day Ahead (€/MWh)



Baseload prices dramatically increased for all included countries in the panel from July to September 2021. Since July 2021, baseload prices have soared due to shortages of renewables, price upsurges in oil, gas, coal and carbon and the consumption revival as COVID-19 restrictions were lifted. The end of the quarter also signals the start of winter household energy demands and a further demand-side push.

On the demand-side, European gas shortages led created a major influence on rising baseload prices due to natural gas' prominent role in countries' power generation mix. Similarly, the increasing prices of coal and carbon will have made fossil fuel energy less affordable overall - in early July solar power in Germany reached a record high in a temporary reversal of renewables' otherwise lower output than expected. German wind generation was significantly lower whilst onshore and offshore wind met just 19% of demand in Europe, down from 24% last year. The German utility RWE again rejected the proposal to keep its nuclear power plants open to provide additional capacity given its commitment to closing these facilities following Japan's Fukushima nuclear disaster.

In the UK, renewables performed poorly across the quarter – future investments in renewables continue though, with the UK Government announcing private investment of more than £260 million into offshore wind manufacturing plants which will increase wind capacity in the future in August 2021. Meanwhile, France's power generation mix continues to be driven by nuclear capacity, with other renewable sources lagging in relative terms. However, in July 2021 a €30.5 billion French aid scheme in was approved by authorities, designed specifically for financing the development of solar, hydro and wind projects in France.



# Spotlight on Power and Utilities market

## Capital market overview

	Deloitte Index (1)	Enel	Iberdrola	EDF	ENGIE	EON	RWE	Naturgy	Centrica
<b>Market cap. ratios</b>									
Currency		EUR	EUR	EUR	EUR	EUR	EUR	EUR	GBP
Market Cap (September 21)		<b>72 440</b>	59 349	34 286	28 556	28 546	21 825	20 861	<b>3 093</b>
3m stock price performance	<b>-6,4%</b>	-15,3%	<b>-16,2%</b>	-7,2%	-3,3%	+7,8%	-0,5%	-1,0%	<b>+7,8%</b>
YoY stock price performance	<b>+2,7%</b>	-10,9%	<b>-18,8%</b>	+18,7%	-0,7%	+10,8%	-6,2%	+26,5%	<b>+41,0%</b>
<b>Market multiples (2)</b>									
EV/EBITDA 2020	<b>8,0x</b>	8,1x	<b>11,6x</b>	8,4x	7,0x	11,3x	9,7x	n/m	<b>3,0x</b>
EV/EBITDA 2021	<b>6,7x</b>	7,7x	<b>10,6x</b>	7,5x	6,4x	10,2x	9,9x	n/m	<b>3,4x</b>
P/E 2020	<b>6,9x</b>	n/m	<b>16,4x</b>	n/m	n/m	<b>28,1x</b>	21,9x	n/m	n/m
P/E 2021	<b>10,5x</b>	13,1x	16,3x	<b>8,4x</b>	11,4x	12,3x	<b>17,6x</b>	n/m	16,2x
Price/book value 2020	<b>1,4x</b>	2,3x	1,6x	<b>0,6x</b>	0,9x	<b>3,1x</b>	1,1x	n/m	1,3x
<b>Profitability ratios (2)</b>									
ROE forward 12m	<b>15%</b>	19%	10%	9%	9%	<b>47%</b>	<b>7%</b>	15%	20%
ROCE forward 12m	<b>8%</b>	10%	6%	<b>4%</b>	6%	8%	8%	8%	<b>56%</b>
EBITDA margin 2020	<b>24%</b>	23%	<b>30%</b>	23%	17%	<b>11%</b>	23%	22%	13%
EBITDA margin 2021	<b>24%</b>	26%	<b>30%</b>	24%	17%	12%	23%	21%	<b>9%</b>
EBIT margin 2020	<b>11%</b>	9%	<b>17%</b>	6%	8%	6%	13%	<b>3%</b>	6%
EBIT margin 2021	<b>14%</b>	16%	<b>17%</b>	9%	9%	7%	12%	13%	<b>4%</b>

(1) Deloitte Index is composed of Engie, EDF, EON, Iberdrola, RWE, Naturgy, Enel, SSE and Centrica

### Key messages from brokers and analysts

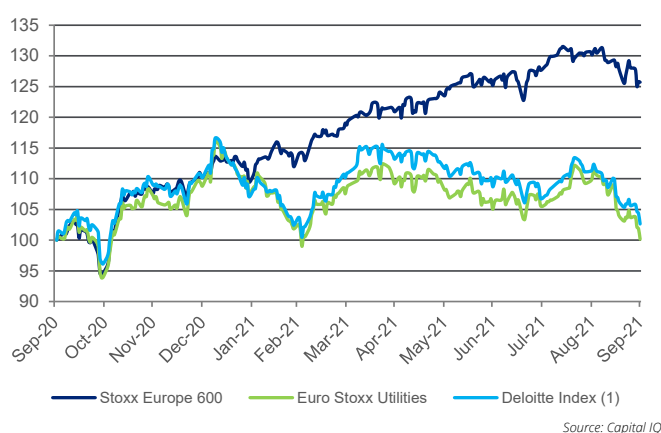
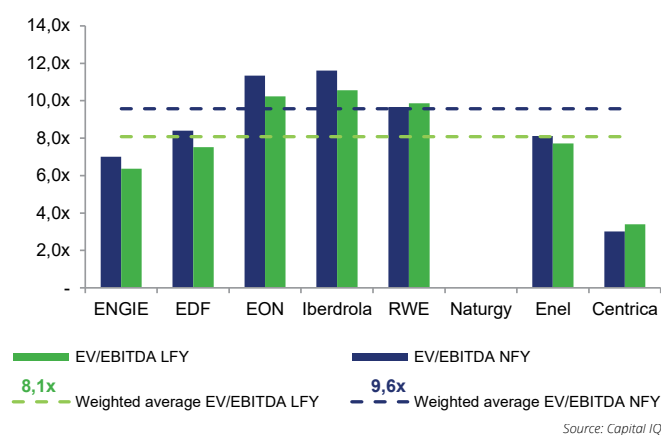
"Unprecedented conditions in global energy markets are having a profound effect not only on financial markets, but on consumers, businesses and the wider economy." (J.P. Morgan - September 30, 2021)

"Energy transition strategies beyond renewables are becoming increasingly clearer as to how they deliver value." (Barclays - September 27, 2021)

"European power prices are facing the 'perfect storm': one-year forward baseload power prices have nearly doubled in most major European power markets and are now at their highest level ever." (Barclays - September 15, 2021)

"New political measures likely to reduce earnings and increase uncertainty" (Société Générale - September 15, 2021)

"In the post-pandemic era, many governments are envisaging electrification as essential for the economic recovery as shown through continuous acceleration of long-term commitments with net zero targets." (Exane BNP Paribas - September 13, 2021)



## M&A Trends

### Transactions involving power and utilities companies

**National Grid PPL**, an American Power & Utilities company, acquired **WPD Investments Limited**, the holding company of **Western Power Distribution**, a British electricity distribution network operator, which owns four distribution networks in the UK and supplies energy to approximately **7.9 million customers**, for **£7.8bn**. (See AK&M – September 1, 2021)

**Enel** acquired with **ERG Hydro Srl**, an Italian hydroelectric business with an installed capacity of **527 MW** in Italy, from **ERG Power Generation SpA**, an Italian power company, for €1.0bn. (See MarketLine Financial Deals Tracker – August 4, 2021)

**Hanwha Solutions Corporation**, a South Korean petrochemical company, acquired **Renewable Energy Systems Limited**, a French independent renewables energy company with a 5GW portfolio solar and wind portfolio, for **€727m**. (See NICE Daily KSE Announcements, September 28, 2021)

**Exelon Generation LLC**, an American energy provider, acquired **49.99% interest** in **Constellation Energy Nuclear Group LLC**, an American electricity provider, from **EDF** for **\$885m**. (See MarketLine Financial Deals Tracker – August 12, 2021).

**Onex Renewables S.a.r.l.**, a Luxembourgian electricity company, acquired a **100% stake** in a wind portfolio in Portugal with a combined installed capacity of 221 MW, from **EDP Renovaveis**,

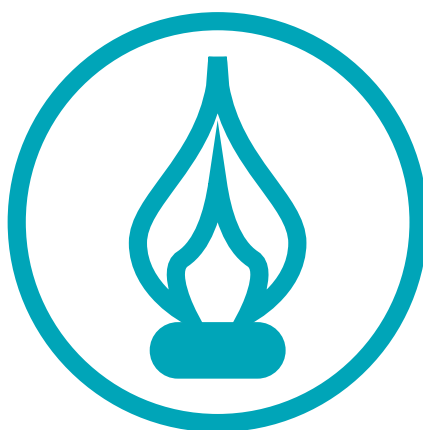
**S.A.**, for an estimated enterprise value of **€532m**. (See MarketLine Financial Deals Tracker – July 24, 2021)

**Endesa** purchased a photovoltaic and wind portfolio of **350 MW** from **ABO Wind Spain**, a solar farms developer, for **€315m**, which include both acquisition and construction. (See CE Noticias Financieras – August 13, 2021)

**MET Group**, a Dutch integrated energy company, acquired **Cogen Energia Espana S.L**, a provider of heat and power production facilities, from **Arendals Fossekompani ASA**, a Norwegian company involved in the production and sale of electricity, for an undisclosed amount. (See MarketLine Financial Deals Tracker – July 28, 2021)

**Sonnedit Power Holdings Ltd**, a French independent solar energy supplier, acquired **300 MW capacity** solar power plants in Spain, from **RIC Energy**, a photovoltaic system implementation company, for an undisclosed amount. (See MarketLine Financial Deals Tracker – June 30, 2021)

**BayWa r.e.**, a renewable energy developer, service provider and distributor, has acquired **Enerpole**, a wind and solar developer (300 MW of solar and 300 MW of wind capacities), for an undisclosed amount. (See MarketLine Financial Deals Tracker – May 28, 2021).





## Transaction involving equity funds

**EQT**, a Swedish investment fund, has acquired **Solarpack**, a Spanish solar power developer, for **€881m**. (See CE Noticias Financieras – September 29, 2021).

**China Three Gorges Corp.** acquired a portfolio of **11 wind farms and one solar plant** located in Spain from a consortium led by **Corporacion Masaveu**, a Spanish investment fund and **Korys**, a Belgian investment fund, for **\$586.4m**. (See MarketLine Financial Deals Tracker – August 25, 2021)

**Transmission Capital Partners**, a British investment fund, has acquired the offshore transmission assets (OFTO) of the **588 MW Beatrice Offshore Wind Farm** representing an asset value of **£437.9m**. (See [www.nawindpower.com](http://www.nawindpower.com) – August 2, 2021).

**Northland Power Inc.**, an American power producer, has acquired a portfolio of operating onshore renewable assets in Spain, from **Helia Renovables Fcr**, a Spanish investment fund, for **€345 million**, representing an enterprise value of **€1,061m**. (See MarketLine Financial Deals Tracker – August 13, 2021)

**Natixis Investments Managers** acquired a **149 MW wind portfolio in Poland**, from **EDP Renovaveis SA**, a French renewable energy company, for **€303m**. (See Public Companies News and Documentation via PUBT – August 4, 2021).

**EIG Global Energy Partners LLC**, an American investment fund, acquired West Burton B CCGT (Nottinghamshire, UK) and battery of a total capacity of **1,332MW** from **EDF** for an undisclosed amount. (See MarketLine Financial Deals Tracker – September 2, 2021)

**APG**, a Dutch investment fund, acquired 100% of **Vasa Vind**, a Swedish onshore wind farm developer from **Asper Investment Management Ltd**, an investment firm, for an undisclosed amount. (See MarketLine Financial Deals Tracker – September 16, 2021)

**Bruc Energy**, an asset manager, acquired **20 solar projects in Spain** from **Opdenenergy**, an independent sustainable energy producer focused on solar photovoltaic and onshore wind technologies, for a combined installed capacity of **1,044 MW**, for an undisclosed amount. (See MarketLine Financial Deals Tracker – August 9, 2021)

**Eni** acquired **315 MW of onshore wind farms** in Italy from **Glenmont Partners** and **PGGM Infrastructure Fund**, a clean energy fund manager, for an undisclosed amount. (See 24 Ore Radiocor-Newswire International Edition – July 9, 2021)

**York Capital Management**, an American investment fund and **Marseglia Amaranto Energia e Sviluppo srl**, an Italian power company, acquired **100%** shares of **Global Solar Fund sca Sicar**, a Luxembourg company owning **174 photovoltaic plants**, for an undisclosed amount. (See MarketLine Financial Deals Tracker – June 22, 2021)



# European Power and Utilities companies wrap-up

Performance of the first semester 2021 are significantly better compared to first semester 2020 which was impacted by the initial tough lockdowns.

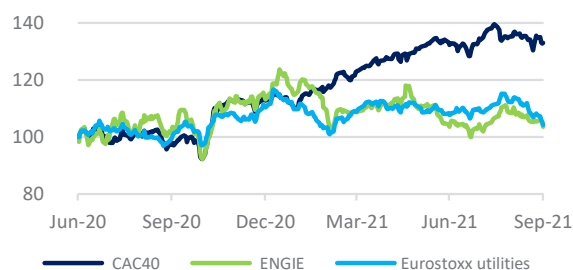
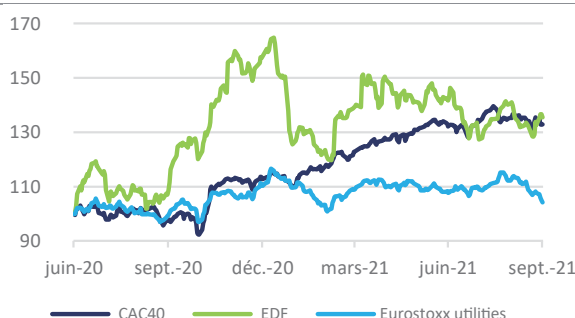
Strong Energy demand increase: Power demand almost recovered to 2019 levels and Gas demand slightly higher than 2019 levels on average.

Increase in demand is benefiting to Generators with French nuclear recoveries and German coal rebound. In the opposite Renewables production is mixed with weak Hydro and UK & Italian wind conditions compared to strong Solar production in Iberia

Power prices increased notably thanks to higher demand and fostered carbon prices. However, impact of political action to mitigate impact on consumer bill is still uncertain.

Most of European Power Utilities updated their guidance for FY21 thanks to the recent sharp rise in power prices.



Share  
Price Perf.Key Reported  
Financials

In billion of €	HY21	HY20	Var.
Sales	39.6	34.7	+14%
EBITDA	10.6	8.2	+29%
Operating Income	4.3	1.6	+163%
Recurring net income Gr	3.7	1.3	+185%
Net Income Gr Share	4.2	-0.7	n.m
Operating CF	0.6	-0.5	n.m
Net Capex	-7.7	-7.0	+9%
Net debt	-41.0	-42.3*	-3%

\* As of Dec. 31, 2020

In billion of €	HY21	HY20	Var.
Sales	31.3	27.4	+14%
EBITDA	5.4	4.5	+20%
Operating Income	3.1	2.2	+41%
Recurring net income Gr	1.4	0.7	+100%
Net Income Gr Share	2.3	0.0	n.a.
Operating CF*	4.3	3.0	+43%
Net Capex*	-3.7	-3.0	+23%
Net debt	-24.2	-22.4*	+8%

\* As of December 31, 2020

FY21  
Highlights

- Revenues amounted to €39.6bn, +14% vs HY20 notably due to improved Nuclear output of 181.7TWh, up 7.7TWh linked to higher demand, partially offset by (i) more intensive programme of maintenance outage in 2021, (ii) lack of production from the two Fessenheim reactors closed in first-half 2020, (iii) a 1.4TWh drop in Hydropower output in France, (iv) a 1.8TWh drop in the UK nuclear output.
- Ebitda amounted to €10.6bn, +29% vs FY20, due to (i) increase in nuclear output in France and (ii) colder climate against a backdrop of rising gas and electricity prices, (iii) growth in connection activities and (iv) marginal impact of the Covid crisis and (v) excellent performance in trading activities.
- Recurring net income totalled €3.7bn, compared to €1.3bn in HY2020, mainly due to the EBITDA and financial result rise, thus some amortization linked to the prolongation of lifetime of 1 300MW nuclear plants.
- The increase in operating cash flow is essentially attributable to the strong growth in EBITDA. Conversely, working capital requirement (WCR) deteriorated by €1.9bn in due to deterioration in the WCR of the optimisation/trading activity and the seasonality of trade payables.
- Net investments amounted to €7.7bn, an increase of €691 million versus the first half of 2020 which reported a decline, owing to Covid.
- End of Ecocombust, a project to develop a new class B wood-based fuel.
- Inaugural social hybrid bond issue for a nominal amount of €1.25bn.
- Decision to move Dungeness B nuclear power plant into defueling phase.
- Agreement with Government for the AGR defueling and decommissioning programme.
- Shut down of reactor No. 1 of the Taishan power plant in connection with the detection of unsealed assembly rods in the reactor.
- Revenues amounted to €31.3bn, +14% vs HY20 due to (i) Covid recovery, primarily in Client Solutions, (ii) impact of colder temperature on Networks and Supply in Europe, (iii) higher commodity prices and volumes and (iv) higher hydro prices in France and Brazil, partially offset by negative foreign exchange effect linked to the depreciation of the US dollar and the Brazilian real against the euro.
- Operating income reached €3.1bn +44% on an organic basis vs HY20, related to an impact of (i) +€321m for the Clients Solutions, (ii) +€285m for the Nuclear due to better availability, and (iii) +€264m for the Infrastructures due to lower temperature in France, Germany and Romania and thanks to an increased contribution from transmission lines under construction in Brazil.
- Net recurring income Group share amounted to €1.4bn compared to €0.7bn in first-half 2020. This increase was mainly linked to the growth in EBIT and the decrease in the recurring effective tax rate from 38% to 34%, despite higher recurring financial charges.
- Net debt stood at €24.2bn, up €1.8bn vs FY20, notably due to (i) investment expenditures (€3.7bn), (ii) dividend paid to shareholders (€1.3bn) and non-controlling interests (€0.2bn), offset by (i) Cash flow from operations (€4.3bn) and (ii) cash in from disposals (€0.3bn).
- New organisational structure came into effect on July 1, 2021, comprising 4 four Global Business Units (GBUs): (i) Renewables, (ii) Energy Solutions, (iii) Networks and (iv) Thermal & Supply.
- Creation of EQUANS, a separate division within ENGIE dedicated to multi-technical services. ENGIE is now moving at pace on the next phase on the future shareholding structure and expects to be in a position to provide an update in the second half with completion targeted in 2022.
- Negotiations with the ALTRAD group for the sale of ENDEL, France's leader in industrial maintenance and energy services

FY 2021  
Outlook

- FY 2021 guidance updated:
  - EBITDA above €17.7bn vs >€17bn announced in February.
  - Net financial debt/EBITDA <2.8x in 2021 vs <3x previously
- FY 2021 guidance updated:
  - Net recurring income group share between €2.5bn and €2.7bn vs between €2.3bn and €2.5bn previously.



## Share Price Perf.



## Key Reported Financials

In billion of €	HY21	HY20	Var.
Sales	33.0	30.5	+8%
EBITDA	4.8	3.7	+29%
Operating Income	3.9	1.4	+178%
Recurring net income Gr	1.8	1.0	+80%
Net Income Gr Share	2.5	0.1	n.m
Operating CF	1.2	1.3	-7%
Net Capex	-1.9	-1.4	34%
Net debt	-40.8	-40.7*	+0%

\* As of December 31, 2020

In billion of €	HY21	HY20	Var.
Sales	8.4	6.5	+29%
EBITDA	1.8	1.8	-
Operating Income	1.5	1.5	-
Recurring net income Gr	0.9	0.8	+6%
Net Income Gr Share	1.4	1.0	+40%
Operating CF	5.0	1.2	+316%
Net Capex	2.0	1.0	+100%
Net debt	0.9	4.4*	-79%

\* As of December 31, 2020

\*\* Some prior-year figures restated due to a change in the recognition of renewable energy tax benefits in the USA

## FY21 Highlights

- Sales amounted to €33.0bn, +8% vs HY20. Energy Networks' sales increased by €0.4bn to €9.1bn. Customer Solutions' sales rose by €1.7bn to €26.3 billion. This increase relates to failed own-use transactions amid rising prices on commodity markets (+€1.3 billion). Corresponding expenditures relating to failed own-use transactions are recorded under other operating expenses. Higher consumption due to comparatively cooler weather and the passthrough of increased cost components led to higher sales, particularly in Germany and the United Kingdom. due to **Operating income amounted €3.9bn, an increase of €2.5bn primarily due to**: (i) significant **cost saving in the United Kingdom** from the ongoing restructuring program, (ii) **positive volume effects on Networks business** resulting from cooler weather and to the impact of the Covid-19 pandemic in the first half of 2020, and inclusion of VSEH in Slovakia, and (iii) conclusion of the **public law agreement between the German federal government and the country's nuclear power plant operators** had a positive effect at PreussenElektra enabling previous purchases of residual power to be refunded (+€0.5bn).
- Cash flow from operating activities (€2.2bn) is significantly above prior-year level (€1.5bn). The increase mainly reflects a €0.6bn improvement at Customer Solutions. Cash flow increased in particular at this segment's sales business in Germany owing to improved cash-effective earnings as well as working-capital effects.
- In mid-July, Germany was affected by flooding and outages in the electricity and gas networks. At E.ON, the Westnetz service area was particularly impacted. Overall, the effects of the storm resulted in estimated costs in the mid-double-digit million euro range.
- First corporate issuer to present a Green Bond Framework that is in full compliance with the EU Taxonomy's criteria for sustainable economic activities and issue in April 2021 of a €750m bonds.
- Sales increased by 29% to €8.4bn vs 2020 due to higher electricity and gas sales volume '(respectively +25% and +150%) and prices than in 2020
- EBITDA remains stable at €1.8bn due to the extraordinary charges incurred due to the worst cold snap in a century in Texas, partly contrasted by a strong energy trading performance.
- The net income group share increased by 40% to €1.4bn because of a better financial results mainly due to interest claims relating to a tax refund for earlier assessment periods
- Operating CF rose €5.0bn, +316% vs HY20, due to cash inflows from variation margins relating to electricity, raw material and CO<sub>2</sub> derivatives.
- Significant drop in net debt to €903bn, a decrease of €3.5bn vs 2020 due to the high level of free cash flow was the main reason because of the market-driven increase in the discount rates used to calculate the present value of pension obligation, partly offset by dividend payments of €0.6 billion had a debt-increasing effect.
- RWE wins rights to develop new offshore wind sites in the British North Sea.
- Stake in Rampion wind farm in the British North Sea increased to 50.1 %
- Go-ahead for construction of Sofia wind farm in the North Sea. In March 2021, RWE made the final investment decision to build the Sofia wind farm in the UK North Sea, one of the largest offshore wind projects in the world. RWE will hold 100% of Sofia.
- Considerable drop in earnings due to the worst cold snap in Texas in a century. In February 2021, an extreme cold front in parts of the USA caused substantial supply outages. Winter storms and sleet forced some RWE wind farms in Texas to go offline for several days.

## FY 2021 Outlook

- FY 2021 guidance updated:
  - Adjusted EBITDA €7.6bn to €7.8bn vs €6.9bn in February
  - Adjusted EBIT: €4.4bn to €4.6bn vs between €3.8bn and €4.0bn previously
  - Adjusted net income: between €2.2bn to €2.4bn vs between €1.7bn and €1.9bn in previously
- FY 2021 guidance updated:
  - EBITDA: €3.0bn to €3.4bn vs €2.6bn and €3.0bn previously
  - Adjusted net income: € 1.1bn to € 1.4bn vs €0.7bn and €1.1bn previously



## Share Price Perf.



## Key Reported Financials

In billion of €	HY21	HY20	Var.
Sales	29.9	33.4	-10%
EBITDA	7.7	8.6	-11%
Operating Income	4.4	4.5	-2%
Recurring net income Gr	2.3	2.4	-4%
Net Income Gr Share	1.8	1.9	-5%
Operating CF	2.7	2.0	+35%
Net Capex	4.8	4.1	+17%
Net debt	-50.4	-45.4*	+11%

\* As of December 31, 2020

In billion of €	HY21	HY20	Var.
Sales	6.9	6.3	+9%
EBITDA	0.7	0.8	-12,5%
Operating Income	0.1	0.1	9
Recurring net income Gr	1.5	-0.4	n.m
Net Income Gr Share	1.4	-0.2	n.m
Operating CF	0.6	0.6	-
Net Capex	-0.1	-0.2	-50%
Net debt	-0.1	-3.0*	-97%

\* As of December 31, 2020

## FY20 Highlights

- Sales amounted to €29.9bn, -10% vs HY20 due to (i) Thermal Generation and Trading activities, (ii) lower trading activities in Italy, and (iii) the negative exchange rate effect in Latin America. These reductions were only partially offset by the increase of revenues recorded for Enel Green Power, End-User Markets driven by higher volumes of energy sold, and Enel X activities.
- The decrease in EBITDA down by 11% to €7.7bn is essentially due to the impacts recognized in the first half of 2020 with (i) the change in the energy discount benefit in Spain, mainly in Infrastructure and Networks as well as in Thermal Generation and Trading, and (ii) the adverse exchange rate effect in Latin America. These effects are only partially offset by better margins in the End-User Markets, in Enel X and in Thermal Generation and Trading, from the recognition of the indemnification related to the CO<sub>2</sub> emission rights, assigned for free in Spain by the PNA1
- Operating income decreased to €4.4bn, -4% vs HY20, the performance of operations, partially offset by lower depreciation, amortization and impairment recorded in the first half of 2021, which were impacted by write-downs, made in previous financial years, of certain coal-fired plants as part of the decarbonization process undertaken by the Group and by lower provisions for bad debts.
- Increase of the net debt of €5bn compared to 2020 mainly due to investments for the period, the acquisition of an additional stake in Enel Américas and the adverse exchange rate effect, partially offset by the positive cash flows generated by operating activities
- Capital expenditure: €4.8bn vs €4.1 bn in HY due to growth in capital expenditure in Infrastructure and Networks, End-User Markets and Enel X
- Launch of three Multi-tranche "Sustainability-Linked bonds" for a total of €10.75bn
- Sale of the 50% interest in Open Fiber for 2,650 million euros to CPD Equity
- Agreement with ERG to acquire 527 MW of hydro plants

- Sales amounted to £6.9bn, +9% vs HY20 due to higher commodity prices and colder weather on British Gas Energy, with the higher commodity prices also resulting in higher Energy Marketing & Trading revenue.
- Operating income increased to £1.0bn vs -£0.3bn reflects efficiencies across the Group and higher consumption due to colder weather in the energy supply businesses. Higher commodity prices starting to benefit Upstream. Offset by impacts of Covid-19 across the Group and industrial action in British Gas Services, and a loss in Energy Marketing & Trading with increased losses from the legacy gas contract.
- Net income Gr Share amount £1.4bn vs -\$0.3bn partly due to an exceptional pre-tax credit of £373m related to (i) the write-back of E&P assets, predominantly due to the increase in near-term liquid commodity prices, and (ii) to the reversal of a portion of 2020 restructuring charges relating to pension strain estimates.
- Net debt down to £0.1bn from £3.0bn vs HY20, thanks to the proceeds from the sale of Direct Energy in January 2021 and hybrid bond repayment.
- Sale of Direct Energy improves the longterm strength of the Group's balance sheet and allows an increased focus on core UK and Ireland activities.
- Agreement to sell Peterborough site, which comprises a 245MW CCGT
- Acquisition of Nabuh Energy, a UK based energy supplier, by British Energy

## FY 2021 Outlook

- FY 2021 guidance confirmed:
  - Ordinary EBITDA: €18.7bn - €19.3bn
  - Net ordinary income: €5.4bn-€5.6bn

No guidance disclosed for 2021.



## Share Price Perf.



## Key Reported Financials

In billion of €	HY21	HY20	Var.
Sales	18.8	16.5	+13%
EBITDA	5.4	4.9	+10%
Operating Income	3.2	2.7	+19%
Recurring net income Gr	1.8	1.7	+5%
Net Income Gr Share	1.5	1.9	-21%
Operating CF	4.2	3.9	+8%
Net Capex	-4.9	-3.6	+37%
Net debt	-36.6	-35.1*	+3%

\* As of December 31, 2020

In billion of €	HY21	HY20	Var.
Sales	9.1	7.8	+17%
EBITDA	1.7	1.7	-
Operating Income	1.0	0.9	+7%
Recurring net income Gr	0.4	0.3	+33%
Net Income Gr Share	0.2	0.1	+100%
Operating CF	1.3	2.0	-36%
Net Capex	-0.4	-0.5	-20%
Net debt	-13.6	-13.6*	-

\* As of December 31, 2020

## FY21 Highlights

- Net sale increased by 13% to €18.7bn** notably due to (i) positive impact on Generation and supplies of commodities prices increase, (ii) strong increase in hydroelectric generation (+38%), (iii) more favorable regulatory framework in the US on US Networks and (iv) favourable impact of both inflation and rate adjustment on Brazilian regulatory assets.
- EBITDA rose to €5.4bn, +10% vs HY20**, driven by the Renewables and Networks businesses, despite being positively affected by the impact of Covid (+€108m and by the exchange rate, which deducted +€287m, partially offset by the extraordinary negative effect of the hydroelectric levy in Spain corresponding to the years 2013 and 2014 (-€265m). As matter of interest the positive impact on Generation and supplies of commodities prices increase is more than offset by its negative impact on procurement.
- Reported Net Profit totalled €1.5bn, -21% vs HY20**, due to (i) Reversal of the hydroelectric levy in Spain and (ii) increase of the corporate tax rate in the United Kingdom from 19% to 25%, effective 1 April 2023, which impacted deferred taxes by -€463m.
- Recurring Net Profit grew by to €1.8bn**. it excludes net impact of COVID-19 (€-96m), the reversal of the hydroelectric fee of 2013 and 2014 in Spain (€+245m) and the impact of deferred tax in the United Kingdom (€-463m).
- Net investment in the period amounted to €4.9bn** (including the purchase of Neoenergia Brasilia for EUR 409 million), and mostly relates to Renewables business (45% of the investments), with more than 8,500 MW already under construction, and in the networks business (46% of the investment), mainly in Spain (€1.1bn), US (€1.2bn) and Brazil (€1.0bn).
- The Iberdrola Group changed the format of its income statement, eliminating the section "Gains/(losses) on non-current assets"**
- Agreement with the Japanese renewable energy developer Cosmo Eco Power and the engineering firm Hitz** for the joint development of the Seihoku-oki offshore wind project (600 MW)
- Net sales totaled €9.1bn in 2021, 17% above HY20** due to (i) a higher demand and energy prices in the period, with a positive impact in Energy management and Supply activities; partly offset by (ii) the negative impact of macro uncertainty and FX depreciation in certain LatAm countries, mainly as a result of the COVID-19 crisis.
- EBITDA amount €1.7bn, stable vs HY20** due to (i) , LatAm activities which continued to be affected by negative FX impact and modest demand recovery, and (ii) renewables who suffered from lower margins overall and lower wind resource in Mexico, partly offset by liberalised activities mainly supported by contract renegotiation leading to improved margins
- Net income amounted to €0.2bn vs €0.1bn in HY20** mainly impacted by the restructuring costs incurred in the quarter as the employee voluntary departure plan (€300m), partly compensated by the completion of the UFG agreement which had a positive impact of €103m in earnings.
- Sale of Naturgy's equity shareholding (96.04%) in CGE Electricidad to State Grid International Development Limited (SGID) for a purchase price (equity value) of €2.6bn.**
- First company in Spain to inject renewable landfill gas into Spain's gas distribution network.**
- Issue of a sustainable credit financing for €2.0bn linked to sustainability objectives**
- Presentation of strategic plan for the period 2021-25** with investments of €14bn to strengthen its role in the energy transition

## FY 2021 Outlook

- FY 2021 guidance confirmed.**

**No guidance disclosed for FY 2021**



# Two years on the Green Deal, hydrogen is still “the missing piece of the puzzle”

## Author



**Sébastien Douguet**

Director,  
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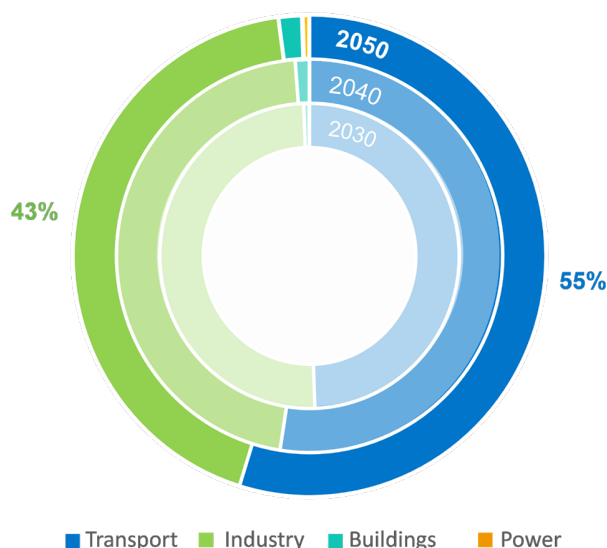
Developments in the past two years have seen policymakers and companies take an increasingly supportive stance on hydrogen. From the European Green Deal to the fit-for-55 package, from the EU hydrogen strategy to the recent UK hydrogen strategy to the first pre-notification waves of the Hydrogen IPCEI, pieces have been set in motion to support the development of hydrogen across the continent. This wave of enthusiasm reflects the stakes at play: as underlined by the latest IPCC report, the EU and other European countries cannot miss their decarbonization objectives, and reaching net-zero CO<sub>2</sub> emissions by 2050 is an indispensable condition to avoid catastrophic climate change. Hydrogen is now clearly recognized as one of the solutions to respond to one of the biggest policy and technological challenges ever, alongside established leads such as electrification, renewable energy and energy efficiency.

While the official objective of the EU is 10 million tonnes of renewable hydrogen by 2030, the current project pipeline and the policy and industrial discussions hint at a far larger potential for hydrogen, that also includes low-carbon technologies such as natural gas reforming with carbon capture and storage (CCS) and pyrolysis and reaches across the entire energy system. To better assess this potential, Hydrogen4EU was launched. This joint industry research project is led by Deloitte and combines the modelling expertise of research centers IFPEN and SINTEF. It aims at assessing the role of hydrogen in the European energy sector transition towards net-zero emissions. Two pathways are explored, both aligned with the key EU climate and energy policy goals. The “Technology Diversification” pathway provides insights into how an inclusive approach, based on a wide range of decarbonisation technologies, can help minimize the cost of the energy transition. The “Renewable Push” pathway examines the possible impact of a deliberate focus on renewable technologies, a prominent feature of the current policy debate as manifested in the fit-for-55 regulatory proposals.

**The Hydrogen4EU study confirms that hydrogen can play an important role in the European energy transition. Propelled by strong policy and industrial momentum, demand for renewable and low-carbon hydrogen could triple the European Commission’s goal of 10 million tonnes of hydrogen in 2030 and exceed 100 million tonnes by 2050.** In both pathways, hydrogen is proven to be a versatile and cost-efficient energy carrier that could cover up to 25% of European final energy use by 2050. Transport and industry represent the bulk of the demand. In the transport sector, heavy-duty trucks, aviation, and shipping consume hydrogen directly in fuel cells or as e-fuels in traditional combustion engines. Iron and steel is the largest consumer in industry, followed by the chemical industry and by the production

of process steam and heat in other sub-sectors. This is not even accounting for the hydrogen used as feedstock (for methanol, ammonia...), which could further increase hydrogen demand by around ten million tonnes.

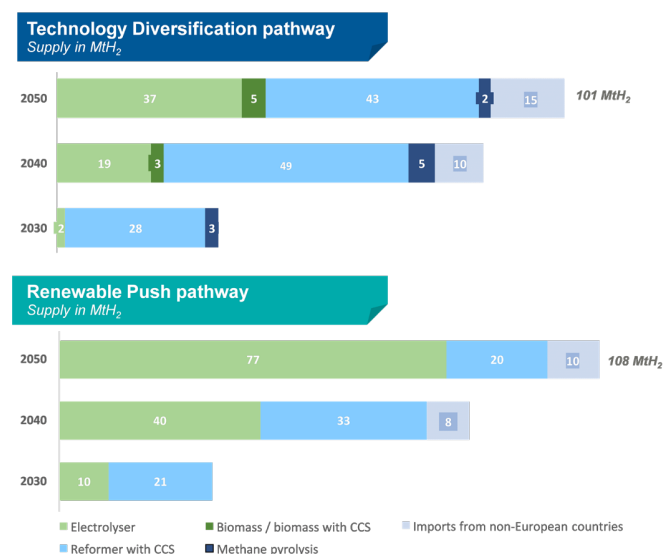
**Figure 1: Evolution of hydrogen demand by sector in the Technology Diversification and Renewable Push pathways, 2030 to 2050**



The study's findings suggest that **renewable and low-carbon hydrogen are needed together in both pathways. While low-carbon hydrogen plays a critical role in establishing a hydrogen economy between 2020 and 2030, renewable hydrogen develops mainly after 2030 and meets the bulk of the additional demand growth.** In the Technology Diversification pathway, the production mix is very balanced in 2050 with renewable and low-carbon sources each providing about half of the European output. In the Renewable Push pathway, renewable hydrogen plays a dominant role, underpinned by more ambitious targets in terms of renewables development in Europe. Renewable hydrogen is mainly produced by off-grid electrolysis, with hydrogen proving to have a clear value proposition for the integration of variable renewable energy into the system. Low-carbon hydrogen shows good potential for natural gas reformers with CCS and, to a lesser extent, for pyrolysis.

<sup>1</sup>As of September 2021, 48 GW of hydrogen production projects have been announced in Europe. Source: Deloitte H2-tracker

**Figure 2: Evolution of European hydrogen supply in the Technology Diversification and Renewable Push pathways, 2030 to 2050**



Part of the hydrogen needed in the transition to net-zero emissions may be imported from outside Europe, from neighboring regions such as Russia, North Africa and the Middle East. Our results show such imports gradually ramping up over the 2030s. **By 2050, between 10% and 15% of Europe's hydrogen supply come from the international trade market; this correspond to 10 to 15 million tonnes of renewable or low-carbon hydrogen to be imported.** Traditional exporters of natural gas are also well placed to become major hydrogen exporters to Europe. This is notably the case for Russia and Algeria. Access to existing cross-border pipeline infrastructure is a significant advantage, as maritime transport is a costly alternative. New players, such as Morocco, Tunisia, and Ukraine, may also have a role to play thanks to their renewable energy potential and proximity to these pipelines.

The transformation of the energy system is underpinned by gigantic levels of investments. **In the hydrogen value chain, between 3.1 trillion Euros – in the Technology Diversification pathway – and 5.5 trillion Euros – in Renewable Push pathway – need to be mobilized over the next three decades to finance the necessary investments.** In both pathways, the infrastructure needed for renewable hydrogen in Europe is enormous and gives a hint about the seriousness of the challenges ahead: our

renewable hydrogen production results require between 1000 GW and 1700 GW of dedicated solar PV capacity, a similar amount of wind capacity and between 680 GW and 1500 GW of electrolyzers. The development of low-carbon hydrogen and other technologies such as biomass with CCS hinges on the availability of CCS technologies. Carbon removal technologies such as biomass with CCS and direct-air-capture are needed to compensate for some of the hardest-to-abate emissions and to unlock access to new solutions, such as e-fuels for aviation. CO<sub>2</sub> storage demand may reach 1.4 Gt per year by 2050 in our Technology Diversification pathway, making a capacity ramp-up necessary during the present decade. Both cross-border and national infrastructure would need to be developed progressively in the system to connect hydrogen demand to supply, with a heavy reliance on the ability to repurpose existing natural gas infrastructure.

The policy and industrial developments of the past eighteen months are a step in the right direction to address the challenges facing hydrogen. Most recently, the fit-for-55 package has finally proposed some binding targets that will stimulate the uptake of hydrogen and alternative fuels in the energy mix. However, caution is still advised at the current stage, as the hydrogen regulatory and support framework remains a work in progress. The hydrogen and decarbonized gas market package is expected for the end of the year. Likewise, the new CEEAG State aid Guidelines are highly awaited to guide the design of future support schemes for hydrogen technologies. The Hydrogen4EU study points to five critical enablers to an economically optimal development of hydrogen:

- The cost of CO<sub>2</sub> emissions needs to be internalized to shift the economics in favor of clean technologies.
- Clear and transparent accounting rules of CO<sub>2</sub> are needed.
- Innovation and learning-by-doing should be fostered to bring new technologies to commercial viability.
- An increasing capital intensity of infrastructure projects calls for low-cost financing and bankability instruments for low-carbon and renewable solutions.
- Finally, the market and regulatory rules need to be clarified, to ensure system integration and coordinate supply and demand uptake.



## Policy and Regulation Radar

This section summarizes the key changes respectively in the EU or in the country regulation that may significantly affect the power and utilities companies.

### What is changing in the EU regulation?

#### European Commission proposes Fit for 55 package

Key features	Insights
<p>On 14th July 2021, the European Commission adopted the package <b>Fit for 55</b>. This package includes several proposals to make the EU's climate, energy, land use, transport and taxation policies fit for reducing net greenhouse gas emissions by at least 55% by 2030, compared to 1990 levels. This proposal contains the legislative tools to deliver on the targets agreed in the European Climate Law.</p> <p>According to the European Commission, as a result of the EU's existing climate and energy legislation, such as the European Green Deal and the European Climate Law, the EU's greenhouse gas emissions have already fallen by 24% compared to 1990, while the EU economy has grown by around 60% in the same period, decoupling growth from emissions, and contributing to meet the goals of the Paris Agreement.</p>	<p>The proposals comprehend a combination of measures such as:</p> <ul style="list-style-type: none"> <li>• Application of emissions trading to new sectors and a tightening of the existing <b>EU Emissions Trading System</b>. The Commission is proposing <b>to lower the overall emission cap even further and increase its annual rate of reduction</b>.</li> <li>• Increased use of <b>renewable energy</b>. The Renewable Energy Directive will set an increased target to produce <b>40% of the EU energy from renewable sources by 2030</b>.</li> <li>• <b>Greater energy efficiency</b>. The <b>Energy Efficiency</b> Directive will set a more ambitious binding annual target for reducing energy use at EU level: <b>39% and 36% of energy efficiency savings</b> in primary and final energy consumption respectively.</li> <li>• A faster roll-out of <b>low emission transport modes</b> and the infrastructure and fuels to support them, by requiring average emissions of new cars to <b>come down by 55% from 2030 and 100% from 2035 compared to 2021 levels</b>. As a result, all new cars registered as of 2035 will be <b>zero-emission</b>.</li> <li>• An alignment <b>of taxation policies with the European Green Deal</b> objectives, <b>promoting clean technologies</b> and <b>removing outdated exemptions</b> and reduced rates that currently encourage the use of fossil fuels.</li> <li>• Measures to <b>prevent carbon leakage</b>, by new <b>Carbon Border Adjustment Mechanism</b> will put a carbon price on imports of a targeted selection of products to ensure that ambitious climate action in Europe does not lead to "carbon leakage".</li> <li>• Tools to <b>preserve</b> and grow our <b>natural carbon sinks</b>.</li> </ul> <p>According to the European Commission, the EU's budget for the next seven years will provide support to the <b>green transition</b>. <b>30%</b> of programmes are dedicated to <b>supporting climate action</b> (Multiannual Financial Framework and NextGenerationEU). Recovery and Resilience Facility, which will finance Member States' national recovery programmes under NextGenerationEU, focuses on climate action.</p>
<h4>Next steps</h4> <p>Further proposals and amendments are expected at the end of 2021, including a revision of the Energy Performance of Buildings Directive, and new Climate, Energy and Environmental State Aid Guidelines. Afterwards, the package of measures needs to be approved by <b>European Parliament and Council</b>.</p>	

**Link:** [European Commission proposes Fit for 55 package](#)

## New Green Bond Framework of the European Recovery Plan - Next Generation approved by European Commission

### Key features

On 7th September 2021, the European Commission adopted an independently evaluated **Green Bond framework**, taking a step forward towards the issuance of up to €250 billion green bonds, or **30% of NextGenerationEU's** total issuance. The framework provides investors in these bonds with confidence that the funds mobilised will be allocated to **green projects** and that the Commission will report on its environmental impact.

The framework presumes to achieve:

- to issue up to **€250 billion** in green bonds (until 2026).
- to **foster investments**, innovation and the strategic autonomy of Europe's economy.
- to **make the European Union the largest Green Bond issuer** in the world.

### Insights

The Framework determines to the investor **community how the funds raised by the NextGenerationEU green bond** issuance will be used for green objectives.

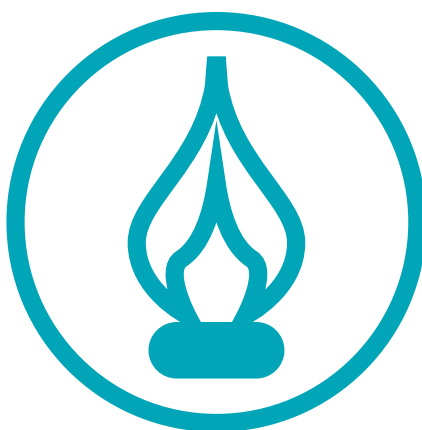
The NextGenerationEU green bond proceeds will finance the share of climate-relevant expenditure in the Recovery and Resilience Facility y. **Every Member State has to dedicate at least 37% of their national Recovery and Resilience Plan** – the roadmap to spending the funds under the Recovery and Resilience Facility – to climate-relevant investments and reforms, with many Member States planning to do more than required.

**Member States will report to the Commission the green expenditures** that they make. The Commission will use that information to show to investors how the green bonds proceeds have been used to finance the green transition.

### Next steps

Following the release of the framework, the launch of NextGenerationEU green bonds is imminent, with the first issuance already planned for October 2021, using the syndicated issuance format.

**Link:** [New Green Bond Framework of the European Recovery Plan - Next Generation approved by European Commission](#)



## Commission launches €785 million call for clean energy infrastructure projects

### Key features

The European Commission launched on 7th September 2021 a new call for proposals for **key cross-border EU energy infrastructure projects** included on the 4th Union list of Projects of Common Interest (PCIs), to be co-financed through grants worth **785 million €** from the EU budget.

This is the first call for PCIs under the new **Connecting Europe Facility (CEF)** rules, the European support program for trans-European infrastructure.

### Insights

The new CEF-Energy budget for **the 2021-2027 period, worth 5.83 billion €**, and its mission is to introduce the role that energy infrastructure plays in the European Green Deal and the transition to a climate neutral economy. The work programme adopted in August 2021, provides **2.4 billion € of funding** for key European energy infrastructure projects for the **period 2021-23**.

**To apply for funding under CEF-Energy**, projects must first be part of the most recent list of PCIs, which the Commission adopts every two years. To be defined as a PCI, projects must have a **significant benefit for at least two EU countries** and must increase competitiveness, enhance the EU's energy security and contribute to sustainability.

### Next steps

A CEF Energy info day was held on 14th September 2021 on the call for proposals for PCI. Hence, a **fifth PCI list is being prepared** and will be published before the end of the year, based on the existing TEN-E Regulation.

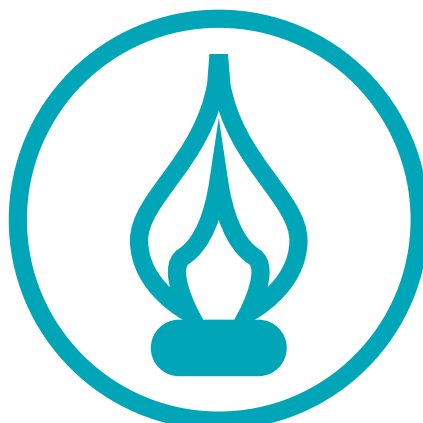
**Link:** [Commission launches €785 million call for clean energy infrastructure projects](#)



Spain			
Topic	Key features	Insights	Next Steps
<b>The Spanish Recovery Plan: Progress and Calls up to September 2021</b>	Since the launch of the Spanish <b>National Recovery and Resilience Plan</b> and its approval by the European Commission on the 16th June 2021, the Council of Europe has approved the Plan and accordingly to the schedule the first <b>9 billion euros have been assigned</b> .	<p>The following calls have been launched:</p> <ul style="list-style-type: none"> <li>• Royal Decree-Law 477/2021, regulating the administrative, technical and economic conditions of <b>electric self-consumption</b> in Spain. The funds are up to <b>660 million euros (such as a first part of the program)</b>.</li> <li>• <b>DUS 5000 Program:</b> Clean energy and sustainable mobility projects in municipalities with demographic challenges (<b>75 million euros</b>).</li> <li>• <b>MOVES II Singulares:</b> the Program will promote <b>innovative projects and experiences in electric mobility</b>. The amount of the fund is <b>100 million euros</b>.</li> <li>• The Council of Ministers approved the first <b>PERTE</b> (Strategic Project for Economic Recovery and Transformation within the scope of the Recovery Plan). The expected outcome of this Project will be the development of an ecosystem for the manufacture of the <b>Electric and Connected Vehicle</b>. The foreseen investment amounts <b>24,000 million euros</b> in the period <b>2021-2023</b>, with a contribution from the public sector of c. 4,295 million euros and a <b>private investment of c. 19,714 million euros. 250,000 electric vehicles are expected to register by 2023</b> and between <b>80,000 and 110,000 recharging points will be developed</b>.</li> </ul>	In the following months new calls will be launched.
<b>Spanish Government presents a package of urgent measures to reduce the impact of the rise of natural gas prices</b>	The purpose of this law is to mitigate the impact of the rise in natural gas prices on the retail gas and electricity markets.	<p>The Royal Decree-Law includes the following relevant measures:</p> <ul style="list-style-type: none"> <li>• <b>Reduction of the Special Tax on Electricity to 0.5% and suspension until the end of the year of the Power Generation Tax.</b></li> <li>• Increase of <b>900 million euros</b> in the contribution from the <b>CO<sub>2</sub> auctions</b> destined to cover costs of the electricity system.</li> <li>• The growth of the gas tariff (TUR) is restricted to prevent a strong increase due to the impact of the cost of raw materials.</li> <li>• The <b>Water Law is modified</b> to prioritize the use of water for environmental and social purposes.</li> <li>• A <b>reduction of the remuneration applicable to power plants with no emissions</b>.</li> </ul>	Some of these measures will be applicable until March 31, 2022, such as the mechanism for reducing the remuneration of certain facilities operating under the marginalist electricity market. The Government expects gas prices to begin falling by next March, which will help bring down the cost of electricity.

France			
Topic	Key features	Insights	Next Steps
<b>Presentation of France 2030 investment plan</b>	<p>The French Government announced a plan called <b>France 2030</b> to boost investment notably in energy transition and representing in aggregate <b>€30bn</b>.</p> <p>The plan ambitions notable to:</p> <ul style="list-style-type: none"> <li>• <b>Foster emergence of Small Modular Reactor small, starting very quickly with very clear first projects.</b></li> <li>• <b>Make France “the leader in green hydrogen”</b></li> </ul> <p>The plan built in accordance with Europe.</p> <p><b>The funding of the plan has been secured and €3bn to €4bn will be used from 2022.</b></p>	<p>To achieve these targets the France 2030 plan is translated in <b>10 objectives</b>:</p> <ul style="list-style-type: none"> <li>• To achieve these targets the France 2030 plan is translated in 10 objectives:</li> <li>• Promote the <b>emergence in France of small, innovative nuclear reactors with better waste management with €1bn invested.</b></li> <li>• Become the <b>leader in green hydrogen</b>: In 2030, France will have at least two gigafactories of electrolyzers on its soil and will massively produce hydrogen and all the technologies useful for its use and notably taking advantage from nuclear power, which allows to consume sufficient electricity to carry out electrolysis.</li> <li>• Decarbonize industry: Reduce <b>greenhouse gas emissions by 35% compared to 2015</b></li> </ul> <p><b>More than €8bn will be invested to achieve these first three objectives.</b></p> <p><b>The next 7 objectives are:</b></p> <ul style="list-style-type: none"> <li>• Produce nearly 2 million electric and hybrid vehicles.</li> <li>• Produce the first low-carbon aircraft. Almost €4bn will be invested in this transport of the future.</li> <li>• Invest €2bn in healthy, sustainable and traceable food.</li> <li>• Produce 20 biomedicines against cancer and chronic diseases.</li> <li>• Place France again at the forefront of the production of cultural and creative content.</li> <li>• Take full part in the new space adventure.</li> </ul> <p>Invest in the field of the seabed.</p>	<p>The condition of implementation of France 2030 should be released in the coming months</p>
<b>French Government presents a package of urgent measures to reduce the impact of the rise of Energy prices</b>	<p>To prevent the exceptional rise in energy prices from weighing on households, the Government announced several measures to reduce the impact on consumer bill and to protect the purchasing power of the French</p>	<p>Key features of measures announced are:</p> <ul style="list-style-type: none"> <li>• <b>Freeze of regulated gas prices.</b> The target is that, all next winter, the regulated gas tariff will never exceed the October 2021 tariff.</li> <li>• <b>Regulated prices for the sale of electricity should not increase by the end of 2021</b> and increase in the regulated electricity tariff should be limited to 4% in early 2022. For a person heating with electricity, this increase will materialize on his bill to the tune of 5 euros per month.</li> </ul>	<b>Reaction of French energy regulatory commission is to be followed</b>

Italy			
Topic	Key features	Insights	Next Steps
<b>Governance of the National Recovery and Resilience Plan (PNRR) and measures to strengthen administrative structures and to speed up administrative procedures.</b>	<p>The purpose of this Law is to promote the energy transition and specifically: new renewable energy plants, biogas production, energy efficiency interventions and infrastructures for electric vehicles.</p> <p>The list of “Projects, works and infrastructures needed to achieve the objectives of the National Plan for Energy and Climate (PNIEC)”, subject to the competence of the Technical Commission PNRR-PNIEC, was confirmed. The main novelties regard:</p> <p><b>01. Solar plants:</b> for photovoltaic plants in sites of national interest or in areas where industrial plants using standard energy sources are present and in industrial areas, the <b>threshold</b> for the performance of the <b>regional environmental screening procedure is now 10 MW</b>. In addition: a) the construction and operation of solar plants until <b>20 MW</b> can be realized through a simplified enable procedure (<b>PAS</b>) instead of a Single Authorization, in case the plants are connected to the medium voltage grid and located in industrial, productive or commercial areas or in closed and restored landfills or caves not suitable for further exploitation;</p> <p>b) solar plants on agricultural areas (“<b>agro-photovoltaic plants</b>”) can access incentives in case they adopt integrative solutions, with vertical assembly of modules, which do not compromise the continuity of agricultural cultivation activities, even with modules on ground in agricultural areas;</p> <p><b>02. “Non-substantial” interventions of plants’ modification:</b> the Law specified the interventions for which a simple communication to the competent Municipality is needed (instead of a request of authorization). Such interventions are e.g. for wind plants, the ones giving a maximum height of the new installations not higher than twice the height of the existing wind turbine.</p> <p><b>03. Biofuels and biogas:</b> the by-products used as feedstock for biogas plants for producing biomethane through the biogas purification are recognized suitable feedstock for the production of advanced biofuel. In addition biogas plants with electrical power non exceeding 300 kW or part of the production cycle of an agricultural or livestock enterprise carried out by farmers, even in consortium form, can access the incentives of MD 23 June 2016</p>	<p>The purpose of the Simplification Bis Decree is to define the national regulatory framework aimed at simplifying and facilitating the achievement of the objectives set out in the National Recovery and Resilience Plan (PNRR).</p> <p>Renewable energy plants (solar plants and wind farms) and plants for the production of energy from residues and waste are those having a more favorable framework according to this law.</p>	<p>The Italian Government is going to allocate to each Public Administration competent for the promotion of the projects and infrastructures of the PNIEC specific economic resources for each intervention.</p>



Italy			
Topic	Key features	Insights	Next Steps
	<p><b>04. Infrastructures for electric vehicles:</b> the construction of charging points and stations is identified as a “free building activity”. Who intends to install an infrastructure for the electric vehicle charging service on a public land must submit to the Public Administration owner of the road both the application for occupation of the public land and for the construction of the charging infrastructure and the relevant works for connection to the distribution network.</p> <p><b>05. Energy efficiency:</b> The tax deduction 110% Superbonus is extended to interventions aimed at removing architectural barriers and to those carried out on buildings in cadastral categories B/1, B/2 and D/4. The buildings in category D/2 (hotels and inns) are excluded. A specific new form for the communication of commencement of works (CILA) is introduced for the Superbonus.</p>		
<p><b>Publication of the MEF decree for the allocation of PNRR financial resources.</b></p> <p>Ministerial Decree of August 6, 2021, published on September 24, 2021</p>	<p>This decree concerns “Allocation of financial resources for the implementation of the interventions of the National Recovery and Resilience Plan (“<b>PNRR</b>”) and allocation of targets”. It defines the resources of the PNRR for the competent administrations of the different interventions and the timeline of objectives/targets by 2026.</p> <p>With reference to energy sector, the decree assigns financial resources to the Ministry of Ecologic Transition (MiTE) for the development of:</p> <ul style="list-style-type: none"> <li>• <b>Superbonus for energy efficiency of buildings:</b> total amount of Euro €14bn of which €3.7bn for new projects;</li> <li>• <b>Renewable energies for energy communities and self-consumption:</b> €2.2bn for new projects;</li> <li>• <b>Smart grid:</b> €3.6bn for new projects;</li> <li>• <b>Agro-photovoltaic plants:</b> €1.1bn for new projects;</li> <li>• <b>Hydrogen:</b> €0,5bn for new projects;</li> <li>• <b>Electric charging infrastructures:</b> €0,7bn for new projects.</li> </ul> <p>The Minister of Economic Development (MISE) is competent for renewable energies and batteries/storages in general having an amount of financial resources of €1bn for new projects.</p>	<p>The Ministry of Ecologic Transition (MiTE) will issue specific measures for the development of energy efficiency of buildings; renewable energies for energy communities and self-consumption, smart grid, agro-photovoltaic plants, hydrogen and electric charging infrastructures.</p> <p>The operators should consider the financial resources given to the MiTE and MISE for their business plans and should look the next public notices of such Ministers.</p>	<p>The Ministry of Ecologic Transition (MiTE) and the Minister of Economic Development (MISE) will issue soon specific measures in order to invest the financial resources obtained for the energy transition in the different sectors specified on the side.</p>
<p><b>Urgent measures to contain the prices of electricity and gas.</b></p>	<p>With reference to the <b>electricity prices</b>, the Italian Regulatory Authority for energy, networks and environment (<b>ARERA</b>) is going to annul for the fourth trimester 2021 the general system's charges for domestic and non-domestic users in low tension (with power until 16.5 kW).</p> <p>In addition, the general system costs will be partially compensated through the use of a quota equal to € 700 mln coming from the auctions of CO<sub>2</sub> and the transfer to the Cassa per i Servizi Energetici e Ambientali of additional resources of EUR 500 mln.</p>	<p>The Italian Government adopted the law decree no. 130 of September 27, 2021, to contain the increase of the prices in the electric and gas sector.</p>	<p>ARERA will monitor the prices of electricity and gas and will issue specific resolution to contain the increase of such prices.</p>

Italy			
Topic	Key features	Insights	Next Steps
	<p>With reference to the gas prices, for the trimester October-December 2021 ARERA will determine again the benefits for clients with economic difficulties in order to reduce the increase for the gas supply until the achievement of EUR 450 miln.</p>		<p>This law shall be converted into law within November 27, 2021: some amendments can be inserted on these matters.</p>
<p><b>GSE procedures for the admission into registries and auctions for incentives to renewable energy plants: the sixth procedure closed and the seventh opened</b></p>	<p>On September 27, 2021, the Gestore dei Servizi Energetici S.p.A. ("GSE") published the rankings of the plants enrolled in the Registries and Auctions for the sixth procedure set forth under the Ministerial Decree of 4 July 2019 ("FER1 Decree").</p> <p>With reference to Group A regarding onshore wind farms and new solar plants, the GSE has enrolled in the Auctions (plants over 1 MW) no. 595,3 MW of plants (on the total 800 MW available) and in the Registries (plants under 1 MW) no. 103 MW of plants (on the total 120 MW available). With regard to Group A2 concerning solar plants on roofs removing asbestos under 1 MW the GSE has enrolled in the Registers no. 78,4 MW (on the total 200 MW available).</p> <p>Lastly, on September 30, 2021 the GSE has launched the seventh and last call for tender for the enrollment of renewable energy plants in Registries and Auction. All the calls for tenders are now published. This last procedure assigns a huge quantity of MW for the access to incentives.</p>	<p>The last tender of the GSE may assign:</p> <ol style="list-style-type: none"> <li>01. For plants under 1 MW to be enrolled in Registries: 240 MW for Group A (onshore wind and solar plants);, 200 MW for Group A2 (solar plants on roof removing asbestos); 20 MW for Group B (hydroelectric and gas residual plants), 40 MW for Group C (renovation of wind, hydro and residual gas plants).</li> <li>02. For plants over 1 MW to be enrolled in Auctions: 1600 MW for Group A; 40 MW for Group B; 200 MW for Group C..</li> </ol>	<p>Being this tender the last one, this is a big opportunity for renewable energy operators to obtain their right to access incentives considering the huge quantity of MW available for incentives.</p> <p>The operators shall send their on-line applications within October 30, 2021.</p>





United Kingdom			
Topic	Key features	Insights	Next Steps
<b>UK energy price cap and decision on the potential impact of COVID-19</b>	<ul style="list-style-type: none"> <li>Ofgem confirmed the energy price cap increase of £139 which came into play on 1<sup>st</sup> October. This 12% increase was driven by the surging gas prices, which rose to a record high in Europe. Analysts forecast the price cap will rise significantly again in the next price cap from April 2022.</li> <li>Alongside this, Ofgem have published their final decision not to introduce a further float in cap period seven (October 2021 – March 2022) to adjust the default tariff cap for additional debt-related costs as a result of the COVID-19. This is in line with consultations from Q2 2021.</li> </ul>	<p>The default tariff price cap means suppliers can only pass on legitimate costs of supplying energy and cannot charge more than the cap. This protects the 11 million households on default or variable rate metres. It is adjusted biannually based off the latest estimated costs to supply energy – the most unpredictable component of this is the wholesale cost of electricity and gas.</p> <p>This quarter has seen wholesale gas prices jump to almost ten times the level recorded in Q1. As a result, since the start of August, ten UK energy suppliers have folded. Price caps will rise or fall to reflect changes in wholesale prices, thereby allowing suppliers to partly pass on the rising cost to supply to consumers.</p> <p>In February 2021, Ofgem concluded that the COVID-19 pandemic had resulted in additional debt related costs and an additional allowance in the cap level was therefore added. The additional allowance was set up as a float for periods six and seven which would then be reassessed using final costs. Ofgem reviewed suppliers' forecasted debt-related costs and the forecasts of key economic metrics. They found no significant evidence that suppliers are likely to incur material additional costs due to COVID-19 in cap period seven.</p> <p>These additional allowances were introduced in response to the widespread disruption by the pandemic and their purpose is to improve the efficient functioning of the energy market.</p>	<p>Ofgem published the cap level for the seventh cap period on 6<sup>th</sup> August 2021. This level and the decision to not introduce a float will come into force from 1<sup>st</sup> October 2021</p> <p>The next price review is 31<sup>st</sup> March 2022.</p> <p>When suitable data becomes available, Ofgem will decide if it is appropriate to review COVID-19 costs for cap period seven.</p>
<b>Design of a business model for low carbon hydrogen</b>	<ul style="list-style-type: none"> <li>The Department for Business, Energy and Industrial Strategy published a consultation paper to seek views on the preferred design of a low carbon hydrogen business model.</li> <li>The consultation document sets out: <ul style="list-style-type: none"> <li>The approach to the business model design including the options for addressing the key challenge of setting the reference price for the variable premium price support mechanism.</li> <li>Seven options for the reference price: input energy price, natural gas price, counterfactual fuel price, achieved sales price, market benchmark price, carbon price and natural gas plus carbon price. In this context the reference price will influence the incentive for end users to switch to hydrogen, and the price which they are willing to pay for hydrogen.</li> <li>Proposed positions on key design features</li> </ul> </li> </ul>	<p>In the 2020 UK Energy White Paper the government laid out their ambition to deliver 5GW of low carbon hydrogen production capacity by 2030. The objective of the business model is to achieve this ambition by overcoming the high cost barrier to the use of low carbon hydrogen, in comparison with high carbon fuels.</p> <p>This consultation provides an opportunity for power and utility companies to provide views on the proposals. Within this, the determination of the reference price is a crucial element which will drive take up in targeted end use sectors.</p>	<p>Parties are invited to respond to the consultation which closes on 25<sup>th</sup> October 2021</p> <p>All responses will be analysed and published in Q1 2022 with the aim to finalise the business model in 2022. This will enable the first contracts to be allocated from Q1 2023.</p>

Germany			
Topic	Key features	Insights	Next Steps
<b>Regulation for hydrogen grids</b>	<p>When decarbonising Germany, hydrogen should play a special role as a versatile energy carrier. Thus, German parliament adopts amendment to the Energy Industry Act (EnWG): regulation of hydrogen networks is to be introduced:</p> <ul style="list-style-type: none"> <li>• Aim is the introduction of regulation</li> <li>• gradually building up a hydrogen infrastructure in Germany</li> <li>• regulations are intended as a <b>transitional solution until the corresponding European requirements are in place.</b> The EU Commission has announced that it will submit proposals for this by the end of 2021. Implementation into German law is expected from 2025. According to § 112b EnWG, against this background, an adjustment of the regulatory framework for the common regulation and financing of the gas and hydrogen networks in the light of the evolving Union law basis is sought in the medium term.</li> </ul> <p>So far, there are only a few hydrogen lines in this country that are not regulated as direct lines used in industry. According to the reasons for the law, existing or future hydrogen lines should not necessarily be subject to regulation against this background. Rather, this should be left to the decision of the line operator. However, it is assumed that with the progressive formation of connected hydrogen networks there will be a need to regulate them comprehensively.</p> <p>Hydrogen is defined independently</p> <p><b>Hydrogen is now basically placed alongside gas as an independent energy source.</b> However, this should only apply to pure hydrogen lines.</p> <p>The existing legal framework remains for the admixture of hydrogen in the natural gas network. Under the new definition, hydrogen is also only considered to be energy within the meaning of the EnWG, insofar as it is used for line-based energy supply. The non-line supply is not recorded.</p>	<p>Hydrogen networks are not fully regulated</p> <p>Section 28j EnWG gives operators of existing networks and networks to be newly built a one-time and irrevocable right to choose whether or not they want to be subject to the newly introduced regulation of hydrogen networks. This also applies to the conversion from natural gas pipelines to hydrogen. The right to choose applies holistically to the operator, not to individual lines. Anyone who decides against the regulation will not be covered by the requirements for network access, charging and unbundling. However, despite the fact that it cannot be changed by the network operator, this decision should only be valid for the time being. Because the legislator assumes that in the medium term the introduction of comprehensive regulation for all connected hydrogen networks will be necessary.</p> <ul style="list-style-type: none"> <li>• Negotiated grid access returns</li> <li>• Accounting and bookkeeping are to be separated</li> <li>• Unbundling rules must be observed</li> <li>• greater degrees of freedom with regard to grid fees</li> <li>• 9% equity interest for new investments</li> </ul> <p>Grid costs are made up of the</p> <ul style="list-style-type: none"> <li>• Expenses equivalent to costs,</li> <li>• the imputed depreciation,</li> <li>• the imputed return on equity and the</li> <li>• imputed taxes,</li> <li>• minus the cost-reducing proceeds and income.</li> </ul> <p>The decision not to include hydrogen under the term gas, but to define it independently as "energy", can in individual cases lead to questions of delimitation within the complex catalog of definitions of the EnWG. But also with other legal norms outside of the EnWG, which refer directly or indirectly to the term gas, which according to the EnWG only covers certain forms of application of hydrogen, question marks are preprogrammed.</p>	<p>Transitional provisions relevant to gas grid operators</p>

Germany			
Topic	Key features	Insights	Next Steps
<b>German national emissions trading – Sales started</b>	The CO <sub>2</sub> pricing for the heating and transport sectors is a central climate protection measure in Germany. The Fuel Emissions Trading Act (BEHG) regulates the introduction of a national emissions trading system (nEHS) from 2021.	So that the participating companies can gradually adapt to the newly introduced national emissions trading (nEHS), the Fuel Emissions Trading Act (BEHG) provides for an introductory phase in which the certificates are initially sold at fixed prices (2021 to 2025). We already explained the mechanisms in our last newsletter. The federal government laid down the general conditions for the sale in December 2020 in the Fuel Emissions Trading Regulation (BEHV). In 2026 the auction phase begins with a price corridor, after which an auction with free pricing is possible on the market.	The first sales started in October 2021. Admission to purchase on EEX has been possible since September.
<b>Redispatch 2.0 (NABEG)</b>	<p>Redispatch is understood to mean interventions in the generation capacity of conventional power plants (previously with an installed capacity of more than 10 MW) in order to protect line sections or transformers from overload. If there is a threat of a bottleneck at a certain point in the grid, power plants are instructed to reduce or increase their feed-in. This creates a load flow that counteracts the bottleneck.</p> <p>The overarching goal of Redispatch 2.0 focuses on the more cost-effective and non-discriminatory elimination of plannable and non-plannable network bottlenecks in local and regional areas. The network management should consequently be optimized and the costs for eliminating network bottlenecks should be reduced.</p> <p>Redispatch 2.0 stands for the new regulations for dealing with bottlenecks in the power grid. The Network Expansion Acceleration Act (NABEG 2.0) merges the previous redispatch and feed-in management into Redispatch 2.0. According to this, from October 1, 2021, all conventional systems and systems for renewable energies with an installed capacity of 100 kW or more and all distribution network operators (DSOs) are obliged to participate in the redispatch.</p>	<p>With Redispatch 2.0, the total costs from conventional redispatch and feed-in management are to be optimized and thus the network charges are to be reduced. The introduction of Redispatch 2.0 will mean that more actors will (have to) postpone their planned electricity production in order to avoid network congestion than today. At the moment it is only conventional power plants that are implementing such a shift based on the requirements of the TSOs. In future, network operators will also have to consider renewable energy systems and CHP systems in the redispatch process. Another central change that Redispatch 2.0 brings with it and will also increase the number of systems affected is that with Redispatch 2.0, all systems from 100 kW are included. Previously, only systems &gt; 10 MW were affected by the measures. Distribution network operators will have a completely new role in redispatch.</p> <p>The new tasks of the DSO are therefore:</p> <ul style="list-style-type: none"> <li>• daily feed-in forecasts</li> <li>• Ensure network effectiveness</li> <li>• Calculate flexibility constraints at junctions</li> </ul> <p>In addition, accounting, management and billing must be converted to the new requirements.</p> <p>The regulations for feed-in management from renewable energy and CHP systems will be repealed with Redispatch 2.0. The feed-in management system as we know it today will be transferred to Redispatch 2.0 on October 1<sup>st</sup>.</p>	<p>Since October 2021, The following plant/system operator are required to participate in Redispatch 2.0:</p> <ul style="list-style-type: none"> <li>• Renewable energy systems with installed power &gt; 100 kW</li> <li>• CHP systems with installed capacity &gt; 100 kW</li> <li>• Systems &lt;100 kW, provided that they can already be controlled by a network operator</li> </ul>

Germany			
Topic	Key features	Insights	Next Steps
		<p>Plant operators are not spared from Redispatch 2.0 either. An essential task is the communication of the master data, master data changes and unavailability of the system to the network operator. With the help of this data it is possible to determine the optimal shutdown sequence of the affected systems. The legislature has not yet determined all the details regarding the Redispatch 2.0-related tasks for plant operators. What is certain, however, is that plant operators will bear numerous new obligations and will thus be given significantly more responsibility. However, this responsibility can be transferred to a person responsible for operations, e.g. the virtual power plant as a direct marketer. Plant operators who do not want to be responsible themselves from October 1<sup>st</sup> must then appoint a person responsible for operations who will take on these obligations for them.</p>	



# Snapshot on surveys and publications

## Deloitte

### **The future of power – July 2021**

The EU reinforces its commitment to the Paris agreement and to becoming the world's first climate-neutral continent by 2050. Still, power generation in the EU produces almost one-third of the direct CO<sub>2</sub> emissions – what can sustainable future scenarios look like for the sector?

[Link to the survey](#)

### **The decarbonized power workforce – June 2021**

Decarbonization by 2035 could be a catalyst for workforce transformation. The future is digital, and power companies should act now to tap into new talent pools. This report explores how the power sector is expected to grow, and the workforce composition to change, to meet the new proposed target.

[Link to the survey](#)

### **Smart energy management for industrials – May 2021**

This report focuses on converging trends that will likely accelerate industrial companies' adoption of energy management solutions and potentially boost their interaction with electric utilities and the grid.

[Link to the survey](#)

## Agencies or research institutes

### **International Energy Agency**

#### **Electricity market report – July 2021**

The IEA examines the full spectrum of electricity markets issues. Through its work, the IEA advocates policies that will enhance the reliability, affordability and sustainability of energy in its 30 member countries, 8 association countries and beyond.

[Link to the survey](#)

#### **Security of Clean Energy Transitions – July 2021**

This report examines the evolving nature of energy security in the context of clean energy transitions in general and on the pathway to net-zero emissions in particular. It highlights emerging energy security concerns and provides recommendations to foster international collaboration, notably within the Group of Twenty (G20).

[Link to the survey](#)

#### **Gas Market Report, Q3 2021 – July 2021**

This new quarterly report offers a medium-term forecast and analysis of global gas markets to 2024, as well as a review of recent developments in major regional gas markets during the first half of 2021.

[Link to the survey](#)

#### **Hydropower Special Market Report – July 2021**

This report is dedicated to hydropower. It highlights the economic and policy environment for hydropower development, addresses the challenges it faces, and offers recommendations to accelerate growth and maintain the existing infrastructure. This report presents ten-year capacity and generation forecasts for reservoir, run-of-river and pumped storage projects across the globe.

[Link to the survey](#)

#### **Financing clean energy transitions in emerging and developing economies – June 2021**

This special report aims to address the challenge of mobilising investment and finance to support clean energy transitions in the emerging and developing world. This is based on detailed analysis of successful projects and initiatives, including almost 50 real-world case studies – across clean power, efficiency and electrification, as well as transitions for fuels and emissions-intensive sectors.

[Link to the survey](#)

#### **Tracking SDG7: The Energy Progress Report – June 2021**

The Energy Progress Report monitors global, regional and country progress on the three targets of the United Nations Sustainable Development Goal 7. This report aims to determine whether current policy ambitions are meeting the SDG 7 targets and, second, to identify what additional actions, including investments, might be needed.

[Link to the survey](#)

### **Net Zero by 2050 – July 2021**

This report sets out clear milestones – more than 400 in total, spanning all sectors and technologies – for what needs to happen, and when, to transform the global economy from one dominated by fossil fuels into one powered predominantly by renewable energy like solar and wind.

[Link to the survey](#)

### **World Energy Investment 2021 – June 2021**

This year's edition of the World Energy Investment report presents the latest data and analysis of how energy investment flows are recovering from the shock of the Covid-19 pandemic, including full-year estimates of the outlook for 2021. It examines how investors are assessing risks and opportunities across all areas of fuel and electricity supply, efficiency and research and development.

[Link to the survey](#)

*In order to gain access to studies and analysis from IEA you have to create an account to be able to download the above publications.*

## **European Commission**

### **Natural gas price control – August 2021**

Gas price controls in the past have often been grossly inappropriate, and a source of major distortions, welfare losses and delay of industry development. In turn, these failures have indirectly entailed adverse social and environmental impacts, as other more costly and/or polluting fuels have been burned instead of natural gas.

[Link to the survey](#)

### **The EU electricity network codes and guidelines – August 2021**

This paper ambitions to help a reader without detailed legal knowledge to understand some of the legal terms of the NCs and GLs, to consider: their legal nature, how various market players (stakeholders), as well as regulatory and governing authorities at national and European level are involved in the development and adoption processes of NCs and GLs, who can raise legal challenges.

[Link to the survey](#)

### **A systemic approach to the energy transition in Europe – July 2021**

The European Green Deal aims to reach net-zero greenhouse gas emissions in Europe by 2050. This paper examines how the European Commission can contribute to the preparation for, acceleration, and facilitation of the clean energy transition in the EU.

[Link to the survey](#)

### **Hydrogen generation in Europe: Overview of costs and key benefits – July 2021**

This report provides the evidence base established on the latest publicly available data for identifying investment opportunities in the hydrogen value chain over the period from 2020 to 2050, and the associated benefits in terms of jobs, covering the full value chain, from the production of renewable electricity as the energy source for renewable hydrogen production, and hydrogen trucks and buses.

[Link to the survey](#)

### **Regional measures under risk preparedness in the electricity sector – June 2021**

This study addresses the regional dimension of electricity crises management in the European Union and elaborates on the national and regional rules and procedures that are relevant for the definition of target measures and regional cooperation agreements.

[Link to the survey](#)

### **Research and innovation in low-emission alternative energy for transport in Europe – May 2021**

The Strategic Transport Research and Innovation Agenda (STRIA) roadmap on low-emission alternative energy for transport was updated in 2020. This report provides a comprehensive analysis of research and innovation in low-emission alternative energy for transport in selected European Union (EU) funded ongoing projects with end dates from 2019 onwards.

[Link to the survey](#)

## Eurelectric

### **Presidency manifesto 2021: making the Green Deal a reality with electrification – May 2021**

The report underlines the advantage of electricity to deliver a sustainable and cost-efficiency energy transition across EU Member States, benefitting all business and individual consumers, creating jobs and supporting communities in their energy transition. To achieve these objectives, the Presidency team has defined four pillars of its shared vision of the EU Green Deal.

[Link to the survey](#)

### **Distribution grids: the missing link of the energy transformation – April 2021**

Distribution grids are the new center of a decarbonized electricity system. As policymakers mull over a fit for purpose recovery plan, Eurelectric urges them to priorities investments in a future proof electricity infrastructure. Optimized distribution grids coupled with flexibility sources, will be critical to deliver on the Green Deal's carbon neutrality objectives.

[Link to the survey](#)

## Oxford institute for Energy

### **The Energy Transition: Key challenges for incumbent and new players in the global energy system – September 2021**

The paper provides the overall context of the need for a rapid energy transition, addresses a number of key issues in the energy transition including key drivers of policy and regulation and highlights how technology could play in developing solutions and reducing costs. The potential impact on the value chain is also analyzed, looking at the future of networks, and interactions with consumers.

[Link to the survey](#)

### **Market-based allocation and differentiation of access rights to network capacity in distribution grids – July 2021**

The paper sets out the background for differentiated network access, pricing, and auctions as mechanisms for capacity allocation. It also illustrates the equivalence between both approaches (listed pricing and market-based allocation) and discusses design options for access products, market rules, to limit the potential shortcomings of market-based allocations.

[Link to the survey](#)

### **Beyond Energy: Incentivizing Decarbonization through the Circular Economy – April 2021**

This paper focuses on solutions to enhance decarbonization and meet net zero carbon targets. The circular economy – a traditional concept in the economics of production and management of resources that has typically been adopted at the organizational level – can be a strong complement to existing policies in enhancing decarbonization through non-energy means.

[Link to the survey](#)



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