



European utilities witnessing sustained growth in power demand

**Insights about the European power
and utilities industry**

KPMG Global Energy Institute

Q2-Q3 2021



Contents

1	Executive summary	1
2	Prices & margins: Rise in power demand	2
3	Financial performance: How have European P&U companies performed?	13
4	Mergers & acquisitions: Post-COVID growth halted	17
	Appendix	19

1 Executive summary

During 9M21 (9 Months of 2021), power prices in Europe skyrocketed, driven by a surge in wholesale gas and power prices globally. Further, lower gas supplies, longer heating season in 2020–21 and unfavorable weather conditions for producing renewable energy resulted in an undersupply. To a lesser extent, increased carbon price under the Emissions Trading System (ETS) also contributed to the adverse market situation. This will likely result in inflated electricity bills in the upcoming winter months. In 3Q21, European coal-fired generation became more economical than gas-fired ones, as clean dark spread was above clean spark spread. Gas-fired generation decreased and coal-fired generation increased, both q-o-q and y-o-y.

In 2Q21, the KPMG P&U 20 reported a q-o-q decline in revenue and EBITDA, similar to second quarters of the two previous years. In 3Q21, the KPMG P&U 20 reported revenue growth supported by higher power and gas prices along with higher volumes of trade. Further, during the quarter, KPMG P&U 20 reported steady EBITDA growth driven by improved operational performance.

During 2Q–3Q 21, leading European utilities continued to invest in long-term CapEx program to propel their renewables portfolio.

During 2Q–3Q 21, the European power & utilities sector witnessed a slump in the total deal value, owing primarily to high-value deals being executed in 1Q21 and 4Q20. The top five P&U industry M&A deals during 2Q21 and 3Q21 accounted for 51 percent of the overall deal value (which was EUR47.4 billion), of which the sale by Suez of its Water & Waste business accounted for EUR10.7 billion.

Energy transition is expected to dominate the power & utilities sector for the immediate future. Forty-six countries, including European nations such as the UK and Germany, agreed to phase out coal at the COP26 climate conference in Glasgow, Scotland, implying a rise in investments in the renewable energy sector.

Europe's focus on achieving its ambitious environmental targets will drive the closure of more and more thermal and nuclear baseload generation plants, which renewables will find difficult to fully replace over the next 3 years, leading to tightening of power supply and rise in electricity prices. European power companies are expected to direct their profits towards energy transition related-projects, driving domestic and inbound deal activity.

2 Prices & margins: Rise in power demand

Electricity price evolution: Power prices driven by wholesale gas and power prices globally

During 9M21 (9 Months of 2021), power prices in Europe skyrocketed, driven by a surge in wholesale gas and power prices globally. Further, lower gas supplies, longer heating season in 2020–21 and unfavourable weather conditions for producing renewable energy resulted in an undersupply. To a lesser extent, increased carbon price under the Emissions Trading System (ETS) also contributed to the adverse market situation.ⁱ This will likely result in inflated electricity bills in the upcoming winter months.

Although the European Union is gradually cutting down its fossil fuels consumption, the shift has not been fast and widespread enough. Natural gas and coal still account for more than 35 percent of the EU's total production, with gas representing over a fifth share. The energy mix is vastly different across the bloc: fossil fuels have a marginal share in Sweden, France and Luxembourg, but take up more than 60 percent of total production in the Netherlands, Poland, Malta and Cyprus; additionally, in Germany, coal unseated wind power as the biggest energy contributor to the German network in the first 6 months of 2021).ⁱⁱ

Central Western Europe

During 2Q21, electricity price in Germany witnessed a steady rise. Price growth during the quarter was driven by easing travel restrictions and inhibited by strong wind output. In May, **the spot power prices averaged EUR53.3/Megawatt hour (MWh), which was the highest for the month since 2011.** During June, the spot power prices in Germany increased to average around EUR80.4/MWh driven by high fuel prices and lower wind power generation (below 2.0 Gigawatt (GW)). A partial solar eclipse observed in June reduced the photovoltaic power generation in northern Europe by 4.9GW.ⁱⁱⁱ

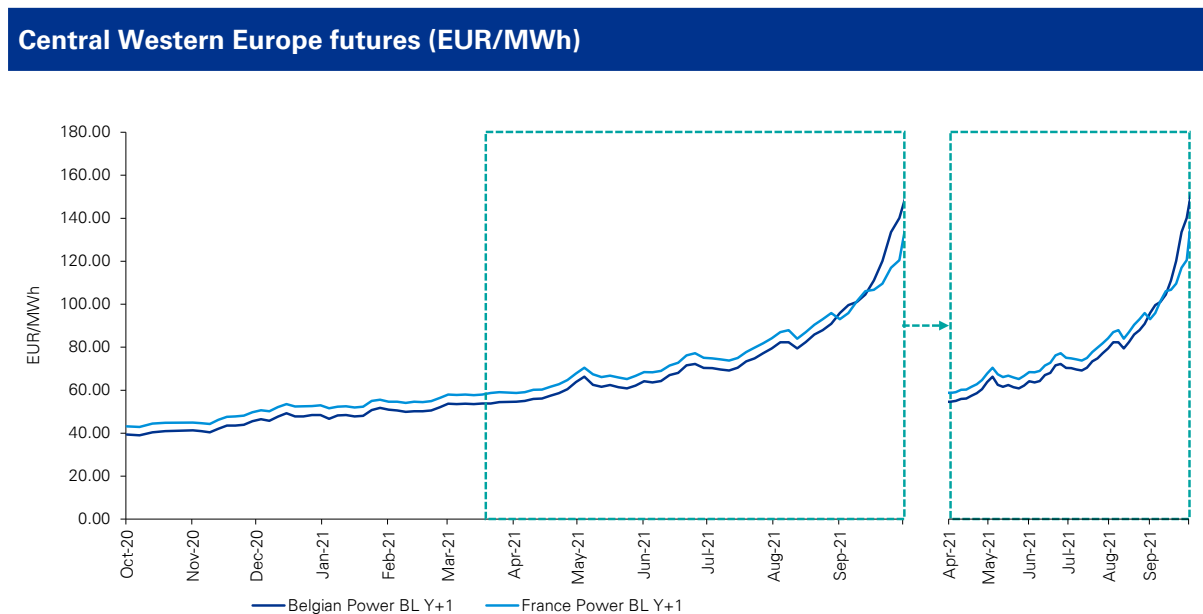
During 3Q21, spot power prices in Germany were mostly driven by hot weather conditions resulting in stronger demand. Power production from renewable sources dropped 12 percent y-o-y in July. Solar power generation was moderate (~8.2GW) and supported the rise in **spot power price.**^{iv} In August, the average and peak demand in Germany were 54.7GW and 64.0GW respectively, mostly due to low wind output and warmer weather.^v In September, limited amount of wind output was found responsible for the hiked power prices.^{vi}

Overall, Germany's rise in power use in the first half of 2021 was observed at 5 percent to 252.2 Terawatt hour (TWh).

During 2Q21, Belgium produced a record more than 3.7TWh of low carbon electricity consecutively for 4 months. This constituted more than 50 percent of all electricity produced in the country supporting a drop in the power prices in the month of May.^{vii} In June, around 20 nuclear power reactors in France were reported to be offline, lowering the capacity from 61.4GW to 40.7GW due to maintenance and unplanned outages leading power prices to climb.^{viii}

In 3Q21, **during the month of July, the nuclear availability was scheduled above the average mark creating pressure on French and Belgian Power discounting prices.** Also, nuclear output in 1H21 was up 4 percent y-o-y to 181.6TWh. This has led to a slow downturn to the power futures in the month of July for overall central western Europe.^{ix}

Figure 1: Central Western Europe electricity price futures, October 2020 to September 2021



Note: (a) Futures denotes the future trade value of the commodity with an agreement to buy/sell the underlying asset at the set price regardless of the current market price at the expiration date. For example, Year(Y)+1 denotes the agreement expiration a year ahead; Year(Y)+2 denotes agreement expiration 2 years ahead. (b) This chart has been recreated from an image and is indicative of the electricity price futures in Central Western Europe. Source: EnergyMarketPrice

In August, Belgian and Dutch power prices were around EUR100.0/MWh due to the reduction in wind generation and cooler temperature. France regained as top European power exporter in the first half of the year, as nuclear generation recovered from the impacts of the pandemic.^x

In September, French nuclear power generation rose 20 percent y-o-y in September to 28.0TWh, while demand hit a record low. There was also a rise in price of European power purchase agreements (PPA) which rose 9 percent to EUR50.7/MWh.^{xi}

During 2Q21, power price in Spain and Italy reflected the power demand recovery in Europe, driven by easing restrictions and improving outlook. Power demand in Spain in May 2021 increased by nearly 11 percent y-o-y (to 19TWh), while power generation increased by nearly 14 percent y-o-y.

The spot power prices in Spain crossed EUR90/MWh four times in June supported by **high European carbon and gas prices, low wind generation and hot weather** (boosting demand for cooling). High prices led Spain to bring a proposal to suspend the 7 percent tax charged on power generation. Further, a development in retail bills was observed to reduce power prices burden on consumers — as per the demand for the day, three price categories were devised by the Spanish Government in the retail bills (effective from 1 June) to reduce spiralling costs.^{xii}

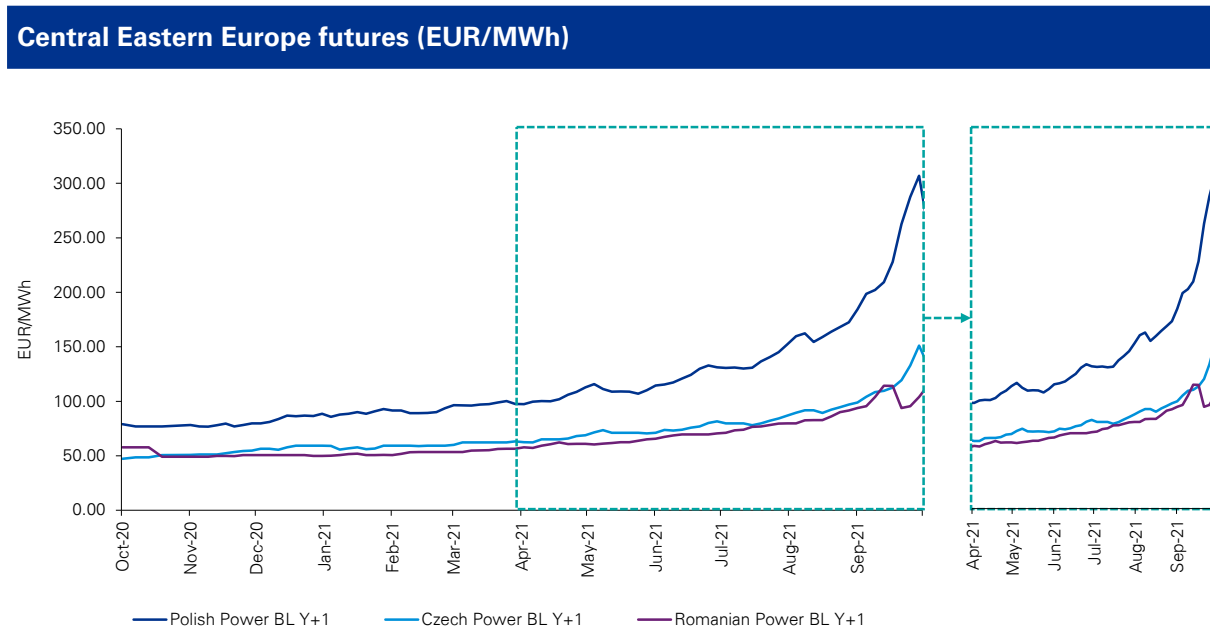
During 3Q21, European commission approved Italy’s plan to compensate energy-intensive companies for higher electricity prices (indirect emissions costs) to provide stability against rising electricity prices.

In August, power prices in Spain averaged above EUR100/MWh amid multi-year high gas prices, tight supply and record carbon prices. Domestic spot prices also doubled y-o-y in August due to a rebound in economic growth. On 26 August 2021, the price of electricity in Spain rose to a record high of EUR122.76/MWh.^{xiii}

Central Eastern Europe

In Central Eastern Europe, during 2Q21, Poland demonstrated more focus on supply security in terms of power by increasing exports by more than 50 percent and decreasing imports by 8 percent (3.3TWh) y-o-y in April.^{xiv} Polish power consumption rose 14 percent y-o-y in May to 13.8TWh and output increased by 21 percent y-o-y leading to stable increase in power prices.^{xv}

Figure 2: Central Eastern Europe electricity price futures, October 2020 to September 2021



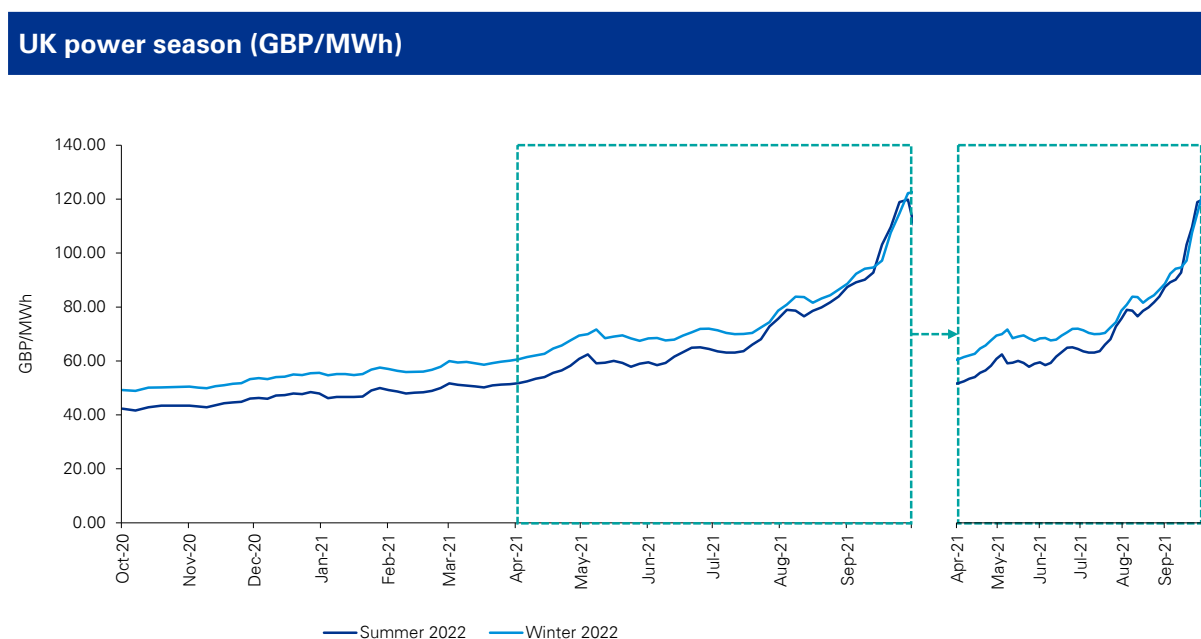
Note: (a) Futures denotes the future trade value of the commodity with an agreement to buy/sell the underlying asset at the set price regardless of the current market price at the expiration date. For example, Year(Y)+1 denotes the agreement expiration a year ahead; Year(Y)+2 denotes agreement expiration two years ahead. (b) This chart has been recreated from an image and is indicative of the electricity price futures in Central Eastern Europe. Source: EnergyMarketPrice

During 3Q21, Central Eastern Europe, witnessed a boom in power purchase agreements (PPA) among corporations, driven by rising focus on energy transition and net zero emissions. PPA prices increased by 4 percent month on month (m-o-m) in July, supported by record high carbon, gas, and coal prices.^{xvi}

During August, power prices in Poland increased, mostly due to rise in consumption (by nearly 9 percent y-o-y) while imports declined (by 25 percent).^{xvii} During September, Poland's power consumption rose 3 percent y-o-y, to 13.9TWh while stronger output (~16 percent, 14TWh) supported the prices.

United Kingdom: In the UK, power prices in April soared to above EUR1,000/MWh amid prolonged heatwave forecasts, rising gas demand and decreasing renewable output.

Figure 3: UK electricity price futures, October 2020 to September 2021



Note: (a) Futures denotes the future trade value of the commodity with an agreement to buy/sell the underlying asset at the set price regardless of the current market price at the expiration date. For example, summer 2022 denotes the agreement expiration in the summer of 2022. (b) This chart has been recreated from an image and is indicative of the electricity price futures in the UK. Source: EnergyMarketPrice

UK's power production was heavily dominated by gas-fired generation while renewable power contribution in the UK energy mix averaged only 25 percent of the overall production; this was lowest since November 2019. Higher gas prices further led to a rise in power prices in May 2021.^{xviii}

Great Britain exported the most expensive electricity in Europe during June due to the regulatory differences and higher carbon and grid costs. Also, **Nordic spot prices averaged around EUR43/MWh, a 10-year high amid dry weather and low wind conditions.**

The electricity prices in UK rose by more than 15 percent in 2Q21 compared to 1Q21 and the average day-ahead electricity prices rose by 15 percent to GBP72.2/MWh in 2Q21 compared to 1Q21.

In the UK, the renewable power sources accounted for their lowest share in August 2021 since January 2019 due to low wind power generation, resulting in a further rise in power prices. The country announced a GBP450 million fund to decarbonize its energy networks in the long run.^{xix}

During September, the benchmark European gas prices increased by 250 percent y-o-y in, due to low stock levels, high demand in Asia and infrastructural outages. This resulted in record high power prices in Britain and across Europe.

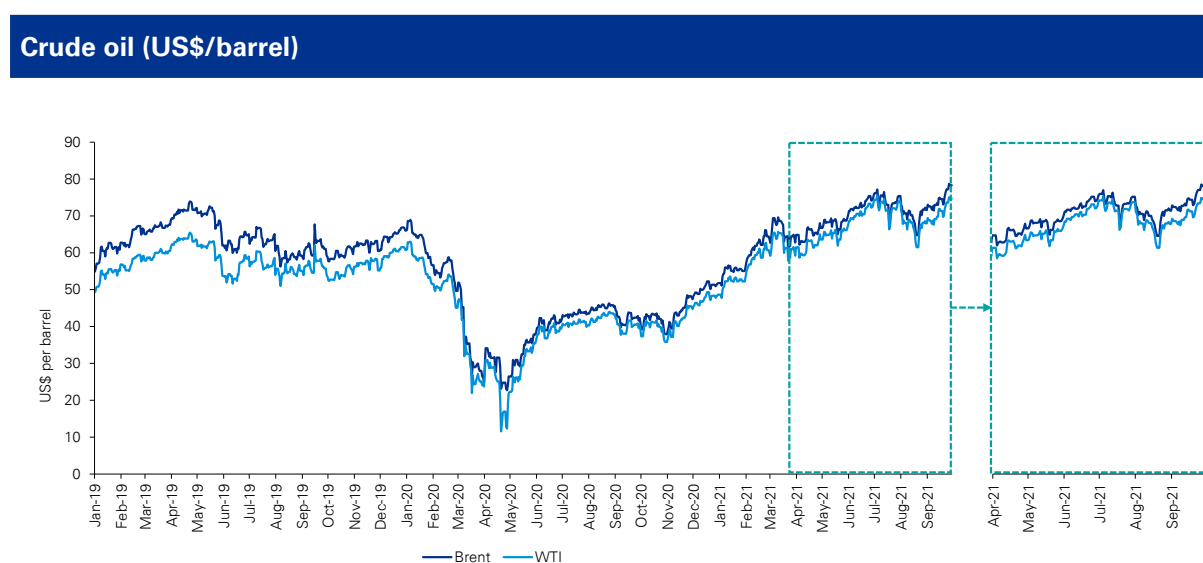
In September 2021, two UK-based electric utility companies, People Energy and Utility Point, announced they would be shutting down operations due to the surge in energy prices.^{xx} Several other smaller energy companies were also expected to go bust amid soaring wholesale gas prices.^{xxi}

Fuel and gas price evolution: Rise in price driven by recovery in consumption, decreasing oil stocks and regulatory production restrictions.

In 2Q21, the minimum and maximum price of Brent Crude oil was US\$62.0/barrel and US\$75.0/barrel respectively and that of West Texas Intermediate (WTI) was US\$65.0/barrel and US\$72.0/barrel respectively. **There was a steady rise in oil prices throughout 2Q21. This was supported by**

various reasons and trends, such as increased annual oil demand outlook, drop in oil stocks in the US, strong recovery in consumption and limited output.

Figure 4: Crude oil prices, January 2019 to September 2021



Source: S&P Capital IQ

In April, Brent and WTI prices increased to peak (during the last week of April) at US\$68.0/barrel and US\$65.0/barrel respectively, driven by rising demand and low crude inventories in the US. As per industry data, there was a drawdown in the oil stocks in the US and an expectation of strong demand outlook.^{xxii}

In the month of May, Brent prices increased to peak (during the third week of May) at US\$70.2/barrel and WTI to US\$65.6/barrel, driven by sustained recovery in oil demand and rebound in the consumption.^{xxiii}

In June, Brent prices jumped to peak (during the last week of June) at US\$75.2/barrel and WTI to US\$74.0/barrel, driven by a decline in US crude stockpiles and a delay in OPEC+ meeting, which resulted in continuing limited production.^{xxiv}

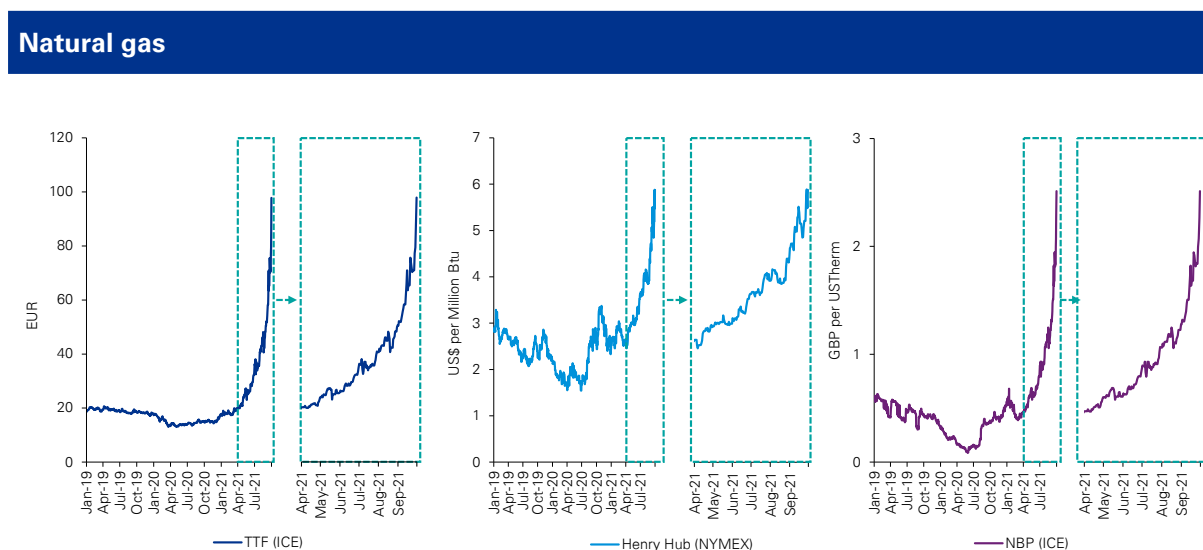
In 3Q21, the minimum and maximum price of Brent Crude oil was observed at US\$65/barrel and US\$78/barrel respectively and that of WTI was observed at US\$61.0/barrel and US\$75.0/barrel respectively. **The prices dropped in the first half of Q3 and then there was a rise observed in later part of the quarter. Key reasons driving the drop in prices included OPEC+ agreement to boost production, a surge in COVID delta variant cases, an increase in US rig count and low oil demand outlook** by international agencies. The increase in the latter half of 3Q21 was because of lower output and the impact of Hurricane Nicholas in the US Gulf of Mexico.

In July, the Brent and WTI prices slightly declined, reaching lowest (third week of July) at US\$71.6/barrel and US\$69.5/barrel respectively, as OPEC+ agreed to boost production (as they settled on a deal and agreed to increase output), there was a surge in the coronavirus Delta variant, and demand uncertainty.

In August, Brent and WTI prices fell to lowest (third week of August) at US\$70.0/barrel and US\$67.5/barrel respectively due to weak oil demand outlook (according to International Energy Agency (IEA)), spreading Delta variant of coronavirus and an increase in the US rig count.

In the month of September, Brent and WTI rose to peak (third week of September) at US\$78.2/barrel and US\$74.8/barrel respectively, as OPEC+ nations struggled to meet output quota in August and lower production in the US because of Hurricane Nicholas disruptions.

Figure 5: Natural gas prices, January 2019 to September 2021



Source: S&P Capital IQ

EU, Henry Hub and NBP (National Balancing Point) natural gas prices continued to increase during 2Q21 averaging US\$25.3/MMBTU (Metric Million British Thermal Unit), US\$3.0/MMBTU and US\$0.6/MMBTU respectively, primarily driven by colder weather, higher carbon prices and lower inventory.

In 2Q21, EU border, US Henry Hub and NBP average prices increased by 38 percent, 11 percent, and 29 percent respectively, compared with 1Q21. On an annual basis, average prices of EU border, US Henry Hub and NBP Natural gas, increased by 83 percent, 65 percent and 352 percent respectively.

In April and May 2021, NBP prices were mostly above the TTF (EU Border) benchmark, due to colder weather conditions, low LNG berthing, high demand for gas inflows from European continent, and maintenance works on Norwegian infrastructure. The impact was also observed in the gas flows to the UK. Lower gas inventories in Europe and record high carbon prices also led to a peak in natural gas prices. Further, a surge in TTF gas prices was observed because of the suspension of Sino-Australian economic dialogue.

In the last week of June, European gas storages were 33bcm (billion cubic meter) or 25 percent below the level compared to last year (June 2020), which also reflected upon the prices.^{xxv xxvi}

EU, Henry Hub and NBP natural gas prices continued to increase during 3Q21, averaging US\$48.5/MMBTU, US\$4.3/MMBTU and US\$1.2/MMBTU respectively, primarily driven by climatic hazards, lower investments, and storage crunch (because of inconsistent pipeline imports).

In 3Q21, EU border, US Henry Hub and NBP average prices increased by 232 percent, 88 percent and 362 percent respectively, compared with 2Q21. On an annual basis, average prices of EU border, US Henry Hub and NBP Natural gas increased by 83 percent, 65 percent and 352 percent respectively.

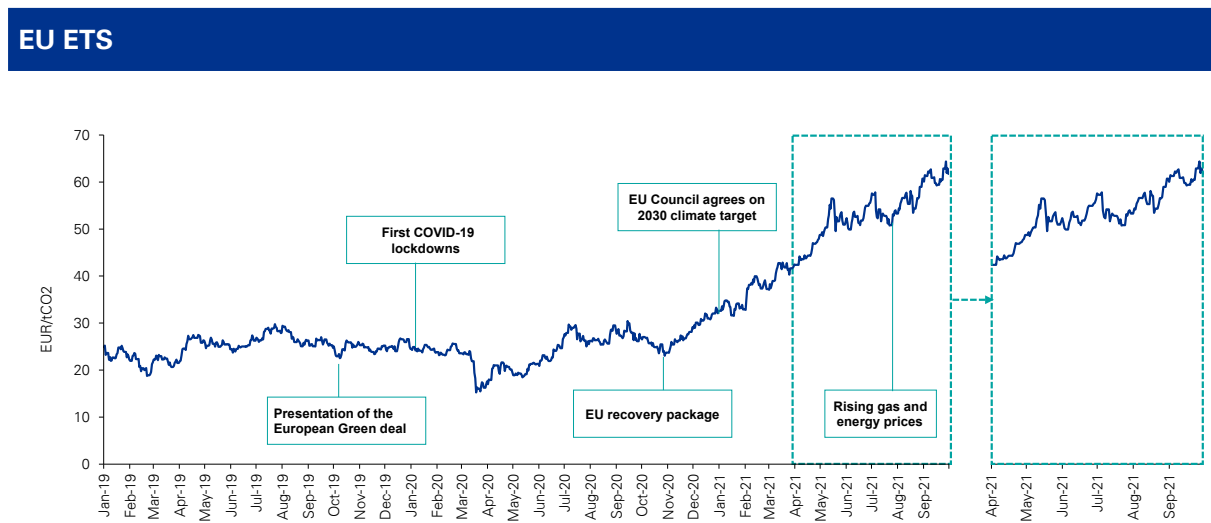
Gas prices increased to record highsm, mostly because of the long-term impact of slowdown in the gas production for last 2 years. This was mostly due to a drop in investments in production drilling, combined with climatic hazards globally (polar vortex and deep freeze in February, hurricanes, etc.). This indirectly impacted the storages which could not therefore be sufficiently refilled until July.

During the month of August, natural gas prices were under pressure and hit their highest monthly levels over past decades. This was mostly due to insignificant storage space, reduction of both regional production and inconsistent pipeline imports globally (mostly from Russia and Norway), strong demand for air conditioning linked to high temperatures and record-high carbon prices.

In September 2021, there was a major disruption on the production side in the Gulf of Mexico due to Hurricane Ida. Also, a price rally was observed consequently after the fire causing damage at the IFA France-Britain power interconnector site in the UK during the second week of September.^{xxvii xxviii}

Carbon and coal price evolution: Rise in price driven by recovering demand, coal phase-out outlooks

Figure 6: Carbon price, January 2019 to September 2021

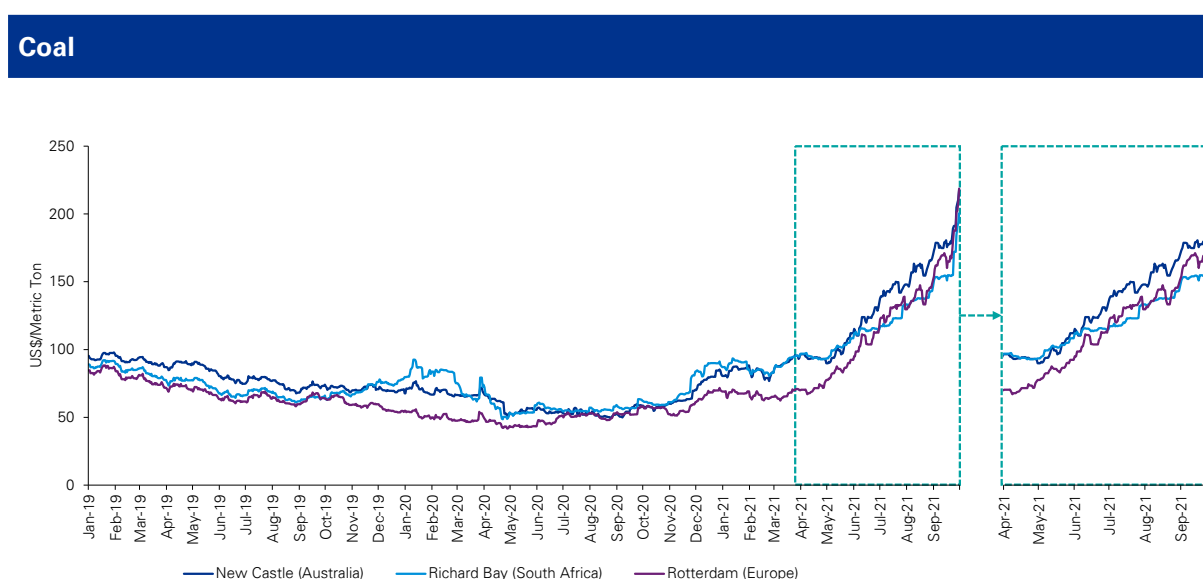


Source: S&P Capital IQ

During 2Q–3Q21, economic activities were back on track and there was an increase in utility demand amid rising gas and power prices. Soaring gas prices led to a relative attractiveness towards coal as a cheaper substitute for energy production. This also added to an increase in the purchase of EUAs (European Union Allowances), further driving up carbon prices throughout the period. Though, compared to the price of power, this still allowed a profitable coal-based power generation.

The combination of a faster-than-expected reduction in allowances and increased demand led to a sharp increase in EUA prices, to average around EUR60.0/tCO₂.^{xxix}

Figure 7: Coal price, January 2019 to September 2021



Source: S&P Capital IQ

In 2Q21, Australian and South African coal prices continued to rise throughout the quarter, averaging around US\$105.4/mt (million tonnes) and US\$103.5/mt during 2Q21, representing 22 percent and 17 percent rise compared to 1Q21 respectively. Several factors impacted the coal prices, such as supply constraints, weather conditions, speculative market activity and uncertain coal production outlook by agencies. The rise in coal prices was also due to the return of power demand in general as a subsequent result of easing lockdown.

Coal API2 (European Coal) prices averaged US\$87.5/mt in 2Q21, 31 percent above 1Q20. The prices were impacted by European countries' announcement of coal phase-out targets. For example, in April, German energy regulator announced the second coal phase-out (1.5GW capacity to be taken offline by December 2021). Germany has also announced an ambitious climate target with a view of the country exiting coal as early as 2030. Also, climate ministers from G7 countries agreed to end the financing of coal-fired plants overseas and decarbonized power systems in 2030s.^{xxx}

During May, coal prices were mostly impacted by declining imports (for consecutively 12 months) as coal shipments to Asia decreased by 10 percent y-o-y (to 74m tonnes).

In June, prices were driven by improving demand from China. Further, benchmark coal prices in Asia Pacific hit their highest levels from the last 13 years, topping US\$125 amid strong demand and supply constraints. Consequently, multi-year highs in prices in China and supply issues in Columbia added to the upside of coal prices.^{xxxi}

In 3Q21, Australian and South African coal prices continued to rise throughout the quarter, averaging around US\$162/mt and US\$140/mt, representing 54 percent and 35 percent rise compared to 2Q21 respectively. The prices were supported by increasing demand in Asia, improving trade outlook, warm summers and low stock levels. Several other factors also impacted the coal prices, such as natural hazards like floods, and hurricane and maintenance shutdowns.

Coal API2 prices averaged US\$147.3/mt in 3Q21, 68 percent above 2Q21. Coal API2 price increased due to weak stock levels in Europe, flooding disaster in Germany and tight exports from South Africa. The impact was also observed through high demand of electricity due to hot weather conditions and rising imports.^{xxxii}

In July, the soaring gas prices made coal more attractive for power generation and pushed the demand further, mostly due to warm summer and weak stock levels. Inventories at Amsterdam, Rotterdam and Antwerp (ARA) were at 4.3m tonnes, down by 4 percent (lowest since May).^{xxxiii}

During August, gas shortage caused by the maintenance activities at the Norwegian gas field and the reduction in Gazprom’s supplies from Russia to the EU — strengthened European coal prices. The prices were driven by improving market recovery and rebound in power demand, high demand for electricity in several European countries owing to hot weather.^{xxxiv}

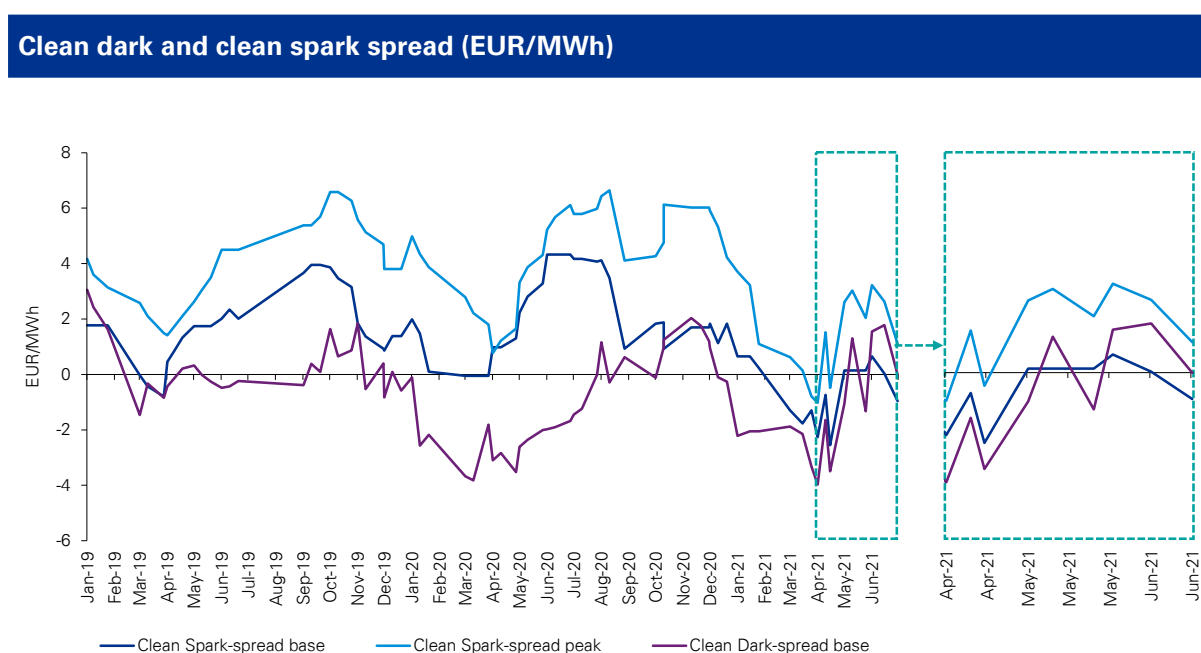
In September, coal exports from the key Australian port of Newcastle declined by 5 percent amid disruptions to vessel loadings, due to port congestion and ongoing Chinese restrictions on imports. The low storage levels in China and India resulted in worries around the preparation of the upcoming winter season coal requirements and imports. There was damage to the US coal export infrastructure following Hurricane Ida impacting the loading of coal ships. The floods and power cuts also affected coal export operations at international maritime terminals (IMT).^{xxxvxxxvi}

Clean dark and clean spark spreads: Coal-fired units remain more profitable than gas-fired units

European gas storage stocks struggled to recover in 2Q21 following the cold winter (4Q20-1Q21), leaving Europe extremely short on gas. Thus, natural gas prices in Europe have risen sharply and have allowed coal to become more economical during summer.

The rise in economical coal generation was reflected in the steep decline in the clean spark spread and the increase in coal-fired generation during 2Q21.^{xxxvii xxxviii}

Figure 8: Dark and spark spreads, January 2019 to June 2021



Note: This chart has been recreated from an image and is indicative of the Europe clean and dark spreads. Source: BTU Analytics

German gas-fired generation fell in July because of high European gas prices, and hard coal generation exceeded gas-fired generation and lignite topped the power mix. The coal and gas-fired power margins diverged with clean spark spread for 50 percent efficiency and the equivalent dark spreads for 45 percent efficiency. As per S&PGlobal Platts Analytics, the year ahead clean spark spread turned negative in August 2021.

Italy experienced the most profitable coal-fired power generation in 2Q21. Italy and Spain presented spikes in the profitability for an average coal-fired plant, despite rising coal and carbon prices. Clean dark spreads in Italy averaged EUR2.0/MWh in 2Q21.

Coal generation in Spain declined by 18 percent y-o-y in 2Q21, whereas German coal generators, in contrast, increased their output by 65 percent y-o-y in 2Q21, as nuclear generation has been gradually fading in accordance with the German nuclear phase-out plan and no other capacities were available as replacement to meet increasing electricity demand.

In the UK, the profitability of gas-firing power plant for electricity generation remained mostly in positive side for the plants with an average efficiency during 2Q21. The highest clean spark spreads in 2Q21 were assessed in Spain (EUR9.0/MWh), followed closely by the UK (EUR8.0/MWh). The lowest was presented in Germany during May (EUR14.0/MWh).

Gas-fired generation volumes largely corresponded to the movement of spreads in respective markets. The total EU gas generation reached 116.0TWh in the 2Q21, up by 9 percent compared to 2Q20.^{xxxix}

European gas-fired generation output in 3Q21 was 21.0TWh (18 percent) down q-o-q and 55.0TWh (37 percent) lower y-o-y. Meanwhile, coal generation in 3Q21 was 21.0TWh (24 percent) greater than the previous quarter (2Q21) and 19.0TWh (21 percent) up y-o-y. The break-even cost of gas generation increased to such a degree that by mid-September, many times it became cheaper to generate using the least efficient coal units than the most efficient gas units.^{xl}

Renewables: Continuing momentum

Renewable power such as Biomass, wind and solar accounted for just over 25 percent of the UK's power mix in April, which was the lowest since November 2019. This was mostly due to the rise in gas share which has reached a 2-year high. Also, according to IEA, 270.0GW of renewable power capacity will be operational in 2021, followed by 280.0GW in 2022 as per various ongoing and contractual projects.^{xli}

In Europe, during 2Q21, there was 288.0TWh power production from renewable sources, which was 43 percent of total EU electricity generation. This was a 10 percent decrease from the 1Q21 which stood at 319.0TWh. In 2Q21, total generation constituted of Biomass, hydro, solar, waste and wind, which accounted for 23.8TWh, 125.1TWh, 48.8TWh, 3.3TWh and 86.2TWh respectively and was 8 percent, 44 percent, 17 percent, 1 percent and 30 percent respectively of the total renewables mix.^{xlii}

In April, Germany added 190.0MW of onshore wind capacity. The solar capacity grew by 619.0MW after the upgrade. In 1H21, Germany's total solar capacity grew by 2.8GW and accounted for a growth of 22 percent higher compared to 1H20.

Regulatory developments in 2Q-3Q21: Key takeaways

Green transition and emission reduction continues to be the primary focal point within the European P&U regulatory space. It has also been observed that hydrogen is a key priority area for the countries to achieve their net zero targets.

- **The UK** government set its Sixth Carbon Budget into law in April 2021 and through this the country plans to reduce emissions by 78 percent by 2035 compared to the 1990 levels. In August 2021, the UK Hydrogen Strategy was released by the Department for Business, Energy & Industrial Strategy (BEIS), outlining the government's approach to developing the UK hydrogen sector. The Strategy sets out requirements to enable the production, distribution, storage and use of low carbon hydrogen.
- **France** has already committed EUR70 billion of the EUR100 billion recovery plan to support economic activity and job creation. Of this a major proportion is focused on green transition, which includes, EUR6.7 billion for the thermal retrofitting of public (EUR4 billion for schools and administrative buildings, EUR500 million for social housing) and private (EUR2 billion for housing, EUR200 million for SMEs/VSEs) buildings.
- **The Netherlands Authority for Consumers and Markets (ACM)** in its publication, 'Development and regulation of hydrogen infrastructure,' argues in favor of a gradual development of infrastructure for the transmission of hydrogen, as it will play a major role in the future supply of energy and in achieving the climate goals in 2050.
- **Russia's** Ministry of Economic Development has revised the draft road map to improve energy efficiency of the Russian economy. The core emphasis now is on reducing greenhouse gas (GHG) emissions. By 2024, the country is also planning to enter large-scale production of hydrogen and begin exporting up to 200,000 tons of hydrogen per year. **Uzbekistan** too has adopted 'the Resolution of the President of Uzbekistan' on measures to develop renewable and hydrogen energy in the country. The Resolution would focus on building hydrogen energy infrastructure to promote economic energy efficiency and improve the country's energy security.

For more details, please refer to the Appendix section titled: Regulatory developments in the European P&U sector, 2Q-3Q21.

3 Financial performance: How have European P&U companies performed?

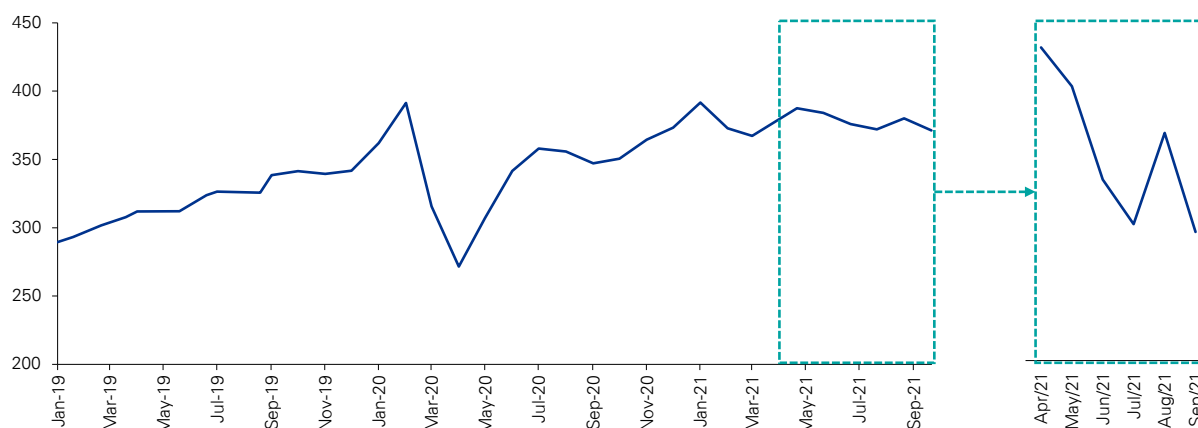
EUROSTOXX index, share prices and credit ratings: Recent decline in EUROSTOXX index and growth in quarterly and yearly average share prices in 3Q21

Post a continuous decline from April 2021 to July 2021, EUROSTOXX index peaked to an average of 380 in August 2021, after which it dropped again to 371 by the end of September 2021.

Quarterly average share prices of **KPMG P&U 20 Index** companies:

- On a q-o-q basis, about half of them witnessed an increase in 3Q21. VERBUND, Uniper and Veolia Environment witnessed highest q-o-q increase in share prices among their peers, with 21 percent, 11 percent and 9 percent growth respectively.
- On a y-o-y basis, 75 percent of them witnessed an increase, among which VERBUND (+93 percent), Suez (+58 percent) and EnBW (+55 percent) reported highest rise in share price (see Share price evolution: Overview (3Q21) in Appendix).

Figure 9: EUROSTOXX utilities index, January 2019 to September 2021



Note(s): (a) The EUROSTOXX Sector indices use the market standard [ICB Industry Classification Benchmark](#); companies are categorized according to their primary source of revenue. This categorization is then used for accurate classification of companies in their respective business environments. (b) The EUROSTOXX utilities index comprises the following 20 P&U companies: IBERDROLA, ENEL, E.ON, ENGIE, RWE, EDP ENERGIAS DE PORTUGAL, VEOLIA ENVIRONNEMENT, TERNA, FORTUM, AND ENDESA, RED ELECTRICA CORPORATION, Naturgy Energy Group, EDF, SUEZ ENVIRONNEMENT, UNIPER, ELIA GROUP, VERBUND, HERA, ITALGAS, AZA.

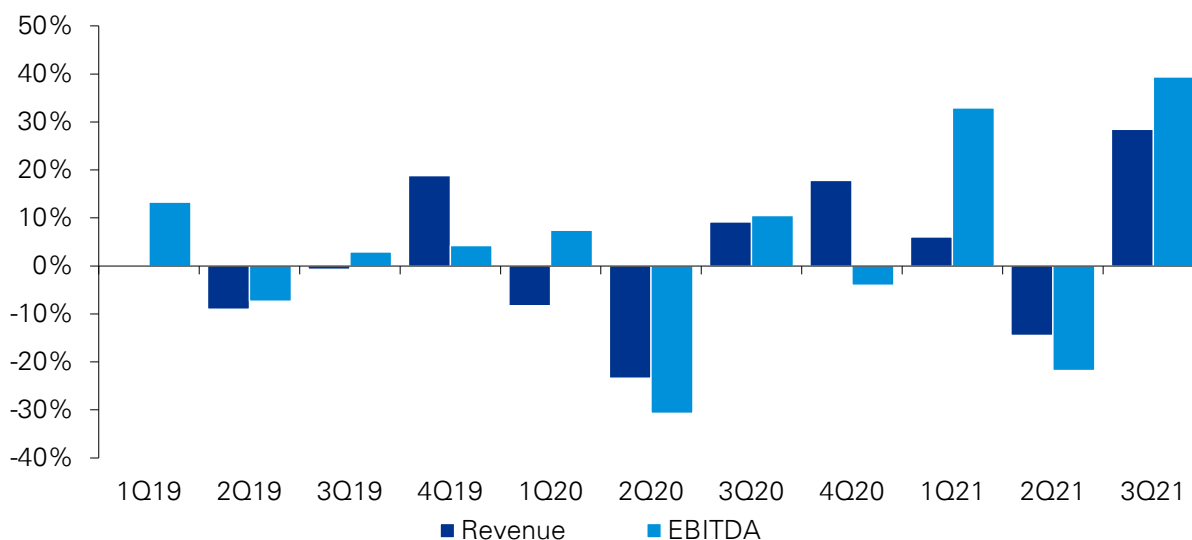
Source(s): Capital IQ, 2021

Revenue and EBITDA: Steady growth in 1Q21

For a detailed financial performance study of the European P&U industry, KPMG has shortlisted 20 P&U companies based on revenue and market capitalization — collectively known as KPMG P&U 20. Financial performance of these companies depicts a cyclical pattern with revenue and EBITDA falling in the second quarter of every year and then moving back on track to improved performance in the fourth quarter.

The industry financials follow the changes in prices of electricity, coal and other fuels driven by demand, production changes and weather conditions.

Figure 10: Industry revenue and EBITDA quarterly growth (based on median values) of KPMG P&U 20



Note(s): (a) KPMG P&U 20 includes 20 European P&U companies: CEZ, E.ON SE, Energias de Portugal (EDP), Electricité de France (EDF), EnBW Energie Baden-Württemberg, Endesa, Enel, Engie, Fortum Oyj, Iberdrola, National Grid, Naturgy Energy Group, Ørsted A/S, Public Joint Stock Company Inter RAO UES (Inter RAO), RWE Aktiengesellschaft, SSE, Suez SA, Uniper, Veolia Environment and Verbund AG. In June 2020, Innogy was incorporated into E.ON Group and hence is no more a part of KPMG P&U 20. Effective 3Q20, Verbund AG replaced Innogy in KPMG P&U 20 list. (b) 3Q 2021 median data doesn't include data for EDF, Engie and Suez, as they report half yearly financial performance. 1Q21 median data has been updated to include financial results of EDF, Engie and Suez.

Source(s): Capital IQ, 2021

In **2Q21**, most KPMG P&U 20 companies reported a q-o-q decline in revenue and EBITDA growth, similar to second quarters of previous years. EnBW, Fortum and Uniper reported the largest decline in q-o-q EBITDA growth.

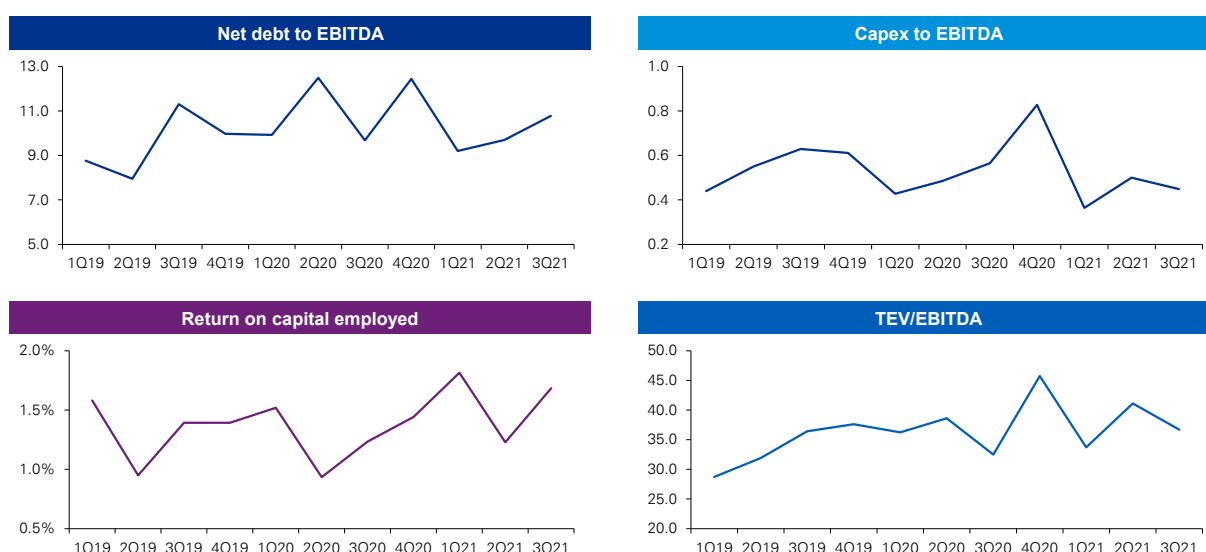
In **3Q21**, KPMG P&U 20 reported **revenue growth** in positive territory, compared with 2Q20, supported by higher power and gas prices along with higher volumes of trade. Further, the **KPMG P&U 20 reported steady EBITDA growth on a y-o-y and q-o-q basis, driven by improved operational performance**. RWE Aktiengesellschaft, Natural Energy and Uniper contributed the most to the positive movement.

Other key financial metrics: P&U players reported decline in Net Debt and CapEx

In 2Q21, the median Net Debt to EBITDA for KPMG P&U 20 companies stood at 9.7, down from 12.5 in 2Q20 and up from 9.2 in 1Q21, indicating improvement in debt position. National Grid, EDP and Fortum reported highest Net Debt to EBITDA ratios (above 25) among the KPMG P&U 20 companies during the quarter.

In 3Q21, the median Net Debt to EBITDA for KPMG P&U 20 companies stood at 10.8, vs. 9.7 in 2Q21 and 9.7 in 3Q20. National Grid, EDP and Veolia Environment reported highest Net Debt to EBITDA ratios (above 16) among the KPMG P&U 20 companies during the quarter.

Figure 11: KPMG P&U 20: Key financial metrics – Industry median



Note(s): (a) Net debt = Total debt – Total cash and short-term investments; Return on capital employed = EBIT/(Total assets – Current liabilities); TEV = Market capitalization + Book value of total debt + Book value of preferred stock + Book value of minority interest – Cash & short term investments. (b) Effective Q3 2020, industry median has been considered for the above key financial metrics, due to wide variations in financial data of KPMG P&U 20 companies. (c) 3Q 2021 median data doesn't include data for EDF, Engie and Suez, as they report half yearly financial performance. 1Q21 median data has been updated to include financial results of EDF, Engie and Suez.

Source(s): Capital IQ, 2021

In 2Q21, median CapEx to EBITDA ratio witnessed a recovery on a q-o-q basis driven by growth in CapEx expenditure of most companies. During the quarter, highest CapEx investments were made by EDF (EUR4,259 million), Enel (EUR1,807 million) and ENGIE (EUR1,332 million).

During 2021–2023, ENGIE plans to make capital investment of EUR15–EUR16 billion, driven by significant growth opportunities, particularly in renewables, energy solutions, and international networks. It expects CapEx growth of EUR5.0 billion in 2021.^{xliii}

In 3Q21, median CapEx to EBITDA ratio witnessed a drop on a q-o-q basis driven by decline in CapEx expenditure of most companies. ENEL (EUR4,126 million) and National Grid (EUR1,255 million) made highest CapEx investments during the quarter.

For 9M21, ENEL reported capital expenditure of EUR7,901 million (+20.4 percent), which was directed towards Infrastructure and Networks, Enel Green Power, end-user markets and Enel X.^{xliiv}

Median ROCE (Return on Capital Employed) of KPMG P&U 20 companies grew 1.2 percent in 2Q21 and 1.7 percent in 3Q21, vs. 1.8 percent in 1Q21.

Looking at the **valuation (TEV/EBITDA)** of P&U companies, Ørsted, Fortum and VERBUND are the large-scale companies with high valuations in the market compared to the industry average. **Median TEV/EBITDA of KPMG P&U 20 companies stood at 41.1 in 2Q21, compared with 38.6 in 2Q20 and 33.7 in 1Q21. It fell to 36.7 in 3Q21 vs. 32.5 in 3Q20.**

Driven by significant growth opportunities, particularly in renewables energy solutions, most companies in the KPMG P&U 2020, have been increasing focus on their carbon footprint targets.

Ørsted is one of the first energy companies to set a near-term science-based target for reducing emissions from power and heat generation and has the following global targets:

- Lowering GHG emissions to 10 g CO₂e/kWh by 2025, corresponding to a 98 percent reduction from a 2006 base year (scope 1 and 2).

- Reducing its absolute scope 3 GHG emissions by 50 percent by 2032, compared to a 2018 base year.
- Expanding net zero emissions to include its entire carbon footprint, committing to net-zero emissions across the company's entire value chain by 2040.

By phasing out coal and accelerating the build out of green energy, Ørsted is fully on track to meet its scope 1 and 2 target. To meet its scope 3 target, Ørsted has launched an industry-leading supply chain decarbonization program, closely engaging with suppliers to reduce emissions from the goods and services it sources.^{xlv}

Uniper Group plans to be carbon neutral for scope 2 and 3 emissions by 2050 and for the European Generation segment it plans to be carbon neutral for scope 1 and 2 by 2035.^{xlvi}

RWE plans to invest EUR50 billion gross through 2030 to expand green generation capacity to 50 gigawatts in the attractive markets of Europe, North America, and the Asia-Pacific Region. It will invest an average of EUR5 billion gross each year on offshore and onshore wind, solar, batteries, flexible generation and hydrogen.^{xlvii}

4 Mergers & acquisitions: Post-COVID growth halted

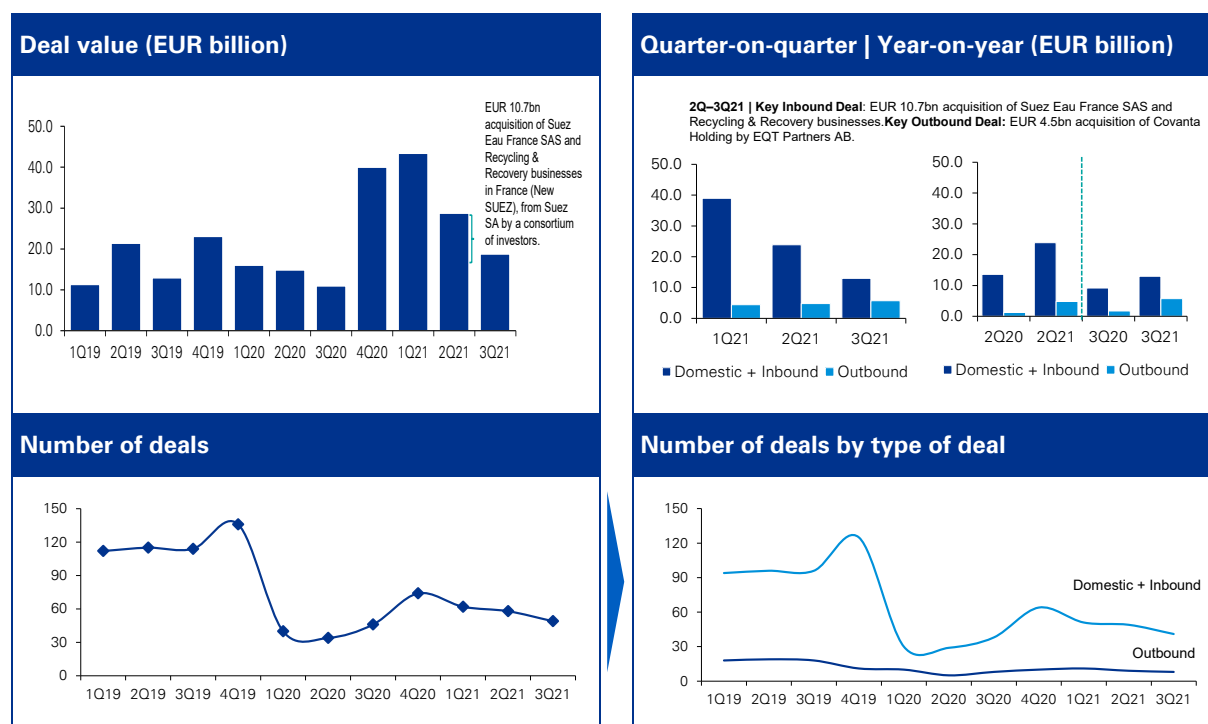
2Q–3Q21 M&A performance: Increase in deal activity

The European power & utilities sector has witnessed a slump in the total deal value over the last two quarters, owing primarily to high-value deals executed in 1Q21 and 4Q20. **In 2021 total deal value fell 34 percent q-o-q to EUR28.7 billion, from EUR43.4 billion in 1Q21. In 3Q21, the total deal value fell further by 35 percent to EUR18.7 billion.**

The top five P&U industry M&A deals during 2Q21 and 3Q21 accounted for 51 percent (EUR24.1 billion) of the overall deal value (which was EUR47.4 billion), of which the sale by Suez of its Water & Waste business accounted for EUR10.7 billion.

The top 15 deals for 2Q–3Q21 were valued at EUR36 billion and accounted for 76 percent of the total deal value. The strategic intent of these deals included geographic expansion, recycling and recovery, renewables, such as offshore wind and solar, gas distribution and achieving decarbonization goals.

Figure 12: Number and value of M&A deals in the European P&U sector, 1Q19 to 3Q21



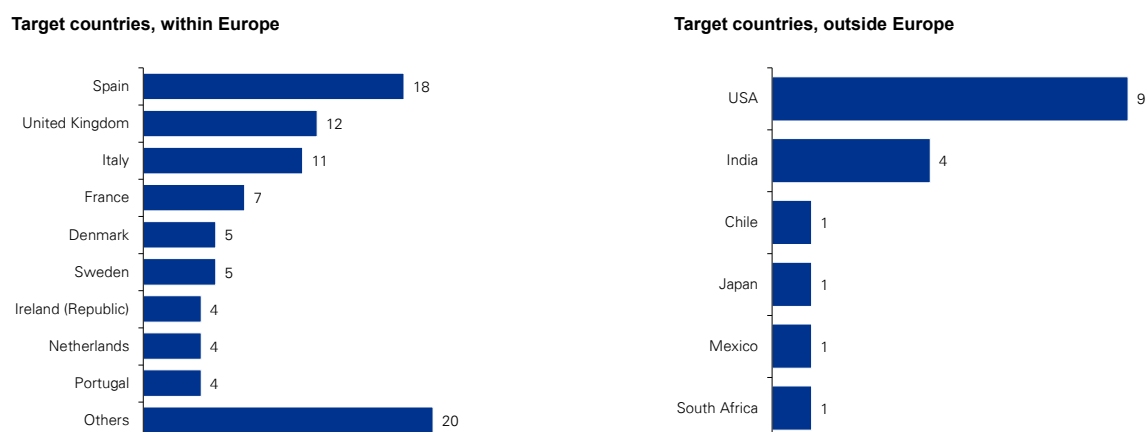
Note(s): (a) M&A deals include Domestic, Inbound and Outbound deals. Domestic M&A deals are those for which both target and buyer companies are within Europe; Inbound M&A deals are those for which target company is in Europe but the buyer company is outside Europe; Outbound M&A deals are those for which target company is outside Europe and buyer company is in Europe. (b) Deals with undisclosed deal value not included.

Source(s): MergerMarket, 2021.

In June 2021, **a consortium of investors**, including Caisse des Depots et Consignations, Global Infrastructure Partners, LLC and Meridiam SAS, **agreed to acquire Suez Eau France SAS and Recycling & Recovery businesses in France (New SUEZ), from Suez SA, for a consideration of EUR10.7 billion.** Post deal, The Consortium of investors composed of Meridiam and GIP, will own each with a 40 percent stake, and the Caisse des Depots Group with CNP Assurances,

with a 20 percent stake in New SUEZ. The deal is expected to complete simultaneously with Veolia’s New SUEZ. The deal is expected to complete simultaneously with Veolia’s and Suez’s merger public offer in late 2021, subject to obtaining the required regulatory approvals, approval from Suez shareholders and consultation of SUEZ employees (Work council). Concurrently, Veolia and SUEZ announced that they have reached an agreement to merge the two groups. **New SUEZ is expected to have a turnover of EUR7 billion.**

Figure 13: Target countries, by total number of deals, 2Q–3Q21



Note(s): Deals with undisclosed deal value not included.

Source(s): MergerMarket, 2021.

Spain recorded the highest deal activity within Europe, with 18 deals, over the last two quarters, contributing to about 17.3 percent of the total deal value. Other major target countries within Europe were the UK, Italy and France. For outbound deals, the US remains the primary target country for the European P&U companies.

The way forward

Energy transition is expected to dominate the power & utilities sector for the immediate future. With 46 countries, including European nations such as the UK and Germany, agreeing to phase out coal at the COP26 climate conference in Glasgow, Scotland, a lot investments are expected to be observed in the Renewable Energy sector.^{xlviii}

Europe’s focus on achieving its ambitious environmental targets, will lead to the closure of more and more thermal and nuclear baseload generation plants, which renewables will not be able to fully replace over the next 3 years, leading to tightening of power supply and rise in electricity prices. European power companies, anticipated to benefit from higher prices, are expected to support investments in the energy transition, leading to an increased domestic and inbound deal activity.^{xlix}

Appendix

Top 15 M&A deals, 2Q–3Q21, by deal value.....	20
Share price evolution: Overview (2Q–3Q21).....	22
Credit ratings: Overview (as of November 2021).....	23
Regulatory developments in the European P&U sector, 2Q–3Q21	24

Top 15 M&A deals, 2Q–3Q21, by deal value

Announced Date	Target Company	Target Description	Target Country	Bidder Company	Bidder Country	Seller Company	Deal Value EUR(m)	Deal Type
6/29/2021	Suez SA (Recycling & Recovery businesses in France); Suez Eau France SAS (Water)	Suez Eau France SAS and Recycling & Recovery businesses in France	France	Caisse des Depots et Consignations; Global Infrastructure Partners; Meridiam	France	Suez SA	10,700	Domestic
7/14/2021	Covanta Holding Corporation	Owner and operator of waste-to-energy and renewable projects	US	EQT Partners AB	Sweden	Not available	4,480	Outbound
4/1/2021	ACS, Actividades de Construccion y Servicios, S.A. (energy business)	Spain-based energy business of ACS, Actividades de Construccion y Servicios	Spain	Vinci	France	ACS	4,200	Domestic
5/12/2021	AVANGRID (20.1 percent stake)	US-based energy services and delivery company	US	Iberdrola SA; Qatar Investment Authority	Spain		3,304	Inbound
8/2/2021	Scotia Gas Networks Limited (33.3 percent stake)	UK-based power joint venture between Borealis Infrastructure Management, Ontario Teachers' Pension Plan (OTPP) and Scottish and Southern Energy	UK	OTPP; Brookfield Asset Management	Canada	SSE Plc	1,434	Inbound
4/7/2021	Orsted A/S (752MW Borssele 1 & 2 Offshore Wind Farm) (50 percent stake)	Netherlands-based wind farm owned by Orsted	Netherlands	Norges Bank Investment Management	Norway	Orsted A/S	1,375	Domestic
6/16/2021	Solarpack Corporacion Tecnologica	Engaged in the development, financing, construction and operation of solar photovoltaic generation plants	Spain	EQT Partners	Sweden	Not available	1,238	Domestic
7/30/2021	GRTgaz (11.5 percent stake)	French company engaged in operating, maintaining, commercializing and developing natural gas pipeline transmission systems	France	Caisse des Depots et Consignations; CNP Assurances	France	ENGIE	1,121	Domestic
9/2/2021	SOCAR Turkey Enerji (13 percent stake)	Turkish company engaged in oil refining services and production and distribution of petrochemicals and natural gas	Turkey	SOCAR Turkey Enerji	Turkey	Goldman Sachs	1,097	Domestic
4/14/2021	Helia Renovables	Spain-based operator of a 540MW Wind and Solar portfolio	Spain	Northland Power	Canada	Helia Renovables FCR	1,061	Inbound

Announced Date	Target Company	Target Description	Target Country	Bidder Company	Bidder Country	Seller Company	Deal Value EUR(m)	Deal Type
9/9/2021	Energy Vault	Swiss provider of utility-scale, gravity-based storage solution for renewable energy	Switzerland	Novus Capital Corporation II	US		1,040	Inbound
8/2/2021	ERG Hydro	Italy-based owner and operator of hydro plants, large dams and reservoirs	Italy	Enel	Italy	ERG	1,039	Domestic
6/1/2021	Beauparc Utilities Limited	Ireland-based provider of utilities and waste management services	Ireland	Macquarie Asset Management	Australia	Blackstone; Eamon Waters	1,000	Inbound
9/9/2021	DEPA Infrastructure	Greece-based company engaged in the wholesale market, trading, supply and distribution of gas	Greece	Italgas	Italy	Hellenic Petroleum; Hellenic Republic Asset Development Fund	733	Domestic
8/9/2021	RES Mediterranee	Owned fully by the RES Group, the holding company for RES' development in the Mediterranean and Middle East.	France	Hanwha Solutions Corporation	South Korea	Renewable Energy Systems Ltd.	727	Inbound

Share price evolution: Overview (2Q–3Q21)

Company	Q1 2019	Q2 2019	Q3 2019	Q4 2019	Q1 2020	Q2 2020	Q3 2020	Q4 2020	Q1 2021	Q2 2021	Q3 2021	Last Quarter Q3 2021/ Q2 2020	Last Year Q3 2021/ Q3 2020
CEZ, a. s.	21.3	20.9	20.2	20.1	18.5	17.4	17.4	17.4	20.4	23.9	25.3	6%	45%
E.ON SE	9.5	9.7	8.9	9.1	10.1	9.4	10	9.2	8.8	10.1	10.7	6%	7%
EDP - Energias de Portugal, S.A.	3.2	3.4	3.4	3.7	4.1	4	4.3	4.6	5	4.7	4.6	-2%	7%
Electricité de France S.A.	13.5	12.2	10.8	9.4	10.7	7.6	8.9	11.4	11.1	11.8	11	-7%	24%
EnBW Energie Baden-Württemberg AG	31.3	32.6	33.8	44.9	45.8	49.1	49.6	53.8	62.9	80.2	77	-4%	55%
Endesa, S.A.	21.8	22.7	23.2	24.1	22.8	20.7	23.6	23.5	21.8	22.3	20.2	-9%	-14%
Enel SpA	5.3	5.7	6.4	6.9	7.4	6.7	7.8	7.9	8.3	8.2	7.6	-7%	-3%
ENGIE SA	13.6	13.2	13.8	14.6	14.2	10.2	11.4	12	12.7	12.3	11.8	-4%	4%
Fortum Oyj	19.6	19	20.6	21.5	19.5	16	17.4	18	21.5	23.1	24.7	7%	42%
Iberdrola, S.A.	7.3	8.3	9	9.1	9.8	9.3	10.8	11.1	11.1	11.1	10.1	-9%	-6%
National Grid plc	9.6	9.4	9.4	10.5	11.4	10.4	9.7	10.1	9.8	9.2	9.4	2%	-3%
Naturgy Energy Group, S.A.	23.9	25.6	23.5	23.5	21.2	16.2	16.6	18.4	20.7	21.4	21.9	2%	32%
Ørsted A/S	63.8	71	85.2	83.5	92.7	96.9	117.4	142.7	145.9	123.1	127.4	3%	9%
Public Joint Stock Company Inter RAO UES	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0%	0%
RWE Aktiengesellschaft	21.6	22.9	25.3	26.8	29.3	27.9	32.5	33.7	34.1	32	31.6	-1%	-3%
SSE plc	13.5	12.7	12.7	15.4	17.2	14.1	14.2	15.2	16.6	15.1	15.8	5%	11%
Suez SA	11.4	12.3	13.5	13.4	13.5	10.1	12.4	16	17.4	19.8	19.7	-1%	59%
Uniper SE	25.5	26.4	28.2	28.8	27.6	25.8	28.5	27.6	30.1	30.4	33.6	11%	18%
Veolia Environnement S.A.	19	20.9	22.2	23.1	24.6	19.5	19.4	18.7	22.4	25.3	27.6	9%	42%
VERBUND AG	42.5	45.2	51.3	46.8	42.9	39.5	44.6	56	69.7	71.2	86.1	21%	93%
EURO STOXX Utilities	300.9	315.9	330.2	340.9	356.3	306.7	353.7	362.7	377.2	382.3	374.4	-2%	6%

Credit ratings: Overview (as of November 2021)

Company	S&P Rating ¹	Moody's Rating ¹	Fitch Rating ¹
CEZ, a. s.	A-	Baa1	A-
E.ON SE	BBB	Baa2	BBB+
EDP - Energias de Portugal, S.A.	BBB	Baa3	BBB
Electricité de France S.A.	BBB+	A3	A-
EnBW Energie Baden-Württemberg AG	A-	Baa1	BBB+
Endesa, S.A.	BBB+	Baa1	A-
Enel SpA	BBB+	Baa1	A-
ENGIE SA	BBB+	Baa1	A-
Fortum Oyj	BBB	Baa2	BBB
Iberdrola, S.A.	BBB+	Baa1	BBB+
National Grid plc	BBB+	Baa2	BBB-
Naturgy Energy Group, S.A.	BBB	Baa2	BBB
Ørsted A/S	BBB+	Baa1	BBB+
Public Joint Stock Company Inter RAO UES	-	Baa3	BBB
RWE Aktiengesellschaft	-	Baa2	BBB+
SSE plc	BBB+	Baa1	BBB
Suez SA	-	Baa1	-
Uniper SE	BBB	- -	-
Veolia Environnement S.A.	BBB	Baa1	BBB
VERBUND AG	A	A3	-
Mode	BBB+	Baa1	BBB

¹Quarterly rating variation: Upgrade Unchanged Downgrade

Note(s): Long-Term Credit Rating provided as on 11 November 2021; comparison made with ratings on 17 June 2021. **Please note that there has been no update in the Credit ratings over the last two quarters.**

Source: S&P Capital IQ/Moody's/Fitch, 2021.

Regulatory developments in the European P&U sector, 2Q–3Q21

Italy

Capacity Market: Updating of economic parameters

The ARERA, with the Delibera 399/2021/R/eel, has identified the economic parameters in view of the new auctions for the electricity capacity market for 2024 and 2025.

Through this Delibera, which mostly confirms the general approach already used for the 2022 and 2023 auctions, the ARERA has reduced the premium for new capacity from GBP75,000 to GBP70,000 per MW per year, while for the existing capacity, confirming the premium to GBP33,000 per MW per year.

[Link I](#)

Publication of the Annual Report on regulated services

The ARERA has published the two volumes of the Annual Report on 2020.

The first volume (State of services) contains an overview of the international and national context and the structure, prices and quality in the regulated sector of Electricity, Gas, Water Service, Waste Management and district heating.

The second volume (Activities carried out) primarily consists of an overview of the regulatory framework for each of the regulated services.

[Link II](#)

PNRR: Approval of decrees for the improvement of efficiency and sustainability in Ports and transportation

The Ministry of Sustainable Infrastructures and Mobility has signed three decrees for the implementation of some of the measures envisaged by the National Recovery and Resilience Plan (PNRR). These include investments of EUR2.8 billion for ports modernization and efficiency interventions, including energy efficiency. Also, EUR0.6 billion for the purchase of methane-powered, hydrogen-powered or electric buses for public transport, EUR0.5 billion for the purchase of electric or hydrogen trains to be used for regional railway services.

[Link III](#)

UK

UK enshrines new target in law to slash emissions by 78 percent by 2035

The UK government set the world's most ambitious climate change target by setting its Sixth Carbon Budget into law, in April 2021, which will reduce emissions by 78 percent by 2035 compared to the 1990 levels. Following recommendations by the Committee on Climate Change, the Budget limits greenhouse gas emissions volumes emitted over a 5-year period from 2033 to 2037. This Carbon Budget is the first to incorporate international aviation and shipping emissions.

[Link I](#)

Government response to consultation on changes to Supply Chain Plans and the CfD contract

In its response to a consultation on changes to Supply Chain Plans and the CfD contract, Department of Business, Energy and Industrial Strategy (BEIS) has confirmed that it will support the inclusion of an Operational Condition Precedent (OCP) for projects holding a CfD, requiring a Supply Chain Implementation Report certificate. LCCC will have the right to terminate CfD contracts which do not provide these certificates.

[Link II](#)**Launch of CCUS phase 1 process**

As part of the government's ambition to capture 10 MtCO₂ per year by 2030, BEIS launched its process cluster selection process referred to as 'Track-1'. Through this the government planned to identify at least two CCUS clusters whose readiness suggests that they are suited to be deployed in the mid-2020s. The two projects identified by Government for Track-1 designation in October 2021 included the HyNet and East Coast Cluster projects, with the Scottish Cluster receiving 'Reserve Cluster' designation. CCUS network projects within the clusters sequenced onto Track-1 have the first opportunity to be considered to receive support under the government's transportation and storage business model. The development of CCUS in the UK is expected to the potential to create more than 50,000 jobs by 2050.

[Link III](#)**CfD Allocation Round 4 (AR4) to open in December 2021**

In May 2021, BEIS confirmed that the application window for AR4 would open on 13 December 2021 and close on 14 January 2022. The round will include three 'pots' of technologies, including onshore wind and solar PV, less-established technologies and offshore wind projects.

[Link IV](#)**Ofgem delivers GBP300 million down payment to rewire Britain**

In May 2021, Ofgem allocated GBP300 million to projects that will support increased power demand, as the UK's economy electrifies. Some of the budget is for new infrastructure to support 1,800 new ultra-rapid charging points for electric vehicles at highway service areas and 1,750 charge points in towns and cities. The investment will be delivered in the next 2 years and is part of a plan to ensure Britain has the infrastructure it needs to support the move to low carbon transport.

[Link V](#)**Government announces GBP166 million investment for green technology**

GBP166.5 million funding package was announced by BEIS in May 2021 to help develop technologies supporting the Prime Minister's Ten Point Plan. These include carbon capture, greenhouse gas removal and hydrogen, while also helping find solutions to decarbonise the UK's polluting sectors including manufacturing, steel, energy and waste, and to help create 60,000 new jobs. As part of the announcement GBP60 million was dedicated to developing low carbon hydrogen through the Hydrogen Supply 2 (HYS2) and GBP37.5 million was committed to fund projects focused on greenhouse gas removal technologies.

[Link VI](#)

Smart Systems and Flexibility plan released by BEIS

BEIS and Ofgem released the Smart Systems and Flexibility Plan 2021 in July 2021, alongside the release of the first Energy Digitalisation Strategy. The plan emphasizes the requirement for greater utilisation of system flexibility at the consumer level, including greater utilisation of smart tariffs and sets out the need for reform of flexibility markets. Additionally, the plan sets out ways to refine the regulatory frameworks for energy storage and interconnector assets.

[Link VII](#)

National Grid FES scenarios published

In July 2021, National Grid ESO released its Future Energy Scenarios (FES), which outline potential pathways for the UK energy system through 2050. Three of the four scenarios presented allow the UK to reach Net Zero by 2050.

[Link VIII](#)

Release of Transport Decarbonisation Plan

BEIS released its Transport Decarbonisation Plan in July 2021, which outlined GBP2.8 billion in funding to support the switch to clean vehicles, with investments across the electric vehicle supply alongside a range of other measures. Additionally, the plan sets a target of having all road transport being zero emissions vehicles by 2040, with diesel-only trains removed from the network by 2040 and the UK operating a net zero railway by 2050.

[Link IX](#)

Call for evidence on long-duration energy storage

In July 2021, BEIS launched a consultation on the role of large-scale, long-duration storage. The consultation considers market barriers to long-duration storage deployment, establishes the need for long-duration storage and collects evidence on the potential pipeline of storage projects. The findings will be used to determine whether there is a case for intervention.

[Link X](#)

Hydrogen Strategy published

The UK Hydrogen Strategy was released by BEIS in August 2021, outlining the government's whole-system approach to developing the UK hydrogen sector. The strategy sets out requirements to enable the production, distribution, storage and use of low carbon hydrogen, which it views as pivotal for the delivery of Net Zero. The strategy confirms a previously outlined target of 5GW of low carbon hydrogen production by 2030, as well as outlining expectations to consult on a low carbon hydrogen standard and establish a hydrogen village and town in the UK by 2030.

[Link XI](#)

BEIS and Ofgem are consulting on a proposal for impartial 'Future System Operator'

In July 2021, BEIS and Ofgem jointly published a consultation on the 'Future System Operator'. Under this proposal, the current National Grid ESO roles and functions would be carried out by the Future System Operator (FSO), an expert body independent from the government or other actors. The FSO would also be expected to undertake strategic planning activities for the gas system, but not on real-time gas system operation.

[Link XII](#)

UK

Ofgem releases EV strategy

In September 2021, Ofgem set out the plan to support the rollout of electric vehicles in Britain, ensuring that the infrastructure and technology is in place for the estimated 14 million EVs on the road by 2030. Plans include increasing network capacity to support the rollout, bringing down costs for large users such as charging stations, introducing smart charging at periods of low demand which may cut costs for EV owner and enabling vehicle-to-grid technology to allow the export of unused electricity to the grid.

[Link XIII](#)

Avro and Green energy enter Ofgem's Supplier of Last Resort (SOLR) process

In September 2021, Avro Energy and Green Supplier Limited announced that are ceasing to trade. Both of them supplied gas and electricity to around to over 800,000 domestic customers and their businesses represented 2.9 percent of all domestic customers. As of December 2021, nearly 30 companies have also been through the SOLR process, and a SAR process has been advised for Bulb Energy. Ofgem is currently looking at the reform of the sector including introducing more stringent financial reliance requirements for the players. Further information available will be available in the Q4 update.

[Link XIV](#)

Portugal

Gas tariffs and regulated prices for 2021–22

The Regulatory Entity for Energy Services has established and approved the values of gas tariffs and regulated prices applicable in Portugal mainland and the Autonomous Regions of the Azores and Madeira to be in applied in 2021–22.

[Link I](#)

Social electricity tariffs

The Portuguese Government has set the social tariff discount to be applied in the electricity supply tariff (33.8 percent) applicable for 2022 period.

[Link II](#)

Electricity tariffs and regulated prices for 2021

The Regulatory Entity for Energy Services has established and approved the values of electricity tariffs and regulated prices applicable in Portugal mainland and the Autonomous Regions of the Azores and Madeira to be applied from 1 July 2021.

[Link III](#)

Environmental Fund budget for 2021

The Minister of Environment and Climate Action reviewed the Environmental Fund budget for the year 2021.

[Link IV](#)

Portugal

COVID-19 – exceptional measures

The Portuguese Government approved legislation to establish support measures aimed at the social and solidarity sector due to the epidemiological situation. These include measures to provide additional support for the consumption of electricity (namely for the vulnerable customers).

[Link V](#)

[Link VI](#)

Compensation of wind-producing centers

The Energy Secretary of State approved the regularization of the compensations made between 2013 and 2020 and the remuneration due, to the Wind Power generating centers, by application of a correction 'Kn' factor.

[Link VII](#)

Hungary

Balancing energy market developments

The balancing energy market will be integrated through common European platforms (Relevant legislations: Guideline on electricity balancing – EU 2017/145, Directive on the common rules for the internal market for electricity – EU 2019/944).

[Link I](#)

Development of the Hungarian flexibility market

The Hungarian Energy and Utilities Regulatory Authority (MEKH) published a study on the technical problems, owing to the changes in the electricity system, and the possibilities for dealing with them. Based on a study commissioned by the MEKH, the development of regulations for flexibility markets will continue with the involvement of industry actors.

[Link II](#)

Small and medium enterprises (SMEs) can be entitled to USP services

Hungarian Chamber of Commerce and Industry suggests involving the SMEs into the USP segment as a solution for current energy price crisis.

[Link III](#)

Clean Energy Package-related changes

In April 2021, the Hungarian Energy and Utilities Regulatory Authority (MEKH) registered the first two aggregator organizations as new energy market participants. Péter János Horváth, President of the organization, emphasized that with the entry of new players, the development of the domestic energy market has reached a new stage as the country is moving towards a system that is consumer and climate friendly, meets security of supply requirements and is able to continuously integrate innovative solutions.

[Link IV](#)

Recovery plan (update)

On 6 September 2021, the French Prime Minister announced that EUR70 billion of the EUR100 billion recovery plan has already been committed to support economic activity and job creation. The recovery plan also paves the way for the French economy of 2030, which is expected to be greener, given the urgency to speed up the ecological transition.

The recovery plan in France dedicates EUR30 billion to green transition among which:

- EUR6.7 billion for the thermal retrofitting of public (EUR4 billion for schools and administrative buildings, EUR500 million for social housing) and private (EUR2 billion for housing, EUR200 million for SMEs/VSEs) buildings.

Progress after 1 year of launch:

- For private houses, renovations reached EUR1.7 billion/173,000 houses
 - For state public buildings, renovations reached EUR2.7 billion/4,000 projects
 - For schools and regional buildings, renovations reached 2,000 projects
- EUR1.2 billion for Industry decarbonation to finance investments and operating expenditures during the 2020–22 period.

Progress after 1 year of launch:

- 99 projects received EUR0.5 billion
- EUR1.2 billion to develop everyday green mobility (cycling and public transportation)

Progress after 1 year of launch for clean vehicles:

- 420,000 conversion premiums (for scrapping old thermic vehicles) and ecological bonuses (subsidy to purchase clean vehicles such as EV, HV, H²V)
 - 15.7 percent of new vehicle sales to individuals are electric or plug-in hybrids (compared to 2.5 percent in the first 7 months of 2019)
- EUR4.7 billion to support and develop railway transportation, including freight
 - EUR2 billion of the overall EUR7 billion plans, for over 10 years (2021–30), have already been committed to develop green hydrogen

[Link I](#) | [Link II](#)

Freeze of the regulated tariffs for the sale of Engie gas on 1 November 2021

From 1 January 2019, the cumulative increase in tariffs reached 15.8 percent. Therefore, the government decided to freeze the regulated tariffs for the sale of Engie gas surge for the following months. This prevented a 21.2 percent increase before tax on 1 November 2021 and another similar rise in December 2021.

[Link III](#)

Reform of photovoltaic feed-in tariff mechanism

In 2006, the French government committed to feed-in tariff for a period of 20 years to support the development of photovoltaic electricity production facilities.

On 27 October 2021, the implementing decree of the 2021 Finance Law revised the contractual terms of this feed-in tariff mechanism, to finalize a reform of this mechanism initiated in 2010.

[Link IV](#)

Netherlands

ACER publishes a methodological study to measure barriers to efficient price formation

The EU Agency for the Cooperation of Energy Regulators (ACER) published a methodological study to measure barriers against efficient price formation and easy market entry and participation for new and small players in the EU electricity wholesale markets. The study proposes a set of indicators and a methodology that will enable ACER to fulfil its new monitoring responsibilities, set by the Clean Energy Package, more effectively.

[Link I](#)

ACM: system operators must use congestion management more often

Congestion management means that system operators address the scarcity on the grid by compensating suppliers and buyers of electricity if they help relieve congestion on the grid by methods including temporarily reducing injection into the grid. Congestion management is a temporary measure for the period when a system operator strengthens the grid. Congestion management helps towards realizing the energy transition by increasing capacity on the grid, so that more wind and solar farms can be connected to the grid.

[Link II](#)

ACER decides on the electricity cross-border capacity allocation methodologies

The EU Agency for the Cooperation of Energy Regulators (ACER) has reached a decision on the proposals for market-based cross-border capacity allocation processes in the Baltic and Core regions.

These processes aim to maximize the welfare generated by the provision of cross-border capacities to the day ahead energy and balancing capacity markets.

[Link III](#)

Dutch regulator urges caution on H2 transport

Dutch regulator, Authority and Consumers & Markets (ACM) has stated that investors should focus on increasing sufficient hydrogen production capacity prior to developing transportation routes to avoid excess costs from underutilization.

The regulator also stated that consumption of hydrogen, which is currently very miniscule, must become widespread to justify investments in pipelines. Hydrogen can be used for chemical products, heat-intensive industrial processes, heavy transport and electricity generation and also as a form of energy storage, but currently it is not being widely used for these purposes.

[Link IV](#)

ACM: Gradual development and regulation of hydrogen infrastructure

The production, transmission and use of sustainably produced hydrogen are still in their infancy. However, sustainable hydrogen is expected to play a major role in the future supply of energy and in achieving the climate goals in 2050. That is why, in the coming years, important choices must be made regarding the creation of hydrogen infrastructure and about the possible regulation of that infrastructure.

The Netherlands Authority for Consumers and Markets (ACM) wishes to share its ideas in this discussion. In its publication, 'Development and regulation of hydrogen infrastructure', ACM argues in favour of a gradual development of infrastructure for the transmission of hydrogen. In addition, ACM is in favour of a flexible yet predictable regulatory regime for such hydrogen infrastructure, depending on the question to what extent there are any market problems.

[Link V](#)

Netherlands

ACM gives outlines of possible systems for the future Dutch district-heating market

In the future, district-heating networks will be used more often for heating homes and tap water. For the realization of the ambitions in the national climate agreement, approximately 750,000 households need to switch from gas-fired installations to heat networks by 2030. The Netherlands Authority for Consumers and Markets (ACM) finds it important that public interests such as affordability, security of supply and sustainability are properly safeguarded in the realization of that ambition. That is why several choices regarding the organization of the district-heating market need to be made in a new heat act. ACM is ready to contribute substantively to that discussion and has outlined three possible systems for the organization of the Dutch heat market in its publication 'Market systems for the market for district heating, and the role of network companies.'

[Link VI](#)

Russia

Russia: Russia approves the Hydrogen Energy Development Concept

The goals set in the approved Hydrogen Energy Development Concept include unlocking Russia's national hydrogen production, use and export potential and joining the ranks of leaders in this industry. Initiatives such as launching of pilot low-carbon hydrogen production projects, setting up consortia producing equipment and components, creating infrastructure for storage and transportation of this energy source are all expected to serve these goals. At least three territorial production clusters are also expected to be formed. The North-West Cluster will focus on exporting hydrogen to European countries and implementing steps to reduce the carbon footprint of export-oriented industries. The Eastern Cluster will supply hydrogen to Asian countries and develop hydrogen transport and energy infrastructure. The objective of the Arctic Cluster is to ensure low-carbon power supply to Russia's polar regions.

[Link I](#) | [Link II](#)

Russia: The Ministry of Economic Development includes decarbonization in the energy efficiency strategy

The Ministry of Economic Development of the Russian Federation has substantially revised the draft road map to improve energy efficiency of the Russian economy. The core emphasis now is on reducing greenhouse gas (GHG) emissions. The Ministry of Economic Development explained that these figures will be available only after the low-carbon development strategy till 2050 is approved. The government is currently discussing the draft strategy. So far, the only figure in the document is an annual decrease of GHG emissions of up to 150 million tons of carbon dioxide equivalent (CO₂e).

[Link III](#)

Russia: Russia creates a statutory CO₂ emissions management system for the first time ever

On 2 July 2021, the President of the Russian Federation signed a Federal Law 'On Greenhouse Gas Emission Limits.' This law introduces terms and definitions such as greenhouse gases, carbon footprint, climate projects, carbon units, etc. As of 1 January 2023, the largest GHG emitters will be obliged to report their emissions. Carbon reporting data will be accumulated in the register of GHG emissions and form basis for monitoring of compliance with the target indicators of GHG emissions. The law provides the legal framework for the implementation of climate projects and the circulation of carbon units. For this purpose, climate project criteria, procedures for verifying climate project outcomes and procedures for keeping the carbon units register, will be established.

[Link IV](#)

Russia

Russia: The government approves a 15-year plan to implement the energy strategy

The Russian government has approved the plan for the next 15 years to implement the country's energy strategy. Each task has its own set of measures. Among these are boosting output of liquefied natural gas (LNG) to 140 million tons, establishing centers to trans-ship, store and trade the LNG, opening low-carbon hydrogen production sites, developing infrastructure to charge cars and being involved in developing hard-to-recover oil and gas reserves. Most measures will be implemented in the coming 18 months.

The strategy will enable completing some important tasks to develop the country in the medium term: boost output of oil and gas condensate in East Siberia, the Far East and the Arctic zone, significantly increase LNG production, increase the share of Russia's own or localized advanced process equipment and to substantially expand the volume of exports to the Asia Pacific region.

[Link V](#)

Russia: Russia expects to start exporting up to 200,000 tons of hydrogen in 2024

According to the government program, the Russian Federation is expected to win at least 20 percent of the hydrogen market by 2030. By 2024, Russia is planning to enter large-scale production of hydrogen and begin exporting up to 200,000 tons of hydrogen per year. By 2024, one pilot project has to be launched in Russia and nine prototype and pilot plants, hydrogen transportation and storage prototype materials and catalysts have to be created for major export-oriented projects. As part of diversification of Russian export, by 2024, at least 30 percent of domestic raw materials are planned to be used in the petrochemical industry.

[Link VI](#)

Ukraine: Ukraine develops a renewable energy conception

The Ministry of Energy and the State Agency for Energy Efficiency and Energy Saving have developed a concept for 2022–26 to develop its power and utilities industry based on renewable energy sources (RES). The goal is to create favourable conditions to enable the country to increase energy efficiency of the national economy in terms of reducing energy consumption. Furthermore, this document provides for enhancement of energy self-sufficiency by using local types of energy commodities from RES.

[Link VII](#)

Ukraine: Ukraine develops the first industrial energy storage system

Ukraine's first fully developed, designed and manufactured industrial energy storage system will be tested in Vinnytsya. The power of the storage system will be 1MW with 1MWh storage capacity. The system was developed by KNESS.

[Link VIII](#)

Ukraine: WEF publishes key development vectors of Ukrainian power industry

On 10 June 2021, the World Economic Forum (WEF) published the recovery concept of Ukrainian power industry and economy, developed by the Economic Recovery Center in accordance with the international System Value approach. Pursuant to the concept, the key development vectors of the power industry in Ukraine are retrofitting electric power grids, developing renewable energy sources (RES) and energy efficiency.

[Link IX](#) | [Link X](#)

Uzbekistan: EBRD extends a loan of EUR81.6 million to develop the electric power industry in Uzbekistan

The Cabinet of Ministers of Uzbekistan adopted Resolution No. 478 of 02.08.2021 'On measures to implement the project entitled Vital Infrastructure Support Program: Support for the Electricity Industry.' To implement the project, the European Bank for Reconstruction and Development will provide a loan of EUR81.6 million with maturity in seven years, including a grace period of 30 months, at 1 percent per annum plus Euribor six months and commission of 0.5 percent.

The project will be implemented within 2 years (2021–22).

[Link XI](#) | [Link XII](#)

Uzbekistan: Uzbekistan will develop hydrogen economy

The Resolution of the President of Uzbekistan 'On measures to develop renewable and hydrogen energy in the Republic of Uzbekistan' dated 9 April 2021 has been adopted. Building the hydrogen energy infrastructure is among the integrated measures taken to promote economic energy efficiency and improve the country's energy security. Creation of this infrastructure and renewable energy sources needs consistent mission-oriented research and practice. Therefore, according to the Resolution, National Renewable Energy Research Institute is created under the auspices of the Ministry of Energy of the Republic of Uzbekistan.

The Institute's key objectives and lines of activities include research, practical studies, development of innovative hydrogen energy and RES projects, analysis of modern global development trends in this area, achievement of the region's technological leadership in creating and implementing know-how in hydrogen energy infrastructure and others. Furthermore, the Ministry of Energy, ACWA Power (Saudi Arabia) and Air Products (USA) have entered into an open agreement to develop the renewable and hydrogen energy in the Republic of Uzbekistan.

[Link XIII](#)

Georgia: Georgia is seeking for an investor to build the country's first SPP

A government corporation, Georgian Energy Development Fund, JSC, whose core mission is to attract investments in the Georgian power sector, has invited willing parties for the tender to build the country's first solar power plant with an installed capacity of 5MW. The estimated cost of the project amounts to c.US\$3.5 million.

[Link XIV](#)

Kazakhstan: The new Environmental Code of Kazakhstan takes effect

The new Environmental Code of the Republic of Kazakhstan which became effective as of 1 July 2021 includes the best OECD and EU practices. The new Environmental Code increases the liability of industries for environmental impact and provides avenues to introduce waste hierarchy and construction of waste energy recovery plants.

[Link XV](#)

Armenia: Armenia will build new solar and wind power plants

According to the director of the Renewable Energy and Energy Saving Foundation at the Armenian Ministry of Territorial Management and Infrastructure, by 2040, new solar and wind power plants will be built in the country. On 18 January 2021, a strategic program of energy sector development by 2040 was adopted in Armenia. The program sets main development lines of the sector and provides a detailed description of the renewable energy industry and energy saving. This strategic program is focused on the creation of new facilities, including construction of new solar power plants. Armenia has a great potential in this area and plans to build up to 1,000MW solar power plants by 2030. The electric power supplied by these plants will account for 15 percent of the total electricity generated. In addition to solar power plants, the program provides for the development of the wind power industry. System-wide 500MW wind farms are planned to be used by 2040. These power plants will be created by the state in collaboration with the private sector.

[Link XVI](#)

Belarus: Belarus is planning to build about 90 new biofuel energy sources by 2026

About 90 new energy sources that are going to be built in Belarus will be based exclusively on local fuel types. The Department of Energy Efficiency plans to have the construction completed by the end of the 5-year span. Belarus has been consistently increasing the number of energy sources supplying heat to apartment houses. Currently there are about 3,800 boiler houses in the system of housing services and utilities in Belarus. More than 70 percent of them have already switched to biofuel.

Currently large projects are implemented in the wind and solar energy industry.

[Link XVII](#)

Azerbaijan: The President of Azerbaijan approves the law on the use of RES in the country

The President of Azerbaijan has approved the Law on the Use of Renewable Energy Sources (RES). This law provides legal, economic and organizational framework for using renewable energy in the overall electricity generation, and governs support mechanisms to encourage generation of electricity from RES.

[Link XVIII](#)

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