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Power in Europe

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Germany sells four offshore wind concessions for $14 bil to BP, TotalEnergies

- BP secures 4 GW for Eur6.8 billion
- TotalEnergies to pay Eur5.8 billion for 3 GW
- Sites come with 2030 grid link guarantee

Germany has awarded four offshore wind concessions for 7 GW of capacity in the North and Baltic Sea for a total of Eur12.6 billion ($14 billion), regulator BNetzA said July 12.

Oil and gas major BP secured two concessions in the North Sea with 4 GW capacity, while France's TotalEnergies secured the other two concessions with 3 GW capacity, both marking their entry into the German offshore wind market, the companies said in separate statements.

"The results underline the attractiveness of offshore wind investments in Germany," BNetzA President Klaus Mueller said, noting that the auction competition "was unprecedented."

Multiple companies initially offered to build the projects without subsidies — eight for the North Sea sites and nine for the single Baltic Sea development, triggering a new "dynamic bid" phase where the concession would be awarded to the highest bidder.

Bidding was conducted over several rounds across multiple days, the longest process being 72 bidding rounds for the Baltic Sea site before a winner was chosen, BNetzA said.

Wind association WindEurope called for changes to the "unfavourable auction design with uncapped negative bidding," first applied by Germany for these sites without pre-examination (not central model), it said in a statement.

Some 90% of the money paid by the companies will go toward funding grid connection costs, according to WindEurope, with 5% used for maritime biodiversity and 5% to support environmentally friendly fishing.

Germany will tender another 1.8 GW of sites in August under its traditional central model, with German utility RWE having pre-entry rights for 900 MW.

New entrants

BP said it will lead the development, construction and operations of these fixed-bottom offshore wind projects, with grid connection targeted by end 2030.

"These awards are a huge milestone for BP's decarbonization plans in Germany and are a strong reflection of our wider strategy," BP's head of gas and low-carbon energy, Anja-Isabel Dotzenrath, said.

The company expects returns of 6%-8%, which Dotzenrath said was "consistent with our renewables and power growth engine on an unlevered basis."

The estimated 17.5 TWh/year annual output will "anchor the significant demand" BP expects for green electricity in Germany, including green hydrogen, electric vehicles and refinery decarbonization.

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EU 2023 power demand set for 3% drop to lowest since 2002: IEA

- Global demand growth to slow below 2%
- New renewables to cover demand growth
- Renewables could exceed coal in 2024

EU electricity demand in 2023 is forecast to fall by 3% year on year to the lowest level since 2002, the International Energy Agency said July 19.

Power demand in the US was expected to decline by almost 2%, while demand in Japan was forecast to fall by 3%, the IEA said in its electricity market report.

Overall, global growth in electricity demand was expected to ease below 2% from 2.3% in 2022 as advanced economies grapple with the effects of the energy crisis and an economic slowdown, according to the IEA's projections.

"Renewables are on track to meet all the growth in global electricity demand over the next two years," IEA Executive Director Fatih Birol said.

China's demand is forecast to rise at an average annual rate of 5.2% over the next two years, only slightly below its 2015-19 average.

India's average annual growth is estimated at 6.5%, well above its 2015-19 average, but from a relatively low base.

Assuming an improving world economic outlook, demand growth was expected to pick up again in 2024, to 3.3%.

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Analysis

Vattenfall shelves UK offshore wind project, buys German solar pipeline

- Norfolk Boreas costs seen 40% higher
- Dutch HKZ offshore project completed
- 4 GW solar projects amid falling costs

Vattenfall has shelved plans for a final investment decision for its Norfolk Boreas offshore wind project in the UK, but has acquired a solar developer with a 4 GW pipeline in Germany, the Swedish state-owned utility said July 20.

Costs for the 1.4-GW project that was awarded a contract for difference at GBP34.35/MWh ($44/MWh) in July 2022 have risen by up to 40%, negatively impacting future profitability, it said.

"We will examine the best way forward for the entire [4.2 GW] Norfolk Zone, which in addition to Boreas also includes the Vanguard East and West projects," CEO Anna Borg said.

The rising cost of capital has put significant pressure on all new offshore wind projects, while financial frameworks have not yet adapted to reflect the current market conditions, Vattenfall said.

Norfolk Boreas was expected to come online in 2027 with Vattenfall also planning to boost the project to 1.8 GW.

As a result of not going ahead with phase 1, Vattenfall booked impairment costs of SEK 5.5 billion ($537 million) in the second quarter.

Construction of its 1.5-GW Hollandse Kust Zuid offshore wind farm in the Netherlands, which was awarded at zero subsidies but includes a free grid connection, was completed, it said.

Vattenfall also inaugurated its 240-MW South Kyle onshore wind farm in Scotland.

A spokesperson for the UK Department for Energy Security and Net-Zero said the government understands "there are supply chain pressures for the sector globally, not just in the UK, and we are listening to companies' concerns."

Solar expansion

Meanwhile, Vattenfall also said it acquired German solar developer Solizer with a 4 GW pipeline of large-scale projects.

First projects can be ready for construction as early as 2024, it said.

"Solar is cost-competitive and can be built subsidy-free, which is important in meeting the rapidly increasing demand for low-cost solar power from customers," Vattenfall's head of wind Helene Bistroem said.

The cost of solar panels has dropped significantly in recent years and are now among the cheapest forms of electricity generation, the statement added.

Capture prices for German solar averaged Eur76.07/MWh ($85/MWh) in Q2, according to Platts Renewable Energy Price Explorer.

That compares to GBP86.93/MWh for UK offshore wind in Q2, S&P Global Commodity Insights data showed.

Price zone spreads narrow

Overall, Q2 power generation at Vattenfall fell 4% year on year, while achieved prices for its Nordic generation doubled.

Nordic hydro and nuclear accounts for over three-quarters of the total.

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Vattenfall's European wind generation rose 23% year on year to 2.7 TWh driven by new turbines coming online at its Dutch offshore project.

However, lower electricity prices across Europe decreased the units operating profit by 43%.

Gas-fired generation dipped to 3 TWh in Q2 as a result of the sale of the Magnum CCGT in the Netherlands.

Hydro output, meanwhile, fell to 8.2 TWh, while nuclear increased to 9.8 TWh after the return of the Ringhals 4 reactor in Sweden.

Smaller price differences between the system price in the Nordics and respective price zones had a positive impact and contributed to a higher achieved price after hedging, Vattenfall said.

Its achieved price in its Nordic home market more than doubled to Eur35/MWh in Q2 despite the Nordic system price falling 54% year on year to a Eur55.80/MWh average.

For 2024, Vattenfall had 47% of its outright Nordic generation hedged at Eur47/MWh.

That compares to 53% of 2023 output at an average Eur30/MWh.

Vattenfall power generation (TWh)

	Q2-23	Q2-22
Nuclear	9.8	9.7
Hydro	8.2	9.4
Fossil	3.0	3.2
Wind	2.7	2.3
Total	23.7	24.6
Achieved price*	35.0	15.0

Source: Vattenfall (*Eur/MWh for nuclear/hydro)

— Andreas Franke

Offshore wind industry weighs consequences of 'seismic' German auction

Europe's offshore wind sector is coming to terms with the impact of the result of Germany's largest auction on project delivery, the supply chain and European auction design.

Oil majors BP and TotalEnergies, both newcomers to Germany's offshore wind market, agreed to pay a combined Eur12.6 billion ($14 billion) for the rights to build 7 GW of new capacity in the North and Baltic seas.

The result underscored how companies are increasingly willing to pay big money to secure development zones in Europe's waters, highlighting the relative scarcity of offshore wind capacity auctions in the region compared with demand for projects.

But equally, the profile of the winners — and the fact that several more experienced offshore wind players lost out or decided not to compete — also raised questions about the merits of Germany's auction design, where concessions were awarded to the highest bidder, potentially raising the risk of non-delivery.

Still, the German government is framing the result as an overwhelming success.

Some 90% of the fees paid by BP and TotalEnergies will go toward funding grid connections for the projects, thus lowering the cost of offshore wind for German taxpayers.

"The results confirm the attractiveness of investing in offshore wind energy in Germany," Klaus Mueller, president of BNetzA said in a July 12 statement announcing the winners.

Deep pockets 'a prerequisite'

The significant sums agreed to be paid by the oil majors came about after multiple bidders offered to build the sites on a zero-subsidy basis: eight companies bid at zero for the North Sea sites and nine for the single Baltic Sea development.

This triggered a new "dynamic bid" phase — also known as "negative bidding" — where the company willing to pay the highest fee to the government would secure the site.

While the result was higher prices on a relative basis than in headline-grabbing offshore wind auctions in the New York Bight in the US and the Round 4 seabed lease sale in the UK, neither of those included a grid connection guarantee like in Germany.

The German auction was a "seismic result for the offshore wind industry," according to Alon Carmel, renewable energy expert at PA Consulting.

"Without a doubt having a large balance sheet, or being able to raise large amounts of capital quickly, is becoming a prerequisite for winning in these major monetary auctions," Carmel said in an email.

Both BP and TotalEnergies previously have paid significant sums for offshore wind leases in US and UK auctions. Given this track record, along with their deep pockets, it may be unsurprising that the pair emerged as victors in Germany as well, according to industry observers.

That is especially true when a company like Denmark's Orsted has repeatedly driven home the need for disciplined bidding in the sector and voiced concerns about negative bidding.

Orsted "very deliberately chose not to pay record high concession prices for new offshore projects in Germany," CEO Mads Nipper said after the German auction result.

A spokesperson for Germany's EnBW, which bid unsuccessfully in a joint venture with Norway's Equinor, said the company is "satisfied with the result, given the way the competition and the [lease prices] have developed."

"If you have so much money to put aside ... you probably pursue other interests rather than pure economical revenue," Andrei Utkin, associate director in clean energy technology at S&P Global Commodity Insights, said about BP and TotalEnergies.

"They of course have this massive advantage over traditional offshore wind players."

Delivery risk

BP and TotalEnergies are required to pay 10% of their lease fees by July 2024.

The remaining 90% is spread out over 20 years after projects become operational starting from 2030.

Analysis by consultancy DNV forecasts the initial payment to add 5%-15% to the projects' capital expenditure, while operational expenditure over the 20 years is expected to be two or three times higher than without the lease payments.

Meanwhile, the projects' levelized cost of electricity (LCOE) could be 15%-50% higher depending on multiple parameters, according to DNV.

A separate analysis by PA Consulting put the LCOE increase at

30%-50% over the 20 years.

BP and TotalEnergies did not respond to emails from S&P Global.

With the majority of lease payments not required immediately, some observers have highlighted the risk of projects not being delivered if market conditions do not materialize as expected.

In the UK, Vattenfall shelved a 1.4-GW offshore project on July 20, citing 40% cost increases.

BNetzA, which administered the auction, has certain contingencies in place, such as requiring bidders to place a deposit.

"One of the key pitfalls in auction design is how to manage the risk of late or non-delivery," Carmel said.

"In Germany, there seem to be pretty significant penalties for non-delivery."

For its part, BP said it expects unlevered returns of 6%-8% "with the potential to realize enhanced value through integration across the Germany value chain."

The company highlighted the "significant demand" for clean energy in Germany along with green hydrogen, biofuels, electric vehicles and refinery decarbonization.

S&P Global Commodity Insights' Alex Blackburne produces content for distribution on S&P Capital IQ Pro.

— Alex Blackburne

European Parliament backs EC's EMD proposal for power market reforms

- ITRE committee backs minimal impact plans
- Opens way for trilogue if council finds position
- Complex interplay of various instruments

The European Parliament's committee on Industry, Research and Energy (ITRE) on July 19 agreed its position on the ongoing EU electricity market design (EMD) revision, largely backing the European Commission's proposal.

The ITRE committee voted in favor of the proposal by lead rapporteur Nicolas Gonzalez Casares, which maintains the merit order system and avoids inframarginal revenue caps.

The position allows for different routes to market for renewable electricity: Contracts for Difference (CfD), renewable Power Purchase Agreements (PPAs) and merchant investments.

Crucially, the agreement avoids a plenary debate in September and means the European Parliament is almost ready to enter trilogue negotiations with EU member states and the EC on a EMD final deal.

Member states in the EU council have not yet finalized and agreed their negotiating mandate.

The Council is expected to reach agreement in the autumn for the trilogue to finalized the EMD reforms by end-2023.

The EC published its proposal in March.

Support for hybrid wind projects

Wind association WindEurope welcomed the vote it said "will help restore predictable business cases for renewables."

The committee voted against enshrining in law revenue caps for inframarginal generators of electricity, which will help ending the patchwork of national market interventions, it said in a statement.

Background to the market design reforms is last year's price spikes, but also the EU's new 42.5% share of renewables in energy target for 2030.

For wind, this means doubling the current installation rate to around 30 GW/year, according to WindEurope.

ITRE also supported the Transmission Access Guarantees (TAG) which will help de-risk investments in hybrid offshore wind farms, WindEurope said noting that this will clear the way for projects that have connections to one or more countries.

Germany's renewable energy association BEE meanwhile also welcomed ITRE's rejection of mandatory two-sided CfDs for renewables, it said.

Cross border trading

German utility association BDEW underlined that the current market design was functioning despite its challenges and welcomed the minimal impact from the position.

BDEW noted a Eur34 billion ($38 billion) saving for European consumers from cross-border electricity trading over the past ten years, according to an estimate by regulator ACER.

BDEW hoped for agreement in the Council before the summer break, it said.

In particular, BDEW warned about the impact of so-called regional virtual trading hubs and peak shaving products that will require a detailed impact assessment under the ITRE proposal.

"The balance between forward and spot markets and market confidence in price formation and liquidity could be disrupted by those instruments," BDEW said.

"Although not a perfect proposal, this compromise text presents the best available option among the tabled compromise amendments, especially in that it keeps a European view of the market," said Eurelectric Secretary General Kristian Ruby.

Steel reaction

According to steel association Eurofer, the reforms fall "short of delivering the urgent solutions needed" with only a "limited impact in bringing electricity prices down to a sustainable level in the short term."

Solutions need to be found to ensure internationally competitive prices "beyond complex state aid compensation schemes," it said.

"The energy crisis is not solved yet: the EU must find short- and long-term solutions to allow both energy-intensive industries and consumers to reap the benefits of a decarbonized electricity system," said Axel Eggert, Director General of Eurofer.

The steel sector currently consumes 75 TWh/year, but this is projected to rise to 165 TWh/year by 2030.

Next steps

Spain, which currently holds the rotating EU council presidency, is currently working on a new draft text, but acknowledged the process was difficult.

Blocking progress is whether and how French investments extending the lifetimes of existing nuclear reactors should benefit from two-way Contracts for Difference; and whether

derogations on air quality rules in capacity markets be allowed, allowing EU member states to support coal plants on security of supply grounds.

"We're trying to get a draft document to cover the principle different perspectives without putting at risk what we think are the two main principles in the discussion," Spanish energy minister Teresa Ribera said July 11 at the informal EU energy council in Valladolid.

With a general election in Spain on July 23, commentators believe resumption of significant talks on the dossier could be delayed well into the second half of 2023.

"Everybody knows that the opposition parties in Spain, who are likely to form the new government, have a very different position on market design than the current socialist government," WindEurope's Giles Dickson said in a recent interview on the association's website.

— Andreas Franke, Annalisa Villa

IEA cuts European gas demand forecast for 2023, now sees 7% decline

- OECD Europe gas demand set to drop to 489 Bcm
- Fall driven by lower gas burn in power sector
- European demand set for 1.5% rebound in 2024

The International Energy Agency has cut its forecast for OECD Europe gas demand in 2023 amid lower gas burn in the power sector and rapidly expanding renewable energy generation.

In its latest quarterly gas market report published late July 17 alongside its annual gas security review, the IEA said European gas demand is now forecast to fall by 7% year on year in 2023 to 489 Bcm.

In its previous quarterly report in May, the IEA said European gas demand was forecast to decline by 5% to 498 Bcm which was already a revision down from its previous forecast from February of 505 Bcm.

The new 7% decline forecast, the IEA said, is largely driven by lower gas burn in the power sector, which is seen down by 15% amid rapidly expanding renewables and lower electricity consumption.

And gas use in industry is expected to stay close to last year's levels, as lower gas prices enable demand recovery in the second half of the year, offsetting the losses in the first half, it said.

Gas prices are currently well down compared with the first six months of the year.

The benchmark Dutch TTF month-ahead price averaged Eur44.11/MWh in the first half, according to Platts pricing data by S&P Global Commodity Insights. It was last assessed on July 17 at Eur25.65/MWh.

The IEA said that, considering the declines in the year to date, demand in the European residential and commercial sector is expected to fall by 4% in 2023.

In 2024, OECD's Europe gas demand is forecast to increase by a moderate 1.5%, as the expected decline in gas for power generation is not offset by higher gas use in other sectors, the IEA said.

It said gas use in industry is expected to continue its gradual recovery, "albeit remaining well below its pre-crisis levels."

First-half demand

For the first half of 2023, the IEA said European gas demand had fallen by over 10%, or more than 30 Bcm.

The pace of demand reduction moderated from the 13% year-on-year drop experienced in Q1 to a 10% decline during Q2.

"Lower gas burn in the power sector accounted for 70% of the overall reduction in gas demand in Q2, amid depressed electricity demand and stronger renewable power output," it said.

Distribution network-related demand fell by an estimated 8% year on year in Q2 despite a colder spring, with heating degree days in April and May standing 10% above their 2022 levels.

"Non-weather-related factors explain the bulk of this demand reduction," the IEA said.

These include gas-saving measures enacted in public buildings, fuel-switching in rural households, the continued deployment of heat pumps, efficiency gains and behavioral changes.

"Rising affordability issues are also likely to have contributed to lower gas use in households," it said.

Gas-to-power demand dropped by an estimated 20% year on year in Q2. "Subdued activity in energy-intensive industries together with continued improvements in energy efficiency and behavioral changes depressed electricity consumption," it said.

Stronger renewable power output and improving nuclear availability further reduced the call on coal- and gas-fired power plants, which saw their combined output declining by over 20% — or close to 55 TWh.

New baseload supply

In supply, LNG accounted for close to 40% of Europe's gas consumption in the first half, representing what the IEA called a "new baseload" supply.

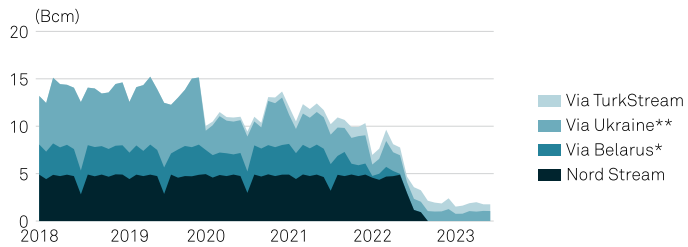
Europe's total gas supply dropped by 13% year on year in the first half largely driven by lower Russian piped gas deliveries.

"LNG continued to gain market share and accounted for almost 40% of Europe's gas consumption in the first half — a share similar to Russia's before its invasion of Ukraine," the IEA said.

Russian piped gas exports to OECD Europe fell by an estimated 65% year on year in the first half, with the profile of flows to the EU staying relatively stable at an average of 60 million cu m/d.

Russia continues to supply pipeline gas to Europe only via Ukraine at the Sudzha entry point and via the European string

Russian piped gas flows to Europe flat in June



* comprises net entry at Kondratki, Tietierowka, Wyskoje
** comprises net entry flows at Hermanowice, Velke Kapusany, Bereg, Isaccea
Note: converted to standard European measurement of 40 MJ/scm
Source: S&P Global Commodity Insights

of TurkStream, with deliveries currently averaging less than 2 Bcm/month.

Norway's piped gas supplies to the rest of Europe declined by 7.5% year on year in the first half amid a higher level of planned maintenance and unplanned outages, the IEA said.

The agency said OECD Europe's LNG inflows were projected to decline for the rest of the year, reflecting lower injection needs and a continuing decline in European gas consumption.

"However, a colder than average Q4 could lead to higher LNG import needs," it said.

— Stuart Elliott

Gas, power markets face stress test as S Europe heatwave intensifies

- Temperatures set to exceed 40 C
- Gas burn set for sharp rise
- Power demand in Italy soars

With scorching temperatures likely to persist across southern Europe, the region's gas and power markets are set to come under strain, with demand on a steep upward trend.

Temperatures are set to exceed 40 degrees Celsius in parts of Italy, Spain, Greece and France in the next few days, with red alert warnings across several cities, including Rome.

This has already resulted in a rise in gas demand, with gas for power burn increasing sharply, especially in Italy. Heatwaves in the region are also associated with higher cooling demand as well as impacts on supply, with river temperatures affecting nuclear operations and plant efficiency.

Analysts at S&P Global Commodity Insights expect some price volatility if the heatwave persists. But they noted that the level of cooling demand was slightly lower than at the same time last year due to ongoing price sensitivity and because of cooling limits in public buildings in some cities.

"This may mitigate upside to prices and the call on gas generation vs last year, particularly as hydro stocks and French nuclear availability are healthier year on year," said Glenn Rickson, head of European Power Analysis at S&P Global. "[But] more new temperature records in Europe this summer would cement the perception that such conditions will be increasingly common under climate change — increasing calls for mitigation efforts and potentially leading to increased price volatility."

Weather warnings

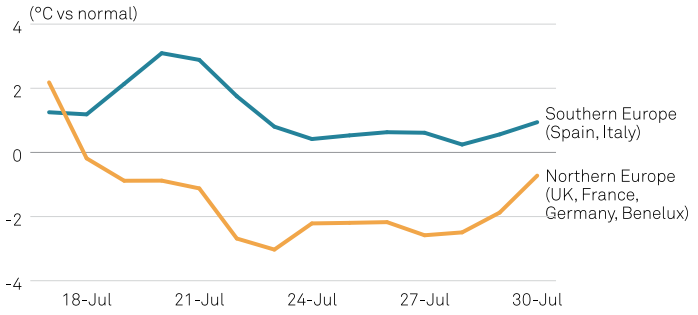
Spain's national forecaster Aemet said last week that it expects a hot and wet climate for July through September, which should ensure robust renewable generation. It declared an official heatwave for July 17 to July 19, with temperatures rising to as high as 44 C.

Daily peak power demand is seen around 5% higher than the start of the month at 35.1 GW July 17, while photovoltaic output is seen rangebound for the month.

Similarly, Italian weather forecaster Meteo Italia has warned of an "extremely hot" week with potential peaks of 45 C between July 17-19.

Italian power demand is forecast to peak at a maximum of

Europe's heat wave focused on Mediterranean



Source: CustomWeather Note: °C vs norm (30-year average) forecast from July 17, 2023

56.3 GW July 17, some 16% higher than at the start of the month.

In the week starting July 9, Spanish gas to power demand increased 34% compared with the previous week to 3. TWh, Enagas data shows.

Over the same period, Italian gas-to-power demand increased 24% to 4.5 TWh, Snam data shows.

Day-ahead gas prices in Italy and Spain are currently well above those in cooler northwest Europe.

Platts, part of S&P Global, assessed the Italian PSV day-ahead price on July 14 at Eur28.35/MWh and the Spanish PVB price at Eur25.83/MWh. Those assessments compare with a UK day-ahead price of Eur23.91/MWh and a Dutch TTF price of Eur24.60/MWh.

Peak power demand

France's EDF has already warned of cooling water restrictions on the Rhone river, with the 900-MW Bugey-3 nuclear reactor halted for the July 15-16 weekend.

However, widespread negative hourly prices across northwest Europe amid strong wind and low demand forced EDF to ramp down nuclear output by 10 GW on July 16, with reactor availability currently above forecast and some 5 GW up year on year.

In an Energy Futures 2050 report, French system operator RTE warned that the number of nuclear reactor shutdowns due to heatwaves or drought was set to increase due to climate change.

For now, France continues to export near maximum capacity to Italy and Spain.

Flows across the Pyrenees have reversed this summer compared with northbound flows last summer, due to falling gas prices and improved nuclear output in France.

Italy is already Europe's biggest importer of electricity, with net imports accounting for over 20% of annual demand.

Net imports covered a record 24% of Italian power demand in April before an outage on the new 1.2 GW Savoy-Piedmont cable and improved hydro in Italy reduced inflows.

French and Swiss power exports to Italy on July 14 were seen peaking above 6 GW, while those to Spain are close to 3 GW.

Water levels on Italy's river Po fell to an all-time low in April, before flooding in May helped to restore hydro reservoir levels across Italy.

Weekly power demand in Italy reached a 2023 high in the week to July 16, averaging 38 GW compared with a summer peak weekly average of 40 GW in 2022.

Similarly in Spain, weekly demand averaged almost 30 GW in

the week to July 16, compared with a 31 GW peak last summer.

Demand is likely to rise further this week due to the hot temperatures, but structural demand is set to ease in August due to the holidays.

Italian August baseload power traded early July 17 at Eur98.30/MWh, down over 20% so far this month, EEX data showed.

French month-ahead power traded July 17 as low as Eur71.77/MWh on EEX, a level not seen in over two years for the front-month contract.

— Eklavya Gupte, Andreas Franke, Stuart Elliott, Gianluca Baratti

Northwest European spot power once again negative during weekend

- Nordics, GB, NL lead amid wind, low demand
- European wind, solar peaks above 150 GW
- French reactors ramp down to 24 GW

Hourly power prices across Northwestern Europe once again turned negative over the July 15/16 weekend with the Nordic day-ahead system price settling below zero for the first time, exchange data showed.

Sweden, Finland and parts of Norway and Denmark all settled negative with the system price pegged at minus Eur1.95/MWh, Nord Pool data showed.

Great Britain was the next lowest with 15 hours below zero and July 16 settling at GBP5.93/MWh on N2EX.

Strong wind and low demand with temperatures below seasonal norms were the main bearish drivers, while export opportunities were often limited to offpeak hours as strong solar deflated prices across the Central-west region even further.

Across CW Europe, the Netherlands was the lowest with 15 hours below zero on July 16, while France was the lowest on July 15 with six hours in negative territory.

However, the depth of negative prices was less severe than during the July 1/2 weekend with Eur73.76/MWh as the lowest hourly price for the region, Epex Spot data showed.

The number of negative hourly prices already hit an all-time high in Q2 2023 with over 300 hours settling below zero in the core region, according to analysts at S&P Global Commodity Insights.

Wind and solar across the EU27 averaged some 75 GW baseload over the past three weeks, the highest since March.

Daily output exceeded 2 TWh over the weekend despite some curtailment due to the negative prices, according to Entso-e data aggregated by Fraunhofer ISE.

French nuclear also once again ramped down to levels around 24 GW compared to a 35 GW peak on July 17 including a temporary halt for its 900-MW Bugey-3 reactor on the river Rhone for environmental reasons due to warm river temperatures.

France on its Northern borders imported some 12.5 GW during midday hours July 16, while exporting some 7.5 GW into Southern Europe, according to grid operator RTE data.

German weekly net imports meanwhile doubled week on week.

Germany imported record amounts of electricity in the second quarter.

Platts, part of S&P Global Commodity Insights, assessed the daily capture prices for German solar at minus Eur25.64/MWh, the second negative daily prices this month after minus Eur145.34/MWh on July 2, the lowest such price to date.

German onshore wind was pegged at Eur1.26/MWh for July 16 avoiding a negative price as on July 2.

Average capture prices slightly rebounded in June as European gas prices recovered, according to Platts Renewable Energy Price Explorer.

— Andreas Franke

Germany to add up to 3.2 GW new onshore wind in 2023: BWE

- H1 adds up 60% at 1.57 GW
- Repowering accounts for 25%
- Repowering potential of 54 GW

Germany's onshore wind capacity additions rose 60% year on year in the first six months of 2023 with full-year growth forecast toward the upper end of the 2.7-3.2 GW range, wind association BWE said July 18.

Some 331 new turbines with 1.57 GW capacity were added, while 198 turbines with 239 MW capacity retired, according to the survey by Deutsche Windguard.

"Significantly more speed is needed in order to achieve the targeted annual 10 GW," BWE President Baerbel Heidebroek said.

Faster permitting was key with at least 12 GW of new permits needed each year.

A quarter of new turbines in H1 2023 were repowered projects.

BWE sees massive repowering potential as 13,600 turbines with 18 GW capacity will reach the end of their life spans by 2028, allowing for up to 54 GW of new capacity at existing sites.

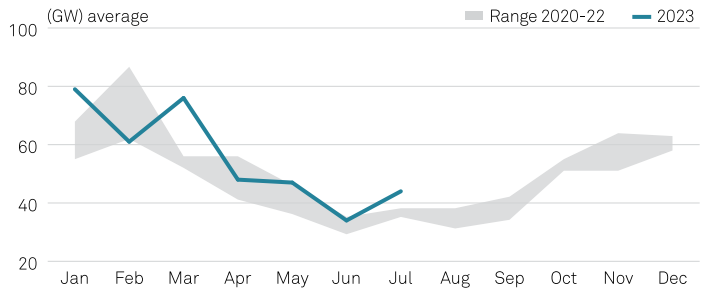
Repowering projects may also benefit from faster permitting procedures, with average permitting times rising to 24.5 months.

The total installed onshore wind capacity was 59.34 GW by the end of June.

Blustery July

Analysts at S&P Global Commodity Insights forecast German wind to average 18.8 GW in the fourth quarter, including offshore, with more than 8 GW installed, they said in a July 6 report.

European monthly wind generation



Source: S&P Global Commodity Insights based on WindEurope, TSO data (Jul 1-17 for 2023)

For the current quarter, analysts forecast a 10.4 GW average.

German wind output peaked in early July at 36 GW causing some negative hourly prices, especially when wind combined with solar during low-demand periods.

Across Europe, average wind power generation so far in July has been 6 GW higher year on year at around 44 GW, according to WindEurope and TSO data that S&P Global analyzed.

Onshore wind capture prices in Germany fell to minus Eur57.03/MWh (minus $64/MWh) on July 2, the lowest since Platts started assessing values for S&P Global Commodity Insights.

Another spell of negative hourly prices on July 16 saw capture prices again deflate, narrowly avoiding falling below zero.

Overall, volume-weighted German onshore capture prices averaged Eur88.27/MWh in Q2, according to Platts Renewable Energy Price Explorer.

— Andreas Franke

German solar, wind capture prices rebound, EEG surplus shrinks

- Solar rises 33% on month, tumbles 62% on year
- Only Eur20 mil from windfall tax: BEE
- EEG surplus shrinks to Eur10 bil

Capture prices for German wind and solar rebounded in June from two-year lows in May, system data showed July 10.

Longer term, however, continued year-on-year price declines meant the surplus in the EEG account shrunk by almost Eur5 billion since the start of the year.

The market value of the 9 TWh generated by solar in June was pegged at Eur71.24/MWh, up 33% month on month, but down 62% year on year.

The capture rate for the technology, which again topped the monthly generation mix in Europe's biggest power market, recovered to 75%, from 65% in May.

Daily capture prices ranged from Eur4.31/MWh to Eur121.87/MWh in June, according to Platts assessments from S&P Global Commodity Insights.

Rising gas prices and fewer national holidays helped reduce the number of negative hourly prices despite episodes longer than six hours that triggered a reduction in payments to renewable operators.

Generation costs for a gas-fired power plant averaged Eur97.20/MWh in June, up 3% month on month, but down 61% year on year, S&P Global data show.

Meanwhile, wind captured some 97% of the average June spot power price with both onshore and offshore market values averaging around Eur92/MWh, up 14% from May, but 53% below June 2022.

Daily capture prices for onshore wind ranged from Eur51.55/MWh to Eur129.51/MWh in June, S&P Global data showed.

Windfall tax revenue

The market values are the basis for the windfall tax applied. It was applied from Dec. 2022 to June.

Renewable energy association BEE estimates that only Eur20 million was generated by the emergency measures with the Eur130/MWh threshold never reached by the monthly average values.

BEE president Simone Peter criticized the emergency measure with the very small benefit far outweighing the administrative costs and negative impact on the power purchase agreement market.

The association calls for lessons to be learned on the future design of contracts for difference in reform of electricity market design in Germany and Europe.

The surplus in Germany's EEG account meanwhile shrunk to Eur10.25 billion by June 30, from Eur15 billion at the start of the year.

In June alone, the monthly deficit reached Eur1.6 billion, the highest so far this year.

Last July, the government scrapped the EEG levy paid by consumers that financed the gap between set feed-in or sliding premium tariffs and the market value of wind and solar as rising wholesale prices made the system profitable.

Merchant dip

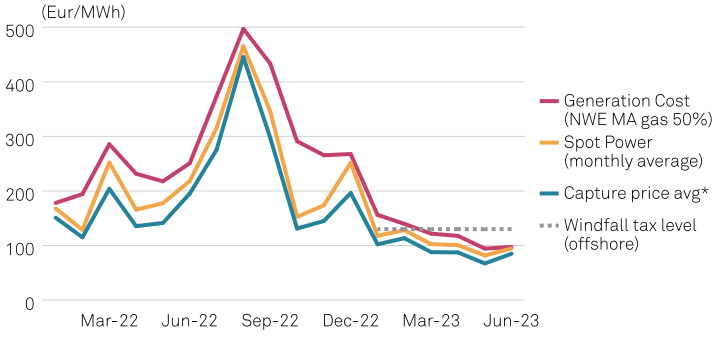
Meanwhile, wind and solar capacity registered as other direct marketing fell slightly to 15.28 GW after doubling to over 16 GW by end-2022, EEG system data show.

Onshore wind registered in the "merchant" category fell to 10.95 GW for July, while solar was little changed at 3.83 GW.

Merchant offshore wind was unchanged at 504 MW.

In addition, some 86 GW of renewable assets have been registered for direct marketing via energy trading companies still benefiting from EEG support including 7.3 GW of biomass.

German wind, solar capture price trends



Source: S&P Global, EEG Netztransparenz (*=average on/offshore wind, solar)

— Andreas Franke

German Wind, Solar Market Values (Eur/MWh)

	Jan-23	Feb-23	Mar-23	Apr-23	May-23	Jun-23	Jun-22
Onshore Wind	87.26	106.20	85.15	89.40	80.95	92.36	196.92
Offshore Wind	96.50	110.51	89.55	92.60	80.58	91.47	199.09
Solar	122.91	123.43	88.83	80.02	53.56	71.24	189.4
Spot Average	117.83	128.31	102.52	100.74	81.72	94.76	218.03

Source: EEG Netztransparenz.de

Shortage of installers 'biggest risk' in Europe's solar supply chain

- Supply chains tight, EPC resource scarce
- New solar markets add to pressure
- Risk of 'solar cowboys' re-emerging

European nations are working to simplify renewables permitting and unblock congested grid connection queues, but a shortage of companies able to install panels could provide a fresh barrier to new solar capacity in the region, according to developers.

A lack of engineering, procurement and construction (EPC) companies operating in solar is a further sign of the growing pressure on the clean energy supply chain, according to observers, and adds to a series of other barriers standing in the way of the solar industry's rapid projected growth.

"In the supply chain, the biggest risk in Europe is really the availability of EPCs to build," said Axel Thiemann, CEO of Sonnedix Power Holdings Ltd, a global renewable power producer majority-owned by investors advised by JP Morgan Asset Management.

Sonnedix has significant solar development pipelines in European markets including Spain, Italy, France and the UK, countries where grid operators are facing a backlog of projects waiting for connection.

In Spain, 43 GW of renewables capacity — split 80% solar and 20% wind — is awaiting construction authorization. Citing supply chain tightness, the Spanish government recently granted the entire pipeline a six-month extension to avoid the projects missing their July 25 deadline and having to start from the beginning of what is, on average, a five-year permitting process.

But even with the extra six months, the projects still need to enter operation by July 2025 or risk losing their grid access. "That is not possible with the current supply chain, with the current availability of EPCs," Thiemann said in an interview.

The emergence of new solar markets such as Poland and Ireland is adding to the strain, according to Benjamin Clarke, business analyst at lobby group SolarPower Europe.

"Now that there are significant pipelines of projects being developed all around Europe, including outside the traditional solar markets, EPCs are in significant demand," Clarke said in an email. "The challenge for EPCs at the moment is onboarding significant numbers of new hires that may not have a lot of experience in the solar industry and allocating their experienced personnel as intelligently as possible to help keep up with the volume of projects."

Solar 'not rocket science'

Concerns around a shortage of solar EPC companies comes amid significant expected demand for the technology underpinned by new capacity targets within REPowerEU, the EU's strategy to end its dependence on Russian energy imports.

The bloc is aiming to add 420 GW of new solar by 2030, taking its total fleet to 585 GW, with companies adding 41 GW of new capacity in 2022, almost a 50% jump year over year.

"Where there is market opportunity, there will always be people willing to step in to respond to demand," Clarke said, adding that SolarPower Europe has had "significant personnel growth" among its membership base.

Among European-headquartered solar EPC companies, the likes of Eiffage SA, Equans SAS, Enerparc AG, Juwi GmbH and BayWa AG have each built more than 2.5 GW of capacity, according to Wiki-Solar, which has a database that tracks utility-scale solar projects.

Increasingly, construction companies are moving into solar from other infrastructure sectors. Spain's Ferrovial SE, for instance, recently created an energy solutions business to start building solar and wind projects. Overseas EPCs are also entering the European market, according to Clarke.

"Building solar projects is not rocket science...and that's a good thing," Thiemann said.

Still, the worry is that the massive demand for EPCs in solar, added to the relative straightforwardness of the job of installing panels, attracts the wrong kind of companies — as happened during the last solar boom in Europe.

"With the first solar peak in 2010, we saw the rise of 'solar cowboys' which were barely qualified," Clarke said. "A number of projects were installed poorly, and it's fair to say that this undermined public faith in solar."

To avoid a repeat of that experience, SolarPower Europe developed a series of best practice guidelines for the industry, recommending that asset owners select EPCs that have a track record of financial stability and delivery of a portfolio of projects.

The guidelines "provide a blueprint for establishing quality at the stage of a project where [capital expenditure] and risk is the highest," Clarke said.

S&P Global Commodity Insights' Alex Blackburne produces content for distribution on S&P Capital IQ Pro.

— Alex Blackburne

European June hydroelectric production mostly increased; Nordic region declined

- June hydropower generated a total 35.7 TWh
- Italian hydro at 4.5 TWh, up 41% year on year
- Nordic June hydro output down 10% annually

Hydro power production in June across majority of the European countries saw a spike from the previous year, due to wetter weather, system data showed July 14.

Total hydro generation year-to-date registered at almost 207 TWh and totalled 35.7 TWh for the month of June, both 5% higher year on year.

In recent years, the Italian and Iberian hydro levels were the most concerning due to reduced rainfall and extreme heatwave during the summer periods. In June however the region had an increase in rainfall, resulting in a rebound in hydro production.

Italian hydro for June saw the most improvement after a 41% jump to 4.5 TWh on the year, which is the highest level seen since July 2021.

Iberian hydro, which includes Spain and Portugal registered at 2.1 TWh in June, after output was up 28%. Despite the rise, market participants remained uncertain whether the region has recovered and expect the heatwave over the summer to push

levels back down again.

Spanish hydropower stocks in reservoirs rose to 11.4 TWh, or 48.6% of total nominal capacity, the week ended June 25, environment ministry (MITECO) data showed.

In neighboring France, hydro generation saw a steady increase since March and was 34% above the previous year for the month of June. However, the year-to-date level was only marginally higher, which market participants attributed to the very dry February.

Meanwhile, French hydro stocks reached 78.8% of total nominal capacity or 2.8 TWh the week ended June 25, the highest level seen since the same period in 2020.

In the Alpine region, Germany only saw an 11% increase in June's output when compared to 2022, yet Switzerland and Austria were almost unchanged. Alpine hydro for year to date however was up 13% to almost 42 TWh.

Swiss hydro stocks registered at 51.8% of total nominal capacity or 4.6 TWh during week 25, which is also above the 10-year average at 48.2%, according to data from the Swiss Federal Energy Office.

In contrast, the Nordic hydro production has seen a decline overall, even though the snow melting season remains. June's output was mostly lower due to a 27% drop in Swedish and 12% drop in Finnish production compared to 2022.

Warm weather and more evaporation rather than precipitation was said to be a contributing factor in the low hydro levels in the region, according to the weekly Norwegian Water Resources and Energy Directorate power reports in June.

Hydro stocks in the Nordic region was at 77.5 TWh in week 25, while levels were just over 2% higher than the same period last year, NordPool data showed.

— Fatemeh Zahedi

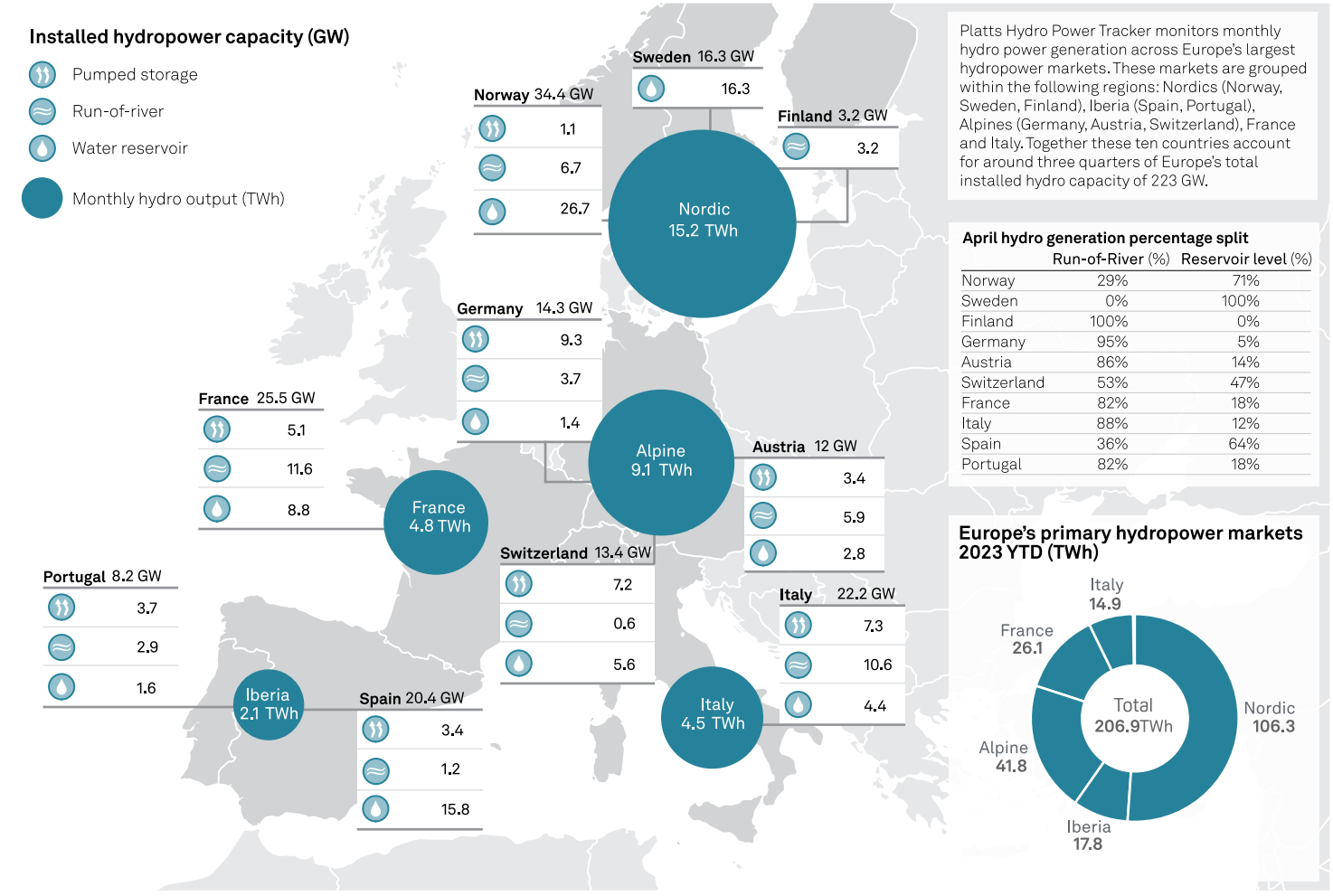
Hydro output (TWh/change on year)

June	Nordics	Change	Iberia	Change	Alpine	Change	France	Change	Italian	Change	Total	Change
Hydro	15.16	-10%	2.1	28%	9.1	3%	4.8	34%	4.5	41%	35.7	5%
YTD 2023	**Nordics**	**Change**	**Iberia**	**Change**	**Alpine**	**Change**	**France**	**Change**	**Italian**	**Change**	**Total**	**Change**
Hydro	106.3	-1%	17.8	26%	41.8	13%	26.1	3%	14.9	15%	206.9	5%

Source: TSOs, ENTSO-E

*Hydro output excludes pump storage generation and consumption

Hydro output in Europe's major hydropower markets, June 2023



Source: S&P Global Commodity Insights based on TSO data, ENTSO-E, IHA

News

Austria

Austria's Wien Energy starts hydrogen tests on 395 MW gas turbine

- Plans to double 15% blend if successful
- World's first test on large gas turbine
- 115 similar turbines across Europe

Wien Energie has started hydrogen blending tests at its 395 MW Donaustadt gas-fired power plant testing a 15% blend this summer, the Austrian utility said July 14.

The Eur10 million pilot with Siemens Energy, Verbund and RheinEnergie could double the blend next summer to test 30% if trials this summer are successful.

"We move from talking to doing in our effort to make Vienna climate neutral by 2040," Wien Energie CEO Michael Strebl said, describing the worldwide first trial of this kind as a milestone.

The 2001 commissioned combined heat and power plant is able to produce 395 MW of power and 350 MW of heat for the Austrian capital.

German utility RheinEnergie joined the trial, planning to convert its similar gas turbine at Cologne to hydrogen, it said.

Siemens Energy noted a widespread installation of its hydrogen-ready turbine SGT5-4000F, with some 31 GW installed across Europe.

Blending just 15% of hydrogen on an annual basis could save some 33,000 mt of CO2 for each turbine, according to Wien Energy estimates.

The hydrogen for the tests performed for a few days will be supplied via trucks and blended on site without grid feed-in, a spokesperson for Wien Energy said previously.

Platts, part of S&P Global Commodity Insights, last assessed the cost to produce green hydrogen (Netherlands, PEM electrolysis) at Eur4.38/kg on July 14.

— Andreas Franke

Central and East Europe

Poland approves country's first nuclear power plant

- Pomerania NPP could start construction in 2026
- Enables PEJ to proceed to location decision
- PEJ signed MoU with Westinghouse, Bechtel

Poland's Ministry of Climate and Environment has given the green light for construction of its first nuclear power plant in Pomerania, state holding Polskie Elektrownie Jadrowe (PEJ) said July 12.

PEJ described the step as a "decision-in-principle" that its investment project was in line with the public interest and policies pursued by the state.

"Today's decision brings us closer to the moment when the first Polish nuclear power plant will start operating and producing electricity in the 2030s," said Anna Lukaszewska-Trzeciakowska, Secretary of State in the Chancellery of the Prime Minister, in charge of Strategic Energy Infrastructure.

The decision enables PEJ to apply for further administrative approvals, such as a location decision, and subsequently the construction license, it added.

In May, PEJ signed a memorandum of understanding with US reactor vendor Westinghouse and engineering company Bechtel to create a consortium to design and build a nuclear plant of up to 3.75 GW, based on Westinghouse's AP1000 pressurized water reactor.

Construction is expected to start in 2026 with a target date of 2033 for an operational start, PEJ said in May.

— Andreas Franke

Slovakia's new 471-MW Mochovce-3 reactor in final tests before commissioning

- Testing to be completed in Sep or Oct
- Reactor output boosted to 75% from 55%
- Slovakia set for export swing upon start-up

Slovakia's new 471-MW Mochovce-3 nuclear reactor is to complete testing in September or October before operating at full power, utility Slovenske Elektrarne said July 17.

"Full operation of the third [Mochovce] reactor and the fulfilment of the project's parameters will be confirmed by a 144-hour test operation at 100% capacity which will conclude the power start-up procedures," the statement said.

If the test is successful, Slovakia's Nuclear Regulatory Authority will give final approval to Mochovce-3's commercial operation.

Output of the VVER-440 reactor has been ramped up to 75% from 55% of full capacity.

"During the tests so far, Mochovce-3 has fulfilled all the required safety demands and criteria and we are confident that it will also fulfill the last three power-up procedures," said SE's Juraj Kresnansky, in charge of operations of the Mochovce-3 and Mochovce-4 reactors.

Slovakia is expected to switch from being a net importer of power into a net exporter with the export surplus increasing when Mochovce-4 is completed.

Construction of the Mochove reactors began in 1985, but work was halted in 1991.

Works resumed in 2008, with the original target for both units to be completed and operating by 2013.

The budget has ballooned from Eur2.8 billion to Eur6.2 billion.

Mochovce-4 is expected to start operation in August 2024, SE said in 2022.

— Chris Johnstone

Lithuania to award 700 MW offshore wind concession in Q3

- Ignitis, Ocean Winds provisional winners
- 41-year concession for 3 TWh/year project
- Covers quarter of national demand by 2030

Vilnius-based Ignitis in partnership with Ocean Winds submitted a development fee bid of Eur20 million ($22 million) in

Lithuania's tender for a 700-MW offshore wind concession, the highest bid in the competition, the consortium said July 11.

The consortium said it expected to win the tender once regulator NERC had completed screening for compliance with national security interests at the beginning of the third quarter.

"One of Lithuania's...most significant projects for achieving energy independence is offshore wind projects in the Baltic Sea," Ignitis Group CEO Darius Maikstenas said.

The 3 TWh/year project, covering a quarter of Lithuania's power demand, is set to start operations in 2030 reducing "Lithuania's reliance on electricity imports and guaranteeing affordable electricity for residents and businesses," the head of the state-owned utility added.

Following successful compliance with the national security interests screening procedure, Ignitis Renewables and OW, the offshore wind joint venture of Engie and EDP, will be required to set up a joint company, which will be awarded the development and operation permit that will grant the right to use the maritime area for 41 years, it said.

The concession zone is located some 30–36 km offshore Lithuania's Baltic Sea coast covering 120 sq km.

Analysts at S&P Global Commodity Insights estimate break-even levels for a 30-year offshore wind PPA in Denmark's Baltic Sea starting in 2030 at around Eur80/MWh (nominal) to recover new build costs, operating costs, and financing costs, according to a report published July 3.

— Andreas Franke

Balkans hydro output hits five-month low, set for further declines

- Weekly output down 8% below 1 TWh
- Danube levels to fall amid hot weather
- Spot prices stay near Eur110/MWh

Balkans hydropower output continued to fall in the first two weeks of July, due to lower Danube levels and reduced reservoir output, hydrological reports and Entso-e data showed July 18.

Hydro production is forecast to fall further amid hot weather.

Combined hydropower production in Romania, Serbia, Bulgaria, Slovakia, Slovenia, Croatia and Bosnia fell 8% to 967 GWh in the week to July 16.

Danube flows in Romania and Serbia showed the biggest decrease.

Only Slovenia and Croatia registered small output gains compared with the last weeks of June.

Hydro reserves in the Balkans also continued to recede from their mid-June peaks.

Combined reserves added up to 6.17 TWh on July 16, down 3% since the start of the month.

Spot power prices averaged Eur106/MWh ($119/MWh) in the first week of July and Eur114/MWh in the second week in both Hungary and Romania, trending slightly higher amid a heat wave affecting much of Southern Europe.

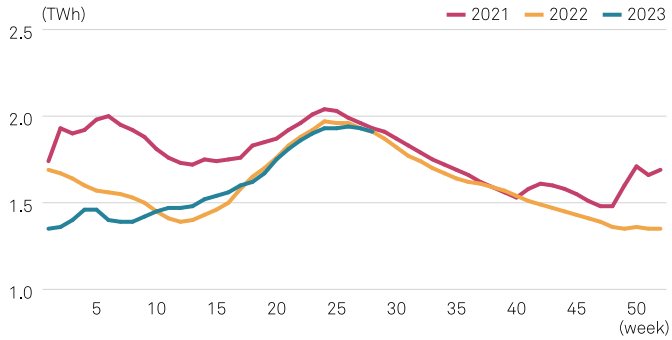
By contrast, forward prices fell shedding Eur12-16/MWh partly due to lower gas prices.

August closed at Eur96/MWh in Hungary and Eur89/MWh in Romania, exchange data showed.

Danube levels in Slovakia, Romania and Serbia are forecast to drop further in the third week of July, falling below the long-term seasonal norm.

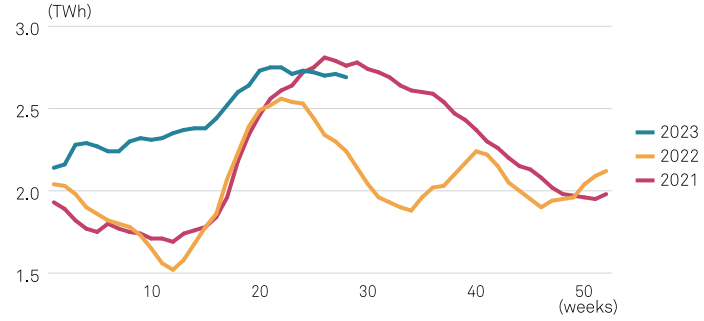
The trend may slow late July due to rainfall forecast across the Danube catchment area with 30-50 mm across mountain areas in Austria, Slovenia and Romania, and about 10-20 mm in low-lying areas, data from Hungary's Hydrology Service showed.

Bulgarian hydro reservoir content



Source: ENTSO-E data

Romanian hydro reservoir levels



Source: ENTSO-e

— Balazs Szladek

Denmark

UK-Denmark power cable laying completed, link set for end-2023 start

- Energinet plugs in final section in North Sea
- 1.4-GW Viking Link to boost GB imports

The final piece of the new UK-Denmark subsea cable has been connected with the 1.4-GW interconnector on track to start operations by the end of the year, Danish transmission system operator Energinet said July 18.

The last section of the 630 km long submarine cable was installed in German and Dutch waters, Energinet said.

"The completion of the cable laying at Viking Link is a fantastic moment for both the UK and Denmark. After years of planning and construction, we are fully connected and one step closer to sharing green energy with each other for the first time," said Henrik Riis, head of power transmission at Energinet.

Offshore construction for the DKK 13 billion ($2 billion) project linking West Jytland in Denmark with the Biker Fen substation in Lincolnshire, Eastern England, started three years ago.

The new cable is likely to boost Nordic power exports with the Nordic power for 2024 pegged at Eur55/MWh on July 17, exchange data show.

Platts, a unit of S&P Global Commodity Insights, last assessed GB power for 2024 at Eur132.50/MWh.

Both countries have rising shares of wind power in the generation mix with day-ahead power on July 16 settling below zero for both Great Britain and the Nordic system price for the first time.

— Andreas Franke

Everfuel extends European hydrogen delivery halt as further valve fault discovered

- Second leak on same valve identified during tests
- Problem extends hydrogen delivery suspension
- Company has fixed initial issue with loose bolt

Danish renewable hydrogen company Everfuel has extended the suspension of part of its hydrogen trailer fleet, after further tests showed another valve leak problem, it said in a statement July 17.

Supplies to hydrogen fueling stations remain impacted, it said. Everfuel supplies hydrogen to its own network of eight refueling stations across Denmark, the Netherlands and Norway, as well as to third parties.

As of July 17, all of Everfuel's refueling stations were out of operation, according to the company's refueling app.

Everfuel operates two trailers with different valves, that will resume operations.

"Two unaffected trailers will resume operations as soon as possible and service the Heinenoord station" in the Netherlands, it said. "Supplies of hydrogen to other refilling stations will remain impacted."

Everfuel declined to comment on whether alternative supplies would be made available, or when the other stations would resume operation.

An original failure that caused a leak on June 10 on a hydrogen trailer in the Netherlands has been identified and repaired, Everfuel said. However, a second problem on the same value was discovered during inspections following refilling after repairs were carried out.

"During the inspections, a second malfunction on the same valve, affecting eight trailers has been detected," Everfuel said. "The root cause investigation of the second malfunction is ongoing together with the trailer and valve suppliers."

The company has two further trailers that are yet to enter commercial operation, a spokesperson told S&P Global Commodity Insights July 17.

Burst valve

The original failure that occurred during operations in the Netherlands within the fenced perimeter of the Heinenoord hydrogen station was down to "a failure in tightening bolts on the production line of the valve supplier," Everfuel said.

The leak posed no risk to people or the environment, it added.

The issue "has been handled and all trailers are checked and procedures are in place to prevent it from happening again," the company said.

The root cause of the problem was four bolts on a hydrogen valve flange that were not tightened correctly, leading to an O-ring that keeps the hydrogen contained eventually bursting, Everfuel said in a June 28 statement.

Everfuel said at the time that the problem was traced to an assembly error on the valve sub-supplier production line, which produces valves for the hydrogen trailer supplier.

In November 2020, Everfuel signed a multi-year agreement with Hexagon Purus for multiple 45-foot hydrogen distribution systems, to be used to transport hydrogen to refueling stations serving taxis, trucks and buses.

Everfuel's hydrogen trailers have capacity to deliver 1.1 mt of hydrogen per delivery and have been serving the Heinenoord refueling station near Rotterdam in the Netherlands, which supports around 24 hydrogen buses, and the High Capacity H2 Station in Copenhagen, serving fuel cell taxis, Investor Relations Manager Mads Mortensen said in June.

Platts, part of S&P Global Commodity Insights, assessed monthly European hydrogen pump prices (Germany) at Eur12.85/kg ($14.44/kg).

— James Burgess

Danish molten salt heat store connected to grid at Nordjylland

- Aalborg tests decarbonization technology
- Linked to phase out of Nordjylland coal plant
- Kyoto Group builds 41-project pipeline

An innovative thermal energy storage and heat generation system at Aalborg Forsyning's 411-MW Nordjylland coal-fired power plant in Aalborg, Denmark has been connected to the grid ahead of hot commissioning, Norwegian developer Kyoto Group said July 12.

The molten salt-based "thermal battery", known as Heatcube, is to be charged using renewable power. This unit is part of Aalborg Forsyning's program to test new technologies, phase out its coal plant and decarbonize industrial and district heat.

"The high voltage connection between the transformer building and the world's largest electrical heater for molten salt, as a key equipment of Heatcube, has been successfully commissioned," Kyoto Group said in a statement.

Hot commissioning of the 18 MWh storage capacity unit with a discharge load of 4 MW is planned for the second half of July.

In November 2021, Kyoto signed its first commercial contract for the technology with local multi-utility Aalborg Forsyning, which said it wanted to first test it for district heat purposes.

The Danish government is committed to phasing out coal-fired power by 2030. Nordjyllandsværket is one of three central coal plants in the country. According to Denmark's Climate & Energy Outlook, coal use at the plant is to cease by the end of 2028.

Kyoto Group has a 41 projects in its development pipeline, equating to 2,100 MWh of thermal storage.

It had signed seven Letter of Intents by end-2022 and won in November won a tender in Hungary run by Reliable Energy Group to install a 56 MWh Heatcube at a major CCGT power plant in Budapest. The installation is planned for the second half of 2023.

— Henry Edwardes-Evans

Europe

European Commission to seek COP28 renewables, energy efficiency pledges

- Non-binding targets supported by ministers
- Simson to make proposals at Goa G20 summit
- Spain starts work on new power market draft

The European Commission will seek a voluntary global pledge at the UN's COP28 climate talks in December to triple deployment of renewables by 2030, Commissioner Kadri Simson said July 12 following an informal EU energy council meeting in Valladolid, Spain.

The EC also wants to double the global rate of energy efficiency improvements this decade compared to the previous decade.

"I'm satisfied by the expression of support from [EU energy] ministers and the interest expressed by [COP28 President] Sultan Al Jaber himself," Simson said. "I will now bring this proposal to the G20 Ministerial next week when energy ministers will meet in India [in Goa on July 21]."

Meanwhile Spain's Ecological Transition Minister Teresa Ribera, speaking as host of the meeting under the Spanish presidency of the EU, said a new draft text of the EU's Electricity Market Design proposal would be prepared as soon as possible, but acknowledged the process was difficult.

Blocking progress is whether and how French investments extending the lifetimes of existing nuclear reactors should benefit from two-way Contracts for Difference; and whether derogations on air quality rules in capacity markets be allowed, allowing EU member states to support coal plants on security of supply grounds.

"We're trying to get a draft document to cover the principle different perspectives without putting at risk what we think are the two main principles in the discussion," Ribera said.

These were ensuring a level playing and efficient functioning of the internal electricity market, as well as ensuring decarbonization was ongoing.

"It is difficult, not possible today, but our aim is as soon as possible [to produce a new proposal]," Ribera said, without committing to a deadline.

With a general election in Spain on July 23, commentators believe resumption of significant talks on the dossier could be delayed well into the second half of 2023.

"Everybody knows that the opposition parties in Spain, who are likely to form the new government, have a very different position on market design than the current socialist government," WindEurope's Giles Dickson said in a recent interview on the association's website.

— Henry Edwardes-Evans

Danish investor CIP reaches first financial close on Eur12 bil green energy fund

- Investors commit first $5.6 billion for CI V
- First FID for 400 MW onshore wind in June
- Fund aims to install 20 GW in OECD nations

Copenhagen Infrastructure Partners has reached a first financial close for its new CI V fund, putting it on track to reach its target fund size of Eur12 billion ($13 billion) and become the world's largest dedicated greenfield renewable energy fund, it said July 10.

CI V aims to add 20 GW of new clean energy capacity in OECD nations and has attracted Eur5.6 billion of firm commitments from institutional investors in Continental Europe, the Nordics, the UK, North America and Asia-Pacific by first close on June 30.

"Reaching nearly Eur6 billion at first close is a testament to the importance of the fund, and the confidence placed in our industrial approach to energy infrastructure investments," said Jakob Baruel Poulsen, managing partner at CIP.

The investment strategy for CI V is a continuation of the predecessor funds CI I - IV where projects were entered early and de-risked prior to the start of construction to capture greenfield premiums, it said.

CI V already has the largest project pipeline of any CIP fund to date with ownership in over 40 projects for a potential investment of Eur20 billion, it said, adding that such a large portfolio provides optionality and flexibility.

In June, CI V took its first final investment decision on a 400-MW onshore wind project in the US.

The focus will be on offshore wind, energy storage, onshore wind and solar in low-risk OECD countries in North America, Western Europe, and Asia Pacific.

CIP sees favorable timing for such investment with "accelerating demand for new renewable infrastructure to secure energy independence and deliver on ambitious climate pledges."

CI V has the potential to "accelerate the energy transition on a global scale, while generating strong returns for our investors," it said noting annual CO2 avoidance of 15 million mt based on the 20 GW target for CI V.

CIP is the world's largest dedicated fund manager for greenfield renewable energy investments and has raised approximately Eur25 billion since it was founded in 2012.

At COP26 in 2021, CIP said it aims to deploy Eur100 billion into green energy by 2030.

Existing CIP investments include the offshore wind projects Veja Mate in the German North Sea, Beatrice in Scottish Waters and the 487-MW Monegros portfolio of 12 onshore wind farms in Spain.

Capture prices for European wind and solar have eased from last year's record highs with German offshore wind averaging Eur81.04/MWh in May, according to Platts Renewable Energy Price Explorer.

— Andreas Franke

European OTC power volumes rise 32.5% on month in June: LEBA

- Swiss traded volumes increase 152% on year
- German liquidity rises 33% on month to 278.5 TWh
- French volumes double on the year to 42.3 TWh

European over-the-counter power trading in June increased by almost a third on the month, reaching around 410 TWh in June, data from the London Energy Brokers Association showed July 14.

European traded volumes increased by nearly 78% from the same time in 2022. European power prices were very volatile during June, tracking natural gas prices and market uncertainty regarding the prolonged maintenance at the 80 Mcm/d capacity Norwegian Nyhamna gas facility.

Nyhamna was taken fully offline on May 19, with an initial expected restart date of June 21. However, the facility's return was pushed back to July 15 due to technical issues, according to Gassco transparency notes.

Switzerland experienced the largest liquidity percentage change in Europe in June, with liquidity jumping almost 78.5% on the month and 152% on the year to 6.6 TWh.

Meanwhile, Germany was the most liquid market in June, with nearly 278.5 TWh volumes traded in June, up 33% on the month and up almost 85% on the year.

In France, traded volumes registered at 42.3 TWh and liquidity rose nearly 40% from the same period in 2022.

UK OTC trading volumes ticked up 1% on the month to 56.3 TWh in June, experiencing the smallest month-on-month increase across Europe. However, UK trading volumes on the year rose 31% in June.

Liquidity in the Nordics more than doubled on the month and rose by almost a quarter on the year to 13.6 TWh.

European OTC power volumes

	June 2023 (TWh) - OTC Volumes	Monthly Change(%)	Yearly Change(%)
UK	56.3	1.1	31.3
Germany	278.4	33.0	84.7
France	42.3	39.6	98.9
Nordics	13.6	103.0	24.0
Italy	35.1	26.3	137.1
Spain	7.1	6.0	-17.8
Netherlands	10.7	-8.5	28.5
Belgium	1.9	-17.4	-8.6
Central & Eastern Europe	12.9	35.8	39.1
Switzerland	6.6	78.4	151.8
Other	1.7	-10.5	-11.1
Total	410.4	32.5	77.9

Source: LEBA

— Daria Dabiri

France

EDF restarts French 1.3-GW Penly-1 reactor offline since 2021

- July 14 output peaks at 33 GW vs 26 GW in 2022
- Six hours below zero in day-ahead auction
- Penly set to host first new EPR2 reactors

EDF has started ramping up its 1.3-GW Penly-1 reactor after a 21-month-long repair outage, the French operator said July 14.

The reactor in Normandy was taken offline in Oct. 2021 for a decennial overhaul including repairs for stress corrosion on pipes within the primary circuit.

So far this year, EDF returned nine reactors of its 1.3-GW or 1.5-GW class following repairs and checks for stress corrosion including Penly-2 which was restarted in June.

Nuclear output peaked at 33 GW on July 14, according to grid operator RTE.

Analysts at S&P Global Commodity Insights forecast French nuclear output to average around 30 GW in July and August reflecting so-called flexing or ramping down during low demand periods.

France registered six hours with negative prices in the day-ahead auction for July 15, Epex Spot data showed.

Weekly output in the seven days to July 9 averaged 33.6 GW covering some 79% of domestic demand, which rose to the highest in ten weeks averaging 42.8 GW, according to data by grid operator RTE.

French month-ahead baseload settled July 13 at Eur75.78/MWh, the lowest in over two years except two days that settled slightly lower early June, EEX data showed.

EDF plans to build the first two of six new EPR2 reactors at Penly with details on how to finance the estimated Eur50 billion ($56 billion) new nuclear program expected in 2024, Finance Minister Bruno Le Maire indicated in July at a parliamentary hearing.

— Andreas Franke

EDF restarts Cattenom-2 reactor early, delays Dampierre 4 into August

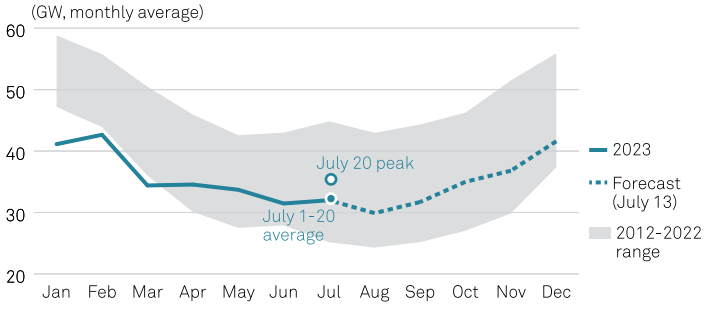
- Nuclear output peaks above 35 GW
- Heat warning for Martigues CCGT
- Aug base approaching Eur80/MWh

EDF restarted its 1.3-GW Cattenom-2 reactor on July 20, some three weeks earlier than planned, after it was taken offline in March for refueling and stress corrosion checks, the French utility said.

In accordance with EDF's strategy on dealing with the stress corrosion problem at some reactors, maintenance teams completely replaced the pipes in the reactor's safety injection circuit, EDF said.

Nuclear output peaked at 35 GW on July 20, some 8 GW higher year on year but little changed from last week's peak, data from grid operator RTE showed.

French nuclear output peaks up 8 GW on year in July



Source: EDF, S&P Global Commodity Insights

French nuclear has averaged around 32 GW so far in July.

Analysts at S&P Global Commodity Insights forecast French nuclear averaging around 30 GW in July and again in August.

However, EDF delayed the planned return of the 900-MW Dampierre-4 reactor by a week to Aug. 4, it said.

EDF also warned about heat-related restrictions for its 930 MW gas-fired CCGT at Martigues between Fos and Marseilles.

"Due to the high temperatures of the Mediterranean Sea, production restrictions are likely to affect Martigues from July 19 until further notice," it said.

A heat-related restriction also remains in place for the Bugey nuclear power plant on the Rhone river from July 22, EDF said July 19.

French August baseload contracts continued to rebound in trading July 20 at Eur78/MWh ($87/MWh) after falling some 27% since the start of the month to settle July 17 at Eur71.74/MWh, the lowest for the contract in over two years, EEX data showed.

— Andreas Franke

France's EDF updates Rhone river reactor warning, set to restart Cattenom

- Only one Bugey unit may be restricted
- Cattenom-2 set to return 23 days early
- Aug contract bounces off two-year-low

EDF has updated the river temperature warning for its 3.6-GW Bugey nuclear power plant with only one unit potentially impacted from July 22, the French utility said July 19.

One of the four 900-MW units at Bugey was temporarily halted during the July 15/16 weekend due to environmental reasons, with river temperatures above a critical threshold for aquatic life.

"Due to the high temperatures forecasts on Rhone river, production restrictions are likely to affect Bugey nuclear production from July 22. However for grid constraints the production will be at least 1,800 MW and it may change according to the grid needs," EDF said in the updated transparency note with the first warning from July 10 canceled.

Last year, safety regulator ASN waived river temperature restrictions due to record-low reactor availability.

In June, the regulator noted a study showing little impact on aquatic life from the waiving of restrictions on four river-based nuclear power plants in Southern France.

Widespread negative hourly prices for the July 15/16 weekend across Northwestern Europe forced EDF to ramp down its fleet by up to 10 GW including Bugey 3.

Meanwhile, Bugey-2 is planned to come offline for a three-month annual maintenance stop on July 22.

On the flipside, EDF brought forward the restart of its 1.3-GW Cattenom-2 to July 19.

The unit has been offline since March and was due to return on Aug. 12, but was one of six 1.3-GW reactors for which EDF is performing checks and potential preventative repairs to stress corrosion issues faster than initially planned.

Nuclear output so far in July has averaged 32 GW, peaking July 19 above 34 GW.

Analysts at S&P Global Commodity Insights forecast French nuclear averaging around 30 GW in July and again in August.

French August baseload contracts rebounded July 19 above Eur75/MWh ($84/MWh) after settling July 17 at Eur71.74/MWh, a level not seen over two years for the contract, EEX data showed.

French reactor watchlist

Unit	(MW)	Outage start	Scheduled return	Notes
Cattenom 2	1,300	03-Mar-23	19-Jul-23	Refuling, SIS check
Gravelines 6	900	18-Apr-23	26-Jul-23	Refueling
Dampierre 4	900	31-May-23	28-Jul-23	Refueling
Cruas 4	900	28-May-23	29-Jul-23	Refueling
Saint Alban 1	1,300	24-Feb-23	30-Jul-23	Refueling, extra maintenance
Gravelines 1	900	11-Feb-23	01-Aug-23	Refueling, extra maintenance
Paluel 3	1,300	28-Apr-23	03-Aug-23	Refueling
Flamanville 1	1,300	22-Mar-22	13-Aug-23	Steam generator replacement
Golfech 2	1,300	27-Mar-23	13-Aug-23	Refueling, SIS checks
Golfech 1	1,300	26-Feb-22	20-Aug-23	10-year-overhaul (SIS indication)
Tricastin 3	900	15-Jul-23	24-Aug-23	Refueling
Chinon 3	900	02-May-23	27-Aug-23	Refueling
Bugey 2	900	22-Jul-23	25-Oct-23	Refueling

Source: EDF (compiled by S&P Global Commodity Insights from REMIT notes to July 19)

— Andreas Franke

French hydro stocks increase to highest level since 2020

- Thunderstorm forecast in coming days
- French day-ahead power prices fall 10%

Hydro reservoir levels in France rose to more than 3 TWh in Week 28, the highest capacity since the same period of 2020, transmission system operator RTE said July 21.

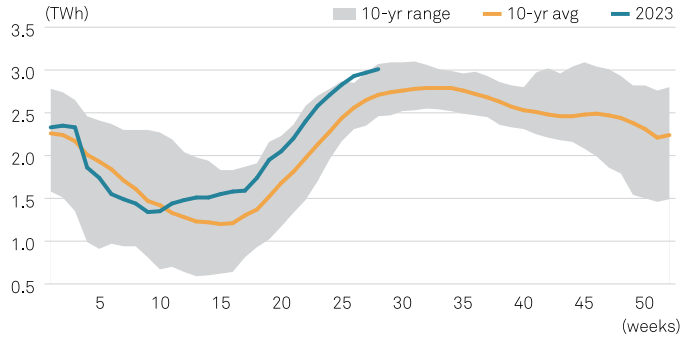
Stocks were at 83.8% of total nominal capacity and registered above the previous year's capacity at 68.6%.

Market participants attributed the increase in hydro stocks to the increased rain in the past week in France. Thunderstorms and rainy weather are expected in the coming days across parts of France, forecasts by MeteoFrance showed.

French hydro power output, however, dropped 6% week and week to 5.3 GW, while power demand remained almost unchanged at 42.8 GW.

Day-ahead baseload power prices in France fell 10% to Eur78.12/MWh in the week, according to EPEX.

French hydro stocks at 83.8% total capacity



Total nominal capacity is 3.59 TWh
Source: RTE

— Fatemeh Zahedi

CNR signs 25-year PPA to supply French rail SNCF 88 GWh/year wind power

- SNCF aims for 560 GWh/year from PPAs by 2026
- Biggest French power consumer with 9 TWh/year
- French wind PPA break-even at Eur90/MWh: S&P Global

French railway operator SNCF has signed a corporate power purchase agreement with power generator CNR for 88 GWh/year, it said July 11.

The 25-year contract relates to supply from two wind farms with a combined 36 MW in central France starting in 2024.

"These two plants diversify the technology mix of our PPA portfolio and bring very different production profiles from existing photovoltaic power plants," said SNCF Energie CEO Richard Fecamp.

Developer Vensolair is to start construction this autumn on the two projects in the Haute-Vienne and Eure-et-Loir departments.

Their annual output is enough to power the RER D, the longest of the five commuter rail lines in the Greater Paris region.

SNCF is France's biggest industrial consumer of electricity, with its 15,000 daily trains accounting for the majority of its annual demand of 9 TWh.

Its passenger unit SNCF Voyageurs targets 40% to 50% of green power by 2026, of which 20% is to be based on PPAs, it said.

SNCF already signed a 25-year PPA with Voltalia for 200 GWh/year from three solar parks with 143 MW capacity in southern France.

The company's energy unit SNCF Energie will have contracted 560 GWh/year by 2027 from new solar and wind power plants, it said.

Overall, SNCF Voyageurs will have 1.1 TWh/year of electricity of renewable origin from PPAs by 2028.

The state-owned railway operator also plans to develop 1 GW of solar PV to self-generate another 20% of its annual power demand by 2030, it said July 6.

Analysts at S&P Global Commodity Insights estimate break-even levels for a 10-year onshore wind PPA in France starting in 2025 around Eur90/MWh to recover new build costs, operating costs, and financing costs, according to a report published July 3.

That compares to Eur85.29/MWh for subsidized sliding premium contracts awarded by the government in the latest tender.

Volume-weighted monthly average capture prices for French wind ranged from Eur75.02/MWh to Eur144.95/MWh so far in 2023, according to Platts Renewable Energy Price Explorer.

— Andreas Franke

France awards Eur65 million funding to 18-MW tidal project at Raz Blanchard

- Flowatt project to start 2026 near La Hague
- France has 3-5 GW tidal potential in Atlantic

France is to support the 17.5 MW Flowatt tidal turbine project at Raz-Blanchard with Eur65 million, the energy ministry said July 7.

The pilot project developed by Qair comprising seven turbines by Hydroquest is slated to commission in 2026, it said.

The project will also benefit from a preferential purchase price for the electricity produced with the government hoping to attract exports for its tidal turbine sector.

The project aims to exploit the energy of the strong marine currents in the English Channel between Alderney and Cap de La Hague.

A 1-MW demonstrator (OceanQuest) has been operating for two years between Paimpol and island of Brehat.

Flowatt is set to demonstrate the level of maturity for the Hydroquest technology for the long term, it said.

Funds will be provided under the France 2030 scheme, with Flowatt winning the ADEME call for "Energy Systems – Sustainable Cities and Territories," the ministry said.

Allocation of the support is subject to notification to the European Commission.

The EC's offshore energy strategy in 2020 set a target of 40 GW of ocean energy capacity excluding offshore wind in the EU by 2050.

France has an estimated tidal power potential of 3-5 GW. Beside Raz-Blanchard, the potential is mainly located in the Straight of Fromveur, off the island of Ouessant in Brittany.

In the UK, Orbital Marine Power is planning a 30-MW tidal project at Westray in the Orkneys.

Despite decades of testing and trialing, tidal and wave technology remains a footnote in the European renewables story due to cost and operational barriers.

— Andreas Franke

Germany

Germany adds record 8 GW solar, wind capacity in H1: IWR

- Solar up 71% on year, wind gains 77%
- Total 15 GW could be added in 2023
- 20 TWh/year boost: IWR think-tank

Germany added a record 8 GW of solar and wind power capacity in the first six months of 2023, up around two thirds year on year, think-tank IWR said, based on data from the BNEtzA registry.

Solar added some 6.5 GW new capacity, up 71% on H1 2022 with 465,000 new solar assets registered.

New wind capacity was up 77% with 350 turbines and 1.75 GW capacity added, according to IWR.

Of that, some 1.5 GW was onshore wind, while offshore wind accounted for 230 MW new capacity at one project in the Baltic Sea.

IWR did not provide data for wind farm retirements, which in 2022 amounted to 266 MW.

For the full year 2023, IWR estimated some 15 GW of new solar and wind capacity that could boost annual electricity generation by 20 TWh, it said.

North-South trends

Bavaria headed the state-by-stake ranking for solar with almost 1.6 GW added followed by North Rhine-Westphalia (1 GW) and Baden-Wuerttemberg (0.9 GW), IWR said.

For wind, Schleswig-Holstein led the ranking with 580 MW of new wind, ahead of Lower Saxony (230 MW), North Rhine-Westphalia (200 MW) and Brandenburg (150 MW).

The ranking underlined the North-South regional divide causing some grid bottlenecks with wind strongest in the North and solar booming in the South.

Capture prices for German wind and solar eased in H1 from record-highs seen in 2022.

German solar capture prices hit a two-year-low in May averaging Eur61.89/MWh ($68/MWh), according to Platts Renewable Energy Price Explorer.

A surge in wind and strong solar caused extended episodes of negative hourly prices early July with German day-ahead peakload settling at a record low July 2.

Weak demand especially during weekends and a lower minimum price threshold were contributing factors with negative prices also leading to curtailments.

Daily wind and solar production in Germany peaked July 5 averaging over 38 GW, the highest for summer with the all-time high set in April 2022 at 49 GW, according to system data aggregated by Fraunhofer ISE.

Combined wind and solar generation accounted to over 50% in the German generation mix in 38% of all 15-minute intervals so far this year, according to analysts at S&P Global Commodity Insights.

— Andreas Franke

Germany cuts August onshore wind tender volume to 1.7 GW

- Only 1.67 GW on offer: BNetzA
- High risk of undersubscription
- 5 GW re-tender plan scrapped

Germany has cut the volume of onshore wind support contracts on offer in the Aug. 1 tender to 1.67 GW, according to the tender call by regulator BNetzA.

The regulator cut the volume from the planned 3.21 GW as it expects significant undersubscription, with only projects that have a valid permit registered by July 4 able to enter the tender, it said.

In the first two auctions this year, some 3 GW of the 6.1 GW on offer were awarded.

That compares with just over 3 GW for the full year in 2022 and 2021.

The government also scrapped a plan to allow 5 GW of onshore wind projects awarded support contracts in the 2021 and 2022 auctions to re-tender in upcoming auctions.

Rising costs put the as yet unrealized projects that secured 20-year support contracts below Eur60/MWh at risk.

Berlin lifted the maximum bid price for 2023 auctions to Eur73.50/MWh.

Germany has been struggling to overcome hurdles for onshore growth with some 10 GW (gross) needed from 2025 to meet the 115 GW target in 2030.

Some 3.2 GW could be added this year, lifting total installed onshore capacity to 61 GW, wind association BWE said July 18.

New permits in the first quarter rose 61% year on year after more than 4 GW received a permit in 2022, little changed from 2021, according to data from FA Wind an Land.

The Platts Pexapark 3Pi index for a standard 10-year onshore wind PPA in Germany had dropped to Eur58.35/MWh by July 18.

However, analysts at S&P Global Commodity Insights estimate break-even levels for a 10-year onshore wind PPA in Germany starting in 2025 just below Eur80/MWh to recover new build costs, operating costs and financing costs, according to a report published July 3.

— Andreas Franke

German redispatch, curtailment measures

	Redispatch*		Countertrading	Reserve plants		Curtailment	
	Volume GWh	Cost Eur mln	Cost Eur mln	Volume GWh	Cost Eur mln	Volume GWh	Cost Eur mln
Q1-19	4946	101	11	126	31	3205	360
Q2-19	2370	27	16	141	17	875	90
Q3-19	3220	48	24	83	12	864	92
Q4-19	2787	51	13	80	22	1539	167
2019 total	13323	227	64	430	82	6483	710
Q1-20	5821	85	46	65	27	2956	346
Q2-20	3842	45	26	212	22	917	111
Q3-20	1982	25	13	201	25	915	123
Q4-20	4916	85	50	157	26	1359	181
2020 total	16561	240	135	635	100	6146	761
Q1-21	4357	66	55	142	25	1863	238
Q2-21	4238	68	45	164	24	1542	194
Q3-21	2666	55	55	172	24	928	124
Q4-21	9144	401	241	802	177	1485	250
2021 total	20405	590	397	1280	249	5818	807
Q1-22	9228	927	152	1564	224	3285	92
Q2-22	3854	446	56	692	143	2134	56
Q3-22	3809	574	90	557	168	892	NA
Q4-22	7223	742	73	425	115	1760	NA
2022 total	24114	2689	371	3238	650	8071	

*total ramp down/ramp up for 2022

Source: BNetzA (July 2023 for H2 2022)

German power grid redispatch costs, wind curtailment at record high: BNetzA

- 8 TWh renewables curtailed in 2022
- 14 TWh generated by reserves, redispatch
- Total costs up 82% on year at Eur4.2 billion

The costs of power grid stabilizing measures in Germany hit a record Eur4.2 billion in 2022, up 82% year on year, regulator BNetzA said in its annual report.

Curtailments of renewable power rose 40% to 8.1 TWh, with wind accounting for 7.3 TWh.

The majority of curtailment is wind in Northern Germany during winter quarters, with internal grid bottlenecks within Germany to balance regional swings in supply and demand the main reason.

Compensation paid to renewables operators rose 10% to around Eur900 million, according to BNetzA's report dated July 2023.

In addition, the cost of redispatch measures (throttling or increasing power production to stabilize the grid) rose to a record Eur1.9 billion, it said.

Power plants used by grid operators within the market for redispatch measures generated 11 TWh, while reserve power plants generated some 3.2 TWh.

Rising redispatch costs are mainly due higher fuel prices for gas, coal and oil.

The regulator also cited surges in wind, high exports to France due to record low nuclear boosting East-West transmission demand, the closure of Germany's Gundremmingen reactor at the end of 2021 and low Rhine river levels hampering reserve units in the Southwest as additional factors.

Costs for reserve power plants rose to Eur650 million, while countertrading costs dipped to Eur371 million.

Despite costs to keep the power grid stable at an all-time high, 2023 grid fees were kept stable around Eur31/MWh across the country's four transmission system areas.

Late last year 50Hertz, Amprion, Tennet and TransnetBW said that the fees would have risen sharply without the Eur12.8 billion cash injection by the federal government.

Falling power prices could reduce costs in 2023, but record amounts of negative hourly prices in the second quarter of 2023 may lift curtailment volumes.

Falling prices also saw the surplus in Germany's EEG green energy account shrink to Eur10 billion by the end of June.

Platts, part of S&P Global Commodity Insights, last assessed German month-ahead gas at the THE hub at Eur25.43/MWh July 17 compared with a daily range of Eur59-316/MWh in 2022.

— Andreas Franke

Two more 300 MW gas-fired German grid stability units set to commission

- Leag's Leipheim to commission July 12
- Final tests for Uniper's Irsching 6
- RWE's Biblis already operating

Two more 300 MW gas-fired power plants are set to start this summer in Germany, but the units are only allowed to operate at the request of grid operators.

The 300 MW Leipheim unit will finalize its commissioning phase on July 12, operator Leag said in a transparency note on July 10.

There will be no more intraday marketing after that date with the new plant only operating if required by transmission system operator Amprion, the note said.

Amprion awarded two contracts for grid stability power generation unit in Southern Germany with RWE's 300 MW unit at Biblis already commissioned in March.

Final tests are underway at Uniper 300-MW Irsching-6 unit, awarded back in 2018 by Tennet, to help stablize the grid in Southern Germany after the nuclear exit.

The projects were delayed, while Germany also allowed its final three reactors to operate slightly longer than planned until April, easing any potential grid issues last winter.

New gas turbines

Irsching 6, which is developed by Ansaldo, achieved first power and grid feed in in May, the Italian turbine maker said in a statement.

Ansaldo also develops the fourth such grid stablizing unit, the 300 MW Marbach plant for EnBW wihch was awarded the contract by TransnetBW running on fuel oil.

Siemens Energy develops the Leipheim plant, while Biblis features a new GE turbine.

All four 300 MW units will be operated outside the market for ten years under Germany's energy law EnWG.

Grid regulator BNetzA in 2018 confirmed the need for 1.2 GW secure power generation capacity in South Germany as grid expansion is lagging behind with new North-South links delayed beyond 2025, the period than seen as most critical.

Redispatch costs and volumes in Germany hit a record-high in 2022 with utility association BDEW estimating costs of around Eur4 billion and some 31 TWh in redispatch and curtailment required in case of grid bottlenecks.

However, gas prices have eased sharply since last summer reducing the costs of such measures.

Platts, a unit of S&P Global Commodity Insights, last assessed German front-month gas at the THE hub at Eur32.75/MWh on July 7, compared with Eur186.20/MWh exactly one year ago.

Germany's four 300 MW grid stability units

Site	TSO	Operator	Turbines	Start	Region
Biblis	Amprion	RWE	GE	Mar-23	South Hesse, North Bavaria
Leipheim	Amprion	Leag	Siemens	Jul-23	Bavarian-Swabia
Irsching 6	Tennet	Uniper	Ansaldo	Jul-23	Bavaria
Marbach	TransnetBW	EnBW	Ansaldo	2023 (tbc)	Baden-Wuerttemberg

Source: Operators (compiled by S&P Global Commodity Insights)

— Andreas Franke

Fluence to supply, build 200-MW grid booster battery for German TSO

- Two 100-MW battery systems for Tennet
- Located at North Sea coast and near Bavarian Alps
- Systems to start operating in 2025

Transmission system operator Tennet and battery developer Fluence have signed a contract for two 100-MW battery storage

systems to help stabilize the Tennet's German power grid, the companies said July 11.

The two "grid booster" systems located at opposite ends of Tennet's German grid zone stretching from the North Sea coast to the Bavarian Alps would defer more costly grid expansion investments, they said.

"Grid boosters can be deployed faster, more cost effectively, and more flexibly than traditional grid infrastructure," said Roman Loosen, Fluence's chief business operations and transformation officer.

Tennet will install the batteries at the Audorf Sued substation in Schleswig-Holstein and Ottenhofen in Bavaria, it said.

Tennet COO Tim Meyerjuergens said land for the projects was already secured, hoping for a fast approval process to bring the systems online in 2025.

The battery joint venture of Siemens Energy and AES, Fluence in October 2022 signed a similar contract for a 250-MW grid booster battery at Kupferzell with TransnetBW, the TSO for Southwest Germany.

The pilot projects were approved by grid regulator BNetzA in 2019 and form part of Germany's 2030 grid development plan.

The draft grid development plan for 2037-2045, assumes up to 54.5 GW of energy storage systems in Germany with successful deployment of Tennet's Grid Boosters paving the way for other large-scale projects where storage is deployed as a transmission asset, it said.

In the 2019 plan, Tennet estimated project costs for its grid boosters at Eur160 million, while TransnetBW estimated Eur188 million.

— Andreas Franke

Japan's Chubu Electric to take stake in Eavor's Bavarian geothermal project

- Drilling underway for 2024 start
- Heat supply to 200,000 households
- Technology seen as 'game changer'

Japan's Chubu Electric Power is to take a stake in a 64-MWth geothermal power generation and district heat supply project in Germany's Bavaria region that will supply heat to 200,000 households, it said July 14.

Canada's Eavor started drilling of the first loop on July 5 with partial commercial operations expected to start in October 2024, it said.

The head of Chubu's global business unit Hiroki Sato described the Eavor-Loop technology as a "true game-changer for the enhancement of renewable energy."

"By participating in the project, Chubu will acquire experience and additional knowledge in the geothermal business and "intends to consider the future applications of the Eavor-Loop Technology in Japan," it said in a statement.

"The involvement of Chubu as a foundation partner and as a leader represents the next step in the rollout of our technology, its commercialization and shows our global scalability," said Eavor CEO John Redfern.

The first-of-this-kind commercial project at Geretsried, south of Munich near the Bavarian Alps, is recognized as an innovation project and will receive a Eur92 million ($103 million) grant from the EU Innovation Fund.

Chubu agreed to buy a 40% stake in the project company Eavor Erdwaerme Geretsried.

Chancellor visit

In total, Eavor is drilling four loops at Geretsried to generate 64 MW of thermal power and 8.2 MW of electrical power, saving some 44,000 mt/year of CO2.

Completion of the entire plant is planned for 2027.

German Chancellor Olaf Scholz and Bavarian Prime Minister Markus Soeder will visit the site in August to learn more about the technology.

Europe's biggest geothermal power plant is Enel's Larderello Geothermal Complex in Italy producing over 6 TWh/year of energy.

Meanwhile, the European Union and Japan at their July 13 summit agreed to accelerate and intensify cooperation under their Green Alliance in the fields of energy efficiency, low-carbon and renewable hydrogen, offshore wind and carbon capture utilization and storage (CCUS).

"As the two largest importers of LNG, we will step up our cooperation to develop secure and transparent global LNG markets while reducing methane emissions in line with the Global Methane Pledge," the partners said in a joint declaration.

Platts, a unit of S&P Global Commodity Insights, assessed spot LNG cargoes into Northwest Europe at $8.60/MMBtu July 13, down 79% year on year.

The LNG benchmark Platts JKM for Asian spot cargoes was last assessed at $11.08/MMBtu July 14.

— Andreas Franke

Seven German projects from CCS to hydrogen granted EU clean tech funds

- Large CCS project for cement plant
- 157 MW electrolyzer for Duisburg steel
- 221 million mtCO2 cuts over 10 years

Seven German decarbinization projects are among the 41 selected by the European Commission to receive funding under the EU Innovation Fund using emissions trading revenues, the energy ministry said July 18.

Grant contracts are to be signed by the end of 2023 with Eur3.6 billion ($4 billion) to support the large-scale clean technology projects, saving 221 million mt of CO2 across their first 10 years of operations, it said.

"The selected projects mirror the enormous dynamism of decarbonization in Europe and in Germany," energy minister Robert Habeck said, adding that the EU funds were aligned to German measures such as climate CfDs.

Selected projects include a 157 MW electrolyzer to supply hydrogen to the Duisburg steel works, and Germany's biggest carbon capture at storage project for a cement plant (see table).

Heidelberg Material's plans to start construction for its new GeZero CCS project at Geseke in 2026 for a 2029 start capturing

German projects selected for EU Innovation Fund

Project	Sector	Location	Coordinator	Description
GeZero	Cement	Geseke (NRW)	Heidelberg Materials	First CCS large scale cement project saving 700,000 mtCO2/yr from 2029
Everest	Materials	Wuelfrath	Lhoist Rheinkalk	CCS for Europe's biggest chalk & lime plant
HydrOxy	Steel	Duisburg	IQONY	157 MW electrolyser for Duisburg steel plant
ELYAS	Auto	Bamberg	Bosch	EV stacks
HOPE	Solar	Thalheim	Meyer Burger	Solar PV module production
HynCrease	Hydrogen	Hanau	De Nora	Electrolyzer, fuel cell production
MoReTec-1	Petchems	Wesseling	LyondellBasell	Plastics recycling

Source: BMWK, European Commission

and storing some 700,000 mt/year of CO2, it said in a separate statement.

CO2 will be transported by train to an interim storage at Wilhelmshaven, from where project partner Wintershall Dea will ship the CO2 for permanent storage in the North Sea.

EU member states have until Sept. 7 for further feedback on the selected projects, the ministry said.

The EC will launch the next call for large-scale project proposals under the Innovation Fund at the end of the year, with a budget of Eur4 billion.

EUA carbon allowance prices hit Eur100/mt for the first time in February.

Platts, part of S&P Global Commodity Insights, last assessed EUA Dec 2023 at Eur87.35/mt on July 18.

— Andreas Franke

UK's ITM Power lands contract for new 100-MW German hydrogen plant

- Contract to procure electrolyzer long lead items
- Project FID late 2023, operations from end 2024
- PEM electrolyzer producer buoyed by order

UK-based electrolyzer manufacturer ITM Power has secured a contract to procure long lead-time materials and components for a new 100-MW green hydrogen production plant in Germany, the company said in a statement July 17.

The undisclosed plant developer aims to take a final investment decision towards the end of 2023, ITM said. Construction would start shortly after, with a view to a late-2024 or early-2025 start date, an ITM spokesperson told S&P Global Commodity Insights.

The items are for ITM's proton exchange membrane electrolyzer stacks. The order adds to a growing large-scale project list for the company, that had been struggling in recent months.

"This order is an important endorsement of our technology and capability to deliver projects at scale," CEO Dennis Schulz said in the statement. "It will be the third 100-MW project we are entrusted to execute."

The electrolyzer producer had a difficult year in 2022, suffering a series of setbacks in its bid to scale up production, leading to a review of operations under new CEO Schulz at the start of 2023.

The order brings ITM's total German footprint to 324 MW, adding to a 200-MW plant for RWE's GET H2 project in Lingen, Germany, and a 24-MW plant at Linde's Leuna chemicals plant.

ITM's partner company Linde will carry out the engineering, procurement and construction for the plant, the spokesperson said.

Platts, part of S&P Global Commodity Insights, assessed the cost of producing renewable hydrogen via alkaline electrolysis in Europe at Eur5.15/kg ($5.79/kg) July 14 (Netherlands, including capex), based on month-ahead power prices. PEM electrolysis production, which is more responsive to variable renewables input, was assessed at Eur6.11/kg.

— James Burgess

Greece

Greek wind capacity nears 5 GW with 253 MW added in H1 2023

- Another 600 MW under construction
- 1.5 GW to be added by 2026: HWEA
- Greek solar to add 15 GW by 2027

Operational wind capacity in Greece is approaching 5 GW after 253 MW were added in the first six months of 2023, wind association HWEA said July 13.

Some 77 turbines added during the period with investment of around Eur260 million ($292 million), lifting total capacity to 4.94 GW, it said.

"More new wind turbines were connected to the grid in the first half of 2023 than in all of 2022," HWEA said.

Another 600 MW were currently under construction or contracted with the vast majority expected to be connected to the grid within the next 12 months, it said.

HWEA forecast a total 1.5 GW coming online within the next three years, including some 450 MW currently in the permitting phase and 400 MW selected in tenders.

Central Greece continues to lead installed capacity accounting for 43% of the total, followed by the Peloponnese with 13% and Eastern Macedonia with 11%, HWEA data show.

Solar capacity meanwhile could almost quadruple to 20 GW by end-2027, according the June outlook by SolarPower Europe.

Last year, some 1.4 GW of solar capacity was deployed, according to Greek solar association Helapco.

Preliminary wind and solar production in Greece in the first six month was 7.5 TWh, up just 3% on H1 2022, but 19% above H1 2021, according to Entso-e data aggregated by Fraunhofer ISE.

Greek day-ahead power prices rose to Eur123.56/MWh on July 12 amid a heat wave lifting demand, Hellenic Energy Exchange data showed.

According to the Fraunhofer data, daily grid load rose to 181 GWh on July 12 compared to levels above 200 GWh during the July 2021 heat wave.

However, with some solar connected to the distribution grid, generation may reduce reported grid offtake in the data.

— Andreas Franke

Nexans awarded contract for first 1-GW EuroAsia Interconnector cable

- Contract valued at $1.6 bil
- First cable is Cyprus-Greece
- Pole One to start in 2028

Nexans has been awarded the turnkey contract for the Greece to Cyprus section of the EuroAsia Interconnector with initial capacity of 1 GW, the cable manufacturer said July 19.

Pole One is expected to be completed in 2028 and Pole Two in 2029, Nexans said, valuing the contract at Eur1.43 billion ($1.6 billion).

"This record-breaking project demonstrates our capacity to innovate and push the limits of electrical transmission and distribution to meet an ever growing global need," Nexans CEO Christopher Guerin said.

As a critical part of a broader project to connect the grids of Greece, Israel and Cyprus, the 525 kV high voltage direct current cable will be the longest and deepest interconnector in the world with a length of 2x900 km.

It will run across the Mediterranean Sea at depths of over 3,000 meters.

Cables will be manufactured in Nexans' facilities in Norway and Japan and will be installed by the Nexans Aurora and Nexans Skagerrak laying vessels, it said.

EuroAsia Interconnector plans for 2 GW of capacity between the three nations, the largest interconnector project in history, equivalent to the average electricity consumption of 3 million households.

Greek grid operator IPTO has been providing technical and operational capacity to the project, ensuring the successful implementation, Nexans said.

Ending Cyprus' isolation

Cypriot energy minister George Papanastasiou told S&P Global Commodity Insights in June that the island hoped to promote itself as a gateway to European markets for East Mediterranean energy.

This would cover not only gas, but also electricity through the EuroAsia Interconnector.

Backed by the European Commission as a Project of Common Interest, EuroAsia is also entering its construction phase for the Cyprus-Israel section, the minister said.

As it now appears, gas from Israel through a subsea pipeline will initially generate power in Cyprus and be returned to Israel via the EuroAsia cable along with renewable energy generated in Cyprus, he said.

Following the approval of a Eur658 million grant under the European financing mechanism "Connecting Europe Facility" and Eur100 million from the Recovery and Resilience Fund, EuroAsia Interconnector is now proceeding to the construction phase, the project company said.

— Andreas Franke

Ireland

Ireland hydrogen strategy targets 2 GW of offshore wind production by 2030

- Renewable power focus to hydrogen strategy
- Aims to decarbonize hard-to-electrify sectors
- Initial applications in heavy transport, industry

Ireland is targeting 2 GW of offshore wind generation to feed electrolysis for hydrogen production by 2030 under its national hydrogen strategy published July 12.

The strategy is focused on hydrogen production powered by renewables, rather than low-carbon hydrogen from fossil fuels with carbon capture and storage.

Prior to 2030, the focus will be on grid-connected electrolysis from surplus renewables.

"This will initially be needed to meet EU targets in specific end-use sectors such as transport and will likely be used in the power system," the Department of the Environment, Climate and Communications said in the strategy.

The 2-GW offshore wind target is for projects to be in development by 2030, which will provide greater investment certainty, the government said.

"Our wind resources are amongst the best in the world," Eamon Ryan, minister for the Environment, Climate and Communications, said in a statement. "Using these resources to create hydrogen, and targeting it towards those sectors which are considered hard to decarbonize, will be integral part in ensuring the decarbonization and security of our energy system into the future. Ireland can become a green hydrogen powerhouse from our renewable energy potential."

Targeted end-uses for hydrogen will focus on sectors that are hard to electrify and where there is limited scope for energy efficiency gains.

Under the strategy, "heavy duty transport applications where there are binding EU targets for 2030 are anticipated to be the first end-use sectors to develop, followed closely by industry and flexible power generation."

Ireland anticipates a place for hydrogen in aviation and marine fuels, but anticipates these sectors will take longer to develop.

Ireland estimates that its domestic hydrogen energy demand could reach 4.6-39 TWh by 2050, rising to 19.8-74.6 TWh including international aviation and shipping.

"This wide range demonstrates the significant uncertainties which exist due to the nascent nature of the market," the government said.

Initially, renewable hydrogen is likely to be transported by compressed tanker, with pipelines becoming the dominant transport solution in the future.

The government also noted the need for geological storage for hydrogen for long-duration storage and to support cost competitiveness and price resilience.

To support the strategy, Ireland plans to establish an early innovation fund for demonstration projects, and to adopt EU standards for low-carbon and renewable hydrogen by 2025.

It also aims to develop a roadmap "to bring net zero dispatchable power solutions to market by 2030, to support the delivery of a near net zero power system by 2035."

Platts, part of S&P Global Commodity Insights, assessed the cost of producing renewable hydrogen via alkaline electrolysis in Europe at Eur5.30/kg ($5.90/kg) July 11 (Netherlands, including capex), based on month-ahead power prices. PEM electrolysis production was assessed at Eur6.28/kg, while blue hydrogen production by steam methane reforming (including carbon, CCS and capex) was Eur2.62/kg.

— James Burgess

Italy

Italy solar, wind additions increase to 2.6 GW in H1

- Net 120% gain on year: Terna
- 600 MW/month required in H2 to hit target
- PV, prosuming fall short of records during heatwave

Italy added 2.3 GW of solar PV capacity and 272 MW of wind capacity in the first half of 2023, increasing the rate of net renewable additions to 120% year on year, grid operator Terna said July 19.

The new capacity meant Italian solar PV reached 27.3 GW by end-June, while wind reached 12.1 TWh.

Last year, Italy added 3 GW with only 1.4 GW added in 2021.

The government has begun to fast-track and simplify approvals of renewable projects and has set an interim target of adding 9.3 GW across 2022 and 2023.

Some 600 MW/month would be needed in the second half of the year to reach that target.

For 2030, the government was targeting 80 GW, according to its National Energy and Climate Plan.

The revised NECP aims for 57 GW of new PV and 19 GW of new wind capacity.

Renewables including hydro generated 46 TWh, less than one third of Italian demand.

Thermal plants generated 80 TWh covering 53%, while 26 TWh of imports accounted for 17% of demand in the first six months of 2023.

Italian solar peaked July 16 at 11.3 GW, below the record 13.4 GW registered early May.

In addition, so-called prosuming peaked at 6.6 GW, also falling short of a record high 7.5 GW set on June 21.

Italian power for day-ahead delivery settled at Eur119.76/MWh ($134/MWh) on the Italian IPEX exchange July 19, up from Eur112.16/MWh a week prior.

— Gianluca Baratti

Italy sets regional capacity targets in draft renewables decree

- 9.4 GW of additions targeted for 2022-2023
- Sicily, Lombardy to install 10 GW, 9 GW by 2023
- Decree aims to simplify rules, tighten compliance

Italy has published a long-awaited draft decree aimed at meeting revised National Energy and Climate Plan targets by seeking to unblock administrative bottlenecks and assign new renewable capacity across "ideal sites" in each region.

The July 13 draft of the "ideal areas" for renewable development will give Italy's 21 regions clear directives to follow and annual targets of capacity to hit.

The targets start with 9.4 GW of additions in 2023, rising to 16 GW of additions in 2029 to meet the country's NECP target of 80 GW of new additions.

Of the total, 10.4 GW corresponds to the southern island of Sicily, a leader in solar potential and offshore wind, and 8.7 GW to the northern region of Lombardy, Italy's most populous region with 10 million inhabitants.

The 2023 target extends to include plants that came online since January 2022, including repowering capacity from existing plants.

Italy's renewable additions ticked up in the first quarter this year, with 980 MW added, more than double the volume in Q1 2022.

National renewable capacity stood at 61.7 GW at the end of the quarter, including 18.9 GW hydro, 11.9 GW wind and 25.9 GW solar, according to industry group ANIE Rinnovabili.

The draft did not give a breakdown of the technologies used to meet individual targets. The revised NECP includes 57 GW of new solar PV and 19 GW of new wind capacity.

Italian power for Cal 2024 delivery settled at Eur140.16/MWh on the EEX exchange July 12, with backwardation too Eur78.24/MWh for Cal 2030.

Regional blueprint

The draft is about 18 months late due to Covid-19, the energy crisis and a change of government in 2022.

It is to act as a blueprint for the government and regions to follow, with clarifying and standardizing of "ideal areas" for renewables designed to accelerate bureaucratic processes, Minister Gilberto Pichetto said in parliament July 12.

Part of the simplification involves condensing applications into one single producer, he said. The process would be carried out on a purpose-made digital platform for developers.

The regions are to be given 180 days to identify locations they can offer for renewable capacity additions, taking into account social and environmental factors.

The draft gives the regions some scope for agreement between themselves for "statistical transfers" of capacity. It also provides for intervention from 2026 if regions significantly fall behind their targets.

— Gianluca Baratti

Oil-fired generation up in Italy's June power mix

- Imports, gas-fired output decline
- Thermal incentive scheme to wind down
- GO volumes jump amid surge in hydro trade

Italy relied on a combination of increased renewable and oil-fired generation for its power supply stack in June as imports faltered and gas-fired demand retreated, market operator GME reported July 13.

Hydro output surged for a second month in June, taking Q2 supply to 11.5 TWh, up 18% year on year after reservoir levels moved into a normal range in May, with 2.9 TWh of stocks or 44%

of maximum by the end of the month.

Oil-fired output continued to benefit from a "gas-saving" incentive scheme, posting a 30% production increase in June to 1.2 TWh.

The government issued orders July 7 to wind down the program, effectively halting the subsidy to oil-fired production and limiting coal-fired output to a "bare minimum," with the gas-saving target having been met.

The subsidized volume will fall from 198 GWh per week in the week starting July 10 to 130 GWh per week in the last week of September, when the program is due to conclude.

Throughout June, an average of 500 GWh per week was subsidized for oil- and coal-fired production.

Italian demand weakened 9% year on year in the month to 25.3 TWh, with the largest reduction in the southern and island regions.

The spot price (PUN) averaged Eur105.34/MWh in June, the lowest average since summer 2021. GME said the bearishness was due to weaker gas prices and the improved hydro offer.

This led to narrower spreads with neighboring markets, which in turn reduced import volume into Italy 16% year on year to 3.4 TWh.

In its guarantee of origin exchange, GME reported an average June price for non-denominated GOs at Eur6.33/MWh down from Eur7.15/MWh in May.

The average price for bilateral product was Eur2.92/MWh, down from Eur7.41/MWh in May and narrower than the Eur5.50/MWh spread at which the 2022 vintage ended in March.

Total volume, nearly all bilateral, was 2.1 TWh, a more than tenfold jump from May. Wind-powered GOs represented 65% of bilateral volume and hydro 23%, GME said.

Italy: power mix, Jun-23

	June (TWh)	YoY change (%)	Q2 23 (TWh)	YoY change (%)
Gas	7.3	-28	21.1	-21
Coal	1.3	-30	2.0	-55
Other	1.2	30	3.6	17
Hydro	5.0	31	11.5	18
Geothermal	0.4	1	1.3	0
Wind	1.0	-22	4.4	-6
Solar, others	2.7	7	7.4	-1
Pumping	0.3	84	3.1	4
Self consumption	2.8	0	7.4	7
Imports FR	1.1	-21	4.7	-2
Imports CH	1.7	-6	3.7	3
Total supply	25.3	-9	72.5	-7

Source: Gestore Mercati Energetici, Terna

— Gianluca Baratti

Italy approves two battery storage projects in Sardinia, Campania

- Approvals top 2 GW with latest additions
- 175-MW Portoscuso battery set for H1 2024
- Three gas capacity additions for Enel

Italy's government has approved two new battery storage projects, taking total approved battery storage capacity in the country to 2 GW, according to an update published July 10.

A 180-MW unit being developed by EnergyQ1Bess has been authorized near Cagliari, Sardinia, as has a 32-MW unit belonging to Axpo Storage, in the Campania region.

Under Italy's Fit for 55 planning, storage capacity including new hydro pumping projects will need to reach around 9 GW, according to grid operator Terna.

The first large wave of Italian battery storage units is expected online in H1 2024, mostly belonging to Enel.

The company said July 7 it expects to bring online 175 MW of battery storage capacity at Portoscuso in June 2024, and a further 74 MW in H2 2024 in Sardinia.

This is additional to a previous announcement of 1.18 GW of start-ups for first half of 2024.

The company was awarded 1.05 GW of battery storage capacity in February 2022 from Italy's 2024 capacity market mechanism.

In other filings July 7, Enel announced it would have an additional 25 MW of available gas-fired capacity at its CCGT at Priolo and 30 MW at an unnamed Sicily site in Q3 2023, following the upgrading of units.

It also expects to add 80 MW of upgraded gas generating capacity in the Northern zone from H2 2024 it said, without specifying which unit.

Italian power for Cal 2024 delivery settled at Eur149.38/MWh on the EEX exchange July 10, a backwardation of Eur23.68/MWh to Cal 2025.

— Gianluca Baratti

Netherlands

European Commission approves Dutch climate auction scheme

- Less competitive tech support cleared
- No material anti-competitive impact
- Eur750 million ringfenced for new solutions

The European Commission has approved a modification to the Netherlands' SDE++ sustainable energy auction allowing the ring-fencing of funds for less competitive technologies, the EC's antitrust services said July 10.

In April, the opening of the Eur8 billion ($8.79 billion) 2023 SDE++ subsidy round was postponed from June to September because of antitrust clearance delays in Brussels.

In approving the amended scheme, the EC found it had "an incentive effect as potential beneficiaries would not carry out the activities without the public support."

Within the budget, a ring-fenced reserve of Eur750 million for less cost-effective technologies was "proportionate and any negative effect on competition and trade in the EU will be limited," the EC said.

Less competitive technologies fall into three categories: low temperature heat (such as solar or aquathermal energy); high temperature heat (ultra-deep geothermal, electric boilers); and molecules (including renewable hydrogen and biomethane).

The scheme has also been amended to cover air water heat pumps for heating buildings, and the future electrification of offshore platforms, the EC noted.

The modified scheme is to run till Dec. 31, 2025.

The Netherlands aims to reduce its greenhouse gas emissions by 55% by 2030 and achieve climate neutrality by 2050, compared to 1990 levels.

Winning projects in the auction receive support via variable premium contracts for between 12 and 15 years.

"Given the wide range of costs and therefore subsidy needs among the beneficiaries, price caps apply per technology to limit the risk that cheaper technologies are overcompensated," the EC said.

SDE++ auctions offer a rising subsidy level across five rounds until available funds are exhausted.

The first round is to set a subsidy ceiling of Eur90/mtCO2 avoided, rising to Eur180/mtCO2 in round two, and so on up to Eur400/mtCO2 in the final round.

Platts, part of S&P Global Commodity Insights, assessed the price of EU Allowances in the compliance carbon market at Eur86.30/mt July 10.

— Henry Edwardes-Evans

Grolsch signs multi-year Dutch PPA with AMPYR Solar Europe

- Virtual PPA for 22 MWp solar
- Equates to 20 GWh/year supply
- 10-year-plus contract starts in 2024

AMPYR Solar Europe and Royal Grolsch (Asahi Europe & International) have signed a multi-year virtual power purchase agreement providing renewable energy for beer production in the Netherlands, the companies said July 13.

Grolsch will offtake power production for 10-plus years from a portfolio of solar parks currently being built by AMPYR Solar Europe in the Netherlands, with total capacity of more than 22 MWp, ASE said.

"AMPYR Solar Europe has developed a significant pipeline of solar assets across the Netherlands, which we will build out over the coming years. Corporate PPAs have an important role to play in our delivery strategy," said Stephen Mason, ASE's chief commercial officer.

The virtual PPA, which equated to over 20 GWh/year, would start in 2024, ASE told S&P Global Commodity Insights.

The Dutch baseload year ahead power contract was last seen on EEX at Eur120.00/MWh July 13. Cal 25 base settled at Eur117.24/MWh July 12.

— Henry Edwardes-Evans

Sunrocks's 25 MW solar roof boosts Port of Rotterdam capacity to 89 MW

- PoR estimates 150 MW potential on port buildings
- 60% of EU's 2022 solar additions was on rooftops
- Germany leads with 4.5-GW rooftop adds in 2022

One of Europe's biggest solar rooftop projects has started operating in the Port of Rotterdam, boosting total installed capacity on the port's buildings to 89 MW, the Port of Rotterdam Authority said.

Dutch solar developer Sunrock, with Germany's Goldbeck Solar, built the project at a logistics center on the Maasvlakte, it said July 7.

Sunrock will supply the green electricity generated to the grid, it added.

The Port of Rotterdam Authority estimates up to 150 MW of solar potential on buildings within the port.

Europe's largest seaport, which also hosts two coal-fired power plants, is developing into an energy transition hub, with focus on offshore wind and electrolyzer capacity to help integrate renewable energy into the power system.

Dutch day-ahead power averaged Eur89.52/MWh in the second quarter, the lowest across Central-West Europe amid a record numbers of negative hourly prices due to periods of oversupply from solar and wind, exchange data shows.

That compares to a Eur103.46/MWh Q2 average for UK day-ahead power, according to Platts assessments for S&P Global Commodity Insights.

Meanwhile, solar capture prices in Germany averaged Eur76.65/MWh in Q2, according to Platts Renewable Energy Price Explorer.

In Germany, some 1.5 GW of commercial rooftop solar was added in 2022 compared to 3 GW on residential rooftops as well as 3 GW of ground-mounted solar, solar association BSW said July 4.

Germany's latest solar rooftop tender awarded support contracts to 79 projects at Eur101.80/MWh.

Across the EU27, two thirds of the 209 GW solar capacity is still on rooftops with 60% of 2022 additions on rooftops, according to Solar Power Europe.

— Andreas Franke

Norway

Electrolyzer producer Nel eyes capacity expansions as hydrogen demand scales up

- Up to 2 GW/year capacity due April 2024
- 40-MW new electrolyzer order in Portugal
- Hydrogen refueling sector more challenging

Norwegian electrolyzer manufacturer Nel is eyeing further production capacity expansion, as it sees growing demand for large-scale green hydrogen projects, the company said in a results presentation July 18.

Construction of a second alkaline electrolyzer production line at its Heroya factory in Norway is underway, due to be completed April 2024, with a potential capacity of up to 2 GW/year, it said.

A 500 MW/year proton exchange membrane electrolyzer production line is due to be completed by 2025.

The company is also planning to build a gigafactory in Michigan, US, with capacity of up to 4 GW/year, though it is yet to take a final investment decision on the project.

"Demand is growing, and customers are increasingly looking towards suppliers with available capacity and a track record for delivering reliable, high-quality equipment," the

company said, noting that the increasing size of hydrogen projects meant the order intake was expected to vary between quarters.

New electrolyzer order

The company secured an order on July 17 from chemicals producer Bondalti for a 40-MW electrolyzer in Portugal, valued at Eur11 million ($12 million), for the first phase of the H2 Enable project in Estarreja.

The project aims to start production in early 2026, and will cater for Bondalti's own hydrogen demand for chemical production processes, as well as injecting hydrogen into the natural gas grid and supplying long-haul transport, Nel said.

Nel said profitability from its electrolyzer division was improving, though noted the need for "further improvements."

It recorded an EBITDA loss of NOK138 million ($13.7 million) in the second quarter of 2023, compared with a NOK197 loss in Q2 2022, driven by high losses in its fueling division, low margins on electrolyzer projects signed in 2020-21, and increased personnel expenses in preparation for large-scale project delivery.

"Introducing new technologies in larger, complex projects is challenging, but Nel aims to enhance efficiency and margins over time," it said.

The company said that, while smaller hydrogen production units are becoming more standardized enabling a faster delivery to market, larger projects were taking longer to mature because of the higher complexity, infrastructure required, and the need to secure larger offtake agreements and financing.

There was also an increased overall risk for the project developer and technology provider, while a drive by project developers to increase project quality was pushing out completion timelines.

Hydrogen fueling

Nel has also secured an order for 16 refueling stations in California, US, for delivery from the fourth quarter of 2023.

This was "aligned with the new strategy to focus on large, committed clients in [...] selected regions," it said.

However, the fueling station market outlook was more challenging in the shorter term, it added.

"The long-term market outlook is positive, but short-term demand continues to be challenging," it said. "Nel has high-quality energy companies on its customer list that believe that tomorrow's heavy-duty vehicles will be powered by green hydrogen."

But margins in the fueling division are currently low, because of higher costs related to increasing utilization across installed facilities, Nel said.

"This will continue until the performance of the installed base has been stabilized. Nel is dissatisfied with the profitability in its Fueling division and is implementing operational and strategic actions to improve performance and profitability."

Platts, part of S&P Global Commodity Insights, assessed monthly German hydrogen pump prices at Eur12.85/kg ($14.45/kg) in July, compared with the California price of $28.23/kg.

— James Burgess

Portugal

Portugal to offer 3.5 GW in offshore wind tender by year-end

- Target increased from previous plans
- 10 GW floating capacity offered by 2030

Portugal is to offer up to 3.5 GW of offshore wind capacity in the fourth quarter this year, the government said July 11.

The amount compares to a target of 2 GW the government plans to have by 2030, according to its revised National Energy and Climate Plan, and more than the 1.5 GW to 2 GW it previously said might be offered in a first sale.

The remainder of the 10 GW of proposed floating capacity would be auctioned in a series of sales through to 2030, the Environment Ministry said.

The auction volume is based on a report from a study group, concluded June 26, proposing competitive tenders in the areas of Viana de Castelo, Leixoes and Figuiera da Foz.

The group will fine-tune the tender process in liaison with stakeholders such as port authorities, through to September, after which a non-binding expression of interest round would be held, it said.

The first procedure will be opened before year-end and should last three months including a pre-qualifying round.

The Portuguese Economy and Environment ministries have divided the seabed rights into five areas containing 10 GW of floating capacity while an additional 1.1 GW of fixed capacity could also be made available near the ports of Matosinhos and Sines.

Portugal operates one floating offshore wind project, the 24-MW WindFloat Atlantic, which produced 78 GWh in 2022, its first full calendar year of operation, with availability of up to 94%, according to partners led by EDP and Engie.

Portuguese power for calendar-year 2024 delivery closed at Eur98.93/MWh on the OMIP futures exchange July 10, backwardated towards Eur45.90/MWh for Cal 2030.

— Gianluca Baratti

Spain

Spain adds 2.7 GW new wind and solar to grid in H1

- Total 50.5 GW wind, PV grid-connected: REE
- 127 GW wind, PV projects with grid permits
- Prosuming growth seen flatlining in 2023

Spain added 2.2 GW of grid-connected solar PV capacity and 470 MW of wind capacity during the first half of 2023, according to data from grid operator REE.

Wind capacity stood at 29.6 GW at the end of June, the largest capacity by tech type, while solar PV was 20.9 GW.

That compared to 24.6 GW of gas-fired generation capacity.

The country's all-time peak power demand was 45.5 GW in December 2007.

Spain is targeting 62 GW of wind and 76 GW of solar PV capacity by 2030 in its updated National Energy and Climate Plan.

Since January, Spain has submitted all renewable projects to a new fast-tracked approval process, which has also aided eliminating unviable projects.

At the end of June there were 36.2 GW of wind projects with an access permit and 90.7 GW of PV, while a combined 34.6 GW were still registered with no access permit, according to REE.

The government said last month it expected to extend a July 25 deadline for the approved projects to receive planning permission.

Supply chain issues in 2022 and a need to resubmit projects to consultation were cited by energy minister Teresa Ribera as reasons for the extension.

That has impacted the prosuming sector with growth to flatten to around 2.5 GW in 2023 with such projects not connected to REE high-voltage grid.

The International Energy Agency forecasts Spain will add just under 5 GW of distributed solar PV in 2023 and 2024.

Capture prices for Spanish solar averaged Eur66.31/MWh ($74/MWh) in Q2, while those for wind averaged Eur75.47/MWh, according to Platts Renewable Energy Price Explorer.

— Gianluca Baratti

Downward trajectory persists for Spanish hydro stocks

- Stocks down 316 GWh on week to 10.659 TWh
- Hydro stocks at 45.48% of total capacity in week 27
- Rainfall at 1.6 mm in Week 27, down 3.2 mm on week

The fall in Spanish hydropower stocks continued into week 27, with stocks reservoirs down by 316 GWh, or 1.35 percentage points, in the seven days to July 16 to 10.659 TWh, Spanish environment ministry (MITECO) data showed July 18.

The downward trajectory in stocks, which now account for 45.48% of total nominal capacity, brought mixed movement against longer-term averages for the same period, data showed.

In week 27, the stock deficit to the five-year average widened slightly to 1.272 TWh, from 1. 263 TWh deficit in week 26. In contrast, measured against the 10-year average, the deficit in stocks shrank to 2.269 TWh, from the previous week's 2. 274 TWh.

The Iberian peninsula recorded 1.6 mm of rainfall during the week, 3.2 mm less than in week 26.

Hydropower output in week 27 edged up to 389 GWh, 14 GWh more than during the previous week. Total hydropower output from the start of the year to July 16 is 16.800 GWh, 36.9% higher than during the same period last year.

— Vittoriaelena Morini

Spanish CHP sector sees July output uptick after avoiding 'collapse'

- Output up 41% in July amid heatwave demand surge
- 'Total collapse' avoided following revenue increase
- H1 was 'worst year in history,' for sector: Acogen

Spain's combined heat and power (CHP) sector narrowly avoided a "total collapse of all its plants" and has reversed its worst-ever first half year following an increase to its regulated retribution at the start of the month, Javier Rodriguez, Director of sector group Acogen said July 21.

Grid data show CHP output, which is mainly gas-fired, increased 41% in July to date, reaching 991 GWh, or about 7% of the country's supply stack in the period.

The uptick comes amid heatwave temperatures in Spain in the month which have also lifted gas-fired generation into the top spot of Spain's generation mix, covering 22% of supply.

The Spanish clean spark spread (50% efficiency) for day-ahead was assessed by Platts at Eur3.03/MWh July 19. Platts is part of S&P Global commodity Insights.

The uptick for the cogeneration sector compares to a first half output decline of 17% year on year to 9.6 TWh, following the sector's "worst year in history", according to Rodriguez.

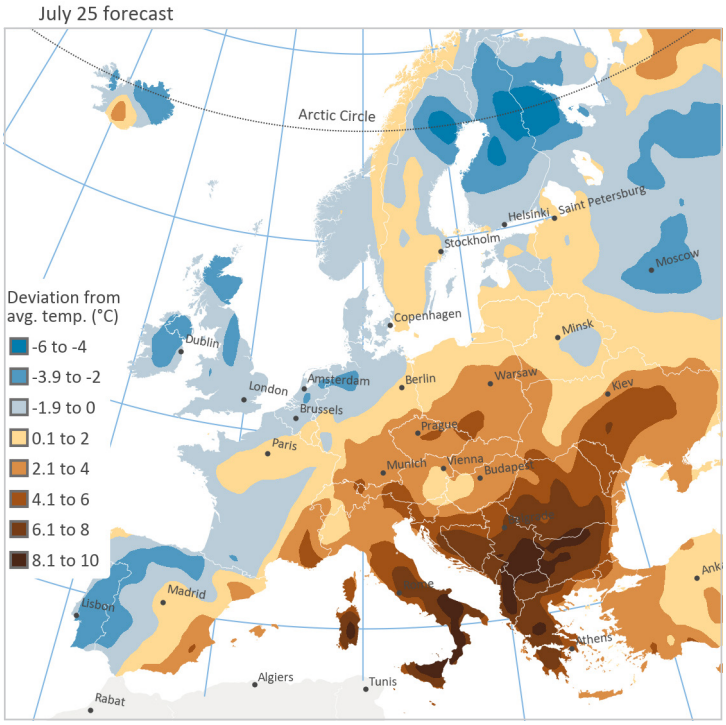
Spain's government rushed through an update to the sector's retribution rates at the last moment June 29, although the regime leaves the sector with "established conditions only through to the end of 2023," according to Acogen.

The prices for gas inputs into cogeneration plants are based on a basket including Dated Brent, US exchange rate, Mibgas, TTF, NBP, Henry Hub and coal ARA with other, regional adjustments applied.

The main cause of the sector's decline, which usually covers 11% of the power supply stack and 20% of total gas demand in Spain, is weak industrial demand, which has fallen between 15% and 20%, according to the group.

With Spain shifting its focus to decarbonization and a hydrogen-dominated gas market, the Cogen sector has seen delayed regulation.

5-day-ahead temperature deviation forecast



Note: Deviations are based on 30-year average temperatures
Source: S&P Global Commodity Insights, CustomWeather

Under Spain's National Energy and Climate Plan, 1.2 GW of new capacity is contemplated via auction.

Acogen is hoping that, following the Spanish elections on July 23, a new framework for the sector can be agreed before year-end.

— Gianluca Baratti

Repsol eyes 2026 start for 150-MW Tarragona electrolyzer

- EU innovation funding confirmed
- Partners set to invest Eur320 million
- Capacity could be boosted to 1 GW from 2027

Spain's largest refinery operator Repsol plans to commission the country's largest hydrogen electrolyzer at its Tarragona refinery in 2026 after the project was granted European financing from the Innovation Fund program, the company said July 13.

The 150-MW project was one of 41 selected for the Eur3.6 billion ($4.04 billion) third funding call for large-scale projects. Neither Repsol nor the European Commission provided details on the amount.

Repsol said the so-called T-HYNET project will require investment of Eur320 million from the partners involved.

The project is part of the Hydrogen Valley of Catalonia and the Ebro Hydrogen Corridor and is included in the Repsol-led SHYNE consortium, is a boost to the creation of clusters around renewable hydrogen. Repsol leads the consortium which counts Enagas Renovable, Iqoxe and Messer as partners.

The renewable hydrogen will be used as feedstock in local industry, as industrial fuel, in mobility and injection into the natural gas transportation network. In addition, T-HYNET will be part of the European Hydrogen Backbone to boost hydrogen flows between EU countries.

Following the first phase of the project, a second phase starting from 2027 could boost renewable hydrogen production capacity to 1 GW, Repsol said.

Platts, part of S&P Global Commodity Insights, assessed the cost of producing renewable hydrogen via PEM electrolysis in Europe at Eur6.09/kg July 13 (Netherlands, including capex), based on month-ahead power prices, down 17% from a month ago.

— Gianluca Baratti

United Kingdom

Orsted's 2.6-GW Hornsea Four offshore wind farm approved

- Package of compensation measures
- Cumulative effects for seabirds
- Second largest after Hornsea Three

UK Secretary of State Grant Shapps has approved Orsted's 2.6-GW Hornsea Project Four offshore wind farm off the coast of East Yorkshire, the Department for Energy Security and Net Zero said July 12.

The decision is positive despite identification by the Examining Authority of significant adverse effects for kittiwake, guillemot and great black backed gull from the proposed wind farm, when considered alongside the other offshore wind farms in the Hornsea concession area off Humberside.

Having decided, however, that it was "possible to secure a package of measures would provide compensation" for the effects of the development, "the Secretary of State concludes that the significant benefits associated with the proposed development in contributing to the urgent need for low-carbon energy infrastructure ... outweigh the harms identified, and therefore concludes that consent should be granted to the Proposed Development," the ministry said.

A spokesperson for Orsted said approval marked the end of "a rigorous process which ensures that the project can deliver a significant source of clean energy for the UK. Hornsea 4 is the first ever offshore wind farm to be examined alongside a derogation case including environmental compensation."

The developer would review the full detail of the project's Development Consent Order "and will continue to work closely with stakeholders and local communities as we look to take Hornsea 4 forward sensitively and sustainably," the spokesperson said.

The 180-turbine Hornsea Four is the second largest UK offshore wind project to gain consent, after Hornsea Three (2.85 GW).

The largest operational offshore wind farm in UK waters, Hornsea Two (1.39 GW) was commissioned last August.

Hornsea One (1.22 GW) has been operating since 2020.

Platts, part of S&P Global Commodity Insights, assessed the GB offshore wind capture price at GBP92.12/MWh ($119.72/MWh) July 11.

— Henry Edwardes-Evans

SSE renewables output 29% below plan in Q2, gas-fired down as well

- First Dogger Bank A power in coming weeks
- 90 Seagreen offshore turbines commissioned
- Seagreen, Keadby CCGT add 2 GW capacity

SSE's renewable power performance between April and June was 29% lower than planned, reflecting dry and still weather patterns, but the UK utility noted a return to normal weather in the first weeks of July, it said July 20.

Renewables output fell 23% on the year to 1.63 TWh with the shortfall representing 5% of its planned annual green power output, the company said.

Assuming return to normal weather, the company confirmed its full-year forecast with the first-quarter trading statement.

"We are making good progress on the critical national infrastructure projects that underpin our growth plans out to 2027, and we continue to develop options that could see us invest up to GBP40 billion over the next decade," SSE Finance Director Gregor Alexander said.

All 114 turbines at the 1.1-GW Seagreen offshore wind farm in Scotland, it jointly owns with TotalEnergies, were now installed

with around 90 turbines commissioned, SSE said.

Construction of the 443 MW Viking onshore wind farm in Shetland was on track, with more than half of the turbines installed, it added.

First power from the 1.2-GW Dogger Bank A offshore project was expected in the coming weeks, following connection of the first turbines.

Capture prices for UK offshore wind averaged GBP86.93/MWh in the second quarter, according to Platts Renewable Energy Price Explorer.

Meanwhile, output from SSE's gas-fired plants was down 13% on the year at 3.22 TWh, reflecting more planned outages only partially offset by additional capacity from its new Keadby 2 combined cycle gas turbine and the Triton Power acquisition, it said.

The 893-MW Keadby-2 in Humberside entered commercial operations in March 2023.

SSE Power Generation Q1 (April-June)

	Q2-23	Q2-22
Onshore wind	0.72	1.00
Offshore wind	0.50	0.59
Hydro	0.34	0.58
Total RES	1.63	2.13
Gas-fired*	3.71	3.81
Total Generation	5.34	5.94

Source: SSE (*including Ireland)

— Andreas Franke

DIF signs first PPA for hybrid solar/battery project in UK: Pexapark

- 10-year PPA for 55 MW solar with 80 MWh battery
- Batteries offset solar cannibalization impact
- Complex profile made hybrid PPAs difficult

DIF Capital Partners has signed the first UK power purchase agreement for a hybrid solar with battery storage project, PPA advisory firm Pexapark said July 10.

The PPA covers a 55-MW solar farm with a 40-MW/80 MWh battery storage system in Leighton Buzzard for a 10-year term.

The PPA provides a bankable revenue stream for the hybrid system, hitherto difficult to agree because of complex operational profiles and contracting structures, Pexapark said.

"We anticipate that this deal will be the first of many, representing a turning point for the European sector in the deployment of bankable solar hybrid projects," Jack Rankin, PPA transaction advisory lead GB and Ireland at Pexapark said.

Interest in the co-location of solar and storage projects in the UK has increased massively as solar investors turn to batteries to maximize the value and flexibility of their assets in the post-subsidy market, it said.

Some 45% of all solar planning permissions submitted in the UK in the past two years have been for hybrid systems including storage.

This trend is reflected in the wider European market, where 64% of renewable energy businesses are seeking to introduce or increase the proportion of energy storage in their portfolios, according to a Pexapark market survey.

DIF portfolio

In June, DIF said it had reached a close on financing co-located solar generation and battery storage portfolio in the UK.

DIF acquired the portfolio in November 2022 with 10% co-shareholder ib vogt. The portfolio comprises seven ready-to-build sites with a total capacity of 720 MW, of which 380 MW is solar PV and 340 MW battery storage.

UK solar capture prices fell to a year low average of GBP74.50/MWh in May, according to Platts Renewable Energy Price Explorer.

Analysts at S&P Global Commodity Insights estimate the price required for a 10-year solar PPA starting in 2025 in the UK at around GBP77/MWh to recover newbuild costs, operating costs, and financing costs.

In Spain, the Platts Pexapark index for a standard 10-year solar PPA was pegged at Eur36.52/MWh on July 6.

Platts is part of S&P Global Commodity Insights, which is a minority stakeholder in Pexapark.

— Andreas Franke

UK water company Pennon advances own-generation solar program

- Three solar PV projects, 95 GWh/year
- Follows 40 GWh Dunfermline acquisition
- Aims for 50% green own-supply by 2030

UK water company Pennon has bought three solar PV projects with a combined projected output of 95 GWh/year, the company said July 11.

Pennon, which owns South West Water, is investing GBP160 million ($207 million) in renewables, mainly solar, with the aim of self-supplying 50% of its annual power needs by 2030.

"It is anticipated the projects will commence generation during 2025," Pennon said, noting the acquired sites were in Buckinghamshire (40 MWac), Aberdeenshire (9 MWac) and Cumbria (20 MWac).

The projects would provide "attractive commercial returns, whilst also benefiting the group by increasing energy security and resilience through reducing exposure to future volatility in wholesale power markets," it said.

In May Pennon bought a consented 40 GWh/year solar site in Dunfermline, expected to start generation in 2024. Construction cost was put at GBP35 million.

The site also had potential for a two-hour 60 MW battery at a cost of GBP25 million, the company said.

Pennon's total power use amounts to around 420 GWh/year. At present it has just 17 MW of installed renewable capacity (mainly solar and hydro), contracting further green energy supply via power purchase agreements.

Platts, part of S&P Global Commodity Insights, assessed the GB solar capture price at GBP85.29/MWh July 10.

— Henry Edwardes-Evans

UK launches Great British Nuclear to stimulate 'nuclear renaissance'

- Arms-length government body established for new nuclear power
- Focus on 3.2-GW Sizewell C plant
- Funding, selection of new SMR technology planned

The UK seeks to drive construction of nuclear power plants by launching a new government body, Great British Nuclear, to develop smaller and other advanced reactors, the energy ministry said July 18.

GBN will play a key role in reaching the 2050 target for nuclear to provide up to a quarter of the UK's electricity with the sector estimated to generate GBP6 billion ($7.9 billion) for the UK economy, it said.

"Today, as we open Great British Nuclear and the competition to develop cutting-edge small modular reactor [SMR] technology, we are seeing the first brush strokes of our nuclear power renaissance," Energy Security Secretary Grant Shapps said.

In addition to supporting the emerging, more agile SMR technology, the government remains committed to the mega projects of Hinkley Point C and Sizewell C and will work with GBN to consider the potential role of further large gigawatt-scale nuclear power plants in the UK, it said.

"Today's announcement is also another big vote of confidence in Sizewell C, which will continue the transformation in British nuclear construction started by Hinkley Point C," Julia Pyke, joint managing director for Sizewell C said in the ministry's statement.

Last summer, the UK invested GBP700 million in the Sizewell C project, the first state backing of a major nuclear project in over 30 years, making it a co-shareholder in the project company alongside French utility EDF.

The 3.2-GW project was estimated to cost about GBP20 billion in 2020.

EDF is also the lead developer of the 3.2-GW Hinkley Point C set to start in 2027, costs for which are projected to rise above GBP32 billion.

The interim chair of GBN Simon Bowen described the "arms-length body" as the "core to delivering the government's new nuclear program," the statement said.

Agile AMR technology

London also announced a GBP157 million funding package for companies to accelerate advanced nuclear business development in the UK.

The grants are to support advanced nuclear designs to enter UK regulation, maximizing the chance of small and advanced modular reactors being built during the next parliament, i.e. before 2030.

This includes GBP58 million for the further development and design of a type of advanced modular reactor and next generation fuel, it said.

AMRs would operate at a higher temperature than SMRs, and as a result they could provide high temperature heat for hydrogen and other industrial uses alongside nuclear power.

Following the launch of the SMR selection process, GBN will select technologies that meet the criteria, and then enter into detailed discussions with those companies as part of an Invitation to Negotiate phase, it said.

The initial down-select will take place in the fall, the ministry added.

Europe's first new EPR reactor, the 1.6-GW Olkiluoto-3 in Finland, started commercial operations this year with France's 1.6-GW Flamanville-3 to follow next year.

EDF previously said it expected to make a final investment decision for Sizewell C in 2023 "subject to the achievement of certain key stages, in particular the ability to raise the necessary financing."

— Andreas Franke

UK flips to net power exporter in week 28 for first time in 2023

- UK average net exports register 700 MW
- Day-ahead baseload prices down 9% to GBP79.35/MWh

UK net power exports averaged 700 MW in week 28, ended July 16, marking the first week of net power exports since the beginning of the year, Balancing Mechanism Reporting Service data showed July 18.

UK net exports to Ireland tripled to a 300 MW average, while net imports from the Netherlands fell to zero.

Net imports from Belgium more than halved, declining to a 100 MW average, similarly net imports from Norway dropped 46% on the week and averaged 600 MW.

Higher temperatures across the European continent contributed to an increase in UK gas-fired generation for power exports.

Custom Weather data showed temperatures in France over week 28 were around 2 degrees Celsius above the 30-year seasonal average, while in Germany, Italy and Spain temperatures registered over 3 degrees above the seasonal norm.

Gas-fired generation across the UK rose 24% to a 8.6 GW average, while coal burn across the country remained almost unchanged at 100 MW.

Nuclear power output declined 14% to 4.4 GW. In contrast, total UK wind generation increased around 21% to a 9.6 GW average.

UK Power Generation

Average (GW)	10-Jul to 16-Jul	3-Jul to 09-Jul	26-Jun to 02-Jul	19-Jun to 25-Jun
Gas	8.6	7.0	8.2	11.4
Coal	0.1	0.1	0.2	0.1
Nuclear	4.4	5.1	5.1	4.3
Total Wind	9.6	7.9	8.2	5.8
Pump Storage	0.1	0.1	0.1	0.1
Hydro (Non Pump Storage)	0.2	0.2	0.1	0.1
OCGT	0.0	0.0	0.0	0.0
Other	0.2	0.3	0.9	0.3
Biomass	1.5	1.2	0.9	0.9
Net Imports/Exports	-0.7	2.6	1.6	1.7
Border flows				
France (IFA+IFA2+ElecLink)	-0.7	1.4	1.5	1.1
Northern Ireland (Moyle)	-0.3	-0.2	-0.2	-0.3
Netherlands (BritNed)	0.0	0.2	-0.1	0.0
Ireland (East-West)	-0.3	-0.1	-0.3	-0.1
Belgium (Nemo Link)	0.1	0.2	0.1	0.1
Norway (North Sea Link)	0.6	1.1	0.7	0.9

Source: BMRS

The UK day-ahead baseload power price averaged GBP79.35/MWh in week 28, down 9% on the week, S&P Global Commodity Insights data showed.

— Daria Dabiri

Construction starts on first UK-Germany power cable

- 1.4 GW NeuConnect to start 2028
- Cable laying completed on Viking
- UK flips to net exports mid-July

Construction was underway on the 1.4-GW NeuConnect interconnector, the first power cable between Germany and the UK, the project company said July 19.

NeuConnect's main contractors, Prysmian and Siemens Energy, have started works in the UK with construction on the German side to begin early 2024.

Start of operations was planned for 2028.

"NeuConnect will be the first ever power line between the UK and Germany and is central to my mission to bolster national energy security while also strengthening our important ties with a North Sea ally," UK Energy Security and Net Zero Secretary Grant Shapps said in a statement.

The GBP2.4 billion ($3.1 billion) project, the single-largest Anglo-German infrastructure investment, is led by global investors Meridiam, Allianz Capital Partners, Kansai Electric Power and TEPCO.

Some 725 km of land and subsea cables will link the Isle of Grain in Kent to Wilhelmshaven, Germany, helping to integrate renewable energy sources in both countries.

NeuConnect will construct new converter stations connected by subsea cables travelling through British, Dutch and German waters.

The first phase of subsea cable installation will start next year, it said.

Meanwhile, subsea cabling of the new Denmark-UK cable was completed July 13 with the 1.4-GW Viking Link on track to start before the end of the year.

Britain flipped to net power exports in the week ending July 16 after net imports hit record highs in May boosted by the full 4 GW capacity on interconnectors from France as well as the 1.4 GW NorthSeaLink cable from Norway.

Germany, meanwhile, registered record net imports since closing its final three nuclear reactors in April, mainly as a result of lower wind and improved hydro in the Nordics and Alps as well as record-high carbon costs.

Analysts at S&P Global Commodity Insights forecast Britain holding a net export position between August and November at an average 0.7 GW, with the wide discount between UK carbon allowances (UKAs) and EU ETS prices driving the competitiveness of British gas versus EU fossil-fuel generation, they said in a July 13 report.

Platts, part of S&P Global, last assessed UK power for 2024 at Eur134.91/MWh ($151/MWh) compared to an exchange-settled Eur137.79/MWh for Germany's Cal 2024 baseload contract.

— Andreas Franke

Power Market Commentary

Med heat wave prevents European power prices from steeper losses

- Heat demand impact limited to Med
- French Aug bounces off two-year low
- German Cal 2024 maintains gains

European front-month power prices ended the week to July 21 lower with a heat wave across the Mediterranean offset by slightly cooler and windier than normal weather in Northern Europe.

French August baseload bounced off a two-year low on July 17 trading July 21 around Eur79/MWh ($88/MWh) on EEX, down over 20% since the start of July.

"The uptick seems to be a more psychological phenomena," a Swiss power trader said. "Fundamentally, there are no indications for a steady up movement."

Further out, German Calendar 2024 defended recent gains trading July 21 at Eur144/MWh, up 22% from a 17-month low early June.

Gas prices were driven by Norwegian maintenance updates, initially falling to Eur25/MWh but rebounding to Eur30/MWh on July 21.

Platts, a unit of S&P Global Commodity Insights, assessed TTF front-month gas at Eur28.35/MWh July 20, down 12% over the fortnight.

The premium of Italian day-ahead gas at the PSV hub over TTF widened amid near record gas-for-power demand in Italy.

Coal into Europe dipped below $100/mt, but recovered to $109.50/mt for spot cargoes, down 12% over the fortnight, according to Platts assessments.

EU carbon allowance prices, meanwhile, rose to a month-high trading July 21 around Eur92/mt on ICE exchange.

German power imports

In Germany, day-ahead baseload averaged Eur87.4/MWh July 7-20, up 8% from the previous fortnight, but 70% lower year on year, Epex Spot data showed.

Lower wind and solar supported prices with combined output averaging 22.6 GW, down from 24.3 GW two weeks earlier, system data showed.

Day-ahead narrowly avoided a negative price on July 16, settling at Eur14.53/MWh as hourly power prices across the region turned negative over the weekend.

The Nordic day-ahead system prices settled below zero for the first time.

On the curve, August settled July 20 at Eur84.33/MWh on EEX, up 3% up from two weeks earlier.

"The market is very nervous and cannot comfortably exist at such low levels," a German trader said.

"We have already seen this happening earlier this year. You only need very little to lift the prices."

Moreover, price moves in both power and gas may have been exaggerated by algorithmic trading, sources said.

On the far end, Calendar 2024 settled at Eur143.33/MWh July

20, down 1% compared to the July 7 close.

German continued to import electricity at record volumes since closing its last three reactors in April with high generation costs for coal and lignite and improved supply in neighboring markets the key reason.

French reactors return

In France, August has eased 23% so far this month, settling July 20 at Eur77.49/MWh, EEX data show.

Day-ahead prices averaged Eur81.84/MWh over the fortnight, down 3% from two weeks prior.

Hourly prices fell below zero over the July 15/16 holiday weekend, forcing reactors to ramp down.

French wind output eased 6% to 3.4 GW, while gas generation rose 36% to 3 GW, RTE data show.

Demand edged up 3% to just over 43 GW, while nuclear averaged around 32 GW.

EDF restarted at least three reactors with output July 21 peaking above 35 GW, the highest in two months.

France remained a power exporter with net outflows averaging 5 GW.

Spain swings to premium

In Spain, August fell 12% so far this month to Eur89.38/MWh on July 20, according to OMIP.

A heat wave kept Spanish prices elevated compared to other parts of Europe.

Temperatures averaged some 2 degrees Celsius above seasonal norms over the fortnight, according to CustomWeather.

Day-ahead averaged Eur91.72/MWh, down 3% from the prior fortnight, OMIE data show.

Gas-fired generation rose 36% to 7 GW, while wind eased 3% to 5.3 GW, REE data showed.

Net imports declined 30% to just under 1 GW.

Italian heat wave

The heat wave in Italy lifted power demand with July-to-date spot power averaging Eur115.56/MWh, up 10% from June, GME data showed.

Market participants noted near record gas-for-power demand with almost the entire gas fleet utilized July 18 and 19.

"Italian gas market seems to have reached a peak in gas for power consumption at 106 mcm/d," a trader said.

Forecasts were for temperatures closer to normal towards the end of July, but CCGTs were expected to maintain their operational level as spark spreads remain attractive, the trader said.

Italian demand peaked July 19 at 58.9 GW, the highest since 2019, Terna data show.

Thermal generation reached 27.3 GW and solar 8.6 GW.

Imports rose 770 MW to 6.4 GW as flows from Switzerland and Greece increased.

Britain flips to exports

UK day-ahead averaged GBP82.67/MWh ($106/MWh) so far this month, down 5% from the June average, S&P Global data showed.

"Weekend prices are trading at extremely negative sparks as no thermal generation is needed. Renewable and nuclear look able to meet all demand needs," a trader said.

Gas generation averaged 8 GW so far this month, down 41% on year and 21% below the June average, BMRS data showed.

Wind averaged 6 GW, up 28% on year and 43% above June.

As a result, the UK flipped to net exports for the week to July 16.

"I expect negative prices for most coming weekends if demand stays this low. The wind has been strong this month and strongest at weekends when demand is lower," the trader said.

— Kira Savcenko, Daria Dabiri, Fatemeh Zahedi, Maxim Grama, Andreas Franke

CEE Power Market Commentary

Hungarian spot power gains on heat, Poland maintains premium

- Polish Cal 24 dips to Eur146/MWh
- Czech Cal rebounds to Eur145/MWh
- Hungarian Cal flat at Eur158/MWh

Polish spot power prices remained at a premium to neighboring markets during week 29 thanks to higher generation costs from domestic coal and rising EU carbon prices and reduced renewables production.

Day-ahead for July 21 settled at Zloty 617.13/MWh (Eur138.67/MWh), little changed week on week, Polish Power Exchange (TGE) data showed.

Spot prices across much of Western and Northern Europe turned negative on July 16 amid strong wind in addition to some solar. Poland settled at Zloty 290/MWh.

Wind in Poland was forecast to remain below average at around 1 GW baseload until July 23, while solar was forecast to average around 4 GW for peakload hours (0800 to 2000), according to spotrenewables.com.

Lower temperatures during the week reduced demand for cooling and the maximum load fell 8% week on week to 20.66 GW on July 20, according to grid operator PSE.

Poland remained a net importer of power purchasing electricity from all neighboring markets.

Strong domestic coal and rising EU carbon allowance prices lifted generation costs.

Platts, part of S&P Global Commodity Insights, assessed CIF ARA coal into Europe (15-60 days) on July 20 at $109.50/mt after dipping to $95/mt July 13.

The EU carbon allowance for December 2023 also rebounded, trading early July 21 above Eur91/mt, the highest in over four weeks.

On the curve, August baseload ended the fortnight slightly lower at Zloty 504.71/MWh, still above June's average month-ahead price of Zloty 476.47/MWh.

The Q4 contract rose 4.5% week on week to Zloty 515.83/MWh, but remained well below the contract's average price in June of Zloty 722.46/MWh.

Further out, the Calendar 2024 contract fell another 3% over the fortnight to Zloty 651.17/MWh.

The average price of green certificates, used to support existing renewable energy installations, rose 2.1% week on week to Zloty 169.83/MWh on July 20.

Czech solar hits 3 GW

Czech spot and future prices rose July 20 on higher EU carbon allowances and gas prices.

Cal 2024 hit a month-high of Eur145.48/MWh on Prague's PXE exchange after falling to Eur132.46/MWh on July 12.

August baseload added Eur1/MWh after largely moving sideways over the fortnight settling at Eur87.81/MWh.

Spot prices also recovered after falls during the previous session with day-ahead baseload for July 21 up 8% at Eur105.75/MWh.

Day-ahead prices had been rangebound between Eur97.40/MWh and Eur107.79/MWh during the fortnight.

Weekly power demand was down 5.3% year on year, the latest data from grid operator CEPS showed. Net exports narrowed to 86 GWh in the week to July 17.

Meanwhile, Czech solar capacity reached 3 GW, up by a third since the start of 2022 with some 45,000 new solar facilities connected to the grid in the first six months of 2023, more than in all of 2022, the country's industry ministry said July 20.

Heat boosts Hungarian demand

Hungarian spot prices crept higher in the two weeks ending July 21 boosted by rising temperatures and some supply disruptions.

Day-ahead base on the HUPX exchange moved from under Eur110/MWh to over Eur120/MWh with July 21 settling at Eur125/MWh.

Unlike in recent weeks, the premium to German spot prices was wide, often approaching Eur30/MWh, with cool and blustery conditions across Northern Europe offsetting a heat wave in Southern Europe.

Hungarian power consumption rose to its highest since late March.

On the supply side, large power plants initially met the extra demand, ramping up to a five-month high as all combined cycle gas turbine units returned to service.

In the second week, though, the Paks nuclear plant was forced to reduce output by 500 MW as river temperatures in the Danube, used for cooling, exceeded the maximum level allowed by the authorities.

Imports made up for the shortfall with Slovakian flows rising to the highest level since February.

Balkans transit needs also remained high.

Solar generation continued to be strong, while falling gas prices mitigated some of the gain for spot power prices.

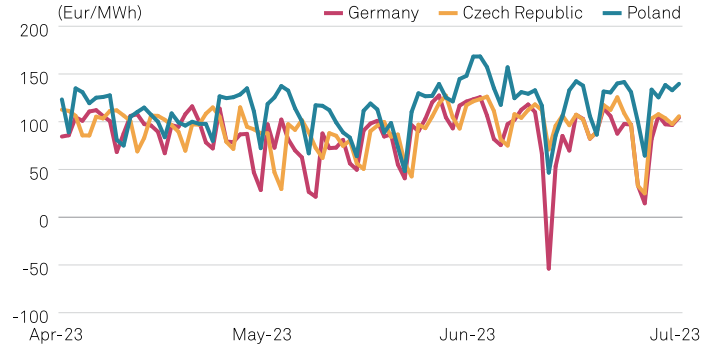
Forward contracts on the HUDEX exchange fell for the most part, but rebounded July 20.

August baseload fell below Eur100/MWh for the first time in a month, closing July 20 at Eur97/MWh, down 6% over the fortnight.

The Q4 base shed Eur4/MWh to Eur139/MWh.

The Cal 2024 base ended the fortnight little changed at Eur158/MWh, despite venturing as low as Eur146/MWh with the premium over Germany widening slightly to Eur12-17/MWh.

Central & eastern Europe day ahead baseload



Source: TGE, OTE, Epex Spot

— Chris Johnstone, Balazs Szladek, Adam Easton

Feedstocks, Carbon

European gas, coal prices ease, EUA carbon rebounds

- Norway maintenance end deflates TTF
- Italian PSV premium widens on heat
- EU carbon prices hit month-high

European gas prices rebounded July 21 from near two-year lows seen mid-July with a focus on Norwegian gas maintenance, while a heat wave across the Med widened Italy's premium, but failed to lift the wider complex.

Gas price benchmark TTF front-month was last assessed at Eur28.33/MWh July 20, down 12% over the fortnight, according to assessments by Platts, part of S&P Global Commodity Insights.

The August contract fell to Eur25.10/MWh July 14 as one Norwegian gas outage ended.

Market sentiment was mixed, with one Germany-based trader saying that recent price moves "from a fundamentals point of view ... cannot be explained."

Returning Norwegian Continental Shelf gas volumes are expected to bolster storage injections, with current European gas storage already over 82% full, according to Gas Infrastructure Europe.

"I am a bit puzzled about why the US traders are really interested in the TTF since the start of this week," the trader said. "This is playing a big role for sure, ... only reason would be unhedging the NWE and hedging the JKM legs of a transatlantic arbitrage. The November JKM is quite strong now."

Platts assessments for spot LNG cargoes into Northwest Europe eased 2% over the fortnight to $9.69/MMBtu by July 20.

The LNG benchmark Platts JKM for Asian spot cargoes for September was assessed July 21 at $11.38/MMBtu.

Elsewhere, the UK's NBP front-month contract eased 10% to 71.50 pence/therm (Eur28.14/MWh) July 20, according to the last Platts assessment. The discount to TTF narrowed to just Eur0.20/MWh.

On the Continent, Spain's PVB gas hubs moved above France's PEG with last assessed by Platts at Eur28.30/MWh and PVB at Eur28.80/MWh.

The heat wave across the Mediterranean lifted Italian day-ahead gas at the PSV to Eur32.15/MWh, while PVB day-ahead eased again below Eur30/MWh amid slightly less hot conditions forecast across Iberia for the final week of July.

European coal declines

European thermal coal prices (CIF ARA 6,000 kcal/kg NAR, 15-60 day) fell sharply to $95/mt July 13, but recovered to $109.50/mt July 20, down 12% over the fortnight.

Activities in the Asian coal market slowed down as most participants awaited firm demand indications, sources told S&P Global.

"In Asia, the two-biggest coal importers India and China are more prepared for the heatwave this year to prevent a repeat of the 2022 power crisis," according to analysts at S&P Global.

"On top of the robust domestic coal supply in India and China, both countries stocked up imported thermal coal early as output from Indonesia has been healthy and China has reopened the door to Australian thermal coal imports," according to the July edition of International Thermal Coal Market Forecast by S&P Global.

"China doubled its thermal coal imports, while imports into India increased around 5% in the first five months of 2023," according to S&P Global.

"With lackluster economic performance in China this year, it is more economical to use coal for power generation in order to keep costs lower," a China-based analyst from a power utility said indicating stunted near-term LNG demand.

Meanwhile, the IEA in a July 19 report forecasts falling demand for coal worldwide in 2023 and 2024.

For the EU27, the IEA forecasts a 20% drop for coal and a 16% decline for gas-fired generation this year.

EUAs rise despite falling emissions

EU carbon prices rose to a one-month high on resurgent demand along with expectations of tighter auction supplies in August.

EU Allowances for December were trading just below Eur92/mtCO2e as of 1030 GMT July 21, up 7% over the fortnight, ICE exchange data showed.

Platts assessed EUAs for Dec 2023 at Eur90.84/mtCO2e July 20.

Many traders and analysts believe the rally is driven by higher gas prices on robust demand.

"The current upward momentum on the carbon emissions market is mostly driven on a fundamental level by increasing gas prices," said a trader.

UK NBP Gas for July 20 (pence/th)

Bal Month Jul	**68.83 - 69.03**
August	71.40 - 71.60
September	75.05 - 75.25
Q4-23	115.83 - 116.03
Q1-24	141.43 - 141.63
Season 1	128.63 - 128.83
Season 2	133.10 - 133.30
Season 3	146.75 - 146.95
Season 4	112.90 - 113.10
Oct-23 1 yr	130.88 - 131.08

Source: Platts European Gas Daily

Thermal Coal Prices

	$/mt
July 20	
CIF ARA	109.50
FOB Kalimantan	88.50
FOB Newcastle	90.30
Platts NEAT	109.34
July 14	
FOB Colombia	100.20
Russia Pacific	95.00

Notes: Price bases: CIF ARA 6,000 kcal/kg NAR, max sulf 1%; Richards Bay 6,000 kcal/kg NAR, max sulf 1%; Kalimantan 5,900 kcal/kg GAR, max sulf 1%; Newcastle 5,500 kcal/kg NAR, 20% ash, max sulf 0.65%; Platts NEAT 5,750 kcal/kg NAR, max sulf 1%; FOB Colombia 6,000 kcal/kg NAR, max sulf 0.8%; Russia Pacific 6,300 kcal/kg GAR, max sulf 0.4%.

Source: Platts Coal Trader International

EUA nearest-December price

Source: ICE Futures Europe

Another bullish factor is the tightening of allowances supply in August.

Last August, prices nearly hit Eur100/mt amid a steep fall in auction volumes.

Auctions supplies in July rose by almost 750,000 allowances.

Meanwhile, the spread between UK carbon permits and EU allowances widened further as demand for UK allowances continues to be weak.

Renewables continue to dominate the UK power mix denting buying interest for UKAs.

UK carbon prices were also falling due to declining manufacturing figures.

UK permits were trading at a record discount of almost $40/mt July 21, compared to $25/mt earlier in the month.

Platts assessed UK Allowances for Dec 2023 at GBP48.50/mtCO2e July 20.

With the discount of UKAs to EUAs below the premium in UK generation costs, the trend could see UK power exports to Europe increase.

— Andreas Franke, Eklavya Gupte

Germany sells four offshore wind concessions for $14 bil to BP, TotalEnergies ...from page 1

The two sites, tendered as N-11.1 and N-12.2, are 130 km and 150 km offshore in water depths of about 40 meters, adjacent to each other.

BP's global offshore wind pipeline now totals 9.2 GW net, it added.

Initial payments totaling Eur678 million, equivalent to 10% of the bid amount, will be paid by July 2024, it said.

The remaining 90% will be paid over a 20-year period when the projects become operational.

Meanwhile, TotalEnergies' initial payment amounts to Eur582 million for the 25-year concessions, extendable to 35 years, the company said.

One 2 GW site is in the North Sea, while the second 1 GW site is in the Baltic Sea.

Analysts at S&P Global Commodity Insights estimate breakeven levels for a 30-year offshore wind PPA in Germany starting in 2030 at around Eur72/MWh (nominal) to recover new build costs, operating costs and financing costs, according to a report published July 3.

Volume-weighted capture prices averaged Eur96.97/MWh in the first half of 2023, according to Platts Renewable Energy Price Explorer.

German 2023 offshore wind tender result

Concession	(GW)	Developer	Price (billion Eur)	Start date
N-11.1	2	BP	3.66	Q3-30
N-12.1	2	TotalEnergies	3.75	Q3-30
N-12.2	2	BP	3.12	Q4-30
O-2.2	1	TotalEnergies	2.07	Q3-30

Source: BNetzA

— Andreas Franke

EU 2023 power demand set for 3% drop to lowest since 2002: IEA ...from page 1

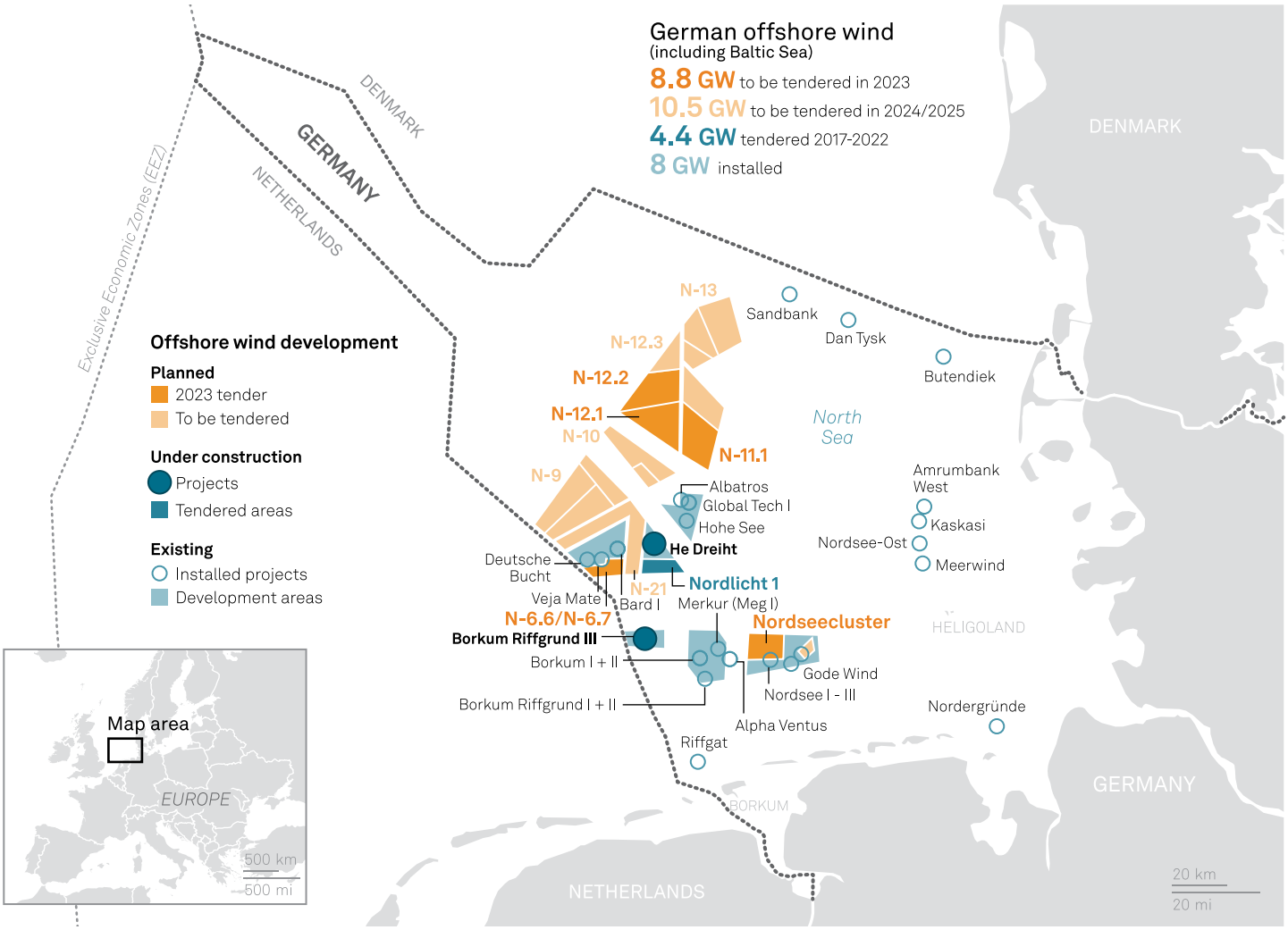
Renewables above coal

Meanwhile, strong growth in wind and solar additions and some demand weakness meant the share of renewables in global electricity generation will exceed one-third in 2024, it said.

Depending on weather conditions, 2024 could be the first year in which more electricity is generated worldwide from renewables than from coal, the IEA said.

Coal-fired generation will slightly decline in 2023 and 2024,

Germany to tender 7.8 GW North Sea wind capacity in summer 2023



Source: S&P Global Commodity Insights, Federal Maritime and Hydrographic Agency of Germany

after rising 1.7% in 2022, while electricity generated from oil is projected to fall significantly.

"Now is the time for policy makers and the private sector to build on this momentum to ensure emissions from the power sector go into sustained decline," said Keisuke Sadamori, IEA Director for Energy Markets and Security.

In another sign the energy transition is taking hold, the IEA saw electricity generated from fossil fuels falling in four out of the six years between 2019 and 2024.

In the past, annual declines in fossil-fired generation were rare and occurred primarily after global energy and financial shocks, when demand was suppressed.

On July 18, the IEA cuts its forecast for European gas demand in 2023 to fall 7% on year amid lower gas burn in the power sector and rapidly expanding renewable energy generation.

Meanwhile, coal and lignite generation in Europe's five biggest power markets dropped 23% on year in the first half of 2023, according to Platts Thermal Tracker.

Coal and lignite generation across the EU27 in H1 2023 fell 22% year on year with the total barely above coronavirus lockdown levels in H1 2020, indicating falling CO2 emissions, system data aggregated by Fraunhofer ISE showed.

EUA carbon allowance prices hit Eur100/mt ($112/mt) for the first time in February. Platts, part of S&P Global Commodity Insights, last assessed EUA December 2023 at Eur87.35/mt on July 18.

The IEA report expected a 20% drop for coal-fired generation and a 16% year-on-year decline for gas-fired generation across the EU for 2023, assuming normal weather conditions for winter.

IEA global electricity generation forecast (TWh)

	2021	2022	Y/Y Change (%)	2023	Y/Y Change (%)	2024	Y/Y Change (%)
Coal	10,279	10,450	1.7	10,409	-0.4	10,309	-1.0
Renewables	7,931	8,546	7.8	9,132	6.9	10,160	11.3
Gas	6,531	6,522	-0.1	6,540	0.3	6,477	-1.0

IEA global CO2 emissions from power generation
(million mt CO2)

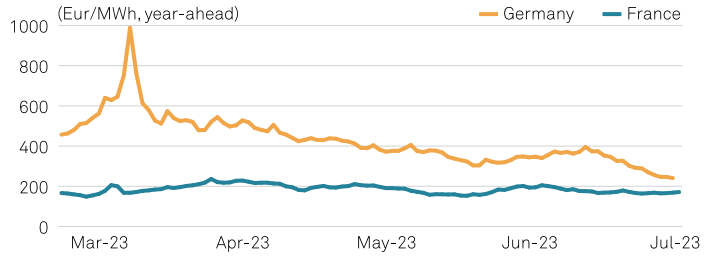
	13,186	13,362	1.3	13,270	-0.7	13,120	-1.1

Source: IEA EMR (July 19, 2023; forecast for 2023 and 2024)

— Andreas Franke

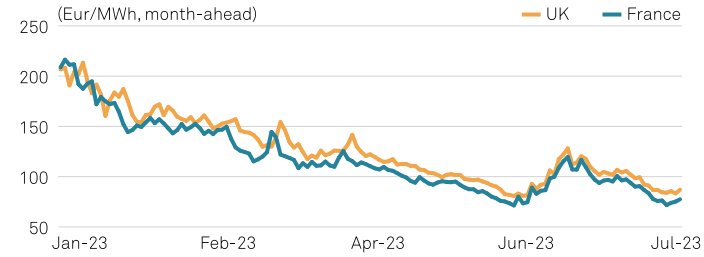
Prices, Spreads and Auction Results

FR-DE: baseload price comparison



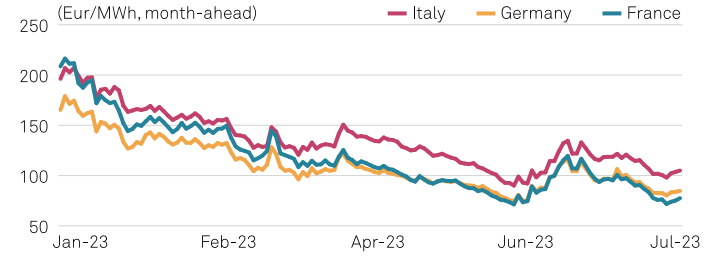
Source: EEX

UK Borders: baseload price comparison



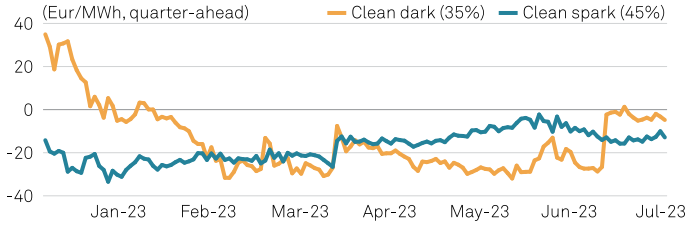
Source: S&P Global Commodity Insights, EEX

Italian borders: baseload price comparison



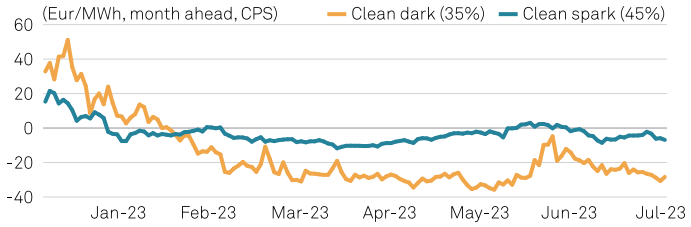
Source: EEX

Germany: clean dark and spark spreads



The applicable heating value for all spark and clean spark spreads is High Heating Value (HHV).
Sources: S&P Global Commodity Insights, EEX

UK: clean dark and spark spreads



The applicable heating value for all spark and clean spark spreads is High Heating Value (HHV).
Source: S&P Global Commodity Insights

Fortnight view: Year-ahead base prices (Eur/MWh)

	Low	High	Close	Change (%)	
UK	130.50	144.21	138.90	1.84	▲
Germany	130.01	145.09	143.33	0.60	▲
France	163.74	179.16	171.27	1.70	▲
Spain	94.00	100.00	100.00	0.00	–
Italy	140.16	154.64	151.31	0.29	▲

Note: 'Low/High' indicates lowest and highest daily market-on-close assessment/price over the two weeks to 20-Jul-23. 'Close' indicates market-on-close assessment on 20-Jul-23. 'Change' refers to the two-week period to 20-Jul-23.

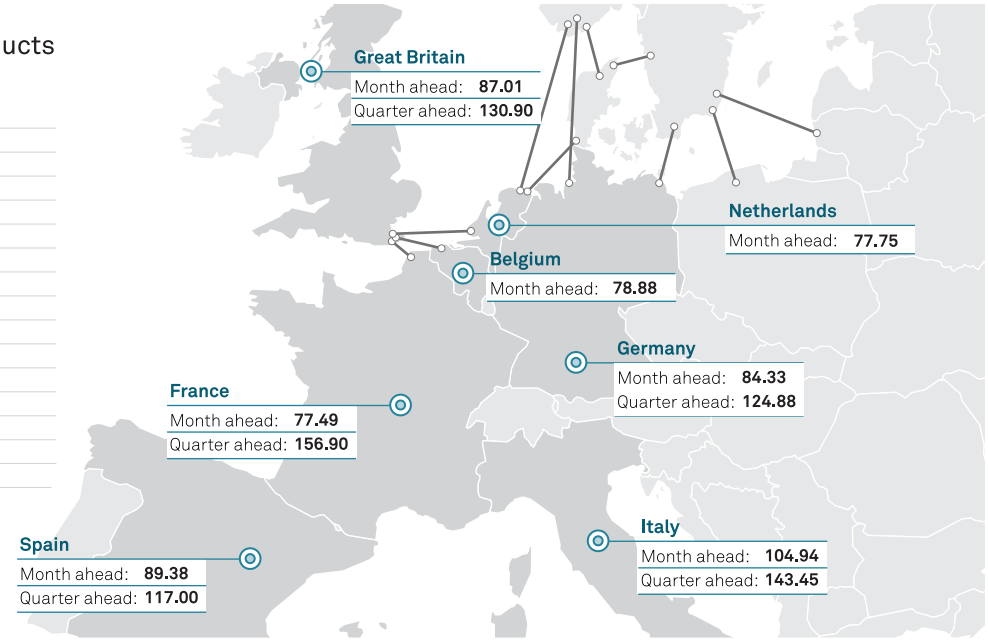
Source: S&P Global Commodity Insights, EEX, ICE, OMIP

Wholesale prices Jul 23, cross border auctions (Eur/MWh)

Cross border auction results, Aug products

Direction	Allocated capacity (MW)	Clearing price (Eur/MWh)
GB-NL, three auctions	100/161/236	0.71/1.20/1.54
NL-GB, two auctions	122/104	6.50/8.45
FR-GB, Eleclink	50	7.96
GB-FR, Eleclink	50	1.45
BE-GB	100	7.99
GB-BE	105	1.26
CH-DE	1,330	1.14
DE-CH	240	3.01
FR-IT	398	29.44
IT-FR	580	0.18
IT-CH	569	0.07
CH-IT	911	17.44
IT-SI	74	2.64
SI-IT	60	28.11
IT-GR	450	4.61
GR-IT	450	6.77

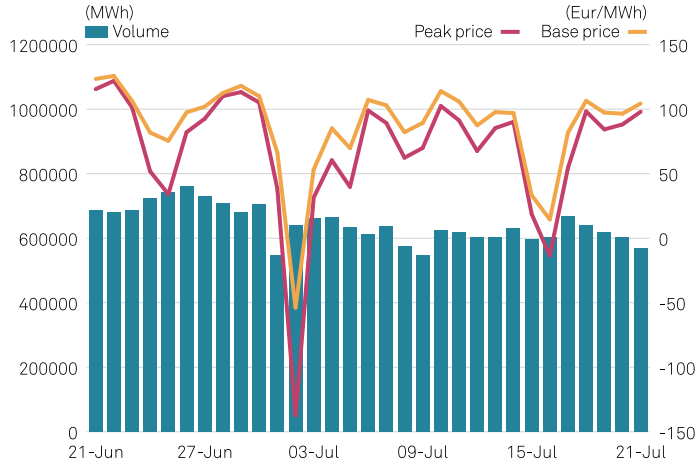
Source: Joint Allocation Office



Sources: S&P Global Commodity Insights, ICE, EEX, OMIP, JAO, RTE, National Grid

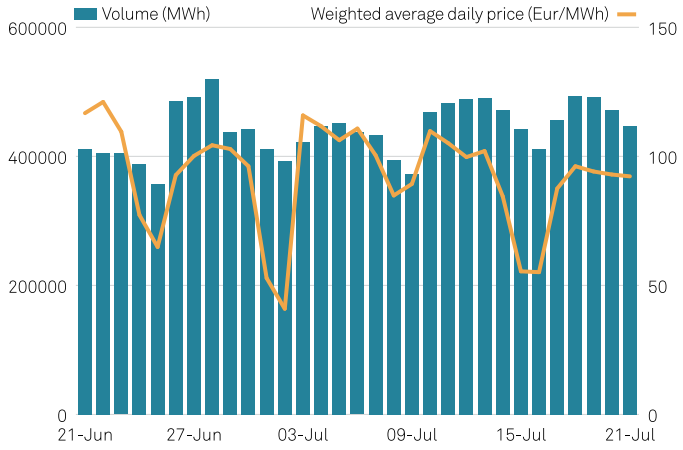
European Exchange and Pool Prices

EPEX spot Germany/Luxembourg



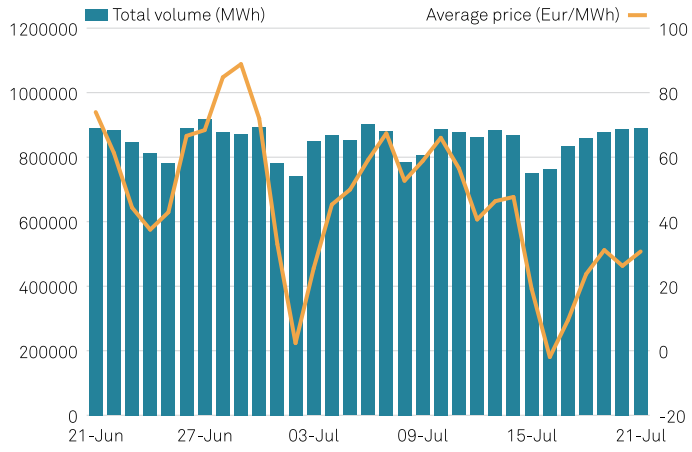
Source: EEX

Spanish final pool



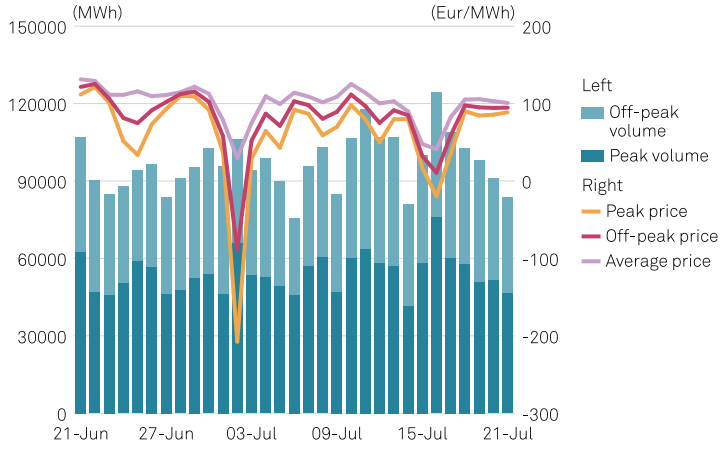
Source: Omel

NASDAQ OMX ELSPOT daily system price



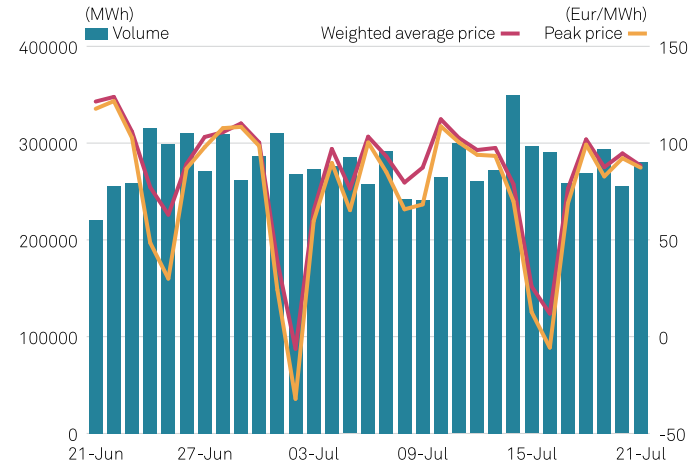
Source: Nasdaq OMX Commodities

APX Netherlands weighted average prices



Source: APX

EPEX spot France prices and volumes



Source: EPEX

European Electricity Demand

West European Electricity Demand: Monthly view (TWh)

	Jan	Feb	Mar	April	May	June	July	Aug	Sept	Oct	Nov	Dec	Sum
Germany													
2023	44.32	40.56	46.20	40.30	39.90	39.40							
2022	48.40	45.10	46.80	43.40	42.90	41.20	42.50	41.50	40.70	41.50	41.80	43.00	518.80
2021	47.21	43.96	47.75	43.86	43.31	42.71	43.14	42.03	42.55	45.67	46.44	46.60	535.23
2020	48.20	45.80	46.40	39.50	39.50	39.50	41.60	41.30	41.60	45.40	45.10	45.00	518.40
2019	49.80	44.80	47.70	43.50	44.90	41.90	44.10	42.90	42.60	45.20	46.00	45.00	538.40
2018	49.70	46.10	49.30	44.30	44.40	43.80	44.90	45.00	43.20	46.20	46.70	46.50	550.10
France													
2023	45.99	40.55	39.26	33.87	30.25								
2022	51.52	41.96	41.62	35.77	32.36	31.75	33.15	31.22	29.45	31.61	36.23	44.97	441.61
2021	52.50	42.61	43.53	37.29	34.02	31.64	32.42	30.60	31.95	36.12	43.77	48.31	464.76
2020	47.81	42.70	41.05	30.51	30.41	30.03	32.64	30.91	31.91	37.73	39.53	47.06	442.29
2019	53.24	43.51	42.41	37.64	35.22	32.31	34.37	30.75	31.98	35.72	43.26	46.11	466.52
2018	47.72	49.46	47.72	35.76	33.52	32.12	34.32	32.03	32.47	36.79	43.14	46.80	471.85
Italy													
2023	26.19	25.10	26.20	23.37	24.32	25.43							
2022	27.50	25.50	27.30	24.10	25.70	24.13	31.10	25.90	25.90	24.60	25.00	25.00	311.73
2021	27.10	24.80	26.70	24.30	24.52	27.40	30.30	26.80	27.00	26.50	26.40	27.40	319.22
2020	27.50	25.80	23.70	19.90	22.70	24.10	29.00	26.10	26.60	26.20	25.50	25.90	303.00
2019	28.40	25.50	26.40	24.00	25.20	27.80	31.40	26.50	26.70	26.30	25.80	25.60	319.60
2018	27.50	26.30	27.70	24.10	26.00	27.00	30.40	26.50	27.00	26.90	26.30	26.50	322.20
Spain													
2023	22.05	20.45	19.36	16.60	17.40	19.96							
2022	22.70	20.19	21.48	19.54	20.27	21.31	23.55	22.08	20.43	19.51	19.49	20.44	250.99
2021	24.07	20.25	21.93	18.85	20.34	20.86	23.09	22.25	21.07	20.30	21.52	22.05	256.58
2020	23.92	21.06	20.90	17.10	18.37	16.50	23.30	22.16	20.60	20.72	20.80	22.40	247.83
2019	22.80	20.17	20.74	19.53	21.13	21.33	24.19	22.88	21.36	21.50	21.97	21.93	259.53
2018	22.64	21.30	22.11	19.90	20.04	20.34	22.29	22.09	21.92	21.68	20.20	21.20	255.71
United Kingdom													
2023	22.78	19.36	21.52	18.38	16.75	16.14							
2022	23.83	20.37	21.26	18.07	17.39	16.46	17.02	17.36	16.37	17.98	20.09	23.09	229.29
2021	24.56	20.92	21.50	19.83	19.34	17.99	18.64	18.01	18.72	20.30	21.91	23.74	245.46
2020	23.74	22.13	21.95	16.47	16.08	16.32	17.35	18.07	18.38	21.42	21.60	23.90	237.41
2019	26.28	22.88	22.63	20.51	19.89	18.46	19.12	18.12	18.77	22.15	24.18	24.11	257.10
2018	26.22	24.04	25.72	21.47	19.71	18.69	19.70	19.47	19.31	21.97	23.62	24.43	264.35

*estimates derived from Q2 BDEW data

Sources and notes: Figures rounded to two decimal places. Figures can change as TSOs move from provisional to final assessments. Germany: BDEW. NB BDEW statistics updated periodically. France: RTE, gross national consumption. Italy: Terna. Spain: REE, electricity demand on the Spanish peninsula. UK: National Grid, total generation volume excluding station transfer, pumping and interconnector export demand. UK National Grid daily figures are Initial Demand Out-Turn, defined as "The half-hour average MW demand metered by the Transmission Company, taking into account transmission losses but not station transformer load, pumped storage demand or Interconnector demand."

For the full data set from 2008, contact the editor: henry.edwardes-evans@spglobal.com