

WORLD POWER SYSTEMS REVIEW

1 April 2023

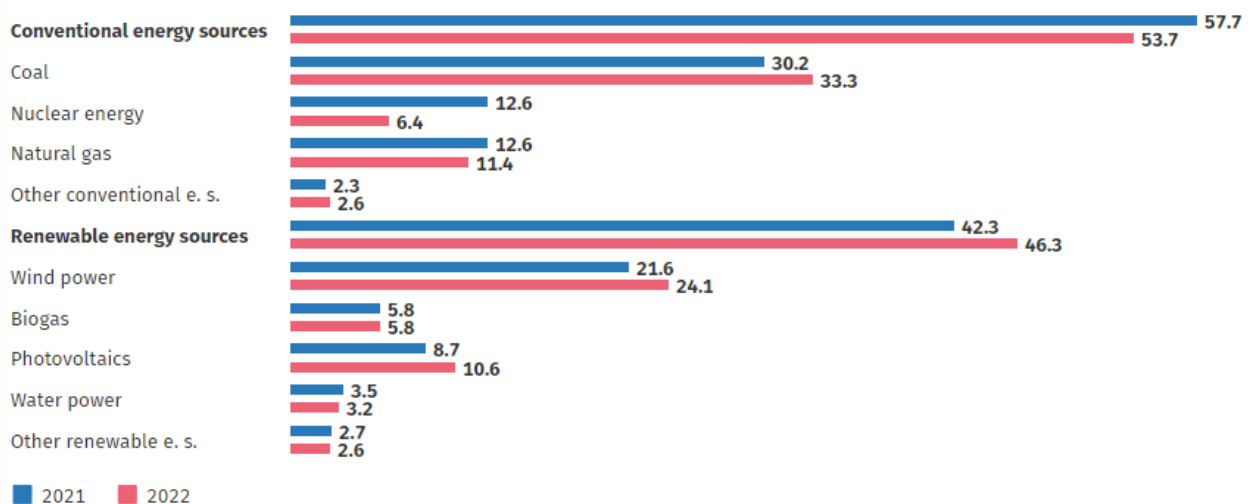
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Germany: Electricity production in 2022

As in the preceding years, coal was the main energy source in electricity production in Germany in 2022. Based on provisional results, the Federal Statistical Office (Destatis) reports that one third (33.3%) of the electricity produced in Germany and fed into the grid was generated by coal-fired power plants (2021: 30.2%). This means that coal-generated electricity increased by 8.4% compared with the previous year. Wind power was the second most important energy source. After the previous year had been relatively windless, its share increased by 9.4% to just under one quarter (24.1%) of electricity production (2021: 21.6%). In total, 509 billion kilowatt hours of electricity were produced and fed into the grid in Germany in 2022. This was a decrease of 1.9% compared with 2021.

Electricity fed in from conventional and renewable energy resources

in percent



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Destatis

<http://www.destatis.de/>

15 March 2023

UK launches competition for small nuclear reactor designs

The UK government stepped up efforts to hit its ambitious targets for a new generation of nuclear power stations by launching an international competition to find the leading designs for small modular reactors with the aim of co-funding the development of the technology.

But there was no extra funding for nuclear in the Budget, with officials promising details on financing would be announced at the end of the month by energy secretary Grant Shapps. Chancellor Jeremy Hunt also confirmed plans to set up Great British Nuclear, a new body to oversee the revival of atomic energy and smooth the development of a new pipeline of power stations.

The new body will run the competition for SMRs, with the aim of completing the contest by the end of this year. The government committed to co-fund the winning bids if “demonstrated to be viable”. The government hopes SMRs can help it reach its ambitious target of 24GW of new nuclear capacity by 2050. The target is equivalent to 25 per cent of Britain’s electricity, compared with 15 per cent at present, and is designed to bolster domestic energy security in the wake of Russia’s invasion of Ukraine. Ministers are anxious

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to accelerate plans to replace the UK's fleet of ageing atomic plants, which has dwindled in recent years as older plants were shut down. Four out of five of the operating plants are due to be retired by 2028. The programme to replace them has been dogged by delays. The only new large nuclear plant under construction, at Hinkley Point in Somerset, is years behind schedule and over budget, a problem that has affected all other large nuclear projects across Europe.

"Increasing nuclear capacity is vital," Hunt said as he also confirmed the launch of a consultation on reclassifying nuclear power as environmentally "sustainable", a designation that determines which types of power are eligible for climate-related incentives. The move is designed to help drum up more private investment in the nuclear sector. Dozens of companies are working on smaller reactor designs that they promise can deliver nuclear power quicker by drawing on modular manufacturing techniques that reduce the construction risks encountered with larger reactors.

The competition for SMRs is expected to draw interest from industrial groups, such as Rolls-Royce, and start-ups such as Newcleo, both of which have talked about their aspirations to build small reactors in the UK. The Rolls-Royce-led consortium has already secured £210mn of government grant funding for its project and its reactor design is being assessed by the safety regulator, the Office for Nuclear Regulation.

Hunt also announced an aspiration to provide up to £20bn to be invested in carbon, capture and storage technologies during the next two decades. The initiative could help the UK store between 20mn to 30mn tones of CO₂ annually by 2030, he said. But officials confirmed there would be no fresh cash before the next general election, due to be held by January 2025. Campaigners expressed disappointment with the lack of green measures in the Budget at a time when the US is supercharging its energy transition with its \$369bn Inflation Reduction Act, and as the EU is preparing its Net Zero Industry Act. "What is announced today is not enough to keep the UK in the global race to net zero emissions — it puts us at risk of being outcompeted by the US and by Europe," said Ed Matthew, campaign director at think-tank E3G.

Financial Times
<http://www.ft.com/>

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Commission proposes reform of the EU electricity market design to boost renewables, better protect consumers and enhance industrial competitiveness

The Commission has proposed to reform the EU's electricity market design to accelerate a surge in renewables and the phase-out of gas, make consumer bills less dependent on volatile fossil fuel prices, better protect consumers from future price spikes and potential market manipulation, and make the EU's industry clean and more competitive.

The EU has had an efficient, well-integrated electricity market for over twenty years, allowing consumers to reap the economic benefits of a single energy market, ensuring security of supply and stimulating the decarbonization process. The energy crisis spurred by Russia's invasion of Ukraine has underlined the need to quickly adapt the electricity market to better support the green transition and offer energy consumers, both households and businesses, widespread access to affordable renewable and non-fossil electricity.

The proposed reform foresees revisions to several pieces of EU legislation – notably the Electricity Regulation, the Electricity Directive, and the REMIT Regulation. It introduces measures that incentivize longer term contracts with non-fossil power production and bring more clean flexible solutions into the system to compete with gas, such as demand response and storage. This will decrease the impact of fossil fuels on the consumer electricity bills, as well as ensure that the lower cost of renewables gets reflected in there. In addition, the

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proposed reform will boost open and fair competition in the European wholesale energy markets by enhancing market transparency and integrity.

Building a renewables-based energy system will not only be crucial to lower consumer bills, but also to ensure a sustainable and independent energy supply to the EU, in line with the European Green Deal and the REPowerEU Plan. This reform, which is part of the Green Deal Industrial Plan, will also allow the European industry to have access to a renewable, non-fossil and affordable power supply which is a key enabler of decarbonization and the green transition. To reach our energy and climate targets, the deployment of renewables will need to triple by the end of this decade.

High and volatile prices, such as those seen in 2022 provoked by Russia's energy war against the EU, have put an excessive burden on consumers. This proposal will allow consumers and suppliers to benefit from more price stability based on renewable and non-fossil energy technologies. Crucially, it will give consumers a wide choice of contracts and clearer information before signing contracts for them to have the option to lock in secure, long-term prices to avoid excessive risks and volatility. At the same time, they will still be able to choose to have dynamic pricing contracts to take advantage of price variability to use electricity when it is cheaper (e.g. to charge electric cars, or use heat pumps).

On top of expanding consumers' choice, the reform further aims to foster price stability by reducing the risk of supplier failure. The proposal requires suppliers to manage their price risks at least to the extent of the volumes under fixed contracts, in order to be less exposed to price spikes and market volatility. It also obliges Member States to establish suppliers of last resort so that no consumer ends up without electricity.

The protection of vulnerable consumers is also significantly enhanced. Under the proposed reform, Member States will protect vulnerable consumers in arrears from being disconnected. Also, it allows Member States to extend regulated retail prices to households and SMEs in case of a crisis. Under the proposal, rules on sharing renewable energy are also being revamped. Consumers will be able to invest in wind or solar parks and sell excess rooftop solar electricity to neighbors, not just to their supplier. For example, tenants will be able to share surplus rooftop solar power with a neighbor.

To improve the flexibility of the power system, Member States will now be required to assess their needs, establish objectives to increase non-fossil flexibility, and will have the possibility to introduce new support schemes especially for demand response and storage. The reform also enables system operators to procure demand reduction at peak hours. Alongside this proposal, the Commission has also issued recommendations today to the Member States on the advancement of storage innovation, technologies, and capacities.

Over the past year, many companies have been severely affected by excessively volatile energy prices. To enhance the competitiveness of EU industry and to reduce its exposure to volatile prices, the Commission is proposing to facilitate the deployment of more stable long-term contracts such as Power Purchase Agreements (PPAs) – through which companies establish their own direct supplies of energy and thereby can profit from more stable prices of renewable and non-fossil power production. To address the current barriers such as the credit risks of buyers, the reform obliges Member States to ensure the availability of market-based guarantees for PPAs.

In order to provide power producers with revenue stability and to shield industry from price volatility, all public support for new investments in infra-marginal and must-run renewable and non-fossil electricity generation will have to be in the form of two-way Contracts for Difference (CfDs), while Member States are obliged to channel excess revenues to consumers. In addition, the reform will boost liquidity of the markets for long term contracts that lock in future prices, so-called “forward contracts.” This will allow more suppliers and consumers to protect themselves against excessively volatile prices over

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longer periods of time. There will also be new obligations to facilitate renewables integration into the system and enhance predictability for generation. These include transparency obligations for system operators as regards grid congestion, and trading deadlines closer to real time.

Finally, to ensure competitive markets and transparent price-setting, the Agency for the Cooperation of Energy Regulators (ACER) and national regulators will have enhanced ability to monitor energy market integrity and transparency. In particular, the updated Regulation on Wholesale Energy Market Integrity and Transparency (REMIT) will ensure better data quality as well as strengthen ACER's role in investigations of potential market abuse cases of cross border nature. Overall, this will step up the protection of EU consumers and industry against any market abuse.

The proposed reform will now have to be discussed and agreed by the European Parliament and the Council before entering into force. Since the summer of 2021, energy prices have seen unprecedented spikes and volatility, and have had a severe impact on EU households and the economy, especially following Russia's invasion of Ukraine that sparked an energy crisis in Europe. Many consumers saw their bills increase due to the gas price surge, even though renewable energy sources are already covering more than a third of EU electricity demand. The EU reacted swiftly by introducing a wide range of measures to mitigate the impact of high and volatile wholesale energy prices on households and businesses. However, the European Council has called on the Commission to work on a structural reform of the electricity market, with the dual objective of securing European energy sovereignty and achieving climate neutrality. The proposed reform responds to this call from EU Leaders and was announced by President von der Leyen in her State of the Union Address last year. It also forms part of the Green Deal Industrial Plan aimed to enhance the competitiveness of Europe's net-zero industry and accelerate the transition to climate neutrality.

European Commission
<http://ec.europa.eu/>

16 March 2023

UK and France Narrowly Avoided Power Supply Emergency Last Week

French and British grid operators narrowly missed having to declare a power-supply emergency last week during a late winter cold snap that coincided with low wind generation.

The UK was due to export electricity to France during peak evening demand on March 7. National Grid Plc's control room issued a rare market warning of a looming shortage which couldn't be addressed through usual measures like asking plants to generate more or by cutting consumption. The company asked French counterpart Reseau de Transport d'Electricite to sell back some of the exports that were due to flow to ease the situation, but the French grid said no, slides published Wednesday show. RTE said it needed the power and would have to ask for Emergency Assistance, a rarely used status. RTE said it could only send power if Britain declared an emergency alert. National Grid instead fired up reserve coal-fired power plants for the first time to ease the situation, the slides showed.

Last week's situation underlines the fragility of Britain's energy system as old coal and nuclear plants shut down. Electricity imports via huge cables that run under the sea to markets in Europe like France and Norway are a key part of Britain's energy security strategy. The UK network has struggled to balance the grid at times this winter when cold weather boosted demand wind output was low. Ireland also restricted exports to the UK market because it was under the same pressure, grid data show. National Grid said in its winter outlook report that the base case assumes power imports from Europe are available when needed to meet demand — but that wasn't the case last week.

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Later on March 7, some intraday trades were made on the interconnector to France to obtain imports to Britain and the coal reserve was stood down. That day marked the first time the grid operator used coal-fired power reserved it was asked to procure to cope with a historic energy crisis. National Grid said it has been asked by the government to extend the reserve for next year, but Electricite de France SA, Uniper SE and Drax Group Plc all said their units won't be available as such a backup in winter 2023-24. That may prompt more forceful government intervention, especially as the coal reserve was needed this winter, according to the slides.

Bloomberg
<http://financialpost.com/>

15 March 2023

MEPs back plans for a climate neutral building sector by 2050

Parliament adopted draft measures to increase the rate of renovations and reduce energy consumption and greenhouse-gas emissions on Tuesday. The proposed revision of the Energy Performance of Buildings Directive aims to substantially reduce greenhouse gas (GHG) emissions and energy consumption in the EU building sector by 2030, and make it climate neutral by 2050. It also aims to increase the rate of renovations of energy-inefficient buildings and improve information-sharing on energy performance.

All new buildings should be zero-emission from 2028, with the deadline for new buildings occupied, operated or owned by public authorities in 2026. All new buildings should be equipped with solar technologies by 2028, where technically suitable and economically feasible, while residential buildings undergoing major renovation have until 2032. Residential buildings would have to achieve, at a minimum, energy performance class E by 2030, and D by 2033 - on a scale going from A to G, the latter corresponding to the 15% worst-performing buildings in the national stock of a member state. Non-residential and public buildings would have to achieve the same ratings by 2027 and 2030 respectively. Member states will establish the measures needed to achieve these targets in their national renovation plans.

These national renovation plans should include support schemes to facilitate access to grants and funding. Member states need to put in place free-of-charge information points and cost-neutral renovation schemes. Financial measures should provide an important premium for deep renovations, especially of the worst-performing buildings, and targeted grants and subsidies should be made available to vulnerable households.

Monuments would be excluded from the new rules, while EU countries may decide to also exclude buildings protected for their special architectural or historical merit, technical buildings, buildings used temporarily, and churches and places of worship. Member states may also exempt public social housing, where renovations would lead to rent increases that cannot be compensated by savings on energy bills. MEPs also want to allow member states to adjust the new targets in a limited share of buildings depending on the economic and technical feasibility of the renovations and the availability of skilled workforce.

Rapporteur for the Energy Performance of Buildings Directive Ciarán Cuffe (Greens/EFA, IE) said: "Soaring energy prices have put the focus on energy efficiency and energy saving measures. Improving the performance of Europe's buildings will reduce bills and our dependence on energy imports. We want the directive to reduce energy poverty and bring down emissions, and provide better indoor environments for people's health. This is a growth strategy for Europe that will deliver hundreds of thousands of good quality, local jobs in the construction, renovation, and renewable industries, while improving the well-being of millions of people living in Europe."

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Parliament adopted its position by 343 votes to 216, with 78 abstentions. MEPs will now enter into negotiations with Council to agree on the final shape of the bill. According to the European Commission, buildings in the EU are responsible for 40% of our energy consumption and 36% of greenhouse gas emissions. On 15 December 2021, the European Commission adopted a legislative proposal to revise the Energy Performance of Buildings Directive, as part of the so-called 'Fit for 55' package. A new European Climate Law (July 2021) enshrined both the 2030 and the 2050 targets into binding European law.

European Parliament

<http://www.europarl.europa.eu/>

16 March 2023

In pursuit of balanced import and export, North Sea Link to reduce capacity

Norway's Statnett has decided to reduce the maximum capacity on the 1,400 MW North Sea Link interconnector between Norway and the UK in order to make a balance for import and export. Capacity will be set to a maximum of 1,100 MW in both directions, from the installed capacity of 1,400 MW, and will be allocated on a daily basis based on grid conditions on both sides. According to Statnett, limitations on the UK side have over time shown that the allocated capacity has been higher from Norway to the UK than from the UK to Norway. "Exchange of electricity cross-border is important for Norway. That was especially underlined during the pressed situation in the Norwegian power supply during 2022, when hydro reservoirs in Southern Norway were running low," said Statnett CEO Hilde Tonne.

"To ensure optimal utilization of the interconnectors, a good balance between capacity for import and export is essential. To ensure this, we are now setting the capacity to equal that of our British partners." Statnett is now working with the UK partner National Grid Ventures and UK system operator NG ESO to ensure a balanced set capacity over time. The move comes following a recent letter from the Norwegian Ministry of Oil and Energy that specified that the Government License should be interpreted in a way that capacity should be set with an objective of balanced capacity in both directions over time.

"Cross-border cooperation is essential in the development of a fully renewable energy system. Such cooperation needs to be based on balance and symmetry. Our aim is to ensure maximum capacity on all connections, in order to facilitate optimal utilization of power resources. We are working closely with the UK system operator to make sure that solutions are put in place to facilitate this," Tonne stated.

North Sea Link runs between the Suldal municipality in Norway and the Newcastle area in England. The 720-kilometer interconnector was completed in early June 2021 and on 18 June transmission between Norway and the UK was tested for the first time. The €1.6 billion project was commissioned on 1 October 2021. Speaking about news from Norway, the Norwegian Ministry of Petroleum and Energy reported today that it had rejected the license application for the construction and operation of the 1.4 GW NorthConnect interconnector between Norway and the UK. After an overall assessment, the ministry noted that there is no basis for granting a license to the project as it stands today.

Offshore Energy

<http://www.offshore-energy.biz/in>

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World's largest rooftop solar panel to be built in Thailand

Falken is building the world's most extensive solar panel installation on a single facility, covering an area of 100,000 square meters, which is equivalent to over 18 football

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pitches. This installation is being constructed at the Sumitomo Rubber Industries (SRI) factory in Thailand, where Falken is a subsidiary.

The installation is composed of 40,000 solar panels with a combined output of 22MW and is set to be completed by January 2025. By then, the facility will be able to use 100% renewable energy, thanks to the investment in the new solar panel installation, as well as the adoption of a gas co-generation system and biomass electric power system initiatives at the Rayong Province facility. The gas co-generation system, which comprises two 6.6MW boilers powered by renewable energy sources, will replace energy supplied by local utility companies. Additionally, biomass obtained from the surplus branches and trunks after rubber trees are harvested, as part of SRI's Sustainable Natural Rubber⁴ programme, will provide additional electrical power.

In total, the new initiatives will reduce total annual CO₂ emissions by 38,000 tonnes. Driven by SRI's long-term sustainability policy, 'Driving Our Future Challenge 2050' the latest initiatives will help accelerate its carbon neutral goals. This aims to reduce annual Scope 1 and 2 CO₂ emissions by 50% (compared to 2017 emissions) with its 2030 target now set to be achievable one year ahead of schedule.

Energy Digital

<http://energydigital.com/>

17 March 2023

Energocom to be able to reserve electricity on JAO European platform

Energocom company announced today that it has obtained the right to reserve electricity capacities on JAO European platform. As a result of the decision, the company expands its possibilities to purchase electricity from any European country. "This opens the way for new collaborations and thus we will have the opportunity to conclude contracts with partners from other European countries," acting director of Energocom Victor Banzari said. JAO is the single EU platform that auctions the right to transport electricity at all internal borders of the European community.

Moldpres

<http://www.moldpres.md/>

21 March 2023

Record Growth in Renewables Achieved Despite Energy Crisis

Expansion of renewable power generation in 2022 confirms upward trend of renewables against declining new fossil fuel capacity. By the end of 2022, global renewable generation capacity amounted to 3372 Gigawatt (GW), growing the stock of renewable power by a record 295 GW or by 9.6 per cent. An impressive 83 per cent of all power capacity added last year was produced by renewables.

Renewable Capacity Statistics 2023, released by the International Renewable Energy Agency (IRENA) shows that renewable energy continues to grow at record levels despite global uncertainties, confirming the downward trend of fossil fueled power generation. "This continued record growth shows the resilience of renewable energy amidst the lingering energy crisis", IRENA's Director-General Francesco La Camera said. "The strong business case of renewables coupled with enabling policies has sustained an upward trend of their share in the global energy mix year on year. But annual additions of renewable power capacity must grow three times the current level by 2030, if we want to stay on a pathway limiting global warming to 1.5°C."

While many countries increased their renewable capacity in 2022, the significant growth of renewables is persistently concentrated in a few countries and regions like Asia, the USA and Europe. IRENA's data finds that almost half of all new capacity in 2022 was

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added in Asia, resulting in a total of 1.63 Terawatt (TW) of renewable capacity by 2022. China was the biggest contributor, adding 141 GW to the continent's new capacity.

Renewables in Europe and North America grew by 57.3 GW and 29.1 GW respectively. Africa continued to expand steadily with an increase of 2.7 GW, slightly above last year. Oceania continued its double-digit growth with an expansion of 5.2 GW and South America continued an upward trend, with a capacity expansion of 18.2 GW. The Middle East recorded its highest increase in renewables on record, with 3.2 GW of new capacity commissioned in 2022, an increase of 12.8 per cent. La Camera added: "As energy demand is expected to rise in many regions of the world, the energy transition requires a step-change that delivers a strategic shift beyond the decarbonization of the supply side. Any expansion of new non-renewables capacity in light of recent global events must be connected to efforts to accelerate the energy transition to make the system more resilient, inclusive and climate-proof."

Although hydropower accounted for the largest share of the global total renewable generation capacity with 1250 GW, solar and wind continued to dominate new generating capacity. Together, both technologies contributed 90 per cent to the share of all new renewable capacity in 2022. Solar capacity led with 22 per cent increase, followed by wind energy, which increased its generating capacity by 9 per cent.

Technology highlights:

- Hydropower: Renewable hydropower capacity increased by 21 GW (+2 per cent), an expansion consistent with recent years.
- Wind energy: With an increase of 75 GW (+9 per cent) in 2022, growth in wind power continued to slow compared to the previous two years.
- Solar energy: Solar photovoltaic (PV) power accounted for almost all the increase in solar power in 2022, with an increase of 191 GW in solar PV.
- Bioenergy: Expansion slowed slightly in 2022 (+7.6 GW compared to +8.1 GW in 2021).
- Geothermal energy: Geothermal energy increased by a very modest 181 MW.
- Off-grid electricity: Capacity grew by 1,237 MW in 2022 (+11 per cent) to reach 12.4 GW.

IRENA

<http://www.irena.org/>

22 March 2023

SSE plugs £100m into UK pumped storage mega project

UK energy company SSE has announced a £100 million (\$123 million) investment into what could be Britain's biggest pumped hydro storage scheme in 40 years. The Coire Glas project is located on the shores of Loch Lochy, between Fort William and Inverness, Scotland.

The project received planning consent from the Scottish government in 2020 and, if approved, would more than double Britain's total current electricity storage capacity. SSE hopes to make a final investment decision on £1.5 billion Coire Glas in 2024, and to fully construct and commission the pumped storage scheme by 2031. Once complete, Coire Glas would be capable of delivering 30GWh of long duration storage. SSE plc finance director Gregor Alexander said: "The £100 million investment we have announced today will help play a crucial role in further advancing the Coire Glas project towards a final investment decision in 2024.

"Our investment commitment today also signals a significant down-payment by SSE to keep this critical project moving forwards. And our ability to reach a positive final

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investment decision will clearly depend on the prevailing policy environment for long duration electricity storage and long-term infrastructure projects more broadly". Around half of the £100m development investment will now be allocated to the pre-construction refinement phase of the Coire Glas project, including a comprehensive package of site investigation works which have now commenced and will complete later this year.

Elering

<http://www.elering.ee/>

23 March 2023

EnBW Clears He Dreiht Offshore Wind Farm for Takeoff, Sells Stake to Consortium

EnBW secured the contract in 2017 in the first offshore tendering process in Germany with a zero-cent bid and is building the wind farm without state funding. The investment cost for He Dreiht is around EUR 2.4 billion, EnBW said. To finance this project, the developer has secured an additional EUR 600 million in long-term funding from the European Investment Bank.

Once operational in 2025, the project will then generate green electricity for the equivalent of 1.1 million households. Located approximately 85 kilometres northwest of the Island of Borkum and about 110 kilometres west of Heligoland, He Dreiht will comprise a total of 64 Vestas turbines with an individual output of 15 MW. EnBW received the plan approval decision and thus the permit for the offshore wind farm from the German Federal Maritime and Hydrographic Agency (BHS) in December 2022. The developer has so far signed several long-term Power Purchase Agreements (PPAs) for He Dreith with Evonik, separately for 100 MW and 50 MW, Fraport AG for 85 MW, Bosch for 50 MW, and Salzgitter Flachstahl GmbH for 50 MW.

EnBW has sold a 49.9 per cent minority stake in the He Dreiht offshore wind project to a consortium consisting of Allianz Capital Partners on behalf of Allianz insurance companies, AIP and Norges Bank. Allianz will acquire a 16.6 per cent stake in the project. The transaction is expected to close in the third quarter of 2023. "Allianz is keen to support the energy transition which is underlined by our first direct investment into offshore wind in Germany. He Dreiht shall supply around 1.1 million households in Germany with green and safe energy while delivering stable and long-term cash yields for our insurance customers", said Carsten Quitter, Chief Investment Officer, Allianz Group. Allianz made its first offshore wind investment in 2021, with the purchase of a 25.2 per cent stake in the 1.5 GW Hollandse Kust Zuid wind farm offshore the Netherlands from the Chemicals producer BASF.

Offshorewind

<http://www.offshorewind.biz/>

23 March 2023

Neoenergia launches 600-MW wind, solar complex in Brazil

Brazilian utility company Neoenergia SA launched on Wednesday its first renewable energy hybrid complex in Brazil, combining wind and solar plants with a total capacity of about 600 MW.

Located in the northeastern state of Paraiba, the Neoenergia Renewable Energy Complex integrates the 471.2-MW Chafariz wind park and the 149.2-MWp Neoenergia Luzia solar plant connected to the same substation and transmission line. The total investment amounts to around BRL 3.5 billion (USD 665.94m/EUR 617.46m). The new complex is capable of producing enough clean energy to meet the demand of 1.3 million homes per year. The ceremony for the launch of the complex was attended by Brazil's president Lula da Silva and Ignacio Galan, chairman of Neoenergia's parent, Spanish electric utility Iberdrola SA. During the event, Iberdrola committed to investing BRL 30 billion in Brazil over

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the next three years in electricity networks and renewable energy projects, including offshore wind and green hydrogen.

Renewables Now
<http://renewablesnow.com/>

26 March 2023

China's first deep-sea floating wind power platform sets sail for installation

China's first deep-sea floating wind power platform set sail on Sunday from Zhuhai City in south China's Guangdong Province towards the country's southernmost Hainan Province for installation and debugging. Invested and built by the China National Offshore Oil Corporation (CNOOC), the offshore wind power generation platform will be installed in waters 136 kilometers away from Wenchang City, a coastal city of Hainan, with an installed capacity of 7.25 megawatts. The platform, named CNOOC Guanlan, is designed to be about 35 meters tall and 4,000 tonnes in weight.

After put into operation, the offshore wind power project will be connected to the power grid of the offshore oilfield group for oil and gas production. The wind turbine, with a diameter of three impellers extending 158 meters, mounted on its core pillar, can generate as much as 22 million kilowatt hours of electricity each year, reducing carbon dioxide emissions by 22,000 tones.

REVE
<http://www.evwind.es/>

29 March 2023

Restart of Ringhals 4 faces further delay

While the start-up of unit 4 of Sweden's Ringhals NPP is ongoing, power generation from the unit is not now expected to start until 1 April, according to plant owner/operator Vattenfall. The plant was previously scheduled to begin operation on 26 March following an outage of more than seven months for repairs. Vattenfall said: "In connection with increased pressure and temperature in the during the start-up process, a leakage occurred from a small valve in a chemical sampling tube. The sampling tube is adjacent to the reactor, so it must be switched off for the valve to be repaired. This will take a few extra days. The leak has no safety impact." The company added: "At Ringhals, safety always comes first: systems and components are tested extra carefully after a longer downtime so that we can feel confident that we are operating a safe and stable plant."

The 1300 MWe pressurised water reactor was stopped for annual routine maintenance in August 2022, but was not able to restart after the reactor pressure vessel (RPV) was damaged during tests. Vattenfall had initially expected the repairs to be completed by November. However, the restart date was pushed back to January and then to February. The replacement of the damaged RPV proved complicated with some 100 Ringhals employees involved in developing work methods and producing special tools and spare parts. A full-scale model of the nearly 13-metre high-RPV was built to test the tools and rehearse the operation.

Following the decommissioning of several reactors in 2017-2020, including Ringhals 1&2, Sweden now has three operating NPPs with a total of six reactors (Forsmark 1-3, Oskarshamn 3, and Ringhals 3&4). Forsmark and Ringhals are operated by Vattenfall and Oskarshamn by Fortum-Eon. Together they produce around 30% of Sweden's electricity output, according to the Swedish Radiation Safety Authority (SSM). The delay at Ringhals 4 was widely reported in the Swedish press, with some scepticism.

Meanwhile, Torbjörn Wahlborg, Vattenfall's head of electricity generation Norden, has published a long article in Dagens Industri countering public pressure for the restart of

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Ringhals 1&2 in face of growing energy costs. “As the main owner of Ringhals, we can still state that it is neither a feasible nor desirable way to try to restart Ringhals 1.” He added: “Both Ringhals 1 and Ringhals 2 are permanently shut down and an attempt to restart, if it were even possible, would both greatly delay the development of new nuclear power and make it more difficult to extend the life of the existing five reactors at Ringhals and Forsmark. An attempt to restart Ringhals 1 would take at least 6-7 years and thus also would not affect electricity prices in southern Sweden during the 2020s.”

He explained that decommissioning is already underway. “Today, components and pipe systems have been rinsed with acids to reduce radioactivity, which can negatively affect the properties of the materials. Hard-to-replace components have been removed from the systems and sold to other nuclear power plants in Belgium, among others. The reactors also do not meet modern safety requirements for independent core cooling. Simulators required for staff training have been demolished. Continued operation of Ringhals 1 could last have been taken about five years ago, but now the dismantling has gone too far and a large part of the staff has left.” He added: “Damage to the bottom plate of the reactor tank on Ringhals 2 practically makes a restart of this reactor impossible.”

He noted that Vattenfall had started a preliminary study on building small modular reactors (SMR) at Ringhals. “The feasibility study for SMR at Ringhals is expected to be completed at the end of 2023 and will examine the commercial, legal and technical conditions for building small modular reactors at Ringhals. Contacts with potential suppliers of SMR technology have been initiated, and field studies and ground investigations at Ringhals will shortly begin. If the feasibility study gives positive answers to the possibility of building new nuclear power in the area, production could start in the early 2030s.” He said Vattenfall was also investing in upgrading its existing reactors at Forsmark with a view to increasing output from unit 1 by 100 MWe and from Forsmark 3 by up to 200 MWe. In addition, work is ongoing to review possible life extension for the Forsmark and Ringhals reactors into the 2060s.

Nuclear Engineering International
<http://www.neimagazine.com/>

29 March 2023

ENTSO-E announces further support to Ukraine through a new agreement on Emergency Energy Assistance and increased electricity trading capacity

Today marks the entry into force of the new energy agreement for emergency support to the Ukrainian electricity transmission system operator (TSO), Ukrenergo. This new energy agreement establishes the facility for Ukrenergo to request, and for the respective TSOs of Continental Europe to offer, emergency support in case of major generation or transmission failures, or in case of major sudden imbalances between generation and demand in Ukraine.

This week also on Monday 27 March 2023, the Transmission System Operators (TSOs) of Continental Europe agreed to increase the maximum import capacity for electricity trading from Continental Europe to Ukraine/Moldova from 700 megawatts (MW) to 850MW for all hours. The maximum export capacity remains currently at 400MW. In the coming weeks, these trading capacities will be further assessed.

ENTSO-E
<http://www.entsoe.eu/>

30 March 2023

Pakistan completes construction of two coal-fired TPPs with total capacity of 1.6 GW

Shehbaz Sharif, Prime Minister of Pakistan, has conducted an opening ceremony for two coal-fired thermal power plants (TPPs) located in Tharparkar District, Sindh Province in

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the south of the country, says the regional publication Business Recorder. The two TPPs, which have the capacity of 1,320 megawatts (MW) and 330 MW respectively, will generate 11.2 terawatt-hours of electricity per year, providing more than 4 million households with power. The 1,320 MW power plant will use a “supercritical” technology of power generation while the 330 MW plant will employ a “subcritical” one. The difference lies in the water heating temperature during coal combustion for the purposes of steam generation and subsequent electricity production. The threshold is the critical water point, which is reached at the temperature of 374 degrees Celsius and the pressure of 218.5 atm: these conditions dissolve the differences between liquid and vapour.

Whereas at “subcritical” coal-fired TPPs water is heated to no more than 374 degrees Celsius, this temperature reaches 566 degrees Celsius at “supercritical” TPPs and 760 degrees Celsius at “ultra-supercritical” ones. This leads to a difference in the efficiency of transforming thermal energy into electricity: The World Coal Association estimates that, while the efficiency is 33% for “subcritical” coal-fired TPPs, it can reach 44% for “supercritical” ones and about 50% for “ultra-supercritical” ones. The higher the efficiency, the less coal is required to generate a certain amount of electricity.

As for feedstock, the 1,320 MW power plant will use brown coal, which will be extracted from the adjacent coal seam with an output of 7.8 million tons per year. The project will make it possible to effectively double Pakistan’s coal production, which stood at 7.5 million tons in 2021. Meanwhile, the 330 MW power plant will use primarily imported feedstock, just like most of Pakistan’s coal-fired TPPs: in 2021, the country imported 19.6 million tons of black and brown coal, according to the International Trade Centre of UNCTAD/WTO.

In terms of the rates, at which coal-fired TPPs are commissioned, Pakistan was the fourth country globally in 2022, behind only China, India and Japan. According to Global Energy Monitor, Pakistan connected 2.6 gigawatts (GW) of coal-fired TPP to the grid last year, compared to 26.8 GW, 3.5 GW and 3 GW connected in China, India and Japan respectively. The top five was rounded out by Vietnam, with 1.9 GW of newly-commissioned coal-fired TPPs.

Global Energy
<http://globalenergyprize.org/>

30 March 2023

Transmission capacity in the range of 22 power plants in the North Sea: TenneT awards on- and offshore converter stations and HVDC technology with a total capacity of 22 gigawatts

Innovative collaboration between TenneT and suppliers leads to new global market standard for 2 GW HVDC systems, reaffirming TenneT's position as a frontrunner in offshore grid development and fulfilling the shared ambition to develop the North Sea into Europe's green energy powerhouse.

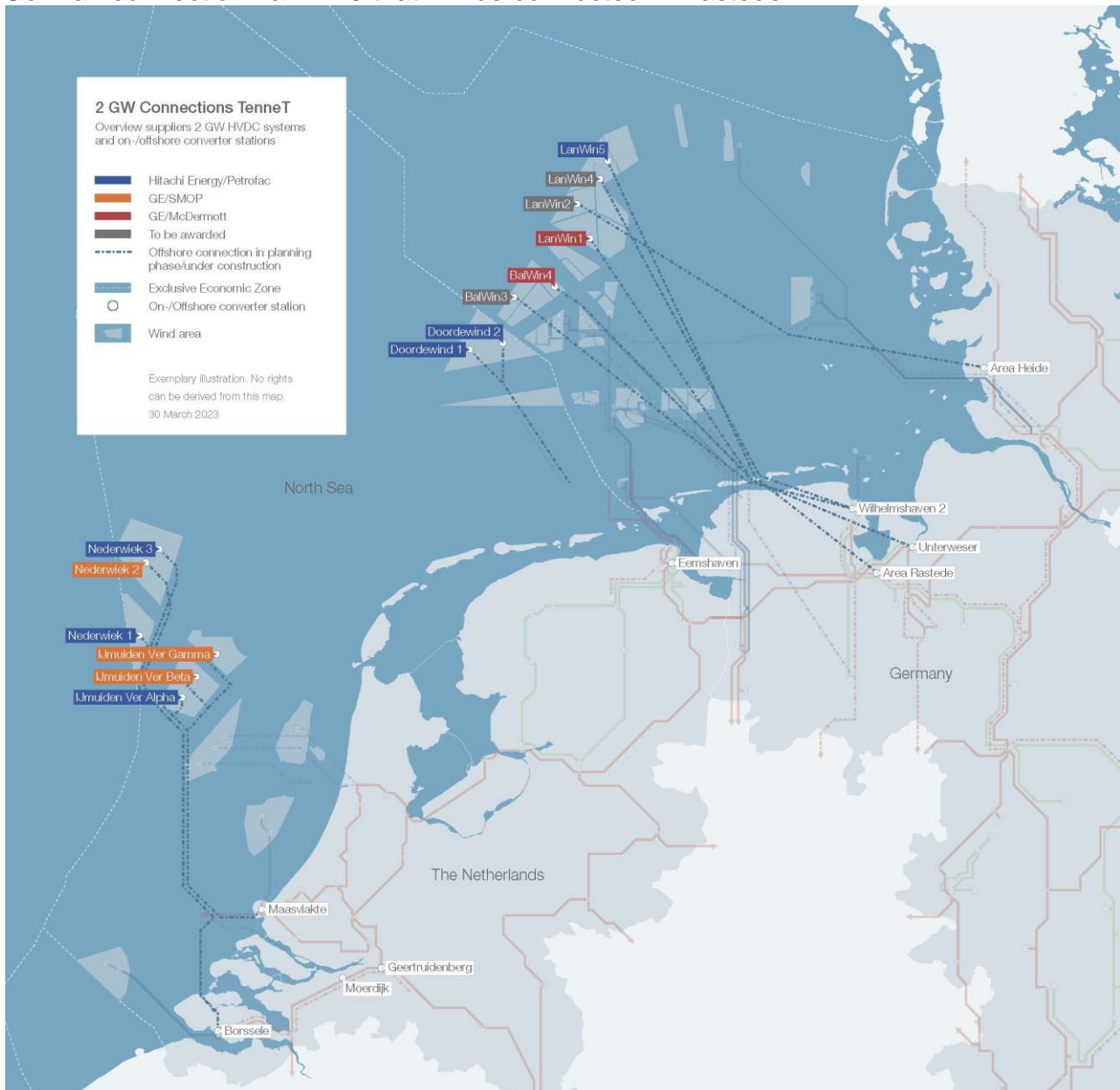
With 40 gigawatts, Transmission System Operator (TSO) TenneT will account for almost two-thirds of the 65GW offshore wind energy target by 2030 agreed by Germany, the Netherlands, Denmark, and Belgium in the Esbjerg Declaration of May 2022 at the North Sea Energy Summit. TenneT will build 20 gigawatts (GW) each in the German and Dutch North Sea with its innovative 2GW Program and pave the way for our next generation of offshore grid connection systems. The 2GW program consist of a new standardised platform and a new certified cable system with a higher transmission capacity. It plays a crucial role in developing the offshore energy transition and will help Europe become the world's first climate-neutral continent.

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In a collaboration with Hitachi Energy and Petrofac and consortia of GE/SMOP and GE/McDermott TenneT awarded multiyear agreements to connect eight offshore wind farms in the Netherlands and three offshore wind farms in Germany until 2031. Future additional HVDC stations are planned to be called off at a later stage. The announced agreements cover offshore platforms and onshore stations, as well as the HVDC system for the two-way conversion between alternating and direct currents.

Hitachi Energy/Petrofac has been awarded five Dutch projects that will be connected in Borssele (IJmuiden Ver Alpha, Nederwiek 1), Eemshaven (Doordewind 1 and Doordewind 2) and Geertruidenberg or Moerdijk (Nederwiek 3). This partnership will also realise the German connection LanWin5 that will be connected in Rastede.



GE/SMOP has been awarded three Dutch projects that will be connected in Maasvlakte, Rotterdam (IJmuiden Ver Beta, IJmuiden Ver Gamma and Nederwiek 2). GE/McDermott will execute the German projects BalWin4 and LanWin1 that will be connected in Unterweser. TenneT expects that the projects BalWin3, LanWin4 (both connecting to the onshore grid in Wilhelmshaven) and LanWin2 (connecting in Heide) will soon be awarded. The awarded suppliers will start preparatory work for the realisation of

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the projects with immediate effect to ensure that all projects can be delivered until 2031. The total volume of the eleven orders is approximately 23 billion euros.

With its 2GW Program, TenneT has developed the global offshore standard in cooperation with leading global suppliers. This new standard combines TenneT's extensive expertise in offshore grid development with a unique transnational approach. With its strong focus on harmonisation and standardisation, it provides a blueprint for future offshore grid connection systems and enables faster deployment. At the same time, the larger capacity of two gigawatts per system reduces the number of grid connections required. The 2GW Program sets a new pace for the European energy transition. It will provide Europe and its inhabitants with more green energy in a safe and cost-effective way – all with the lowest possible environmental impact.

TenneT

<http://www.tennet.eu/>