17 January 2022

50Hertz and TenneT to jointly bring wind power from the North Sea into the extra-high voltage grid for the first time

Transmission system operators 50Hertz and TenneT are planning to jointly transport wind power from the North Sea into the German power grid. The two companies have signed a cooperation to realise an innovative multi-terminal hub in the area of Heide (Schleswig-Holstein) and an extra-high voltage direct current link (HVDC) to Mecklenburg-Vorpommern. The project is part of the 2035 grid development plan (2021) confirmed by the Fed-eral Bundesnetzagentur (BNetzA).

The joint project of the two companies consists of several components: In the area of Heide, 50Hertz and TenneT want to build the onshore multi-terminal hub for several direct current connections. It consists of an innovative direct current switchgear. This construction enables the direct and space-saving connection of two offshore direct current connection systems, each with a capacity of two gigawatts, with an onshore direct current link. In addition, a converter is connected to this plant, which converts direct current (DC) into alternating current (AC), which is then available in the region for planned offshore hydrogen electrolysers to decarbonize the industry located there, among other things. The converter can also be used to enable the transport of electricity generated by onshore wind turbines.

Between this multi-terminal hub and a converter in the area of Klein Rogahn near Schwerin, 50Hertz and TenneT plan to lay a direct-current underground cable around 200 kilometres long that will transmit electricity at the 525 kilovolt (kV) voltage level. 50Hertz will be responsible for the eastern section and TenneT for the western one.

The two offshore grid connection systems for the area of Heide confirmed in the just published grid development plan (Netzentwicklungsplan 2035 / 2021) will be implemented separately: the NOR-12-2 system will be connected to the multi-terminal-hub by 50Hertz and the NOR-X-3 sys-tem by TenneT.

Technically, the multi-terminal hub solution is an innovation as up to now, direct current connec-tions at sea and on land have been realised as pure point-to-point connections. In the multi-terminal hub, however, several direct current connections converge. The electricity is fed into the transmission grid via DC or AC lines according to the corresponding transmission capacities and demand situations. Therefore, not three but only one AC/DC converter station has to be built in the Heide area. This reduces costs and land consumption on site – and furthermore helps to make load flows more flexible.

TenneT
http://www.tennet.eu

18 January 2022

'Unacceptable:' Texas market reforms will not be quick, electric grid operator tells dissatisfied regulators

The PUCT approved a suite of "improvements" for the wholesale electricity market in December. The PUCT's blueprint for wholesale market changes is two-pages long, dated Jan. 13, and requires some changes to be finalized by Jan. 1, 2022. "I'm pretty sure this isn't the way it's supposed to be done," Doug Lewin, an energy analyst and president of Stoic Energy, said in an email. "I am not saying this in any official capacity," he added.

"It's more than a little bizarre," he said of the time-stamped order requiring changes be made almost two weeks prior. "This pricing change impacts everybody in ERCOT and there was no notice in the Texas Register, ability to ask for a hearing, etc.," Lewin said. "The apparent disregard for the Administrative Procedures Act is troubling, to say the least." "To describe it as a 'market blueprint' is rather generous," Michael Hogan, senior advisor at the Regulatory Assistance Project, said in an email. "A better description would be a market miasma."

Some changes are already in place for this winter. In December, the PUCT approved adjustments to ERCOT's scarcity pricing mechanism, lowering the high systemwide offer cap to $5,000/MWh from $9,000/MWh. This change is part of modifications to ERCOT's Operating Reserve Demand Curve, which helps to set scarcity prices and which regulators wanted complete by Jan. 1, 2022.

Power plants and transmission facilities have also been weatherized. The state is working to avoid a repeat of February blackouts, which knocked out power to millions of customers and left some consumers facing bloated energy bills. Other changes, however, will take significantly longer. The commission had wanted to have a firm fuel and backstop reliability service in place before next winter but have not sufficiently defined those products, according to Allison Silverstein, an independent consultant working with the American Council for an Energy-Efficient Economy.

"So, on the whole, it looks like much of this work could not come to fruition until 2023 or 2024, at the earliest, unless there is a major expansion of ERCOT funding and contracting to implement some of these changes," Silverstein said. ERCOT, in a Jan. 10 memo to the PUCT, warned of this bottleneck and said that it "must stay focused" for the next 18 months on delivery of an ERCOT Contingency Reserve Service (ECRS), due to how it will interact with other products.

"If the ECRS project cannot be delivered prior to the EMS [Energy Management System] upgrade, ECRS will have to wait until after the new EMS system is stabilized," ERCOT Vice President of Commercial Operations Kenan Ögelman wrote in the memo. The grid operator also said it may be able to deliver additional upgrades to ancillary services products such as the Firm Fuel Product or Backstop Reserve.

"However, due to the relative size and complexities of these efforts, ERCOT cannot deliver three major projects simultaneously in next 18 months," Ögelman warned. "I know ERCOT has resource constraints. Those need to be evaluated by the leadership at ERCOT and the [ERCOT] board," Cobos said. ERCOT officials are meeting this week and today the board is scheduled to discuss the grid operator's project portfolio. That discussion is key to advancing market reforms, according to PUCT Chairman Peter Lake. "That's the most important next step, and by our next commission meeting we'll have the pieces in place — will continue to put the pieces in place — and continue to move implementation forward," Lake said at Thursday's open meeting.

Utility Dive
http://www.utilitydive.com

17 January 2022

Varo Energy Group and Groupe E have announced the construction of the largest photovoltaic solar power plant in Switzerland to date.

Switzerland-based Varo Energy Group and Groupe E have announced the construction of the largest photovoltaic ground-mounted system in the country to date.

The facility will have a capacity of 7.7MW and will rely on 19,000 solar modules of the latest generation from the Swiss Center for Electronics and Microtechnology (CSEM).

The photovoltaic power plant is being built in the immediate vicinity of the refinery operated by Varo in an industrial area in Cressier. The solar power will be fed directly into the refinery's medium-voltage grid.

The estimated annual generation is 8.4GWh, which is expected to cover more than 60% of the refinery's electricity requirements. The completion of the photovoltaic system is scheduled for November 2022. According to the companies, the investment costs amount to around 6.5 million CHF (US$7.1 million).

Upon completion of the plant, the area will be accessible to wildlife. In addition, further measures to preserve biodiversity are planned, which are intended to protect birds and mammals. Due to the existing high hedges and trees, the solar park is then hardly visible.

pv magazine
http://www.pv-magazine.com

18 January 2022

EIA: New renewable power plants are reducing U.S. electricity generation from natural gas

In our January Short-Term Energy Outlook (STEO), we forecast that rising electricity generation from renewable energy resources such as solar and wind will reduce generation from fossil fuel-fired power plants over the next two years. The forecast share of generation for U.S. non-hydropower renewable sources, including solar and wind, grows from 13% in 2021 to 17% in 2023. We forecast that the share of generation from natural gas will fall from 37% in 2021 to 34% by 2023 and the coal share will decline from 23% to 22%.

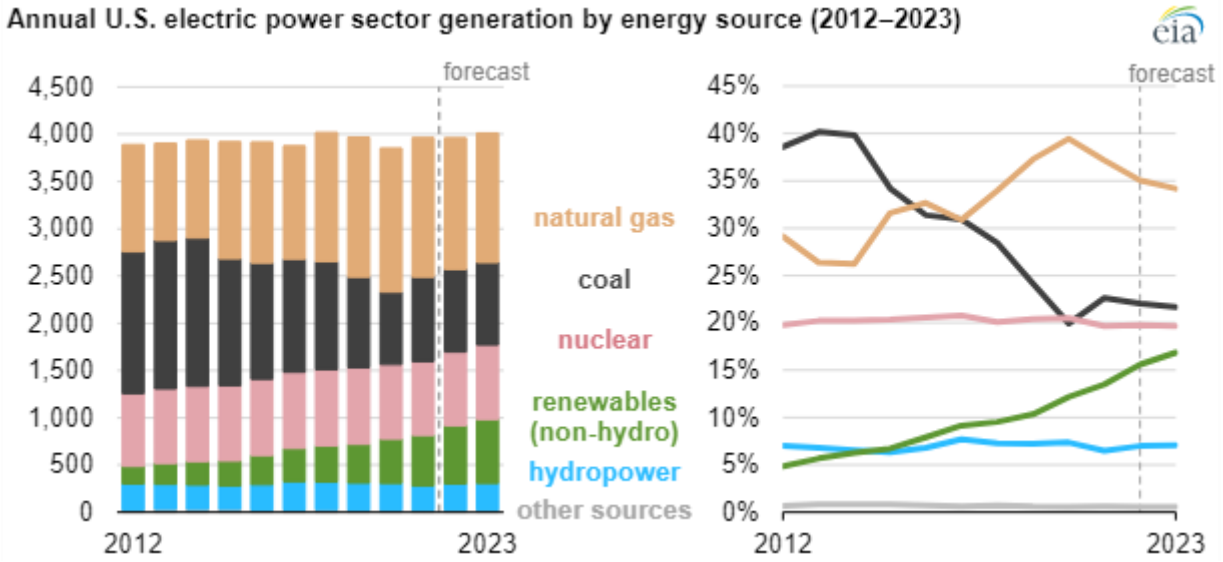
One of the most significant shifts in the mix of U.S. electricity generation over the past 10 years has been the rapid expansion of renewable energy resources, especially solar and wind. The amount of solar power generating capacity operated by the U.S. electric power sector at the end of 2021 is 20 times more than it was at the end of 2011, and U.S. wind power capacity is more than twice what it was 10 years ago.

Another significant shift in the generation mix has been a steady decline in the use of coal-fired power plants since their peak output in 2007 and the increasing use of natural gas, primarily as a result of sustained low natural gas prices. However, that trend reversed in 2021 when the cost of natural gas delivered to U.S. electric generators averaged $4.88 per million British thermal units, more than double the average cost in 2020. As a result, the share of generation from natural gas declined from 39% in 2020 to 37% last year, while the share of generation from coal rose for the first time since 2014 to average 23%.

In our current STEO, we forecast that most of the growth in U.S. electricity generation in 2022 and 2023 will come from new renewable energy sources. We estimate that the electric power sector had 63 gigawatts (GW) of existing solar power generating capacity operating at the end of 2021. We forecast solar capacity will grow by about 21 GW in 2022 and by 25 GW in 2023. We expect that 7 GW of wind generating capacity will be added in 2022 and another 4 GW in 2023. Operating wind capacity totaled 135 GW at the end of 2021.

Our forecast of growth in renewable electricity generation over the next two years leads to our forecast of a reduced need for fossil-fueled generation. Although we expect natural gas prices for electric generators to decline, the operating costs of renewable

generators will continue to be generally lower than natural gas-fired units. We expect that regions of the country with the largest increases in renewable capacity, such as Texas and the Midwest/Central regions, will experience the largest reductions in natural gas generation.



EIA
http://www.eia.gov

19 January 2022

EDF considers next move after French government's energy sale plan

Trade unions at the French energy giant EDF are calling for strike action next week over government measures designed to control fuel bill rises, which the company estimates could cost it as much as EUR8.4 billion (USD9.5 billion).

Shares in EDF have fallen nearly 20% since President Emmanuel Macron's government's announcement late last week, which required EDF to sell an additional 20 TWh of nuclear-generated energy at the regulated price of EUR46.2 per MWh - well below current market levels - to its competitors to help them limit the rise in prices for household and small businesses to 4% despite the soaring cost of gas.

Because EDF has already pre-sold the energy on long-term contracts, the company is now having to buy the 20 TWh back at spot prices.

In a statement after the announcement, EDF said: "The financial consequences for EDF Group cannot be precisely determined at this stage. For illustrative purposes and based on information available to the group at this stage, the impact on EDF's 2022 EBITDA (earnings before interest, taxes, depreciation, and amortisation) of these measures is estimated at circa EUR8.4 billion based on the market prices on 31 December 2021 and at circa EUR7.7 billion based on the market prices on 12 January 2022."

The group, which operates 56 nuclear reactors in France, also withdrew its previous guidance for this year's financial results and said it would "consider appropriate measures to strengthen its balance sheet structure and any measure to protect its interests".

According to reports in La Tribune newspaper and Reuters news agency, EDF CEO Jean-Bernard Levy said in a message to managers that the company had fought the move and the decision had come as a "real shock".

He added that he hoped to be able to make public within a month the measures required to protect EDF's balance sheet, adding "what is at stake is our ability to preserve our strategic development".

In other developments:

- The joint trade unions' representatives on the board described the decision as "looting" of the company for political reasons and have called for strike action on 26 January.
- French Finance Minister Bruno Le Maire told RMC radio that "there is a very strong economic recovery, there are needs all over the world and shortages, so prices are rising … no other European government has done as much as us to protect the French".
- He also said that the French state, which owns 85% of EDF, would stand by the company's side.
- Credit rating agencies have cut or are reviewing EDF's current credit rating as a result of the government's decision.

S&P Global said that it had placed EDF on "creditwatch negative" as a result of a combination of the government's actions and the company's "revising down of French nuclear output for 2022 to 300-330 TWh from 330-360 TWh mainly because of defaults that prolonged outages for five of EDF's 56 French nuclear reactors".

It added: "Based on our preliminary estimations, the combined impact of these recent developments could cut EDF's 2022 EBITDA, as adjusted by S&P Global Ratings, by EUR10-13 billion from our previous assumption of EUR17.9 billion because EDF will have to purchase significant additional electricity volumes in the market at elevated prices."

S&P added that "timely remedy measures will be critical to maintaining the current rating … in our view, the magnitude of the announced profit warning warrants extraordinary measures. However, it said that "because we view the current profit warning related to the negative state intervention as a one-off, we see rating downside potential limited to one notch."

World Nuclear News
http://www.world-nuclear-news.org

20 January 2022

UK turns down application to build UK-France power cable

Britain on Thursday turned down a planning application for a high-voltage undersea power cable project linking Britain and France. The project, run by investment firm Aquind, aims to link the power grids of Britain and France to make energy markets more efficient, improve supplies and greater flexibility.

British Business Secretary Kwasi Kwarteng made the decision to turn down planning, according to government documents. "The Secretary of State has ... decided, in accordance with Section 104(3), to refuse development consent," the documents said.

Kwarteng disagreed with an earlier planning authority assessment of the project. Thursday's document included technical reasons linked to the consideration of alternative routes which meant Kwarteng could not be certain that the need for and benefits of the development would outweigh its impacts.

Aquind said it would consider challenging the decision. "We disagree with the decision of the Secretary of State, and the rationale behind it. We are considering the

decision, the grounds for the refusal, and a potential legal challenge," a spokesperson said in an emailed statement.

The decision can only be challenged through a judicial review, a letter setting out the government decision said. A judicial review involves asking a court to rule on the lawfulness of a decision taken by a governing body.

Aquind says its undersea cable linking England and Normandy would be able to transmit 16,000,000 MWh of electricity each year - up to around 5% of Britain and France's total annual consumption.

Reuters
http://www.reuters.com

24 January 2022

Oman inaugurates 500MW Ibri 2 solar field

The developers behind Oman's “largest utility scale renewable energy project,” the 500MW Ibri 2 solar field, today inaugurated the plant after a 13-month construction period. Saudi energy company ACWA Power, part of a development consortium behind the $417 million, 1.5 million-panel plant today announced completion of the site, despite “disruptions to the supply chain as a result of the [Covid-19] pandemic.”

ACWA said the solar plant in Oman's Ad-Dhahirah governorate, which will generate enough electricity to power 50,000 homes, will sell electricity to state-owned utility the Oman Power and Water Procurement Company under a 15-year contract. ACWA did not specify how much the power company would pay for electricity generated at Ibri 2. Lauding the start of operations at the 13 million square kilometer solar field, Yaqoob Saif al Kiyumi, CEO of the Omani utility, said the power company is also working on two solar projects with a combined generation capacity of 1GW in the Ad-Dakhiliyah governorate, without disclosing further details. That is likely to refer to the 1-1.2GW Manah I and II sites, for which a tender was opened in July 2019 with the aim of awarding contracts within a year.

Ibri 2 was developed by a consortium comprised of 50% Saudi state-owned ACWA Power; the Gulf Investment Corporation funded by the governments of Bahrain, Kuwait, Oman, Qatar, Saudi Arabia, and the UAE; and Kuwaiti renewables developer Alternative Energy Projects Co. The latter business is 44.7% owned by the Al Futtooh holding company which is controlled by members of the Kuwaiti royal family.

Ibri 2, which consists of bifacial solar panels, is set to help Oman towards its goal of having renewables generate 20% of its electricity this decade and “up to 39%” by 2040.

ACWA Power said the supply chain for the project included the establishment of Omani start-ups Taj Middle East and Diaa Energy, to build mechanical installations and said the operations and maintenance team for the site was completely Omani.

pv magazine
http://www.pv-magazine.com

24 January 2022

Microgrid and net zero as-a-service providers form partnership

A partnership was announced between InfraPrime, a provider of net zero as-a-service for datacenters, and Instant ON, a microgrid designer, builder, and aggregator, announced a partnership in which the two will co-develop a net-zero microgrid service for datacenters

named PowerShell. Following a lifecycle sustainability assessment, InfraPrime designs an on-premises microgrid, often featuring solar and energy storage. Designed for reliable electric supply and resiliency, InfraPrime said the PowerShell allows for no more than five minutes of downtime per year, meeting 99.999% uptime expectations.

"The path to carbon negative … will take ambition and action. By teaming up with industry innovators and experts, we can take the steps in the right direction." said AJ Perkins, President of Instant ON.

Microgrids promote remote preparedness, said Instant ON, meaning that they can be operated independently of the larger utility grid. For California data operators, this is particularly important for datacenters in a landscape of increased wildfires, planned public safety grid shutoffs, and the increased risk of further extreme weather due to climate change.

The microgrid works with the utility, interconnecting with the larger grid to support resiliency initiatives and lower solar curtailment levels. InfraPrime's net zero as-a-service is flexible across scales, from large campuses with 200-400 MW loads, to a 180 kW custom data rack. The service is billed based on the customer's IT energy usage on a monthly lease payment, preventing the cost from being capital expenditure.

pv magazine
http://www.pv-magazine.com

25 January 2022

SSE thermal and Equinor submit two joint carbon capture projects into landmark government competition

SSE Thermal and Equinor have underlined their commitment to net zero by formally submitting two low-carbon projects into the Government's Cluster Sequencing Process. Together with Equinor, SSE Thermal, part of the FTSE-listed SSE plc, is planning to develop two new power stations equipped with carbon capture technology to remove CO2 from their emissions – one at Keadby in the Humber region and one at Peterhead in the north-east of Scotland.

Keadby 3 Carbon Capture Power Station would plug into the shared pipelines being developed through the Zero Carbon Humber and East Coast Cluster partnerships, with the CO2 stored under the Southern North Sea. Meanwhile, Peterhead Carbon Capture Power Station, on the Aberdeenshire Coast, would decarbonise Scotland's only major thermal generation site with the captured emissions transported and stored using pipelines being developed by the Acorn Project.

In total, the two low-carbon power stations at Keadby and Peterhead would capture up to three million tonnes of CO2 a year – 10 per cent of the UK Government's 2030 target. They form part of SSE's Net Zero Acceleration Programme and the submission represents significant progress on delivering SSE's strategy.

SSE
http://www.sse.com

25 January 2022

2021 a record year for Enel Green Power in terms of renewable capacity built in a year, energy generated and project pipeline

Enel Green Power (EGP) has set a new record in 2021 by building 5,120 MW of new renewable capacity, including 220 MW of battery capacity for the first time. This figure

represents an increase of 2,014 MW (+64.8%) compared to the renewable capacity built in 2020. Furthermore, EGP also set a record in terms of energy generated from renewable sources in 2021 with approximately 119 TWh, of which 55.4 TWh from wind and solar, up 9 TWh compared to 2020, 57 TWh from hydro and 6 TWh from geothermal. The growth in the pipeline of projects under development was also notable, reaching approx. 370 GW, which includes renewables, Battery Energy Storage Systems (BESS) and capacity already in execution.

"In 2021, Enel Green Power set new records in its growth which, despite the difficult conditions brought about by the COVID-19 pandemic, continues at full speed while ensuring safety remains at the heart of our activities," commented Salvatore Bernabei, CEO of Enel Green Power. "These results represent a new benchmark for the industry and are once again testament to our global leadership. Indeed, we operate the world's largest private renewable generation fleet. In the near future, we will accelerate our sustainable growth, in line with the Enel Group's Vision, which envisages a total renewable capacity target, including battery capacity, of around 154 GW by 2030. Special thanks go to the entire EGP team, our partners and the local communities we work with. Their passion, enthusiasm and professionalism is what makes it possible to achieve increasingly challenging goals."

The new renewable capacity built by Enel Green Power at December 31st, 2021, includes around 70 plants, mainly wind (2,596 MW) and solar (2,238 MW). In addition, during the year EGP built a total of 220 MW of BESS at the Lily, Azure Sky Solar and Azure Sky wind plants in the United States.

With the 5,120 MWbuilt in 2021, EGP now manages around 54 GW of total renewable capacity, making it the world's largest private operator in the renewable sector. EGP managed to achieve thisrecord in a year marked by the COVID-19 pandemic. During the construction process of this new renewable capacity, the Group has always made the protection of the health of its workers, employees and the community where it operates the main priority. This milestone confirms the Enel Group's commitment to continuing to increase its renewable capacity, with a global geographic footprint, as also highlighted in its 2030 Vision, which foresees reaching a total renewable capacity, including battery capacity, of around 154 GW by 2030.

Once fully operational, the new capacity built in 2021 will produce around 16.3 TWh per year, avoiding the emission of around 11 million tons of CO2 into the atmosphere each year. This result will also contribute to the Enel Group's target to reduce direct greenhouse gas ("GHG") emissions to 140gCO2eq/kWh in 2024, putting the Group in a good position to achieve the target of an 80% reduction in direct GHG emissions by 2030 compared to 2017 levels, in line with the 1.5°C scenario, and the Sustainable Net Zero 2040 target.

In 2021, the Enel Group also took an important step towards fully decarbonizing the generation mix by ceasing operations at coal-fired plants with a total installed capacity of 1,983 MW: Litoral (1,120 MW, Andalusia, Spain), La Spezia (548 MW, Liguria, Italy) and units 1 and 2 at Fusina (315 MW, Veneto, Italy).

Enel Group
http://www.enel.com

25 January 2022

Digital platform launched for repowering coal plants

The design company is working with non-profit organisation TerraPraxis on its Repowering Coal initiative, which aims to design a process to repower two terawatts of coal

generating capacity via a fast, repeatable system resulting in carbon negative plants that are cheaper to operate than before.

"Replacing coal boilers with advanced modular reactors (AMRs) allows the use of existing infrastructure for clean electricity generation and a fast, low-risk path to decarbonising global power generation," according to Bryden Wood. "Unlike other proposed solutions, repowering coal plants offers robust political viability because it preserves jobs, local economies and existing, high-value infrastructure investments."

The company said the initiative will deliver a substantial portion of the clean electricity required to achieve Net-Zero by 2050 by replacing coal-fired boilers at existing power plants with AMRs. Such reactors will be ready for deployment by 2027, by which time the digital platform will be sufficiently developed to realise carbon savings at a massive scale by the end of this decade.

Bryden Wood is working with TerraPraxis, the Massachusetts Institute of Technology, University at Buffalo, Microsoft and KPMG to create a new building system to standardise and optimise the following key elements: all processes, including procurement, investment and approval; building and engineering systems; design, manufacture, assembly and operation; and interactions between different supply chain organisations to enable greater collaboration.

According to Bryden Wood, a standardised but customisable heat transfer and storage system allows the new, small nuclear systems to "plug in" to existing coal plant infrastructure. Existing plants have enormous value in terms of established markets for their power, grid connections, access to cooling water and experienced personnel necessary for the generation and distribution of power.

Converting these plants to run on AMRs will deliver a capital cost saving of 28%-35% (compared with a new nuclear plant) and a 9%-28% reduction in the levelised cost of energy. Standardisation will address the differing requirements for a wide variety of AMRs, site layouts, and energy and heat demand, it notes. The component-based design enables the plant to be reconfigured and expanded to accommodate different numbers of AMRs.

New digital infrastructure will enable design knowledge to be embedded in the building systems and design tools so that all parties can share progress and results in real time across all projects, Bryden Wood said. New algorithmic design tools are being created to: assess coal plant viability for AMR replacement; create initial concepts using a design configurator in just days; and produce detailed design outputs for manufacturing. The structural components, it said, can then be mass produced by existing and new manufacturers and assembled on-site by non-nuclear specialists.

Initially, the project will launch in the USA but is designed to be rolled out worldwide and to attract customers and supply chain partners to re-engineer coal plants in all locations.

World Nuclear News
http://world-nuclear-news.org

26 January 2022

EU invests over € 1 billion in energy infrastructure in support of the Green Deal

EU countries have agreed on a Commission proposal to invest € 1.037 billion in 5 cross-border infrastructure projects under the Connecting Europe Facility (CEF) for trans-European energy networks. CEF will provide financial support to 4 projects for construction and 1 study. The largest amount of funding will go to the EuroAsia interconnector project (€

657 million) to support the first electricity interconnection between Cyprus and the European grid.

Kadri Simson, Commissioner for Energy, said: "Recent months have reminded us again how crucial a well-integrated EU energy market is for ensuring affordable energy and security of supply, as well as the clean energy transition. While we have made remarkable progress in the last decade with making our market better connected, more can and should be done. I want to particularly highlight the EuroAsia interconnector, that will bring an end to the energy isolation of Cyprus and link it to the rest of Europe".

Well-integrated energy infrastructure networks are necessary for the energy transition, as they facilitate the integration of renewable energy, enhance security of supply and help keep energy prices in check. The allocation of CEF funds therefore supports the implementation of the European Green Deal. Today's agreement grants financial aid for the construction of 3 projects for electricity transmission and 1 for gas storage, as well as supporting a study on CO2 transport:

- EuroAsia interconnector (€657 million). This electricity project interconnects the transmission networks of Cyprus and Greece, allowing the transmission of electricity in both directions and ending the energy isolation of Cyprus. The 898km of undersea cables and maximum sea depth of 3000 meters will set new world records for a project of this kind. This investment is a continuation of the financial and political support of the EuroAsia project. The CEF grant comes in addition to the €100 million grant awarded in the Recovery and Resilience Facility instrument.
- Baltic Synchronisation Project Phase II (€170 million). The second phase of the Baltic project includes funding for grid reinforcement in Poland and upgrading the transmission infrastructure in Lithuania, Latvia and Estonia - thus supporting the integration of the Baltic States' electricity system with other European networks. The Baltic Synchronisation project also received funding under previous CEF calls leading to total CEF support of more than €1.2 billion, underlining the political importance of this project.
- Aurora line (€127 million). CEF funding will support the development of a third transmission line between Sweden and Finland in order to increase electricity transmission capacity between the two countries and support the integration of onshore and offshore renewable electricity.
- Chiren expansion (€78 million). This project covers the capacity increase of a gas storage facility in Bulgaria, which is necessary for regional security of supply in South-East Europe, as well as reducing gas supply costs. It also supports the phase-out of coal in the region, facilitating the clean energy transition.
- Northern Lights Phase II (€4 million). This study looks into the expansion of the CO2 transport and temporary storage capacity in Norway, open to industrial clusters from across the EU, with the aim to accommodate additional demand.

EU
http://ec.europa.eu

26 January 2022

Amp wins govt nod for 800 MW/1,600 MWh Scottish battery complex

Toronto-based Amp Energy has secured planning permission to install 800 MW/1,600 MWh of battery storage systems in Scotland, the clean energy assets owner and operator said on Tuesday.

The permit has been issued by the Scottish government for what will be the two largest grid-connected battery storage facilities in Europe, according to the statement.

Amp Energy has proposed to install two battery storage facilities of 400 MW/800 MWh each in Hunterston and Kincardine, central Scotland, in order to provide grid stability and power management services across the central belt of Scotland including Glasgow and Edinburgh. Known as the Scottish Green Battery Complex, the two facilities are planned to become operational in April 2024.

Over the coming years, the two batteries will enable up to 1,750 GWh per year of renewable power to be transmitted from Scotland to other UK regions, Amp Energy noted. The Canadian firm will use its proprietary AI-powered digital energy platform to enhance the dispatch of power from the batteries to the grid.

Renewables Now
http://renewablesnow.com

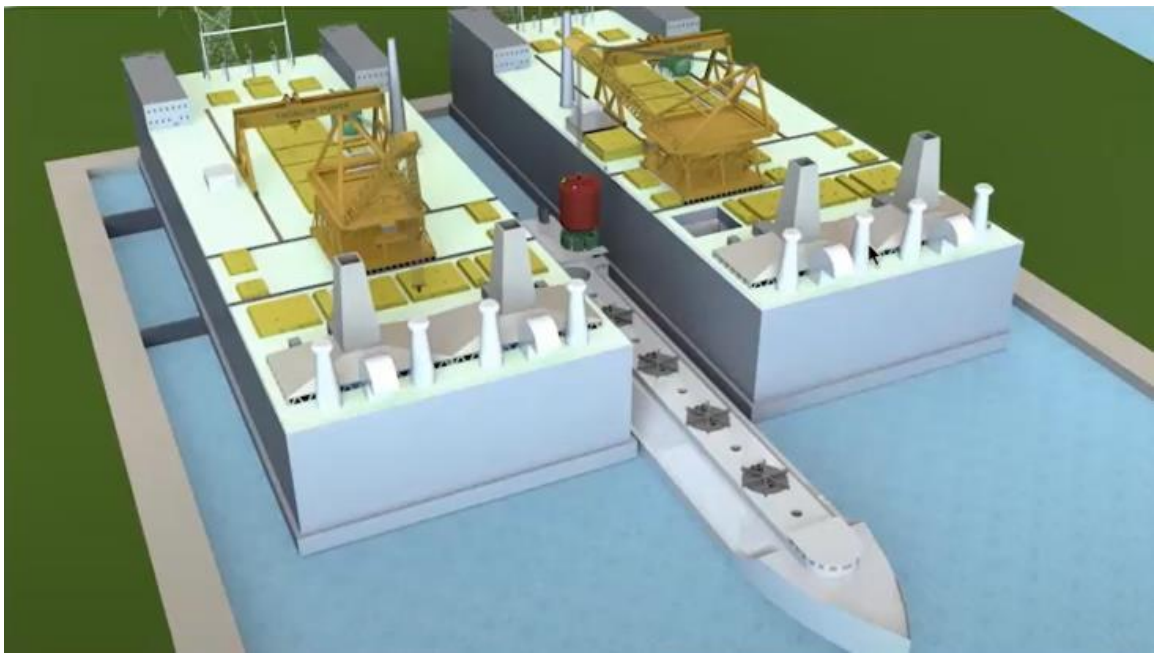
26 January 2022

Empresarios Agrupados contracted for first ThorCon reactor

Spanish engineering firm Empresarios Agrupados (EA) has been named as architect engineer for the 500 MWe floating ThorCon molten salt reactor (TMSR-500) to be deployed in Indonesia.

EA said the contract - signed on 8 November - "marks a commitment to long-term collaboration" between it and USA-based ThorCon. "While ThorCon will be providing its molten salt reactor technology, EA will provide both its pool of 1250 engineers as well as its 50 years of experience with nuclear projects."

As Architect Engineer, EA will support ThorCon across a broad range of activities, including project management, document control, code compliance, site preparation, pre-construction activities and licensing agreements. Additionally, the company will also provide engineering services to ThorCon throughout the lifecycle of the project, from design engineering to construction, operation and eventual decommissioning. EA will work in collaboration with other partners already selected by ThorCon.



"It will be an excellent opportunity to work with ThorCon in a technology on which we have extensive experience through our involvement in the last 50 years in nuclear projects, including Gen IV reactors, as well as, in the last years, in renewables, where molten salt systems are also being implemented," said María Teresa Domínguez, who will be leading the project in the advanced projects division of Empresarios Agrupados. "Our mission then will be to transfer this Empresarios Agrupados experience to the TMSR-500 reactor to succeed in their objectives of performance and economics."

"They are a world leader in nuclear engineering and have extensive experience in plant design, procurement, construction and operation that will be invaluable to the TMSR-500 programme. This is a defining moment for the project and bodes well for its successful completion."

In October 2015, Martingale of the USA - developer of the ThorCon thorium molten salt reactor - signed an agreement with the Indonesia Thorium Consortium (comprising state-owned companies PT Industry Nuklir Indonesia (INUKI), PT PLN and PT Pertamina) to build a ThorCon reactor to generate electricity.

In March 2017 Pertamina, INUKI and PLN completed a preliminary feasibility study on the ThorCon proposal which was positive, and the consortium then sought approval from Indonesia's National Atomic Energy Agency (Batan). The company says that after testing in a full-scale pre-fission test facility, the phase 1 plan is to build a 500 MWe ThorConIsle unit (two modules) to prove the design, and then proceed to shipyard construction of further units to provide 3 GWe in the country.

In July 2019 the state shipbuilding company, PT PAL Indonesia, signed an agreement with ThorCon to conduct a development study and build a 500 MWe plant. PAL would build the reactor as EPC contractor and put it on a 185-metre-long barge built by Daewoo Shipbuilding & Marine Engineering in Okpo, South Korea. The completed plant will then be towed to a site in Indonesia, ballasted to the seabed and connected to the grid.

According to ThorCon, only 24 months will be required from the start of construction before each plant will be capable of sending electricity to the grid. This approach, it says, also allows for scalability of the ThorCon plants, with as many as 10 GW of power able to be produced annually per shipyard or assembly line once production is ramped up. The estimated cost of a two-unit (1 GWe) plant is USD1.2 billion.

World Nuclear News
http://world-nuclear-news.org

27 January 2022

South Korea's largest PV plant goes online

South Korean energy producer South-East Power has commissioned a 150 MW solar project in Sinan-gun, in the country's South Jeolla province. The facility is located on an abandoned salt evaporation pond and is currently South Korea's largest operational solar park.

The plant includes about 280,000 solar modules with power outputs of 530W to 550W, provided by local manufacturer Topsun. An undisclosed manufacturer supplied 1MW and 2MW inverters. South-East Power invested KRW 280 billion ($232.5 million) in the project. About KRW 12.8 billion, or 4% of the total, was sourced via crowdfunding among local residents.

"The plant completion will further promote the resident participation profit-sharing business model introduced by the government, so that more residents would participate in the plant business and that profits would be more fairly distributed," said the South Korean Ministry for Trade, Industry and Energy in a statement. "Out of all resident participation projects, the Sinan solar PV plant boasts the largest share of residents' investment to date, proving to be a successful public-private partnership project." The solar park is expected to generate around 209.7GWh of electricity per year.

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Vistra to expand what was already the world's largest energy storage facility

Vistra is planning a third expansion for its Moss Landing Energy Storage Facility in Moss Landing, Monterey County, California. When Vistra's first expansion was announced in 2020, it quadrupled the battery system's size, making it the largest battery storage installation in the world, a couple of times over. At the time, the world's largest operating battery storage system was the Hornsdale Power Reserve in South Australia, which used Tesla batteries and was colloquially known as the Tesla Big Battery. Moss Landing uses Tesla batteries.

The Moss Landing site was in the news less than a year after it was completed, as it was knocked offline when an unspecified number of batteries overheated. At the time the 100MW/400MWh Phase II facility at the Moss Landing site was already up and running and remained operational. For this third expansion, the company has entered into a 15-year resource adequacy agreement with Pacific Gas and Electric Company (PG&E) for a new 350MW/1,400MWh battery system. This would complement the existing 400MW/1,600MWh of energy storage capacity already at the site.

On Jan. 21, 2022, PG&E filed its application with the California Public Utilities Commission (CPUC) to approve the contract, with a decision expected within 180 days. Pending the receipt of CPUC approval, Vistra anticipates construction on the third phase to commence in May 2022 and begin commercial operations prior to June 2023.

Like previous phases, Moss Landing Phase III will be able to move quickly due to the already-approved development permit and its location on a Vistra-owned power plant site with existing interconnection and infrastructure. Today's announcement brings the Moss Landing site's total energy storage capacity to 750MW/3,000 MWh. Morgan continued, "With this planned expansion, we are moving the Moss Landing site closer to its full potential. With additional phases, this project could eventually reach 1,500MW."

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Brussels to sue Britain for post-Brexit trade breach in bonkers row over wind farms

France and Spain are spearheading an "envious" bid from European Commission chiefs to try and steal thousands of British jobs, by insisting new wind contracts be opened up to businesses on the continent instead.

Moaning chiefs say that the British wind turbine industry is being favoured for contracts worth billions of pounds. Now the issue is heading to be the first major trade fallout between Britain and Brussels post-Brexit. Bureaucrats are expected to launch a formal

dispute to World Trade Organisation bosses as soon as today. And they say the scheme is in breach of the trade deal the PM signed last year too.

Ministers have attracted a string of new wind-factories to the UK in the last year alone, with the Government boasting they are securing thousands of jobs and billions in private investment. Offshore wind firms have to submit plans showing how they will ensure more parts are made in the UK by 2030 in a move to bolster British firms. But the EU say that this risks breaking World Trade Organisation rules. A Whitehall source told The Sun: "With Britain snapping up offshore wind factories and the thousands of jobs they come with, it's no surprise Brussels are throwing their toys out of the pram.

"They're clearly envious of the progress we're making." Furious Business Secretary Kwasi Kwarteng has set officials on a mission to fight back - and has vowed Britain will "rigorously contest" any legal challenge. Government lawyers are said to think their argument is watertight. Energy Minister Greg Hands said yesterday ministers are "increasingly excited by floating offshore windfarms - this is the next big thing". He told a Bright Blue think tank: "We have more installed offshore wind capacity than any other country in the world. "As the Prime Minister says, we are the Saudi Arabia of wind." It comes as ministers dish out £100million in support for a bumper Sizewell C nuclear power station to help wean Britain off pricey gas.

Ministers want the mega station in Suffolk to help power six million homes in future and are plugging in the cash to help the fledgling project to attract more investors. Mr. Kwarteng said last night: "In light of high global gas prices, we need to ensure Britain's future energy supply is bolstered by reliable, affordable, low carbon power that is generated in this country." A Government spokesperson said last night: "We are aware that the EU has concerns with the UK's Contracts for Difference Scheme and have previously engaged with them on this. "We wait to see what action they may take, but would contest any challenge the EU brought against the UK on this matter.

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FERC proposes internal monitoring requirements for bulk electric facilities to address security 'gap'

The Federal Energy Regulatory Commission has proposed new security requirements for high- and medium-impact bulk electric system facilities that would require them to "maintain visibility over communications between networked devices" within discrete computing environments known as "trust zones." The agency is also taking comment on whether to apply the rule to low-impact facilities.

The lack of internal network security monitoring (INSM) requirements is a "gap" in the North American Electric Reliability Corp.'s Critical Infrastructure Protection (CIP) standards, according to a notice of proposed rulemaking published Thursday in the Federal Register. Comments are due within 60 days. The rule would modernize the CIP security approach for the power sector, which "has historically focused on preventative controls" rather than detection, Ben Miller, vice president of professional services and research and development for Dragos, said in an email. But experts also say it is unclear how much security will be improved by the proposed change, and at what cost.

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