WORLD POWER SYSTEMS REVIEW

15 September 2022

1 September 2022

Hornsea 2 windfarm in offshore UK becomes fully operational

Danish power company Ørsted has announced that the 1.3GW Hornsea 2 offshore wind farm, located off the east coast of the UK, has entered full operations. The move comes more than eight months after Ørsted achieved first power from the offshore wind farm.

Located 89km off the Yorkshire Coast, Hornsea 2 includes an area of around 462km2 besides its sister farm Hornsea 1. It features 165 wind turbines and can generate enough electricity to power more than 1.4 million UK homes. Together, Hornsea 1 and Hornsea 2 can power 2.5 million homes and will help the UK to achieve 50GW of offshore wind in operation by 2030.

Ørsted UK region head Duncan Clark said: “The UK is truly a world leader in offshore wind and the completion of Hornsea 2 is a tremendous milestone for the offshore wind industry, not just in the UK but globally. “Current global events highlight more than ever the importance of landmark renewable energy projects like Hornsea 2, helping the UK increase the security and resilience of its energy supply and drive down costs for consumers by reducing dependence on expensive fossil fuels.”

Earlier this year, Ørsted entered into an agreement to divest a 50% stake in Hornsea 2 offshore wind farm for £3bn. The deal currently awaits regulatory approvals. The company now has 13 operational offshore wind farms in the UK. The assets can generate up to 6.2GW of renewable electricity in total. Currently, Ørsted has around 8.9GW of offshore wind in operation and it aims to complete 30GW of offshore wind installation by 2030. In a separate development, Ørsted closed the acquisition of the Ballinrea solar PV project in Ireland from renewable energy developer Terra Solar. The 65MW solar project is Ørsted’s first solar project in the country.

NS Energy
http://www.nsenergybusiness.com/

1 September 2022

California lawmakers vote to extend Diablo Canyon as heat wave forces governor to declare grid emergency

California Gov. Gavin Newsom, D, on Wednesday declared a state of emergency to ensure grid reliability amid extreme heat forecasts across the state and the rest of the Western U.S. The proclamation will allow California power plants to generate additional power, and authorizes backup generator use to ease the stress on the grid during peak demand hours, according to the governor’s office.

California is expected to experience high, potentially record-breaking heat through Wednesday, with temperatures that are projected to be up to 20 degrees warmer than normal in Northern California and 18 degrees warmer than normal in the southern part of the state. On Wednesday, the California Independent System Operator called for customers to conserve electricity for a second consecutive day, due to rising electricity demand and shrinking power supplies. The grid operator also floated the possibility of additional conservation calls through the Labor Day weekend.

“The reality is we’re living in an era of extremes,” Newsom said in a briefing Wednesday, adding, “the hots are getting a lot hotter, the dries are getting a lot drier.” Newsom said that the two potentially most challenging days for the grid are this coming Sunday and Monday, which are anticipated based on current projections to have roughly 48,000 MW of electricity demand – a figure that “puts us in a position where we have some vulnerabilities.”

Newsom also pointed to actions state regulators have taken to shore up the grid since the blackouts California experienced in the summer of 2020, including increasing the amount of battery storage on the grid from roughly 200 MW to 4,000 MW. In addition, he emphasized the importance of his administration's legislative proposal to extend the life of the Diablo Canyon nuclear facility, originally scheduled to retire by 2025. State lawmakers voted in favor of the bill in the early hours of Thursday morning. "Getting Diablo Canyon extended, just extending its life for a short period of time, will provide us with the capacity to de-risk, the capacity to stack all these renewables, to get the battery storage, deal with these supply chain issues, and move forward with our new strategy to fast track projects and permitting, and create some certainty for investors in this space," he said.

Utility Dive
http://www.utilitydive.com/

2 September 2022

France's EDF under pressure to end all outages of nuclear reactors

French energy group EDF has promised to restart all of its 32 nuclear reactors that are currently offline for maintenance and corrosion problems, the French energy minister said, as the government raises pressure on the state-controlled utility to end a spate of outages.

More than half of France's 56 reactors have been shut in recent months. The shutdowns have weighed on electricity supply across Europe and pushed prices higher just as Russian gas becomes scarce, while turning France into a net power importer over the summer from Britain and other neighbours to whom it usually exports. French energy minister Agnès Pannier-Runacher said on Friday that EDF aimed to end all of the closures in the coming months. "EDF has committed to restarting all its reactors for this winter," Pannier-Runacher told a news conference.

Some of the restarts correspond to the end of summer repair programmes, and the government would "closely follow with EDF" the progress of reactors affected by the corrosion issues discovered last December, Pannier-Runacher added. "It's a form of pressure on EDF to keep its engagements between now and February," Nicolas Goldberg, a senior manager at energy consultancy Columbus Consulting said of the energy minister's announcement. Filings with grid operator RTE show that the reactors are due to come online again between September and February.

EDF, which is 84 per cent owned by the state, is set to come fully under government control again in the coming weeks in a buyout of minority shareholders, in part as France tries to shore up its defences to deal with Europe's energy crisis. French president Emmanuel Macron and his ministers have stepped up warnings in the past fortnight about the efforts that will be required during winter months, urging households and businesses to work on energy efficiency measures now.

The government has spent heavily to protect consumers and businesses with a 4 per cent price cap on electricity among other measures, and has signalled it will prolong them in some form next year. It has also drawn up lists of the industries that would be temporarily cut off if shortages occurred, even though ministers have said they do not anticipate such measures for now based on current winter forecasts.

"If it came down to rationing, companies would be the first affected," prime minister Elisabeth Borne told a business conference in Paris on Monday. EDF had cut its output forecasts to three-decade lows for 2022 in recent months, and has not adjusted them upwards, leaving some doubt over how much supply will be alleviated in the short term — and whether the planned restart schedule is feasible.

Goldberg said that, based on the restart projections, France would be producing some 50 gigawatts of electricity a day by December, compared to between 20 and 30 gigawatts now. That would put it in line with last winter's levels. France would still probably be a net importer for 2022 as a whole.

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

2 September 2022

Iberdrola Submits Three Offshore Wind Applications in Brazil, Enters State Green Hydrogen Agreements

Iberdrola's renewable energy development arm in Brazil, Neoenergia, has applied for environmental investigation licences for offshore wind projects in three of the country's states, and has also entered into an agreement on offshore wind and green hydrogen development with one of the states.The company has submitted environmental investigation applications to the Institute for the Environment and Natural Resources (IBAMA) for offshore wind farms in the states of Ceará, Rio de Janeiro, and Rio Grande do Sul.

All three projects are planned to have 3 GW of capacity each and feature 200 wind turbines with a 15 MW output. With Rio Grande do Sul, Neoenergia signed a memorandum of understanding (MoU) on 31 August to pursue the development of offshore wind generation and a project for the production of green hydrogen.

Under the three-year agreement, the company and the state will cooperate on carrying out studies to promote the two clean energy technologies, with a focus on the Port of Rio Grande. The MoU provides for necessary studies and assessments for the development of the supply chain and port infrastructure in the Port of Rio Grande for the purpose of developing the offshore wind project Neoenergia plans to build in the state, named Águas Claras. According to a press release from the Rio Grande do Sul Government, the Águas Claras offshore wind project includes four wind farms with a projected capacity to serve 13 per cent of the energy consumption in the state.

As for the part of the cooperation on green hydrogen, Neoenergia and the Government of Rio Grande do Sul will together work on the development of a pilot project for the production of green hydrogen and on the study of opportunities in the port. According to Neoenergia, the Port of Rio Grande is one of the most important in the country for international trade and houses companies in the chemical, petrochemical, mining and fertilizer sectors.

Prior to the agreement with the Government of Rio Grande do Sul, Neoenergia also signed memoranda of understanding with the governments of Pernambuco, Ceará and Rio Grande do Norte for the development of green hydrogen, the company said. With the Government of Pernambuco, Neoenergia is cooperating on the development of a pilot project for the production of green hydrogen in the Port of Suape – Governador Eraldo Gueiros Port Industrial Complex. The initiative aims to find opportunities to facilitate the demand for green hydrogen and prepare Porto Suape to become a hub for the production of green hydrogen in the future.

OffshoreWind.biz
http://www.offshorewind.biz/

2 September 2022

India Plans to Become Green Hydrogen Giant to Cut Energy Imports

India is planning a massive expansion of green hydrogen production to curb its dependence on energy imports and to wean the economy off fossil fuels to meet climate targets.

New Delhi is aiming for an annual production capacity of 25 million tons by 2047, according to people familiar with the plans who didn't want to be named as the information is not yet public. However, the number could change going forward, depending on technology and the country's demand outlook, they said. Media officials at the power and renewable energy ministries didn't immediately respond to emailed requests for comment.

Green hydrogen is widely expected to play a major role in decarbonizing heavy industries, including oil refineries, steel mills and fertilizer plants. India's current output of the fuel is very low and comes from a handful of pilot projects. While green hydrogen is regarded as a potential panacea to cut emissions, there are still major challenges in scaling up the technology and making it cost-effective. It's not certain demand growth will materialize, and the fuel may not become the first choice in transport and industry.

The potential to generate low-cost renewable energy in India, the world's third biggest emitter of greenhouse gases, has been a driving force behind the government's carbon-free hydrogen ambitions. India's goal of getting to net zero by 2070 has found support from business tycoons, including Gautam Adani and Mukesh Ambani, as well as state-run energy giants like NTPC Ltd. and Indian Oil Corp. Adani has pledged to spend $70 billion on clean energy assets, including green hydrogen, while Ambani's Reliance Industries Ltd., one of India's most valuable companies, plans to add production of solar panels, electrolyzers for clean hydrogen and rechargeable batteries. French oil giant TotalEnergies SE has agreed to partner with Adani on hydrogen in India.

The government is considering more ways to spur the sector, including offering production-linked incentives to make electrolyzers. Green hydrogen is made by splitting hydrogen and oxygen in water with the help of electrolyzers, powered by renewable electricity. The product can replace the use of hydrogen derived from some fossil fuels, in refineries and fertilizer plants. It has the potential to become an alternative to coal in steel mills and oil products in long-haul transport. The green hydrogen targets are part of a broader strategy for 2047, the centenary year of India's independence. The plan also includes measures to improve energy efficiency, overhaul power markets and expand manufacturing of renewable energy equipment, according to the people.

Bloomberg
http://www.bloomberg.com/

2 September 2022

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OffshoreWind.biz
http://www.offshorewind.biz/

4 September 2022

Further increase in the trade capacity with the Ukraine/Moldova power system

On 2 September, the Transmission System Operators (TSOs) of Continental Europe agreed to increase the trade capacity with Ukraine/Moldova to 300 MW during the day, keeping the trade capacity at 250 MW during the night. These changes will apply as of 5 September 2022. The possibility of further increasing trade capacity will be assessed later this month based on power system stability and security considerations.

Commercial electricity exchanges with the Ukraine/Moldova power system started on 30 June on the interconnection between Ukraine and Romania, followed by the Ukraine-Slovakia interconnection on 7 July. Electricity trading on the other interconnections (Ukraine-Hungary and Moldova-Romania) is expected to follow later.

The opening of trade capacity with Ukraine/Moldova was made possible after the TSOs of Continental Europe confirmed on 28 June 2022 that the technical pre-conditions had been fulfilled to allow commercial exchanges of electricity between Ukraine and the neighbouring countries. The start of commercial exchanges of electricity followed the successful synchronization of the Continental Europe power system and the Ukraine/Moldova power system on 16 March 2022 and the welcoming of Ukrenergo as observer member of ENTSO-E on 26 April 2022.

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

4 September

California faces worsening grid challenges on Monday and Tuesday

With historic heat bearing down on California for the next several days and energy demand approaching record levels, the California Independent System Operator (ISO) is stepping up its call for consumers to lower electricity use in the afternoons and evenings to avoid outages. “Starting tomorrow, this multi-day event is going to get much more intense,” said ISO President and CEO Elliot Mainzer. “We are facing a load forecast of 48,817 megawatts and energy deficits between 2,000 and 4,000 megawatts for Monday, resulting in the highest likelihood of rotating outages we have seen so far this summer.

"Because of the increasingly extreme conditions, we will need significant additional consumer demand reductions during the hours of 4 p.m. to 10 p.m. on Monday and access to all the emergency tools that the state and utilities have established for an extreme event like this one. We thank electricity consumers for their sustained effort to help us maintain reliability during these very difficult conditions."

The ISO has issued a statewide Flex Alert, its sixth straight day calling for consumers to cut their electricity use, tomorrow from 4 p.m. to 10 p.m., when they are urged to set thermostats to 78 degrees or higher, avoid using major appliances, and turn off all unnecessary lights. A Flex Alert is also in effect today from 4 p.m. to 9 p.m. The extra hour of reduced energy use is needed tomorrow because of projected market deficiencies through 10 p.m.

Additional calls for reducing energy consumption are expected as the state endures record-breaking temperatures lasting at least through Friday. The heat wave is historic for both its temperatures and its duration. Heat advisories and excessive heat warnings are in place across the West, with daytime high temperatures forecast to be 10-20 degrees above normal. Electricity customers' actions to cut their demand have already resulted in an estimated 600 to 700-megawatt savings in recent days and are expected to be even more important and impactful through the next several days.

Power grid conditions are expected to be strained this evening, with a potential for supply shortfalls. However, Monday and Tuesday are still projected to be the most challenging days yet, with the highest temperatures forecast on Tuesday and projected electricity demand of 50,099 megawatts (MW). For a look at historical demand, see the ISO's Peak Load History report. The peak load yesterday was 44,123 MW, and the forecast for today is 45,776 MW.

Grid operators are closely monitoring wildfires for potential threats to generators and transmission wires, and fire officials have warned that more fires could break out in the coming days, due to the prolonged high heat and dry conditions. Several generators are already out of service, making supplies tighter. Consumer and commercial demand response, including Flex Alerts, has been helping to extend tight resources at critical hours so far this week.

CAISO
http://www.caiso.com/

5 September 2022

Shanghai Electric completes 900MW fifth phase of Mohammed bin Rashid Al Maktoum Solar Park

Chinese electrical equipment company Shanghai Electric has completed Phase B of the 900MW fifth phase of the Mohammed bin Rashid Al Maktoum Solar Park in Dubai. The 5,000MW photovoltaic (PV) solar plant was executed in several stages, and entails AED2.06bn ($560m) of investments, according to Renewables Now.

Once fully commissioned in 2023, the fifth phase of the Mohammed bin Rashid Al Maktoum solar park is expected to provide 2.268 billion kWh of power per annum. It is adequate to serve more than 240,000 homes, eliminating 1.1 million tonnes (MT) of annual carbon emissions, said Shanghai Electric. The first phase (Phase A) of the project was connected to the grid last year. Development of Phase C is currently underway, which is expected to complete in 2023.

Mohammed bin Rashid Al Maktoum solar park Phase V project manager Meng Chuanmin said: "The construction process of the fifth phase of MBR Solar Park is marked by a series of challenges, culminating in the peak of the Covid-19 pandemic that severely disrupted global supply chains. "The team overcame the difficulties and ensured the

procurement and delivery of the raw materials for the project were timely implemented to avoid any delay to the overall progress." ACWA Power, the owner, developer and operator of the fifth phase of the solar park appointed Shanghai Electric as the EPC contractor for the project, in 2020.

In July 2020, the company started construction at the project in three Phases, including Phases A, B and C, with a total installed capacity of 1,050MW. Shanghai Electric said that it has employed an international team of more than 2,500 workers for the project during the peak construction. In addition, the project has created more than 4,000 direct and 10,000 indirect employment opportunities, promoting local employment and economic development.

Shanghai Electric was also involved in the construction of the 950MW fourth phase of the Solar Park, which included a 700MW concentrated solar power (CSP) plant and a 250MW photovoltaic (PV) plant. A CSP plant can store the thermal energy during the daytime, and use it for generating electricity later at night, enabling a stable and reliable energy supply around the clock.

NS Energy
http://www.nsenergybusiness.com/

6 September 2022

Saipem and Siemens Energy to develop floating substation concept

Italian engineering firm Saipem has signed a memorandum of understanding (MoU) with Siemens Energy to develop a floating electrical substation concept for the offshore wind sector. The two companies will focus on creating a design for a 500MW high-voltage alternating current (HVAC) floating substation that can be used for offshore wind farms. Saipem chief commercial officer Fabrizio Botta said: "Our ambition is to take advantage of Saipem and Siemens Energy's unique expertise, to jointly develop a cutting-edge floating design solution for offshore substations.

"The new concept will be an enabler to enhance offshore wind developments in deeper waters by lowering the overall infrastructure investment. "This agreement further confirms Saipem ambition to strengthen its leadership role in the offshore wind market by delivering industrialised and standard solutions." Based on a semisubmersible substructure, the new floating substation concept will have the potential to resist extreme environmental conditions and can be scaled up according to clients' requirements. The partnership will combine Saipem's knowledge of sustainable offshore infrastructures with Siemens Energy's broad transmission portfolio.

The partners expect that the floating substation will have the potential to reduce the levelised cost of energy of floating wind farms. Siemens Energy Transmission Systems vice-president Agustin Tenorio said: "The new joint solution will significantly optimise critical technical parameters, such as weight, electrical efficiency and asset longevity, thus lowering the production costs and enabling an unprecedented number of countries to benefit from large-scale offshore wind generation."

"This MoU is an integral part of Siemens Energy's net-zero strategy in scaling up its activities through technology partnerships for specific markets, which complements the well-established turnkey business we already execute today."

Earlier this year, Siemens Energy and Prysmian Group secured a £1.5bn ($1.74bn) contract from the NeuConnect consortium to provide cabling works and converter stations for a subsea power link between Germany and the UK.

Power Technology
http://www.power-technology.com

6 September 2022

Rolling blackouts resumed across South Africa on Tuesday after a nearly three-week hiatus

South Africa announced its first rolling blackouts in almost three weeks on Tuesday, hours after the nation's statistics office published data that showed the economy contracted in the second quarter when was hit by record power outages.

Eskom Holdings SOC Ltd. will implement so-called stage-2 loadshedding, where it cuts 2,000 megawatts from the grid, until Sept. 10, it said on Twitter. If the utility sticks to these plans, it will bring the total days of blackouts in the third quarter to 34.

Africa's most-industrialized economy contracted in the three months through June as the worst flooding in almost three decades and outages on more than half of the days in the second quarter weighed on output. Eskom's continued struggle to meet electricity demand from its old power stations that continually break down after years of insufficient maintenance is weighing on economic growth and business confidence.

This week's blackouts were caused after generation units at five coal-fired plants that broke down and unit 2 of Africa's sole nuclear plant north of Cape Town tripped. The process of restarting the unit at the nuclear plant is underway, Eskom said.

Bloomberg
http://www.bloomberg.com/

6 September 2022

Canada expected to miss its 2035 clean electricity goals

Canada is expected to fall short of its 2035 clean electricity target, according to GlobalData, after reviewing the country's current renewable capacity activity. The leading data and analytics company notes that the country was targeted to produce nearly 100% of its electricity from zero-emitting sources by 2035, however, the country is adding only 2.6 GW of annual renewable capacity additions on average every year, which would mean a cumulative shortfall of 48.4 GW.

Attaurrahman Ojindaram Saibasan, Power Analyst at GlobalData, comments: "Canada has good governmental support, but it is not doing enough to ensure its targets are met. If the country is to meet its target to produce nearly 100% of electricity from zero-emitting sources by 2035, it should both increase the capacity and efficiency of renewable power plants, as well as provide comprehensive end-to-end policies at both the federal and provincial levels. It should also involve communities and businesses in raising awareness of the benefits of adopting renewable energy." GlobalData's latest report, 'Canada Power Market Size, Trends, Regulations, Competitive Landscape and Forecast, 2022-2035', reveals that Canada is increasing its capacity of gas-based plants from 24.1GW in 2021 to 31.5 GW by 2035. Renewables are currently an intermittent power source in Canada, so conventional generators are used to take its baseload.

Saibasan continues: "The country has a large amount of proven natural gas and oil reserves that are proving too tempting an opportunity, and the Canadian government is planning to increase the capacity of its gas-based plants to secure real-time demand and supply. However, the country's dependency on gas-based plants creates a major challenge to achieve its 2035 zero-emissions target.

"If the Canadian government is to meet its 2035 targets, it should draw on examples from its European counterparts and add renewable capacity at a rapid pace. One advantage for Canada here is that it does not have land constraints, which is common in other major renewable power generating countries. GlobalData's report highlights that this could give the country an estimated 6.1 GW of renewable capacity every year on average during the

2021–2035 period: enough capacity to meet its target. Most of these installations are expected to be for wind and solar PV."

While Canada has ample support from its government, with recent federal budgets introducing a range of new programs to accelerate the growth and implementation of cleantech such as smart grid initiatives and energy storage initiatives, the country faces restraints at the provincial level to entirely phase out thermal power plants. For example, the Renewable Electricity Programme (REP) was launched in Alberta in 2016 to incentivize the deployment of renewable energy capacity in the province until 2030, but the project was abandoned in 2019 by the new government under the United Conservative Party to protect local oil and gas industries. Three rounds of auctions were conducted under the REP program until the end of 2018.

Saibasan continues: "Changing provincial governments are not helpful when it comes to implementing long-term projects and continued stopping and starting of projects like this will only be damaging to renewable goals." Another way the country can achieve its target is by converting thermal power plants into clean energy plants and providing a roadmap or timeline for provinces to retire thermal power plants completely.

Global Data
http://www.globaldata.com/

6 September 2022

Grid stress test: Germany intends to extend operation of two nuclear plants

The German government wants to keep two reactors on standby this winter. The results of a power grid stress test showed the operation of the nuclear plants should continue after the New Year, when they were planned to be shut down, to ensure energy supply during the winter, domestic media reported. Germany is likely to extend the operation of two nuclear power plants in the south of the country, according to Vice Chancellor and Federal Minister for Economic Affairs and Climate Action Robert Habeck. He said the facilities would be switched to reserve until mid-April, rather than closing at the end of the year. It means the two power plants would produce electricity when necessary, said Habeck. Isar II in Bavaria and Neckarwestheim II in Baden-Württemberg are scheduled to serve as support and help ease the energy crisis until the end of the winter season.

According to the country's 2011 denuclearization plan and current laws, the remaining three nuclear plants with a total capacity of 4.3 GW were supposed to shut down before the end of the year. However, due to uncertainty over Russian gas supplies, the government tasked four German transmission grid operators with carrying out ANOTHER STRESS TEST on the grid to examine the possibility of extending the operation of the nuclear plants. In March, after the power grid was first tested, the conclusion was that keeping the three nuclear power plants in operation after December 31 would bring major legal and safety challenges, as well as licensing and insurance complications.

After a new stress test, with the assumption of more severe disruptions, it was concluded that extending the operation of two of the three nuclear power plants would contribute to the security of supply during the coming winter, reports Clean Energy Wire. The test involved a scenario in which the reactors continue to operate with the remaining nuclear fuel rods for several months longer than planned. The version includes no additional procurement of the fuel. The grid simulations were performed only for the next heating season. The capacities of coal-fired power plants ARE NOT SUFICIENT to completely replace nuclear power after December, while gas-fired power plants cannot be USED AS PLANNED due to the gas supply crisis.Furthermore, transmission line capacity is too low to bring adequate volumes of surplus electricity from wind power plants in northern Germany to the south, German media reported.

Several high-ranking officials, including Finance Minister Christian Lindner of the Free Democrats (FDP) and Bavaria's Minister-President Markus Söder of the conservative Christian Social Union (CSU), which is in opposition at the federal level, have called for the nuclear plant runtime to be extended by several years. Annalena Baerbock, Minister of Foreign Affairs from Alliance 90/The Greens, believes postponing the closure of nuclear power plants wouldn't solve the current energy crisis and gas supply issues. Her party colleague Habeck previously argued that the electricity generated from the three plants planned for closure was not even worth reopening the denuclearization debate and pointed out that extending the operation of the nuclear plants would offset no more than 2% of gas consumption. The Greens, which participate in the ruling coalition, emerged from the anti-nuclear environmental movement in Germany in the 1970s, which pointed to security risks and the lack of solutions for nuclear waste storage.

Balkan Green Energy News
http://balkangreenenergynews.com/

8 September 2022

MISO opens energy, operating reserve markets to storage with over 13 GW in interconnection queue

Storage resources are now eligible to participate in the Midcontinent Independent System Operator's energy and operating reserve markets, grid officials said Tuesday.

Though only a "nominal" amount of megawatts of storage currently are registered, grid officials said, MISO's generator interconnection queue shows more than 150 energy storage projects — representing about 13,300 MW of capacity — are in varying stages of development.

MISO's integration of storage resources comes at the direction of the Federal Energy Regulatory Commission, which in its Order 841 directed grid operators to remove barriers to market participation for storage resources. The Midcontinent grid operator had asked to delay the compliance deadline until 2025, but regulators denied that request.

Utility Dive
http://www.utilitydive.com/

8 September 2022

Government announces Energy Price Guarantee for families and businesses while urgently taking action to reform broken energy market

Prime Minister Liz Truss sets out decisive action to support people and businesses with their energy bills. From 1st October, a new 'Energy Price Guarantee' will mean a typical UK household will now pay up to an average £2,500 a year on their energy bill for the next two years. This is automatic and applies to all households. This will save the average household at least £1,000 a year based on current energy prices from October and is in addition to the £400 energy bills discount for all households. This applies to all households in Great Britain, with the same level of support made available to households in Northern Ireland.

GOV.UK
http://www.gov.uk/

8 September 2022

Australia passes landmark legislation to cut carbon emissions

Australia passed a landmark climate bill on Thursday, bringing the resource-rich country back in line with the global push to cut carbon emissions after years of pushing back

against such efforts. The climate change bill mandates that the country reduce carbon emissions by 43 per cent from 2005 levels by 2030 and reach net zero emissions by 2050.

The policy was a crucial plank of Labor prime minister Anthony Albanese's election campaign this year and brings Australia broadly in line with countries such as Canada and Japan. The targets lags behind goals set by the US, UK and EU. Australia is one of the world's largest miners and one of the biggest coal exporters. The country had been a climate policy laggard for years with former prime minister Scott Morrison once brandishing a lump of coal in parliament as a testament to his Liberal party's steadfast support for the industry. Albanese's government pledged to hit the targets when it came into power and will have to report annually on its progress on reducing emissions. Industry groups responded positively to the news, with the Business Council of Australia saying the country was "a step closer to ending the climate wars that have put a handbrake on progress and become a serious economic barrier".

But analysts and environmental groups cautioned that the bill was only a first step to achieving net zero emissions. "There's this air of unreality about them. because they're not addressing the big thing which is no new coal or gas projects and no new oil projects," said Bruce Robertson, an analyst at the Institute for Energy Economics and Financial Analysis. But he added that the measures showed the government was trying to provide clarity to investors interested in green energy and new technologies. "Investors just sit on the sidelines when there's uncertainty. So you need some sort of framework and at least this government is attempting to provide that over time we will know what it is."

Amanda McKenzie, chief executive of Australian environmental non-profit organisation Climate Council, said it was too early to declare the move an unequivocal success. "On its own, the Climate Change Act won't reduce emissions. It needs to be backed up by credible climate action across every sector of the economy," she said. The prime minister's office said the country had "missed out on billions of dollars in public and private clean energy investment" and the new legislation would "provide the energy policy and investment certainty needed to usher in economic growth and opportunity in a decarbonising global economy".

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

8 September 2022

T-Omega re-thinks floating offshore wind turbines for huge cost savings

Most of the world's greatest wind power resources are offshore – often a long way offshore, where the water's so deep that it's impractical to build typical fan-on-a-stick wind turbines with bases sunk deep into the sea floor. Floating wind, at this stage, is so vastly expensive to build, deploy and maintain that it ends up costing two to three times as much per kilowatt-hour of energy as fixed-bottom offshore installations.

There's a huge opportunity here for technological advancement, and companies like Norway's World Wide Wind are proposing some pretty radical ideas in the space. A lot of the energy cost comes down to the size, weight and materials involved in the structure of the turbine, along with the logistical issues and specialized equipment needed to build, install and maintain the things.

Boston startup T-Omega Wind says it's model-tested a unique floating offshore wind turbine design that can withstand massive storms and hundred-foot waves, but at 20% the weight and around 30% the price of conventional designs – not to mention super-simple deployment and installation – unlocking an affordable way to exploit the world's best wind resources.

"All offshore floating turbines except ours are like icebergs," says T-Omega Co-Founder and Chief Engineer Jim Papadopoulos over a video chat. "Whatever they've got above the water, they've got four times as much below the water. If they've got 1,500 tons above the water, they've got 6,000 tons under the water. That's a big expense. We put almost nothing under the water. That's one of the big differences in cost, and movability, and launching."

Conventional floating turbines, says Papadopoulos, use technology that was only ever designed for land. "Right now, a Vestas or GE-style turbine, they have a whacking great rotor, with a shaft on one side. You can engineer almost anything, but with a single-sided shaft, that shaft is massive, and requires some pretty special bearings. And because of the forces that go through that design, there's very little strength margin to shake it around. So they have to hold them dead still, perfectly upright – hence, the heavy, expensive base. They're imbued with a land-style philosophy, and it's incredibly expensive."

T-Omega's approach is completely different, starting at the turbine and generator itself, which mount to a double-sided axle shaft that's rigidly supported at both ends. Thus, rather than a single, heavyweight pole, the turbine is supported by four much slimmer legs, reaching down to lightweight, wide-spaced floating base platforms. It's much like the way a Ferris wheel is suspended; there's a reason why they don't usually build those on a single pole.

The floating base is tethered to the sea floor, and as the wind changes, the base rotates freely around its pivot point on the sea bed, such that it's always facing directly into the wind – but without needing any sensors, motors and pivoting mechanisms to achieve

that end. The tower of such a system can be wide and efficient for enormous cost savings, says Papadopoulos. This follows through to the gear up top, as well. Supported by both ends, the T-Omega design doesn't need the same kind of massive hub and axle designs conventional turbines need, simply to deal with the enormous stress imposed by a single-sided axle. That means less metal, less weight, less specialized tooling, and less cost at every step of the way. It also means a wider range of fabrication businesses can build the things. The company built a two-meter-high (6.5-ft) prototype – a 1:60 scale model of a commercially-sized 10-MW product, and tested it for stability in a wave tank in Glasgow.

Since the design doesn't extend down very far under the water, deployment is far simpler. You can put these things together at a dock – or even without one, float them straight into the water, and then tow them out to site. Maintenance is much the same; unhook the turbine, tow it back to shore, do whatever maintenance is required, then swap it back into the live wind farm rotation when you're done. No need for jack-up ships or floating cranes, you simply tow the turbines back in to port where everything's easy.

The company projects a Levelized Cost of Energy (LCoE) around US$50 per megawatt-hour in internal calculations. It's working to have this figure re-run by an independent third party. "According to our numbers," says Papadopoulos, "we're in the ballpark of the best fixed-bottom offshore wind available today." The challenge for T-Omega is to find manufacturers that aren't locked into legacy technology. Papadopoulos says the company has a few lines in the water with investors, but that it's yet to land a deal that could finance the next step: a 100-foot-high design that could end up being a product for smaller coastal settlements and islands.

Floating offshore wind turbines will play a critical part in the clean energy transition – but their contribution will be limited by their cost. It's a sector ripe for technological disruption, and T-Omega's refreshingly simple approach seems to have a lot to offer. We wish the team well in pushing the project forward, and look forward to hearing how it progresses.

New Atlas
http://newatlas.com/

8 September 2022

Abu Dhabi's Mubadala and TAQA to invest in power sector in Uzbekistan

Mubadala Investment Company (Mubadala) and Abu Dhabi National Energy Company PJSC (TAQA), have signed agreements to invest in the privatization of two gas-fired power generation plants in the Talimarjan power complex in Uzbekistan.

Mubadala and TAQA will each acquire a 40% stake in the two power plants, the Talimarjan Issiqlik Elektr Stansiyasi JSC (TIES) will retain the remaining 20% stake in each plant. The combined capacity of the gas-fired power plants is 1.6 gigawatts (GW). The agreements were signed by Khaled Abdulla Al Qubaisi, Chief Executive Officer, Real Estate & Infrastructure at Mubadala, Jasim Husain Thabet, TAQA's Group Chief Executive Officer and Managing Director, and Jamshid Khodjaev, Deputy Prime-Minister of the Republic of Uzbekistan and Minister of Investments and Foreign Trade and Yusupov Olim, General Director of Talimarjan TPP JSC. The transaction is still subject to approvals and expected completion is set to occur in the second half of 2023.

"As a global and responsible investor, Mubadala is focused on supporting energy transition across the world. We are confident our partnership will contribute to Uzbekistan's greater energy stability while preparing for a low carbon future." Said Khaled Abdulla Al Qubaisi, Chief Executive Officer, Real Estate and Infrastructure Investments at Mubadala. Farid Al Awlaqi, Executive Director of Generation at TAQA Group said, "This major investment in a new country is an important step forward in the delivery of the 15GW of new international capacity we announced as part of TAQA's 2030 growth strategy. Investment

alongside Mubadala in these power plants means we will become a major generator in Uzbekistan." The agreements follow the 2020 agreement with Uzbekistan's Ministry of Investment and Foreign Trade, and JSC Thermal Power Plants of the Republic of Uzbekistan (JSC) relating to the proposed acquisition, development and operation of the Talimarjan Power Complex.

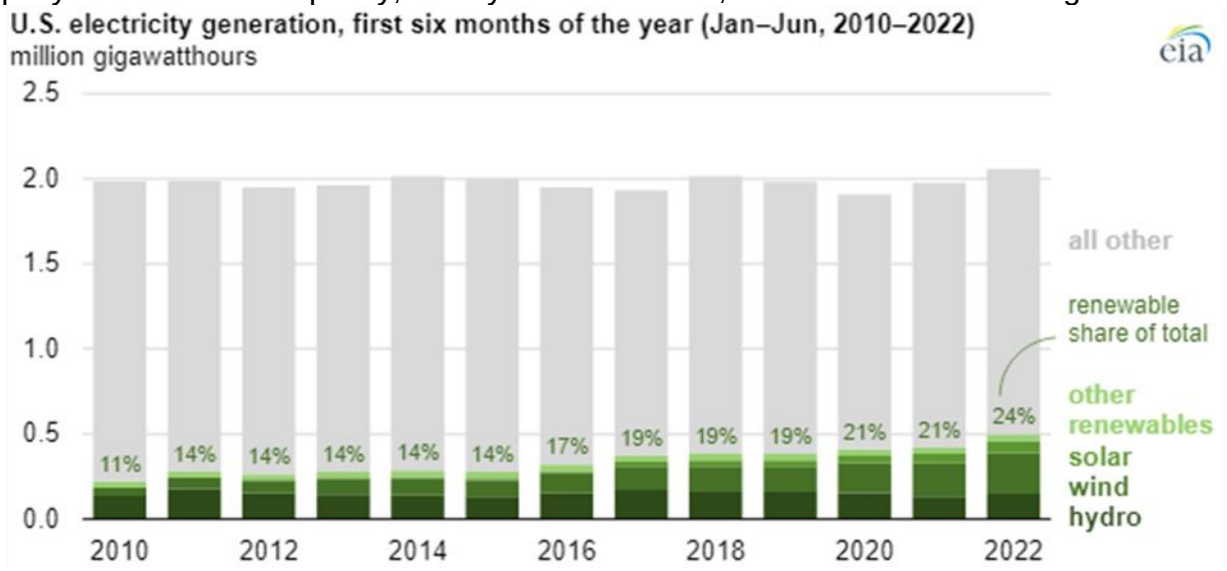
Arabian Business
http://www.arabianbusiness.com/

9 September 2022

In the first half of 2022, 24% of U.S. electricity generation came from renewable sources

In the first six months of 2022, 24% of U.S. utility-scale electricity generation came from renewable sources, based on data from our Electric Power Monthly. The renewables' share increased from 21% for the same time period last year. Renewables are the fastest-growing electricity generation source in the United States.

Renewable generation sources include conventional hydropower, wind, solar, geothermal, and biomass. In the United States, most renewable electricity generation comes from hydropower, solar, and wind. Generation from renewable energy sources has grown rapidly as renewable capacity, mostly solar and wind, has been added to the grid.



In 2021, a record amount of new utility-scale solar capacity was installed in the United States. From June 2021 to June 2022, 17.6 gigawatts (GW) of new utility-scale solar capacity came online, bringing U.S. utility-scale solar capacity to 65.8 GW, according to our Preliminary Monthly Electric Generator Inventory. In June 2022, the United States had 137.6 GW of wind capacity, and 10% (14.3 GW) of that capacity was installed between June 2021 and June 2022. Based on planned additions reported to us by power plant owners and developers, another 7.0 GW of wind and 13.0 GW of solar capacity will come online by the end of the year.

Hydropower and wind generation, which, combined, make up the majority of U.S. renewable generation, typically peak in the first half of the year, when there are more windy days and the winter snowpack is melting. In the second half of 2022, we expect that renewables will make up a smaller share of generation than they did in the first half of the year (20%) as wind and hydroelectric generation decline, based on our latest Short-Term Energy Outlook.

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