

WORLD POWER SYSTEMS REVIEW

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US grid-scale energy storage quadruples

The volume of grid-scale energy storage installations in the United States increased four times over that seen in Q1 of 2021, setting a new record in Q1 2022. According to Wood Mackenzie and the American Clean Power Association's (ACP) latest US Energy Storage Monitor report released today, grid-scale installations total 2,399 MWh.

"Quarter one of 2022 was the largest first quarter on record by far for grid-scale installations, a notable milestone since installations are typically back-weighted to the second half of the year. The West Coast and Southwest regions continue to dominate for both standalone and hybrid systems," said Vanessa Witte, senior analyst with Wood Mackenzie's energy storage team. The record-setting growth occurred despite significant challenges in the industry. And those risks remain, including supply chain disruptions caused by the anti-dumping and countervailing duties (AD/CVD) solar tariff investigation initiated by the Department of Commerce (DOC) when the DOC said that it was launching an antidumping investigation into solar panel imports from Chinese companies working in Cambodia, Malaysia, Thailand and Vietnam.

"The Biden Administration's recent decision to pause AD/CVD solar tariffs for two years restores predictability to both the solar and energy storage markets. With well over 50% of utility storage projects being paired with solar farms, this important executive action will help the energy storage market continue to accelerate," said John Hensley, vice president of research and analytics at ACP. As battery costs drop and the need for resiliency amid grid fluctuations, residential storage was also on the rise, having its strongest quarter to date. The report estimates that 334 MWh were installed in Q1, improving on the previous quarterly record of 283 MWh in Q4 of last year. By 2026, the residential storage segment is forecast to grow by 5.7 GWh annually, driven in part by adoption in California in reaction to the proposed Net Energy Metering (NEM) 3.0.

"Despite challenging supply conditions continuing to suppress residential storage, the segment saw over 20,000 installations in a single quarter for the first time and we're seeing large and small installers forge new vendor partnerships to help meet rising customer demand," said Chloe Holden, analyst with Wood Mackenzie. AD/CVD-related procurement delays have slowed the non-residential storage market, which has been downgraded and predicted to grow 1 GW annually by 2026. "A meaningful share of residential solar-plus-storage projects not yet procured are being pushed to 2023, which has impacted paired storage," Holden added.

Overall, the US energy storage market added 955 MW and 2,875 MWh across all segments in the first quarter of 2022. "California continues to dominate the sector, with the Valley Center and Slate projects taking the top two spots for largest projects installed in Q1. We also saw more than 90 MW of storage come online outside the top seven states, including projects in Oregon and Alaska," Witte said.

[pv-magazine](http://pv-magazine-usa.com/)
<http://pv-magazine-usa.com/>

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HH2E, MET to build €1bn green hydrogen plant on German Baltic coast

German green energy firm HH2E AG and Swiss natural gas and power trader MET Group are gearing up to develop a gigawatt-scale green hydrogen production facility on the site of a former nuclear power plant on the Baltic coast. The two partners announced today they have founded a new firm called H2 Lubmin GmbH to develop, build and operate a power-to-X plant in Lubmin in the federal state of Mecklenburg-Vorpommern. The project

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envisages the addition of 100 MW of input capacity by 2025 and its expansion to 1 GW by 2030. The total investment is estimated to be above EUR 1 billion (USD 1.05bn), including over EUR 200 million for the first stage.

The initial plant will be able to produce around 6,000 tonnes of green hydrogen per year, while the annual output of the facility upon full completion will exceed 60,000 tonnes. The facility is expected to run on electricity from offshore and onshore wind farms as well as solar parks in the region under long-term power purchase agreements (PPAs). HH2E said it has solved the volatility of renewables production by combining a 50-MW alkaline electrolyser with a 200-MWh high-capacity battery.

“The electrolyser produces green hydrogen when the wind and sun provide enough electricity, and the battery is then charged as well. If the simultaneous generation of renewable energy is not sufficient, the battery supplies the green electricity that keeps the electrolyser in constant production,” explained Andreas Schierenbeck, co-founder and board member of HH2E. Joerg Selbach-Roentgen, CEO of MET Germany GmbH, in turn, commented that the German market demonstrates “an extraordinarily high level of interest” in green hydrogen. “The development of the project will strongly depend on the demand from industry and the energy sector in Germany, which we want to secure by reliable and long-term supply relationships,” he added. Construction work on the first stage of the project is expected to begin as early as next year and commissioning is scheduled for 2025. The second stage is seen to be completed in 2030.

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

16 June 2022

FERC Acts to Boost Grid Reliability Against Extreme Weather Conditions

FERC today initiated two rulemakings aimed at improving the reliability of the bulk power system against the threats of extreme weather. These are the first proposed rulemakings stemming from the Climate Change and Extreme Weather proceeding that the Commission initiated in June 2021, and they respond to numerous extreme weather events that have resulted in load shed and in, some cases, nearly caused system collapse and uncontrolled blackouts.

“Given the importance of reliable power to our way of life and the potential impacts extreme weather can have on grid reliability, FERC is taking these additional proactive steps,” FERC Chairman Rich Glick said. “Increasingly frequent cold snaps, heat waves, drought and major storms continue to challenge the ability of our nation’s electric infrastructure to deliver reliable affordable energy to consumers. Today’s actions are necessary to ensure that we are prepared for the challenges ahead.”

The Commission proposes to require the North American Electric Reliability Corporation (NERC) to develop reliability standard modifications to require that:

- NERC develop benchmark planning cases based on information such as major prior extreme heat and cold weather events or future meteorological projections;
- Transmission providers conduct studies of extreme heat and cold conditions including the expected resource mix’s availability during such extreme conditions; and
- Transmission providers develop corrective action plans for any instances where performance requirements for extreme heat and cold events are not met.

The proposed rule also seeks comment on whether to similarly require studies and corrective action plans for drought conditions.

The second proposed rule would direct transmission providers to submit one-time reports describing their policies and processes for conducting extreme weather vulnerability

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assessments and identifying mitigation strategies. These extreme weather vulnerability assessments will improve the Commission's understanding of how transmission providers identify and mitigate risks to transmission assets and operations caused by extreme weather events.

FERC

<http://www.ferc.gov/>

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El robot que hará de vigilante jurado en parques eólicos marinos de Iberdrola

Un robot patentado que ha sido diseñado en el parque científico de la Universidad de Salamanca y que se prueba en la subestación de "El Torrao" de Zamora antes de su implantación comercial pretende realizar funciones, algunas de ellas similares a las de un vigilante jurado, en subestaciones marinas de producción de energía eólica de la compañía Iberdrola.

Ese robot prototipo, que cuenta con diversas patentes y ha sido diseñado por la empresa de desarrollo tecnológico salmantina Arborea Intellbird, se denomina Antecursor I, como las tropas de avanzadilla del ejército romano, y puede realizar operaciones predictivas rutinarias de revisión de infraestructuras eléctricas, detectar puntos críticos y efectuar inspecciones a la carta para anticiparse a posibles problemas.

El robot y su funcionamiento lo han comprobado este jueves en la presentación pública de esta iniciativa de investigación y desarrollo el director Arborea, Carlos Bernabéu, y el delegado de Iberdrola en Castilla y León, Miguel Calvo. Con diseño en forma de minitanque en el que los cañones se han sustituido por cámaras convencionales de vídeo y cámaras térmográficas que transmiten datos en tiempo real a través de redes 5G, el robot utiliza un programa informático de análisis para su funcionamiento. En él tiene preestablecido el diseño de la subestación para saber en qué punto de ella se encuentra, cuáles son las zonas críticas y los lugares que debe revisar.

Esa función la ha comparado Carlos Bernabéu con la de una gineeta que es capaz de orientarse en la oscuridad gracias al mapa mental que tiene de la zona que ha visto previamente de día. Al robot se le ha introducido previamente "un gemelo digital" de las infraestructuras que debe inspeccionar con el fin de que pueda "revisarlas en remoto sin necesidad de tener personal en ese lugar físicamente" ya que el autómatas puede tomar datos termográficos y de imagen y "detectar defectos de forma muy eficiente", ha explicado Bernabéu.

La transmisión de los datos que capta la efectúa en tiempo real con tecnología 5G aportada por el socio colaborador del proyecto Orange, que permite que las imágenes de las dos cámaras lleguen tanto a la central de Iberdrola Renovables en Madrid como al centro de Arborea en Salamanca. Por el momento, las pruebas con el prototipo se efectúan en una subestación eléctrica zamorana pero la idea es utilizar este robot en los parques de energía eólica instalados en plataformas marinas por los que ha apostado la compañía hidroeléctrica desde su área de energías renovables.

Las condiciones meteorológicas y el estado de la mar a causa de ello en ocasiones condicionan el acceso a las plataformas marinas, por lo que al utilizar estos robots, automatizados también en su recarga, no sería necesario que acudieran personas físicas para efectuar determinados trabajos de revisión.

Se trata de un sistema que, en palabras del responsable de Iberdrola en Castilla y León, puede ayudar a "mejorar el mantenimiento de las instalaciones con más eficiencia en la gestión y en la seguridad" de las personas.

Periodico Energia

<http://elperiodicodelaenergia.com/>

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Canada invests in geothermal exploration in Alberta

The Government of Canada is advancing our transition to a low-carbon economy in Canada through strategic investments and innovative partnerships. As part of this commitment, Canada is advancing the deployment of smart renewable energy and enabling grid modernization technologies in various communities across the country to support the clean energy transition and the fight against climate change. Geothermal energy is one such type of clean, renewable energy that will help Canada achieve our ambitious climate targets.

Today, the Honourable Jonathan Wilkinson, Minister of Natural Resources, announced a \$5-million investment in Novus Earth to execute a front-end engineering design (FEED) study for the Latitude 53 geothermal energy project in the community of Hinton, Alberta. Funding provided for the Latitude 53 Project will assist Novus Earth in its continued exploration of the geothermal resource and will provide critical resources to advance the project. Specifically, the funds will assist in de-risking the project through technical feasibility and FEED studies, as well as through supporting community engagement and skilled training initiatives essential to the success of the project.

The socio-economic benefits to Hinton and the surrounding Indigenous communities supported by the project are made possible through skill development, educational and curriculum opportunities, long-term employment and enhanced equality, diversity and inclusion. Novus Earth and Mitacs National Research Organization are also contributing to the project, bringing the total investment to nearly \$6.6 million.

Federal funding for this project is provided by Natural Resources Canada's Smart Renewables and Electrification Pathways (SREPs) program, a four-year, \$964-million program that provides support for smart renewable energy and electrical grid modernization projects. This program will significantly reduce greenhouse gas emissions by enabling increased renewable energy capacity that will provide essential grid services while supporting Canada's ongoing transition to a net-zero economy by 2050 as well as Canada's commitment to achieving a 100-percent net-zero-emitting electricity system by 2035.

Canada's 2030 Emissions Reduction Plan: Clean Air, Strong Economy ensures Canada will remain a world leader in clean power. In Budget 2022, Canada committed to investing an additional \$600 million over five years to the SREPs program to continue to support renewable electricity and grid modernization projects.

NS Energy

<http://www.nsenerybusiness.com/>

18 June 2022

GM respalda la innovadora tecnología eólica flotante de la noruega Wind Catching

El gigante automotriz estadounidense General Motors se ha comprometido a ayudar a ampliar y desplegar la novedosa tecnología de energía eólica marina flotante de la noruega Wind Catching Systems (WCS), después de que su brazo de inversión, GM Ventures, liderara una ronda de financiación para la puesta en marcha. WCS dijo esta semana que GM Ventures había liderado una ronda de inversión Serie A de hasta 10 millones de dólares para ayudar a financiar el desarrollo y la comercialización de la tecnología, esencialmente una enorme pared flotante de turbinas eólicas.

Además de la inversión de GM Ventures, GM ha firmado un acuerdo estratégico con WCS para la colaboración que cubre el desarrollo de tecnología, la ejecución de proyectos, la política de energía eólica marina y el avance de las aplicaciones de tecnología sostenible. La tecnología WCS se encuentra en sus inicios, pero la compañía afirma que tiene numerosas ventajas sobre las turbinas eólicas flotantes convencionales, incluida que es

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más fácil y menos costosa de instalar. La tecnología también promete tener una huella significativamente más pequeña que un parque eólico marino estándar, y se espera que las paredes flotantes de la turbina reduzcan el uso de espacios en más del 80 por ciento.

WCS afirma además que la tecnología puede “suministrar electricidad a la paridad de la red ahora”, puede producir suficiente electricidad para alimentar a 80.000 hogares europeos, por unidad, y tiene una vida de diseño estructural de 50 años. Ole Heggheim, CEO de WCS, dice que tener a GM como colaborador estratégico y GMV como inversor proporcionará “capital competente adicional a largo plazo” de un líder mundial en tecnología e industrialización en un momento importante en el viaje de la tecnología.

“Junto con Ferd, North Energy y Havfonn, tenemos una sólida base de inversores para respaldar nuestra ambición de tener una instalación comercial para 2027”, dijo Heggheim en un comunicado esta semana. “La tecnología Wind Catching tiene beneficios competitivos significativos en comparación con las tecnologías eólicas marinas flotantes convencionales y vemos grandes oportunidades para su implementación en el sitio de Utsira en Noruega y en otros lugares del mundo”.

Incluso dejando de lado el diseño único de la tecnología noruega, la inversión y la colaboración de GM es un movimiento interesante, particularmente cuando el fabricante de automóviles invierte miles de millones de dólares en tecnología EV para cumplir su objetivo de vender 1 millón de EV al año en América del Norte para 2025. Pero la directora de sostenibilidad de GM, Kristen Siemen, dice que la inversión de GM Ventures representa una oportunidad para acelerar la comercialización de tecnología innovadora e impulsar un futuro energético más limpio, confiable y resistente. GM y WCS dicen que están comprometidos a buscar áreas de colaboración, incluidos los procesos de ingeniería y diseño y el abastecimiento sostenible.

Periodico Energia

<http://elperiodicodelaenergia.com/>

19 June 2022

Scott Morrison's energy minister insists Australia's power crisis is not his government's fault despite being in charge for nine years: 'Bunny in the headlights'

Scott Morrison's former energy minister spent Sunday morning desperately trying to distance himself and the last government from Australia's power crisis. With parts of the country narrowly avoiding blackouts, Angus Taylor - now the Liberal treasury spokesman - and party leader Peter Dutton instead cast blame on Labor. This was despite the Coalition having been in power for nine years until Labor took over after winning the federal election held four weeks ago. Mr. Taylor said the previous government managed power supply successfully 'in the lead-up to the election'.

A power supply and price crisis has engulfed Australia in recent weeks.

The energy crisis deepened last week, with the National Electricity Market suspended, hospitals ordered to reduce electricity use, and millions of people urged not to use basic appliances, despite the freezing winter weather. The potential for mass blackouts increased with about 1800MW of coal-fired power not operating in Queensland and 1200MW of capacity offline in the states of NSW, Victoria, South Australia, and Tasmania. The Albanese Government blamed the former Morrison Government, while NSW Premier Dominic Perrottet said an 'ideological war' over renewables was at fault. Mr. Taylor would not accept responsibility for the crisis, saying the challenges went beyond anything the former government could control.

'There is no doubt there has been upward pressure on energy prices around the world, there's no question about that – and that's a big challenge,' he told Sky News. 'The point I'm making is that there's sensible actions that can be taken to alleviate those

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pressures.' Host Andrew Clennell interrupted, asking: 'Wait, do you take any responsibility?' 'We had managed this in the lead-up to the election successfully,' Mr. Taylor replied. 'We had managed it successfully, we showed how you do that when you focus on supply and don't demonise traditional sources of fuel... and we delivered the outcomes.' Mr. Dutton said the energy crisis belonged to the new Labor government, but did not lay the responsibility solely at its door - he also blamed the states. 'There is fault all around here... Over a long period of time, people have been taking different positions, including state governments,' he told ABC.

Mr. Dutton claimed Labor would make the crisis worse. 'We were agnostic in terms of the technology or energy source... this is the point,' he said. 'Labor would have turned off coal years ago. (Energy Minister) Chris Bowen's argument still is this very day to exclude coal and gas. 'I think (Mr. Bowen) is a bunny in the headlights.' Mr. Taylor said if he was still the energy minister, he would have ensured there was more supply in the market. 'If you focus on reliable supply, you don't get yourself in this position,' he said.

Workplace Relations Minister Tony Burke said Mr. Taylor's interview was 'extraordinary'. 'There was no responsibility taken for anything,' Mr. Burke told Sky News. 'And the big thing on how do they get supply going? Mr. Burke said the former government showed 'no sense of ownership of (the crisis) in the energy market right now'. He said the Coalition was responsible for 'years of neglect'. Mr. Taylor has plans to treat the Australian economy (as Shadow Treasurer) with the way he treated the national energy market, they're not going to come up with very many good ideas.'

Daily Mail

<http://www.dailymail.co.uk/>

19 June 2022

Belgium: Government extends cost-cutting energy measures till the end of the year

The federal government has agreed to extend existing measures intended to soften the blow of energy price increases till the end of the year. VAT on gas and electricity will stay at 6% instead of 21%. Two million people will also qualify for lower social energy tariffs. Starting 1 July, the measures will also apply to buildings that have communal heating.

The government first introduced the measures last March. The VAT reduction was supposed to lapse at the end of September but will now run till the end of the year.

PM De Croo (Flemish liberal) said the decision meant everybody could look forward to summer in the knowledge that the measures have been extended till December. Economy minister Dermagne (Francophone socialist) labelled the measure that will cost 1.4 billion euros a "clear signal to people". The group of people who qualify for lower social energy tariffs was expanded earlier. Mr Dermagne noted that research had indicated that this measure that cuts electricity bills by half and gas bills by a fifth for those that qualify is the most effective. A fifth of Belgian households now qualify.

People using heating oil will receive a voucher worth 225 euros – up from 200 euros. The first vouchers will be dispatched in September and remain valid till the end of the year. Starting July blocks of flats, care homes, hospitals and other buildings where there is communal heating will qualify for the VAT reduction on gas. If prices remain high the government plans to extend all measures till the end of March next year. "We are of course also working on a long-term solution" said energy minister Van der Straeten (Flemish green). "We are speeding up energy transition to make us less reliant. The North Sea is a trump card. Together with the Netherlands, Germany and Denmark we have agreed to invest more in wind energy".

VRT

<http://www.vrt.be/>

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US Startup Launches Mobile Renewable Nanogrid

Venture-backed startup Sesame Solar has launched a novel mobile nanogrid concept that can be set up and generate electricity within 15 minutes. Models range in size from 3 to 12m with solar power production between 3-20kW and total battery storage of 15-150kWh and are said to be easy to transport and move about, whether by road, sea or air. With a key use case considered as disaster response, they are designed and tested for extreme weather conditions and they also are easy to operate, with set up by one person.

“Our nanogrids are changing the trajectory of the effects of climate change while providing communities in distress with the power they need to access critical resources,” says Sesame Solar CEO Lauren Flanagan, an early SaaS pioneer who counts working with Steve Jobs at his technology company NeXT. “While we can’t stop hurricanes or wildfires from happening, we can create solutions that help communities recover efficiently without causing further damage to the environment.”

Sesame Solar reports that early users of the nanogrids include the US Air Force, major telcos and emergency response organisations. Popular use cases include power for mobile medical clinics, community services, water purification, communications and electric vehicle charging with the latter also able to provide power to the transporting electric truck. Sesame Solar also reports being called upon to support the island of Dominica in the wake of Hurricane Maria in 2017 and in 2021 worked with Comcast to support communication recovery after Hurricane Ida. VC backers of Sesame Solar include Morgan Stanley, VSC Ventures, PAX Angels and BELLE Capital.

[World-energy.org](http://www.world-energy.org/)
<http://www.world-energy.org/>

21 June 2022

New Jersey’s Ocean Wind project takes a step forward

As part of the U.S. Biden-Harris administration’s goal of deploying 30 GW of offshore wind energy capacity by 2030, the Bureau of Ocean Energy Management (BOEM) is announcing the release of the Draft Environmental Impact Statement (DEIS) for the proposed Ocean Wind 1 wind energy project offshore New Jersey.

BOEM’s DEIS for the proposed Ocean Wind 1 Offshore Wind Farm analyzes the potential environmental impacts of the proposed action described in Ocean Wind’s project plan for constructing and operating an offshore wind energy facility. This is the first DEIS published by this administration for an offshore wind energy project.

The Notice of Availability for the DEIS will publish in the Federal Register on June 24, opening a 45-day public comment period, which ends on Aug. 8. During the comment period, BOEM will conduct three virtual public meetings and accept comments on the DEIS. The input received via this process will inform preparation of the Final EIS.

Over the past year, the Biden-Harris administration and the Interior Department have launched the American offshore wind industry by approving the nation’s first two commercial-scale offshore wind projects in federal waters. The department also announced plans to potentially hold up to seven new offshore lease sales by 2025, including the New York Bight auction and Carolina Long Bay auction held earlier this year.

BOEM also expects to complete the review of at least 16 plans to construct and operate commercial, offshore wind energy facilities by 2025, which would represent more than 22 GW of clean energy for the nation. Ocean Wind proposes to construct up to 98 wind turbines generators (WTGs) and up to three offshore substations within the lease area, located 15 statute miles southeast of Atlantic City, New Jersey, with export cables making

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landfall in Ocean County and Cape May County, New Jersey. If all 98 WTGs are approved for installation, the estimated capacity range will be from 1,215 MW to 1,440 MW, capable of powering up to 504,000 homes per year.

BOEM will use the findings of the EIS to inform its decision on whether to approve Ocean Wind's proposed project. BOEM's three virtual public meetings will be held July 14, July 20 and July 26.

Offshore Magazine
<http://www.offshore-mag.com/>

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PJM Capacity Auction Secures Electricity Supplies at Competitive Prices

PJM Interconnection announced today the successful procurement of resources in its annual capacity auction to meet electricity needs and ensure reliable service for the 2023/2024 Delivery Year. The auction results reflect a reliable and lower-carbon resource mix achieved at a low cost to consumers.

Prices for the 2023/2024 Delivery Year were lower than in the previous auction for the 2022/2023 Delivery Year. As a result, sufficient resources plus robust reserve levels were procured at a cost of \$2.2 billion, compared with approximately \$4 billion for the current 2022/2023 Delivery Year.

Those resources clearing the auction include more than 5,300 additional megawatts of nuclear generation than cleared in the prior auction.

"PJM's capacity market continues to support the reliability of the electric grid in a competitive manner," said President and CEO Manu Asthana. "In combination with our other markets, the capacity market remains a central component in attracting a diverse, reliable and competitive resource mix to meet forecasted system demand."

The PJM capacity auction, called the Base Residual Auction, procures power supply resources in advance of the delivery year to meet electricity needs in the PJM service area, which includes all or part of 13 states and the District of Columbia.

Auctions are usually held three years in advance of the delivery year. The 2023/2024 auction was originally scheduled to be held in May 2020, but auctions had been suspended while FERC considered approval of new capacity market rules.

"PJM's capacity market is designed to reflect where supply and demand meet, and these auction results show that," said Stu Bresler, Senior Vice President – Market Services. "We look forward to working with our stakeholders and the states we serve to continue refining our markets to meet the needs of an evolving grid and ensure the reliable flow of power well into the future." This year's auction procured 144,871 MW of resources for the period of June 1, 2023, through May 31, 2024. The total Fixed Resource Requirement (FRR) obligation is an additional 31,346 MW.

The auction produced a price of \$34.13/MW-day for much of the PJM footprint, compared to \$50/MW-day for the 2022/2023 auction in June 2021. Prices are higher in some regions due to constraints on the transmission system.

Potential factors contributing to the clearing price results include:

- The first application of the less restrictive Minimum Offer Price Rule, applied to only seven resources representing 76 MW
- A revised, lower unit-specific Market Seller Offer Cap
- Less lead time to the delivery year (one year instead of three)
- The use of a historical rather than a forward-looking Energy and Ancillary Services Revenue Offset
- The first application of the Effective Load Carrying Capability (ELCC) method for determining the capacity value of wind, solar and storage resources

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Carbon-Free Resources Increase

PJM's auction saw a growth of more than 5,000 cleared megawatts of carbon-free resources, led by an increase of 5,315 MW from existing nuclear units that did not clear in the previous auction. Solar resources increased 25%, from 1,512 MW to 1,868 MW, while the number of wind resources clearing was down 434 MW to 1,294 MW. The decrease in wind resources clearing the auction reflected a decrease of wind resources offering into the auction.

Natural gas resources clearing the auction increased by 1,685 MW, with more efficient combined-cycle units clearing 3,627 more megawatts than the last auction and combustion-turbine units down 1,012 MW. Combined-cycle units cleared a total of 48,030 MW in the auction and combustion-turbine units 19,080 MW.

Cleared capacity of steam units (primarily coal) was down 7,186 MW to 27,682 MW, tracking with a decrease of 7,813 MW offered into the auction as a result of coal retirements.

A 660 MW increase in Energy Efficiency resources, to 5,471 MW, was offset by a 716 MW decrease in Demand Response to 8,096 MW.

Hydro decreased slightly, from 4,157 MW to 3,677 MW. The total procured capacity in the auction represents a 20.3% reserve margin, compared to a 14.8% required reserve for the 2023/2024 Delivery Year.

A detailed report is available on PJM's [capacity market web page](#).

PJM Inside Lines
<http://insidelines.pjm.com/>

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Appeals court partly strikes down FERC approval of ISO New England winter reliability program

A federal appeals court partly struck down the Federal Energy Regulatory Commission's approval of a plan to pay power plant owners in New England an incentive to have three-days worth of on-site fuel during two upcoming winters.

Echoing a 2020 dissent of then-FERC Commissioner Richard Glick, the U.S. Court of Appeals for the District of Columbia Circuit on Friday rejected allowing an estimated \$40 million a year in "windfall payments" to coal, hydroelectric, biomass and nuclear generators as part of ISO New England's Inventoried Energy Program, or IEP, saying the incentive wouldn't affect their behavior. Payments to other types of generators, like gas-fired power plants or oil-burning units, can go forward under the ruling.

The court decision could affect other FERC incentives, such as those for transmission development, according to Paul Patterson, an equity analyst with Glenrock Associates. "The D.C. Circuit opinion could provide support for a less generous incentive approach at FERC," Patterson said Friday in an email.

In a 3-1 vote, FERC in 2020 approved ISO-NE's IEP, a program designed to steer about \$150 million a year to certain types of power plants in New England during the winters of 2023-24 and 2024-25. The two-year program aimed to improve grid reliability by offering an incentive for power plants to have on-site fuel while ISO-NE developed a long-term, market solution to bolstering reliability in the winter.

FERC Chairman Glick dissented in the decision over IEP payments to nuclear, coal and hydropower generators without evidence they would change the way they operate. "Handing out money for nothing is a windfall, not a just and reasonable rate," Glick said.

FERC's decision was appealed by a group of municipal utilities; the New Hampshire Office of the Consumer Advocate, the New Hampshire Public Utilities Commission, and the Massachusetts attorney general; and, the Sierra Club and Union of Concerned Scientists.

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In its decision, the appeals court said coal, hydroelectric, biomass and nuclear generators typically have more than three-days fuel supply on hand and that FERC failed to adequately address arguments that IEP payments to those resources wouldn't change their behavior.

In part, the court based its decision on a 2016 FERC order on a previous ISO-NE winter energy security program. In that decision, FERC rejected a proposal to make payments to coal, nuclear and hydro plants, saying the extra money wouldn't act as an incentive.

"Despite evidence in the administrative record indicating that IEP's payment framework would award a windfall to nuclear, coal, biomass, and hydroelectric generators, FERC approved their inclusion in IEP and abandoned the position it previously took," the court said, noting the agency failed to adequately explain why it changed its views.

The court left in place IEP payments to resources such as gas-fired, oil-burning and municipal waste power plants as well as wind and solar facilities that have been combined with energy storage.

The court decision could reinforce arguments from Glick and FERC Commissioner Mark Christie that incentives, such as an additional return on equity for being a member of a regional transmission organization, need to spur the desired behavior, according to Patterson.

"They're basically saying that if you're doing the incentive it should change behavior," Patterson said.

Late last month, Christie said he supported limiting the ROE adder for joining an RTO to three years. "As power prices continue to rise, reducing that unfair cost to consumers is becoming even more important," Christie said in his concurrence.

Because of the ruling, many New England power plants will go unpaid for providing reliability services, according to the New England Power Generators Association.

The grid operator is reviewing the decision and didn't have any comment, Matt Kakley, an ISO-NE spokesman, said.

ISO-NE has been struggling to make sure it has adequate winter-time power supplies since the polar vortex of 2014, according to David Littell, a Bernstein Shur attorney and former Maine Public Utilities Commission commissioner.

"The decade of disagreements between FERC, ISO-NE, [the New England Power Pool,] and the state commissions points out that our ISO New England markets are not producing electrical supply that is sufficient, reliable, or for that matter clean," Littell said in an email.

New England consumers have made billions of dollars in capacity payments for a system that largely relies on natural gas, but gas prices are rising due to supply constraints from the Russian invasion of Ukraine and increased U.S. liquefied natural gas exports, Littell noted. "New England customers will be paying for the over-reliance on gas this winter – electricity supply prices this January could reach almost 10 times the cost of a decade ago, back when gas was 'cheap,'" Littell said.

Utility Dive

<http://www.utilitydive.com/>

22 June 2022

ACWA Power and Hassan Allam Holdings to build wind farm in Egypt

Saudi energy company ACWA Power and Egyptian engineering firm Hassan Allam Holdings have signed a project agreement to develop a 1.1GW wind project. The wind project will be located in Egypt's Gulf of Suez and Gabal el Zeit area and require a \$1.5bn investment. Both companies will work together in the project's development phase to carry

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out site studies and secure financing for the facility. The project is expected to reach financial close by the third quarter of 2024 and become operational by the end of 2026.

Once completed, it will be one of the largest onshore wind facilities in the world and the largest in the Middle East. The wind farm will have the capacity to generate enough clean energy to power 1.8 million households and displace 2.4 million tonnes of carbon emissions a year. Egyptian Minister of Electricity and Renewable Energy Dr Mohamed Shaker El-Markabi said: “This milestone wind project falls within the framework of the Egyptian government’s strategy to diversify its energy sources and leverage the country’s rich natural resources, especially in renewable energy.

“The Ministry of Electricity and Renewable Energy is taking concrete actions to ensure the resilience of our energy strategy, because of the escalating changes that the world is witnessing, which aim to increase the contribution of renewable energy to up to 42% by 2035.” ACWA Power chairman Mohammad Abunayyan said: “We are honoured to contribute to the strengthening ties of Saudi Arabia, our home, and Egypt via this milestone wind project, and extend our sincerest gratitude to the leaders of both countries in entrusting their faith in our abilities to realise their renewable energy mandates.” In November 2019, ACWA Power signed a solar power purchase agreement with the Government of Egypt to finance, develop, build and operate a 200MW solar photovoltaic plant.

REVE

<http://www.evwind.es>

22 June 2022

Australia: Electricity market suspension to be lifted as supply surges back

Australia’s energy market operator will lift the unprecedented suspension of trading on the electricity market after it confirmed that the “risk of any shortfall has reduced markedly”. The east coast electricity system was thrown into chaos last week forcing the Australian Energy Market Operator (AEMO) to seize control of the market for the first time in its history to stabilise power supplies and avert intensifying threats of blackouts in multiple states. Many power generators said they could not remain viable under restricted caps which AEMO had imposed on the wholesale prices they charged customers, prompting them to withdraw offers to supply electricity. But supply has come surging back, with around 4000 gigawatts, or about one-fifth of the electricity grid’s average demand, coming back online in the past week following the withdrawals, planned outages and some technical failures at coal-fired power stations.

AEMO chief executive Daniel Westerman said on Wednesday generators had been working hard on resolving the crisis and a “step by step” exit from the suspension would begin early on Thursday morning. “We are activating a staged approach to lift the suspension of the electricity market,” he said. “The first step will take place at the end of the trading day today and that is 4am tomorrow morning [Thursday] when we will allow the market to set the price again. The second step will happen 24 hours after that, when we will be able to formally lift the market suspension.”

Federal Energy Minister Chris Bowen said a return to normal was within reach but challenges remain. AEMO said it had seen a “clear improvement” in market conditions, including 4000 megawatts of generation returning from outages in the past week. Power giant AGL has restored two units at its Bayswater power plant in NSW, while a third unit that has been under maintenance since March was due back in early July.

EnergyAustralia, the nation’s third-largest generator, has returned two units at its Mt Piper station following maintenance works over the weekend. The company’s Yallourn coal-fired power plant in Victoria has three generating units operating, but the planned return of its fourth unit has been delayed until “late next week”. EnergyAustralia managing director

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Mark Collette said the company was doing all that it could to make generators available to provide supply into the system. “Our gas-fired fleet across Australia, which at this time of year would normally come online to meet a supply shortfall, is running seven times the volume compared with the same period last year,” he said.

Brisbane Times

<http://www.brisbanetimes.com.au/>

23 June 2022

Macquarie’s Green Investment Group in 2GW Battery Storage Development Partnership with UK’s Bluestone

A joint development agreement (JDA) has been signed by Macquarie’s Green Investment Group (GIG) and renewable energy developer Bluestone Energy for up to 2GW of UK battery storage projects. Already, projects representing 970MW are in early stage development, having secured grid connection offers.

Bluestone’s considerable expertise and GIG’s global experience make for a strong partnership that can drive forward the UK’s storage industry. “This partnership leverages our mutual experience and expands Macquarie’s global portfolio in this important sector,” said Greg Callman, global head of GIG Energy Technology. The new pipeline with Bluestone adds to GIG’s existing battery storage portfolio, with the company last year announcing the acquisition of a portfolio of 187MW/187MWh development-stage utility-scale, distribution-connected battery storage projects in the UK from Capbal Limited.

A 40MW/40MWh project in Maldon, southeast England, was the first project within the portfolio to reach financial close in December 2021. This followed GIG and Enso Energy signing a joint venture with an aim of developing 1GW of subsidy-free solar and storage capacity across England and Wales in 2020. Two of these sites, the 49.9MW Larks Green Solar Farm and 40MW Walpole Bank Solar Farm, were approved in January 2021.

World Energy

<http://www.world-energy.org/>

23 June 2022

Chinese companies barred from building key parts of Dutch power grid

Minister Rob Jetten for Climate and Energy is changing the electricity law to give state-owned grid operator TenneT more options to exclude risky companies from tenders. The change is aimed at barring Chinese parties from vital parts of the Netherlands’ electricity network.

The planned amendment to the law is prompted by growing concerns about national security. “The government is very aware of the risks of possible unwanted interference in the European energy infrastructure,” Jetten said in a letter to parliament. He stressed that “it is not the case that by definition all Chinese-made products or services pose a threat to national security.” Still, he’d rather be cautious and keep these products out of vital infrastructure. That happened with a TenneT tender for two large power sockets at sea. The Ministry of Economic Affairs and Climate halted the tender for these offshore platforms where power from offshore wind farms comes together and is passed on to the onshore grid because of a “potential safety risk.”

A spokesperson for TenneT told that the Ministry did not intervene, but TenneT itself asked for clarification on how to deal with Chinese parties in tenders for vital infrastructure. The Ministry did a security check and discovered some security risks. TenneT then informed the “Chinese parties that wanted to participate that they were no longer allowed to do so.” The legislative amendment does not mean that there will be no Chinese parties in the Dutch power grid, only in the parts considered vital. For example, earlier this year, TenneT

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awarded a large cable contract to a consortium of Boskalis and Chinese company Ningbo Orient. The cables aren't considered vital infrastructure. TenneT will also announce on Thursday that it is changing its tender process. Until now, TenneT outsourced each socket separately. Now the grid operator will tender all 15 to 20 connections scheduled for development until 2030 in one go. The tender will happen via a cooperation agreement with selected parties that must have a proven track record in the relevant technology in Europe. According to TenneT, that excludes Chinese companies.

NL Times
<http://nltimes.nl/>

24 June 2022

Commencement of Power Grid Stabilization Project to Expand the Use of Renewable Energies in Mongolia

The joint venture formed by Tokyo Electric Power Services Co., Ltd. (Headquarters: Koto-ku, Tokyo; President: Yasuhiro Kubo (hereinafter referred to as, "TEPSCO")), Tokyo Electric Power Company Holdings, Inc. (Headquarters: Chiyoda-ku, Tokyo; President: Tomoaki Kobayakawa (hereinafter referred to as, "TEPCO HD")), and TEPCO Power Grid, Inc. (Headquarters: Chiyoda-ku, Tokyo; President/CEO: Yoshinori Kaneko (hereinafter referred to as, "TEPCO PG")) (hereinafter referred to as, "JV") was contracted on June 1 of this year by the Japan International Cooperation Agency (JICA) to engage in a "Power Grid Stabilization Project to Expand the Use of Renewable Energies in Mongolia" (hereinafter referred to as, "the project"), and full-scale launch of the project in Mongolia took place on June 23.

The project is the result of a request made of the Japanese government by the Mongolian government which seeks to improve the ability of its power agencies to design and operate power grids.

In order to expand the use of renewable energies (hereinafter referred to as, "renewables") in Mongolia, further smartification of power grids and the augmentation of transmission lines, which includes measures for the efficient operation and stabilization of power grids, are necessary. For approximately three years, the JV will propose measures for overcoming issues pertaining to the planning and operation of power feed command and transmission/distribution systems, and aid with improving Mongolia's ability to expand the use of renewables for power distribution, etc.

In 2015, the Mongolian government adopted a national energy policy that stipulates mid/long-term goals for the energy sector through the year 2030 and aims to increase the capacity of its power generation facilities to generate power from renewables from approximately 20% in 2021 to 30% by 2030.

However, Mongolia's grid code, which includes technical requirements and rules for connecting renewables to power grids and making power generation forecasts, which becomes more difficult as the use of renewables is expanded, is currently insufficient for expanding the use of renewables. Furthermore, due to the vastness of Mongolia, transmission lines that cover long distances are required to distribute the power from renewables that is generated mostly in the southern part of the country to demand areas, thereby resulting in various challenges, such as difficulties with voltage adjustment.

Therefore, the JV, which has know-how cultivated over many years of providing electricity in Japan and engaging in overseas consulting, such as technical expertise pertaining to the planning and designing of facilities, and the operation of power grids, etc., has been selected by JICA as the main consultant for this project.

TEPCO Power Grid
<http://www.tepco.co.jp/>

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China's Biggest Nuclear Power Plant Goes Fully Operational

The last reactor unit of the first nuclear power station in northeastern China has gone into operation, making the atomic power plant the country's largest by capacity. The sixth unit at Hongyanhe Nuclear Power Plant got the go-ahead for commercial operation yesterday after wrapping up 168 hours of testing, China General Nuclear Power Group said on its website. The plant, located in Liaoning province, can now generate 48 billion kilowatt-hours of electricity a year.

Construction work began in August 2007. Four reactor units started producing power in 2016, while the fifth went into operation last year. The plant had generated 204.1 billion KW/h of electricity as of the end of March. At full capacity, its annual output is equal to 20 percent of Liaoning's total electricity consumption, Shenzhen-based CGN added, noting that the facility consumes 14.5 million tons of standard coal less and emits about 39.9 million tons of carbon dioxide less than a coal-fired power station of the same capacity.

With the plant now fully operational, northeast China will be able to conduct its first nuclear heating project. Starting from Hongyanhe town, the plant will supply power for heating to an area of 242,400 square meters, cutting 12,100 tons of coal use and 14,000 tons of carbon dioxide emissions, according to an agreement the plant signed with Northeast Electric Power of State Power Investment in March.

Yicai Global

<http://www.yicaiglobal.com/>

27 June 2022

IPTO-GRID Telecom and Telecom Egypt sign a head of agreement for a new subsea link

The agreement signed in Cairo concerns the connection of Greece and Egypt by extending a branch from a major subsea telecommunication cable

The wholly owned subsidiary of the Independent Power Transmission Operator (IPTO) of Greece, Grid Telecom and Telecom Egypt, Egypt's first integrated telecom operator and one of the largest subsea cables operators in the region, signed Heads of Agreement to connect Greece and Egypt by extending a branch from a major subsea cable system, which is currently being laid across the Mediterranean Sea.

The agreement was signed at Telecom Egypt's headquarter in Cairo by the Managing Director and CEO of Telecom Egypt, Adel Hamed, the Chairman and CEO of IPTO, Manos Manousakis and the Director of Grid Telecom, George Psyrris.

The planned connectivity between Egypt and Greece will serve the increasing data traffic between Africa, Asia and Europe creating a new reliable telecommunications corridor interconnecting the three continents. It will be the shortest possible path crossing the Mediterranean basin to reach the Balkans region as well as other important destinations like Genoa and Marseilles over hybrid terrestrial and submarine networks.

Earlier this year, on the 9th of February, Telecom Egypt and Grid Telecom signed a strategic Memorandum of Understanding (MoU) in Athens which had set the ground for the exploration of different connectivity options between Greece and Egypt, as well as the optimal utilization of Telecom Egypt's and Grid Telecom's state-of-the-art networks and international reach, through their existing and future optical fiber links to neighboring countries.

The Chairman and CEO of IPTO, Manos Manousakis, stated: "The Southeast Mediterranean incubates major synergies that will contribute to the wider region's emergence as a significant hub for both data and energy. In this context, with the fact that Egypt is a key hub location for all subsea cables from East to West, we are very pleased that the cooperation between IPTO's subsidiary Grid Telecom and Telecom Egypt, will bring

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a new international route that will enhance the strategic role of Crete island as a neutral open-access node on the intersection of three continents".

The Managing Director and CEO of Telecom Egypt, Adel Hamed, commented: "With the increasing demand for connectivity regionally and around the globe, Telecom Egypt is working on improving and extending its international network and continuously investing in new cables. Our collaboration with Grid Telecom will increase our network's resiliency and reach".

ADMIE

<http://www.admie.gr/>

27 June 2022

Tata Power Solar commissions India's 'largest' floating PV project

The project is anchored to the waterbed using 134 pile foundations.

Tata Power Solar Systems said it has commissioned India's largest floating PV plant, a 101.6MWp project in the southern state of Kerala. Deployed on 350 acres of backwaters, the project features a 5MW floating inverter platform and is anchored to the waterbed using 134 pile foundations bored to a depth of 20 meters.

Tata Power Solar Systems, a wholly owned subsidiary of utility Tata Power, said it faced variable water depths, high sea tides and water salinity concerns during the project's construction. With a team of 350 people working on construction, the company built a scaffolding platform on the water body, while the array was towed into place over 3km, exposing the solar modules to high winds. A power purchase agreement is already in place, with all power generation from the plant to be used by the Kerala State Electricity Board.

The project is also one of the first by Tata Power Solar to be monitored by round-the-clock video surveillance for security and malfunction detections. "This project reinforces Tata Power Solar's commitment to leading India's transition towards a greener future," said Ashish Khanna, president at Tata Power Renewables. Asia is set to lead in the deployment of floating solar projects globally, according to consultancy Fitch Solutions, which said in a report published in March that markets with access to hydropower will turn to floating PV as a means to balance out a lack of hydropower during dry seasons.

India's state-owned National Hydroelectric Power Corporation has formed a joint venture with the Green Energy Development Corporation of Odisha for the development of 500MW of floating solar projects in the eastern state of Odisha.

The Kerala project's commissioning comes after another Tata Power subsidiary, Tata Power Renewables Energy, recently completed a 300MW solar project in Gujarat, India which it claimed is India's largest single-axis solar tracker system. Tata Power Solar has since secured a 1GW EPC order for a ground-mount solar project in the Indian state of Rajasthan.

PV Tech

<http://www.pv-tech.org/>

28 June 2022

Leaders of Baltic Sea Transmission System Operators Discussed Electricity Adequacy

The leaders of Baltic Sea Transmission system operators met in Tallinn on 28 June to discuss electricity adequacy of the region. Disruptions of gas deliveries and suspended electricity trade with Russia as a result of the war in Ukraine have raised concerns on electricity adequacy of the coming autumn and 2022-2023 winter.

The TSOs of the Baltic Sea are actively cooperating and sharing information on fuel supply situation and its effects on electricity generation adequacy. A joint expert group is analysing adequacy situation of the coming winter in order to be jointly prepared. Regional

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cooperation and coordination play important role in adequacy analysis and in system operation of possible strained situations.

Baltic Sea Electricity Transmission System operators are Elering, AST, Litgrid, Svenska kraftnät, Statnett, Energinet, Fingrid, PSE and 50Hertz.

Energinet

<http://www.energinet.dk/>

28 June 2022

Commercial exchanges of electricity with Ukraine/Moldova to start on 30 June

The Transmission System Operators (TSOs) of Continental Europe have confirmed that the technical pre-conditions have now been fulfilled to allow for the first phase of commercial exchanges of electricity between Ukraine and the neighbouring countries. This follows the successful synchronization of the power systems on 16 March 2022 and the welcoming of Ukrenerg as observer member of ENTSO-E on 26 April 2022. These achievements are obtained following extensive work by all TSOs, and especially by Ukrenerg and the neighbouring TSOs of Ukraine.

The start of commercial electricity exchanges with the Ukraine/Moldova power system is planned for 30 June on the interconnection between Ukraine and Romania. The electricity trading on the other interconnections (Ukraine-Slovakia, Ukraine-Hungary, and Moldova-Romania) is expected to follow later. The total trade capacity will initially be set to 100 MW in the first phase. After this initial phase, a gradual increase in the trade capacity will be regularly assessed based on power system stability and security considerations.

This is an additional important step, less than four months after the emergency synchronisation of Ukraine-Moldova with Continental Europe, and furthermore demonstrates the strong commitment of European TSOs toward Ukrenerg and Moldelectrica.

ENTSO-E

<http://www.entsoe.com/>

29 June 2022

Elering and Fingrid begin planning of third submarine cable connection between Estonia and Finland

On Tuesday, 28 June 2022, the Estonian and Finnish transmission system operators Elering and Fingrid signed a memorandum of understanding in which the TSOs agreed to launch the planning of the third submarine cable connection between Finland and Estonia.

"Additional transmission capacity is needed to improve the integration and security of supply of the electricity market in the Baltic Sea region and to contribute to the achievement of climate and renewable energy targets," says Jukka Ruusunen, CEO of Fingrid.

The capacity of the EstLink 3 connection is estimated between 700 and 1,000 megawatts. The new connection is expected to be completed by 2035.

There are currently two high-voltage direct current transmission links between Estonia and Finland - EstLink 1, completed in 2006, and EstLink 2, completed in 2014, with a combined transmission capacity of 1,000 megawatts.

Fingrid is also currently building the new Aurora line electricity transmission connection between Finland and northern Sweden. The connection will be fully completed in 2025. There are also plans to build a fourth interconnector with Sweden, Aurora Line 2, in the early 2030s.

Fingrid

<http://www.fingrid.fi/>