

WORLD POWER SYSTEMS REVIEW

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First REZ Planning Approval Granted in NSW

The Central-West Orana Renewable Energy Zone (REZ) has been granted planning approval, the first project of its kind to receive approval in Australia.

The New South Wales Government said that the project will pave the way for the construction of essential transmission infrastructure to connect large-scale solar, wind and energy storage projects to the electricity grid. The project is expected to drive up to \$20 billion in private investment in solar, wind and energy storage projects and support around 5,000 jobs during peak construction.

The Central-West Orana REZ is a key initiative under the New South Wales Electricity Infrastructure Roadmap to deliver clean, affordable and reliable energy to households and businesses across the state. The project is expected to deliver at least 4.5GW of transmitted electricity, equivalent to powering 1.8 million homes. Planning approval of transmission lines will mean work can begin on the construction and operation of around 240km of lines and supporting infrastructure within the Central West Orana REZ.

This transmission infrastructure will connect multiple major renewable energy projects to the grid to pump cleaner, affordable power to homes and businesses. The project's Environmental Impact Statement was exhibited in 2023 and included measures to avoid, minimise or mitigate potential environmental and community impacts. Extensive community and stakeholder engagement informed a number of key changes to the project.

In order to proceed with planning approval, the New South Wales Government assigned nearly 100 approval conditions to support the rollout of the transmission project. The Central-West Orana REZ is approximately 20,000 km², and takes in cities and towns including Dubbo, Dunedoo and Mudgee.

The Central-West Orana REZ is expected to:

- Drive economic growth through substantial private investment
- Invest in community benefit projects that will leave a lasting legacy
- Create local jobs in construction and ongoing maintenance

Financial close for the project is scheduled for the second half of 2024. Construction works are expected from late 2024, with initial operation anticipated in 2028. New South Wales Minister for Climate Change and Energy, Penny Sharpe, said, "This is the first REZ Transmission Project in the country to obtain planning approval, paving the way for a significant boost in renewable energy generation to replace aging coal-fired power stations.

"It's not just about clean energy. This project will bring long-term financial benefits to both New South Wales electricity consumers and the local communities which will host the Central-West Orana REZ. "The New South Wales Government will continue to work closely with communities, the Federal Government and the preferred network operator to finalise the project," Ms Sharpe said.

Energy Magazine

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

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Electricity Exchange was launched in Georgia

On July 1, the electricity exchange was launched in Georgia, marking an important step towards the target model of the electricity market.

The transitional model of the electricity market includes the introduction of day-ahead and daily markets in a limited and voluntary mode. Generation facilities and large consumers will be represented at the exchange except for the regulatory, large hydropower plants and traders. The market will operate in this form for one year. The implementation of the hourly

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balancing and auxiliary services market will become mandatory starting on July 1, 2025, with its operation ensured by the Georgian State Electrosystem.

After the launch of the energy exchange, it will be possible to attract more investments in the energy sector, and the process of forming electricity prices will become more transparent. The introduction of the target model of the electricity market will be an important factor for the energy sustainability of Georgia and long-term price stability.

GSE

<http://gse.com.ge/>

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Supreme Court's Chevron, Corner Post decisions could delay energy investments, spur litigation: analysts

FERC Chairman Willie Phillips defended the commission's transmission planning rule after the court eliminated the Chevron deference for federal agencies.

The energy sector faces uncertainty following back-to-back U.S. Supreme Court decisions that limit federal agency authority for new rules and sharply extend the statute of limitations for filing suits for existing regulations under the Administrative Procedure Act, according to ClearView Energy Partners.

The Supreme Court on Friday struck down the *Chevron* doctrine in [Loper Bright Enterprises v. Raimondo](#) and on Monday said plaintiffs can sue over regulations for up to six years after they are affected by them, instead of six years after they take effect, in [Corner Post v. the Board of Governors of the Federal Reserve System](#).

Under *Chevron* deference, investors may have generally assumed that new agency rules were largely durable, the research firm said. Now, they may wait to invest until judicial reviews are completed, and regulated entities' may forgo early compliance with anticipated or pending regulations, ClearView said.

The decisions could lead states to take a more expansive regulatory role, creating a growing patchwork of rules across the country and increased uncertainty for regulated entities.

The *Chevron* doctrine, established in a 1984 Supreme Court decision, held that in cases where a federal statute is ambiguous, courts must give federal agencies deference in their interpretation of the law, as long as the interpretation is reasonable. It has been cited more than 18,000 times in federal court decisions, making it the most cited administrative law case in history, according to Varu Chilakamarri, a K&L Gates partner.

The court's two decisions, plus a Thursday decision in [Securities and Exchange Commission v. Jarkesy](#) that will move certain proceedings that were handled by agency administrative law judges to the courts, will likely spark increased litigation in the federal court system, K&L Gates attorneys said during a webinar on Monday.

"It really seems like you're going to have a lot of people going into court for a number of reasons," Chilakamarri said. "First is because [without *Chevron* deference] the universe of cases that you might win now that you didn't win before just got a whole lot bigger ... For the regulated community, your interpretation of a statute could be given just as much weight as the agencies."

Also, there will likely be increased litigation around new rules and regulations where an agency's statutory interpretation may be "iffy," Chilakamarri said. The decision will likely lead agencies to be more cautious when issuing new regulations, the K&L Gates lawyers said.

Litigation could take longer because judges will no longer be able to rely on agency expertise when writing decisions on often technical and complex issues, David Fine, a K&L Gates partner, said, noting that judges are typically "generalists."

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There could be “bum” decisions by some judges who don’t understand the technicalities of technology and science, for example, according to Fine.

The court said previous cases decided using *Chevron* deference are subject to *stare decisis*, the doctrine that courts follow precedent. The original decisions would likely hold up, but they could be revisited, according to Fine. “It’s a steep hill, but it’s probably not an insurmountable hill,” he said.

FERC, Chevron and transmission planning

Generally, the demise of the *Chevron* doctrine isn’t expected to have a major effect on the Federal Energy Regulatory Commission. However, the *Loper Bright* and *Corner Post* decisions raise “potentially insurmountable hurdles” to large-scale interregional transmission development, according to Ken Irvin, a partner at Sidley Austin.

“Arguments that FERC’s aspirations with Order 1920 exceed the grant of authority Congress gave in the Federal Power Act will find new vigor after *Loper Bright*,” Irvin said Monday in an email. “And the ruling in *Corner Post* about when the statute of limitation accrues (not until the plaintiff is injured by final agency action) has the potential to cast dark uncertainty over whether transmission projects can ever reach commercial service (and thus gain the ability to repay the development financing).”

FERC Commissioner [Mark Christie on Friday said](#) recently issued [transmission planning and cost allocation rule](#) — Order 1920 — relied on its previous Order 1000 as a basis for the agency to be able to issue it. Order 1000, however, was upheld in court based on *Chevron* deference, said Christie, who voted against Order 1920.

“So the most important legal lifeline that Order No. 1920 needed was pulled away today, and the final rule’s chances of surviving court challenges just shrank to slim to none,” Christie said.

When FERC considers pending requests for the agency to reconsider Order 1920, Christie said he hopes its new slate of commissioners could change its decision “into something that can actually work in the field and is within our legal authority.”

FERC’s transmission planning and cost allocation rule is on firm legal ground, according to FERC Chairman Willie Phillips.

“Both regional transmission planning and cost allocation are practices that have exactly the type of ‘direct effect’ on Commission-jurisdictional rates that the U.S. Supreme Court has held brings a matter within this Commission’s jurisdiction,” [Phillips said Monday](#).

FERC’s authority to regulate regional transmission planning and cost allocation is essential to the agency’s ability to make sure customers have access to reliable and affordable electricity supplies, which is the commission’s “most fundamental statutory responsibility,” Phillips said. “That we have that basic authority remains not only a reasonable reading of the Federal Power Act, but the best reading of the statute, exactly as *Loper Bright* requires,” he said.

In the litigation of Order 1000, FERC argued that it issues transmission rules under the Federal Power Act’s section 206, which empowers the agency to remedy any “practice . . . affecting” transmission rates, said Ari Peskoe, director of the Electricity Law Initiative at Harvard Law School’s Environmental and Energy Law Program.

Under a 2016 Supreme Court case, *FERC v. Electric Power Supply Association*, the court said the agency has legal authority to regulate “practices” that directly affect transmission rates, Peskoe said in an email Monday.

“A party would have to argue that [transmission] planning does not affect rates,” he said. “Seems like a high hill to climb, since the costs of planned projects are recovered through rates.”

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FBI: Renewable energy, microgrids face growing cyber threats

Most of the FBI's recommendations to protect renewable resources from hackers are general best practices, but Avivi said they are necessary because many people's security practices simply aren't very good.

"It's amazing how many people don't practice basic cyber hygiene," he said, comparing malware to the covid pandemic. "It's like washing your hands. ... It's a very simple, primitive solution, but it's very effective in staving off the infection. Not reusing passwords, segregating between functional areas, all kinds of very basic concepts that can help you, at the very least, minimize the potential impact of a malicious incident."

Unpatched systems can lead to threat actors gaining access to critical systems, said Tom Marsland, vice president of technology and technical service for security training group Cloud Range. But the FBI's warning contained little specific advice, he said.

"Nothing here is special. People just need to do the basics, and companies need to invest in the basics," he said.

The FBI's warning recommended:

- Renewable industry stakeholders should routinely monitor network activity for unusual or suspicious traffic;
- Company networks should be updated to patch security vulnerabilities, along with the use of firewalls and antivirus software;
- Offline backups of data should be maintained and all backup data should be encrypted;
- The security posture of third-party vendors should be examined;
- All passwords should comply with the National Institute of Standards and Technology's standards for developing and managing password policies;
- Networks should be segmented to prevent the spread of ransomware.

"The FBI encourages current and former employees of companies within the renewable industry to report cyber intrusions targeting either themselves or their organization, as well suspected elicitation attempts by foreign nationals outside of the organization," the FBI said.

The FBI's recommendations are a good start, "but really constitute a minimum baseline of security controls necessary to mitigate the specific threats they outline: manipulating power inverters and targeting microgrids," Mike Hamilton, former chief information security officer for the city of Seattle and now chief information security officer and founder of cybersecurity firm, Critical Insight, said in an email.

Developing and deploying specific power monitoring technology to detect attempts at compromise "may take time in existing deployments, however might be included in projects going forward without much delay," Hamilton said. But he added that the recent decision by the U.S. Supreme Court to strike down the Chevron doctrine and limit federal agency authority, means "uptake of these FBI recommendations is likely to be spotty without an enforcement mechanism."

It may be "technically correct" that expansion of the U.S. renewable energy industry could increase the risk of targeting by malicious cyber actors, said Malachi Walker, security advisor, DomainTools. But the majority of risks outlined by the FBI "seem to be applicable to any industry that grows in size and scope or leverages IoT connected devices."

"The development and deployment timelines of a standardized passive sensor are uncertain," Walker said, but when combined with more general defense approaches would likely serve to protect renewable resources. However, those solutions "should not be excluded to only renewable energy projects."

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“The problem facing renewable energy isn’t unlike the problem facing the rest of the electric sector,” Gregory Pollmann, principal industrial hunter at Dragos, said in an email.

The developing nature of inverter-based resources means they rely heavily on vendors and third-party organizations for operation and installation, he said. “Those connections can add attack surface to industrial networks and be very difficult to monitor without robust visibility. With all of that said, the FBI’s recommendations ... is what the OT cybersecurity industry has been advocating for years.”

Utility Dive

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

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China: World’s largest sodium-ion battery unit to power 12,000 homes a day

The world’s largest sodium-ion storage battery, with a capacity of 100 MWh, is reportedly operational in Qianjiang, Hubei Province, China.

Datang Group, a state-owned power generation company, connected the battery to the grid at the end of June. As the world looks to move away from fossil fuels, battery-based energy storage solutions are critical when using the sun and wind as energy sources. A large-scale renewable energy plant powered by wind turbines or solar panels needs an equally large storage solution to tide over the intermittency of power generation and store it for future use.

Due to their high storage density, lithium-ion batteries have been the solution of choice for energy storage in electronic devices and electric vehicles. Their usage has also been extended to renewable energy, but large-scale energy storage requires massive battery packs. Since renewable energy plants are located in some extreme environments, the battery packs are also exposed to excessive heat, exacerbating the problems of lithium-ion batteries, such as risks of catching fire, less-than-optimal storage performance, and more.

This is why scientists have been looking for more user-friendly alternatives to lithium-ion storage and have found a scalable one in sodium-ion batteries. Compared to lithium-ion batteries, sodium-ion batteries are advantageous on multiple fronts. They are made from sodium, which is abundantly available and easier to source than the extensive mining needed for lithium. Due to increased demand, lithium prices are at an all-time high, making it difficult to transition to greener energy sources. An alternative from an abundantly available and cheaper source makes the transition easier.

Moreover, sodium-ion batteries have a better safety record, they work well at extremely low and high temperatures. Interestingly, with the connection of this system to the electrical grid, HiNa batteries broke its record as the world’s largest sodium-battery system, which it held for a 10 MWh unit located in Nanning in southwest China. The unit became operational in May this year.

At the Qianjiang facility, the sodium-ion battery system will store up to 100,000 kWh of electricity on a single charge and dispense it to 12,000 households for their daily needs. At this scale, the facility will help avoid equivalent carbon emissions of 13,000 tonnes annually.

While the Nanning facility is expected to scale up to 100 MWh energy capacity in the future, the Qianjiang facility will also grow to 200 MWh capacity in its next phase, CNEVPost said in its report. The growing storage capacities of these units show that the sodium-ion batteries are no longer limited to the laboratories and are making their presence felt in the market.

Interesting Engineering

<http://interestingengineering.com/>

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China's 1.3GW Guangdong Huizhou CHP plant begins commercial operations

Chinese state-owned power utility Guangdong Energy Group's 1.34GW Guangdong Huizhou combined heat and power (CHP) plant in China has started commercial operations.

The CHP plant features two hydrogen-ready 9HA.01 combined-cycle power generation equipment delivered by GE Vernova. Apart from delivering electricity into the grid, the CHP plant will supply steam for the industrial process of the chemical complex in Huizhou, Guangdong Province.

According to GE Vernova, the Guangdong Huizhou project uses the first localised 9HA.01 manufactured by General Harbin Electric Gas Turbine (Qinhuangdao) in China. General Harbin Electric Gas Turbine is a joint venture (JV) formed in 2019 between GE and Harbin Electric. The JV aims to focus on heavy duty gas turbine localisation, delivering more efficient and reliable support for Chinese gas-fired power plants. Harbin Electric also delivered steam turbine, generator, and balance-of-plant equipment for the Guangdong Huizhou power plant. GE Vernova China gas power services president Xu Xin said: "GE Vernova believes that the Guangdong Huizhou project could serve as a model to develop hydrogen-blended H-class natural gas power generation across other provinces.

"In Guangdong, we focus on helping to address the growing electricity and steam needs while reducing carbon emissions." GE Vernova had also supplied two 9F.05 gas turbines for Guangdong Energy Group's Xinhui power plant which achieved commercial operation in 2018. Currently, GE Vernova is supporting the transition of the plant operator from coal-to-gas at its Dongguan Ningzhou combined cycle power plant. The Dongguan Ningzhou facility will feature three GE Vernova 9HA.02 gas turbines alongside Harbin Electric's steam turbines, generators, and other auxiliary equipment.

A Guangdong Energy Group representative said: "GE Vernova has long been our company of choice when transitioning our power plants from coal to natural gas, and we trust GE Vernova advanced H-Class gas turbines will help promote the use of hydrogen blending in power generation across other provinces, as aligned to China's Medium and Long-term Plan for the Development of Hydrogen Energy Industry (2021–2035) objectives."

NS Energy

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

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Europe's Nuclear Revival Lacks a Key Ingredient: Skilled Workers

Europe's aggressive blueprint to bolster its nuclear fleet for the energy transition is jeopardized by a lack of key components: skilled workers.

Atomic power producers in France, the UK and Sweden are having trouble finding the hundreds of thousands of welders, engineers and planners needed for reactors they're building now and ones they're eyeing for mid-century.

That's why representatives from Electricite de France SA and three subcontractors gathered recently in a classroom at the Lycee Polyvalent de l'Edit in Roussillon, a small town near the Saint-Alban nuclear plant in the Rhone valley. In a new recruiting initiative, they were pitching internships and job opportunities to about a dozen high-school students taking industrial maintenance courses.

"Every company is hiring, notably in the nuclear industry, even more now with the new reactor projects," Morgane Robin, a recruiter for Dalkia EN, a maintenance unit of EDF, told the pupils. "We're counting on you and on your teachers to raise your skills." Nuclear energy is on the verge of a renaissance after 25 countries, including more than a dozen in Europe, set a goal to help triple global capacity. Yet their follow-through is hampered by a labor shortage so dire some French companies hire back retirees, the UK government

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advertises industry careers in London Underground stations, and a Swedish university offers free sandwiches to students attending information sessions.

“Nuclear is exiting a long winter,” said Philippe Lanoir, president for industry and energy at France’s Syntec-Ingenierie business federation. “We’ll need trained resources to get projects off the ground. We don’t have much time to react.” France finds itself lacking talent after EDF ended a decades-long building spree in the early 2000s, turning the industry into a dead-end career path. The workforce of about 220,000 is now aging out while potential replacements look elsewhere. The industry has outlined a plan to increase vocational training for laborers, technicians and engineers. Its target: Recruit 100,000 workers during the next decade.

France’s nuclear reactor construction ground to a halt in the early 2000s

Syntec, representing about 400 engineering firms, launched a teen-focused promotional campaign and is pushing to boost college and training programs. President Emmanuel Macron wants EDF to build six reactors for an estimated €67.4 billion (\$72 billion) and then plan for eight more. Those ambitions may be affected by ongoing legislative elections. Marine Le Pen’s National Rally party, which dominated the first round of voting, wants to go further than Macron by building 20 reactors in coming decades. The second round is Sunday.

Potentially, a quarter of the jobs created by EDF’s plans may go unfilled, Lanoir’s group estimates, as current employees retire and take their expertise with them, schools lag in training and young people choose more dynamic, headline-grabbing industries such as solar and wind. That’s a recipe for lengthy construction delays and massive cost overruns — failings the industry already is notorious for. In addition, clean-energy target dates may be put at risk.

“Everybody wonders how we’re going to do all these new projects as we lack staff,” said Sebastien Cuquemelle, the former co-owner of engineering firm Probent, which was acquired earlier this year by construction group Eiffage SA.

EDF, which took 17 years to build its newest plant, identified lack of labor as the primary roadblock to carrying out the revival envisioned by Macron in 2022. That year, the company imported workers from North America to handle scores of reactor pipe repairs. In the port of Cherbourg, where French nuclear submarines are built, Probent frequently offers retired welders and metal workers jobs in the shipyard and at the nearby fuel recycling plant run by Orano SA — which itself plans to build more facilities.

“Given that there’s competition for resources, some players are ready to offer pay increases that are bigger than in other sectors,” said Thomas Branche, executive vice president of nuclear and energy new build at French engineering firm Assystem SA. Right now, the nuclear industry is one of the most attractive in terms of wages, he said.

EDF’s needs extend beyond France. It’s building the UK’s Hinkley Point C nuclear project, but that’s been delayed by labor shortages and supply-chain issues, with the price tag ballooning to about £48 billion (\$61 billion), adjusted for inflation. The utility and UK authorities are also seeking to convince private investors to help finance a pair of reactors at Sizewell. The projects are part of the UK’s commitment to quadruple nuclear-power capacity by 2050. Reaching that target is expected to require 123,000 people this decade, the government said. To help bridge the manpower gap, the government and industry — including EDF, BAE Systems Plc and Rolls Royce — are committing £763 million to boost apprenticeships and skills training.

“We are delivering the biggest expansion to nuclear power in 70 years and need a homegrown pool of talent that will fuel our nuclear ambitions,” said Amanda Solloway, the minister for energy consumers and affordability. The government believes one choice place to find that talent is on the Tube. From February through April, the Victoria, Paddington and

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Charing Cross stations featured ads for the UK's Destination Nuclear portal: "Whatever you do, you can do nuclear." The intended audience was people open to changing jobs. A campaign this fall will target younger people through social media and maybe TV commercials, a Destination Nuclear spokeswoman said.

The website advertises more than 1,500 opportunities and says starting a career "is easier than you think." The roundabout paths taken by seven people — including a former National Health Service administrator and an ex-hospitality worker — serve as case studies. The industry is holding skills boot camps for mid-career professionals around the UK. Weekslong programs to train health physics monitors and project controls planners were underway in June, with sessions for aspiring welders scheduled for July

Sweden has six working reactors, and the government said it needs at least 10 more by 2045 to meet demand from the electrification of transportation and industries. That necessitates hiring tens of thousands of workers, said Carl Berglof, the nuclear power coordinator. "It would be strange for the educational system not to see the opportunities and address the issue," he said.

State-owned utility Vattenfall AB, which operates five reactors, retrains current employees and recruits from other industries known for major infrastructure projects, Chief Executive Officer Anna Borg said. It's also collaborating with schools and universities to increase awareness. Uppsala University, north of Stockholm, organizes free lunches where academics pitch courses and careers in atomic energy to students. Teachers also lobby colleagues in other departments to include the material in their courses, said Ane Hakansson, a professor of nuclear physics. Still, the nation only educates about 50 to 70 students a year specializing in nuclear engineering.

"It's a bottleneck," Hakansson said. "Some people say, 'Let's import workers from abroad,' but that won't be easy either as France, the UK and others have the same problem as us."

Bloomberg

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

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Inauguration of Europe's largest solar power plant, Witznitz Energy Park, provides boost for grid stability

Europe's largest solar power plant was officially inaugurated today south of Leipzig. The Witznitz Energy Park, with an installed output of 650 MWp, is connected to the 50Hertz transmission grid. In a double first for a solar power plant, the facility injects electricity directly at extra-high voltage while also helping to maintain grid stability around the clock - even at night. Under the contract with project developer MOVE ON Energy, the solar plant's 3,500 inverters - equipped with additional software - supply reactive power, which 50Hertz's system management can draw on to stabilise voltage levels if necessary.

The Witznitz Energy Park has been built over the past two years on a former lignite mining site covering a total area of around 500 hectares in the municipalities of Neukieritzsch, Böhlen and Rötha near the Hainer See. A 380 kV overhead line runs along the edge of the site to the Lippendorf lignite-fired power plant via the Pulgar substation. The solar plant was connected to this line via a new substation constructed by MOVE ON. The Energy Park was built in multiple phases and has therefore been injecting electricity into the grid since December 2023, but has only been working at full capacity for the past few weeks.

Stefan Kapferer, CEO of 50Hertz: "In the early months of this year, renewables covered around 75% of electricity demand in eastern Germany and Hamburg. The Witznitz Energy Park has already contributed to this, showing that the expansion of solar power is now moving to a whole new level. 50Hertz is a pioneer in integrating renewables into the

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power grid. By activating reactive power and incorporating the solar plant into our congestion management, we're once again doing pioneering work to make as much electricity from renewable energies usable as the grid will allow."

For electricity to reach the consumer, reactive power is required as well as the actual active power. It acts as a kind of lubricant for transmission and is deployed to regulate individual grid sections depending on regional feed-in and offtake scenarios. Too much or too little reactive power has a destabilising effect on the standardised voltage. Up to now, the generators at large power plants have supplied reactive power when generating electricity, but it could also be requested by system management teams at transmission system operators (TSOs). The Witznitz Energy Park will provide approximately 150 Mvar of reactive power, partially replacing the reactive power supplied by the neighbouring Lippendorf lignite-fired power plant (2 x 400 Mvar). This power can be activated even when the solar plant inverters do not convert direct current into alternating current and inject it into the grid. Instead, the power electronics built into the inverters will be supplied with electricity from the transmission grid to generate the reactive power. All this makes the Witznitz Energy Park a key pilot project for 50Hertz, and one from which other projects can benefit. As of 2026, an EU Directive on the internal electricity market will require TSOs to procure reactive power on the market through a tendering procedure. In late June, Ruling Chamber 6 issued a final ruling on a procurement concept developed for this purpose by the Federal Network Agency (BNetzA).

50Hertz

<http://www.50hertz.com/>

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TenneT intelligent use of wind and cooling creates more transmission capacity

New sensors in the high-voltage lines will make it possible to measure the temperature and 'sag' of the lines. Using the weather data, the national grid operator can transmit more power than the lines are designed for in favourable weather conditions. These sensors have been installed on the 380 kV (kilovolt) link between Geertruidenberg and Eindhoven. This smart solution provides up to 30 per cent extra transmission capacity across the entire grid.

In recent years, we have gained experience with this technique, known as Dynamic Line Rating. Initially, it was applied to so-called 380 kilovolt power highways. This year it will be applied on a larger scale, also to 110 kilovolt networks. Throughout the country, special sensors are being installed on eight other connections, which will also enable dynamic operation of these connections in the high-voltage network. Earlier this year, sensors were installed on the high-voltage connections between Groningen and Meeden and between Diemen - Breukelen - Krimpen aan den IJssel, helping to increase the amount of sustainably generated energy available.

Every five minutes, sensors measure the sag and transmission capacity of the high-voltage line. Based on this data and weather forecasts, an IT platform developed by us determines how much additional power can be transmitted over the link, now up to 56 hours in advance. This creates additional space in the existing grid. Depending on the circumstances, this can be up to 30 percent more capacity than the existing capacity, without taking on more risk. Wind determines much of the additional cooling of the lines. For example, Dynamic Line Rating often creates extra capacity when a lot of power is generated by wind turbines.

The Dutch electricity grid is becoming increasingly congested and will therefore be significantly expanded in the coming years. Expanding and upgrading the infrastructure is costly and time-consuming. Grid operators are therefore applying other intelligent solutions

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to make more efficient use of the existing grid. In addition to Dynamic Line Rating, the 'flight lane' is also being used. This is where solar and wind farms are connected to the contingency reserve.

TenneT

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

5 July 2024

Nigeria: REA targets construction of 1,300 mini-grids nationwide, signs MoUs with five organisations

The Rural Electrification Agency (REA) yesterday signed separate Memoranda of Understanding (MoU) with five renewable energy-related organisations in its bid to ensure that the target of building at least 1,300 mini-grids in the coming years become a reality.

The companies operating in the renewables space with which the agency signed the deals were: Eauxwell Nigeria Limited, Skipper Nigeria Limited, Privida Energy, Havenhill Synergy Limited and Mercy Corps. Eauxwell will collaborate on the delivery of up to 250mw of Distributed Renewable Energy (DRE) projects, with the purpose of electrifying peri-urban and rural communities, including markets, businesses, households, public institutions, health clinics and schools. Also, the Skipper's deal involved the supply, installation & commissioning of off grid, on grid & hybrid solar solutions up to 250mw, while Privida is expected to deliver about 200mw of DRE projects in both weak grid and off-grid areas. In addition, Havenhill Synergy Limited, inked a deal for 250mw of projects.

On its part, Mercy Corps, a global Non-governmental Organisation (NGO), will provide capacity building and strengthen the Rural Electricity Users Cooperative Society (REUCS) as well as provide technical assistance for the Africa Mini-grid Programme (AMP). Speaking at the event, acting Managing Director of REA, Mr Abba Aliyu, said that the agency has set for itself a very ambitious target of ensuring that the renewables frontier is expanded in the country.

"We have a target of building 1,300 mini-grids across the country. And we are very deliberate in that we want to electrify 30 million Nigerians using isolated mini-grids, 1.5 million using interconnected mini-grids and about 15 million using Mesh grids and solar home systems. So this is a very tall order for us. And this is why we want to sign this MoUs," he stated. He explained that the partnerships were necessary to leverage and attract funding and investment to deploy as many mini-grids as possible to reach the utility scale capacity that the agency was hoping to see.

"But beyond, that also we want this signing of the MoU to be the basis also for you to design and deploy an effective sustainability plan for all the capacities that you are managing. "One of the challenges all the time as regards deploying and managing mini-grids is the sustainability of those projects. And that is why it's always at the top of our agenda. The MoU is not restricted to the community-based mini-grids," he stated. He said that it was not just enough to announce the building of mini-grids, stating that it was time to begin to evaluate the number of megawatts taken to Nigerian homes.

"We want to start counting our achievements not based on the number of mini-grids that we have developed, but based on the megawatts. And that's how ambitious we are," Aliyu pointed out. He stated that the aim was to create companies that would deploy and manage, utility-scale portfolio.

The REA MD added that rather than the concept of developers that will build mini-grids, there was the need for a business model change where the developers will see themselves as managers of large portfolio of capacities that they will deploy, manage and operate over a very long period of time. "And we've immediately selected companies that

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have track records. So these MoUs, a number of companies have put in their request for us to sign these MoUs with them, but we declined. We specifically have our checklist,” he pointed out. He stated that the main purpose of signing the MOU was to crystallise the drive to create the ecosystem of the renewable energy service company and move from just having developers that will come and build mini-grids and leave them. Also speaking, the Executive Director, Corporate Services of the REA, AbdulRasheed Adegboyega, expressed the commitment of the agency to ensuring that the planned projects come to fruition.

This Day Live

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

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Mexico Restores Electricity to Nearly 433,000 Affected by Hurricane Beryl

The Federal Electricity Commission (CFE), a company of the Mexican State, announced on Saturday that it completely restored service to the 432,992 users affected by the passage of Cyclone Beryl in the Yucatan Peninsula.

“The Federal Electricity Commission (CFE) reports that, with uninterrupted activities, it has managed to restore power to normal,” he said in a statement after 29 hours of the service interruption.

Customers represent 19% of the total of 2.2 million in the states of Campeche, Yucatán and Quintana Roo, the entity most affected by the cyclone.

Mexico feared the impact of Beryl, the first hurricane of the season and that has set an “alarming precedent” because a cyclone of maximum intensity in the Atlantic had never formed at this time of year, the World Meteorological Organization (WMO) warned on Tuesday.

teleSUR

<http://www.telesurenglish.net/>

8 July 2024

Texas Power Outages Top 2 Million as Beryl Pounds State

More than 2.5 million homes and businesses in Texas lost power after Hurricane Beryl made landfall in the state, bringing howling winds and driving rain that knocked out electric lines.

Most of the outages are in Houston and areas to the southeast that are close to where the storm made landfall shortly before 4 a.m. local time. The city is now facing tornado threats, wind gusts as high as 80 miles per hour (129 kilometers per hour), as much as eight inches (20 centimeters) of rain and flooding that has left some of major highways underwater.

More than 80% of those without power are customers of CenterPoint Energy Inc., according to PowerOutage.us. As recently as April, data from Whisker Labs Inc. showed that the utility operated the most stressed local power grid in the country. The company warned customers Monday that outages could last several days.

Bloomberg

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

9 July 2024

Texas restoration efforts underway after Hurricane Beryl leaves 2.7M customers without power

Hurricane Beryl hit the Texas coastline Monday morning as a Category 1 storm, killing several people, knocking out power to [2.7 million customers around Houston](#) and spawning tornadoes that caused more outages in Louisiana and Arkansas.

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CenterPoint Energy was hardest hit, with [more than 2.26 million electric customers losing power](#) at the storm's peak. The utility, which serves about 2.8 million customers, said it expects to [restore service to 1 million customers by the end of Wednesday](#).

Entergy Texas reported approximately [247,000 customers without power](#) on Monday evening. Southwestern Electric Power reported about [23,000 customers without power](#) in parts of Arkansas, Louisiana and Texas.

CenterPoint is making progress on power restoration, but its estimates mean about 1 million customers could remain without power after Wednesday as temperatures in the Houston area are expected to reach the mid-90s.

CenterPoint filed a system resiliency plan with Texas regulators in April, laying out a plan to spend more than \$1.4 billion on system hardening efforts from 2025-2027, including tower and pole upgrades, coastal resiliency and voltage conversion projects. Over the past five years, it has spent nearly \$1.5 billion in capital expenditures on resilience-related projects, according to the application.

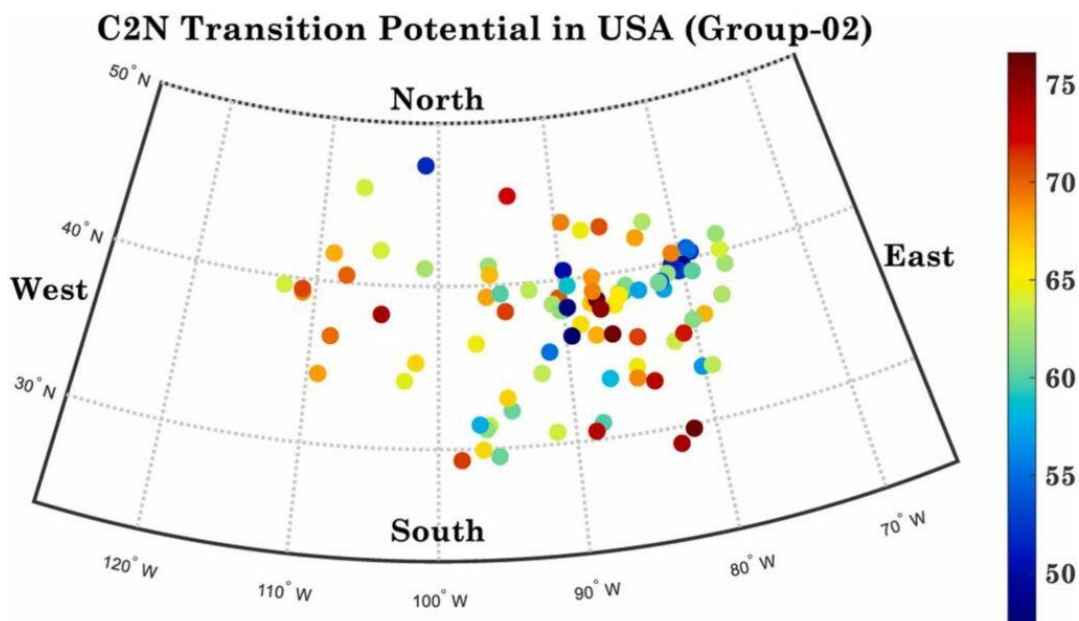
Utility Dive

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

9 July 2024

Pinpointing coal plants to convert to nuclear energy, considering both practicality and community support

The most comprehensive coal-to-nuclear analysis to date could help policymakers and utilities plan how to meet climate targets.



The color-coded scatterplot shows the feasibility of coal-to-nuclear transitions at larger coal plants, more than 1,000 megawatts electric, across the U.S., plotted by latitude and longitude. Red and warm colors represent high feasibility, transitioning through green to dark blue as the lowest feasibility. Image credit: Md Rafiul Abdussami, Fastest Path to Zero, University of Michigan

An assessment ranks the feasibility of converting 245 operational coal power plants in the U.S. into advanced nuclear reactors, providing valuable insights for policymakers and utilities to meet decarbonization goals, according to a new study by University of Michigan researchers.

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The R M Schahfer coal plant in Indiana emerged as the most feasible smaller electric capacity site, generating 1,000 megawatts electric (MWe) or less, while the AES Petersburg plant in Indiana was top-ranked among the larger electric capacity sites, having generation capacity greater than 1,000 MWe.

“With no new coal plants planned and many utilities aiming to retire all coal power plants within 15 years in the U.S., transitioning to cleaner energy sources is crucial,” said Md Rafiul Abdussami, a doctoral student of nuclear engineering and radiological sciences at U-M and corresponding author of the study published in Energy Reports.

In 2022, coal plants in the U.S. accounted for 20% of energy generation and 55% of power sector CO2 emissions. Nuclear power can generate the same stable base load of energy as coal but with zero carbon emissions.

Rather than establishing new sites, transitioning operational coal plants to nuclear plants can save time and money by using existing equipment like transmission lines and power system components. Surrounding communities also stand to benefit from the transition, retaining jobs and tax bases as coal plants are phased out.

To address the intricate interplay of socio-technical and economic factors when selecting sites to repurpose coal plants, the researchers used a tool called [Siting Tool for Advances Nuclear Development](#). This tool allows users to optimize socioeconomic factors, safety and proximity—for instance, nearby population, transportation infrastructure—while selecting feasible locations.

The tool’s ability to evaluate multiple sites simultaneously while balancing a suite of objectives offers a more scalable and robust analysis than previous studies, which focused on a few specific plants.

Results revealed a broad spectrum of suitability levels and tradeoffs across different locations, highlighting both the feasibility and complexity of transitioning from coal to nuclear capacity. For the smaller electric capacity group, the feasibility score ranged from 51.52 to 84.31 out of 100 with a median of 66.53. The larger electric capacity group ranged in feasibility scores from 47.29 to 76.92 with a median of 63.97.

Regional attributes like energy prices and nuclear policies strongly influenced suitability.

University of Michigan
<http://news.umich.edu/>

10 July 2024

ENTSO-E Research, Development & Innovation Roadmap 2024-2034

ENTSO-E is pleased to present the latest Research, Development, and Innovation (RDI) Roadmap 2024-2034. This strategic document outlines the crucial steps needed to transform Europe’s energy system into a sustainable, flexible, digitalised powerhouse, aligning with the EU’s climate and energy objectives.

The path towards a low-carbon energy system has provided over the past years clear long-term objectives for investment and technology developments to build a more sustainable and resilient power system.

As we enter this new European mandate, we look forward to a renewed European strategic agenda to drive forward the transformation of our energy sector towards the objective to continuing working towards a more affordable, secure and sustainable energy for Europe.

The latest RDI Roadmap for 2024-2034 sets out a decade-long mission to overcome the current challenges faced by the sector and strive for a power system for a carbon-neutral Europe. The Roadmap outlines key research, development and innovation priorities for modernising the power grid over the next 10 years including three RDI clusters and six

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missions with more than 90 milestones to drive the evolution of the energy system. Each milestone represents a key achievement needed to keep the power system secure, adequate and cost efficient while facilitating the further integration of variable and distributed energy sources.

The final publication is [here](#).

ENTSO-E

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

10 July 2024

FERC accepts ISO-NE's longer-term transmission planning changes

New approaches that give the New England states greater control in achieving their energy and environmental policies and goals are now included in ISO New England's longer-term transmission planning process.

On July 9, the Federal Energy Regulatory Commission (FERC) [accepted](#) the [second phase of ISO New England's Longer Term Transmission Planning \(LTTP\) tariff changes](#). The changes create a new process that will operate in addition to current transmission planning protocols.

The process will allow the region to implement transmission system upgrades based on the results of longer-term transmission studies such as the recent [2050 Transmission Study](#). The rules provide an avenue for the states to evaluate and finance transmission upgrades needed to ensure a reliable grid throughout the clean energy transition. At the request of the New England States Committee on Electricity (NESCOE), the ISO will issue and evaluate requests for proposals (RFPs) to address needs identified by the states. In addition, the ISO will provide technical assistance to the states in support of their procurements and efforts to secure federal funding for transmission investments.

Evaluation metrics include cost-saving regional benefits, project costs, urgency of need, environmental impact, siting, and other factors. Since larger transmission projects can help transfer power from larger renewable resources in rural areas to more densely populated areas, these projects may offset the need for new generating resources in urban and suburban locations. Methods to measure such benefits are included in the evaluation process.

Many elements of LTTP Phase 2 are aligned with FERC's recent [Order 1920](#), which also addresses future regional transmission planning. The ISO expects to begin discussions on this order later in 2024, and will continue to work with states and other stakeholders to ensure the region's transmission system maintains its current high standard of reliability.

ISO-NE

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

10 July 2024

10 Northeastern states agree to collaborate on interregional transmission development

The memorandum of understanding sets a framework for planning "robust interregional transmission infrastructure" but specifies each state is responsible for its own costs. Ten Northeast states on Tuesday announced a first-of-its-kind [memorandum of understanding](#) to work jointly on the planning and development of "robust interregional transmission infrastructure." The states, stretching from Maine to Maryland, will seek "[mutually beneficial opportunities](#) to increase the flow of electricity between three different planning regions in the Northeast and assess offshore wind infrastructure needs and solutions," they said in a joint press release.

The states agreed to share technical data, solicitation guidance, regulatory updates, strategic plans, project status reports, research findings and more. The MOU does not

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include cost-sharing provisions, and specifies that all states are responsible for their own costs. The multi-state group has been working with the U.S. Department of Energy for the past year to develop the structure and scope of the agreement, according to the states' announcement.

The MOU was signed by Connecticut, Delaware, Maine, Maryland, Massachusetts, New Hampshire, New Jersey, New York, Rhode Island, and Vermont.

States in the region have set aggressive goals for developing offshore wind resources, looking to decarbonize electric grids while savings consumers money. Massachusetts, Connecticut and Rhode Island jointly deploying 9 GW of offshore wind by 2030 could save ratepayers in the region \$630 million a year on average.

Massachusetts has led efforts to collaborate on regional energy systems. In 2023 the state [requested](#) DOE convene and lead the first-in-the-nation 10-state collaborative. And in June, a coalition of New England states [submitted an application](#) to DOE's Grid Innovation Program to support the Power Up New England project. In conjunction with New York, those states submitted another application for the Clean Resilience Link project to increase transfer capacity between the two regions by up to 1,000 MW.

The Grid Innovation Program is managed through DOE's \$10.5 billion Grid Resilience and Innovation Partnerships program. Awards are capped at \$250 million unless projects have a significant transmission investment, in which case they can receive up to \$1 billion. Both New England projects would qualify for higher investment levels, the states said.

Utility Dive

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

11 July 2024

Crypto miners stole \$723M of electricity in Malaysia since 2018: Report

Malaysia's Deputy Minister of Energy Transition and Water Transformation revealed the number during an event where they disposed of over 2,000 machines seized in an operation. Illegal crypto mining operators in Malaysia stole \$723 million worth of electricity between 2018 and 2023, according to Malaysia's deputy minister for energy and water.

Deputy Minister of Energy Transition and Water Transformation Akmal Nasrullah Mohd Nasir made the comment during an event that saw the disposal of 2,022 seized items worth around \$467,000, including Bitcoin mining machines and electrical equipment, according to a [report](#) by Malay Mail. Nasir said these illegal [mining operations](#) are harming not only Malaysia's state-controlled power operator Tenaga Nasional Berhad, but also locals in affected areas.

Electricity thieves typically avoid registering with the appropriate authorities and find ways to bypass electricity meters or divert electricity from power lines. "The theft of electricity by those who mine cryptocurrency occurs because they believe this activity cannot be detected due to the absence of meters on their premises," Nasir said.

"However, energy supply companies have various methods to detect unusual energy consumption in an area," he added in explaining how Malaysian officials were able to [seize over 2,000](#) items in an operation in October 2022.

[Mining cryptocurrency](#) isn't illegal in the country but the act of stealing electricity to mine is, Malaysia's Universiti Teknologi MARA [explained](#) in December 2022.

Malaysian officials have been seizing cryptocurrency miners since [at least August, 2019](#), a procedure which Nasir says is carried out in accordance with the country's criminal procedure laws.

Cointelegraph

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