

# **WORLD POWER SYSTEMS REVIEW**

**1 April 2024**

**17 March 2024**

## **China starts \$3.9 billion Power Transmission and Storage Project**

China's largest utility has started construction on a 28 billion-yuan (\$3.9 billion) project to transmit electricity across three provinces and store it in mountain reservoirs as the country integrates growing amounts of intermittent renewable energy.

The project includes a 1,069-kilometer (664-mile) ultra-high-voltage power line from northern Shaanxi province to the outskirts of Hefei, a city of almost 10 million in eastern China, state-run Beijing Youth Daily reported. Near its terminus it will be connected to a 1.2 gigawatt pumped hydro station that uses reservoirs at different heights on mountains to store energy through gravity and water.

The power line will be fed by solar and wind power, with coal generators acting as backup. China installed record amounts of solar panels and wind turbines last year, and as their share grows local grids are struggling to handle the increasing amount of intermittent generation.

*BNN Bloomberg*

<http://www.bnnbloomberg.ca/>

**18 March 2024**

## **EDPR brings solar farm on stream in Portugal, its largest in Europe**

EDP Renovaveis, opens new tab, the world's fourth-largest renewable energy producer, has brought on stream a 202-megawatt (MW) solar energy park in central Portugal, its largest in Europe, its controlling company EDP, opens new tab said on Monday. The Cerca project in the municipalities of Alenquer and Azambuja, north of Lisbon, has more than 310,000 solar panels and will have an estimated annual production of 330 gigawatt-hours (GWh), enough to supply 100,000 families, or approximately 1% of Portugal's population.

EDP-Energias de Portugal said in a statement that EDP Renovaveis now has an installed solar capacity of 540 MW in the country and "intends to put into operation another 1 GW of renewable energy in Portugal by 2026". "At EDP, we are looking at dozens of new solar projects that will make an important contribution to the path" of the energy transition, said Duarte Bello, executive board member at EDP Renovaveis for Europe and Latin America. The company has increasingly invested in the development of solar projects at a global level, including large-scale but also small decentralized solar energy plants, and aims to channel half of its global investment by 2026 into solar power.

The company has 4.3 GW of total installed solar capacity, including large-scale projects - in particular three farms of around 200 MW capacity, in Brazil, Mexico and Vietnam.

*Reuters*

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

**19 March 2024**

## **Ember: Europe's transmission grids put energy transition at risk**

A new [study](#) from UK energy think tank Ember has found that in several countries the transmission grid plans are out of step with national plans.

With this comes the risk that grid investments may be insufficient to deliver on the 2030 energy security and climate targets and need to be urgently addressed given the longer timescales of grid developments compared with clean technologies. The analysis was based on the national grid development plans of 35 countries, including the EU-27, Norway, Switzerland, the UK and the Western Balkans. Among the findings is that the grid

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plans of seven countries – Bulgaria, Greece, Ireland, Lithuania, Norway, Portugal, Romania – are based on lower wind and solar deployments than national targets, while those of a further six countries – Czechia, Denmark, France, Hungary, Luxembourg, Poland – are based on either lower wind or solar. Of these solar tends to be more affected, with its capacity underestimated by a total of 60GW across the 11 identified countries and wind by 27GW. Conversely, in four countries – Croatia, Denmark, Finland, and the Netherlands – the plans are based on scenarios with higher capacities for wind and solar, ranging from 50% higher for Denmark to 200% higher for Finland and totaling 81GW. Another finding is that in 19 out of 23 national grid plans examined, the deployment of solar expected under SolarPower Europe's business-as-usual scenario is undershot by a total of 205GW by 2030, while in ten out of 31 plans wind is underestimated by a total of 17GW.

These discrepancies imply grid congestion may worsen in the short-term as grids are ill-equipped to manage the rapidly growing renewable fleet, the report states. A third key finding is that spending on grids today in EU member states reaches approximately €63 billion (\$68 billion), with an average of €28 billion per year earmarked for transmission grids and €35 billion invested in distribution grids in 2022. This spending surpasses the European Commission's REPowerEU estimate for annual grid investment of €58.4 billion until 2030 by at least €5 billion. Furthermore, investment in national transmission systems will likely need to be augmented to make them 'fit for purpose' in those countries where the grid plans lag behind existing energy policy. Commenting on the findings, Elisabeth Cremona, Energy & Climate Data Analyst at Ember, says there is no transition without transmission.

"We can't afford to overlook grids. They risk holding Europe's supercharged energy transition back if plans aren't updated. Making sure solar and wind can actually connect to the system is as critical as the panels and turbines themselves." Among other findings of the analysis is that European countries are planning to add over 25,000km of internal transmission lines between now and 2026. This corresponds to an increase of over 5% and would bring the total length to approximately 523,000km by the end of 2026. Moreover, that accelerating network expansion is feasible is illustrated in the plans of ten TSOs. In particular, Energinet plans to expand its 7,440km grid by 3,300km by 2026, corresponding to an annual growth of 7.6% – over double the average growth since 2015.

Non-wires solutions – also known as 'grid enhancing technologies' in the US – in particular dynamic line rating and local flexibility also are being increasingly adopted by TSOs to increase the grid capacity as an alternative to new or upgraded infrastructure. A further finding is the emergence of hydrogen in grid planning and the need for integrating both the demand and supply sides and coordination with the gas TSOs. For example, strategic deployment of electrolyser plants could reduce bottlenecks in the electricity transmission grid and lower the need for grid expansion but is contingent on proximity to the existing natural gas network or planned hydrogen network. To prepare the grid for the clean energy transition the report recommends political prioritization of the grids, revision of regulatory frameworks to allow timely planning and investment and increased oversight and scrutiny of network plans along with enhanced reporting by TSOs on for example grid connection queues, available grid capacity and planned investments. Placing clean power at the core of grid planning also would enable anticipatory investments.

*Smart Energy*

<http://www.smart-energy.com/>

**20 March 2024**

## **Engie powers up 139-MW/638-MWh battery in Chile**

French electric utility Engie SA on Monday announced the commercial start-up of the 139-MW/638-MWh BESS Coya in Chile, described as Latin America's largest battery energy

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storage system so far. The company said it has secured approval from the National Electricity Coordinator (CEN) to begin commercial operation of the lithium-ion battery system, which will store energy from the 180-MW Coya solar power plant in the Antofagasta region. Consisting of 232 modules, BESS Coya can store the equivalent of five hours of electricity and release it to the grid during peak periods, delivering 200 GWh on average per year, says the announcement.

The provision of the batteries for the project was awarded to China's Sungrow Power Supply Co Lt. Engie said the project is in line with its ambition to accelerate the development of battery storage, targeting 10 GW of installed capacity by 2030. At the end of 2023, the company had 1.3 GW of battery capacity in operation globally and 3.6 GW secured under development. Engie Chile recently started construction of its fourth battery energy storage system, at its 88-MW Capricornio solar farm in the region of Antofagasta.

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

**21 March 2024**

## **Google, Microsoft and Nucor team up on clean energy development**

North American steel manufacturer Nucor Corporation and US tech giants Google and Microsoft Corporation are to work together across the electricity ecosystem to develop new business models and aggregate their demand for advanced clean electricity technologies, including advanced nuclear.

These models, they say, will be designed to accelerate the development of first-of-a-kind and early commercial projects, including advanced nuclear, next-generation geothermal, clean hydrogen, long-duration energy storage and others. As a first step, the companies will issue a Request for Information in several US regions for potential projects in need of offtake, and encourage technology providers, developers, investors, utilities and others to get involved.

By developing new commercial structures and aggregating demand from three of the world's largest energy buyers, this approach aims to reduce the risks for utilities and developers considering early commercial projects and enable the investments that are needed - ultimately helping to bring these projects online by the early 2030s and reducing technology costs through repeated deployment. The companies will initially focus on proving out the demand aggregation and procurement model through advanced technology pilot projects in the USA. The companies will pilot a project delivery framework focused on three enabling levers for early commercial projects: signing offtake agreements for technologies that are still early on the cost curve; bringing a clear customer voice to policymakers and other stakeholders on broader long-term ecosystem improvements; and developing new enabling tariff structures in partnership with energy providers and utilities.

In addition to supporting innovative technologies that can help decarbonise electricity systems worldwide, the partners say this demand aggregation model will bring clear benefits to large energy buyers. Pooling demand enables buyers to offtake larger volumes of carbon-free electricity from a portfolio of plants, reducing project-specific development risk, and enables procurement efficiencies and shared learnings. To ensure that the project delivery framework that they develop is transparent and scalable, Google, Microsoft and Nucor will share their lessons learned and the roadmap from their first pilot projects, and encourage other companies to consider how they can also support advanced clean electricity projects. In May last year, Nucor signed a memorandum of understanding with NuScale Power to explore the deployment of NuScale's VOYGR small modular nuclear reactor (SMR) power plants at Nucor's scrap-based Electric Arc Furnace (EAF) steel mills. In addition, NuScale is studying the feasibility of siting a manufacturing facility for NuScale Power Modules near

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a Nucor facility. In April 2022, Nucor - with operating facilities in the USA, Canada and Mexico - committed to a USD15 million private investment in public equity in NuScale Power.

In 2022, Constellation Energy announced it was collaborating with Microsoft on the development of an energy matching technology using real-time, data-driven carbon accounting solution and hour-by-hour regional tracking to match customer needs with local carbon-free energy sources. Last year, Microsoft agreed a new hourly energy-matching agreement with Constellation that harnesses the environmental attributes of nuclear to put the data centre in Boydton, Virginia "very close" to the goal of 100% carbon-free operation. Microsoft has also signed an agreement with fusion energy developer Helion Energy for the provision of electricity from its first fusion power plant.

*World Nuclear News*

<http://www.world-nuclear-news.org/>

**21 March 2024**

## **Mahindra and Adani Total Gas to develop EV charging infrastructure in India**

Indian automotive manufacturer Mahindra & Mahindra (M&M) has signed an MOU with city gas distribution company Adani Total Gas' (ATGL) subsidiary, Adani Total Energies E-Mobility (ATEL), on Thursday. The company statement, as reported by CNBC, indicates that the partnership is focused on expediting the uptake of EVs in India and detailing a plan for establishing a widespread EV charging network throughout the country.

The collaboration will also introduce e-mobility solutions to offer customers easy access to the charging network, including discovery, availability, navigation and transactions. Mahindra XUV400 owners will gain access to more than 1,100 chargers via the Bluesense+ app, which will significantly improve the convenience and accessibility of charging for Mahindra EV owners. "This alliance is a cornerstone in enhancing the EV charging infrastructure, ensuring our customers enjoy seamless access to the charging network and digital integration for an unparalleled EV experience," said Veejay Nakra, president of the automotive division at M&M.

Suresh P Manglani, executive director & CEO of Adani Total Gas, expressed his confidence in the collaboration with M&M, stating that it will not only "bolster the confidence of customers to embrace EV technology" but also underscore the commitment of both companies to the energy transition. According to an International Energy Agency (IEA) report, India's efforts to speed up its energy transition will result in significant oil savings in the forecast period. The increased adoption of EVs is expected to play a crucial role in decarbonizing the transportation sector.

*Power Technology*

<http://www.power-technology.com/>

**21 March 2024**

## **Industry ready to help deliver governmental nuclear ambitions**

The Nuclear Energy Summit - hosted by the International Atomic Energy Agency (IAEA) and the Belgium government - is the highest-level meeting to date exclusively focused on nuclear energy, bringing together heads of state and ministers from around 30 countries, as well as industry leaders and other stakeholders.

This event builds on the unprecedented support shown for nuclear energy at COP28 in Dubai, where governments and the nuclear industry pledged to triple global nuclear energy capacity by 2050, and nuclear energy was included in the first global stocktake (the process for countries and stakeholders to chart progress towards meeting the goals of the 2015 Paris Agreement). The full text of the industry statement - jointly issued by the Canadian Nuclear Association, the Japan Atomic Industrial Forum, the Korea Atomic

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Industrial Forum, the USA's Nuclear Energy Institute, Nucleareurope, the UK's Nuclear Industry Association and World Nuclear Association - is as follows:

"We applaud the convening of the first ever summit of heads of state on nuclear energy by the Prime Minister of Belgium and the Director General of the IAEA, and we welcome the commitment of the national leaders assembled to the development and deployment of nuclear energy to fight climate change, provide energy security, and drive sustainable economic development. We stand ready to work alongside governments to deliver the required nuclear capacity to meet the challenges ahead of us.

Nuclear energy makes a unique and irreplaceable contribution to our global energy needs with:

- Always-on, clean, reliable, and affordable energy for electricity production and to decarbonise hard to abate sectors to achieve the goals of the Paris Agreement.
- Low-carbon electricity with a high energy density on a compact footprint, thereby reducing habitat and biodiversity loss.
- Long asset life to ensure clean energy production for decades to come, thereby reducing utilization of critical minerals.
- High-quality long-term jobs that drive economic growth.
- Energy security against geopolitical, economic, and social challenges.

We note the unprecedented support shown at COP28 for nuclear energy through government and industry declarations to triple nuclear energy worldwide by 2050 and nuclear energy's inclusion in the first global stocktake. This expansion is necessary to achieve climate and energy security goals and will require substantial investments across industry in new projects, new capabilities, and a new skilled workforce.

The global nuclear industry is committed to supporting these objectives through the continued operation of the existing nuclear energy facilities and construction of new facilities, as well as the development of infrastructure and related technologies.

However, for industry to do its part to deliver on these ambitions, governments must:

- Establish the right conditions through consistent and coherent long-term policies that facilitate fleet deployment of nuclear technologies,
- Provide clarity to investors on the funding and investment recovery mechanisms available for nuclear projects,
- Ensure ready access to national and international climate finance mechanisms for nuclear development,
- Ensure that multilateral financial institutions include nuclear energy in their investment portfolios, and
- Clearly and unambiguously label nuclear energy and the associated fuel cycle as a sustainable investment.
- Promote development of the supply chain commensurate with expansion targets and continue investment in nuclear research.

A robust and durable policy framework provides the best possible blueprint for de-risking investments in nuclear energy, reducing costs and accelerating deployment. With this certainty, the nuclear industry can invest in the people, capability and infrastructure needed to execute the ambitious target set out by the governments present today.

The industry stands ready to work in close partnership with governments to unlock the potential of nuclear energy and innovation, while ensuring nuclear safety and security, through commercially driven expansion, and realize the full potential of nuclear technology for our economies, our societies, and our planet.

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

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## **Terna to invest €16.5bn to strengthen electricity network in Italy**

Italian power grid company Terna has announced plans to invest €16.5bn over the next five years to support Italy's integration of renewable energy sources.

In comparison with a prior strategy, this will represent a 65% surge in capital investment in the group's 2024–28 plan, which was drafted by new CEO Giuseppina Di Foggia. In 2024, the company plans to invest around €2.6bn. The investment will also be used to enhance digitalisation and flexibility of the national power network. Di Foggia also revealed that the company is considering the possibility of buying distribution assets. This follows new regulations incentivising power distributors to divest certain assets that could bolster Terna's transmission operations.

She also mentioned that preliminary assessments are under way, aligning with media reports that Terna might allocate €1.5bn to acquire distribution assets from other Italian utilities. The company stated that investments are needed to strengthen grid resilience by integrating digital and technological solutions, to withstand extreme weather events. These can ensure efficient management of the network while assuring electricity supply and its quality. Terna's industrial plan also outlines a target to increase its adjusted core earnings significantly.

It projects an average annual growth of more than 8%, leading to earnings before interest, taxes, depreciation and amortisation (EBITDA) of €3.25bn in 2028, a substantial rise from €2.17bn recorded last year. These financial goals are set against the backdrop of Italy's draft energy and climate plan (PNIEC), which aims for 65% of electricity to be generated from renewable sources by 2030. This includes a phase-out of coal by 2028 and a reduction in gas-fired power stations.

The company's strategy also includes several key projects to accommodate the surge in renewable energy, which is predominantly intermittent and derived from diverse locations. Notable projects include the Tyrrhenian Link, a submarine cable connecting Sicily with Campania and Sardinia; the Adriatic Link; and Elmed, an international interconnection between Italy and Tunisia. Last month, Terna secured authorisation from Italy's Ministry of Environment and Energy Security for its Adriatic Link submarine power line connecting the regions of Le Marche and Abruzzo. The project is part of the PNIEC and plays a role in the strategic development of Italy's energy infrastructure.

*Smart Energy*  
<http://www.smart-energy.com/>

**25 March 2024**

## **TÜV SÜD grants Nordex DIBt approval for an internally developed 179-meter hybrid tower for the N175/6.X wind turbine**

Development of the N175/6.X, Nordex's latest wind turbine, and its first planned tower variants is progressing as planned. Throughout this year, the Nordex group will install in Germany the first two highly efficient wind turbines of this type of the Delta4000 series with different hub heights. Two tower concepts will be used here: a 112-meter steel tube tower and a hybrid concrete-steel tower developed internally by Nordex with a hub height of 179 meters.

At the end of 2023, Nordex already obtained the first DIBt approval of the N175/6.X for the 112-meter tubular steel tower from TÜV SÜD. Now TÜV SÜD has issued type approval for the new 179-meter hybrid tower developed in-house by Nordex. This certificate is an important prerequisite in terms of construction permits in Germany to be able to install

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the N175/6.X on a 179-meter hybrid tower. The certificate was presented on March 20, 2024 at the Nordex booth at the WindEurope conference in Bilbao, Spain.

Karsten Brüggemann, Vice President of the Central Region of the Nordex Group: “Germany is one of the target markets for the 179-meter tower. With a rotor diameter of 175 meters and an installed capacity of more than 6 MW, the N175/6.X turbine, in combination with this tall hybrid tower, makes it possible to considerably increase energy production, especially in places with little wind and remote areas. of the coast.”

Stephan Mayer, Head of Onshore and Offshore Support Structures at TÜV SÜD Industrie Service GmbH: “The successful type approval is an independent confirmation that the requirements of the DIBt directive for wind turbines have been met. Especially in innovative developments such as the new Nordex hybrid tower, the 4-eye principle is a key element to ensure safety and reliability.”

In November 2023, the Nordex Group installed the first turbines of the N175/6.X’s sister model, the N163/5.X, on in-house developed hybrid towers. With a hub height of 168 meters, this hybrid tower variant is similar in construction to the 179-meter hybrid tower planned in Germany. The hybrid tower developed by Nordex is based on many years of experience in the design and production of concrete towers. This is a proven concrete tower technology that Nordex has been using for over 15 years. Currently, more than 2,500 concrete towers are already successfully used.

A hybrid tower consists of convex metal segments up to 20 meters long, assembled on site and tensioned before the steel sections, nacelle and rotor are installed on them. The Group has installed around 50 GW of wind energy capacity in more than 40 markets throughout its corporate history and generated consolidated sales of around €6.5 billion in 2023. The company currently has more than 10,000 employees. The Group’s manufacturing network includes factories in Germany, Spain, Brazil, India, USA (suspended) and Mexico. Its product portfolio focuses on onshore turbines in the 4 to 6 MW+ classes that are designed to meet the market requirements of countries with limited available space and regions with limited grid capacity.

*evwind*

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

**27 March 2024**

## **RWE shuts down five power plant units amid coal phase-out**

Germany energy major RWE will permanently shut down five power plant units in the Rhenish mining area in Germany by the end of this month, the company announced on Tuesday. A total of 2.1GW of lignite capacity will be decommissioned as the company moves forward with its plans to phase out coal-fired power in its energy mix by 2030. Lignite is a type of low-grade coal used primarily in the production of electricity in power plants.

The units that will close are located at the Grevenbroich-Neurath and Bergheim-Niederaussem sites in the Rhineland. The German Government had temporarily extended their operating life to boost power supplies in the country during the European energy crisis in 2022, but the relative recovery of the continent’s gas market has removed the need for backup supply, RWE said in a press statement.

As part of its decarbonisation plans, RWE has decommissioned 12 lignite-fired power plant units with a total combined output of 4.2GW since the end of 2020. Production of briquette – compressed coal dust or peat used as fuel – was discontinued at the end of 2022, taking 120MW of fossil fuel capacity off Germany’s grid.

RWE Power CEO Frank Weigand said: “In addition to the reliable operation of our remaining power plant units, our work in the coming years will continue to focus on preparing for the coal phase-out and final recultivation.”

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RWE added that by the end of this year, the 300MW Block F unit at the Weisweiler power plant will be shut down. This will bring the number of operational coal units in the area down from 20 to seven by 2025. Lignite capacity in the Rhineland will then only amount to around half of the original total power plant capacity. Further closures are planned over the next few years, the company said.

The energy major has recently made several significant pledges to increase investment in renewable energy sources. In November, the company announced that it will invest €55bn (\$60.42bn) in green energy projects across the world between 2024 and 2030. It also set a target to expand its green portfolio from the existing 35GW attained since 2021 to more than 65GW by 2030. In Germany, the company has plans to invest up to €11bn in renewables including offshore and onshore wind power, solar, storage, flexible backup capacities and hydrogen by the end of the decade.

Power Technology

<http://www.power-technology.com/>

27 March 2024

## Construction of the first wind power plant in Kyrgyzstan will begin in 2025

Rosatom will be ready to start the construction of a wind farm in Kyrgyzstan in the first quarter of 2025. This was announced by the general director of the Rosatom office in Kyrgyzstan, Dmitry Konstantinov, within the framework of the XIII ATOMEXPO Forum.



According to him, the cooperation agreement signed today for the construction of renewable energy facilities is a continuation of the work started previously. To date, Rosatom is already implementing a pilot project for the construction of a wind power plant with a capacity of 100 megawatts in the Issyk-Kul region. «The facility is located in the Ton district, Kok-Moinok-1. Reconnaissance activities were carried out and a wind measurement mast was installed. By the end of the year, Rosatom will complete the design documentation. And from the beginning of 2025 we will be ready to start construction work,” said Dmitri Konstantinov.

The 1GW agreement is a continuation of this work. Rosatom has sites in the Batken region where it plans to build a station of up to 80 megawatts. There is also a site in the Naryn region. «Kyrgyzstan is not the windiest country. But there is still wind. We are ready to build renewable energy facilities here. It is important to note that Kyrgyzstan has an electricity shortage. We need projects here and now. And wind and solar projects are fast. They have the least impact on the environment. They have their own characteristics, so



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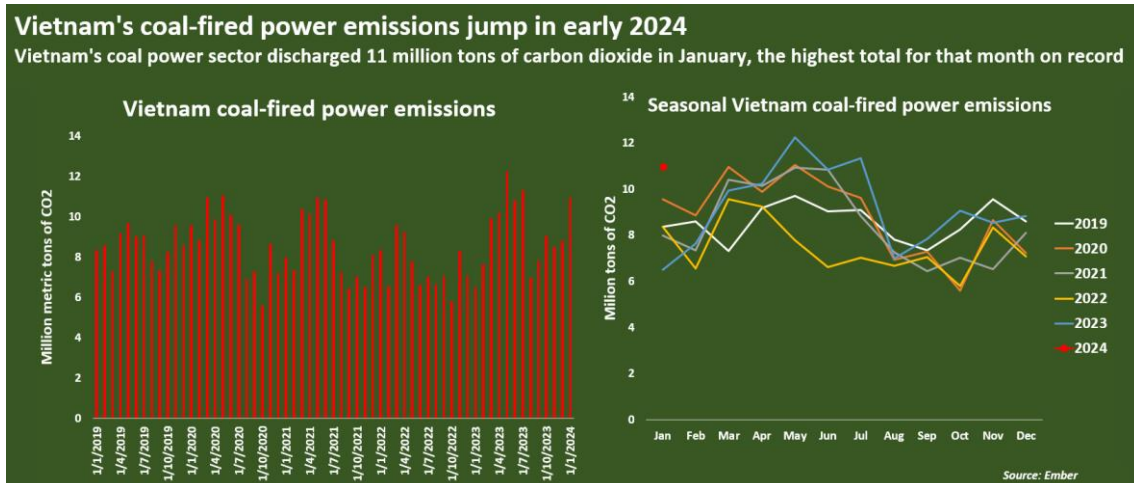
these projects are a complement, but not the basis of the energy system. The basis is thermal, nuclear and gaseous energy. You still need to work on the foundation. That is why we are also working with the Ministry of Energy of the Kyrgyz Republic on a nuclear power plant project. Kyrgyzstan needs this project,” concluded Dmitri Konstantinov.

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

28 March 2024

## Vietnam coal-fired power emissions hit new highs in early 2024

Carbon dioxide emissions from Vietnam's coal-fired power plants jumped to a new high for the first month of the year in 2024 as the country's power producers cranked output to avert a repeat of power outages seen last year. Vietnam has nearly doubled imports of thermal coal so far this year from the same period in 2023 as the government strives to reassure foreign businesses and investors that power supplies will remain uninterrupted in 2024.



The surge in coal purchases by the world's 10th largest coal consumer suggests coal-fired emissions may climb higher still in the months ahead, undermining global efforts to cut back on fossil fuel use and pollution.

January's coal-fired emissions tally of 11 million metric tons of CO<sub>2</sub> and equivalent gases is the highest on record for that month, data from energy think tank Ember shows. The January total is nearly 70% above the emissions load in the same month of 2023, and is roughly 30% above the January average for the past five years - indicating a clear break with the energy generation trends of previous years.

Coal-fired electricity generation was 12.75 terawatt hours (TWh) in January, 68% more than in January 2023 and the highest monthly total since last July. Coal produced 55% of the country's total electricity in January, up from an average of 46% in 2023 as a whole. Total electricity generation from all sources was 23.35 TWh, or 30% more than the same month in 2023.

The high coal-fired and overall generation totals indicate that Vietnam's power firms are clearly committed to raising output, likely in response to pressure from the government to avert the outages seen in 2023 that hurt output at several major factories and production lines. Recovering industrial activity in neighbouring China is also likely spurring Vietnam's power producers to raise production, as several key Vietnamese industries have strong ties to China and tend to see pickups in order flows whenever Chinese consumer demand rises. As Vietnam's annual power emissions historically peak around May and June when demand for air conditioning is highest, the surge in emissions at the start of the year suggests

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potential for additional emissions increases over the coming months and for full-year emissions tallies to smash previous records.

*Reuters*

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

**28 March 2024**

## **Biden administration will lend \$1.5B to restart Michigan nuclear power plant, a first in the US**

The federal government will provide a \$1.5 billion loan to restart a nuclear power plant in southwestern Michigan, officials announced Wednesday. Holtec International acquired the 800-megawatt Palisades plant in 2022 with plans to dismantle it. But now the emphasis is on restarting it by late 2025, following support from the state of Michigan and the Biden administration. Gov. Gretchen Whitmer said it would be the first nuclear power plant to be reopened in the U.S. It still faces hurdles, including inspections, testing and the blessing of the U.S. Nuclear Regulatory Commission, known as the NRC. “Nuclear power is our single largest source of carbon-free electricity, directly supporting 100,000 jobs across the country and hundreds of thousands more indirectly,” said Energy Secretary Jennifer Granholm, a former Michigan governor.

The Palisades plant is along Lake Michigan, a two-hour drive from Chicago. A Michigan utility, CMS Energy, owned it from 1971 until the plant was sold to Louisiana-based utility Entergy in 2007. It was shut down in 2022.

“The repowering of Palisades will restore safe, around-the-clock generation to hundreds of thousands of households, businesses and manufacturers,” said Kris Singh, Holtec president and chief executive. Critics, however, have emerged. A coalition opposed to restarting what it derisively calls a “zombie reactor” has requested a hearing at the NRC.

Holtec spokesman Patrick O’Brien said it will take four to five months to finalize the financial deal with the government. “It is a loan we have to pay back,” he said. Nuclear energy is in the spotlight. Thirty-four countries, including the U.S., last week pledged to use it to reduce reliance on fossil fuels. In California, regulators in December said the Diablo Canyon plant could operate through 2030 instead of 2025 to guard against blackouts as the state shifts toward renewable power sources. Owner Pacific Gas & Electric said federal aid helped it repay a state loan.

“There is more enthusiasm toward nuclear power — in Congress, in the industry and also internationally,” said Najmedin Meshkati, an engineering professor at the University of Southern California who has inspected nuclear plants around the world. But restarting a plant, he said, is not easy. “It puts the onus and burden on the Nuclear Regulatory Commission and Holtec to double down on efforts to make sure this plant is safe enough and all the safety measures are intact,” Meshkati said of Palisades.

*AP News*

<http://apnews.com/>

**29 March 2024**

## **AI and Quantum computing to drive data centre power**

This week, the UK National Grid predicted that the recent boom in artificial intelligence (AI) and quantum computing will drive a spike in energy use. Both technologies are relatively new and rely heavily on data centres, which consist of warehouses full of computer systems. The surge, according to National Grid Group CEO John Pettigrew, will cause data centre power usage in data centres to increase “six-fold” in the next ten years.

“Future growth in foundational technologies like artificial intelligence and quantum computing will mean larger scale, energy-intensive computing infrastructure,” he said in a

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recent LinkedIn post. “There will be an increasing shift towards heat pumps and electric vehicles and so, as we consider the increasing constraints on the current ‘supergrid’, we’re once again at a pivotal moment.

“A moment in time that requires innovative thinking and bold actions to create a transmission network for tomorrow’s future.”

Quantum computing is a rapidly-emerging technology that uses quantum mechanics to solve problems that are too complex for classical computers. They process data very differently to regular computers and can complete complex calculations very quickly. Whilst the use of quantum computing is still experimental, the technology has been hailed as a triumph within the digital transformation landscape as businesses like IBM for example will hopefully go on to use them to solve problems that do not exist yet.

As the technology continues to develop, these computers in the future could secure scientific breakthroughs and advance more secure methods of communication - something that is very important in a rapidly changing digital age. “Future growth in foundational technologies like AI and quantum computing will mean larger scale, energy-intensive computing infrastructure,” John comments. As this technology develops quickly, AI remains at the forefront of enterprise-leading transformation. AI technology can be incredibly positive for data centres, with its ability to improve data processing, security and storage.

However, as it has advanced so quickly, businesses continue to be very keen to invest in its potential. This has ultimately led to a huge surge in power demands for customers, causing data centres to re-evaluate their approach to sustainability. With data centres more power-hungry than ever before, companies risk struggling to make good on their sustainability pledges. In fact, the data centre industry already accounts for roughly 2% of global greenhouse gas emissions - a figure that is only expected to grow. Data centre operators are therefore under immense pressure to deliver on Net Zero emissions by 2050, in order to remain in line with global targets. In order to continue harnessing AI and quantum computing to its full potential, without draining the grid, industry leaders will need to deliver upgrades to current infrastructure to meet demand.

This will need to be achieved in a sustainable way by connecting to renewable energy sources moving forward. “Expanding the network incrementally inevitably means there will be limits on how much can be built, how quickly it can be built and where,” John says. “We are at a moment in time that requires innovative thinking and bold actions to create a transmission network for tomorrow’s future.”

*Data Centre Magazine*  
<http://datacentremagazine.com/>