# WORLD POWER SYSTEMS REVIEW 15 April 2025

## 1 April 2025

#### NESO to coordinate the delivery of energy data sharing infrastructure

Ofgem have asked the National Energy System Operator (NESO) to coordinate the delivery of the data sharing infrastructure for the energy sector until 2028. This is a significant step forward in the digitalisation of the energy sector, building on DESNZ's response to the Digital Spine Feasibility Study.

NESO are uniquely positioned to run the set up of the data sharing infrastructure. They have a holistic oversight of both electricity and gas networks and can ensure an integrated approach. As an independent, publicly owned body, NESO provides impartial expertise and will prioritise public interest and system-wide benefits.

The UK's electricity network is racing to incorporate the developments necessary to deliver power generated by renewable sources. This comes with a list of problems to solve. We need to make sure we don't overbuild and put too much strain on the network, manage intermittent sources to provide a reliable stream of energy to consumers, and ensure that suppliers can offer fair tariffs that pass savings onto consumers.

The integration of digital technologies will enable real-time decision making about how to manage the energy network in an intelligent, efficient, reliable, and sustainable way. For example:

- Smart Grids: Smart grid technologies provide real-time monitoring of the flow of energy through our system. For domestic consumers, smart meters help manage energy use more efficiently
- Internet of Things (IoT): IoT sensors and devices are being integrated across the grid to monitor equipment health, grid conditions, and environmental factors. This data helps improve grid management and predictive maintenance, reducing downtime during outages
- Digital Twins: Digital twins are virtual replicas of physical systems. They are used to simulate and analyse the performance of energy assets, enabling better decision making and fine-tuning processes
- Integration of Distributed Energy Resources (DERs): Advanced control systems to manage the integration of renewable energy sources, energy storage systems, and other distributed energy resources

Data Sharing Infrastructure: The processes, systems and governance structures that make data exchange across the energy sector secure and efficient

Data Sharing Infrastructure facilitates the digitisation of the UK energy system whilst making sure everything is safe and secure and runs efficiently. This will include:

- ensuring different systems and devices can communicate seamlessly; this is essential for integrating energy assets and technologies
- protecting sensitive data; employing robust security measures to safeguard data against unauthorized access and cyber threats
- standardising the format in which data is exchanged, making it easier to use across different platforms and applications
- establishing an effective governance structure for managing and operating the data sharing infrastructure; this includes defining roles and responsibilities and agreeing protocols for data sharing
- promoting innovation in the energy sector, clearing the path for the development of services and solutions that improve system efficiency and support the transition to a smart and flexible energy system

Ambitious digitalisation is essential to deliver a cheaper, more sustainable energy system. We have seen notable improvements over the past 5 years. Announcing NESO as

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the lead on this work is an exciting step forward when it comes to the wider digitalisation mission.

We need industry to invest more in data, improve data quality, treat information as an asset, and work towards a culture of data sharing. Only through such a transformation can we realise the full potential of digitalisation and move forward in the transition to a more sustainable energy future.

Ofgem <u>http://www.ofgem.gov.uk/</u>

## 1 April 2025

#### Gilkes Energy gains planning consent for Earba storage project in Scotland

Gilkes Energy has received Section 36 planning consent from the Scottish government's Energy Consents Unit for its Earba storage project, a pumped storage hydro (PSH) initiative at Loch Earba.

With an installed capacity of 1.8GW and a storage capacity of 40 gigawatt hours (GWh), it will become the largest PSH project in the UK, capable of delivering 22 hours of storage at full power. The planning application also features proposals for two large-scale peatland and woodland restoration projects, supporting a biodiversity enhancement plan.

Strategically located in the Scottish Highlands, the project benefits from favourable geology and topography, short tunnels and high head, making it one of the most economically viable PSH projects in the UK. With planning consent secured, the focus now shifts to transforming the project into a fully designed, tendered and costed operation. This entails securing the necessary capital to make the project financially viable. The construction phase will create 500 on-site jobs over a six to seven-year period.

Earba PSH project director David Tomb stated: "The sheer scale of Earba makes it a landmark project with national significance. To put this into perspective, it would require the construction of 400 typical lithium-ion battery storage systems (each with 50MW capacity and 100MWh of storage) to match the equivalent storage capacity of Earba. That is a staggering amount, especially when you consider the footprint of these battery sites." Long Duration Energy Storage (LDES) systems such as the Earba project enhance system efficiency by minimising wind curtailment payments and reducing reliance on gas generation, leading to lower emissions and a cleaner grid.

Gilkes Energy is collaborating with the UK government and regulator Ofgem to implement the LDES Cap & Floor mechanism in 2025. The framework is designed to attract private investment by providing financial stability for PSH projects, similar to its success with interconnector ventures. Tomb added: "It's been over 50 years since the last pumped storage hydro project broke ground, so it's essential that we work closely with suppliers to develop the supply chain capacity needed for such a transformative project.

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

## 1 April 2025

#### India Achieves Historic Milestone in Renewable Energy Capacity Addition in FY 2024-25

The Ministry of New and Renewable Energy (MNRE) achieved historic milestone in the renewable energy sector for the financial year 2024-25. Under the leadership of Prime Minister Shri Narendra Modi, the country has added an unprecedented 25 GW of renewable energy capacity, marking an increase of nearly 35% over the previous year's addition of 18.57 GW.

India's solar power sector led the renewable energy growth, with capacity additions soaring from 15 GW in FY24 to nearly 21 GW in FY25, a remarkable 38% increase. The

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country also achieved the significant milestone of surpassing 100 GW of installed solar capacity this year.

In a strong push towards Atmanirbharta, India's solar module manufacturing capacity nearly doubled from 38 GW in March 2024 to 74 GW in March 2025, while solar PV cell manufacturing capacity tripled from 9 GW to 25 GW. Additionally, the country's first ingot-wafer manufacturing facility (2 GW) commenced production in FY25. Under the Production Linked Incentive (PLI) Scheme for High-Efficiency Solar PV Modules, investments worth ₹41,000 crore have been made, generating direct employment for approximately 11,650 people.

The PM Surya Ghar Muft Bijli Yojana witnessed impressive progress, benefiting over 11.01 lakh households by March 31, 2025. Under the scheme, ₹5,437.20 crore has been disbursed as Central Financial Assistance to 6.98 lakh beneficiaries, significantly promoting the adoption of rooftop solar.

India's Green Hydrogen sector also saw significant developments. Incentives worth ₹2,220 crore were awarded for 1,500 MW per annum of electrolyser manufacturing, while an additional ₹2,239 crore was allocated for 4,50,000 tons-per-annum (TPA) of Green Hydrogen production. Under the National Green Hydrogen Mission, seven pilot projects were funded with ₹454 crore for decarbonizing the steel sector. Additionally, five pilot projects in the transport sector, with ₹208 crore in funding, will introduce 37 hydrogen-fueled vehicles and nine hydrogen refueling stations.

The PM KUSUM Scheme witnessed record progress. In Component B, 4.4 lakh pumps were installed in FY25, a 4.2-fold increase over the previous year. In Component C, 2.6 lakh pumps were solarized, 25 times more than in FY24. The total number of solar pumps installed/solarized under the scheme has now exceeded 10 lakh. Financial expenditure for PM-KUSUM surged to ₹2,680 crore, a 268% increase from the previous year.

The Indian Renewable Energy Development Agency (IREDA) continues to play a crucial role in financing clean energy projects. In FY25, IREDA recorded a 27% increase in loan sanctions, reaching ₹47,453 crore, while loan disbursements rose by 20% to ₹30,168 crore. Union Minister of New and Renewable Energy, Shri Prahlad Joshi, said, "India may have already become or will soon become the third-largest renewable energy capacity holder in the world. This milestone is a testament to Prime Minister Modi's vision for a sustainable and self-reliant energy future."

These remarkable achievements reaffirm India's commitment to its clean energy transition and its leadership in the global renewable energy sector.

GOV.IN <u>http://pib.gov.in/</u>

## 3 April 2025

#### Coal power additions hit 20-year low in 2024, but global fleet still expands

Global coal power additions in 2024 fell to their lowest level in two decades, yet the overall size of the world's coal fleet continued to expand, a new report from US-based think tank Global Energy Monitor (GEM) has revealed. According to GEM's Global Coal Plant Tracker, 44.1GW of coal power capacity was commissioned, and 25.2GW was retired in 2024 globally, culminating in a net rise of 18.8GW. The capacity commissioned is almost 30GW below the 20-year annual average of 72GW, indicating a slowdown in coal construction globally.

China remains the principal driver of this growth, commissioning 30.5GW of coal power capacity in 2024, accounting for 70% of the global total. The country also experienced

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a surge in new construction starts, reaching 94.5GW, the highest in almost ten years. India also proposed a record 38.4GW of new coal power.

The global coal development landscape is now highly concentrated, with just ten countries accounting for 96% of coal power capacity under development. China and India alone are responsible for 87% of this figure. This concentration reflects the accelerating departure from coal in many parts of the world, even as a few countries continue to pursue expansion. Outside of China, the rest of the world saw a decrease in coal power capacity by 9.2GW, as retirements outstripped new additions.

In Europe, the coal power landscape is rapidly changing, with the EU27 quadrupling its coal retirements to 11GW and the UK shutting down its last coal plant. The US also saw a deceleration in coal retirements, recording only 4.7GW, the lowest in a decade. US coal power plant retirements are expected to double in 2025, with more than 12.3GW set to be decommissioned, according to the Energy Information Administration (EIA). In the Organization for Economic Co-operation and Development (OECD) countries, the shift from coal is particularly pronounced, with plant proposals plummeting from 142 in 2015 to only five currently.

Japan and South Korea remain outliers among OECD countries, continuing to build and plan new coal plants. Global Energy Monitor's Global Coal Plant Tracker project manager Christine Shearer stated: "Coal power set records last year – but not the ones industry would like to see. Last year was a harbinger of things to come for coal as the clean energy transition moves full speed ahead. But work is still needed to ensure coal power is phased out in line with the Paris climate agreement, particularly in the world's wealthiest nations."

In Southeast Asia, a shift towards a managed exit from coal is evident, with new proposals dwindling and countries such as Indonesia and Malaysia committing to phaseouts. In Latin America, the trajectory towards coal phaseouts is clear, with only Brazil and Honduras holding onto coal proposals. Panama's commitment to phase out coal by 2026 adds to the regional momentum. Africa's coal development is limited, with most countries focusing on renewables and gas. However, new coal proposals in Zimbabwe and Zambia, largely backed by Chinese developers, defy the Chinese government's 2021 pledge to halt new coal plants overseas.

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

## 7 April 2025

#### Tibet's largest solar-storage project powers up at 4,500 m

China Huaneng Group, one of the country's largest state-owned electricity generation enterprises, has announced that its Jiawa Phase I solar-plus-storage power plant in Qusong County, Shannan City, Tibet Autonomous Region, has been successfully connected to the grid. Situated at an elevation exceeding 4,500 m, the facility is now the largest solar-storage project completed in Tibet, with further expansion planned through subsequent phases.

The Phase I plant is located in Jiawa Village and comprises 250 MW of solar capacity alongside a 50MW/200MWh electrochemical energy storage system. The storage unit is designed to absorb excess solar power during daylight hours and release up to 200 MWh of electricity over four hours at night, significantly improving local energy reliability and balancing power demand during peak periods.

The project was developed by Huaneng Yarlung Tsangpo Hydropower Development Co., Ltd., a subsidiary of Huaneng Group. Construction officially began in February 2024, and the plant was connected to the grid by the end of March 2025, following 13 months of intensive construction under some of the world's most challenging conditions.

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The project site experiences oxygen levels just 60% of those at sea level, ultraviolet radiation two to three times higher, and temperature swings of nearly 30 C between day and night. The harsh environment limited the annual construction window to less than six months, requiring the team to overcome difficulties including altitude sickness, extreme weather, and reduced machinery efficiency.

Huaneng's construction team noted that the project yielded valuable experience in high-altitude engineering, laying the groundwork for future large-scale projects in Tibet, Qinghai, Xinjiang, and other similarly challenging regions.

Once fully operational, the Jiawa Phase I project is expected to generate approximately 370 GWh of electricity annually and play a vital role in alleviating power shortages during peak periods in Tibet.

The Jiawa plant also serves as a flagship project for Huaneng's Yalong River clean energy base, which is planned in three phases totaling 850 MW. Construction on Phases II and III is scheduled to follow as part of Huaneng's broader strategy to accelerate clean energy deployment in Tibet, the roof of the world.

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

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#### South Africa targeting up to 5 GW of new renewables per year

The plan aims to promote the industrialization and localization of South Africa's renewable energy and storage value chains while supporting the country's shift from a centralized, carbon-intensive energy model to a decentralized, low-carbon structure.

Key targets in the SAREM include driving local industrial development through a minimum of 3 GW of new renewable energy projects per year, increasing to 5 GW annually by 2030. "Considering that most component manufacturing requires 1 GW or less of annual demand (over a minimum period of five years) to be economically viable, such a scale would be sufficient to support the growth of local manufacturing operations." said the government. "Any additional rollout, in line with the country's requirement to achieve energy security and climate change objectives, would then enable further industrial development. "

The plan also aims to create up to 25,000 jobs in South Africa's domestic renewable energy sector by the end of the decade, with a focus on developing local manufacturing of key components including solar panels, inverters, wind turbine towers, cables and batteries.

It targets 50% locally manufactured content and associated services in the country's solar sector, and 60% in the storage sector, by 2030. Upon approving the document, the South African Cabinet of Ministers said additional work should be done to incentivize investors to fund renewable energy supplier development. Ministers also called for the development of green hydrogen to meet an international obligation of 5% blended fuel in aviation and maritime sectors by 2030.

A government statement added that while the immediate focus will be on implementation, the SAREM will serve as a "living document" to be adapted and updated as technologies and sectoral priorities evolve. Dr. Rethabile Melamu, CEO of the South African Photovoltaic Industry Association (SAPVIA), told pv magazine that the association was on the steering committee since the inception of the SAREM process and saw first-hand "how everyone pulled in the same direction."

"The real work begins now – we need to continue our collective efforts in making this plan a reality," added Melamu. South Africa deployed 1.1 GW of solar in 2024, following a record year for solar additions in 2023.

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#### **Dutch Power Grid Operator Allocates 9 GW via Off-Peak Contracts**

Dutch power grid operator TenneT announced on Monday that it has unlocked more than 9 gigawatts of capacity by introducing flexible contracts for use outside peak hours. This step aims to accommodate high-energy users who have faced delays in accessing the grid due to its full capacity in many areas.

The initiative follows TenneT's December statement, which noted that the highvoltage grid in Zuid-Holland, a key province in the Netherlands, had reached its limit. Until then, it was the last region with available capacity for major electricity consumers. As the leading operator of high-tension grids in Germany and the Netherlands, TenneT has been exploring solutions to ease congestion and upgrade infrastructure to support the growing reliance on solar and wind energy as alternatives to fossil fuels.

TenneT's analysis revealed that 9.1 gigawatts of capacity are available during offpeak periods, accounting for over 40% of the Netherlands' current peak electricity demand. The company received applications for these flexible contracts totaling more than 70 gigawatts, primarily from large-scale battery projects, far exceeding the available capacity. To encourage efficient use, TenneT expects users of these contracts to save up to 65% on grid tariffs by adapting to time-based pricing and optimizing consumption patterns.

Last month, TenneT outlined plans to invest approximately 200 billion euros (\$220 billion) by 2034 to enhance its grids in both the Netherlands and Germany. This significant funding reflects the company's commitment to meeting rising energy demands sustainably. The new flexible contracts are part of a broader strategy to maximize existing grid resources while expansion efforts continue.

Starting April 8, TenneT will reach out to interested parties to discuss capacity allocations, with negotiations set to unfold over the coming weeks. Maarten Abbenhuis, group Chief Operating Officer, emphasized the dual approach: "We are working on expanding the electricity grid throughout the Netherlands. In addition, we need to use the grid more intelligently and make better use of the remaining space outside the 'peak'." This reflects TenneT's focus on both infrastructure growth and smarter energy management.

This development offers a practical solution for high-energy users, supporting the Netherlands' shift toward renewable energy sources while addressing immediate grid constraints.

Reuters http://www.reuters.com/

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#### Australia's Albanese Pledges A\$2.3 Billion to Help Homeowners Buy Solar Batteries

Australian Prime Minister Anthony Albanese announced a A\$2.3 billion (\$1.39 billion) initiative to support homeowners in purchasing batteries for storing solar energy, reducing household energy expenses on April 6, 2025. This proposal aligns with the general election, a key event approaching on May 3. Albanese, from the centre-left Labor Party, stated that the cost of installing a typical energy-storage battery could drop by about A\$4,000, or 30%.

In his statement, Albanese noted: "The battery will be installed at home and store power from solar panels for the household to use when needed," as he addressed the nation on April 6, 2025. Government figures show that one in three Australian homes has solar panels, yet only one in 40 has a battery currently.

The Labor Party is closely competing with the Liberal-National coalition, led by Peter Dutton, according to opinion polls released on April 6, 2025. Dutton's alternative plan redirects a portion of liquefied natural gas (LNG) exports to domestic use to lower energy

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costs. His coalition suggests that east coast gas exporters supply 10% to 20% more product locally, while also promoting nuclear power for the future.

Nationals leader David Littleproud, part of the opposition, appeared on Australian Broadcasting Corp television and claimed that Albanese's initiative would help "only a select few," offering minimal support to renters and pensioners with energy bills on April 6, 2025. The opposition argues their approach would benefit a wider population.

Albanese's approval ratings, once notably higher, now stand near those of Dutton, a former police officer and defence minister in the previous conservative government, as reported on April 6, 2025. With the election nearing, both leaders are focusing on energy affordability, a vital issue for Australians. Labor's strategy enhances solar energy storage, while the opposition prioritizes boosting domestic gas supply and exploring nuclear energy, presenting distinct solutions on April 6, 2025.

We Do http://www.wedoany.com/

# 8 April 2025

# President Donald J. Trump Strengthens the Reliability and Security of the United States Electric Grid

ENHANCING GRID RELIABILITY AND SECURITY: Today, President Donald J. Trump signed an Executive Order to strengthen the reliability and security of the United States electric grid. The Executive Order:

- Directs the Secretary of Energy to streamline, systemize, and expedite processes for issuing emergency orders under the Federal Power Act during forecasted grid interruptions.
- Requires the Secretary of Energy to develop a uniform methodology to analyze reserve margins across all regions of the bulk power system.
- The methodology will assess varied grid conditions and accredit generation resources based on historical performance.
- Requires the Secretary of Energy to incorporate such methodology into a process that assesses reserve margins on a regular basis and identifies which generation resources in a region are critical to system reliability.
- The Secretary of Energy will then utilize that process to prevent significant generation resources from leaving the grid or converting fuel sources if it would result in a net reduction in accredited generating capacity.

POWERING AMERICA FOR GENERATIONS TO COME: This Executive Order is critical to meeting the Nation's growing energy needs and protecting national security.

- Rapid technological advancements, an expansion of AI data centers, and increased domestic manufacturing are driving an unprecedented surge in electricity demand, placing a significant strain on our Nation's electric grid.
- The Nation's electricity is expected to rise 16% in the next 5 years—triple the growth forecasted just a year ago.
- The Nation's 2,700 data centers, mostly operated by tech giants like Google, Amazon, Microsoft, Meta, and Apple, consumed over 4% of U.S. electricity in 2022 and are expected to reach 9% by 2030.
- An estimated 80 million transformers, averaging over 40 years old, are vital to keeping the grid running nationwide.
- Grid reliability is essential to maintaining our national and economic security.
- The United States' ability to remain at the forefront of technological innovation depends on a reliable supply of energy from all available sources.

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MAKING AMERICA ENERGY DOMINANT: President Trump believes it is vital for America to be energy dominant and energy secure.

- On the campaign trail, President Trump warned, "you have a grid system in this country that's obsolete and a disaster," underscoring his urgency to act.
- On Day One, President Trump declared a National Energy Emergency to ensure the integrity of our Nation's electrical grid.
- He is revitalizing America's big beautiful coal industry to support grid stability and American jobs.
- President Trump is cutting red tape and rolling back regulations that hinder coal, oil, and natural gas production.
- He is pushing to expand domestic energy production by investing in next-generation energy technologies and accelerating energy projects by streamlining the permitting process.

The White House http://www.whitehouse.gov/

# 8 April 2025

#### Ember: World surpasses 40% clean power as renewables see record rise

Ember's sixth annual <u>Global Electricity Review</u> provides the first comprehensive overview of the global power system in 2024 based on country-level data. It is published today alongside the world's first open dataset on electricity generation in 2024, covering 88 countries that account for 93% of global electricity demand, as well as historical data for 215 countries.

Clean power surpassed 40% of global electricity generation in 2024, driven by record growth in renewables, especially solar. Heatwaves contributed to high growth in electricity demand which resulted in a small increase in fossil generation, driving up power sector emissions to an all-time high.

Solar power has become the engine of the global energy transition, with both solar generation and capacity installations setting new records in 2024. Solar generation has maintained its high growth rate, doubling in the last three years, and adding more electricity than any other source over that period. At the same time, electricity demand saw a significant rise in 2024, outpacing the growth in clean electricity. Expanding technologies such as AI, data centres, electric vehicles and heat pumps are already contributing to the rise in global demand. However, the main reason why electricity demand growth was elevated in 2024 compared to 2023 was an increase in air conditioning use during heatwaves. This accounted for almost all of the small rise in fossil generation.

Key takeaways:

1. Clean power surpasses 40% of global electricity generation

Generation from all low-carbon power sources – renewables plus nuclear – surpassed 40% of global electricity in 2024 for the first time since the 1940s. Renewable power sources added a record 858 TWh of generation in 2024, 49% more than the previous record of 577 TWh set in 2022. The record increase in renewables coupled with a small increase in nuclear output of 69 TWh brought low-carbon power to 40.9% (12,609 TWh) of the mix in 2024, compared with 39.4% in 2023. Hydro remained the largest source of low-carbon electricity (14.3%), followed by nuclear (9.0%), with wind (8.1%) and solar (6.9%) rapidly gaining ground and together overtaking hydro in 2024, while nuclear's share reached a 45-year low.

2. Solar generation doubles in three years

Solar generation has doubled over the last three years to reach over 2000 TWh. Solar was the largest source of new electricity generation globally for the third year in a row (+474

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TWh) and the fastest growing source of electricity (+29%) for the 20th year in a row. More than half (53%) of the increase in solar generation in 2024 was in China, with China's clean generation growth meeting 81% of its demand increase in 2024. The fast pace of global solar growth is set to continue, with 2024 setting a new record for solar capacity installations in a single year – more than double the amount installed in 2022. Global solar power capacity reached 1 TW in 2022 after decades of growth, but reached 2 TW only two years later, in 2024.

3. Heatwaves the main driver of a small increase in fossil generation

Periods of hotter temperatures around population centres drove up demand for cooling in 2024 compared with 2023. This added 0.7% (+208 TWh) to global electricity demand, and meant that overall demand grew by much more (+4.0%) than in 2023 (+2.6%). Consequently fossil generation increased by 1.4%, and global power sector emissions rose by 1.6% to a new all-time high of 14.6 billion tonnes of CO2. Hotter temperatures were the main driver of the rise in fossil generation: without this, fossil generation would have risen by only 0.2%, as clean electricity generation met 96% of the demand growth not caused by hotter temperatures. The increase in global fossil generation in 2024 (+245 TWh) was virtually identical to that seen in 2023 (+246 TWh) despite the substantial difference in rates of demand growth.

## Solar and wind boom pushes world past 40% clean electricity in 2024



Share of global electricity generation (%)

Source: Yearly electricity data, Ember 'Other renewables' includes bioenergy, geothermal, tide and wave energy

EMBER

The global power system will be dominated by two mega-trends over the rest of the decade: solar's share in the electricity mix rising rapidly as it continues its exponential growth, and robust electricity demand growth as electricity replaces other forms of energy powering the global economy.

Signs of this are already here: solar has been the largest source of new electricity for the last three years, and new drivers of demand such as EVs, heat pumps and data centres are contributing 0.7% to annual demand growth, more than twice as much as they did five years ago.

As we reach a tipping point where the increasingly rapid rise of clean generation outpaces structural growth in demand, changes to fossil fuel generation over the short-term

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will be dominated by fluctuations in weather, as seen in 2024 with the impacts of heatwaves. Despite this, it remains clear that clean generation growth and the uptake of flexible technologies such as battery storage will reduce reliance on fossil fuel power in the coming years, even in a world of faster demand growth.

We estimate that even if electricity demand grows at 4.1% per year until 2030, which exceeds current expectations, clean generation growth will be fast enough to keep pace. Dynamics in the world's largest emerging economies will play a crucial role. China and India are both moving towards a future of demand growth powered by clean electricity, helping to tip the balance towards a decline in fossil generation at a global level.

Ember <u>http://ember-energy.org/</u>

#### 9 April 2025

#### Ireland plans winter grid resilience in the wake of Storm Éowyn

Ireland's ESB Networks has released grid resilience plans to bolster the power system's resilience in the face of extreme weather events, such as this year's Storm Éowyn. The plans were announced by Irish Minister for Climate, Environment and Energy Darragh O'Brien, setting out actions across a number of key areas.

Such areas include hazard removal and surveying, forestry management, materials and spares review, resourcing and innovation measures that will increase resilience in the electricity network for the winter ahead. ESB's Networks Winter 2025 Grid Resilience Plan follows Storm Éowyn in January, which was one of the most severe weather events ever to hit Ireland.

The <u>plan</u> will be implemented between March and October of this year. The objective of the plan is to enhance the resilience of the grid in the most vulnerable locations for the upcoming winter, to take some immediate short-term measures to reduce the impact of potential storm in Winter 2025, whilst progressing plans and initiatives for longer term.

Minister O'Brien said in a release: "The type of storm we have seen in recent years is becoming more frequent and more damaging and therefore it is vital that we take action to ensure the resilience of our electricity system. "This increased resilience will help to ensure the safety and wellbeing of the people of Ireland, particularly our most vulnerable citizens, as well as helping to safeguard our economy."

Part of the plan will involve completing the survey of the 23,000km of Ireland's electricity network, making hazards safe and identifying remedial works needed to refurbish areas of the network weakened in the recent storm. ESB Networks will replenish their materials supply, which was depleted during the recent storm season, with the intention to quickly double in size the storm-specific provisions. Officials from the Department of the Environment, Climate and Communications, the Attorney General and ESB Networks in consultation with Department of Agriculture, Food and the Marine and Coillte will continue to assess legislation relating to forestry and its relationship to electricity infrastructure.

It is anticipated that the department will return to government shortly to seek approval to amend legislation around forestry corridors to advance future resilience work for the electricity grid. Crews from Great Britain and Northern Ireland and across the EU assisted in the restoration of electricity supplies following Storm Éowyn and plans are being made to further strengthen relationships with European network companies through the development of mutual storm support arrangements this year. Separately, the Chair of the National Emergency Co-Ordination Group has commenced a cross-Government Review of the Response to Storm Éowyn.

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#### PJM, Google partner to speed grid interconnection using AI

The PJM Interconnection will work with Google to use artificial intelligence to potentially revamp and speed up its grid interconnection process, the grid operator said Thursday.

Tapestry, part of Alphabet, Google's parent company, will work with PJM in a multiyear effort to integrate dozens of databases and tools the grid operator uses to study interconnection requests into a unified model of PJM's network, according to Page Crahan, Tapestry general manager. The unified model will allow project developers, grid planners and operators to access everything they need to make critical decisions in one place, Crahan said during a media briefing.

Tapestry expects the project will roll out in phases, starting this year, according to Crahan. First, Tapestry and PJM aim to improve the generator interconnection application process, she said.

It's too soon to know when and to what extent PJM's two-year interconnection process will be accelerated by the initiative, said Aftab Khan, PJM's executive vice president for operations, planning and security. As a "guide post," Tapestry worked with Chile's grid operator to reduce the time it took to finish certain planning processes from several days to a few hours, according to Crahan. "So, we're looking for a significant order of magnitude improvement to support the PJM planners," Crahan said

PJM is in the middle of its transition to a new, cluster-based interconnection process, according to Khan. As part of the transition, PJM last year finished a 26-GW fast-track interconnection review, he said, noting that the grid operator has signed generator interconnection agreements totaling about 50 GW that isn't yet operating. PJM expects to complete its 46-GW transition Cycle 1 late this year and its 99-GW Cycle 2 a year later, according to Khan. It expects to begin using its new interconnection process early next year.

Advanced Energy United, a trade group for clean energy developers, praised the PJM-Tapestry initiative. "Embracing innovation like this is a critical step toward clearing the massive interconnection backlog and getting more clean energy projects online faster," Jon Gordon, AEU director, said in a statement Thursday. "We're hopeful that pairing advanced technology with continued market and policy reforms will unlock the full potential of clean, reliable, and affordable energy for the PJM region."

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

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#### TransnetBW and Octopus Energy successfully trial OctoFlexBW for EV to grid flexibility

German TSO TransnetBW and Octopus Energy have announced a successful first phase of their pilot project OctoFlexBW, which utilises the flexibility of EVs for grid stabilisation.

Through OctoFlexBW, the charging of Octopus customers' EVs is intelligently controlled to avoid grid congestion in Baden-Württemberg and throughout Germany. This is known as 'Redispatch 3.0,' with the goal of expanding the existing cost-based redispatch regime in Germany with a market-based component for decentralised micro-flexibility.

The first phase of the project focused primarily on seamless communication between the IT platforms – TransnetBW's DA/RE (data exchange/Redispatch) and Octopus Energy's Kraken – using a pool of approximately 100 EVs. DA/RE is the first digital platform for the grid operator-wide implementation of Redispatch 2.0, including balancing.

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The vehicle participation rate in the pilot test was 100%, as every vehicle was able to provide the requested flexibility when needed, with an average of about one-third of the vehicles required per call. More than 90% of these responded as planned and provided the requested flexibility. The feedback from participating e-mobility users was consistently positive, as they were not impacted by the control of their consumption, benefiting from lower electricity prices by postponing the charging process in combination with the Intelligent Octopus Go tariff.

With the success of the first phase, OctoFlexBW is now entering its next phase, a balancing approach that considers all energy-related processes. At the same time, significantly more electric vehicles will be included – the goal is 1,500 or more. TransnetBW and Octopus Energy will use the data obtained to improve processes such as baselining and monitoring, as well as their forecasts. Furthermore, the project partners will gain valuable insights into the potential of micro-flexibility measures and their acceptance among end customers.

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