WORLD POWER SYSTEMS REVIEW

15 June 2025

2 June 2025

Indonesian government ratifies plans for 42.6GW of renewable energy capacity

The Indonesian government has ratified the PLN Electricity Supply Business Plan (RUPTL) 2025–2034, targeting 42.6GW of new renewable energy generation capacity and 10.3GW of energy storage.

Announced last week (26 May), Bahlil Lahadalia, Indonesia's minister of investment and head of investment coordinating board, said the targets align with the Paris Agreement, emphasising the need for countries to remain consistent in maintaining this global target, which aims to limit the temperature increase to 1.5 degrees Celsius. "The Paris Agreement commitment regarding energy transition is no longer a shared commitment, and several countries have withdrawn from their initial commitments. However, we must remain consistent in implementing this by considering our capabilities, energy availability levels, and economic factors," Lahadalia said.

The RUPTL aims to support the country's state-owned electricity company, PLT, in delivering 69.5GW of new energy generation by 2034. Of the 69.5GW figure, 42.6GW will come from renewables. Specifically, solar PV will make up the bulk of this with 17.1GW targeted, hydropower comes second with 11.7GW, and wind generation comes third with 7.2GW. 5.2GW of geothermal and 0.9GW of bioenergy generation is also targeted as part of the wider figure.

The remaining 69.5GW capacity will be filled by gas and coal plants, totalling 10.3GW and 6.2GW, respectively, and two small modular nuclear reactors, totalling 0.5GW, planned for Sumatra and Kalimantan. In addition, 10.3GW of energy storage is also targeted to support grid stability.

This means that 76% of the country's new energy generation capacity will be comprised of renewable energy sources, contributing to an uptake in the overall electricity mix to 35% by 2034. For reference, this currently stands at 12%. The inclusion of coal and gas-fired generation has drawn criticism from the Institute for Essential Services Reform, an Indonesian energy sector think tank.

Indeed, its executive director, Fabby Tumiwa, said the inclusion of 2.8GW of coal-fired power plants that will still be operational after 2030 is inconsistent with the country's net zero emissions target of achieving this by 2060 or sooner. Tumiwa added that the 42.6GW figure is lower than the Just Energy Transition Partnership (JETP) commitment of 56GW by 2030 and is not in line with the need to limit global temperature increases to 1.5 degrees Celsius according to the Paris Agreement.

"PLN is currently facing difficulties in meeting the availability of gas for its generators. If demand increases two to three times in the future, the threat and risk to meeting PLN's gas needs will be even greater. In this situation, the development of larger renewable energy is a lower risk option because it not only strengthens the reliability of the energy system, but also contributes to the creation of more affordable energy costs for the community," Tumiwa said.

Alongside the massive uptick in potential renewable energy generation, perhaps one of the most significant announcements made by the government is plans for a "massive grid upgrade" forming the backbone of the country's energy transition.

Indonesia is one of the largest archipelagos in the world and has roughly 17,508 officially listed islands within the territory of the Republic of Indonesia. This creates geographic complications when trying to develop a nationwide grid infrastructure. As part of the RUPTL, PLN will develop nearly 48,000km of new transmission lines, larger than the circumference of the Earth (roughly 40,000km), and with 108,000MVA in substation capacity.

This will help Indonesia develop a sufficient grid to connect communities and provide a just transition for its citizens. Lahadalia emphasised that providing energy access to villages currently cut off from the grid is a priority for the Indonesian government.

"For me, energy is not just about needs, but also a form of equity and justice that we must implement from Aceh to Papua. President Prabowo Subianto's directive is to immediately install electricity in villages that don't have it yet. So we will complete this by 2029, and we will do this gradually starting from now," Lahadalia said. Via the RUPTL, PT PLN aims to power over 5,700 remote villages and connect nearly 780,000 households via the Village Electricity Program.

Nuki Agya Utama, executive director of the Association of Southeast Asian Nations (ASEAN) Centre for Energy, explained on LinkedIn that Indonesia's grid has been "historically segmented by necessity: each main island or region operates its electrical system, isolated by seas" in comparison to the more traditional continental grids in the US, China, and Europe. As such, Indonesia's dispersed island structure makes nationwide grids costly and complex. To achieve this, Utama said the country must utilise long-distance inter-island connections via submarine cables, which are resource-intensive and often face environmental and logistical constraints.

PV Tech
http://www.pv-tech.org/

2 June 2025

Annual publication from the New York Independent System Operator emphasizes maintaining reliability during the grid in transition

The New York Independent System Operator (NYISO) today released Power Trends 2025, the company's annual state of the grid and markets report. Power Trends 2025 details how reliability margins continue to decline as fossil-based generation retires and new supply resources are not keeping pace with expected demand growth. Further, the report examines the impact on the electric system from an increase in large loads, such as semiconductor manufacturing, generative AI and data center projects.

"The grid is undergoing rapid and instrumental change," said Rich Dewey, President and CEO of the New York Independent System Operator. "We continue to observe declining reliability margins while forecasting a dramatic increase in load. It's imperative during this period of transition that we maintain adequate supply to meet growing consumer demand for electricity."

Power Trends 2025 also warns about the reliance on fossil-fuel generators that are fifty years of age or older, while highlighting the strength of competitive markets to attract the investment necessary to support the continued reliability of the grid.

"We recently streamlined the interconnection process for new generation and launched new market products intended to bring more power onto the grid at the most efficient cost." said Emilie Nelson, Executive Vice President and COO of the New York Independent System Operator. "Assessing short-term and long-term reliability risks, we will continue to collaborate with market participants, stakeholders and policymakers to develop sound solutions for the challenges ahead."

Key messages in Power Trends 2025 include:

- Generator deactivations are outpacing new supply additions. Electrification programs and new large-load customers associated with economic development initiatives are pushing projected demand higher. Together, these forces are also narrowing reliability margins across New York and increasing the risk of future reliability needs.
- As public policy goals seek to decarbonize the grid, fossil-fired generation will be needed for reliable power system operations until the capabilities it offers can be supplied

by other resources. Energy efficiency and demand-side management (DSM) will continue to play a key role in reducing energy consumption, lowering costs, and mitigating environmental impacts.

- Repowering aging power plants can lower emissions, meet rising consumer demand, and provide reliability benefits to the grid that are needed to integrate additional clean energy resources.
- New York is projected to become a winter-peaking electric system by the 2040s, driven primarily by electrification of space heating and transportation. On the coldest days, the availability of natural gas for power generation can be limited, and interruptions to natural gas supply will introduce further challenges for reliable electric grid operations.
- New supply, load, and transmission projects are seeking to interconnect to the grid at record levels. NYISO's interconnection processes continue to evolve to balance developer flexibility with the need to manage the process to more stringent timeframes.
- Competitive wholesale electricity markets administered by the NYISO support reliability while minimizing costs to consumers.

NYISO
http://www.nyiso.com/

2 June 2025

DOE orders Constellation to delay retiring 760 MW to ease PJM 'emergency'

Declaring an emergency in parts of the PJM Interconnection's footprint, the U.S. Department of Energy on Friday ordered Constellation Energy and PJM to continue operating 760 MW of oil- and gas-fired peaking capacity in Pennsylvania that Constellation had planned to deactivate the next day.

The emergency order directs Constellation to keep operating two units at its Eddystone power plant near Philadelphia until Aug. 28. The order can be extended.

PJM supports DOE's order. "The department's order is a prudent, term-limited step that will retain the covered generators for a 90-day period," the grid operator said Saturday. "This will allow DOE, Constellation Energy and PJM to undertake further analysis regarding the longer-term need and viability of these generators."

The Federal Power Act's section 202(c) gives the DOE secretary the authority to temporarily order power plants to operate during wars and emergencies. It has been used 17 times since August 2020, according to DOE.

DOE partly based its order on a May 9 report from PJM that said the grid operator had enough power supplies for this summer under normal conditions, but that under extreme conditions featuring record-setting demand it could have to call on demand response resources to avoid power outages. In determining that PJM faces an emergency, DOE also cited a PJM report from February 2023 indicating the grid operator faced tightening supply-demand conditions this decade. In addition, PJM in December asked FERC to approve a fast-track interconnection process for some planned power supplies to address potential reliability concerns, DOE said. FERC approved the plan in February.

"The potential shortage of electric energy, shortage of facilities for the generation of electric energy, and other causes in the region support the need for the Eddystone Units to contribute to system reliability," DOE said.

DOE issued a similar emergency order on May 23 to keep a 1,560-MW, coal-fired power plant owned by Consumers Energy in Michigan running for nearly three months beyond its planned retirement date. Constellation is taking immediate steps to continue to operate Eddystone units 3 and 4 through the summer, according to Paul Adams, a spokesman for the Baltimore-based independent power producer. "Eddystone Units 3 and 4 remain in 'Ready' status and we are working quickly to retain necessary staff and perform

necessary maintenance to allow for safe and reliable operations this summer and beyond," Adams said Monday in an email.

Like in other regions, power plant owners in PJM must get permission from the grid operator to retire a generating unit. PJM studies whether a power plant shutdown will hurt grid reliability. PJM approved Constellation's request to shutter its Eddystone units 3 and 4 in February 2024, saying retiring the units didn't pose reliability risks. The units were installed between 1967 and 1970, according to Constellation PJM on Friday gave Buchanan Generation permission to deactivate on July 1 two gas-fired generating units in Virginia totaling 80 MW. PJM operates the grid and wholesale power markets in 13 Mid-Atlantic and Midwest states and in the District of Columbia.

Depending on how long DOE ultimately orders the Eddystone power plant to keep running, the department's order could affect Constellation's plan to buy Calpine in a $16.4 billion deal. As part of its proposal pending at FERC, Constellation said it would sell four power plants totaling 3,546 MW in PJM's eastern region, where Eddystone is located. The sale aims to allay concerns that a combined Constellation and Calpine could exert market power in eastern PJM.

Earthjustice, representing Public Citizen, PennFuture and the Clean Air Council, on Monday asked FERC to require Constellation and Calpine to evaluate the implications on the proposed transaction of not retiring the Eddystone units. The information is needed "to evaluate competition, market power, and rate implications of the transaction," Earthjustice said in the filing. Ratepayers will be required to pay for the costs of continuing to run the Eddystone units, including enough money to ensure Constellation earns a profit to maintain and run the units, Tyson Slocum, director of Public Citizen's Energy Program, said in a press release.

"Trump's last minute emergency order — issued literally on the last day these power plants were set to operate — causes significant, expensive complications," Slocum said. "Old units like Eddystone require both minor and major maintenance — maintenance that was deferred because of its planned retirement on May 31."

DOE's "move to keep these zombie plants online will have significant public health impacts and increase electricity costs for people in Michigan and Pennsylvania," Kit Kennedy, power sector managing director at the Natural Resources Defense Council, said Saturday. Besides issuing additional emergency orders, DOE can extend previously issued orders under FPA section 202, ClearView Energy Partners said in a client note on May 30. "Weather predictions lie outside our remit, but we would suggest that a long, hot summer could set the stage for an extension," the research firm said about the Consumers Energy order.

In its Constellation order, DOE noted that it is developing a methodology to identify current and anticipated reserve margins for all regions regulated by the Federal Energy Regulatory Commission. An April executive order requires the methodology to be published by July 7 and be used to establish a protocol to identify which generation resources are critical to system reliability and to prevent identified generation resources from leaving the bulkpower system, DOE said. The department plans to use the methodology to further evaluate Eddystone units 3 and 4.

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

4 June 2025

Fingrid deploys Gridraven DLR solution across transmission grid

Energy tech company Gridraven has won a public tender by Finnish TSO Fingrid to deploy dynamic line rating (DLR) across the country's high-voltage transmission network.

The contract covers five 400 kV lines totalling 700km and has an option to expand toward national coverage of 5500km by the end of 2025. The project affects how grid capacity is calculated and managed, unlocking flexibility and efficiency without building new infrastructure.

Aiming to increase grid capacity and reduce the need for hardware or sensor installations on grid assets, Gridraven in a release says their software solution provides high-accuracy transmission capacity forecasts through precision weather forecasting. This is based on detailed topography data and advanced AI modelling, achieving precision in challenging terrains.

According to the Estonia-based company, this enables TSOs like Fingrid to operate their power grid closer to physical limits with full transparency and safety. This precision weather forecasting-based DLR technology, they add, promises to unlock up to 30% additional power annually from the existing grid

Commenting in a release was Mikko Piironen, unit manager at Fingrid: “Dynamic Line Rating enables us to operate our transmission system more efficiently and with better real-time insight into grid conditions.

“Because the solution is fully software-based and requires no physical installations, it allows us to scale DLR across the entire 400 kV network. This project marks an important step in modernizing grid operations and helps maximize the use of existing infrastructure instead of building new lines.” Said Gridraven’s CEO Georg Rute: “We are proud to be selected by Fingrid as the solution provider for increasing the capacity of their transmission grid. “This project is globally relevant in demonstrating that sensorless Dynamic Line Ratings offer a scalable, reliable, and rapid way to unlock unused headroom in existing lines. Fingrid is leading the way in embracing innovative solutions, and we’re excited to help accelerate their impact.” According to Gridraven, the technology has already been field-tested in several pilot environments.

Smart Energy
http://www.smart-energy.com/

4 June 2025

Access to power biggest challenge for Europe’s data centres

Access to power is considered the biggest challenge for data centre operators over the next three years, the European Data Centre Association (EUDCA) has found.

In its ‘State of European data centres 2025’ report, the association finds that, along with power constraints, other key challenges are regulatory compliance, particularly adhering to EU and national regulations addressing energy efficiency and environmental impact, and ongoing sustainability pressures towards better water management and more comprehensive heat reuse solutions. Additionally, data centres face lengthy and complex permitting processes and a shortage of skilled technical personnel, with intense competition for talent across industries.

The report details a total of 10,539 data centres in Europe in 2023, of which over 85% are located on premise or enterprise data centres and almost all have a capacity of less than 5MW.Almost all the rest are colocation data centres, and just 19 are hyperscale, of which 10 are in the 5-49MW range and nine above 50MW.

The report lists key market drivers as increasing digitalisation across sectors, which is driving higher demand for data storage and processing capabilities, the shift towards cloud and edge computing and the rapid development of AI technologies, particularly generative AI, which is driving substantial investments in high-density, high-performance data centres. With this, existing active centres of growth, such as Frankfurt, London, Amsterdam, Paris

and Dublin, are now giving way to the Nordics and southern Europe as technologies, infrastructure and demand develop.

Connectivity is also a major factor, as more subsea cables and interconnects come into play, connecting Europe to North America, Africa, and Asia, allowing new sites and services to be brought online. The report points to sustainability as a central focus for the industry, leading to the adoption of renewable energy and energy-efficient technologies, with over 94% of power coming from on-site or off-site renewable energy sources.

Substantial progress is also evident in energy efficiency (power usage efficiency average in colocation of 1.39), water efficient usage (average 0.31l/kWh) and heat reuse projects, the report adds, stating that compliance with regulations, such as the EU's Energy Efficiency Directive enhances transparency and accountability, reinforcing the sector's commitment to environmental stewardship. Under the directive, by 2026, new data centres with an energy capacity of 1MW or more must reuse at least 10% of their heat, increasing to 20% by 2028, or establish contracts to supply heat to district heating networks.

Currently, 31% of colocation and hyperscale data centres, as cited in the report, can provide heat coupling, with 38% investing in such initiatives. Under the Climate Neutral Data Centre Pact, a voluntary initiative launched in 2021 by leading data centre operators and cloud providers, there is a commitment to achieving climate neutrality by 2030. The focus is on several key areas, including improving energy efficiency, transitioning to 100% renewable energy, reducing water consumption, promoting a circular economy by reusing and recycling equipment and reducing greenhouse gas emissions.

Commenting on the report, Michael Winterson, Secretary General of the EUDCA, said the digital economies of Europe could not have been built without the foundation of digital infrastructure comprising a network of more than 9,000 data centres. "To remain competitive globally and to support the continuing wave of technological development and digital transformation, the data centre industry must ensure continued focus on efficiency and sustainability while driving innovation."

Industrial News
http://industrialnews.co.uk/

4 June 2025

France Amends Wind Agreements to Meet Negative Electricity Price Challenges

The French government has finalized amendments to power purchase agreements (PPAs) with three offshore wind farms: Fécamp, Saint-Nazaire, and Saint-Brieuc, operated by Électricité de France (EDF) and Iberdrola. These changes, allow the wind farms to reduce or fully stop production during periods of negative electricity pricing to address challenges from excess power generation.

The amendments respond to the increasing supply of electricity from expanding solar and wind installations across Europe, while energy consumption remains steady. Previously, the electricity from these offshore wind farms was bought at fixed prices through government subsidies, sometimes sold at negative prices in the market, creating financial strain on public budgets and the electrical grid.

The French government stated: "This had a negative impact on public finances and on the electric system." The updated PPAs aim to stabilize supply and demand, ensuring more efficient grid management. The government highlighted that production reductions were successfully implemented at these wind farms from May 10 to May 11, 2025, demonstrating the effectiveness of the new measures.

Additionally, the government plans to extend similar adjustment mechanisms to larger onshore wind farms operating under older feed-in tariff systems. Most newer renewable energy facilities in France, excluding the smallest ones, already use a feed-in premium

system that incentivizes pausing production during negative pricing periods to align with market conditions.

These changes reflect France's commitment to balancing renewable energy growth with grid stability, optimizing resource use, and supporting sustainable energy practices without disrupting economic or operational efficiency.

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

5 June 2025

Annual OMS-MISO survey results highlight resource adequacy challenge

Today, MISO and the Organization of MISO States (OMS) released the 2025 OMS-MISO Survey results, reinforcing near-term resource adequacy risks as demand for electricity rises across the region. The survey projects that the MISO region could see resource sufficiency ranging from a 1.4 GW deficit to 6.4 GW surplus of Summer Accredited Capacity by the 2027/28 planning year. In addition, the survey findings emphasize a paradigm shift in seasonal risk is emerging. The increased penetration of solar generation within the resource mix and its operational characteristics mean that reliability risks are spreading beyond the summer season.

"The annual OMS-MISO Survey is a critical tool in informing real-world decisions that will guide our energy future. The collaboration between MISO and OMS ensures that the information shared is not just data, but another viewpoint that leads to actionable outcomes." said Joe Sullivan, president of the Organization of MISO States and vice chair of the Minnesota Public Utilities Commission. "We see this year over year — the insights from this survey directly influence the strategies and reforms needed to address resource adequacy challenges and navigate the evolving energy landscape effectively."

The annual survey provides a five-year resource adequacy outlook for the region and complements the MISO region's broader reliability planning processes. Additional new inputs and key findings from the 2025 survey include:

- Replacement and surplus queue projects will reduce the impact of retirements by utilizing existing interconnection service, contributing around 25% of new capacity additions.
- Economic growth is driving new, large spot-load additions from data centers, reshored manufacturing and industrial projects, increasing pressure on resource adequacy.
- Recent resource adequacy reforms – including a shift to a seasonal construct and the Reliability-Based Demand Curve – enhance MISO's and utility's ability to assess operational risks tied to extreme weather and a shifting resource mix.
- Additional views of the pending resource accreditation methodology changes are included in preparation for the transition to Direct Loss of Load accreditation in the 2028/29 planning year.

"This survey reinforces the importance of accelerating new resource additions and carefully managing retirements as demand continues to grow," said John Bear, MISO's President and CEO. "OMS has been instrumental in the progress we're making in our Reliability Imperative efforts. We will continue working with our stakeholders to evolve our tools and processes to support a reliable grid of the future."

The OMS-MISO survey assesses anticipated generating capacity over a five-year planning horizon (2025/26 through 2029/30) and is a key resource in MISO's long-term reliability planning toolkit. This year's results align with MISO's Planning Resource Auction and Futures analyses, providing a comprehensive view of system risks and resource needs.

MISO
http://www.misoenergy.org/

6 June 2025

Neoen inaugurates Portugal's largest solar park

French renewable energy company Neoen has officially inaugurated Portugal's largest solar park in Azambuja, 70km north of Lisbon. It will generate more than 500 gigawatt hours (GWh) of green energy each year, enough to power 110,000 homes.

It is made up of the 204 megawatts peak (MWp) Rio Maior solar farm and the 68MWp Torre Bela solar farm, and is strategically connected to the REN (Redes Energéticas Nacionais, the Portuguese national electricity system) substation through a 400kV overhead line. It began supplying electricity to the grid at the end of 2024 and is now fully operational. The Portuguese state will purchase 80% of the energy produced under two 15-year power purchase agreements from the 2019 renewable capacity auction. The remaining energy and certificates of origin are to be sold on the electricity market.

The solar assets are developed in 20-hectare (ha) plots within the leased area in the Herdade da Torre Bela estate. The plots are separated by green corridors, and this improves connections between protected biodiversity areas spanning almost 200ha. 6,000 cork oaks have been preserved, and a natural screen conceals the solar panels, ensuring harmony with the landscape. Neoen Portugal business development head Matilde Azevedo stated: "We are particularly thankful to the Ministry of the Environment and Energy, the Direção-Geral de Energia e Geologia (DGEG), the Agencia Portuguesa do Ambiente, REN, the municipality of Azambuja and the local communities for their support in bringing the solar farms of Rio Maior and Torre Bela to fruition.

Neoen's portfolio in Portugal has now reached 326MWp of capacity in operation or under construction. This includes the operational 8.8MWp Coruche and 2.2MWp Seixal solar farms and the 43MWp Foral solar farm, currently under construction. Neoen is developing a diverse pipeline of more than 600MW of projects in Portugal, incorporating solar, wind and storage technologies. This includes plans for a wind farm and a significant battery storage project at Rio Maior, a strategic network location. Neoen group CEO Xavier Barbaro stated: "We are determined to deepen our engagement and to turn Rio Maior into a true green power hub. We are eager to share our expertise in battery storage to strengthen the resilience of the Portuguese grid, just as we have successfully done in other countries. More than ever, Neoen strives to deliver innovative solutions to meet today's challenges – in Portugal and around the world."

Renewables Now
http://renewablesnow.com/

6 June 2025

IEA: Global energy investment to reach record $3.3tn in 2025

Global energy sector investment is expected to reach a record $3.3tn (EUR3.05tn) in 2025, according to a report published by the International Energy Agency (IEA). This increase is mainly attributed to the growth in spending on low-carbon electricity generation, grid infrastructure, energy storage and new nuclear facilities.

The IEA estimates that $2.2tn (EUR2.03tn) will be allocated to low-emission technologies, including renewables, nuclear power and batteries. In contrast, investment in oil, natural gas and coal is projected to total $1.1tn (EUR1.02tn), representing one-third of total global energy investment.

Electricity and data: key growth drivers

The agency identifies the onset of the "age of electricity" as one of the main drivers of this shift. Rising electricity demand, fuelled by artificial intelligence, data centres and electric vehicles, is reshaping investment patterns. In 2025, electricity-related spending is

expected to reach $1.5tn (EUR1.39tn), which is 50% higher than combined fossil fuel investments.

Electricity consumption by data centres has increased by 12% annually since 2019, accounting for 1.5% of global electricity use in 2024. The IEA anticipates even higher demand by 2030, reaching 945 terawatt-hours from AI-powered data centres. Among low-emission technologies, solar photovoltaic (PV) remains the top investment area. The IEA forecasts $450bn (EUR417bn) in solar PV investment for 2025, with strong growth in emerging economies due to falling costs and increased supplier competition. Battery storage investments are also rising, surpassing $65bn (EUR60bn).

The IEA reports that capital investment in nuclear power has increased by 50% over five years, reaching around $75bn (EUR69bn) in 2025. The Middle East and the United States account for nearly half of all final investment decisions in natural gas. Investment in electricity grids remains steady at $400bn (EUR370bn) per year. This level is insufficient to meet the growing needs of electricity production. The IEA highlights permitting delays and strained supply chains for transformers and cables as major obstacles.

Africa receives just 2% of global clean energy investment, despite hosting 20% of the world's population. The agency calls for increased international public financing to attract greater volumes of private capital to the region.

In hydrocarbons, upstream oil investment is expected to decline by 6% in 2025 — the first year-on-year drop since the 2020 downturn — driven mainly by reduced spending on US shale oil. Meanwhile, liquefied natural gas (LNG) is on a strong growth path with major projects underway in the United States, Canada and Qatar. The global LNG market is on track for its largest-ever capacity increase between 2026 and 2028. China remains the largest energy investor globally, accounting for nearly one-third of clean energy investment. India and Brazil also stand out among emerging markets.

Energy News
http://energynews.pro/

6 June 2025

China approves 11.29 GW of coal in Q1 despite unprecedented decline in 2024

China approved 11.29 gigawatts (GW) of new coal-fired power generation capacity in the first quarter of 2025, according to a study published by Greenpeace East Asia on June 5. This decision follows an unprecedented annual decline in new permits in 2024, which fell to 62.24 GW, down 41.5 % from 2023.

Since 2021, China had increased the pace of coal project approvals, reaching 289 GW of new capacity over that period—double the 145 GW approved between 2015 and 2020. However, 2024 marked a turning point, with a clear drop in new projects for the first time in four years. This decline was particularly noticeable in eastern provinces, which had historically driven new thermal installations. Greenpeace East Asia's analysis is based on a review of official documents, including project approvals, environmental impact assessments, and technical reviews, covering the period from 2015 to early 2025. The organisation identified a shift in the geography of approved projects, moving toward western provinces rich in renewable energy resources.

In the first quarter of 2025, the leading provinces approving new plants were Inner Mongolia (10.64 GW), Gansu (10.02 GW), Xinjiang (5.28 GW), Heilongjiang (4.66 GW), and Jilin (4.66 GW). These projects focus mainly on large-scale units of 600 megawatts (MW) and above, which accounted for 88.9 % of the capacity approved in Q1 2025. At the same time, official data show that installed wind and solar capacity reached 1,482 GW at the beginning of 2025, surpassing the 1,450 GW of all thermal sources for the first time. Over the same period, solar and wind output fully met the increase in national electricity demand.

Despite the rise of renewables, coal projects continue to be approved in a context where existing capacity is considered sufficient to meet peak demand. According to Greenpeace East Asia, the build-up of excess capacity could result in stranded assets and increased costs for the energy transition. Large thermal plants also face challenges adjusting rapidly to demand fluctuations due to their operational inertia. This mode of production is not well-suited to grids increasingly powered by intermittent sources like wind and solar. Greenpeace East Asia is calling for more investment in storage, distributed renewables, and demand-side response mechanisms to stabilise the grid without resorting to new coal units.

Energy News
http://energynews.pro/

6 June 2025

Renewable energies accounted for 33.9% of electricity consumption in France in 2024

Renewable electricity production in France reached 150 TWh in 2024, representing a 10.6% increase compared to 2023. This growth is mainly attributed to higher hydropower output, supported by favourable hydrological conditions, and a significant rise in installed solar capacities.

By the end of 2024, the total renewable electricity capacity, including hydropower, solar photovoltaic, onshore wind, offshore wind, and bioenergy, stood at 76.7 GW. This marks an annual increase of more than 6.7 GW. Solar contributed the most with an additional 4,961 MW, followed by onshore wind (+1,091 MW) and offshore wind (+665 MW).

Renewable production covered 33.9% of electricity consumption in metropolitan France. In comparison, it accounted for 27.8% of total national electricity production from all sources. Installed solar capacity reached 24,333 MW as of 31 December 2024, an increase of 3,137 MW over the previous year. It generated 24.8 TWh, or 5.7% of national consumption, up 10.3% year-on-year. This contribution varies by season, peaking in the summer. Onshore wind, despite growing to 22,875 MW in installed capacity, saw production fall to 42.8 TWh in 2024, down 12.6% from 2023. The technology covered 9.6% of electricity consumption in metropolitan France.

Offshore wind produced 4 TWh in 2024, a 111.2% increase compared to the previous year. This rise is linked to the ramp-up of the Saint-Brieuc, Fécamp, and Saint-Nazaire wind farms, which now total 1,508 MW in capacity. Offshore wind accounted for 0.9% of national consumption, with further growth underway.

The hydropower fleet, with a stable capacity of 25,716 MW, generated 69.8 TWh in 2024, a 27.3% increase. It remains the leading renewable electricity source in France, covering 15.8% of metropolitan consumption. The performance reflects particularly favourable hydrological conditions during the year. The bioenergy electricity sector, including energy recovery from waste, had a capacity of 2,272 MW. It generated 8.5 TWh in 2024, a slight increase of 1.5% compared to the previous year. It accounted for 1.9% of national electricity consumption.

Energy News
http://energynews.pro/

9 June 2025

GE Vernova commissions India's first variable speed pumped storage unit at country's largest hydropower complex

GE Vernova has announced it has commissioned the first of four 250 MW variable speed units at THDC India Limited's Tehri Pumped Storage Hydropower Plant, part of the Tehri Hydropower Complex.

With this 1 gigawatt (GW) expansion, the complex will reach 2.4 GW of generating capacity and become India's largest hydropower complex. The project's reservoir will also help provide support with irrigation and drinking water during non-monsoon periods to the state of Uttarakhand, where it is located.

"With this project, Tehri will become India's first power plant to use variable speed pumped storage technology and the country's most modern hydropower station" said Frederic Ribieras, CEO of GE Vernova's hydropower business. "With fast transition between the turbine and pump operation, the four new units are expected to enable power control, leading to significantly improved grid flexibility. These are all crucial capabilities as more renewables are integrated into the country's energy mix."

Hydropower remains a cornerstone of India's renewable energy landscape, with an installed capacity of approximately 51 GW as of early 2024, positioning the nation as fifth globally in hydroelectric capacity

Pumped Storage units help stabilise the grid by acting as giant batteries: water is pumped from the lower to the upper reservoir in times of surplus energy and, in times of demand, water from the upper reservoir is released, generating electricity as the water passes through the turbine. This technology is the largest source of long duration energy storage globally, representing about 94 percent of total energy storage capacity.

For this project, GE Vernova capitalises on its broad portfolio of technologies to generate, transfer and store power to deliver a full water to wire solution, spanning from electrical, hydraulic machines to converters. The project includes the integration of the four doubly fed induction motor generators and the associated pump turbines with the power electronics and control systems.

- Tehri Hydropower Complex includes:
- 1 GW Tehri Hydropower Plant commissioned in 2006.
- 400 MW Koteshwar Hydropower Plant commissioned in 2012.

1 GW Tehri Pumped Storage Hydropower Plant, where GE Vernova is currently delivering four 250 MW Pumped Storage Variable Speed Doubly Fed systems. GE Vernova has a substantial presence in India, across generation, transmission and distribution. The company has five Technology and Engineering Centers focused on advancing research, development and innovation in new technologies and solutions. Additionally, the company operates 11 manufacturing sites that are undertaking local production and generating employment. The company's workforce in India comprises of over 10,000 employees, including more than 3,000 engineers and technologists.

PEI
http://www.powerengineeringint.com/

10 June 2025

Cyprus curtails more than half of renewables, including residential solar

Curtailment of green power in Cyprus has become an acute issue for the country's electricity sector, which is now also cutting significant volumes of solar power generated by residential and small commercial units. Unless Cyprus meaningfully adopts energy storage, its energy transition remains in jeopardy.

According to CyprusGrid, an energy analytics platform focused on the country's electricity sector, Cyprus curtailed 145,000 MWh of renewable energy between January and May 2025 – a 58% curtailment rate out of an estimated 251,000 MWh of potential clean generation. In contrast, Cyprus curtailed 29% of its generated renewable energy in 2024, up from 13.4% in 2023 and 3.3% in 2022.

Also notable, said Dr. Andreas Procopiou, founder of CyprusGrid, is that Cyprus is curtailing a record volume of solar power from residential PV units this year. In the first five

months of 2025, Cyprus' grid operators curtailed 19,850 MWh of solar from residential and small commercial PV systems – about 14% of total curtailed energy during that period, Procopiou told pv magazine.

In the past, said Procopiou, power curtailments in Cyprus mainly affected large solar plants monitored through the network operators' SCADA systems. In cases of significant imbalances between generation and demand, network operators could resort to alternative control methods such as ripple control, but this happened rarely.

Thus, while in 2024 Cypriot grid operators curtailed a cumulative 1,500 MWh of residential solar power, from January to May this year they curtailed around 19,850 MWh using the ripple control method – a sharp increase over the same period in 2024, representing an increase of more than 1,200%. The increase in residential solar curtailment comes as Cyprus' self-consumption programs – net metering and net billing – contribute a large share of newly added PV capacity. In 2024, Cyprus installed 159 MW of new solar capacity, of which 100 MW were self-consumption units

The government has also signaled plans to abolish net metering from Aug. 1 and possibly introduce net billing, but the sector is still waiting for an official announcement.

Procopiou said he is disappointed that the forthcoming policy shift is happening without public dialogue or transparency, but he claimed that the problem is not the shift itself

"Net billing can be part of a modern energy framework. The real issue is that, once again, we're seeing reactive policy-making, not planning," he explained. "Everything we're facing today, from curtailment to grid saturation, was entirely predictable. Time and again the domestic solar PV has warned that net metering without incentives for storage and flexibility would not be enough. Years later, the system is overwhelmed, and instead of building solutions, we're pulling the plug on citizens who invested in clean energy in good faith." Procopiou argued that Cyprus is not undergoing a genuine energy transition, but rather backsliding while presenting it as progress – a move he warned could alienate thousands of households that invested in clean energy in good faith.

By the end of 2024, Cyprus had 1,478 MW of fossil fuel capacity, 797 MW of solar, 155 MW of wind, and 12.4 MW of biomass plants.

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

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'World first' seabed data centre will run on offshore wind power

China claimed a world first with the launch of a commercial-scale underwater data centre project powered by offshore wind.

Local authorities and Hicloud Technology signed a deal to develop a two-phase, 24MW underwater data centre (UDC) in waters off Shanghai, reported Chinese news agency Xinhua. Seabed deployment offers several potential big wins for the booming data centre sector. One is access to development real estate near massive cities. Another comes in the form of ready-made seawater-based cooling that Hicloud claims can boost energy efficiency by up to 60%.

Hicloud will invest about 1.6bn yuan ($222m) in the Shanghai Lingang UDC project, which will source about 90% of its power from offshore wind farms operating in the area, it was reported. The Shanghai cluster builds on experience gathered during a demonstrator project that Hicloud deployed in 2022 off China's Hainan province.

While the Chinese project claims to be the first commercial scale wind-powered initiative, global tech giant Microsoft tested seabed deployment of servers off Orkney, Scotland, in a two-year trial that ended in 2020. Despite deeming the Scottish test a success, Microsoft has not so far revealed plans for any larger deployments of the technology.

Deploying data centres underwater or even sending them into orbit are two of the more extreme measures being considered to reduce the energy needs of ever more power-hungry AI-based facilities. Back in the mainstream, some hyperscale data centre operators are sealing deals for gas or even nuclear power to underpin supply to projects.

Recharge Energy
http://www.rechargenews.com/

11 June 2025

UK Commits £14.2bn to New Sizewell C Nuclear Plant

The UK government has committed £14.2 billion ($19.2 billion) to fund the construction of the Sizewell C nuclear power plant in Suffolk. This investment marks a significant step toward providing low-carbon electricity and reducing reliance on fossil fuels in the UK. Sizewell C, with its 3.2GW capacity, is expected to generate electricity sufficient for six million households and create approximately 10,000 jobs. The plant's design mirrors that of Hinkley Point C, though the latter has faced delays and higher-than-expected costs.

This funding adds to over a decade of financial support for Sizewell C, with total costs potentially exceeding £40 billion upon completion. The investment reflects the critical role of nuclear energy in the UK's strategy to build a stable, sustainable energy supply, alongside growing offshore wind projects.

Rising costs and complex approval processes have posed challenges to replacing the UK's ageing nuclear reactors. The latest £14.2 billion allocation brings the government's total support for Sizewell C to £17.8 billion, according to Bloomberg. However, the project still awaits a final investment decision, which depends on securing private sector funding.

UK ministers are working to attract investors at the Anglo-French summit scheduled for July 2024 in London, as reported by the Financial Times. The government is also advancing plans to diversify its energy portfolio, with an upcoming announcement on a competition to support small modular reactor development. Companies such as a Rolls-Royce division and a GE Vernova-Hitachi partnership are among the participants.

In March 2025, Amentum, an engineering and technology solutions provider, was appointed as the exclusive programme and project management partner for Sizewell C. Chancellor Rachel Reeves included this investment in a wider spending review covering sectors like healthcare and defence, reinforcing the government's commitment to sustainable energy.

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