WORLD POWER SYSTEMS REVIEW

1 August 2025

16 July 2025

Construction Begins on the World's Tallest Wind Turbine in Brandenburg

This week marks the commencement of the construction of the tallest wind turbine globally, located in the Brandenburg municipality of Schipkau. According to reports from local media, the operator Gicon has confirmed that the turbine will have a hub height of 300 meters, while the tips of its blades will reach an impressive height of 365 meters. This towering structure will be just slightly shorter than Berlin's iconic TV tower.

To ensure stability, the wind turbine will feature a unique double lattice structure instead of the conventional solid tower base. This innovative design aims to harness stronger winds found at greater altitudes, thereby enhancing energy production efficiency.

The anticipated energy output from this turbine is based on extensive measurements taken over a year from an existing 300-meter high met mast. It has been noted that wind patterns at this height not only yield higher average speeds but also exhibit a wider distribution, resulting in significantly more operational hours for wind turbines compared to those at lower elevations. The expected performance is comparable to that of offshore wind farms, but with the reduced operational costs typical of onshore facilities. The turbine is scheduled to begin operations next year, albeit a year later than initially planned.

Gicon aims to pioneer renewable energy generation from a third tier, supplementing existing ground-mounted solar photovoltaic systems and conventional wind turbines that operate at lower heights. This new turbine design will allow for the deployment of up to 1,000 additional units across Germany, strategically positioned between existing wind farms without requiring extra land. The height of these turbines will prevent rotor overlap, allowing them to efficiently utilize wind resources.

Despite some local opposition to the project, protests have been relatively minor. A nearby flying club submitted an urgent appeal against the construction; however, it was dismissed by the Higher Administrative Court of Berlin-Brandenburg. The company has also committed to sharing a portion of the turbine's revenue with the local community. Since 2015, Gicon has distributed approximately three million euros to local projects, contributing funds for a new fire truck and the renovation of schools and roads. The wind turbine is expected to operate for the next 20 years.

The Munich Eye
http://themunicheye.com/

21 July 2025

Dutch Gov't Lowers 2040 Offshore Wind Target - '50 GW Unrealistic and Unnecessary'

Dutch Minister for Climate and Green Growth, Sophie Hermans, presented the North Sea Wind Energy Infrastructure Plan (WIN) on 16 July to Parliament and said that the 2040 offshore wind target of 50 GW will be lowered. The new plan and Climate and Energy Memorandum, expected to be released and signed in September, are planned to set the target at 30-40 GW. The Netherlands will still maintain its 21 GW offshore wind goal for the near term.

In a letter to Parliament, Minister Hermans said the 50 GW goal was ambitious and unrealistic, but also that this amount of offshore wind generation capacity was not necessary, based on the most recent insights into the expected demand for electricity in 2040. "Furthermore, the hydrogen market is developing more slowly than expected. This also makes offshore hydrogen production less urgent. Therefore, it currently appears neither feasible nor necessary to have 50 GW of offshore wind energy production capacity by 2040, nor to build the necessary infrastructure", Minister Hermans states in the letter.

The government found that a target of approximately 30 GW for 2040 was a robust and widely supported minimum scenario, while 40 GW is considered necessary in many of the future scenarios examined to meet the expected energy demand. The Offshore Wind Energy Roadmap will specify the targeted installed capacity for 2040 and the years leading up to it after 2032.

According to the Ministry of Climate and Green Growth, from an infrastructure feasibility perspective, a maximum of 4 GW of electrical infrastructure can be developed per year, although this will likely not be possible every year due to supply chain constraints. An exception of 5 GW will be made in 2026 due to the Nederwiek IB wind farm, whose tendering was postponed, and the site will be offered for development together with Nederwiek II and Nederwiek III.

Offshorewind
http://www.offshorewind.biz/

21 July 2025

Germany Deploys 7.1 GW of Solar in H1

Germany installed 905 megawatts (MW) of new photovoltaic (PV) capacity in June 2025, according to the Federal Network Agency (Bundesnetzagentur). This marks a decline from 1,146 MW in May 2025 and 1,449 MW in June 2024, reflecting a slowdown in monthly solar deployments.

Rooftop systems contributed 439 MW to the June total, while ground-mounted projects accounted for 319 MW. The remaining capacity came from other system types, such as balcony PV installations. In the first half of 2025, Germany's cumulative PV installations reached approximately 7.1 gigawatts (GW), down from about 8 GW in the same period of 2024. The strongest growth occurred early in the year, with over 3.23 GW connected to the grid in January and February. The introduction of the Solar Peak Act in March 2025 has impacted the sector by removing compensation for PV system operators during hours of negative spot market electricity prices. The Bundesnetzagentur reported 389 such hours in the first half of 2025, affecting the financial incentives for solar energy producers. Despite this, Germany's total installed PV capacity has reached 107.37 GW, a significant milestone in its renewable energy expansion.

The growth in solar capacity underscores Germany's commitment to sustainable energy, with rooftop and ground-mounted systems playing key roles in meeting national targets. Klaus Müller, president of the Bundesnetzagentur, noted: "The remarkable growth of photovoltaics continues." This reflects the ongoing momentum in solar deployment, even as challenges like grid integration and market pricing persist.

The country aims to achieve 215 GW of solar capacity by 2030, supported by policies promoting renewable energy adoption. The slight decline in installations compared to 2024 highlights the need for continued investment in grid infrastructure and storage solutions to maximize solar energy utilization. Germany's solar sector remains a cornerstone of its energy transition, contributing to reduced reliance on fossil fuels and enhanced energy sustainability.

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

22 July 2025

Construction Starts at 1,000 MW Solar Power Project in Basra

The Iraqi Prime Minister has laid the foundation stone for the Shams Al-Basra solar power station, a landmark renewable energy project in Basra with a total generation capacity of 1,000 megawatts.

Speaking at the inauguration, Mohammed Shia Al-Sudani highlighted the strategic importance of the project in supporting Iraq's power generation capacity and advancing the country's clean energy goals. He pledged full government support to ensure its timely completion.

The solar project forms part of a broader agreement between Iraq's Ministry of Oil and French energy giant TotalEnergies. It will be built over 9,000 dunams [900 hectares; 2,224 acres] of land and comprise 2 million solar panels divided into four units, each generating 250 MW. The facility will also include:

- A 132 kV transmission network spanning 180 km;
- A newly built 132 kV substation;
- Upgrades to two existing ministry-owned secondary substations.
- The first 250 MW unit is scheduled to come online by the end of this year.

Under the contract, TotalEnergies will operate and maintain the plant for 25 years. The project is expected to deliver environmental benefits by reducing air pollution, lowering reliance on fossil fuels, and cutting carbon emissions. It will supply power to three secondary substations across the region.

Iraq Business News
http://www.iraq-businessnews.com/

22 July 2025

Dusty solar panels regain 96% efficiency with new wind-powered cleaning tech

A joint research team from the Daegu Gyeongbuk Institute of Science & Technology (DGIST) and Samsung Electronics has created a self-powered technology that removes dust from solar panels using only wind.

Professor Juhyuck Lee led the team from DGIST's Department of Energy Science and Engineering, and Dr. Wanchul Seung from Global Technology Research at Samsung Electronics.

The core of this breakthrough is a wind-powered rotational triboelectric nanogenerator. This device captures energy from wind and supplies it to an electrodynamic screen (EDS) that sweeps dust off solar panels. This design works independently, unlike conventional systems that need an external power source. The dust buildup on solar panels is a serious issue that cuts power output and raises cleaning costs. While traditional EDS technology can remove dust using electric fields, it often needs a high-voltage power supply.

This makes it impractical in remote or hard-to-reach locations such as deserts, mountains, or space stations. "The key takeaway in this study is that three-phase high voltage generated by wind power is used to move dust in the desired direction, and it does not require external power," said Professor Lee. In 2024, researchers at DGIST proposed a single-phase wind-powered EDS system. While it offered a step forward in autonomous cleaning, the design had flaws. It worked by shifting dust side to side using electric fields and relied on gravity to pull the dust down. As a result, it was not very efficient. Its performance was heavily affected by the angle at which a solar panel was installed. To address these challenges, the team created a new three-phase EDS system. It includes a specially built three-phase rotational triboelectric nanogenerator and uniquely patterned EDS electrodes.

The updated design moves dust in a single direction, offering better control and higher efficiency. Importantly, the performance remains consistent regardless of the tilted solar panel. Tests showed that the wind-powered generator could deliver a voltage as high as 1,383 volts. The system achieved a dust removal efficiency of 83.48%. This is about 1.6 times more effective than the earlier single-phase model. "This technology will reduce the

maintenance costs of solar panels and can be applied efficiently across a wide range of environments," stated Lee.

The real-world implications of this technology are significant. One of the major concerns with solar energy is keeping the panels clean in places where manual labor or water-based cleaning is not practical. In desert regions or outer space, sending people or machines for panel cleaning can be costly and complicated. The new system takes wind, a freely available resource in many regions, into a cleaning solution.

In addition to dust removal, the wind-powered EDS system improves solar panel performance. The study found that using only wind power, the system could restore solar panels to about 96% of their original power conversion efficiency. That means more energy output without the need for expensive upkeep. The combination of smart design and self-sufficiency gives this technology an edge. It offers a practical way to extend the life of solar installations and improve their reliability in harsh environments. The system is especially useful for off-grid locations with no external power source.

Interesting engineering
http://interestingengineering.com/

22 July 2025

UK Gives Green Light to Sizewell C Nuclear Plant

On Tuesday, Britain granted final approval for the £38 billion ($51 billion) Sizewell C nuclear power plant in eastern England's Suffolk region. The project secured funding from Canada's La Caisse pension fund, UK-based energy company Centrica, and London-based Amber Infrastructure, alongside France's EDF. The British government will hold the largest stake at 44.9%, with La Caisse at 20%, Centrica at 15%, and Amber Infrastructure at 7.6%. EDF confirmed its 12.5% stake earlier in July.

The Sizewell C plant aims to modernize Britain's aging nuclear infrastructure, enhancing energy reliability, supporting climate goals, and generating employment opportunities. Centrica committed £1.3 billion to construction funding as part of its agreement with the government, reflecting strong investor confidence in the project's potential. The government emphasized the project's importance, stating: "This project will play a vital role in ensuring a stable and clean energy supply for the future." The initiative aligns with efforts to strengthen energy security and promote sustainable energy production while fostering economic growth through job creation in the region.

The collaboration between domestic and international investors, including La Caisse, Centrica, Amber Infrastructure, and EDF, underscores the project's significance. Sizewell C is expected to contribute to the local economy by creating jobs and supporting infrastructure development. The plant's construction, set to advance in the coming years, marks a significant step toward achieving Britain's environmental and energy objectives. The development of Sizewell C reflects a commitment to balancing energy needs with sustainability. By replacing outdated facilities, the project aims to provide a reliable, low-carbon energy source, supporting Britain's long-term climate targets while driving economic benefits through investment and employment opportunities.

Reuters
http://www.reuters.com/

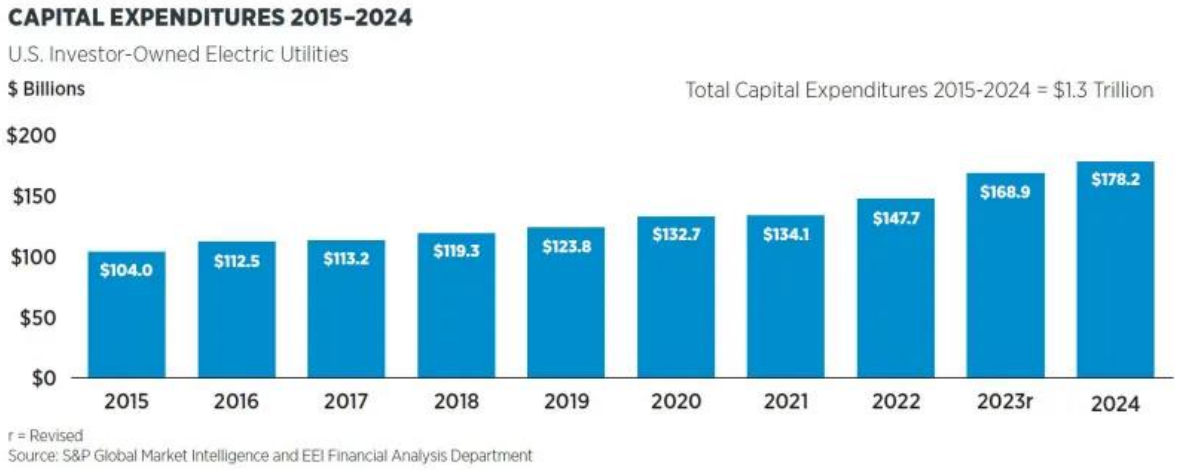
23 July 2025

EEI: Electric utilities will invest more than $1.1T by 2030 to meet demand growth

Investor-owned U.S. electric utilities will invest more than $1.1 trillion in the 2025-2029 period, marking a rapid increase in capital expenditures as the sector rushes to meet growing power demand, according to a Wednesday report from the Edison Electric Institute.

Capital expenditures from 2015 to 2024 totaled $1.3 trillion, the trade group noted.

Chart shows utility capital expenditures rising steadily between 2015 and 2024.



The electric utility sector's capital expenditures "are higher than any other sector in the U.S. economy, outpacing transportation, retail, and other capital-intensive industries," EEI President and CEO Drew Maloney said in a statement. "As demand for electricity continues to grow, we remain committed to making the investments needed to strengthen America's energy security while ensuring that our customers receive reliable, affordable energy."

Much of the investment is going to meet rising demand from data centers. While predictions for AI-related load growth vary, EEI's financial review cited a McKinsey study predicting data center demand will rise about 20% annually from 2023 to 2030, from 60 GW today to 170-220 GW. Depending on factors, demand could even reach 300 GW, the McKinsey analysis said.

But not all proposed data centers will ultimately be built, experts agree. A Schneider Electric 2030 AI power demand estimate put scenario ranges from 16.5 GW to 65.3 GW. "Of course, prospects for higher demand growth come from more than AI and data centers," EEI's report noted. "Increased electrification of transportation, manufacturing reshoring, and strong economic development across many service territories are positive factors as well."

"The longer-term bias for electric company growth is on the upside," the report concluded. Utilities are working to quickly bring new generation online, with the bulk of it being renewable. But in recent months there has been a shift towards proposing new gas capacity to power data centers. The sector brought 52 GW of new generating capacity online in 2024, 11% more than the 46.8 GW in 2023 and 48% more than the 35 GW in 2022, according to the report.

"The increase from 2023 to 2024 was primarily due to additional solar and storage capacity," EEI said. "Solar capacity installations increased 63% to 32,486 MW in 2024, the fastest annual growth since 2020."

Energy storage additions increased 54% to 11,534 MW in 2024, EEI said. New gas capacity brought online decreased 79% to 2,428 MW in 2024, "marking natural gas's lowest increase since 2020," the report said. "Wind capacity additions also decreased," from 6,343 MW in 2023 to 4,132 MW in 2024, "indicating a maturing technology after decades of rapid growth."

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

23 July 2025

PJM capacity prices set another record with 22% jump

Capacity prices in the PJM Interconnection's latest capacity auction hit a $329.17/MW-day price cap across its region, up 22% from a year ago for most of PJM, the grid operator said Tuesday.

PJM expects the increase to record-high capacity prices for the 12-month period that starts in June 2026 could lead to 1.5% to 5% bill increases for some ratepayers, depending on what state they are in. PJM estimates that without a price cap that was established in an agreement with Pennsylvania Gov. Josh Shapiro, D, the capacity price for the 2026-27 delivery year would have been nearly $389/MW-day, or about 18% higher.

A year ago, PJM's capacity auction sent shockwaves through its 13-state region when prices for the delivery year that started June 1 soared to $269.92/MW-day for most of its footprint, up from $28.92/MW-day. Prices in that auction hit zonal caps of $466.35/MW-day for the Baltimore Gas and Electric zone in Maryland, and $444.26/MW-day for the Dominion zone in Virginia and North Carolina.

The 2024 auction's total cost jumped to $14.7 billion from $2.2 billion. The cost of this year's auction, which opened July 9 and closed July 15, climbed even higher to $16.1 billion, up 9.5% from a year ago. Capacity costs make up a relatively small part of electric bills, according to PJM. In the auction, PJM bought 134,311 MW for the capacity year that starts June 1, according to the grid operator's auction report. About 135,192 MW was offered in the auction, a decline from last year. PJM secured enough capacity to have an 18.9% reserve margin as forecast peak load grew by about 5,500 MW, mainly from data centers.

Gas-fired generation accounted for 45% of the cleared capacity, followed by nuclear at 21%, coal at 22%, hydroelectric at 4%, wind at 3% and solar at 1%, according to PJM. Demand response offered in the auction was essentially flat at 8,010 MW, PJM said.

The auction's high capacity prices are signs that supply and demand conditions in PJM are tight, according to Stu Bresler, executive vice president for market services and strategy at PJM. However, there are signs that the market is responding to PJM's capacity auction last year when prices took off, Bresler said during a media briefing. The latest auction included new generation and uprates of existing power plants totaling 2,669 MW of "unforced capacity," a measure in a resource's accredited value, according to Bresler. PJM's last three auctions didn't include new generation or uprates, according to the grid operator.

Also, 17 generating units with about 1,100 MW in interconnection rights have withdrawn retirement notices since the previous auction, Bresler said. However, the pace of building generating resources isn't keeping up with rising electric demand, according to Will Sauer, Exelon vice president of federal regulatory affairs. Instead of building power plants, there is ongoing consolidation in the power sector in PJM, he said in an interview.

The consolidation affecting PJM includes Constellation Energy's plan to buy Calpine, NRG Energy's pending deal to buy a fleet of LS Power power plants and Talen Energy's proposed transaction to buy two gas-fired power plants in PJM. With supply chains "out of whack" — partly because of import tariffs — power plant developers cannot get needed parts to build generating units, according to Tyson Slocum, director of Public Citizen's Energy Program. So instead, they "plow money into making big energy players even bigger through consolidating existing natural gas generation assets," Slocum said. "It's a mad rush right now, and I don't think it's over." Exelon and its utilities, which operate in states that bar utilities from owning generation, are considering "all options" for getting more power supplies into PJM, including getting back into rate-regulated generation, according to Sauer.

The Trump administration is likely to use the auction results to justify measures aimed at keeping thermal power plants, namely coal, in PJM from retiring, according to analysts

with Capstone, a research firm. The U.S. Department of Energy cited an energy "emergency" in June when it ordered Constellation Energy to keep running generating units in Pennsylvania that the company planned to retire. Environmental groups and some states have challenged that order.

Hitting the price cap wasn't a surprise, according to Molly Jerrard, head of flexibility at Enel North America. "This is what the load-growth era looks like for PJM," Jerrard said in an email. The supply-and-demand tightness adds urgency for large loads to implement flexibility strategies, according to Jerrard. Enel expects more demand response participants to "come off the sidelines" to take advantage of high capacity prices, she said.

The latest auction results are a boon to power plant owners such as Talen, Constellation, NRG, Vistra and Public Service Enterprise Group, according to Jefferies. Constellation cleared 18,025 MW in the auction, up from 17,500 MW a year ago, the independent power producer said in U.S. Securities and Exchange Commission filings. Vistra said it cleared 10,314 MW compared to 10,255 MW in the previous auction. Power plant owners hailed the results even as consumer advocates decried the rising costs that will be passed on to the public.

"PJM is successfully meeting the record-setting demand for reliable electricity, adding more than 2,600 MW of new generation to power American families and business, new electric vehicles, AI and booming industrial growth, all while keeping prices steady for over 15-plus years," Constellation said in a statement.

The PJM Power Providers Group, or P3, said the auction is a sign of progress in PJM.

"New generation is being added, existing generation retained, external capacity imported and retired capacity reactivated," Glen Thomas, P3 president, said in a statement. "The resource mix remains diverse and it is important for the market to continue to send the signal that more capacity is needed."

Ratepayer advocates, however, see the auction results as a sign of flawed PJM policies. "The power grid operator's policy decisions too often favor outdated, expensive power plants and needlessly block low-cost clean energy resources and battery projects from connecting to the grid and bringing down prices," Sarah Moskowitz, executive director of Chicago-based Citizens Utility Board, said in a statement.

PJM plans to hold a base capacity auction for the 2027-28 delivery year in December, as the grid operator works toward returning to its three-year forward auction cycle. "With little supply response likely for 2027/2028 and Effective Load Carrying Capability further reducing eligible capacity, clearing at the cap is probable for the next auction," Jefferies analysts said. However, political intervention could affect the pricing, they said. "We think the market operator is likely to face persistent scrutiny from state policymakers that are considering options to reduce or even eliminate their reliance on the PJM capacity market," ClearView Energy Partners analysts said.

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

24 July 2025

IRENA: New renewable projects now cheaper than fossil fuel alternatives

The International Renewable Energy Agency (IRENA) has confirmed that renewable power generation costs have continued to outcompete fossil fuel alternatives in 2024.

The agency's latest 'Renewable Power Generation Costs in 2024' report highlights that 91% of new renewable projects were more cost-effective than new fossil fuel alternatives last year, with onshore wind and solar photovoltaics (PV) leading the charge. The report details that solar PV costs were on average 41% lower than the least expensive fossil fuel options while onshore wind projects were 53% cheaper.

Onshore wind remained the most affordable source of new renewable electricity at $0.034/kWh, followed closely by solar PV at $0.043/kWh. This cost leadership has been driven by factors such as technological innovation, competitive supply chains, and economies of scale. Adding 582 gigawatts (GW) of renewable capacity in 2024, these energy sources have led to substantial cost savings by avoiding fossil fuel consumption valued at approximately $57bn.

Renewables have proven not only to be cost-competitive but also beneficial in reducing dependence on international fuel markets and enhancing energy security, thus strengthening the business case for their adoption. Despite the optimism, the report acknowledges short-term challenges that could potentially increase costs. Geopolitical shifts, including trade tariffs, raw material bottlenecks, and evolving manufacturing dynamics, especially in China, are among the risks identified.

Higher costs are anticipated to persist in Europe and North America due to structural challenges such as permitting delays and limited grid capacity. The report also underscores the importance of stable and predictable revenue frameworks to reduce investment risk and attract capital. It notes that financing risk mitigation is crucial for scaling up renewables, with instruments such as power purchase agreements (PPAs) being instrumental in accessing affordable finance.

Conversely, inconsistent policy environments and opaque procurement processes can undermine investor confidence. Integration costs are highlighted as a new barrier to renewable deployment, with grid connection bottlenecks and slow permitting processes causing delays in wind and solar projects. This issue is particularly acute in G20 and emerging markets, where grid investment must align with the growing electricity demand and renewable expansion.

Financing costs remain a decisive factor in renewable project viability, with high capital costs in developing countries inflating the levelised cost of electricity (LCOE) due to macroeconomic conditions and perceived investment risks. For instance, IRENA found that in 2024, onshore wind generation costs were similar in Europe and Africa at around $0.052/kWh, but the cost structures varied significantly due to differing capital expenditure and financing costs.

Technological advances beyond generation are also enhancing the economics of renewables. The cost of battery energy storage systems (BESS) has plummeted by 93% since 2010, reaching $192/kWh for utility-scale systems in 2024. These reductions are attributed to manufacturing scale-up, improved materials, and optimised production techniques. Battery storage and hybrid systems, along with AI-enabled digital tools, are becoming increasingly important for integrating variable renewable energy.

However, challenges such as digital infrastructure, flexibility, and grid expansion and modernisation must be addressed, particularly in emerging markets, to fully realise the potential of renewable energy. IRENA director general Francesco La Camera said: “New renewable power outcompetes fossil fuels on cost, offering a clear path to affordable, secure, and sustainable energy. This achievement is the result of years of innovation, policy direction, and growing markets.

“However, this progress is not guaranteed. Rising geopolitical tensions, trade tariffs, and material supply constraints threaten to slow the momentum and drive up costs. To safeguard the gains of the energy transition, we must reinforce international cooperation, secure open and resilient supply chains, and create stable policy and investment frameworks—especially in the Global South. “The transition to renewables is irreversible, but its pace and fairness depend on the choices we make today.”

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

24 July 2025

Industry welcomes 'realistic' AR7 parameters

Industry has welcomed the core parameters set by the UK government for the upcoming Allocation Round 7 Contracts for Difference round. Energy department DESNZ yesterday published key details of the auction rules ahead of next month's application window, including a boost to the Administrative Strike Prices for wind technologies.

Renewable UK executive director of policy and engagement Ana Musat said she is pleased to see parameters that are "more reflective of market realities than in previous years. Whilst wind energy projects haven't been immune to the inflation and supply chain pressures facing all major infrastructure projects, they remain cheaper than other forms of electricity generation such as new nuclear and new gas plants, so they offer the best value for money for billpayers.

"It is also worth noting that, due to competition in auctions, strike prices are likely to end up being lower than these maximum Administrative Strike Prices set out by the government, which act as a consumer backstop. "As well as the more realistic Administrative Strike Prices and load factors, we welcome the introduction of a separate pot for floating wind in this auction. "With the UK in a race to lead the world in developing floating wind components and expertise, it's vital that we unlock investment in more test and demonstration projects as soon as possible, as this will enable us to scale up this innovative technology faster."

Musat urged the UK government to work closely with industry to provide "clear strategic direction" on how a suite of reforms running in parallel with the AR7 auction – including connections reform and the Strategic Spatial Energy Plan – will be aligned.

Scottish Renewables chief executive Claire Mack (pictured) said the CfD parameters are a "promising step forward to build much needed momentum behind Scotland's impressive pipeline of clean energy projects". Mack welcomed the introduction of a separate clearing price for fixed-bottom offshore wind projects in Scotland that she said will help capture economic opportunities in the country and deliver better value for consumers.

"An ambitious budget will be needed to ensure this year's full potential can be maximised," she added. "Next steps must also include the design of an enduring solution to transmission charging, as part of wider strategic planning of our energy system, to create the fairer system we need. "It is right the scheme continues to evolve so that it can respond to the inflation and supply chain pressures facing all major infrastructure projects. We continue to encourage the UK government to engage closely with industry on future design of the scheme."

Renews
http://renews.biz/

24 July 2025

Orsted Achieves First Power at Changhua 2B&4

Ørsted, a global renewable energy company, has successfully generated first power at its 920MW Greater Changhua 2b and 4 offshore wind farms, located 35-60km off the coast of Changhua County, Taiwan. This milestone was reached five months after the start of offshore construction, marking significant progress in the project's development.

The installation of 66 suction bucket jacket foundations was completed earlier this month, according to Ørsted. The company is now concentrating on installing and commissioning the remaining turbines to achieve full commercial operations. The wind farms utilize Siemens Gamesa 14MW turbines, designed to maximize energy output in the region's offshore conditions.

Once fully operational, the electricity produced by the Greater Changhua 2b and 4 wind farms will be supplied to Taiwanese semiconductor manufacturer TSMC under a 20-year power purchase agreement. This long-term contract ensures a stable market for the renewable energy generated by the projects.

"This milestone at Greater Changhua 2b and 4 reflects our commitment to advancing renewable energy in Taiwan," said an Ørsted spokesperson. "We are focused on completing the remaining work to deliver clean energy to support the region's energy needs."

The project underscores Ørsted's expertise in offshore wind development and its role in supporting Taiwan's renewable energy goals. The Greater Changhua wind farms are expected to contribute significantly to the region's clean energy supply, powering industries with sustainable electricity.

Renews
http://renews.biz/

25 July 2025

India drafts cybersecurity rules for rooftop solar monitoring systems

India's Ministry of New and Renewable Energy (MNRE) has released draft guidelines outlining the data communication and cybersecurity architecture for remote monitoring systems (RMS) used in grid-connected rooftop solar installations. India's MNRE has released draft guidelines outlining the data communication and cybersecurity architecture for remote monitoring systems (RMS) used in grid-connected rooftop solar installations. The guidelines aim to ensure standardized, secure, and interoperable data exchange for residential rooftop solar systems deployed under the government's PM Surya Ghar: Muft Bijli Yojana subsidy scheme.

The guidelines mandate that all original equipment manufacturers (OEMs) supplying inverters under the PM Surya Ghar: Muft Bijli Yojana must connect their inverters directly to the national servers and software managed by the MNRE or a designated agency. This move follows concerns over grid stability and cybersecurity risks posed by the planned integration of 10 million rooftop solar systems, with a cumulative capacity of 30 GW.

MNRE has also mandated that all inverter communication devices including dongles and data loggers use machine-to-machine (M2M) SIMs for secure and reliable data transmission. The ministry said that the integration of 10 million rooftop solar systems under the scheme introduces significant grid stability and cybersecurity challenges. Inverter communication modules that transmit data to servers outside India not only pose risks of unauthorized control but also threaten national energy sovereignty by exposing sensitive power consumption and generation data. Further, million of inverters communicating with third-party OEM servers can be exploited to manipulate inverter operations, potentially leading to coordinated disruptions in power generation and grid instability.

The vendor-neutral and open communication protocol based data communication and security guidelines for rooftop solar system monitoring and control through the national portal, will be made available for integration testing of inverter communication devices from Sept. 1, 2025.

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

25 July 2025

Ireland to Invest €3.5 Billion in Electricity Grid Infrastructure

Ireland has announced a €3.5 billion investment to upgrade its electricity grid infrastructure, aiming to support a future powered by renewable energy. The funding will be

divided between ESB Networks, the distribution system operator, receiving €1.5 billion in equity, and EirGrid, the national transmission system operator, allocated €2 billion.

ESB Networks is currently executing a grid resilience plan to strengthen infrastructure in areas prone to severe weather, with completion targeted for October 2025. This initiative focuses on improving the reliability of electricity distribution for homes and businesses across Ireland.

EirGrid is advancing the Celtic Interconnector project, set to link Ireland's grid with France by 2027. Additionally, EirGrid's business development plan for 2026–2030 emphasizes investments in workforce development and technology, including new onshore infrastructure such as overhead lines, underground cables, and expanded substations.

The investment will enable both organizations to expand Ireland's onshore and offshore electricity transmission and distribution networks, enhancing capacity and reliability. Minister of Climate, Energy, and the Environment Darragh O'Brien stated: "This €3.5 billion investment is about building the energy infrastructure that Ireland needs for the future. It's about ensuring every home and business has a reliable and secure source of electricity, creating thousands of jobs, and making Ireland a more attractive place for international companies to invest and grow."

EirGrid's CEO Cathal Marley also expressed enthusiasm, saying: "This investment will support EirGrid to carry out the most ambitious program of work ever undertaken on the transmission system in Ireland." The funding, part of Ireland's National Development Plan, represents the largest single investment in the country's electricity network to date.

O'Brien emphasized the broader impact, stating: "A modern, resilient electricity grid is the backbone of everything we want to achieve. This investment will help to deliver energy security for Irish families and businesses, while helping us reach our target of generating 80% of our electricity from renewable sources by 2030." Ireland aims to develop 8 GW of solar, 9 GW of onshore wind, and 5 GW of offshore wind by 2030.

Earlier this month, the government approved a policy allowing private companies to establish direct grid connections, bypassing the public grid in specific cases. Solar Ireland, representing the solar industry, welcomed this move, noting it could facilitate power purchase agreements, particularly with data centers, boosting opportunities for renewable energy providers.

This investment underscores Ireland's commitment to enhancing energy infrastructure to support domestic consumption and renewable energy goals, ensuring a stable and sustainable electricity supply.

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

25 July 2025

CPIA Revises 2025 China Solar Projections Up To 300 GW AC

Key Takeaways

- CPIA has raised its 2025 solar forecast for the China market to 270 GW AC to 300 GW AC, as H1 installations exceeded expectations
- Provincial targets and green power mandates add momentum to the country's full-year demand
- The association sees growing export challenges as global markets localize manufacturing, leading to China's first-ever YoY module export drop in H1 2025

China Photovoltaic Industry Association (CPIA) now expects the country to add 270 GW AC to 300 GW AC of solar installations in 2025, up from its earlier projection. Surging H1 installations in the world's largest solar market have also prompted it to revise global forecasts to 570 GW AC to 630 GW AC.

The association had earlier forecasted China's 2025 solar installations to fall by 8% to 22%, down to 215 GW AC to 255 GW AC. This would have been the first annual decline in 6 years for the world's largest solar market – contributing to global additions of 531 GW AC to 583 GW. CPIA attributed its previous forecast to the country moving towards a market-oriented pricing system that came into force on June 1, 2025. However, this same factor has become the reason for the CPIA to raise its annual forecast to even exceed the 277 GW it installed in 2024, as the rush to cash in on the feed-in-tariff (FIT) regime pushed H1 numbers to around 200 GW (see China Solar Installations: From 100 MW In 2009 To 1 TW In 2025).

Speaking at the association's H1 2025 conference, CPIA's Bohua Wang also attributed the increased forecast to strong momentum across the country. Provincial governments steam ahead with installations, since existing projects follow the old policies, and actual targets for most provinces are higher than the 2024 indicative targets. During H1, 17 provinces added at least 1 GW capacity, while large-scale solar-wind hybrid projects progress steadily, and grid connections remain solid.

Additionally, the green power consumption mandate for the 5 key industries of aluminum, steel, cement, petrochemicals, and chemicals will also create demand, not to mention energy-hungry data centers. By 2030, China targets 253 GW of solar capacity for desertification control, which will also boost the market despite the policy changes.

Nevertheless, CPIA's upward revision is still conservative when compared to China's State Grid Energy Research Institute's 380 GW AC forecast, representing a year-on-year (YoY) increase of 35.5% attributed to growing demand from data centers and for cooling as a key determinant.

Speaking at the recent TaiyangNews Global Solar Market Developments 2025 Webinar, Rystad Energy Vice President Marius Bakke estimated new solar installations this year to total 655 GW DC. At the same event, AECEA Director Frank Haugwitz said he expects China to install up to 350 GW AC capacity.

Haugwitz lowered the projections post the webinar to 300 GW AC, announcing it on his LinkedIn account, while stating that the State Grid has lowered its estimate to 260 GW AC. Meanwhile, the country's H1 2025 new solar installations exceeded 212 GW, with the addition of 14.36 GW in the month of June.

China's module prices rebounded briefly in early April amid the 4.30 and 5.31 installation rush this year, but plunged afterward. From April onward, prices dropped across all segments for over 10 straight weeks, notes the association, falling below early-year levels and hitting historic lows by early July. It does say that prices began recovering after July 10, 2025.

The initial 6 months of 2025 were 'extremely challenging' for the Chinese solar industry as manufacturers were forced to lower production. The industry reported a growth of 7.7% YoY in solar cell output at 334 GW, while module output grew by 14.4% to 310 GW, showing a relatively higher capacity utilization rate of around 50%. Polysilicon production of 596,000 metric tons (MT) was 43.8% lower, while 316 GW of wafer production also declined by 21.4%. Their utilization rates were under 50% and 40%, respectively.

The country shipped 35.5 GW, or 7.5% less, wafer capacity, as shipments were impacted by the US imposing antidumping and countervailing duties (AD/CVD) on Southeast Asian imports. Cell shipments of 44.5 GW grew by 74.4%, driven by the rapid increase in module capacity in India and Indonesia. Module exports of 125.6 GW during the period represented a 2.82% decline, the 1st ever YoY drop for this segment, according to CPIA. It reflects a slowdown or moderation in overseas demand. The top 10 markets accounted for less than 60% of total module export value for the first time, while the share of other regions rose by nearly 10 percentage points YoY to over 40%.

Hence, despite the growth, the association notes that China's global competitiveness is declining as key markets ramp up local solar manufacturing. The US now produces 6x more modules than before the Inflation Reduction Act (IRA) and is largely self-sufficient. India has more than doubled its capacity to over 100 GW, while Europe, the Middle East, and Africa have advanced enough to support over 20 GW of full supply chains.

Wang pointed out that as these regions reduce reliance on imports, China's exports face growing pressure – global demand growth no longer guarantees growth in Chinese shipments.

Taiyang News
http://taiyangnews.info/

27 July 2025

South Africa Approves Six Solar Projects Totaling 1,290 MW

The South African government has greenlit six solar projects under the seventh bid window of its Renewable Energy Independent Power Producer Procurement Programme (REIPPPP). The Department of Electricity and Energy (DEE) announced the decision, reallocating unused onshore wind capacity to solar following the initial selection of preferred bidders in December 2024.

Located in Free State province, the six solar projects collectively add 1,290 MW of capacity. Once operational, they will supply electricity under 20-year power purchase agreements, contributing to South Africa's renewable energy goals.

Cape Town-based Red Rocket South Africa secured three projects: the 180 MW Dwaalboom 3 Solar project at ZAR 499.99 ($28.55)/MWh, the 200 MW Florida Solar Park at ZAR 506.89/MWh, and the 210 MW Virginia 4 Solar Park at ZAR 504.87/MWh. Scatec Solar Africa Pty Ltd was named the preferred bidder for the remaining three: the 240 MW Oslaagte Solar 2 and 240 MW Oslaagte Solar 3, both at ZAR 509.02/MWh, and the 220 MW Leeuwspruit Solar 1 at ZAR 514.06/MWh.

Scatec's projects, collectively known as the Kroonstad PV cluster, have a combined capacity of 846 MW, with Oslaagte Solar 2 and 3 at 293 MW each and Leeuwspruit Solar 1 at 260 MW. The cluster's estimated cost is ZAR 13 billion, funded by up to 90% non-recourse project debt and equity from owners. Financial close and construction are planned for 2026. "This milestone supports our commitment to expanding renewable energy infrastructure," said Alberto Gambacorta, Scatec's executive VP and GM for sub-Saharan Africa. "The Kroonstad PV cluster will deliver sustainable energy and contribute to regional development."

The DEE also identified eight additional compliant bidders for four solar and four wind projects, pending value-for-money negotiations. While bidder names remain undisclosed, these projects will further bolster South Africa's renewable energy capacity. In 2024, South Africa added 1.1 GW of solar capacity, following a record-breaking year for solar in 2023. The government aims to deploy at least 3 GW of renewables annually, increasing to 5 GW by 2030, supporting the nation's transition to cleaner energy sources. These projects align with efforts to enhance energy sustainability and economic growth in the region.

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

29 July 2025

DOE allows Talen to run oil-fired unit above limits to avoid outages amid heat wave

The U.S. Department of Energy on Monday issued an emergency order at the request of the PJM Interconnection to allow a nearly 400-MW oil-fired unit near Baltimore to run beyond its operating limits as the eastern U.S. swelters under a heat wave.

The unit is one of several owned by Talen Energy or its subsidiaries that were slated to retire in May before the company reached a "reliability-must-run" agreement, approved by the Federal Energy Regulatory Commission, to delay their shuttering to 2029. Under a separate 2020 consent order, H.A. Wagner generating station's unit 4 can run no more than 438 hours, or 18.25 days, a year, according to PJM. The order was prompted by an Environmental Protection Agency's finding that the plant was a significant source of local air pollution. As of July 21, the unit had about 80 hours remaining under its operating cap.

In issuing the 90-day order, DOE agreed with PJM that there is an "imminent electric reliability emergency" in the Baltimore Gas and Electric zone in Maryland. Without the order, there could be blackouts in the BG&E zone, according to PJM's petition to DOE.

PJM told DOE that even with the granting of the emergency order, the plant will "continue to be operated in compliance with permitted emissions limits," the order says. The order "does not provide relief from any obligation to pay fees or purchase offsets or allowances for emissions that occur during the emergency condition." PJM expects it will need to be able to call on unit 4 for the rest of the year, including when temperatures hit about 92 degrees in the region, according to DOE. The emergency order runs through Oct. 26.

Wagner is not the only generating unit that's been affected by a DOE emergency order, which can keep generators online beyond their retirement dates. At least two lawsuits were filed last week over DOE's emergency order directing Consumers Energy to run a coal-fired power plant in Michigan beyond its scheduled retirement. One suit was filed by Michigan's attorney general and the other was filed by a coalition of groups, led by the Sierra Club and Earthjustice. DOE abused its authority by failing to show that emergency conditions exist in the Midcontinent Independent System Operator footprint warranting its May 23 order directing Consumers Energy to delay retiring the 1,560-MW, J.H. Campbell power plant in West Olive, Michigan Attorney General Dana Nessel said in a suit filed on July 24 in the U.S. Court of Appeals for the District of Columbia Circuit.

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

31 July 2025

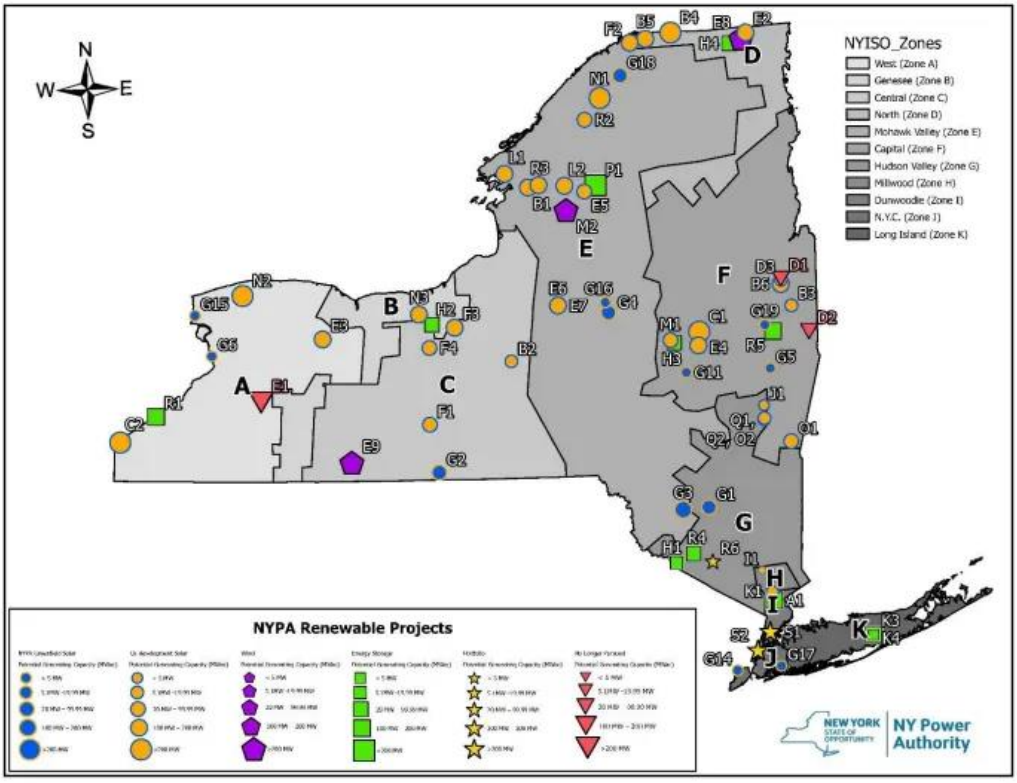
NYPA's updated renewables plan would more than double capacity to 7 GW

The New York Power Authority on Tuesday published a draft of its Renewables Updated Strategic Plan, calling for 7 GW of solar, wind and energy storage — more than doubling the total energy capacity outlined in its initial plan released in January.

New York lawmakers in 2023 expanded NYPA's authority to develop, own and operate renewable energy resources. Officials at the public power utility say they are using the new authority to continue the state's clean energy transition at a time when federal policy is shifting away from renewables.

"There has never been a more critical time for NYPA to move expeditiously as we contend with expiring federal tax credits and associated increased competition for equipment and installers," President and CEO Justin Driscoll said in a statement. Advocates say public pressure for more clean energy led to NYPA expanding its renewables plan, and the timing is particularly acute given headwinds to solar and wind coming from the White House.

"Instead of cutting deals with Trump or gutting New York's climate mandates the way he is federally, [New York Democratic Gov. Kathy] Hochul must ensure NYPA leads the nation on lowering energy bills, slashing pollution, creating good green jobs, and protecting our planet now," the Public Power NY Coalition said in a statement.



The expanded plan "shows NYPA can build even more than the 15 GW necessary for us to meet the state's climate goals, including 5 GW downstate," the group added.

The draft plan notes that the most frequent comment received during the renewables strategy public comment period was for the power authority to build 15 GW of renewable energy. "NYPA has limited financing capability and must act prudently within its resources to finance and partner on those new renewables projects it can while maintaining its AA credit rating," the report said.

The plan published Tuesday calls for 20 new renewable generation projects and 156 energy storage projects representing a combined capacity of more than 3.8 GW. That is on top of the 37 projects totaling 3 GW of renewables in the initial plan.

The NYPA Board of Trustees approved the first tranche of projects identified in the inaugural strategic plan in January. Including those, NYPA said the draft plan highlights 64 potential clean energy projects representing nearly 7 GW of capacity. A public comment period for the updated draft will run until Sept. 12, the power authority said, and two public hearings will be held in August.

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