15 September 2023

China on Track to Achieve 1 Terawatt Solar Capacity by 2026

China's solar sector is on a record-breaking trajectory that is poised to reshape the global energy landscape. Recent data and projections from Rystad Energy suggest that China will soon dominate the solar power market, with capacity exceeding 1 terawatt (TW) by 2026. This ambitious growth represents a significant leap from the 500 gigawatts (GW) milestone that is expected to be reached by the end of 2023. China's solar journey, which began over a decade ago, is marked by a steady ascent. The 500 GW mark, to be achieved in 2023, signifies a remarkable milestone in a 13-year journey. However, the pace of expansion is set to accelerate even further, with projections indicating that China's total installed solar photovoltaic (PV) capacity will skyrocket to 1,000 GW by the end of 2026.

The anticipated surge in new solar capacity for 2023 is staggering, with expectations that it will surpass 150 GW, nearly doubling the 87 GW installed in 2022. This meteoric rise is projected to continue unabated, with an estimated 165 GW in new capacity to be added in 2024 and another 170 GW in 2025. These numbers translate into China's cumulative solar PV capacity exceeding 700 GW by 2024, surging to nearly 900 GW by the close of 2025, and finally breaching the momentous 1 TW mark in 2026.

The significance of China's solar achievements is not confined to its borders. Currently, China's 500 GW represents approximately 40% of the global solar capacity, firmly establishing it as the global leader. In contrast, the United States, the second-largest solar market, accounts for roughly 12% of global capacity, with 145 GW installed. While the U.S. is also projected to witness growth, spurred by incentives under the Inflation Reduction Act, its total capacity is estimated to reach 209 GW by 2026, constituting around 11% of the global total.

The surge in solar capacity is not just a testament to China's commitment to renewable energy; it also reflects substantial investments. According to the National Energy Administration (NEA), approximately 134.9 billion CNY (approximately $15.8 billion) were invested in solar PV construction during the first half of 2023. Remarkably, this investment outpaces thermal power construction by a factor of 3.4, marking the highest among all power generation sources. Addressing the challenge of solar intermittency, China has proactively promoted the development of utility-scale renewable projects equipped with associated storage solutions. Pumped hydro, a promising technology for managing seasonal energy demand fluctuations, is rapidly gaining ground in China. As of June 2023, the country had 49 GW of pumped hydro capacity, with projections indicating it will reach 64 GW by 2025 and a remarkable 120 GW by 2030.

Yicong Zhu, Senior Renewables and Power Analyst at Rystad Energy highlighted China's commitment to solar expansion, stating, "China's national program to build out solar capacity, launched in June 2021, has led to a significant boost in large-scale projects. Although most distributed PV systems are installed on rooftops, not all of them are used for residential purposes. Around two-thirds of the distributed PV capacity in China is utilized by the commercial and industrial sectors and these projects can vary from tens to more than 100 MW."

China's strategic approach to solar energy includes a focus on distributed solar energy, primarily installed on rooftops. This approach has gained momentum, especially in densely populated areas where land availability and costs for large-scale utility solar PV projects are prohibitive. Notably, provinces such as Henan, Shandong, Hubei, Jiangsu, and Zhejiang have witnessed a surge in distributed solar installations.

Among these provinces, Henan leads the pack, with 7.6 GW of new solar PV installations, of which 98% were distributed solar PV systems. Shandong closely follows

with 6.8 GW of new installations. Shandong also boasts the highest installed solar PV capacity among the provinces, totaling 49.5 GW, comprising 35.7 GW of distributed solar and 13.7 GW of utility-scale solar. Hebei secures second place in installed solar PV capacity, with a cumulative total of 41.7 GW, evenly split between utility-scale and distributed solar PV installations.

China's provincial-specific solar PV installation targets, part of its 14th five-year planning period, aim to install 443 GW of new capacity by the end of 2025. As of June 30, a commendable 206 GW was already installed, representing a completion rate of 46.5% at the halfway mark of the five-year plan.

However, progress has been uneven across provinces. While Henan and Fujian have surpassed their targets for the planning period, nearly half of the 26 provinces have fallen behind, with less than 20% of their five-year targets achieved. This underscores the need for accelerated project development, particularly in provinces such as Shanxi, Inner Mongolia, Gansu, and Qinghai, which have yet to install more than 20 GW of new capacity.

In conclusion, China's remarkable surge in solar capacity is poised to reshape the global energy landscape, with projections indicating a total capacity exceeding 1 terawatt by 2026. This growth is driven by substantial investments, proactive measures to address solar intermittency and a strategic focus on distributed solar energy. As China continues to lead the charge in the renewable energy sector, its progress serves as a beacon for nations worldwide seeking to transition to clean, sustainable energy sources.

Solar Quarter
http://solarquarter.com/

15 September 2023

Power is restored in Nigeria after nationwide outage caused by electrical grid failure

Nigeria experienced a nationwide power outage for about 10 hours Thursday after the country's electrical grid collapsed due to a fire, authorities and the nation's electricity distribution companies reported. The grid has collapsed multiple times in recent years, and the latest outage affected all of Nigeria's 36 states and the capital city of Abuja before electricity was restored in most parts of the country.

A fire in one of the country's power plants led to "sharp drops in frequency" that resulted in grid failure early Thursday, Adebayo Adebulu, Nigeria's minister of power, said on X, formerly known as Twitter. "The fire has been fully arrested, and over half of the connections are now up and the rest will be fully restored in no time," Adebulu said Thursday afternoon.

The Enugu Electricity Distribution Company (EEDC), which supplies electricity to southeastern Nigeria, earlier issued a statement announcing a "total system" collapse. "Due to this development we are unable to provide service to our customers," company spokesperson Emeka Ezeh said. Such power failures are common in Nigeria which battles with dilapidated energy infrastructure that has caused frequent power outages.

Oil-rich but energy-poor Nigeria generates a daily average of 4,000 megawatts of electricity — some of which it is unable to distribute — for a population of more than 210 million people, far from the 30,000 megawatts a day authorities have said it needs. The inadequate power supply leaves millions of residents relying on gasoline-powered generators for electricity. However, gasoline prices have more than doubled this year after the government ended decades-long subsidies, and many households and businesses have struggled to find an alternative source of power supply.

AP NEWS
http://apnews.com/

17 September 2023

Hickenlooper and Peters Introduce BIG WIRES Act

Sen. John Hickenlooper (D-Colo.) and Rep. Scott Peters (D-Calif.) on Friday introduced the Building Integrated Grids with Inter-Regional Energy Supply (BIG WIRES) Act, which would require minimum levels of interregional transfer capability between regions. The two have been working on the bill for months. It was discussed during the debt ceiling negotiations earlier this year, but ultimately not included in the package that passed.

"If we want to maintain our national security amidst growing international conflict, make our power system more reliable and cut high energy costs for Americans, we can't have a faulty, outdated electric grid," Hickenlooper said in a statement. "Our bill advances two priorities simultaneously: Make electricity more affordable and build a power grid fit for the 21st century."

The bill would direct FERC to better coordinate construction of an interregional transmission system by requiring each of its transmission planning regions (that date from Order 1000 and include jurisdictional ISO/RTOs) to be able to transfer 30% of their peak electric loads to their neighbors. The lawmakers compared the current development of the transmission grid to building new highways that crisscross the country every time two towns need to be connected. They say their bill would close current gaps in the transmission network by doing the equivalent of "building new exit ramps off the existing interstate."

"During a heatwave, hurricane or other natural disaster, the last thing you want is for the power to go out. It can be the difference between life and death," said Peters. "There is no reason neighboring electrical grids should not have the capacity to share power during these situations to avoid blackouts. The associated buildout of electric transmission lines would greatly improve reliability and keep costs down for consumers. BIG WIRES will help get clean, reliable energy from where it is produced to where it is used by people, but above all else, it is an American energy security and independence bill."

On top of the reliability benefits, the legislation also would reduce energy costs by allowing regions where power prices are cheaper to sell into regions where it's more expensive and by allowing all regions to connect new, low-cost resources to the grid. The bill aims to be technology neutral, allowing all types of generation to connect to the grid and relieve grid congestion where needed. The lawmakers said it would prioritize regional flexibility by allowing the FERC planning regions to decide how they will upgrade their systems.

The bill has a section devoted to ERCOT, which never has had much interconnection with the Western and Eastern Interconnections, giving the Texas PUC authority over its wholesale markets and transmission planning. The PUC "may, at its sole discretion" choose to support the reliability and affordability of the Texas grid by voluntarily complying with a minimum transfer capability equal to a percentage, determined by ERCOT, of its coincident peak load, the bill said. The two offices released a suite of supportive quotes from clean energy groups, transmission supporters, environmentalists and some former regulators who were on the FERC-State Joint Task Force on transmission, where the idea of interregional transfer capacity was widely supported.

Former FERC Chairman Rich Glick noted that recent years have seen extreme weather test the grid and the bill would help deal with those situations by increasing interregional transfer capability. "Utility customers are at greater risk of losing access to power during extreme weather events, and they are often forced to pay much more for electricity than they otherwise would with a more efficient electric grid," Glick said in a statement. "Senator Hickenlooper and Congressman Peters deserve credit for elevating this important subject with the introduction of the BIG WIRES Act."

The legislation also won praise from Glick's former colleague from across the aisle, former FERC Chairman Neil Chatterjee. "By requiring that FERC establish a minimum interregional transfer capability standard, this important legislation will dramatically improve our country's ability to move power between regions where and when it's needed most, enhancing grid reliability for all Americans," he said in a statement.

Former Maryland PSC Chair and FERC-State task force co-chair Jason Stanek also gave the proposal a supportive quote. "Increasing interregional transmission capacity will be critical to maintaining reasonable utility rates and sustaining a reliable bulk power system," Stanek said. "This bill builds upon recent discussions by the Joint Federal-State Task Force which highlighted the important role that interregional transmission will play as we strengthen our nation's power grid."

Other backers of the legislation include Americans for a Clean Energy Grid, American Clean Power Association, American Council on Renewable Energy, Advanced Energy United, Business Council for Sustainable Energy, Clean Energy Buyers Association, the Electricity Consumers Resource Council, Environmental Defense Fund, Natural Resources Defense Council, Rocky Mountain Institute, the R Street Institute and the Solar Energy Industries Association. The bill could become part of a broader effort on permitting, which has a chance of passing this year. On Thursday, Senate Energy & Natural Resources Committee Chair Joe Manchin (D-W.Va.) and Ranking Member John Barrasso (R-Wyo.) released a joint statement saying they agreed on the need to change permitting laws and regulations generally. "We are in agreement that we must act to accelerate our permitting system and are committed to reaching a bipartisan solution that prioritizes American energy security, reliability and affordability," the two said.

RTO Insider
http://www.rtoinsider.com/

19 September 2023

UK seeks private investment for Sizewell C

The UK Department for Energy Security & Net Zero (DESNZ) has announced that the UK Government and Sizewell C Limited are launching a pre-qualification process for potential investors, "as the first stage of an equity raise process for the Sizewell C project." This follows "agreement with our co-shareholder EDF".

Sizewell C is expected to host two EPRs producing 3.2 GWe similar to the Hinkley Point C plant, under construction in Somerset. EDF Energy submitted a development consent order (a planning application) for the plant in May 2020, which was granted in July 2022. In March, the UK's Environment Agency granted environmental permits – a radioactive substances activity permit, a combustion activity permit and a water discharge activity permit – for the plant.

The UK government in August made available a further £341m ($434m) of previously allocated funding for development work at Sizewell C. "The extra money will help prepare the site for construction, procuring key components from the project's supply chain, and expanding its workforce," the statement said. The funding builds on the government's existing £870m investment and "would be confirmed according to the project's agreed spending plans and development schedule". The funding was made available from the DESNZ Capital Budgets, as agreed at the 2022 Autumn Statement

EDF said in November 2022 that construction of Sizewell C remained subject to a final investment decision and said that this depended on the achievement of certain key stages, in particular the ability to raise the necessary financing to carry out the project as well as "the deconsolidation of the project from the Group's balance sheet". EDF added that it planned to "retain only a minority stake in the final investment decision – a maximum of

20%". Originally China General Nuclear (CGN) held a 20% stake in the project but in 2022 CGN pulled out of the project after the government paid £679m to become a 50% partner with EDF.

DESNZ said new nuclear projects such as Sizewell C are key to government plans for enhancing UK energy security and for reaching Net Zero, by helping to achieve a long-term electricity system which is secure and stable, low-cost and low-carbon.

"The government has assessed that seeking private investment through the RAB structure has true potential to result in a good value for money outcome for consumers and taxpayers, as the RAB structure is set up to incentivize the company (and in turn, the private investors) to drive the project's construction to schedule and ultimately help to promote efficiency and enhance overall value. To ensure that this investment benefits the company, consumers and taxpayers, specific attributes are being sought."

The statement continued: "Specifically, we are aiming to obtain investment from organizations able to take a meaningful stake in the company. Being able and willing to own a significant part of the company's equity will be vital in ensuring that investors are able to have a substantial and positive influence on delivery over the construction period. It will also ensure that investors are meaningfully exposed to the incentives included in the company's license, motivating them to monitor and intervene in delivery.

Additionally, private sector investors must bring sufficient benefits to the company to justify their involvement." DESNZ said, for this reason, "investment is being sought from those with significant experience in the delivery of major infrastructure projects, especially in large-scale nuclear or other complex energy or infrastructure projects". Drawing from this experience "would ensure Sizewell C benefits from expertise in areas such as project risk management, cost control, and instilling projects with a culture of commercial focus".

The statement said: "In taking this stake, at the time of a positive Final Investment Decision, investors would be expected to make a commitment to their share of the company's equity requirement. This would provide confidence to the government, EDF and the company that new investors would fulfil their shareholder obligations as Sizewell C moves into the full construction phase. The government is clear that the interests of consumers and taxpayers are central as to this process, and will only accept private investment if it is likely to result in value for money. This approach will be assessed and considered over the coming months, and the government will take the time needed to reach a deal which satisfies this objective."

The first stage in this process will be for prospective investors to complete a pre-qualification questionnaire (PQQ), which will set out certain requirements in more detail which prospective investors will need to meet in order to pre-qualify. Verification checks may be undertaken to ensure that PQQ applicants are bona fide investors who wish to respond to the PQQ. Investors who have received the PQQ will have until 9 October to submit their responses to the pre-qualification questions. Investors who are successful in the pre-qualification phase will be invited to participate in the bidding process for the Sizewell C equity raise.

Secretary of State for Energy Security & Net Zero, Claire Coutinho, said: "Investing in Sizewell C is an exciting opportunity to be a part of the UK's nuclear revival – delivering clean, reliable, and affordable power for generations to come. This project will create thousands of jobs, power 6m homes and will boost our energy security. We are focused on securing good value for taxpayers and look forward to seeing strong and competitive bids to be a part of this exciting project."

Sizewell C Company Joint Managing Director, Julia Pyke, said the launch of the formal equity raise "opens another exciting phase for the project, following a positive response from investors during market testing". Investors who participate in Sizewell C

"should feel confident in our proposals as we are building a replica project with government backing, a mature reactor design and a workforce ready to build it". She added: "We look forward to starting the main site construction and delivering this vital project which will reduce costs for consumers and help to create a future-proof low-carbon energy system for Britain."

Minister for Nuclear & Networks, Andrew Bowie, said: "Following the first government direct public investment in a nuclear project for a generation, I look forward to seeing strong and competitive bids from potential investors to bring new expertise and experience into the company to help deliver this critical piece of national infrastructure." EDF Energy CEO Simone Rossi expressed support for development of the Sizewell C and the launch of the equity raise. "The very significant investment that EDF continues to make in Britain at Hinkley Point C benefits Sizewell C through replication of the design and construction, and a proven UK supply chain."

Nuclear Engineering Int
http://www.neimagazine.com/

19 September 2023

ERCOT expects sufficient capacity this fall

ERCOT said Tuesday that it expects to have sufficient capacity to meet peak demand under normal conditions during the two-month fall season that begins in October. According to the Texas grid operator's fall seasonal assessment of resource adequacy (SARA), demand is expected to peak at 69.65 GW, a welcome relief after load averaged more than 80 GW over 227 hourly intervals during what has been brutal summer weather. The SARA indicates 99.73 GW will be available to meet demand in October and November.

That includes 3.99 GW of energy storage resources that have been invaluable in meeting record summer demand. A little over 1 GW of storage is assumed to be able to provide energy during the highest fall net load hours (total load minus wind and solar generation). ERCOT said the estimated storage capacity is a proxy for what it expects during tight reserve hours and an interim availability assumption until a formal capacity contribution method is adopted in future SARA reports.

Solar energy, which played a key role during this summer's tightest hours, is expected to contribute 11.66 GW during peak periods this fall with a 64% seasonal rating. Wind energy is expected to contribute 12.69 GW during those periods; it has seasonal capacity factors ranging from 31 to 41%. The assessment includes a base scenario and three elevated and three extreme risk scenarios reflecting alternative assumptions for peak demand, unplanned thermal outages and renewable output. The most severe extreme risk scenario — a combination of high peak load, high unplanned thermal outages (more than 18 GW) and extreme low wind output — results in a high risk of rotating outages. An elevated risk scenario with low renewable output results in a capacity shortfall of 2.44 GW and close to a Level 1 energy emergency alert.

The grid operator said the SARA does not reflect pending changes that will come when the Texas Public Utility Commission approves a protocol revision (NPRR1176) that modifies the EEA level triggers. The fall assessment marks ERCOT's final SARA report. It is being replaced with what the grid operator calls the monthly operational assessment of resource adequacy (MORA). The revised report will be posted two months before the reporting month, beginning with the December assessment on Oct. 2. The first MORA will be produced manually but will eventually transition into a multi-tabbed spreadsheet that will include a link to an interactive dashboard.

RTO Insider
http://www.rtoinsider.com/

19 September 2023

Bilan Prévisionnel 2023-2035: RTE éclaire les défis de la grande bascule vers une société décarbonée

Ce rapport documente et chiffre les différents futurs énergétiques possibles, dont un chemin souhaitable qui permettrait à la France d'atteindre ses objectifs rehaussés : lutter contre le dérèglement climatique en respectant le Fit for 55 et réussir sa réindustrialisation.

Plus que jamais la sortie des fossiles s'impose comme une nécessité alors que la France consomme encore plus de 60% d'énergie fossile. Pour y parvenir, le pays doit nécessairement s'électrifier. Dans le Bilan prévisionnel 2023-2035, RTE étudie 3 scénarios possibles avec des rythmes différents de consommation, d'électrification des usages et de développement des énergies bas-carbone. Le premier scénario, le plus souhaitable, permet d'atteindre les objectifs de décarbonation accélérée et de réindustrialisation en 2030 et 2035 (scénario A). Il présente une électrification renforcée qui a pour conséquence une consommation d'électricité en augmentation. Elle pourrait ainsi atteindre entre 580 et 640 TWh/an en 2035 (contre 460 TWh aujourd'hui) pour atteindre les objectifs fixés. Une hausse tirée notamment par la mobilité légère et lourde, l'industrie ou encore les data centers dans le tertiaire.

Le deuxième scénario, quant à lui, permet d'atteindre les objectifs climatiques et de réindustrialisation avec un retard de 3 à 5 ans (B). Enfin le troisième scénario décrit un environnement de « mondialisation contrariée», dans lequel les tensions macroéconomiques et géopolitiques se prolongent durablement. (C). En empruntant le scénario A, la France a les moyens d'atteindre ses objectifs rehaussés en 2030 et 2035, si elle mobilise 4 leviers: efficacité énergétique, sobriété, énergies renouvelables et nucléaire. Le Bilan prévisionnel montre qu'il est possible de jouer sur les curseurs mais qu'aucun levier ne peut être abandonné. Pour minimiser les risques d'atteinte partielle de nos ambitions, il est nécessaire de les activer dès à présent.

- Efficacité énergétique: en complément de la performance des équipements, le volume et l'efficacité des rénovations thermiques dans les bâtiments doit augmenter. Cela permettrait d'économiser entre 75 et 100 TWh par an, ce qui constitue un réel défi.
- Sobriété: la poursuite des « gestes simples » engagés par les Français cet hiver est un levier important qui permettrait d'économiser jusqu'à 25 TWh en 2035, c'est l'hypothèse retenue. En juin 2023, l'enquête RTE et IPSOS montrait néanmoins qu'une modification plus profonde de certains comportements reste incertaine.
- Développement des énergies renouvelables : une accélération importante de la production d'électricité renouvelable est nécessaire dans tous les scénarios : entre 270 TWh minimum et, si possible, jusqu'à 320 TWh. Plusieurs rythmes d'accélération des différents moyens de production renouvelables ont été testés mais freiner sur l'un (solaire, éolien terrestre et offshore) oblige à accélérer d'autant sur les autres, tout en réduisant les marges.
- Disponibilité du nucléaire : l'enjeu est de retrouver des niveaux de disponibilité et de production nucléaire supérieurs à ceux des dernières années, en visant 400 TWh de production nucléaire annuelle. Néanmoins, tabler sur un volume moyen de production de l'ordre de 360 TWh à l'horizon 2030-2035, en intégrant l'EPR de Flamanville, est une hypothèse prudente et atteignable.

Dans les prochaines années, la sécurité d'approvisionnement va s'améliorer grâce à une meilleure disponibilité du nucléaire, au déploiement des renouvelables et aux efforts des Français en termes de sobriété. Le système électrique aura besoin de « flexibilités » : développer la modulation de la demande et les batteries constituent un axe prioritaire, permettant de gagner environ 5 GW de marge. D'autres besoins de (« flexibilité longues »)

émergent également. La poursuite du développement des interconnexions avec les pays voisins pourra permettre à la France de demeurer une grande exportatrice d'électricité bas-carbone, contribuant à décarboner ses voisins et à améliorer la balance commerciale.

L'électrification des usages permet, en outre, de limiter la consommation de pétrole et de gaz et de faire baisser le déficit commercial correspondant, en se traduisant par une économie d'environ 190 milliards d'€ de dépenses consacrées aux énergies fossiles d'ici 2035. Ces défis nécessitent des investissements massifs. D'ici à 2035, il faudrait ainsi tripler les investissements, de 25 à 35 milliards d'€ par an, pour la production et les capacités de flexibilités. Le coût brut de long terme de production du MWh devrait en revanche rester contenu, c'est à dire du même ordre qu'aujourd'hui.

En réactualisation de ses études antérieures, pour tenir compte de nouveaux cadres européens qui prescrivent une bascule plus rapide vers les solutions électriques, RTE a étudié les principales transformations dans les secteurs:

- de l'industrie: la France a les moyens de nourrir sa double ambition de réindustrialisation et de décarbonation de l'industrie grâce à une électricité décarbonée et compétitive, à condition que les grandes zones d'implantation bénéficient des infrastructures nécessaires;
- du chauffage: le développement des pompes à chaleur, en remplacement des chaudières à fioul et au gaz fossile, réduit significativement les émissions de gaz à effet de serre du pays, même en intégrant les effets induits. Cela a un effet sur la pointe, absorbable par le système électrique;
- de la production d'hydrogène: des quantités importantes d'hydrogène sont nécessaires pour décarboner certains usages, ce développement en France requiert des quantités importantes d'électricité compétitive bas-carbone;
- et du transport: la perspective de développement du véhicule électrique se confirme pour les véhicules légers et se renforce pour le transport lourd nécessitant une nouvelle infrastructure de recharge et son pilotage.

RTE
http://www.rte-france.com/

21 September 2023

UK gives RWE go-ahead for 1.1GW Awel Y Mor

The UK government has granted planning permission to RWE for the 1100MW Awel Y Mor wind farm in the Irish Sea. Energy Secretary Claire Coutinho has given the go-ahead for up to 50 turbines for the extension of the operational Gwynt Y Mor (pictured) site off north Wales. In her decision, Coutinho said the benefits of the development "outweigh its adverse impacts". She added that "matters relating to Habitat Regulations have been satisfied" by the developer. "Consequently, the Secretary of State considers that development consent should be granted for the Awel y Môr offshore wind farm."

The decision follows a recommendation by the Planning Inspectorate to grant consent for the scheme subject to conditions. RWE still requires a consent decision from Welsh authorities. If granted, RWE could enter next year's Allocation Round 6 auction. The developer has been asked to comment on the consent ruling. The consenting process for the site in the Irish Sea began in May 2022. AyM will be built approximately 10.5 km off the coast of north Wales, to the west of the existing Gwynt y Mor wind farm, with its grid connection planned to reach the shoreline between Rhyl and Prestatyn.

Earlier this year RWE Renewables began activities to find suppliers for the project by launching a website, which is part of a wider initiative called the Supplier Transparency & Engagement Programme, to help suppliers get ready for procurement. Planning Inspectorate's Chief Executive, Paul Morrison said: "The Planning Inspectorate has now

examined more than 100 nationally significant infrastructure projects since the Planning Act 2008 process was introduced, ensuring local communities have had the opportunity of being involved in the examination of projects that may affect them.

"Local communities continue to be given the opportunity of being involved in the examination of projects that may affect them. Local people, the local authority and other Interested Parties were able to participate in this six-month Examination. "The Examining Authority listened and gave full consideration to all local views and the evidence gathered during the Examination before making its recommendation to the Secretary of State."

ReNews
http://renews.biz/

21 September 2023

Milestone in restoration of Zorita plant site

Work to fill in the hole left following the demolition of the containment building of the José Cabrera nuclear power plant has been completed, Spanish decommissioning and waste management firm Enresa announced. The plant - also known as Zorita - is the first to be fully dismantled in Spain.

The single-loop pressurised water reactor at the José Cabrera nuclear power plant, in the central municipality of Guadalajara, operated from 1968 until 2006 when it was closed by ministerial order. Although small by today's standards at 142 MWe, the plant nevertheless supplied more than 75% of Guadalajara's power requirements. Pre-dismantling activities - carried out between 2006 and 2009 under the responsibility of the facility's operator, Union Fenosa - consisted mainly of the management of used fuel and the conditioning of operational waste.

Enresa said a total of 9500 cubic metres of selected soil has now been used to fill the void that remained following the complete dismantling of the containment building. This, it said, involved the loading and unloading of 850 trucks. During the process, the corresponding humidity, density and degree of compaction tests were carried out, with satisfactory results. The demolition of the last remaining large building at the plant, the turbine building - 30 metres in height and made of reinforced concrete - was completed in June last year.

In order to restore the site to its initial state, the Restoration Plan - which was approved by Spain's Nuclear Safety Council - will ensure that the land to be released is free of residual radioactivity. During this final phase, site clean-up and final characterisation will be carried out before application is made for the declaration of decommissioning, with the aim of returning the site to its owner.

WNN
http://www.world-nuclear-news.org/

21 September 2023

Here's what Europe's largest floating solar farm is going to look like

Renewable energy producer Q Energy is now building Europe's largest floating solar farm on a brownfield site in northwestern France. The floating solar farm is called Les Ilots Blandin, and it's going to be sited on a former quarry (pictured) in Haute-Marne, north of Dijon. Les Ilots Blandin was originally going to have a capacity of 66 megawatts (MW), but an improved design has allowed the project's capacity to be bumped up to 74.3 MW.

The floating solar islands will be spread out over 127 hectares (314 acres) of former gravel pits that were decommissioned in 2020. Les Ilots Blandin will have 134,649 solar panels fixed on floats, and they will form six islands that are anchored either to the banks or the bottom of the flooded pits. Q Energy says it used made-in-France sustainable materials

that are designed to minimize environmental impact while maximizing energy efficiency, but the company didn't provide specs about those materials in its announcement.

Europe's largest floating solar farm will supply enough clean energy for 37,000 households and avoid CO2 emissions of around 18,000 tonnes annually. Construction will start before the end of this month, and it's expected to take around 18 months. Provisional commissioning is scheduled for the first quarter of 2025. Jean-Francois Petit, managing director of Q ENERGY France, said, "Les Ilots Bladin is a wonderful example of how water areas can make an important contribution to the energy transition." Q ENERGY France has been developing floating solar projects since 2018, mostly on former quarries. It currently has a floating solar development pipeline of more than 300 MW.

Electrek
http://electrek.co/

21 September 2023

Elliott Report: Complete Electricity Standards, Implement Gas Reliability Rules

The final report on Winter Storm Elliott, the Christmas 2022 storm that contributed to power outages for millions of electricity customers in the Eastern half of the country, recommends completion of cold weather reliability standard revisions stemming from 2021's Winter Storm Uri and improvements to reliability for U.S. natural gas infrastructure.

The report, presented to FERC today by FERC staff and staff of the North American Electric Reliability Corporation (NERC), outlines 11 recommendations for action to help prevent similar occurrences during future extreme winter weather. The recommendations cover cold weather reliability improvements for power generators, natural gas infrastructure, gas-electric coordination and electric grid operations.

"It's abundantly clear that we must make major improvements to the cold-weather reliability of both the natural gas and electricity production and grid systems," FERC Chairman Willie Phillips said. "I have said repeatedly: Someone – it doesn't have to be FERC – must have authority to establish and enforce natural gas reliability standards. And some recommendations from the 2021 Uri report are still not implemented. Please get that done. It shouldn't take five winter storms in 11 years to show us the gravity of the situation we find ourselves in."

NERC President and CEO Jim Robb said, "This sobering report underscores the need to take urgent action on the interdependence between the bulk electric and natural gas systems, including the need for sufficient and reliable gas and electric infrastructure to sustain energy reliability. NERC, the Regional Entities, and FERC are fully committed to finding effective, collaborative solutions in line with these findings. The report also reaffirms NERC's equally strong commitment to completing Reliability Standards work to ensure industry is prepared for extreme cold weather."

FERC and NERC staff, along with staff from NERC's six regional entities, initiated an inquiry shortly after Winter Storm Elliott occurred. Though their final report itself will be published later this fall, today's presentation highlighted several key facts about the December 2022 event, including:

- There were unprecedented unplanned generating unit losses, with nearly 90,000 megawatts out at the same time.
- Nearly 80 percent of the generating units failed to perform at temperatures above their own documented minimum operating temperatures.
- Several electric grid operators had to shed firm load to maintain system reliability.
- Natural gas pipeline pressures dropped largely because of freeze-related production declines in production of Marcellus (23 percent) and Utica (54 percent) shales, as well as other natural gas infrastructure freeze- and equipment-related problems.

Every cold weather inquiry report that has studied natural gas production has found cold-related declines in natural gas production, by as much as 70 percent in some cases.

- Consolidated Edison Inc., which serves the greater New York Metropolitan area, faced reliability-threatening low pressures on its delivery pipelines, forcing it to declare an emergency and use its own liquefied natural gas facility to maintain service.

According to the presentation, the report states there must be robust monitoring of how the industry is implementing current cold weather Reliability Standards to determine if reliability gaps exist. Also, NERC should obtain an independent technical review of the causes of cold-related mechanical and electrical generation outages to identify preventive measures, which includes determining if additional reliability standards are needed.

The report also states that congressional and state legislation or regulation is needed to establish reliability rules for natural gas infrastructure to ensure cold weather reliability. Currently, no regulatory entity is tasked with ensuring the reliability of the natural gas infrastructure on which the electric grid relies.

Finally, the report recommends the North American Energy Standards Board convene a meeting of gas and electric grid operators and gas distribution companies to identify improvements in communication during extreme cold weather events to enhance awareness across the natural gas supply chain. In addition, the report suggests hiring an independent research group to analyze whether additional gas infrastructure is needed to support grid reliability and meet the needs of gas utilities.

FERC
http://ferc.gov/

25 September 2023

UK: Action urged to curb fuel poverty

A cross-party committee of MPs has called for the government, the energy regulator Ofgem and suppliers to do more to support households this winter, writes Candiece Cyrus. The Energy Security and Net Zero Committee's Preparing for the Winter report suggests measures the government, Ofgem and suppliers can take to support households in time for the upcoming colder months.

According to the Committee, 6.6 million households are in fuel poverty, which is generally defined as needing to spend 10% or more of their income on energy. This compares to 4.5 million in 2021. The report recommends the government extends the Warm Home Discount scheme, which provides low-income households and those in or at risk of fuel poverty with a £150 payment during the winter.

Since 2021, energy customers have only qualified for the scheme if they receive certain means-tested benefits, tax credits or pension credit and live in a property with a high energy cost score as determined by the Valuation Office Agency. The committee suggests extending the scheme to the disabled, elderly, those with chronic medical conditions and those on low incomes who may not otherwise qualify. It also calls on the government to ensure households that missed out on the government's Energy Bills Support Scheme payments totaling £400 last winter, due to not receiving vouchers, for example, receive their payments with immediate effect.

Other measures include speeding-up the rollout of smart meters and remodeling the standing charge payment structure to one based on the amount of energy a household uses. Currently, the charge, which covers the cost of a supplier delivering energy to a property among other operational costs, is set as a daily rate. Smart meters allow households to

monitor the energy they use and identify areas where consumption can be reduced. The meters also automatically provide real-time data to suppliers, for more accurate bills.

The report also suggests the government works with suppliers to create a 'social' tariff to help those in fuel poverty, and Ofgem and energy suppliers take a more proactive approach to improving industry standards. This would include providing a priority phone line for consumer organizations and charities seeking support on behalf of their clients. It says Ofgem should also require that all customers, particularly those in fuel poverty, receive continuity of support from their supplier. This includes guidance with identifying where they qualify for financial support

Angus Brendan MacNeil MP, chair of the Energy Security and Net Zero Committee, said: "The nights are now drawing in and many of our most vulnerable people will be haunted by harrowing memories of the relentless sacrifices they were forced into last year, just to keep their heads above water in the face of exorbitant energy costs. "While financial support will be vital, there also needs to be a drastic improvement in customer service and the empathy shown by energy companies to those who are going through tough times. If these firms don't improve, Ofgem must be less backwards in coming forward and give them a good shake to ensure they are working in the best interests of their customers this winter." Separately, Prime Minister Rishi Sunak has scrapped his energy efficiency task force six months after establishing it.

The 15-member group's goal was to reduce total UK energy demand by 15% from 2021 levels by 2030, across domestic and commercial property and industrial processes. Its work included speeding up the installation of insulation in less energy efficient properties and upgrading boilers. Mr Sunak's move is part of an announcement last week where he confirmed delaying the phasing out of gas boilers and a pushing-back of the ban of the sale of new petrol and diesel cars from 2030 to 2035.

Forbes
http://www.forbes.com/

25 September 2023

Trilateral negotiations on Ethiopia mega-dam wrap up in Addis Ababa

The second round of trilateral negotiations surrounding the Grand Ethiopian Renaissance Dam (GERD) concluded Sunday, marking a pivotal moment in the ongoing talks, which hold immense significance for Egypt and Sudan. The talks, which began on 23 September in the Ethiopian capital, Addis Ababa, brought together representatives from Ethiopia, Sudan and Egypt to address the contentious issues surrounding the GERD project.

Ambassador Seleshi Bekele, the leader of the Ethiopian negotiating team, said Sunday that during the negotiations, the parties engaged in a fruitful exchange of constructive ideas aimed at bridging the differences that have persisted among them on various outstanding issues. "The two-day tripartite negotiations on the Renaissance Dam have been completed this evening. We have exchanged constructive ideas on various outstanding issues with a view to bridge the differences among the parties. Ethiopia reiterates its commitment to continue negotiating in good faith," Seleshi said in a statement.

In a statement released by its Ministry of Irrigation, Egypt said the latest round of discussions concerning the dam concluded without making any significant progress. Ethiopia, the statement noted, remained steadfast in its opposition to compromise solutions or internationally agreed-upon technical arrangements that could address its specific interests related to the GERD, without encroaching upon the rights and interests of the downstream nations. "The spokesperson for the Ministry of Water Resources and Irrigation disclosed that substantive progress was not made during the most recent round of negotiations," Egypt said in the statement after the meeting. "Ethiopia remained opposed to

any compromise solutions," the statement added, noting that the Egyptian negotiating team remains committed to constructive negotiations governed by clearly defined objectives.

The GERD, situated on the Blue Nile River in Ethiopia, has been a source of tension among the three nations for years.Its potential impact on downstream water flow into Egypt and Sudan has raised significant concerns. Egypt and Sudan, heavily reliant on the Nile's waters for agriculture, drinking water and overall livelihoods, have consistently emphasized the importance of finding a fair and equitable solution through dialogue. The negotiations centred on finding common ground on key issues, including the filling and operation of the dam as well as mechanisms for resolving disputes that may arise in the future.

Middle East Monitor
http://www.middleeastmonitor.com/

25 September 2023

ONS entrega minuta do rap aos agentes envolvidos na ocorrência de 15 de Agosto

Desempenho dos equipamentos de controle de tensão é a causa dos desligamentos

O Operador Nacional do Sistema Elétrico (ONS) encaminhou nesta segunda-feira, dia 25 de setembro, aos agentes, a minuta do Relatório de Análise de Perturbação (RAP), que apontou que a principal causa raiz identificada no evento de 15 de agosto foi a performance dos equipamentos de controle de tensão em campo de diversos parques eólicos e fotovoltaicos, no perímetro da Linha de Transmissão Quixadá-Fortaleza II, no Ceará. Esses dispositivos das usinas deveriam compensar automaticamente a queda de tensão decorrente da abertura da linha de transmissão, porém o desempenho no momento da ocorrência ficou aquém do previsto nos modelos matemáticos fornecidos pelos agentes e testados em simulações pelo ONS.

O envio do documento, com as principais conclusões do ONS, faz parte das etapas e ritos de elaboração do relatório que estará finalizado até o dia 17 de outubro – de acordo com o prazo regulamentar de 45 dias úteis. Nesta etapa de agora, os agentes irão se manifestar, fazendo suas contribuições no relatório.

No documento, constam providências a serem tomadas pelos 122 agentes, assim como para os geradores eólicos e fotovoltaicos. Ao todo, foram centenas de apontamentos que os agentes e o Operador terão de implementar até julho de 2024. As providências vão desde ajustes em proteções, passando por problemas na comunicação com os agentes no momento da recomposição, até a validação dos modelos matemáticos de todos os geradores eólicos e fotovoltaicos, entre outras.

No RAP também estão elencadas providências que já foram tomadas. Entre elas, está a adaptação da base de dados oficial, pelo Operador, para representar a performance dos referidos parques eólicos e fotovoltaicos tal como observada em campo durante a perturbação, de modo a utilizá-la nos estudos de caráter operativo. O ONS ainda implementou novos limites de intercâmbios e medidas operativas na região Nordeste, visando garantir a segurança operativa do SIN.

"O RAP que está em elaboração é um dos mais importantes da nossa história e será fundamental para o aprimoramento do planejamento, da operação, da regulamentação e da integração de novos projetos. São inúmeras as contribuições que traremos para o setor elétrico brasileiro e que também pode servir de parâmetro para outros operadores no mundo", explica Luiz Carlos Ciocchi, diretor-geral do ONS.

Na avaliação do ONS, as descobertas a partir da ocorrência no mês passado representam uma mudança de paradigma para o setor elétrico brasileiro. "Com muita dedicação e experiência dos profissionais do Operador, além do compromisso que temos com a sociedade brasileira, o problema foi identificado e ações imediatas foram

implementadas pelo ONS para preservar a continuidade e a segurança do atendimento à carga", frisa Ciocchi.

O diretor-geral do ONS destaca ainda que o Brasil tem uma das matrizes mais descarbonizadas do planeta, com 85% de fontes limpas e renováveis. “Coordenamos toda essa geração, contribuindo para que a energia chegue na casa das pessoas. Com o SIN, enviamos todo o potencial renovável, principalmente do Nordeste, para os quatro cantos do país. Só um sistema robusto e confiável como o nosso permite isso. As renováveis representam solução de uma energia limpa e barata, um ingrediente fundamental para a transição energética justa que queremos e estamos trabalhando nesta direção", ressalta.

O diretor-geral do Operador reforça ainda que as lições aprendidas, bem como as medidas que estão sendo implantadas no Brasil, serão essenciais para que se continue integrando cada vez mais fontes renováveis, contribuindo para a transição energética. “O ONS já vem atuando por meio de um programa de modernização de seus processos e ferramentas, que será acelerado, para continuar cumprindo a sua missão de ser um habilitador da evolução do Setor Elétrico Brasileiro, pelo bem da sociedade brasileira", conclui Ciocchi.

ONS
http://www.ons.org.br/

25 September 2023

Poland grants environmental permit for country’s first nuclear power plant

Poland has granted environmental approval for the first nuclear power plant in the country, reported the state-run news agency Polska Agencja Prasowa (PAP). The Polish government aims to build its first nuclear power plant at the Lubiatowo-Kopalino site in Pomerania, on the Baltic coast by 2033, with plans to start the construction in 2026.

According to Poland’s General Directorate for Environmental Protection (GDOS), the construction and operation of the nuclear power plant will not adversely affect the environment. Also, the project will not affect the Natura 2000 areas or damage the natural habitats. GDOS took more than one and a half years to review the evidence in the environmental impact report and make the decision to issue to permit, reported Euronews.

Poland’s Climate Minister Anna Moskwa said: “This is a milestone in the implementation of an investment that is crucial from the point of view of energy security. US Department of Energy Assistant Secretary for Nuclear Energy Kathryn Huff said: “The agreement is another important milestone in our cooperation with Poland. I am extremely confident that these two partners, Westinghouse and Bechtel will bring the high calibre of nuclear energy technology to the Polish people.” Earlier this year, US-based engineering company Bechtel and nuclear power company Westinghouse Electric agreed to design and build the first nuclear power plant in Poland.

The US consortium is expected to sign an engineering services contract with the Polish utility Polskie Elektrownie Jądrowe, next week. In November last year, the Polish government selected the Westinghouse AP1000 reactor technology for its first-ever nuclear energy program. The government is working on licensing and engineering work related to the project, which is expected to deliver reliable, clean and safe power to Poland. The AP1000 is said to be the only operating Generation III+ reactor with fully passive safety systems, modular construction design and the smallest footprint. Bechtel nuclear, security and environmental global business unit president John Howanitz said: “Bechtel and Westinghouse bring more than 140 years of combined nuclear power experience.

“Together we have both the proven technology and the hands-on experience required to build Poland’s first-ever nuclear energy program. We are eager to partner with the local workforce, suppliers, and community, to deliver the clean and reliable energy Poland needs.”

Westinghouse Energy Systems president David Durham said: "This is a team with demonstrated ability to deliver on large nuclear energy projects. "The fleet experience we have earned with our advanced, proven AP1000 technology, including a 100% complete design and construction lessons learned, will serve Poland well as it seeks decarbonization and increased energy security."

NS Energy
http://www.nsenergybusiness.com/

26 September 2023

IEA: The path to limiting global warming to 1.5 °C has narrowed, but clean energy growth is keeping it open

Driving greenhouse gas emissions from the world's energy sector to net zero and limiting global warming to 1.5 °C remains possible due to the record growth of key clean energy technologies, though momentum needs to increase rapidly in many areas, according to a new edition of the IEA's landmark Net Zero Roadmap.

The new Roadmap sets out a global pathway to keep the 1.5 °C goal in reach, providing a comprehensive update to the groundbreaking original report that was published in 2021 and has served as an essential benchmark for policy makers, industry, the financial sector and civil society. The 2023 Update incorporates the significant changes to the energy landscape in the past two years, including the post-pandemic economic rebound and the extraordinary growth in some clean energy technologies – but also increased investment in fossil fuels and stubbornly high emissions.

Since 2021, record growth in solar power capacity and electric car sales are in line with a pathway towards net zero emissions globally by mid-century, as are industry plans for the roll-out of new manufacturing capacity for them. This is significant, since those two technologies alone deliver one-third of the emissions reductions between today and 2030 in the pathway. Clean energy innovation has also been delivering more options and lowering technology costs. In the IEA's original Roadmap in 2021, technologies not yet available on the market delivered nearly half of the emissions reductions needed for net zero in 2050. That number has now fallen to around 35% in this year's update.

Yet bolder action is necessary this decade. In this year's updated net zero pathway, global renewable power capacity triples by 2030. Meanwhile, the annual rate of energy efficiency improvements doubles, sales of electric vehicles and heat pumps rise sharply, and energy sector methane emissions fall by 75%. These strategies, which are based on proven and often cost-effective technologies for lowering emissions, together deliver more than 80% of the reductions needed by the end of the decade.

"Keeping alive the goal of limiting global warming to 1.5 °C requires the world to come together quickly. The good news is we know what we need to do – and how to do it. Our 2023 Net Zero Roadmap, based on the latest data and analysis, shows a path forward," said IEA Executive Director Fatih Birol. "But we also have a very clear message: Strong international cooperation is crucial to success. Governments need to separate climate from geopolitics, given the scale of the challenge at hand."

The Roadmap outlines a route to net zero emissions for the global energy sector by 2050 but recognizes the importance of fostering an equitable transition that takes different national circumstances into account. For example, advanced economies reach net zero sooner to allow emerging and developing economies more time. And the net zero pathway achieves full access to modern forms of energy for all by 2030 through annual investment of nearly USD 45 billion per year – just over 1% of energy sector investment.

Nonetheless, staying on track means almost all countries must move forward their targeted net zero dates. It also hinges on mobilizing a significant increase in investment,

especially in emerging and developing economies. In the new zero pathway, global clean energy spending rises from USD 1.8 trillion in 2023 to USD 4.5 trillion annually by the early 2030s. In the updated net zero scenario, a huge policy-driven ramping up of clean energy capacity drives fossil fuel demand 25% lower by 2030, reducing emissions by 35% compared with the all-time high recorded in 2022. By 2050, fossil fuel demand falls by 80%. As a result, no new long-lead-time upstream oil and gas projects are needed. Neither are new coal mines, mine extensions or new unabated coal plants. Nonetheless, continued investment is required in some existing oil and gas assets and already approved projects. Sequencing the increase in clean energy investment and the decline of fossil fuel supply investment is vital if damaging price spikes or supply gluts are to be avoided.

More resilient and diverse supply chains for clean energy technologies and the critical minerals needed to make them are key to building an energy sector with net zero emissions, according to the report. However, it is equally vital that supply chains remain open, given the pace and scope of clean energy development required.

The report stresses the importance of stronger international cooperation to limiting global warming to 1.5 °C. It warns that a failure to sufficiently step up ambition and implementation between now and 2030 would create additional climate risks and make achieving the 1.5 °C goal dependant on the massive deployment of carbon removal technologies, which are expensive and unproven at scale. In a Delayed Action Case that the report examines, a failure to expand clean energy quickly enough by 2030 means nearly 5 billion tonnes of carbon dioxide would have to be removed from the atmosphere every year during the second half of this century. If carbon removal technologies fail to deliver at such scale, returning the temperature to 1.5 °C would not be possible.

“Removing carbon from the atmosphere is very costly. We must do everything possible to stop putting it there in the first place,” said Dr Birol. “The pathway to 1.5 °C has narrowed in the past two years, but clean energy technologies are keeping it open. With international momentum building behind key global targets such as tripling renewable capacity and doubling energy efficiency by 2030, which would together lead to a stronger decline in fossil fuel demand this decade, the COP28 climate summit in Dubai is a vital opportunity to commit to stronger ambition and implementation in the remaining years of this critical decade.”

IEA
http://www.iea.org/

27 September 2023

NGESO: Winter Outlook signals cautious optimism

We’ve published our Winter Outlook for the 2023/2024 winter. Our modelling forecasts an operational de-rated margin (the minimum excess available electricity beyond that needed to operate the network safely) of 4.4 GW or 7.4%. This de-rated margin is slightly higher than last year’s 3.7GW and remains broadly in line with recent winters.

These slightly improved margins represent the changing landscape across the wider British and European energy markets, compared to twelve months ago. Both European gas storage and French nuclear power have greater availability than last year, helping to support electricity and gas flows across both Europe and to Great Britain.

Across last winter, the energy markets across Europe performed as expected, with coordination and cooperation across European electricity systems helping to manage consumer demand across the period. We’ll also continue to work closely with neighbouring transmission system operators in Europe, to provide reciprocal support to each other that benefits all electricity customers.

Given the continued uncertainty presented by the invasion of Ukraine by Russia, as a prudent system operator, we cannot completely discount risks of credible events occurring. It is therefore important that the energy industry continues as usual to prepare and plan for a wide range of eventualities. This winter, we're reintroducing the innovative Demand Flexibility Service, to incentivize customers to reduce consumption at periods when margins are tightest. Last winter, the Demand Flexibility Service successfully saved over 3,300MWh across 22 events, enough to power nearly 10 million homes. This year, we're committed to developing the Demand Flexibility Service even further and are keen for more consumers and businesses, large and small, to take advantage of this opportunity to reduce their energy bills and carbon footprint.

Head of National Control Craig Dyke: "Today's report illustrates the different position we find ourselves in, compared to twelve months ago. The energy markets across Europe have responded, bolstering gas and electricity storage and supplies ahead of this winter. While this is reflected in slightly higher operational margins for this winter, we and the rest of the energy industry will as always continue to prepare for a range of potential eventualities, so that we are fully prepared for any changes in circumstances this winter. To support our preparations, we have chosen to reintroduce the Demand Flexibility Service for this winter, following the impressive response from consumers and businesses to act as virtual power plants. Following regulatory approval, we will be publishing more details on how households and businesses can get involved and participate in the service this year."

NGESO
http://www.nationalgrideso.com/

28 September 2023

China Expects to Ok 6-8 Nuclear Power Units per Year in Green Energy Drive

China expects to greenlight six to eight new nuclear power units a year within the foreseeable future, an official at the China Nuclear Energy Association (CNEA) said, according to a report in state media outlet Xinhua on Wednesday.China is looking to develop its nuclear power sector as part of a broader push on renewables and domestic energy security. Nuclear is expected to contribute about 10 percent of power generation in the country by 2035 and 18 percent by 2060, with a total generation capacity of 400 gigawatts (GW) by 2060, the CNEA said. However, while China has seen rapid capacity growth in other renewables such as wind and solar, it has struggled to meet its targets for nuclear power. Beijing had set a target for 58GW of installed nuclear capacity by 2020, but as of September 2023 is just short of this with a combined installed capacity of 57GW, and 24 units under construction with a total installed capacity of 27.8GW, according to CNEA.

Nuclear power generation has a significantly smaller carbon footprint than fossil fuel-based power plants, and can also dispatch power more consistently and reliably than weather-dependent renewable sources such as wind or solar. In August this year, authorities approved an additional six nuclear power units to be built at three plants, having approved 10 nuclear power projects last year, according to earlier reporting from state-backed media outlet the Paper. Nuclear power accounted for only around 2.2% of the country's installed electricity generation capacity at the end of 2022, according to data from China's National Bureau of Statistics.

Reuters
http://www.reuters.com/