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Rajasthan Regulator Upholds RPO Obligations for Captive Solar Plants Above 1 MW

The Rajasthan Electricity Regulatory Commission (RERC) has reaffirmed that captive power plants with an installed capacity above 1 MW must comply with Renewable Purchase Obligation (RPO) requirements. The ruling clarifies that captive consumers are not exempt from renewable energy compliance under existing regulations. The decision aims to strengthen renewable energy adoption across the state while ensuring all eligible captive generators contribute to India's clean energy targets. It also reinforces regulatory certainty and encourages greater accountability in renewable power procurement.



MNRE Issues Guidelines for DISCOM Incentives Under PM Surya Ghar Rooftop Solar Scheme

The Ministry of New and Renewable Energy (MNRE) has released detailed guidelines outlining incentive payments for DISCOMs under the PM Surya Ghar: Muft Bijli Yojana. The framework links financial incentives to the timely implementation of rooftop solar installations, consumer verification, and subsidy processing. The initiative is designed to motivate distribution companies to accelerate residential rooftop solar deployment while improving service quality, transparency, and efficiency. The guidelines support the government's target of expanding rooftop solar adoption nationwide.



MNRE Allows 10% DC Capacity Flexibility to Speed Up PM Surya Ghar Rooftop Solar Approvals

MNRE has permitted up to 10% flexibility in the DC capacity of rooftop solar systems installed under the PM Surya Ghar scheme. The move allows installers to optimize module configurations without affecting subsidy eligibility or requiring repeated design approvals. By providing greater flexibility during project execution, the ministry aims to reduce installation delays, improve system performance, and simplify approvals for vendors and consumers. The amendment is expected to accelerate rooftop solar deployment across residential households in India.

CEA Mandates 100% Grid-Forming Inverters for Upcoming BESS Projects in India

The Central Electricity Authority (CEA) has mandated that all upcoming Battery Energy Storage System (BESS) projects in India must deploy 100% grid-forming inverters. These advanced inverters enhance grid stability by providing voltage and frequency support, particularly as renewable energy penetration increases. The requirement aims to improve system resilience, facilitate renewable energy integration, and ensure reliable grid operations. The directive represents a significant step toward building a modern, flexible, and stable electricity network in India.



MNRE Unveils Model EAAS Agreement to Accelerate Green Hydrogen Adoption in India

MNRE has introduced a Model Energy-as-a-Service (EAAS) Agreement to support the adoption of green hydrogen across industrial sectors. The standardized agreement provides a contractual framework between service providers and consumers, reducing commercial risks and simplifying project implementation. It is expected to encourage investment, improve financing opportunities, and accelerate deployment of green hydrogen infrastructure. The initiative aligns with India's National Green Hydrogen Mission and aims to promote cleaner industrial energy solutions through standardized contractual practices.



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GERC Approves Special Power Billing Framework for GIFT City High-Rise Consumers in Gujarat

The Gujarat Electricity Regulatory Commission (GERC) has approved a special electricity billing framework for high-rise buildings in GIFT City, allowing High Tension (HT) supply with individual Low Tension (LT) metering for end consumers. The decision addresses the unique power distribution requirements of mixed-use skyscrapers and enables more efficient billing and metering practices. The framework is expected to improve operational efficiency, reduce infrastructure complexities, and support GIFT City's continued growth as a modern financial and commercial hub.

UPERC Grants Final Chance To Respond In UPSLDC Regulatory Dispute Over Grid Code Conflicts In Uttar Pradesh

The Uttar Pradesh Electricity Regulatory Commission (UPERC) has granted a final opportunity to stakeholders to submit responses in a petition filed by the Uttar Pradesh State Load Despatch Centre (UPSLDC). The petition seeks resolution of conflicts between the Central Electricity Regulatory Commission's Indian Electricity Grid Code, 2023, and existing UPERC regulations, which are affecting compliance with the Electricity (Late Payment Surcharge and Related Matters) (Amendment) Rules, 2024. The Commission will proceed after receiving the final submissions.

MNRE Approves INR 436.93 Crore RE-RTD Programme To Boost Renewable Energy Research And Perovskite Solar Innovation

The Ministry of New and Renewable Energy (MNRE) has approved a Renewable Energy Research and Technology Development (RE-RTD) Programme with an outlay of INR 436.93 crore. The initiative aims to strengthen indigenous research, promote advanced renewable energy technologies, and accelerate innovation in emerging fields such as perovskite solar cells, green hydrogen, energy storage, and smart grids. The programme will support research institutions, universities, and industry collaborations, enhancing India's technological capabilities and advancing its clean energy transition.



GERC Reserves Order On Solar Dispute Under Suryashakti Kisan Yojna Scheme In Gujarat

The Gujarat Electricity Regulatory Commission (GERC) has reserved its order in a dispute concerning the Suryashakti Kisan Yojna, a flagship solar programme for farmers in Gujarat. The case involves issues related to the implementation of the scheme and contractual obligations between the concerned parties. After hearing detailed arguments from all stakeholders, the Commission decided to reserve its judgment. The final order is expected to provide regulatory clarity and help resolve issues affecting the execution of the farmer-focused solar initiative.

Delhi Unveils DERC Net Metering Guidelines 2026 To Fast-Track Rooftop Solar Connections In Delhi

The Delhi Electricity Regulatory Commission (DERC) has issued the Net Metering Guidelines 2026 to simplify and accelerate rooftop solar adoption across the national capital. The new guidelines establish standardized procedures for application processing, technical approvals, meter installation, and commissioning of rooftop solar systems. They also define the responsibilities of distribution companies to ensure timely approvals and transparent implementation. The framework is expected to reduce delays, improve consumer experience, and support Delhi's renewable energy and distributed solar deployment goals.



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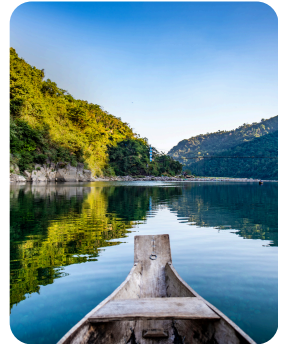
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MSERC Schedules Public Hearing on Draft State Grid Code Regulations 2026 in Meghalaya

The Meghalaya State Electricity Regulatory Commission (MSERC) has scheduled a public hearing on the Draft State Grid Code Regulations, 2026, inviting stakeholders to provide feedback before the regulations are finalized. The proposed Grid Code aims to modernize grid operations, improve coordination among utilities, and strengthen system reliability while supporting higher renewable energy integration. Stakeholders, including distribution companies, generators, transmission utilities, and consumers, are encouraged to participate and submit their suggestions, ensuring the regulations address evolving grid management and operational requirements.

UPCL Seeks UERC Approval for INR 0.88/Unit Additional Surcharge on Open Access Consumers in Uttarakhand

Uttarakhand Power Corporation Limited (UPCL) has approached the Uttarakhand Electricity Regulatory Commission (UERC) seeking approval to levy an additional surcharge of INR 0.88 per unit on open access consumers. The utility stated that the surcharge is intended to recover fixed costs arising from stranded power purchase commitments when consumers procure electricity through open access. The proposal, if approved, will apply to eligible consumers using open access while ensuring compliance with the Electricity Act and applicable regulatory provisions governing cost recovery.



CEA Releases Draft 2026 Grid Connectivity Regulations to Strengthen Renewable Energy Integration and Grid Stability



The Central Electricity Authority (CEA) has released the Draft Grid Connectivity Regulations, 2026, proposing a comprehensive framework for connecting power projects to the national grid. The draft introduces updated technical standards, planning requirements, testing procedures, and operational responsibilities for generators and transmission utilities. It focuses on improving grid reliability, ensuring secure integration of renewable energy, and supporting India's rapidly expanding clean energy capacity. Stakeholders have been invited to submit comments before the regulations are finalized and implemented.

CERC Introduces One-Time Mechanism to Release 22 GW of Stranded ISTS Transmission Capacity

The Central Electricity Regulatory Commission (CERC) has introduced a one-time regulatory mechanism to release nearly 22 GW of stranded Inter-State Transmission System (ISTS) capacity. The initiative aims to optimize transmission infrastructure by reallocating unused capacity to projects awaiting connectivity. The measure is expected to improve grid utilization, reduce delays in renewable energy project commissioning, and accelerate power evacuation from upcoming generating stations. The decision also enhances transparency and efficiency in managing scarce transmission resources.

PSERC Reserves Order on PSPCL Plea for Temporary Night-Time Wheeling Charge Exemption in Punjab

The Punjab State Electricity Regulatory Commission (PSERC) has reserved its order on a petition filed by Punjab State Power Corporation Limited (PSPCL) seeking a temporary exemption from night-time wheeling charges. PSPCL argued that the exemption would encourage greater utilization of surplus power during off-peak hours, improve grid efficiency, and benefit consumers. During the hearing, stakeholders presented their views on the proposal. The Commission will issue its final decision after examining the submissions and relevant regulatory provisions.

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HPERC Proposes Digital Reforms To Simplify Rooftop Solar Connections Under PM Surya Ghar Scheme In Himachal Pradesh

The Himachal Pradesh Electricity Regulatory Commission (HPERC) has proposed amendments to simplify rooftop solar adoption under the PM Surya Ghar Muft Bijli Yojana. The draft reforms focus on digitising the application, approval, inspection, and commissioning process through an online platform, reducing paperwork and processing time. The commission has also proposed streamlined net-metering procedures, improved coordination between stakeholders, and greater transparency in approvals. These measures are expected to accelerate rooftop solar installations, improve consumer experience, and support Himachal Pradesh's renewable energy goals.



BERC Waives Rooftop Solar Application And Meter Testing Fees For Domestic Consumers In Bihar

The Bihar Electricity Regulatory Commission (BERC) has waived application fees and meter testing charges for domestic consumers installing rooftop solar systems under the PM Surya Ghar Muft Bijli Yojana. The decision follows petitions from NBPDC and SBPDCL and aims to reduce upfront costs while encouraging wider rooftop solar adoption. The exemption applies only to residential consumers under the central scheme and aligns with MNRE's objective of simplifying installation procedures and achieving faster deployment of rooftop solar systems across India.

APTEL Judgment Reinforces Regulatory Certainty And Boosts Investor Confidence In India's Power Sector

A recent Appellate Tribunal for Electricity (APTEL) judgment has reinforced the importance of transparent, consistent, and well-reasoned regulatory decision-making in India's power sector. The ruling strengthens confidence among developers, investors, and financial institutions by reducing regulatory uncertainty and supporting fair dispute resolution. As India rapidly expands renewable energy capacity, transmission infrastructure, and electricity market reforms, the judgment highlights the role of judicial clarity in ensuring policy stability, facilitating project implementation, and encouraging long-term investment in the country's evolving power sector.



KERC Orders Legal Action Against Power Generators Over Automatic Meter Reading Payment Defaults In Karnataka

The Karnataka Electricity Regulatory Commission (KERC) has directed legal action against power generators that failed to clear outstanding payments related to Automatic Meter Reading (AMR) services. The commission observed continued non-compliance despite repeated reminders and instructed the concerned agency to initiate proceedings for recovery of dues. KERC emphasised that timely payment is essential for maintaining reliable metering infrastructure, ensuring accurate energy accounting, and supporting efficient grid operations. The order reinforces regulatory discipline and accountability among electricity generators.

CEA Invites Stakeholder Comments On New BESS Safety Audit Framework, Feedback Due By July 28

The Central Electricity Authority (CEA) has released a draft Battery Energy Storage System (BESS) Safety Audit Framework and invited stakeholder comments to strengthen safety standards for energy storage projects. The framework proposes structured safety audits covering system design, installation, operation, maintenance, emergency preparedness, and risk management. Stakeholders were invited to submit feedback by July 28 to help refine the guidelines. The initiative aims to enhance operational safety, improve regulatory compliance, and support the safe expansion of battery energy storage deployment in India.



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MNRE Extends Self-Certification Deadline for SPV Inverters Above 200 kW Until December 31, 2026

The Ministry of New and Renewable Energy (MNRE) has extended the deadline for self-certification of solar photovoltaic (SPV) grid-connected inverters above 200 kW until December 31, 2026. The extension provides manufacturers with additional time to comply with technical standards while ensuring uninterrupted deployment of utility-scale solar projects. The decision aims to support industry readiness during the transition to mandatory certification requirements, reduce potential supply disruptions, and facilitate smooth implementation of large-scale renewable energy projects across India.

Uttarakhand Ombudsman Rules Consumers Responsible for Rooftop Solar Maintenance, Rejects Bill Waiver Appeal

The Uttarakhand Electricity Ombudsman has ruled that consumers remain responsible for maintaining their rooftop solar systems and cannot claim electricity bill waivers due to equipment malfunction. Rejecting an appeal seeking relief from power charges, the Ombudsman observed that proper operation and maintenance of solar installations rests with consumers unless otherwise specified in contractual agreements. The decision reinforces consumer accountability, clarifies obligations under rooftop solar arrangements, and highlights the importance of timely maintenance for ensuring uninterrupted system performance.

MZERC Proposes Mizoram Electricity Grid Code Regulations, 2026 to Strengthen State Power System

The Mizoram Electricity Regulatory Commission (MZERC) has released the draft Mizoram Electricity Grid Code Regulations, 2026, inviting stakeholder comments. The proposed regulations establish comprehensive operational, technical, and planning standards for the state's power system, covering grid connectivity, scheduling, system operation, reliability, and safety. The framework aims to improve grid discipline, facilitate renewable energy integration, enhance coordination among power sector entities, and ensure secure, efficient, and reliable electricity supply throughout Mizoram.

CERC Issues Draft Generic Renewable Energy Tariffs for Projects Commissioning in FY 2026-27

The Central Electricity Regulatory Commission (CERC) has issued draft generic tariffs for renewable energy projects scheduled for commissioning during FY 2026-27. The proposed benchmark tariffs cover various renewable energy technologies and are intended to provide regulatory clarity for project developers and distribution utilities. Stakeholders have been invited to submit comments before the tariffs are finalized. The draft framework seeks to promote investment certainty, transparent tariff determination, and continued growth of India's renewable energy sector.



CERC Introduces One-Time GNA Relief to Unlock 22 GW of Blocked Renewable Energy Transmission Capacity

The Central Electricity Regulatory Commission (CERC) has introduced a one-time General Network Access (GNA) relaxation to address transmission bottlenecks affecting renewable energy projects. The measure is expected to unlock nearly 22 GW of stalled renewable energy capacity by allowing developers to modify or rationalize their GNA allocations under specified conditions. The initiative aims to improve transmission network utilization, accelerate project commissioning, and strengthen grid integration while supporting India's renewable energy expansion and clean energy transition goals.



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MNRE Clarifies ALMM List-II Compliance Rules For Government Rooftop Solar Projects

The Ministry of New and Renewable Energy (MNRE) has clarified the applicability of ALMM List-II requirements for government rooftop solar projects. The ministry stated that projects sanctioned under government schemes must comply with the Approved List of Models and Manufacturers (ALMM) provisions as applicable under prevailing guidelines. The clarification aims to remove ambiguity among implementing agencies and developers regarding procurement requirements, ensuring uniform compliance while supporting domestic manufacturing and maintaining quality standards for rooftop solar installations across public sector projects in India's rooftop solar sector.

CERC Grants License For 2.5 GW KPS III HVDC Renewable Energy Transmission Project In Gujarat

The Assam Electricity Regulatory Commission (AERC) has proposed amendments to the Electricity Supply Code, 2026, allowing consumers with connected loads up to 20,000 kVA to receive electricity supply at 33 kV. The proposed amendment aims to enhance operational flexibility, improve power quality, and reduce technical losses for large consumers. AERC has invited stakeholder comments on the draft regulations before finalization, seeking to modernize the state's electricity distribution framework and support growing industrial and commercial demand.

"Timely processing of open access applications is essential to accelerate renewable energy integration and provide greater certainty to clean energy developers."



MERC Pulls Up MSEDCL, MSETCL Over Delays In Green Energy Long-Term Open Access Applications

The Maharashtra Electricity Regulatory Commission (MERC) has criticized Maharashtra State Electricity Distribution Company Limited (MSEDCL) and Maharashtra State Electricity Transmission Company Limited (MSETCL) for delays in processing long-term open access applications for green energy projects. The Commission observed that unnecessary delays were affecting renewable energy consumers and developers. MERC directed both utilities to process applications within prescribed timelines, improve coordination, and ensure transparent handling of requests to facilitate faster renewable energy integration and ease of doing business.

RERC Declares 12% To 5% GST Cut On Renewable Energy Equipment As Change In Law, Orders Consumer Benefit Pass-Through

The Rajasthan Electricity Regulatory Commission (RERC) has ruled that the reduction in GST on renewable energy equipment from 12% to 5% qualifies as a "Change in Law" under applicable power purchase agreements. The Commission directed that the financial benefits arising from the tax reduction must be passed on to consumers. The order ensures transparency in tariff implementation while preventing developers from retaining gains resulting from tax changes, ultimately safeguarding consumer interests in renewable energy projects.

KERC Schedules Public Hearing On Solar Tariffs And Regulatory Framework For 2026–2029 In Karnataka

The Karnataka Electricity Regulatory Commission (KERC) has announced a public hearing on its draft regulations governing solar power tariffs and the broader regulatory framework for the control period from 2026 to 2029. The hearing invites stakeholders, including developers, utilities, industry associations, and consumers, to provide feedback on proposed tariff mechanisms and policy provisions. The initiative aims to establish a transparent and balanced regulatory framework that supports solar sector growth, ensures fair pricing, and promotes long-term investment in Karnataka's renewable energy market.



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Tamil Nadu Electricity Ombudsman Rejects Appeal Seeking Extension Of Temporary Power Disconnection

The Tamil Nadu Electricity Ombudsman has dismissed an appeal requesting an extension of a temporary electricity disconnection period, upholding the decision of the distribution utility. The Ombudsman observed that the applicable regulations did not permit further extension under the circumstances presented by the consumer. The ruling reinforces adherence to established electricity supply regulations and highlights the importance of complying with prescribed timelines for temporary service connections. The decision also provides regulatory clarity for similar cases involving temporary power disconnections in Tamil Nadu.

RERC Issues Third Amendment Regulations 2026 To Strengthen Renewable Energy Tariff Framework In Rajasthan

The Rajasthan Electricity Regulatory Commission (RERC) has notified the Third Amendment Regulations, 2026, introducing revisions to the state's renewable energy tariff framework. The amendments are intended to improve regulatory clarity, streamline tariff determination processes, and align existing regulations with evolving renewable energy policies. By refining provisions related to tariff implementation and project development, the Commission aims to strengthen investor confidence while ensuring greater transparency and consistency in renewable energy procurement across Rajasthan's expanding clean energy sector.



GERC Extends Interim Green Energy Open Access Banking Charge Until August 31, 2026

The Gujarat Electricity Regulatory Commission (GERC) has extended the interim banking charge of ₹1.50 per unit for Green Energy Open Access consumers until August 31, 2026. The extension allows the existing banking mechanism to remain in force while the Commission continues examining the final regulatory framework. The interim order ensures continuity for renewable energy consumers and open access participants, providing operational certainty during the review process while supporting the state's ongoing transition toward increased adoption of green energy.



CERC Approves GNA Milestone Extensions With New Charges For Renewable Energy Project

The Central Electricity Regulatory Commission (CERC) has approved a uniform framework allowing renewable energy developers additional time to meet GNA milestones. Issued on August 14, 2026, the framework covers land documents, financial closure and COD. Extensions require minimum compliance thresholds and executed equipment or EPC contracts. Milestone Extension Charges apply, with extensions ranging from three months for land to 12 months for COD. Developers achieving COD within permitted periods may receive a 50% MEC refund. CERC also directed that collected charges help reduce inter-State transmission costs for consumers and DISCOMs.

MNRE Mandates Domestic Data Storage For Solar Inverters Under PM Surya Ghar Scheme

The Ministry of New and Renewable Energy (MNRE) has directed solar inverter manufacturers under the PM Surya Ghar scheme to store all monitoring and generation data within India. The August 17, 2026 directive aims to strengthen cybersecurity and protect critical energy information. Manufacturers must host monitoring software, control servers and real-time data on secure, encrypted Indian servers. They must also provide data logger warranties with inverter warranties and submit compliance confirmations to REC Limited within 30 days. Non-compliant manufacturers will be barred from installing systems under the scheme.

INDIA SOLAR NEWS

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India's Renewable Energy Generation Surges 24.7% In June 2026, Solar And Wind Lead Growth

India's renewable energy generation witnessed a significant 24.7% year-on-year increase in June 2026, driven by strong growth in solar and wind power output. Solar generation recorded major gains as new capacity additions boosted clean electricity production, while wind energy continued supporting grid demand. The surge highlights India's accelerating energy transition, reducing dependence on conventional power sources and strengthening progress toward its ambitious renewable energy targets.

India's renewable energy generation recorded a strong 24.7% year-on-year increase in June 2026, driven primarily by higher solar and wind power output. Improved generation from newly commissioned renewable energy projects and favorable weather conditions significantly boosted clean electricity production. Solar power contributed the largest share of the growth, while wind generation also registered substantial gains during the month. The increase highlights India's accelerating transition towards clean energy and supports the country's long-term decarbonization objectives. Rising renewable generation is expected to reduce dependence on fossil fuels, improve grid sustainability, and strengthen India's progress toward achieving its ambitious renewable energy capacity targets.



India's Green Hydrogen Mission Gains Momentum Despite Capacity And Infrastructure Challenges – SBICAPS Report

India's National Green Hydrogen Mission is progressing steadily, although significant challenges remain in manufacturing capacity, infrastructure development, and project financing, according to an SBICAPS report. The study notes that supportive government policies and growing industry participation are encouraging investments across the green hydrogen value chain. However, scaling electrolyser manufacturing, developing storage and transportation infrastructure, and ensuring affordable renewable electricity remain critical priorities. The report suggests coordinated policy support, financial incentives, and technological innovation will be essential to achieve India's production targets and establish the country as a globally competitive hub for green hydrogen production and exports.

India Adds 18,426 MW Solar Capacity As Renewables Reach 42.2% Of Total Power Mix In 2026

India's total installed power generation capacity reached 548.85 GW as of June 2026, with renewable energy contributing 43.09% of the national capacity. Solar energy emerged as the largest renewable source, surpassing 162 GW of installed capacity, reflecting rapid deployment across utility-scale and rooftop projects. Wind, hydro, biomass, and other renewable technologies also continued to expand their contribution to the country's clean energy portfolio. The milestone demonstrates India's sustained progress toward achieving its non-fossil fuel targets while strengthening energy security, reducing carbon emissions, and supporting economic growth through accelerated investments in renewable energy infrastructure.

India Reaches 548.85 GW Power Capacity As Renewables Account For 43.09%, And Solar Hits 162 GW

India's total installed power generation capacity reached 548.85 GW as of June 2026, with renewable energy contributing 43.09% of the national capacity. Solar energy emerged as the largest renewable source, surpassing 162 GW of installed capacity, reflecting rapid deployment across utility-scale and rooftop projects. Wind, hydro, biomass, and other renewable technologies also continued to expand their contribution to the country's clean energy portfolio. The milestone demonstrates India's sustained progress toward achieving its non-fossil fuel targets while strengthening energy security, reducing carbon emissions, and supporting economic growth through accelerated investments in renewable energy infrastructure.

INDIA SOLAR NEWS

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Solar And Wind Account For 92.8% Of India's Renewable Energy Capacity, Reach 219 GW In H1 2026

Solar and wind energy together accounted for 92.8% of India's renewable energy capacity, reaching a combined 219 GW during the first half of 2026. The continued expansion reflects strong policy support, competitive auctions, declining technology costs, and growing private sector investments. Solar remained the dominant contributor to new capacity additions, while wind installations also gained momentum across several states. The increasing share of these two technologies reinforces their central role in India's energy transition strategy. Continued investment in transmission infrastructure, energy storage, and grid flexibility will be essential to support higher renewable energy integration in the coming years.

India's Power Transmission Sector to See ₹5-6 Trillion Capex by FY32 Amid Renewable Energy Expansion: ICRA

India's power transmission sector is expected to witness capital expenditure of ₹5-6 trillion between FY27 and FY32, according to ICRA. The investment will support the country's rapidly expanding renewable energy capacity, strengthen interstate transmission networks, and enable large-scale integration of solar and wind projects. Increasing electricity demand, green energy corridors, and renewable energy zones are driving the need for robust transmission infrastructure. ICRA expects private sector participation to remain strong, supported by competitive bidding and favorable policies. The planned investments will enhance grid reliability, improve power evacuation capabilities, and play a vital role in achieving India's long-term clean energy and decarbonization targets.



“India's next phase of power sector growth will be driven by the combined strength of renewables, energy storage, modern grids, and rising electricity demand.”

India's Power Sector Set For Massive Growth With Solar, Storage And Grid Investments By FY32 – Report

India's power sector is poised for significant expansion through FY32, driven by large-scale investments in solar energy, battery energy storage systems (BESS), transmission infrastructure, and distribution modernization. The report highlights the country's ambitious renewable energy targets, increasing electricity demand, and policy support as key growth drivers. Investments in grid flexibility, energy storage, and smart transmission networks will enable higher renewable energy integration while maintaining grid stability. Continued government initiatives and private sector participation are expected to accelerate project development. The overall investment cycle is anticipated to strengthen India's energy security, support economic growth, and advance the country's clean energy transition.

Gujarat Tops 1H 2026 Solar Installations With 7.69 GW As India's Total Solar PV Capacity Crosses 162 GW

Gujarat emerged as India's leading state for solar installations during the first half of 2026, adding 7.69 GW of new capacity. The strong performance contributed significantly to India's total installed solar photovoltaic capacity surpassing 162 GW by June 2026. Rajasthan, Maharashtra, and other renewable-rich states also recorded substantial additions, reflecting continued momentum in utility-scale solar deployment. The rapid expansion has been supported by government policies, competitive auctions, and growing private investment. India's robust installation pace reinforces its progress toward achieving ambitious renewable energy goals while strengthening energy security and reducing dependence on conventional fossil fuel-based electricity generation.

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SBI Report Calls For Priority Sector Lending Reforms To Boost Renewable Energy And Green Finance

A recent SBI research report has recommended expanding Priority Sector Lending (PSL) norms to accelerate renewable energy deployment and strengthen India's green finance ecosystem. The report suggests increasing lending limits for renewable energy projects and broadening PSL eligibility to include emerging clean energy technologies. It highlights that improved access to affordable financing will help achieve India's ambitious clean energy targets while encouraging greater private sector participation. The report also emphasizes the need for innovative financial instruments, stronger policy support, and greater collaboration between banks and financial institutions to mobilize capital for renewable energy, energy storage, and other sustainable infrastructure projects.

India to Require 888 GWh of Energy Storage Capacity by 2035-36, IESA Report Finds

According to a report by the India Energy Storage Alliance (IESA), India will require approximately 888 GWh of energy storage capacity by 2035-36 to support its rapidly growing renewable energy sector. The study highlights battery energy storage systems as a key enabler for grid stability, renewable energy integration, and round-the-clock clean power supply. Falling battery prices, supportive government policies, and increasing investments are expected to drive deployment. The report also stresses the importance of domestic manufacturing, policy certainty, and timely infrastructure development to meet future storage demand while ensuring energy security and grid reliability across the country.



New Guideline Outlines Three-Stage Roadmap For Smarter Power Demand Forecasting By Indian Discoms – Report

A new guideline has introduced a structured three-stage roadmap to improve power demand forecasting by Indian distribution companies (DISCOMs). The framework recommends a phased transition from conventional forecasting methods to advanced, data-driven forecasting using artificial intelligence, machine learning, and smart metering data. Better forecasting will enable DISCOMs to optimize power procurement, reduce balancing costs, improve renewable energy integration, and enhance overall grid efficiency. The report also encourages capacity building, digital infrastructure upgrades, and standardized forecasting practices. Accurate demand forecasting is expected to become increasingly important as renewable energy penetration continues to rise across India's power sector.

India's Renewable Energy Generation Surges 29.92% In May 2026, As Solar Power Crosses A Record 21.5 BU

India recorded a remarkable 29.92% year-on-year increase in renewable energy generation during May 2026, driven primarily by strong solar power output. Solar generation surpassed a record 21.5 billion units (BU), reflecting continued capacity additions and improved plant performance across the country. The growth highlights India's rapid progress toward expanding clean energy generation while reducing dependence on fossil fuels. Rising renewable generation is also supported by favorable policies, expanding transmission infrastructure, and increased investments in solar and wind projects. The milestone strengthens India's position in the global clean energy transition and supports its long-term climate and energy security objectives.

India Adds Over 26 GW Solar Capacity In H1 2026 As Industry Eyes ALMM Impact In Second Half

India added more than 26 GW of new solar capacity during the first half of 2026, marking one of the strongest installation periods in the country's renewable energy journey. The impressive growth was driven by utility-scale projects, rooftop solar deployments, and supportive government policies. However, industry stakeholders are closely monitoring the impact of the Approved List of Models and Manufacturers (ALMM) regulations during the second half of the year. While the policy is expected to strengthen domestic manufacturing, developers are assessing its influence on project costs, module availability, execution timelines, and future solar capacity additions across the country.

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- SECI Invites Bids For 5.29 MW Rooftop Solar Projects Under RESCO Model
- Terra Clean Invites Bids For 350 MW ISTS Solar Project Land Aggregation In Andhra Pradesh
- Mahasamruddhi Renewable Energy Invites Bids For Long-Term Sale Of Power From 115 MW Solar Plants Along Samruddhi Mahamarg
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- Delhi Development Authority Invites Bids For 1.8 MW Solar Carport Project In New Delhi Under RESCO Model
- MPPGCL Invites EPC Bids For 30 MW Solar PV Project At Sanjay Gandhi Thermal Power Station In Madhya Pradesh
- Jodhpur Vidyut Vitran Nigam Invites Bids For INR627.50 Crore Rooftop Solar Project Covering 1 Lakh Homes In Rajasthan
- NTPC REL Invites Bids For 3-Year O&M Of 4 Pooling Substations At 4,750 MW Khavda Renewable Energy Park
- Homi Bhabha Cancer Hospital and Research Centre Invites Bids For 3 MW Captive Solar PV Plant In Visakhapatnam
- GAIL Invites Bids For PMC Of 600 MW Solar Project With 550 MWh BESS In Uttar Pradesh
- SECI Invites Bids For 700 MW ISTS-Connected Solar Projects For Odisha C&I Consumer
- SAIL's IISCO Steel Plant Invites Bids For 4 MW Rooftop Solar Project At Burnpur, West Bengal
- NTPC Renewable Energy Invites Bids For 400 kV Substation To Support 900 MW Solar Project In Madhya Pradesh
- Lakshadweep Invites Global Bids For Grid-Connected Solar PV And BESS Projects
- ITI Limited Invites EOI For 5 MW Solar Plant With BESS At GB Pant University In Uttarakhand

BESS TENDER >

- MSEDCL Invites Bids For 2000 MW/4000 MWh Battery Energy Storage Projects Under BOO Model In Maharashtra
- Maharashtra Invites Expressions of Interest For Floating Solar BESS And Fisheries Projects At Ekrukha Reservoir
- MPPMCL Invites Bids For 625 MW/1250 MWh Standalone Battery Energy Storage Projects In Madhya Pradesh
- REMCL Invites Bids For 17 MW Solar Project With 12.5 MW/50 MWh BESS At Dahod For Indian Railways In Gujarat
- Rajasthan Discoms Float Tenders For 162 MW/648 MWh Standalone BESS Projects Worth Over INR 680 Crore
- TCIL Invites EOI For Rooftop Solar With BESS Project Across Kandla And Gandhidham In Gujarat
- POWERGRID Invites Bids For 250 MW/1000 MWh Battery Energy Storage System Across India
- POWERGRID Invites Bids For 500 MW/1000 MWh Battery Energy Storage System Across India
- ITI Limited Invites EOI For 5 MW Solar Plant With BESS At GB Pant University In Uttarakhand
- Maharashtra Invites PPP Bids For 200 MW Floating Solar With BESS And 22.5 MW Hydro Plant Upgrade
- SJVN Invites Bids For 265 MW/530 MWh Standalone BESS Project In Haryana Under VGF Scheme
- IIT Jammu Invites EOI For 2.2 MW Hybrid Solar PV With 8 MWh Battery Energy Storage Project
- GAIL Invites Bids For 600 MW Solar PV Project With 275 MW/550 MWh BESS At Jhansi Solar Park In Uttar Pradesh



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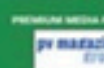
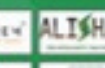
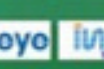
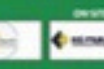
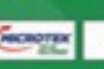
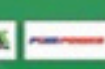
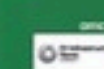
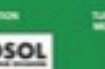
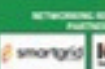
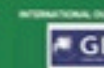
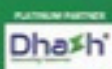
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KEY HIGHLIGHTS



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THE NEXT-GENERATION

How Advanced Technologies Are Tr

India utility-scale solar sector is entering a new phase of growth. Earlier, the main focus was on adding more solar capacity at the lowest possible cost. Today, developers are looking beyond installation numbers. The new goal is to build solar power plants that are smarter, more efficient, more reliable, and capable of producing electricity for over 25 years with minimum downtime. Advanced technologies are now changing the way large-scale solar projects are designed, constructed, monitored, and operated across the country.

India has already crossed 160 GW of installed solar capacity, and much of the future expansion will come from large utility-scale projects. Mega solar parks in states such as Rajasthan, Gujarat, Karnataka, and Andhra Pradesh are becoming testing grounds for next-generation technologies. These innovations are helping developers improve energy generation while reducing operating costs and increasing plant reliability.

One of the biggest changes is the use of larger and more efficient solar modules. Modern utility-scale projects are increasingly deploying high-power TOPCon and Heterojunction (HJT) modules that deliver better performance even in high temperatures. Bifacial solar panels have also become common in large projects. These panels capture sunlight from both the front and rear sides, increasing energy generation by using reflected light from the ground. Combined with single-axis solar trackers that automatically follow the movement of the sun, developers can generate significantly more electricity compared to fixed-tilt systems.

Digital technology is also transforming plant operations. Artificial Intelligence (AI), Internet of Things (IoT), and cloud-based monitoring platforms allow operators to monitor every part of a solar plant in real time. Thousands of sensors continuously collect information on module performance, inverter health, weather conditions, and energy production. AI analyses this data to identify potential equipment failures before they happen, allowing maintenance teams to act early. This predictive maintenance reduces downtime, lowers repair costs, and improves overall plant performance.

Drone technology is becoming another important tool for large-scale solar plants. Instead of manually inspecting thousands of panels, drones equipped with thermal cameras can quickly identify damaged modules, hot spots, loose electrical connections, and

SOLAR PLANT

HOW **ADVANCED TECHNOLOGIES** ARE
TRANSFORMING **UTILITY-SCALE PV IN INDIA**



AI-POWERED
MONITORING



ROBOTIC
MAINTENANCE



ENERGY
STORAGE



WEATHER
INTELLIGENCE



PERFORMANCE
OPTIMIZATION

SOLAR PLANT

Transforming Utility-Scale PV In India

dust accumulation. Robotic cleaning systems are also gaining popularity, particularly in dry regions where water is scarce. Automated cleaning helps maintain higher energy output while reducing water consumption and labour requirements.

Energy storage is becoming an important part of the next generation of utility-scale solar plants. Battery Energy Storage Systems (BESS) allow excess solar power generated during the day to be stored and supplied during evening peak demand. This improves grid stability and enables renewable energy to replace conventional power for longer periods. As battery prices continue to decline, more solar-plus-storage projects are expected across India.

Grid integration technologies are also improving rapidly. Modern inverters provide advanced grid support functions, including voltage regulation, frequency control, and reactive power management. Digital substations and smart transmission systems help utilities manage increasing amounts of renewable energy while maintaining grid reliability. These technologies are becoming increasingly important as India's renewable energy share continues to grow.

Sustainability is also shaping future solar developments. Developers are adopting environmentally friendly construction practices, recycling water, using recyclable materials, and planning for module recycling at the end of plant life. Advanced weather forecasting systems also help operators prepare for extreme weather events, protecting valuable infrastructure and ensuring uninterrupted power generation.

The future of India's utility-scale solar sector will not be defined only by the number of megawatts installed but by the intelligence built into every project. Advanced modules, AI-powered monitoring, automation, robotics, energy storage, and smart grid technologies are creating solar plants that generate more electricity, require less maintenance, and operate more efficiently throughout their lifetime. As India moves towards its ambitious clean energy goals, these next-generation technologies will play a vital role in making utility-scale solar more dependable, affordable, and sustainable, strengthening the country's position as one of the world's fastest-growing renewable energy markets.



PGCIL Wins RECPDCL Bid To Develop 4.5 GW Inter-State Renewable Power Transmission Project

Power Grid Corporation of India Limited (PGCIL) has emerged as the **successful bidder** for the development of a **4.5 GW Inter-State Transmission System (ISTS)** project under the **Tariff-Based Competitive Bidding (TBCB)** process conducted by **REC Power Development and Consultancy Limited (RECPDCL)**. The project will strengthen the national transmission network by enabling the **evacuation of renewable energy** and enhancing **grid reliability** across key regions.

The project will be implemented on a **Build, Own, Operate and Transfer (BOOT)** basis, with **POWERGRID** responsible for developing, operating, and maintaining the transmission infrastructure before transferring it as per the concession agreement. The award marks another significant step in supporting India's expanding **renewable energy capacity** and accelerating the integration of **clean power** into the national grid.

SECI Announces Winners For 4.455 MW Rooftop Solar Projects Under RESCO Tranche-IX

The **Solar Energy Corporation of India Limited (SECI)** has announced the **successful bidders for 4.455 MW of grid-connected rooftop solar projects** under **RESCO Mode (RTSPV-Tranche-IX)**. The projects will be developed through **tariff-based competitive bidding**, with selected developers responsible for **financing, designing, installing, operating, and maintaining** the rooftop solar systems while supplying electricity under long-term power purchase agreements.

The **4.455 MW rooftop solar capacity** will be installed across multiple government and institutional buildings under the **RESCO (Renewable Energy Service Company) model**, enabling consumers to adopt solar power **without any upfront capital investment**. The initiative is part of **SECI's ongoing rooftop solar programme** to accelerate clean energy deployment, lower electricity costs, and expand distributed renewable energy across India.

SECI GRID-CONNECTED RTSPV PROJECTS UNDER RESCO MODE (RTSPV-TRANCHE-IX)

Location / Institution	Capacity (kW)	L1 Winner / Lowest Bidder	Tariff (₹/kWh)
Central Sanskrit University (CSU), Bhopal	80	Renergo Developers Private Limited	₹ 3.14
Regional Passport Office (RPO), Bhopal	100	Renergo Developers Private Limited	₹ 3.14
Central Sanskrit University (CSU), Thrissur	140	Renergo Developers Private Limited	₹ 3.65
Central Sanskrit University (CSU), Jaipur	400	GP Eco Solutions India Limited	₹ 3.04
Central Sanskrit University (CSU), Lucknow	90	Renergo Developers Private Limited	₹ 3.24
Central Sanskrit University (CSU), Puri	400	Renergo Developers Private Limited	₹ 3.35
Central Sanskrit University (CSU), Sringeri	50	Cleanco Renewables Private Limited	₹ 3.50
Visva Bharati University (VBU), Bhirbhum	2,000	Renergo Developers Private Limited	₹ 2.94
IIITDM, Kancheepuram	375	Cleanco Renewables Private Limited	₹ 3.10
IIIT, Bhagalpur	100	AGF Energy Infra Private Limited	₹ 3.72
Central Sanskrit University (CSU), Agartala	200	Renergo Developers Private Limited	₹ 3.75
Central Sanskrit University (CSU), Bhalwal	220	Renergo Developers Private Limited	₹ 3.35
Central Sanskrit University (CSU), Kangra	100	Renergo Developers Private Limited	₹ 3.65
Central Sanskrit University (CSU), Devprayag	200	Renergo Developers Private Limited	₹ 3.19

14 PROJECTS

4,455 KW

SOLARQUARTER RESEARCH

SECI Awards 1,344 MW Pumped Storage Capacity To Greenko, Tata Power, And Torrent After Competitive Auction

The Solar Energy Corporation of India (SECI) has awarded 1,344 MW of pumped storage capacity under its 1,500 MW/12,000 MWh Pumped Storage Plants (PSP-I) tender through a tariff-based competitive reverse auction. The projects will support long-duration energy storage, enhance grid reliability, and enable greater integration of renewable energy into India's power system.

Greenko Energies secured the largest allocation of 720 MW at a tariff of ₹1.0967 crore/MW/year, while Torrent Energy Storage Solutions won 300 MW at ₹1.0976 crore/MW/year. Tata Power was awarded 324 MW at the lowest discovered tariff of ₹1.0842 crore/MW/year from its 1,000 MW Bhivpuri Pumped Hydro Storage Project in Maharashtra. The projects will be developed under the Build, Own, Operate (BOO) model with 40-year Pumped Storage Purchase Agreements (PSPAs) and are expected to provide 8 hours of energy storage to meet peak power demand.

SECI 1344 MW PUMP STORAGE AUCTION RESULTS (PSP-I)			
Bidder Name	Capacity (MW)	Total Storage Cost (INR/MW/Annum)	Equivalent Annual Fixed Charges (INR/MW/Annum)
Greenko Energies	720	1,34,90,000	1,09,67,479.67
Torrent Energy Storage Solutions	300	1,35,00,000	1,09,75,609.76
Tata Power Company	324	1,35,10,000	1,08,41,826.50
SOURCE: SECI		SOLARQUARTER RESEARCH	

Bondada Engineering Wins NTPC REL Order For India’s Largest 100 MWh Vanadium Flow Battery Project

Bondada Engineering Limited has secured a Notification of Award (NoA) from NTPC Renewable Energy Limited (NTPC REL) for the Engineering, Procurement and Construction (EPC) of India’s first and largest 100 MWh Vanadium Redox Flow Battery Energy Storage System (VRFB BESS) at Khavda Solar Park, Gujarat. The contract also includes 10 years of Operations and Maintenance (O&M), with the project scheduled for completion within 10 months of the award notification.

The project will be executed in partnership with Delectrik Systems, which will serve as the technology partner. The VRFB technology offers long-duration energy storage, longer operational life, minimal performance degradation, and enhanced safety compared to conventional lithium-based battery systems. The project marks a significant milestone in India's clean energy transition and strengthens Bondada Engineering’s position in the rapidly growing energy storage sector.

Telangana Power Generation Corporation Awards 375 MW BESS Capacity, With Coal India Securing 187.5 MW Energy Storage Project

Telangana Power Generation Corporation (TGGENCO) has awarded 375 MW / 1,500 MWh of Battery Energy Storage System (BESS) capacity under a competitive bidding process aimed at strengthening grid reliability and supporting renewable energy integration in the state. The projects will be developed under a Build-Own-Operate (BOO) model with a 15-year Battery Energy Storage Purchase Agreement (BESPA).

Coal India Limited and Sarus Infrastructures secured 187.5 MW / 750 MWh each. Coal India will develop the project at the Choutuppal substation with an estimated investment of ₹1,057 crore, while Sarus Infrastructures will set up the system at the Maheswaram substation with an estimated cost of ₹1,015 crore. The standalone 4-hour BESS projects will enhance peak load management, frequency regulation, and overall grid stability in Telangana.

RECPDCL Awards POWERGRID ISTS Project For 20 GW Renewable Energy Evacuation From Rajasthan

REC Power Development and Consultancy Limited (RECPDCL) has awarded POWERGRID the Inter-State Transmission System (ISTS) project for the **evacuation of 20 GW of renewable energy** from Rajasthan under the **Tariff-Based Competitive Bidding (TBCB)** route. The project will be implemented on a **Build, Own, Operate and Transfer (BOOT)** basis and is aimed at strengthening India's transmission network to support large-scale renewable energy integration.

The project includes **augmentation and bay extension works** at the **Bhadla-III** and **Ramgarh** substations in **Rajasthan**, along with the **Kanpur** substation in **Uttar Pradesh**. POWERGRID received the **Letter of Intent (LoI)** on **July 9, 2026**, and will develop, operate, and maintain the transmission assets to improve **grid reliability**, enhance **power transfer capability**, and facilitate efficient **renewable energy evacuation** from one of India's largest clean energy hubs.

NHPC Awards 1.2 GW Jalaun Solar Park Project At ₹2.73/kWh To Coal India And NLC India Renewables

NHPC has awarded the **1.2 GW Jalaun Solar Park** project in **Uttar Pradesh** to **Coal India Limited** and **NLC India Renewables Limited (NIRL)** under a competitive bidding process. **Each company secured 600 MW** of solar capacity at a **record tariff of ₹2.73/kWh**, marking a significant milestone in the development of the **1,200 MW Jalaun Solar Park**.

The project will be developed through **Bundelkhand Saur Urja Limited (BSUL)**, a joint venture between **NHPC** and **UPNEDA**. Both developers are required to **commission their projects within 18 months** from the signing of the **Power Purchase Agreement (PPA)**. The **Jalaun Solar Park** is expected to accelerate renewable energy deployment in **Uttar Pradesh** while supporting India's clean energy transition and expanding utility-scale solar capacity.

NHPC 1.2 GW AUCTION RESULTS JALAUN SOLAR PARK-UTTAR PRADESH		
Bidder Name	Capacity (MW)	Tariff (₹/kWh)
Coal India Limited	600	2.73
NLC India Renewables	600	2.73
SOURCE: SOLARQUARTER RESEARCH		

Lumino Industries Emerges L1 Bidder For ₹176 Crore Assam 220/132KV Morigaon Substation Project

Lumino Industries Limited has emerged as the **L1 (lowest) bidder** for the **₹176.14 crore 220/132 kV AIS Substation** project at **Morigaon, Assam**, floated by the Assam Electricity Grid Corporation Limited (AEGCL) under its **Externally Funded Projects** division. The project includes the **construction of a 220/132 kV AIS substation** along with **associated transmission lines** and is scheduled for completion within **three years**.

A total of **seven bidders** participated in the tender. **Shyama Power India Limited** secured the **L2** position with a bid of **₹193.99 crore**, while **M/S Badri Rai & Company** and **Kanti Prasad Mittal** ranked **L3** and **L4**, respectively. **Cabcon India Limited**, **HIGH-TECH ECOGREEN CONTRACTORS LLP**, and **R.S. Infraprojects Pvt. Ltd.** were **technically disqualified** and did not qualify for the financial evaluation. The project is expected to **strengthen Assam's transmission network**, **improve grid reliability**, and **support future renewable energy integration** across the region.

GUVNL Awards 450 MW/900 MWh BESS Phase-IX To NLC India Renewables And Sun Drops Energia

Gujarat Urja Vikas Nigam Limited (GUVNL) has finalized the auction for **450 MW/900 MWh of standalone Battery Energy Storage Systems (BESS)** under its Phase-IX initiative. **NLC India Renewables** emerged as the successful bidder for **275 MW/550 MWh** at **₹2.31989 lakh/MW/month**, while **Sun Drops Energia**, part of the KP Group, secured **175 MW/350 MWh** at **₹2.31990 lakh/MW/month**.

The projects will strengthen **grid flexibility**, improve renewable energy integration, and support Gujarat's evolving power system. Selected developers will also receive **₹18 lakh/MWh in Viability Gap Funding (VGF)**, helping reduce capital requirements and enhance the commercial viability of large-scale battery storage projects.

GUVNL BESS PHASE-IX AUCTION RESULTS FOR 450 MW/900 MWH

Bidder Name	Capacity (MW)	Tariff (₹/kWh)
NLC India Renewables	275	2.73
Sun Drops Energia	175	2.73

SOURCE: SOLARQUARTER RESEARCH

SECI Awards 1,000 MW RTC Thermal Mimic Power Tender To Seven Developers At Tariffs Starting INR 5.25/kWh

The **Solar Energy Corporation of India (SECI)** has awarded its **1,000 MW Round-the-Clock Thermal Mimic (RTC-TM) power tender** to seven successful bidders, supporting the development of firm and dispatchable renewable energy. The tender, issued in March 2026, aims to provide reliable clean power capable of closely matching conventional thermal generation. Discovered tariffs remained highly competitive, ranging from **₹5.25/kWh to ₹5.26/kWh**, with most capacity awarded at ₹5.25/kWh.

Juniper Green Energy Limited secured the largest allocation of **230 MW**, while **KENERI PRIME SOLAR POWER** received 180 MW. The outcome highlights strong developer participation and reinforces SECI's efforts to strengthen **grid reliability, renewable integration, and India's clean energy transition**.

SECI 1 GW FDRE-RTC AUCTION RESULTS (TRANCHE - V)

Bidder Name	Capacity (MW)	Tariff (₹/kWh)
EMIF II Holding V II Coöperatief W.A.	100	5.25
Hero Solar Energy Private Limited	120	5.25
PURVAH GREEN POWER PVT. LTD. (CESC)	70	5.25
RESOLVEN FOUR ENERGY PRIVATE LIMITED	150	5.25
KENERI PRIME SOLAR POWER PVT. LTD.	180	5.25
Hexa Climate Solutions Private	150	5.26
Juniper Green Energy Limited	230	5.26

SOURCE: SOLARQUARTER RESEARCH

USolar Clean Energy Solutions Emerges L1 For NTPC-SAIL Power Company's 20 MW Floating Solar Project In Chhattisgarh

USolar Clean Energy Solutions Private Limited has emerged as the **lowest bidder (L1)** for a **20 MW floating solar PV project** at Maroda Reservoir-2 in Bhilai, Durg, Chhattisgarh, floated by **NTPC-SAIL Power Company Limited (NSPCL)**. USolar quoted **₹127.47 crore**, securing the top rank based on an evaluated rate of **₹2.90 crore per MU** and estimated annual generation of **43.90 MU**. The project is scheduled for completion within **one year**, covering engineering, design, supply, installation, testing, and commissioning. The scope includes floating platforms, anchoring systems, electrical and civil works, **33 kV underground evacuation**, SCADA monitoring, and **three years of O&M services**.

The Next Solar Investment Wave: How Technology Will Shape Returns In Utility-Scale PV

The global utility-scale solar industry is entering a new phase of investment. Earlier, investors mainly focused on building large solar power plants because of falling solar panel prices and strong government support. Today, the market is changing. While solar capacity continues to grow rapidly, investors are now looking beyond installation costs. They want projects that can generate stable electricity, operate efficiently for decades, and deliver stronger financial returns. Technology is becoming the biggest factor in achieving these goals.

Modern utility-scale solar projects are far more advanced than those built just a few years ago. High-efficiency solar modules, bifacial panels, larger wafer sizes, and advanced inverters are helping developers generate more electricity from the same piece of land. Single-axis tracking systems have also become common in many regions, allowing panels to follow the sun throughout the day and increase annual energy production. Although these technologies may require a higher initial investment, they often improve project economics by increasing energy output and reducing the cost of electricity over the plant's lifetime.

Artificial intelligence and digital technologies are also changing how solar plants are managed. Operators now use AI-based monitoring systems, drones, and predictive maintenance tools to detect faults before they become major problems. This reduces downtime, lowers maintenance costs, and improves plant availability. Investors value these improvements because every additional unit of electricity generated contributes directly to project revenue. Better performance also increases confidence among lenders and financial institutions.

Another major trend shaping future investments is the integration of battery energy storage systems with utility-scale solar plants. Solar generation is naturally limited to daylight hours, but storage allows

excess electricity produced during the day to be supplied during evening demand periods. This increases the value of solar power and creates additional revenue opportunities through energy arbitrage, grid balancing, and ancillary services. As battery prices continue to decline, more investors see hybrid solar-plus-storage projects as an attractive long-term investment.

Grid integration is becoming equally important. In many countries, renewable energy capacity is growing faster than transmission infrastructure. Developers are therefore investing in advanced grid management systems, smart inverters, and energy management software to improve grid stability and reduce curtailment risks. Projects that can deliver reliable and flexible power are expected to receive greater investor interest as electricity systems become more dependent on renewable energy.

Sustainability is also influencing investment decisions. Financial institutions increasingly evaluate environmental, social, and governance (ESG) performance before financing large infrastructure projects. Solar developers that adopt responsible sourcing, improve recycling practices, reduce carbon emissions during manufacturing, and maintain strong environmental standards are likely to attract more international capital. Transparent reporting and responsible project development are becoming important competitive advantages.

Government policies will continue to influence investment flows, but technology is reducing dependence on subsidies. Falling equipment costs, improved operational efficiency, and higher energy yields are making utility-scale solar projects financially attractive even in competitive electricity markets. Long-term power purchase agreements, corporate renewable energy procurement, and merchant market opportunities are providing diversified revenue streams that further strengthen investment confidence.

"The future of utility-scale solar investment will be defined not by the lowest installation cost, but by the combination of efficiency, reliability, flexibility, and returns."

The next solar investment wave will not simply reward the lowest-cost projects. It will favor projects that combine advanced technology, reliable performance, intelligent operations, and flexible energy delivery. As utility-scale solar continues to evolve, technology will become the key driver of long-term returns. Investors who recognize this shift and support innovative, efficient, and future-ready projects are likely to benefit the most from the continued global transition toward clean energy.

The Race For Solar Scale: How Developers Are Competing Through Technology Advantage

The global solar industry is entering a new phase where project size alone is no longer enough to stay competitive. As governments announce larger renewable energy targets and utilities seek lower-cost electricity, developers are now competing through technology rather than just capacity. The race for solar scale has become a race for innovation, where better equipment, smarter engineering, and advanced digital tools are creating a clear advantage in large-scale solar PV projects.

In the early years of utility-scale solar, developers mainly focused on securing land, obtaining approvals, and offering the lowest tariff during competitive bidding. While these factors remain important, the market has become much more demanding. Profit margins are tighter, project timelines are shorter, and investors expect higher efficiency and lower operational risks. As a result, technology has become one of the biggest factors that determine project success.

One of the most significant developments is the widespread adoption of high-efficiency solar modules. Modern TOPCon and Heterojunction (HJT) technologies produce more electricity from the same land area compared to older module designs. This enables developers to maximize energy generation while reducing the overall cost per unit of electricity. Bifacial solar panels have also become increasingly popular because they capture sunlight from both the front and back surfaces, increasing energy output, especially in open-field installations with reflective ground conditions.

Tracking systems are another important area of competition. Single-axis trackers automatically adjust the angle of solar panels throughout the day to follow the movement of the sun. Although they increase the initial investment, they significantly improve energy generation, making them an attractive choice for large utility-scale projects. Developers are carefully selecting tracker systems based on climate conditions, wind resistance, and long-term maintenance requirements.

Digital technologies are transforming the way solar plants are designed and operated. Artificial Intelligence (AI), machine learning, and advanced data analytics help developers predict equipment failures, optimize power generation, and reduce maintenance costs. Drones equipped with thermal cameras can quickly inspect thousands of solar panels, identifying damaged modules without interrupting plant operations. Digital twins and real-time monitoring platforms also enable operators to simulate plant performance and make better operational decisions.



Energy storage is becoming another major competitive advantage. Battery Energy Storage Systems (BESS) allow developers to store excess solar power during the day and supply electricity during evening peak demand. As more countries increase renewable energy capacity, combining solar PV with battery storage improves grid stability and makes solar power available even when sunlight is unavailable. Developers offering integrated solar-plus-storage projects are increasingly preferred by utilities and large commercial consumers.

Technology is also improving construction speed and reducing project risks. Prefabricated mounting structures, robotic panel cleaning systems, automated installation equipment, and advanced project management software help developers complete projects faster while maintaining quality. Water-saving robotic cleaning systems are particularly valuable in regions where water availability is limited.

Sustainability has become another area where technology provides an advantage. Developers are selecting modules with lower carbon footprints, adopting recyclable materials, and implementing environmentally responsible construction practices. Advanced weather forecasting systems and climate resilience measures also help protect solar plants from extreme weather events, ensuring reliable performance throughout the project life.

The competition in large-scale solar PV is no longer based only on who can build the biggest project. It is increasingly about who can deliver the most efficient, reliable, and intelligent solar power plant. Developers that invest in advanced module technologies, digital operations, energy storage, and sustainable engineering are better positioned to reduce costs, improve performance, and attract long-term investors. As global solar installations continue to grow, technology leadership will remain the defining factor in the race for solar scale, shaping the future of the utility-scale solar industry.

India's Utility-Scale Solar Pipeline: Technology Choices Behind The Next Wave Of Projects

India's utility-scale solar sector is entering a new phase of growth. Over the last few years, the country has rapidly increased its installed solar capacity, and the next wave of projects is expected to be even larger. Driven by government targets, competitive bidding, and growing electricity demand, developers are now planning projects that are not only bigger but also more efficient and reliable. However, the success of these projects depends on one important factor—choosing the right technology.

Earlier, most large solar parks used conventional polycrystalline solar panels with fixed mounting structures. Today, technology has advanced significantly. Most new utility-scale projects are being designed with high-efficiency monocrystalline TOPCon or Heterojunction (HJT) solar modules, which generate more electricity from the same land area. These advanced modules perform better in high temperatures and low-light conditions, making them suitable for India's diverse climate. As module prices continue to decline, developers are increasingly adopting these technologies to improve project performance and long-term returns.

Another major technology choice is the use of bifacial solar modules. Unlike traditional panels, bifacial modules can generate electricity from both the front and rear sides by capturing reflected sunlight from the ground. This helps increase energy production without requiring additional land. In many large solar parks across Rajasthan, Gujarat, and other sunny regions, bifacial technology is becoming the preferred option because it improves the overall efficiency of the project.

Single-axis solar trackers are also becoming a standard feature in new utility-scale projects. These systems automatically move solar panels to follow the sun's path throughout the day, allowing them to capture more sunlight. Although trackers increase the initial project cost, they can improve electricity generation by 15 to 25 percent compared to fixed structures, depending on the project location. This higher energy output helps developers offer more competitive tariffs while improving project profitability over the plant's operating life.



Digital technology is playing an equally important role in the next generation of solar projects. Modern utility-scale plants use artificial intelligence, machine learning, drones, weather forecasting systems, and advanced monitoring software to improve operations. These tools help identify equipment faults early, reduce maintenance costs, and increase plant availability. Predictive maintenance is replacing traditional inspection methods, allowing operators to detect potential failures before they affect electricity generation.

Energy storage is becoming another key technology choice. Since solar power is available only during daylight hours, battery energy storage systems are increasingly being integrated with utility-scale solar plants. Batteries allow excess electricity generated during the day to be stored and supplied during evening peak demand. This improves grid stability, supports renewable energy integration, and makes solar power more dependable. Recent government tenders are increasingly seeking solar-plus-storage projects instead of standalone solar plants, highlighting this important shift.

Grid connectivity and transmission planning are also receiving greater attention. Large solar projects are now being developed closer to high-capacity transmission corridors and renewable energy zones. Developers are investing in modern substations, high-voltage transmission systems, and digital grid management tools to ensure efficient power evacuation. Better transmission planning reduces curtailment risks and improves the financial viability of projects.

Environmental and land management practices are also influencing technology decisions. Developers are adopting robotic cleaning systems to reduce water consumption in dry regions. Elevated mounting structures, better drainage systems, and environmentally friendly construction methods are helping projects operate more sustainably while reducing long-term operating costs.

India's next generation of utility-scale solar projects represents more than an increase in installed capacity. It reflects a transition toward smarter, more efficient, and technology-driven renewable energy infrastructure. Advanced solar modules, tracking systems, digital monitoring, battery storage, and stronger grid integration are shaping the future of the country's solar sector. As India moves closer to its clean energy goals, these technology choices will determine how efficiently large-scale solar projects deliver affordable, reliable, and sustainable electricity for decades to come.

MNRE Grants Temporary ALMM Relief To Unlock Stalled Renewable Energy Projects

The Ministry of New and Renewable Energy (MNRE) has issued an important clarification regarding the Approved List of Models and Manufacturers (ALMM) regulations to address disruptions affecting renewable energy projects across India. The move is expected to provide immediate relief to several utility-scale and commercial and industrial (C&I) renewable power projects that have been facing delays in commissioning.

The issue emerged after an earlier memorandum issued by the ministry on May 25, 2026, stated that no blanket extension would be granted for compliance with ALMM List-II requirements beyond June 1, 2026. Following this announcement, several state agencies, State Nodal Agencies (SNAs), and power distribution companies (DISCOMs) stopped approving the commissioning of certain renewable energy projects. Many project developers had already completed the installation of their projects before the June deadline, but were unable to secure commissioning approvals due to pending ALMM-related clearances.

As a result, a large number of projects remained stranded despite being physically ready for operation. The situation created delays in grid connectivity and slowed renewable energy capacity additions in different parts of the country.

To address the problem, MNRE has introduced a temporary relief mechanism. According to the new clarification, non-rooftop renewable energy projects that were installed before June 1, 2026, but could not be commissioned due to valid reasons, may now seek provisional commissioning. However, developers must have already applied for an exemption from ALMM List-II through the government's official portal and should be awaiting a final decision on their application.

The ministry has authorized the concerned commissioning authorities to verify the eligibility of such projects using relevant documentary evidence. After verification, these projects may be granted provisional commissioning permission using solar PV modules listed under ALMM List-I. This approval will remain subject to the final decision on the exemption application submitted by the developer.

MNRE has clarified that this relaxation is only a temporary measure and will remain valid for one month from June 23, 2026. All eligible projects must complete their commissioning within this period. In cases where delays occur because of the commissioning authority, the reasons must be officially recorded on the commissioning certificate. The ministry has also stated that no requests will be considered after the expiry of this one-month window.

The clarification further directs that pending exemption applications should not prevent projects from generating electricity, injecting power into the grid, wheeling, banking, or settling energy under the existing Open Access framework. Authorities at both the central and state levels have been instructed not to withhold approvals, Commercial Operation Date (COD) recognition, or scheduling registrations solely because an ALMM List-II exemption certificate is still under review.

MNRE emphasized that this decision is a limited and transitional intervention intended only to resolve the current bottleneck. The ministry reiterated that the June 1, 2026, implementation date for ALMM List-II remains unchanged and that all other provisions of the original May 25 memorandum continue to apply.

Beyond Panels: The Hidden Technologies Powering Solar Projects



India's large-scale solar power plants are often recognized by the endless rows of solar panels spread across thousands of acres. While these panels are the most visible part of a solar project, they represent only one piece of a much larger technological system. Behind every successful utility-scale solar park in India is a combination of advanced equipment, digital tools, and engineering solutions that work together to produce reliable electricity. As India moves toward its goal of installing 500 GW of non-fossil fuel capacity by 2030, these hidden technologies are becoming increasingly important for improving efficiency, reducing costs, and ensuring stable power generation.

One of the most important technologies is the solar inverter. Solar panels generate direct current (DC), but homes, industries, and the electricity grid require alternating current (AC). Inverters perform this conversion while continuously monitoring the performance of every section of the solar plant. Modern central and string inverters also help maintain grid stability by controlling voltage and frequency, allowing solar power plants to operate more efficiently even during changing weather conditions.

Another major innovation is the use of advanced mounting structures and solar trackers. Fixed-tilt structures are still common, but many of India's largest solar projects now use single-axis trackers that allow panels to follow the movement of the sun throughout the day. This increases energy generation by improving the angle at which sunlight strikes the panels. Although trackers involve higher initial investment, they often deliver significantly higher electricity output, making them suitable for regions with strong solar radiation such as Rajasthan and Gujarat.

Monitoring and digital management systems have also transformed large-scale solar operations. Every panel, inverter, transformer, and weather station is connected through Supervisory Control and Data Acquisition (SCADA) systems. Plant operators receive real-time information about power generation, equipment health, and weather conditions from a central control room. Artificial intelligence and data analytics further help identify underperforming equipment, predict failures before they occur, and schedule maintenance at the right time. This approach reduces downtime and improves the overall productivity of the plant.

Powering India's Largest Solar



Transmission infrastructure plays an equally important role. Large solar parks are often located in remote desert regions where sunlight is abundant but electricity demand is low. High-voltage transmission lines, modern substations, and Green Energy Corridors transport renewable power over long distances to major cities and industrial centers. Flexible AC transmission systems and advanced grid management technologies further improve the ability of the power system to absorb large amounts of renewable energy without affecting grid stability.

Weather forecasting has become another hidden technology supporting large solar plants. Accurate satellite-based forecasting enables developers and grid operators to estimate solar generation hours in advance. Better forecasting improves electricity scheduling, reduces forecasting errors, and helps grid operators balance renewable energy with conventional power sources.

Cleaning technologies are also evolving rapidly. Dust accumulation can significantly reduce solar panel performance, particularly in dry regions. Many large solar parks now use robotic cleaning systems that operate without water or with minimal water consumption. These automated systems reduce labour requirements, conserve valuable water resources, and maintain consistent energy output throughout the year.

Cybersecurity is another growing priority as solar plants become increasingly digital. Advanced communication networks connect thousands of devices across large projects, making secure data transmission essential. Developers are investing in secure software platforms, encrypted communication systems, and continuous monitoring to protect critical infrastructure from cyber threats.

The future of India's large-scale solar sector will depend not only on installing more solar panels but also on adopting smarter technologies that improve efficiency, reliability, and grid integration. Digital monitoring, energy storage, intelligent forecasting, advanced transmission systems, robotic maintenance, and secure communication networks are quietly transforming how solar power plants operate. These technologies may remain largely invisible to the public, but they are the true backbone of India's renewable energy transition. As investment continues to grow, these hidden innovations will play a decisive role in making solar energy more dependable, affordable, and capable of meeting the country's rising electricity demand.

Solar Plant Intelligence: How AI, IoT, And Automation Are Creating Self-Optimising Power Plants

India's large-scale solar sector is entering a new phase where technology is becoming as important as the solar panels themselves. While the focus was once on installing more capacity, attention is now shifting toward improving the performance, reliability, and efficiency of solar power plants. Artificial Intelligence (AI), the Internet of Things (IoT), and automation are playing a major role in this transformation. Together, these technologies are helping create intelligent solar power plants that can monitor themselves, predict problems before they occur, and continuously improve their performance with minimal human intervention.

Modern utility-scale solar parks generate an enormous amount of operational data every day. Thousands of solar modules, inverters, transformers, weather stations, trackers, and meters continuously collect information about temperature, voltage, current, solar radiation, wind speed, and equipment health. Earlier, much of this data was simply recorded for reporting purposes. Today, AI systems analyze this information in real time to identify patterns and recommend actions that increase energy generation and reduce operational costs.

One of the biggest advantages of AI is predictive maintenance. Instead of waiting for equipment to fail, AI algorithms study operating conditions and identify early signs of problems. A slight increase in inverter temperature, unusual electrical behavior, or declining output from a group of panels may indicate an upcoming fault. Maintenance teams can then repair or replace components before a major breakdown occurs. This reduces downtime, improves plant availability, and lowers maintenance expenses.

IoT devices act as the digital nervous system of a solar power plant. Smart sensors installed across the facility continuously transmit data to a central monitoring platform through secure communication networks. Plant operators can monitor the performance of every section of the solar farm from a remote control center. If a fault develops, alerts are generated instantly, allowing faster response and reducing energy losses. Remote monitoring is particularly valuable for India's large solar parks located in remote desert and semi-arid regions where physical inspections are time-consuming.

Automation is also improving daily plant operations. Modern solar plants can automatically adjust single-axis trackers to maximize sunlight throughout the day. Cleaning schedules can be optimized based on dust accumulation, weather conditions, and expected energy gains instead of following fixed intervals. Automated switching systems can safely isolate faulty equipment and restore operations quickly without requiring manual intervention. These capabilities increase efficiency while improving worker safety.





THE NEXT GENERATION OF INDIAN SOLAR POWER PLANTS WILL NOT SIMPLY PRODUCE ELECTRICITY—THEY WILL LEARN FROM DATA, PREDICT FAILURES, AUTOMATE OPERATIONS, AND CONTINUOUSLY OPTIMIZE THEIR PERFORMANCE.”



AI is also helping improve energy forecasting. Solar generation depends heavily on weather conditions, making accurate forecasting essential for grid operators. Machine learning models combine satellite images, weather forecasts, historical plant performance, and local climate data to predict electricity generation more accurately than traditional methods. Better forecasting helps grid operators balance electricity supply and demand, reducing the need for expensive backup power while supporting greater integration of renewable energy into the grid.

Another growing application is the use of drones equipped with thermal cameras and AI-powered image analysis. Instead of manually inspecting millions of solar panels, drones can quickly scan large solar parks and identify damaged modules, hotspots, cracks, loose connections, or soiling. AI software processes the images automatically, allowing maintenance teams to focus only on affected areas. This significantly reduces inspection time while improving maintenance quality.

Digital twins are emerging as another important technology for large-scale solar projects. A digital twin is a virtual model of a physical power plant that receives real-time operational data. Engineers can simulate different operating conditions, evaluate equipment performance, and test maintenance strategies without affecting the actual plant. This enables better planning and helps optimize long-term asset management.

India's rapidly expanding renewable energy sector makes these technologies increasingly valuable. As solar parks become larger and more complex, manual monitoring alone is no longer sufficient. Intelligent digital systems improve energy yield, reduce operating costs, extend equipment life, and support reliable grid integration. They also help developers meet performance guarantees while providing investors with better visibility into plant operations.

The future of large-scale solar power in India will not depend only on installing more photovoltaic modules. Success will increasingly depend on how intelligently these assets are managed throughout their operational life. AI, IoT, and automation are transforming conventional solar farms into self-optimising power plants that continuously learn, adapt, and improve. As digital technologies become more affordable and widely adopted, they will become an essential part of India's journey toward a cleaner, smarter, and more efficient energy system.

Gigawatt Solar Projects: The New Engineering Challenges Behind Massive Pv Developments

India's solar power sector has entered a new phase where projects are no longer measured in a few megawatts but in gigawatts. Large solar parks with capacities of 1 GW, 2 GW, and even more are becoming common across states such as Rajasthan, Gujarat, and Andhra Pradesh. These projects are helping India move closer to its target of achieving 500 GW of non-fossil fuel capacity by 2030. While larger projects bring economies of scale and lower electricity costs, they also introduce engineering challenges that are very different from those faced in smaller solar installations.



One of the biggest challenges is land development. A gigawatt-scale solar project may require more than 4,000 to 5,000 acres of land depending on the technology used. Such vast areas rarely have perfectly flat terrain. Engineers must conduct detailed topographical surveys to minimize earthwork, improve drainage, and ensure proper panel alignment. Poor site preparation can increase installation costs and reduce energy generation over the project's lifetime.

Another major concern is electrical system design. As project capacity increases, collecting electricity from thousands of solar module strings becomes more complex. Engineers must carefully design DC collection systems, inverter placement, medium-voltage networks, and high-voltage substations to minimize power losses. Efficient cable routing and optimized inverter loading are essential for reducing energy losses while keeping construction costs under control.

Grid integration has become one of the most critical engineering issues. A gigawatt-scale solar plant can inject a large amount of electricity into the transmission network within a short period. Managing voltage stability, frequency control, and power quality requires advanced grid studies before construction begins. Developers increasingly use dynamic reactive power compensation, modern inverter technologies, and digital control systems to meet grid code requirements and maintain reliable operations.

Weather conditions create another layer of complexity. Large solar plants in desert regions face high temperatures, strong winds, dust accumulation, and sandstorms. High temperatures reduce solar module efficiency, while dust significantly lowers energy production if panels are not cleaned regularly. Engineers must design robust mounting structures capable of withstanding extreme wind speeds and select cleaning methods that reduce water consumption, especially in water-scarce regions.

Construction management also becomes more demanding at this scale. Millions of solar modules, thousands of inverters, transformers, mounting structures, and kilometres of cables must be transported, stored, and installed within strict project timelines. Coordinating multiple contractors, ensuring quality control, and maintaining worker safety across such large sites require advanced planning and digital project management tools.

Operation and maintenance practices are also changing. Manual inspection is no longer practical for projects covering several thousand acres. Developers increasingly rely on drones equipped with thermal cameras, artificial intelligence-based fault detection, remote monitoring platforms, and predictive maintenance software. These technologies help identify defective modules, overheating equipment, and vegetation growth before they affect plant performance.

Energy storage is becoming an important engineering consideration as more large solar plants are connected to the grid. Battery Energy Storage Systems (BESS) are being integrated with gigawatt-scale projects to improve grid stability, shift solar generation to evening demand periods, and reduce renewable energy curtailment. Designing these hybrid systems requires careful coordination between solar generation, storage capacity, and transmission infrastructure.

As India continues to develop larger solar parks, engineering excellence will play a greater role than ever before. Future success will depend not only on installing more solar panels but also on smarter system design, stronger transmission networks, digital technologies, and resilient infrastructure. Solving these engineering challenges will ensure that gigawatt-scale solar projects remain efficient, reliable, and capable of supporting India's long-term clean energy transition.

JAY SANKHAVARA

Director, Synchro Electricals Pvt. Ltd.

From 8 GW to Fortune 500: Synchro's Ambitious Roadmap



Key Headlines:

- *Synchro is the only company in India offering complete solar solutions plus LT/HT products under one roof, having supported over 8 GW of solar installations.*
- *The company is driving innovation through SCB/SMB solutions for smarter monitoring and control, backed by a 32+ product portfolio already ahead of industry benchmarks.*
- *Its Directors envision Synchro becoming a Fortune 500 company by 2050, fueled by growth in utility-scale solar, energy storage, and smart grids.*

Q

What technology trends are shaping the future of electrical panels for the solar industry, and how is Synchro Electricals responding to them?

The future of electrical panels lies in intelligent monitoring, higher voltage systems, digital connectivity, and predictive maintenance. As solar projects become larger and more advanced, reliability and real-time performance insights are becoming as important as power generation itself. At Synchro Electricals, we are continuously enhancing our products with smarter engineering, advanced monitoring capabilities, and future-ready designs that help customers build safer, more efficient, and sustainable energy infrastructure. This is effectively enabled through our **SCB and SMB solutions**, which support seamless system integration, improved control, and enhanced operational efficiency across solar installations.

Q

What differentiates Synchro Electricals in terms of product quality, engineering expertise, and manufacturing excellence?

Our biggest differentiator is our unwavering commitment to quality. Every panel is designed with precision and manufactured under strict quality control processes, supported by a dedicated Quality Control (QC) department that ensures every stage meets the highest standards. Each product undergoes rigorous testing to ensure safety, durability, and consistent performance in demanding environments. Beyond manufacturing, we work closely with customers to develop application-specific solutions and provide strong lifecycle support, including responsive after-sales service to ensure uninterrupted field performance. We believe true manufacturing excellence is not just about delivering a product, but delivering confidence, reliability, and long-term value backed by dependable customer support.

Q

How is Synchro Electricals strengthening its product portfolio and manufacturing capabilities to meet the evolving needs of the solar industry across India and the Asia-Pacific region?

As the renewable energy sector evolves, we continue to invest in advanced manufacturing, product innovation, and engineering capabilities to meet changing market demands. With a strong portfolio of **32+ products**, we are already ahead of industry benchmarks, enabling us to offer comprehensive and integrated solutions under one roof. Our focus is on developing smarter, safer, and more efficient electrical panel solutions while expanding our manufacturing capacity to support large-scale projects across India and the Asia-Pacific region. Our vision is to become a preferred technology and manufacturing partner for the global renewable energy industry.

Q

As Directors, what is your vision for Synchro Electricals, and where do you see the biggest growth opportunities in the solar sector over the next five years?

Our vision is to position Synchro Electricals among the most trusted global manufacturers of electrical panels by combining innovation, sustainability, and engineering excellence, with a long-term ambition of becoming part of the **Fortune 500 companies by 2050**. We believe the next phase of growth will be driven by utility-scale solar, energy storage, smart grids, and digital power infrastructure. As we continue expanding into international markets, our commitment remains the same: developing future-ready solutions that enable a cleaner, smarter, and more sustainable energy ecosystem for generations to come.

Q

Synchro Electricals has built a strong presence in the solar and industrial electrical panel market. What have been the key milestones in your growth journey?

Our journey has been built on one principle: delivering reliable electrical solutions that create long-term value. Over the years, we have expanded from manufacturing conventional electrical panels to offering a comprehensive portfolio for solar and industrial applications, supporting over **8 GW of solar installations**. **What truly sets us apart is that we are the only company in India providing all solar-related solutions under one roof, along with a complete range of LT and HT products, making us a truly integrated partner for our customers.** This unique capability defines our leadership in the industry and strengthens the value we deliver across every project. By continuously strengthening our engineering capabilities, manufacturing excellence, and quality standards, we have earned the trust of EPC contractors, developers, and industrial customers. Going forward, our focus is on becoming a global benchmark for innovation, reliability, and sustainable power distribution solutions.

Beyond Solar Generation: Designing Smart Solar + Storage Plants For 24×7 Renewable Power

India's utility-scale solar sector is entering a new phase where the focus is no longer limited to producing electricity during daylight hours. Investors, developers, and policymakers are now looking beyond traditional solar generation and moving toward smart solar power plants integrated with battery energy storage systems (BESS). This shift is creating new investment opportunities while supporting India's goal of providing reliable renewable electricity around the clock.



One of the biggest challenges with solar energy is that electricity is generated only when the sun shines. Electricity demand, however, continues throughout the day and often reaches its highest level during evening hours when solar generation falls. Battery storage has emerged as the most practical solution to bridge this gap. By storing excess solar energy during the day and supplying it during peak demand periods, storage systems improve the value of renewable energy and reduce dependence on conventional fossil-fuel-based power plants.

The Indian government has also recognized that the future of renewable energy depends on combining solar power with storage. Several policy measures, competitive bidding programs, and viability gap funding schemes have encouraged developers to invest in large-scale battery storage projects. Government agencies and public sector companies have already announced multiple tenders for standalone battery storage as well as integrated solar-plus-storage projects. These initiatives are helping create confidence among domestic and international investors.

Investment in smart solar plants is expected to increase rapidly over the next few years. Falling battery prices, technological improvements, and better energy management software are making integrated projects more financially attractive than before. Modern energy management systems use artificial intelligence, weather forecasting, and real-time monitoring to decide when electricity should be stored or supplied to the grid. This improves operational efficiency and increases project revenues.

Private equity firms, infrastructure funds, pension funds, and global energy companies are actively exploring investment opportunities in India's renewable energy market. Solar-plus-storage projects provide long-term revenue visibility because they can participate in different electricity markets, including power supply contracts, peak power delivery, frequency regulation, and grid balancing services. Multiple revenue streams reduce investment risks and improve project bankability.

The growth of corporate renewable power procurement is also supporting this investment trend. Many large industries and commercial consumers are demanding reliable green electricity throughout the day to meet their sustainability targets. Solar projects equipped with battery storage can provide a more dependable clean energy supply than standalone solar plants. This creates attractive business opportunities for independent power producers and renewable energy developers.

Financing institutions are gradually becoming more comfortable funding storage projects as successful demonstrations and commercial installations continue to grow. Banks are developing new financing models, while multilateral development institutions are supporting projects through low-cost loans and technical assistance. These financial mechanisms are expected to reduce the overall cost of capital for future projects.

Despite the strong outlook, certain challenges remain. Battery costs, recycling infrastructure, supply chain dependence, land availability, and evolving regulatory frameworks require continuous attention. Clear market rules for storage participation, improved transmission infrastructure, and stable long-term policies will be essential for attracting larger investments.

India's renewable energy journey is gradually shifting from simply adding more solar capacity to building intelligent energy systems that deliver reliable electricity every hour of the day. Smart solar-plus-storage plants represent the next stage of this transformation. As technology continues to improve and investment flows increase, these integrated projects are expected to play a central role in achieving India's clean energy targets while creating sustainable business opportunities for investors, developers, and the broader power sector.

ANURAG AGARWAL

Global CEO Exports & New Businesses
(EHV & Conductor), Polycab India Ltd.



Beyond Generation: Polycab's Bet on a Grid-Stable Solar Future

Key Headlines:

- *Polycab's Strategy for India's Next Renewable Energy Phase*
- *From Domestic Strength to Global Ambition: Polycab's Solar Inverter Playbook*
- *The Grid-Forming Moment: Polycab on Solar's Next Technology Wave*

Q How do you see solar inverter technology evolving in India's renewable energy journey, and what opportunities does Polycab see in this growing market?

India's solar sector has reached a major milestone, crossing 162 GW of capacity on our way to the 500 GW target by 2030. But as more solar power connects to the grid, the main challenge is changing: it is no longer just about adding capacity, but ensuring the power is reliable, stable, and available when needed.

Inverters are at the center of this shift. They are moving beyond basic power conversion to active grid management. The market is rapidly adopting Hybrid Inverters, Grid-Forming (GFM) Inverters, and Battery Energy Storage Systems (BESS) that help keep the grid stable when solar generation fluctuates.

At Polycab, we see this as a key growth area. We have already introduced our Hybrid Inverter range and are investing in storage-ready designs and smart monitoring tools. Our goal is to help our commercial, industrial, and utility customers get the highest return on their solar investments while meeting their long-term clean energy targets.

Q How does Polycab's solar inverter portfolio address customer expectations around efficiency, reliability, grid compatibility, and long-term performance?

Anyone investing in a solar power system is making a 20- to 25-year financial commitment. They want four straightforward things: maximum power generation, dependable daily operation, smooth grid connection, and confidence in long-term equipment performance.

We build our inverter lineup directly around these needs:

- **High Generation Yields:** We use multi-MPPT designs and efficient Silicon Carbide (SiC) power electronics to extract maximum energy from panels, even in low light or partial shade.
- **Built for Indian Conditions:** Our String Inverters and Hybrid Inverters are built with heavy-duty thermal management and protective enclosures to handle extreme heat, dust, and humidity without losing performance.
- **Grid Compatibility:** They meet strict national grid standards, supporting active power control and handling voltage drops smoothly without shutting down.
- **Backed by Service:** Reliable hardware is only the first step. We back every installation with real-time remote monitoring software and Polycab's service team across the country, ensuring long-term peace of mind.

Q As Global CEO overseeing exports and new businesses, what opportunities do you see for Indian solar solutions globally, and how is Polycab preparing to capture them?

Globally, energy security, rising power costs, and sustainability commitments are driving big changes. Governments, utilities, and major businesses everywhere are looking for trustworthy partners who can supply reliable clean energy infrastructure and electrical power products.

This creates a strong opportunity for India. With our engineering expertise and expanding manufacturing footprint, Indian companies are increasingly trusted as primary suppliers as global supply chains diversify.

Polycab is in a strong position to leverage this foundation. We already export our core electrical and power products to more than 94 countries, giving us deep experience with international power standards, global compliance, and varied operating conditions.

While solar inverters are currently established in our domestic portfolio, our global presence provides the perfect springboard. As we build out our international solar channels, we plan to take our complete range—including String Inverters, Hybrid Inverters, and BESS—to our global markets, backing them with the same quality and service support we deliver across our existing product lines.

Q Looking ahead, which emerging technologies do you believe will have the greatest impact on the solar industry, and how is Polycab preparing for this next phase of growth?

The solar industry is moving past basic generation—the big focus now is power availability and grid stability. As more renewable power comes online, traditional grids need help staying balanced. That is why technologies like Grid-Forming (GFM) Inverters, Hybrid Inverters, Microinverters, and BESS (Battery Storage) will have the largest impact over the coming years.

Unlike traditional inverters that simply follow grid signals, Grid-Forming Inverters actively set voltage and frequency, helping stabilize the power network during demand spikes or sudden weather changes. At the same time, automated fault diagnostics and smart monitoring software are helping plant operators fix issues early and reduce downtime.

At Polycab, we are actively preparing for this next wave. We have launched our Hybrid Inverter range and continue to invest in storage-ready platforms, Grid-Forming controls, and smart energy monitoring platforms. We want to make it easy for our customers to build intelligent, storage-integrated energy setups that protect their power supply and deliver solid financial returns for decades.



Why Raw Material Quality Matters Most in Solar Cabling

As India's solar sector continues to expand at an unprecedented pace, industry conversations often focus on module efficiency, inverter technology, and system design. Yet, one of the most critical components influencing the long-term performance and safety of every solar installation often receives far less attention—the cable.

Hidden beneath every photovoltaic system is an extensive network of cables responsible for transmitting power reliably for decades. Their performance directly impacts system efficiency, operational safety, maintenance requirements, and overall asset life. At Flipcab, we believe reliable cable performance begins long before electricity flows. It starts with the careful selection of raw materials, disciplined manufacturing processes, and a commitment to recognised quality standards.

The Foundation of Reliable Cabling

The conductor forms the core of every electrical cable. High-conductivity copper and aluminium ensure efficient current flow while minimising electrical losses and heat generation. However, conductor quality alone cannot guarantee long-term reliability.

The insulation and sheathing compounds surrounding the conductor are equally important. Inferior materials can harden, crack, or deteriorate over time when exposed to heat, UV radiation, moisture, and environmental stress. Such degradation can compromise insulation integrity, reduce operational life, and increase maintenance requirements.

This is why selecting premium polymers, specialised additives, and high-performance insulation materials is essential for producing cables capable of delivering dependable performance in demanding operating conditions.

Engineering Quality Through Standards

Quality manufacturing is built upon well-defined engineering standards that ensure consistency, safety, and durability.

For conventional low-voltage cables, **IS 8130:2013** specifies conductor requirements, **IS 5831:1984** defines the properties of PVC insulation and sheathing compounds, while **IS 694:2010** establishes performance requirements for PVC insulated cables used in electrical installations.

For photovoltaic applications, **IS 17293** serves as India's dedicated standard for DC solar cables, while **EN 50618** is widely recognised as the international benchmark for photovoltaic cable performance. Together, these standards define stringent requirements covering conductor quality, insulation systems, thermal stability, weather resistance, mechanical strength, and long-term durability under harsh outdoor environments.

Compliance with these standards reflects disciplined engineering, robust quality control, and manufacturing consistency. At Flipcab, these principles guide every stage of production across our portfolio of AC wires, earthing cables, and DC solar cables.



COMPANY FEATURE



Why Solar Applications Demand Better Materials

Solar installations operate under significantly harsher conditions than conventional electrical systems. DC solar cables remain continuously exposed to intense UV radiation, elevated temperatures, moisture, dust, ozone, and continuous electrical loading. Many projects are expected to perform reliably for more than 25 years with minimal maintenance.

As project developers increasingly prioritise lifecycle performance over initial installation costs, raw material quality has become a critical differentiator. High-quality conductors, premium insulation compounds, and weather-resistant sheathing materials enable cables to retain their electrical and mechanical properties throughout years of outdoor operation, improving system reliability while reducing long-term operational risks.

Globally, advanced insulation technologies such as **Cross-Linked Polyolefin (XLPO)** combined with **Electron Beam (E-Beam) cross-linking** continue to set new benchmarks for photovoltaic cable performance through enhanced thermal stability, superior UV resistance, greater flexibility, and longer service life.

Manufacturing Makes the Difference

Even the finest raw materials can only deliver reliable performance when supported by disciplined manufacturing processes.

Consistent conductor drawing, precise stranding, controlled insulation extrusion, dimensional accuracy, and rigorous quality inspections ensure cables perform consistently throughout their service life. At Flipcab, every stage—from raw material verification to final testing—is driven by engineering precision and process discipline.

Quality is not achieved during the final inspection alone; it is engineered into every manufacturing process and every metre of cable produced.

Building Confidence Through Quality

As India's renewable energy sector continues to grow, project developers, EPC contractors, consultants, distributors, and installers are increasingly looking beyond compliance towards long-term reliability and lifecycle value.

At Flipcab, we continue to strengthen our manufacturing capabilities through premium raw materials, robust engineering practices, and continuous quality improvement across our portfolio of AC wires, earthing cables, and DC solar cables.

Because true cable performance is never defined merely by its appearance—it is determined by the quality engineered into every conductor, every insulation layer, and every metre of cable.

After all, quality isn't inspected into a cable—it is engineered into every metre.



BEYOND MEGAWATTS: THE NEW BUSINESS OF RENEWABLE ENERGY PROCUREMENT

How India's latest tenders are reshaping the way clean power is contracted, financed, delivered and consumed



India's renewable energy market is entering a new phase. The focus is gradually moving beyond simply adding solar megawatts towards building renewable power systems that can deliver electricity with greater flexibility, reliability and commercial certainty.

A review of **major renewable energy tenders and bids issued during July 2026** highlights this transition. The procurement pipeline spans utility-scale solar, standalone battery energy storage systems (BESS), solar-plus-storage projects, floating solar, rooftop programmes, captive generation, C&I procurement, railway-linked projects, land aggregation and transmission infrastructure.

Taken together, these tenders reveal a broader change in India's renewable energy business: from capacity procurement to power procurement, **from standalone generation to integrated energy systems, and from conventional utility demand to a much wider range of renewable energy consumers.**



FROM MEGAWATTS TO **USABLE POWER**



For years, the primary measure of India's renewable growth was installed capacity. A **500 MW or 1 GW** solar tender immediately communicated the scale of the opportunity.



The latest procurement activity suggests that the definition of value is changing.

Several large BESS tenders are now being issued independently of solar generation.

2
HOURS

The significance is not only the scale of these procurements, but the growing importance of **megawatt-hours alongside megawatts**.

A 2,000 MW/4,000 MWh system has a theoretical two-hour duration at full discharge. Repeated two-hour configurations across MSEDCL, MPPMCL and SJVN indicate an emerging utility-scale reference point.

RECENT LARGE-SCALE BESS TENDERS



MSEDCL
2,000 MW / 4,000 MWh
BESS



MPPMCL
625 MW / 1,250 MWh
BESS



SJVN
265 MW / 530 MWh
BESS



Rajasthan Discoms
162 MW / 648 MWh
BESS



POWERGRID
250 MW / 1,000 MWh
BESS



POWERGRID
500 MW / 1,000 MWh
BESS

This represents a shift in the value proposition of renewable energy. A solar project produces electricity when solar resources are available; storage adds the ability to **shift that electricity across time**.

As renewable penetration increases, utilities will increasingly need solutions that address not only generation but also:



Peak
demand



Renewable
energy
variability



Grid
flexibility



Power
availability



Energy
shifting



Transmission
utilisation

The question is therefore moving from

**“How many megawatts
can India build?”**

TO

**“How much renewable power
can the system reliably deliver
when it is needed?”**



STORAGE MOVES FROM ADD-ON TO CORE INFRASTRUCTURE

The latest tenders also demonstrate that BESS is becoming a procurement category in its own right.

The **MSEDCL 2,000 MW/4,000 MWh** tender is particularly significant in scale and follows a BOO model, placing ownership and operational responsibility with the developer.

Similarly, **MPPMCL** has sought **625 MW/1,250 MWh** of standalone BESS, while **SJVN** has floated a tender for **265 MW/530 MWh** of storage supported through a VGF mechanism.

POWERGRID has also entered the segment with procurements for **250 MW/1,000 MWh** and **500 MW/1,000 MWh** BESS projects.

This indicates that storage is moving beyond the pilot stage.

For developers and financiers, however, BESS introduces a different risk profile from conventional solar. Battery degradation, augmentation, replacement cycles, availability guarantees and lifecycle performance all become important considerations.

As a result, future storage tenders will increasingly test not just the upfront tariff offered by developers, but their ability to deliver reliable performance over the entire contract period.

MSEDCL
2,000 MW / 4,000 MWh

MPPMCL
625 MW / 1,250 MWh

SJVN
265 MW / 530 MWh

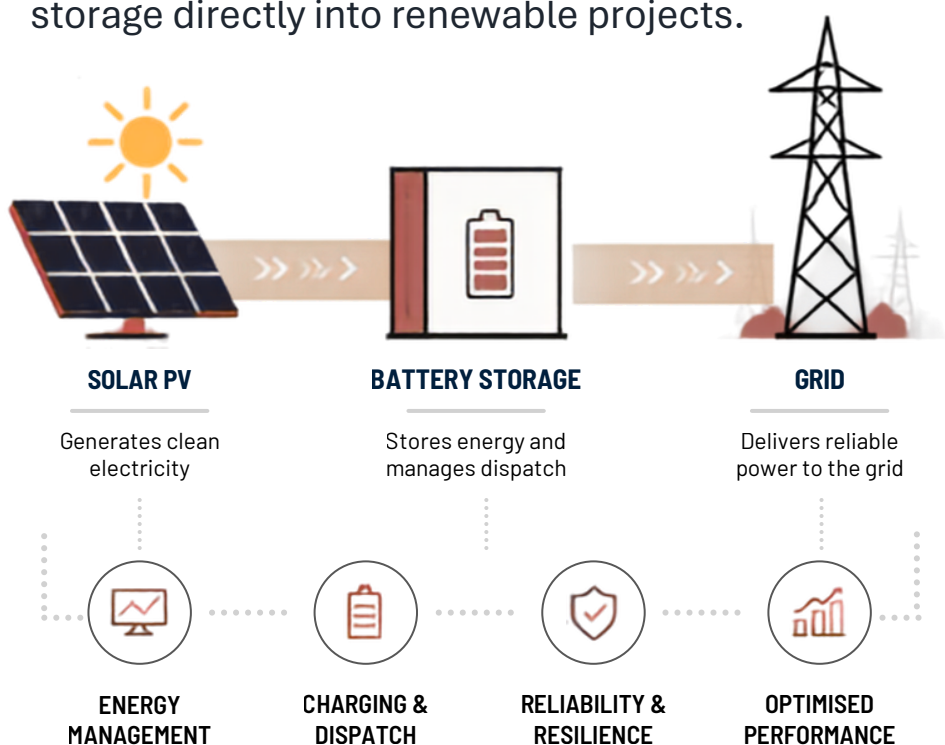
POWERGRID
250 MW / 1,000 MWh

POWERGRID
500 MW / 1,000 MWh



SOLAR AND STORAGE ARE INCREASINGLY BEING PROCURED TOGETHER

Alongside standalone BESS, the tender pipeline shows the growing integration of storage directly into renewable projects.



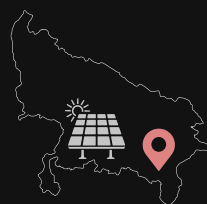
These projects point towards a more integrated approach to renewable project design.

Instead of treating solar and storage as separate assets, developers and procurers are increasingly considering them as components of a single energy system.

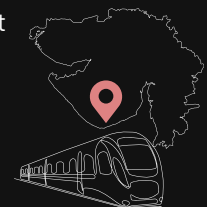
That changes the requirements for project development. Developers must now consider solar generation profiles, battery charging and dispatch, grid connectivity, energy

Four examples of integrated solar + storage projects in the Tender pipeline

- 1** **GAIL** has invited bids for a **600 MW solar PV project with 275 MW 550 MW BESS** at the Jhansi Solar Park in Uttar Pradesh.



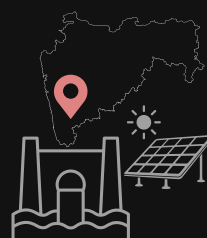
- 2** **REMCL** has sought bids for a **17 MW solar project with 12.5 MW 550 MW BESS** at Dahod in Gujarat for Indian Railways.



- 3** **ITI Limited** has sought an EOI for a **5 MW solar plant with BESS** at GB Pant University in Uttarakhand.



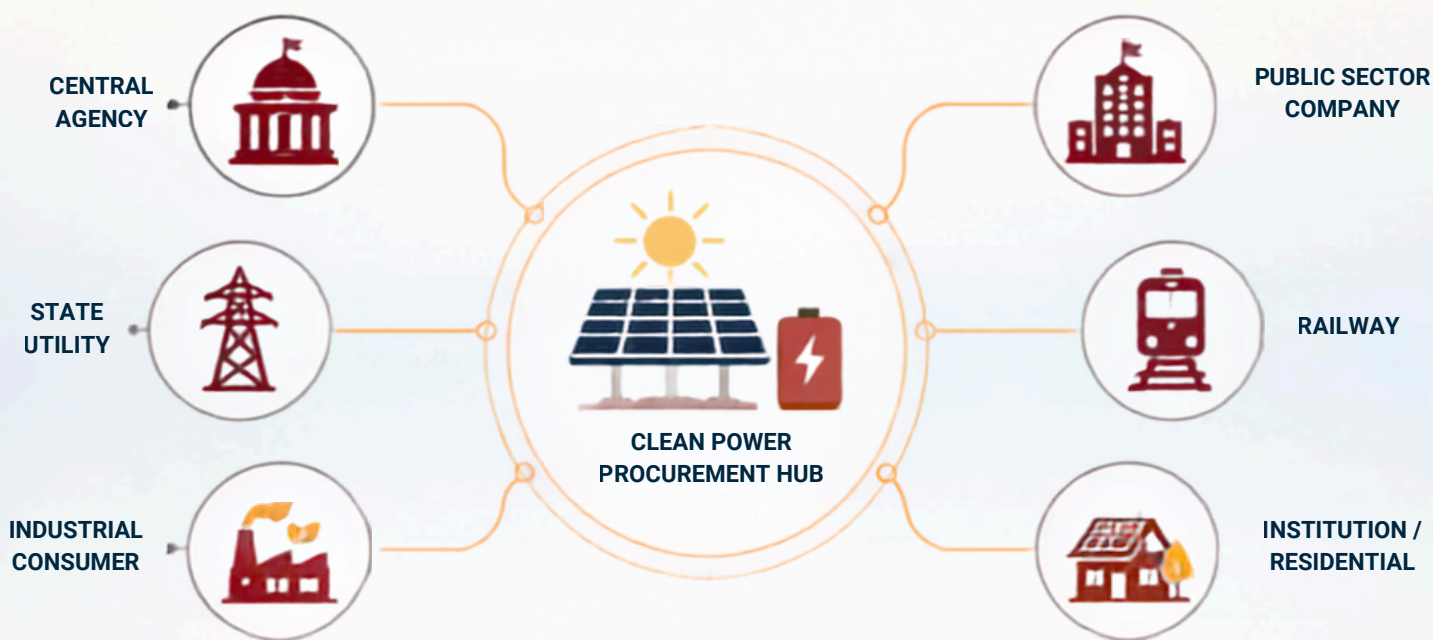
- 4** **Maharashtra** has also invited PPP bids for **200 MW floating solar with BESS**, alongside the upgrade of a **22.5 MW hydro plant**.



THE RENEWABLE BUYER IS CHANGING

Another important development is the diversification of renewable energy demand.

The latest tender pipeline includes central agencies, state utilities, industrial consumers, public-sector companies, railways, institutions and residential consumers.



700 MW

SECI's 700 MW ISTS-connected solar procurement for an Odisha C&I consumer

1 lakh homes ₹627.50 crore

Jodhpur Vidyut Vitran Nigam rooftop solar programme

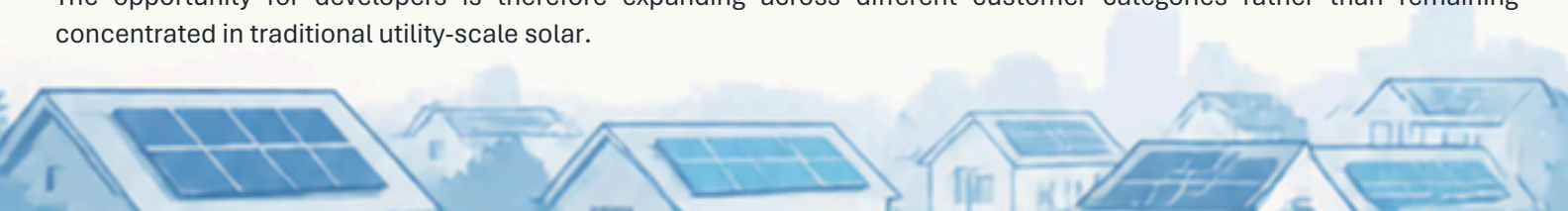
SECI's 700 MW ISTS-connected solar procurement for an Odisha C&I consumer is a strong example of industrial demand becoming a direct driver of renewable procurement.

For C&I consumers, renewable power is increasingly linked to long-term electricity cost management, decarbonisation targets and energy procurement strategies.

At the other end of the spectrum, **Jodhpur Vidyut Vitran Nigam** has invited bids for a rooftop solar programme covering **1 lakh homes**, with an estimated project value of **₹627.50 crore**.

This indicates that rooftop solar itself is evolving from individual installations towards **large-scale aggregation models**.

The opportunity for developers is therefore expanding across different customer categories rather than remaining concentrated in traditional utility-scale solar.



BEYOND UTILITIES: RENEWABLE ENERGY FOR **INFRASTRUCTURE AND INSTITUTIONS**

The tender pipeline also shows renewable energy becoming increasingly embedded within India's wider infrastructure.

REMCL's 17 MW solar-plus-storage project is designed for Indian Railways, while **SAIL's IISCO Steel Plant** has sought bids for a **4 MW rooftop solar project** at Burnpur. **Homi Bhabha Cancer Hospital and Research Centre** has invited bids for a **3 MW captive solar PV plant** in Visakhapatnam.



17 MW

to be allocated project for Indian Railways



4 MW

rooftop solar project in SAIL's IISCO Steel Plant, Burnpur



3 MW

rooftop solar project in Visakhapatnam campus of MedTech Zone

These projects may be smaller than utility-scale tenders, but they demonstrate an important trend: renewable energy is increasingly being designed around the requirements of **specific electricity consumers and infrastructure assets**.

This opens opportunities for captive solar, behind-the-meter systems, rooftop solar, solar-plus-storage and energy management solutions.

THE INFRASTRUCTURE BEHIND THE **MEGAWATTS**

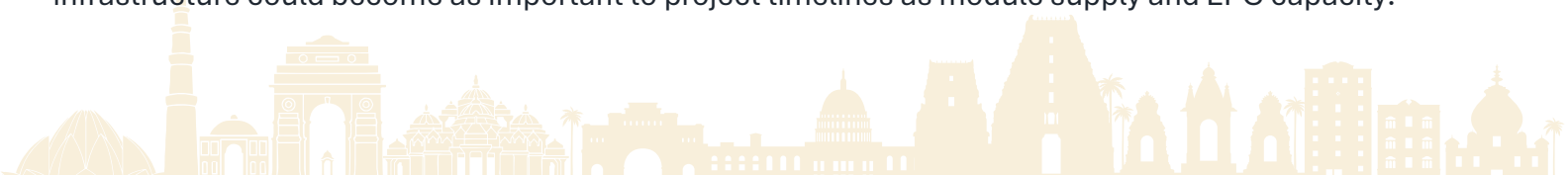
Some of the most important developments in the tender pipeline are not generation projects at all.

Terra Clean has invited bids for land aggregation for a **350 MW ISTS-connected solar project in Andhra Pradesh**, highlighting the increasing importance of land as a specialised project-development function.

Meanwhile, **NTPC Renewable Energy** has invited bids for a **400 kV substation** supporting a **900 MW solar project in Madhya Pradesh**.

Together, these tenders underline a critical point: **renewable capacity has value only when the supporting infrastructure is available to develop and evacuate it**.

As India's renewable pipeline expands, land availability, transmission connectivity and evacuation infrastructure could become as important to project timelines as module supply and EPC capacity.



NEW PROCUREMENT MODELS, **NEW RISK ALLOCATION**

The transformation is also visible in the commercial structures being used.

The latest tenders include BOO, RESCO, PPP, EPC, VGF-supported procurement, captive and C&I-oriented models.

These structures determine who owns the asset, who finances it, who operates it and who carries the associated risks.

The MSSEDCL BESS procurement, for example, follows a BOO model, while the SJVN storage tender uses VGF support. Maharashtra's 200 MW floating solar-plus-storage project is being pursued through a PPP structure.

SECI's rooftop procurement also illustrates the shift towards service-oriented models, with rooftop assets being developed under the RESCO framework.

RISKS TO BE ALLOCATED



TECHNOLOGY RISK



FINANCING RISK



PERFORMANCE RISK



OFFTAKE RISK



LIFECYCLE RISK



WHAT THIS MEANS FOR THE MARKET



The latest tender pipeline points to a renewable market that is becoming more diversified and sophisticated.



For **developers**, scale alone may no longer be enough. Capabilities in storage, grid integration, financing and customer-specific power solutions will become increasingly valuable.



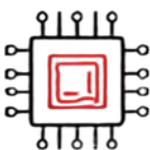
For **EPC companies**, the project scope is expanding from conventional solar construction towards integrated systems involving BESS, power electronics, energy management and grid infrastructure.



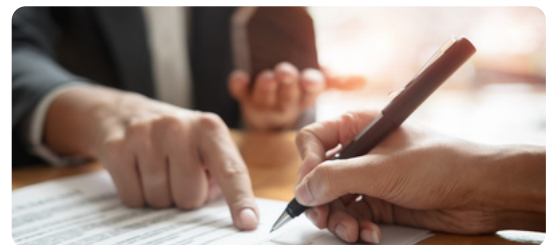
For **investors and lenders**, the focus will increasingly move towards lifecycle economics, contracted revenues, technology risk and long-term asset performance.



For **utilities and procurers**, the challenge will be to design contracts that balance competitive pricing with technical reliability and long-term bankability.



And for **technology providers**, the expanding market creates opportunities beyond PV modules—including batteries, PCS, EMS, inverters, monitoring systems and other grid-support technologies.

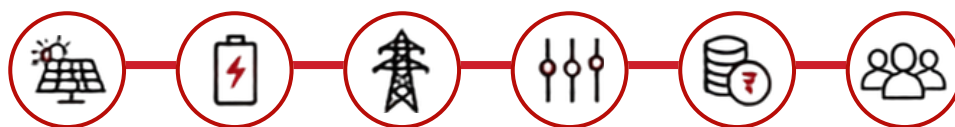


FROM CAPACITY ADDITION TO **RENEWABLE POWER SYSTEMS**

The most important message emerging from the latest tenders is that India's renewable energy market is moving beyond a simple capacity-addition race.

The emerging product is not just solar generation. It is **solar + storage + transmission + flexibility + financing + customer demand**.

The tender pipeline demonstrates this transition across multiple levels.



Storage is becoming a standalone procurement category.



Solar and BESS are increasingly being designed as integrated projects.



C&I consumers are emerging as important renewable power buyers.



Rooftop solar is moving towards large-scale aggregation.



Public-sector organisations and infrastructure operators are becoming new demand centres.



Land and transmission are becoming critical project enabling assets.



New commercial models are changing how risk and returns are distributed.



Taken together, these developments suggest that the next phase of India's renewable energy growth will be defined less by the number of megawatts announced and more by the ability to build bankable, flexible and customer-oriented clean power systems.

“The latest tenders are therefore more than procurement announcements. They offer an early blueprint of how India's renewable energy business is evolving—from building capacity to delivering power, and from individual projects to integrated energy ecosystems.

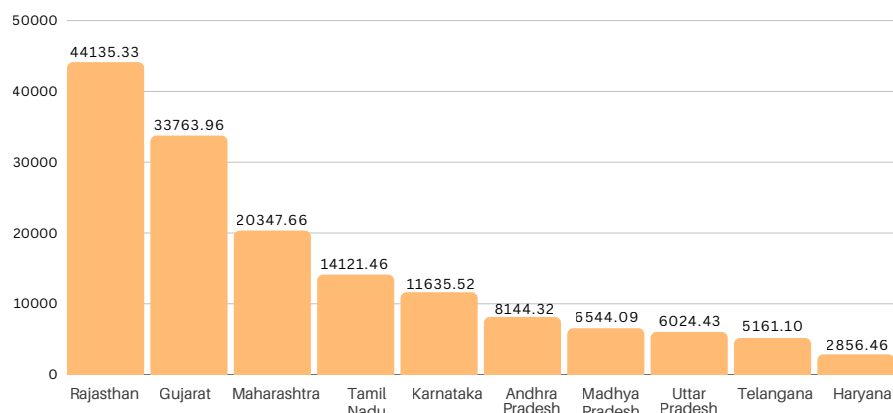
TENDER PIPELINE: KEY OPPORTUNITIES

TENDERING AUTHORITY	OPPORTUNITY	CAPACITY
MSEDCL	Standalone BESS	2,000 MW / 4,000 MWh
MPPMCL	Standalone BESS	625 MW / 1,250 MWh
SJVN	Standalone BESS	265 MW / 530 MWh
POWERGRID	Standalone BESS	250 MW / 1,000 MWh
POWERGRID	Standalone BESS	500 MW / 1,000 MWh
GAIL	Solar + BESS	600 MW + 275 MW/550 MWh
SECI	C&I solar procurement	700 MW
Maharashtra	Floating solar + BESS	200 MW + BESS
JVVNL	Rooftop programme	1 lakh homes / ₹627.50 crore
REMCL	Solar + BESS for Railways	17 MW + 12.5 MW/50 MWh
Terra Clean	Land aggregation for solar	350 MW
NTPC Renewable Energy	Grid infrastructure	400 kV substation / 900 MW solar



Solar Installations by State

TOTAL SOLAR PV INSTALLATIONS AS OF JULY 2026 (MW)



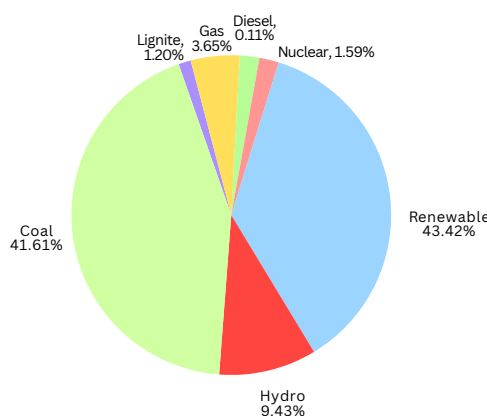
SOURCE: MNRE

SOLARQUARTER RESEARCH

India achieved a remarkable milestone by installing an unprecedented 28,784.81 MW of Solar PV capacity in the calendar year 2026. By the end of July 2026, the country's total Solar PV installations surpassed 165 GW. During this period, rooftop Solar PV installations reached approximately 30.74 GW. Rajasthan led the way, with 44,135.33MW installed, accounting for 26.81% of the nation's total Solar PV capacity. The county also added around 29 GW in the first seven months of the calendar year 2026. Rajasthan, Gujarat, Maharashtra, Tamil Nadu, and Karnataka together contributed over 75.34% of the total installed Solar PV capacities across the country. All leading states retained their positions in July 2026 compared to their installed solar PV capacity rankings in July 2025. The overall Solar PV installations saw a growth of over 38.30% compared to the 119 GW recorded by the end of July 2025.

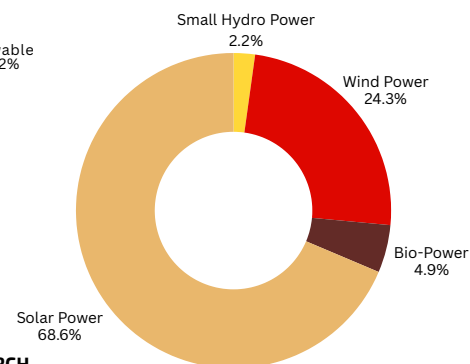
In the pie chart, Renewable capacity additions continue to increase at a rapid pace in India, accounting for approximately 43.4% of India's total power capacity at the end of July 2026. India's total installed power capacity stood at over 552 GW at the end of July 2026 from all the sources, with renewables accounting for 239.66 GW, compared to cumulative renewable energy installations of 187.86 GW at the end of July 2025, which represented a growth of over 27.57% year-over-year. Solar power accounted for approximately 164.594 GW of installations, which represents 29.8% of the total installed power capacity. Among the renewable, Wind and Solar constitute over 92.9% of the total renewable (excluding large hydro), Wind Power installed capacity at the end of July 2026 was over 58.136 GW, which represents 10.5% of the total power capacity installed.

INDIA POWER MIX

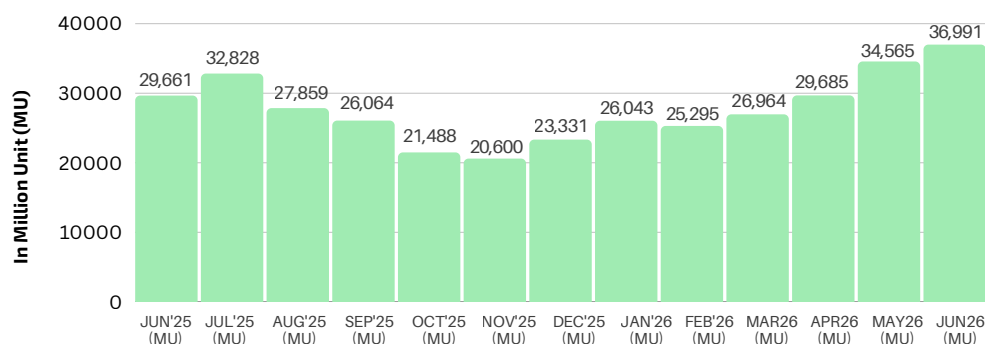


SOURCE: CEA JULY 2026 | SOLARQUARTER RESEARCH

INDIA RENEWABLE MIX



Monthly RE Generation in India

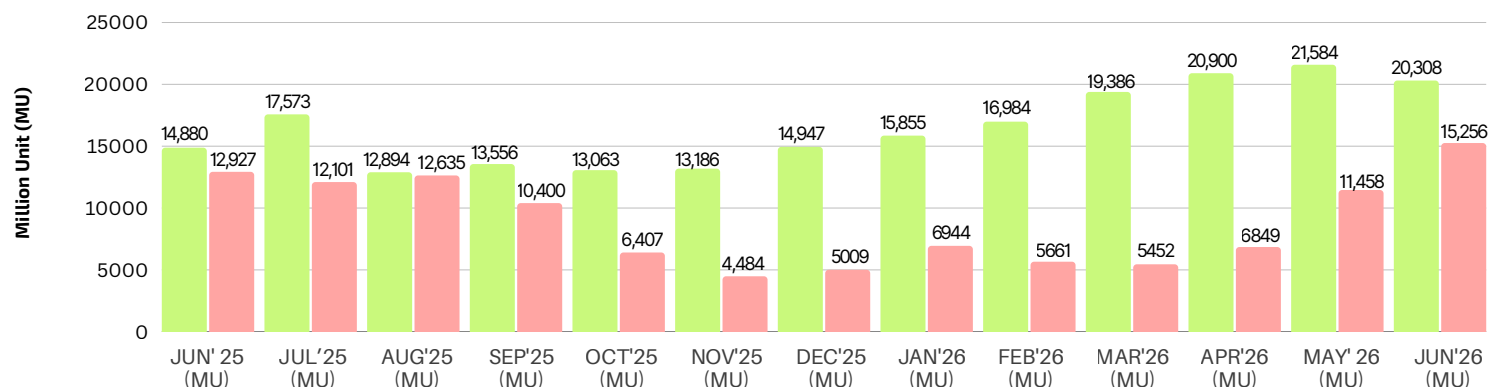


SOURCE: CEA

SOLARQUARTER RESEARCH

Total renewable energy generation in June 2026 reached 36,991.39 million units, which is an increase of RE generation by around 24.71% year-over-year from June 2025, when the RE generation was 29,660.94 million units. Solar Power generation has also increased by around 57.088% year-over-year from June 2025 (12,927.48 million units) to June 2026 (20,307.54 million units). Wind Power generation has increased by almost 2.53% in the same period and reached 15,256.01 million units in June 2026.

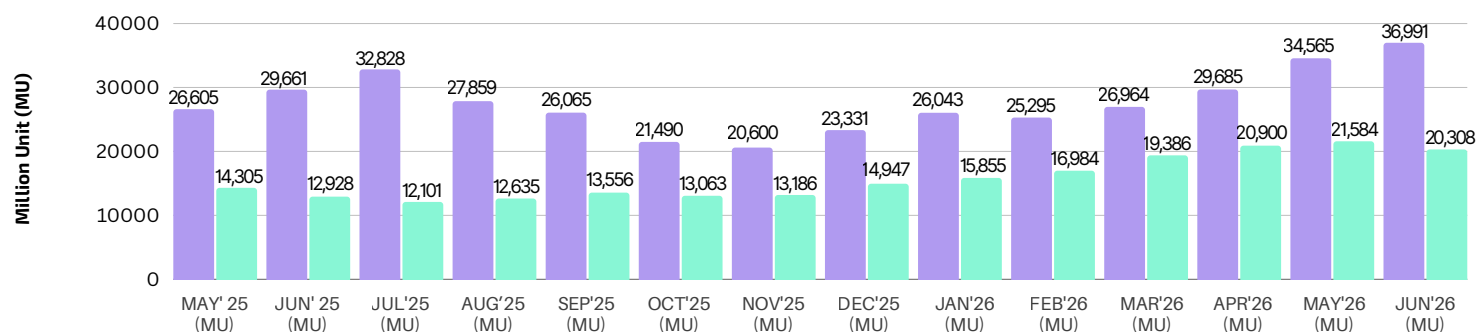
Solar Vs Wind Generation In India In 2025-26 (WIND SOLAR)



SOURCE: CEA

SOLARQUARTER RESEARCH

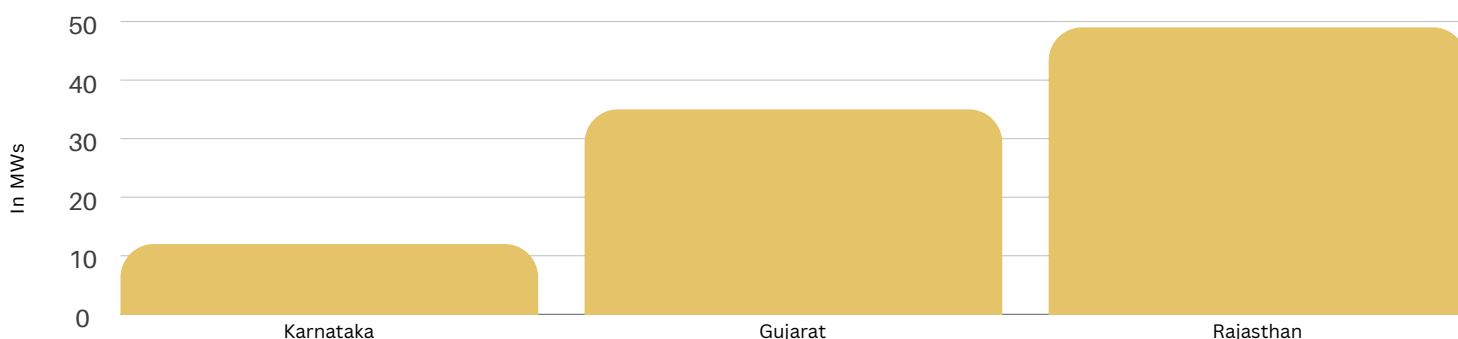
Renewable Energy Vs Solar Generation (RENEWABLE ENERGY SOLAR)



SOURCE: CEA

SOLARQUARTER RESEARCH

Hybrid Projects (Solar Component)



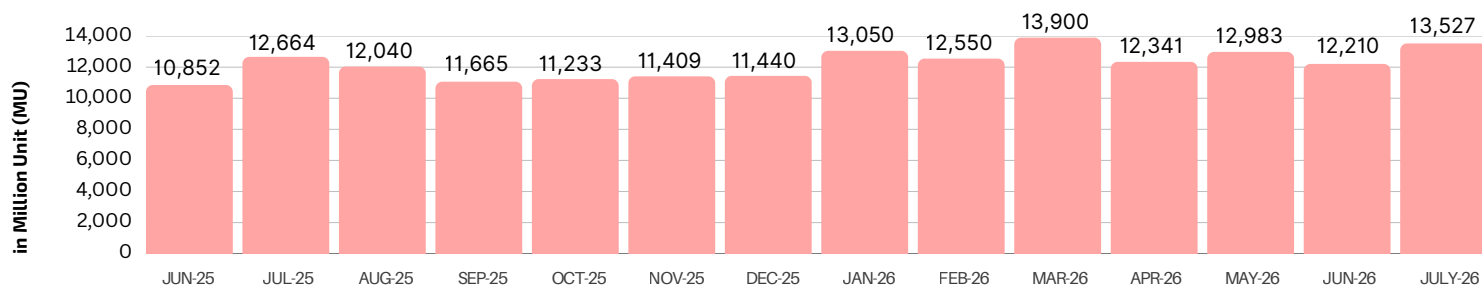
SOURCE: MNRE (JULY 2026)

SOLARQUARTER RESEARCH

As of July 2026, India's installed hybrid projects capacity reached 4774.29 MW, contributing around 2.9% to the country's total solar PV capacity. This is part of the overall renewable energy capacity of 240 GW, excluding large hydro. Hybrid projects, which combine solar and wind power, are currently limited to just Four states: Rajasthan, Gujarat, Andhra Pradesh, and Karnataka. Among these, Rajasthan leads with the highest installed capacity of 2,283.3 MW. This is mainly because the state has strong potential for both solar and wind energy. Rajasthan receives high solar irradiation and also experiences strong wind speeds, making it ideal for hybrid energy generation. The installed capacity of hybrid projects has shown a year-on-year growth of about 55.85% compared to July 2025, when it stood at 3063.36 MW. This steady growth highlights the increasing focus on hybrid projects as a solution to improve grid stability and renewable energy utilization.

Electricity Market

IEX ELECTRICITY MONTHLY TRADED VOLUME IN 2025-2026

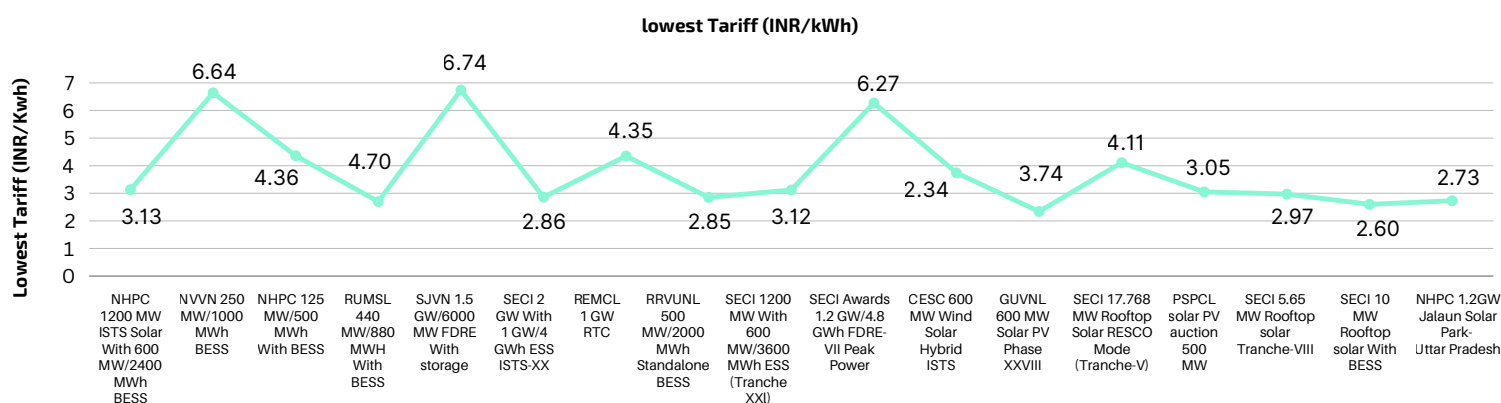


SOURCE: IEX

SOLARQUARTER RESEARCH

Indian Energy Exchange (IEX) recorded a strong performance in July 2026, with total electricity traded volume reaching 13,527 million units (MU), up 6.8% year-on-year, supported by rising electricity demand. India's energy consumption reached 170.70 billion units (BUs), registering 10.9% YoY growth. Strong demand pushed buy bids in the Day-Ahead Market (DAM) up 42.5% YoY, contributing to higher prices. The average DAM market clearing price increased 19.3% YoY to Rs 4.99/unit, while the Real-Time Market (RTM) clearing price rose 15.1% YoY to Rs 4.41/unit. Meanwhile, 7.11 lakh Renewable Energy Certificates (RECs) were traded during July, declining 56.3% YoY. REC trading sessions were conducted on July 8 and July 29, with clearing prices of Rs 380/REC and Rs 376/REC, respectively. A 77.8% YoY decline in sell bids contributed to higher REC clearing prices during the month.

Lowest Tariff (₹/kWh) in 2025 - 2026



SOURCE: SOLARQUARTER RESEARCH

India's solar sector is undergoing a major transition as evolving regulations and global market uncertainties reshape project economics and tariff trends. The phased implementation of the Approved List of Models and Manufacturers (ALMM), covering modules under List-I, cells under List-II, and wafers and ingots under the newly introduced List-III from June 2028, is increasing compliance requirements for developers. While these measures are strengthening domestic manufacturing and supply-chain security, they may also add procurement and compliance costs in the near term. Recent MNRE amendments providing relaxations for certain solar projects could, however, improve competitiveness and support more attractive tariffs.

Meanwhile, the growing number of solar-plus-BESS auctions is creating greater variation in discovered tariffs compared with conventional solar PV projects, reflecting additional costs associated with battery storage, financing, and project integration. Global supply-chain disruptions, geopolitical tensions, trade restrictions, shipping uncertainties, currency movements, and changing tariff policies have further contributed to tariff fluctuations during 2025 and 2026.

The expansion of ALMM requirements to upstream components such as wafers and ingots is expected to accelerate domestic sourcing, although near-term costs could rise until Indian manufacturing achieves greater scale and efficiency. Nevertheless, India's expanding manufacturing ecosystem, with module capacity exceeding 217 GW and cell capacity surpassing 30 GW, alongside growing domestic inverter production and supportive tax measures, is improving supply security. Going forward, solar tariffs will depend on manufacturing scale, cost competitiveness, policy implementation, and the industry's ability to absorb localization requirements while maintaining affordable project economics.

India's Large-Scale Solar Sector Reaches 121.25 GW Of Installed Solar Capacity

India's solar power sector continues to grow at an impressive pace, with utility-scale solar projects leading the country's clean energy transition. By the end of June 2026, India's total installed solar photovoltaic (PV) capacity reached 162.15 GW, of which ground-mounted solar projects accounted for 121.25 GW. This means nearly 75% of the country's total solar capacity comes from large utility-scale solar plants, highlighting their critical role in meeting India's renewable energy goals.

The growth over the past year has been remarkable. Between July 2025 and June 2026, India added nearly 31.96 GW of new ground-mounted solar capacity. During the first six months of 2026 alone, the country installed 18.01 GW of utility-scale solar projects. This represents more than half of the total capacity added over the previous 12 months, showing that project execution has accelerated significantly.

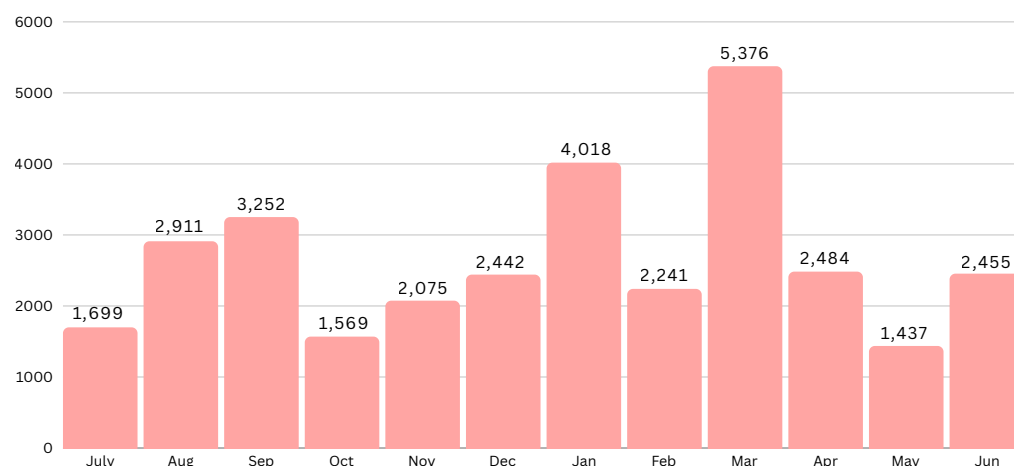
One of the biggest milestones came in November 2025 when India's cumulative ground-mounted solar capacity crossed the 100 GW mark for the first time. The momentum continued into 2026, with developers completing several large projects across the country. March 2026 recorded the highest monthly installation, with around 5.38 GW of new capacity commissioned. This surge was mainly driven by developers rushing to complete projects before the end of the financial year.

Several factors have supported this rapid expansion. Government policies, better financing options, improved transmission infrastructure, and increasing demand for clean electricity have encouraged investment in utility-scale solar. The expansion of the Inter-State Transmission System (ISTS) has also made it easier to transport renewable electricity from solar-rich regions to major demand centres across India.

State governments have played an equally important role. Rajasthan continues to lead the country in utility-scale solar capacity because of its vast desert land and high solar radiation. Gujarat follows closely with strong policy support, industrial demand, and large renewable energy parks. Karnataka remains one of the pioneers of solar park development, while Tamil Nadu continues to expand through industrial power purchase agreements. Maharashtra has also witnessed rapid growth, supported by agricultural feeder solarisation programmes and open-access projects for commercial and industrial consumers.

The Solar Park Scheme has been another major driver of growth by providing ready-to-use land, transmission connectivity, and other infrastructure for developers. Open-access regulations have allowed industries to purchase clean electricity directly from large solar projects through long-term power purchase agreements, creating strong demand from corporate buyers.

Monthly Ground Mounted Installed Solar PV Capacity 2025-26 (MW)



SOURCE: MNRE

SOLARQUARTER RESEARCH

India's utility-scale solar market has now become the backbone of the country's renewable energy programme. With an average addition of more than 2.5 GW every month during the past year, the sector continues to demonstrate strong execution capabilities. As India moves towards its target of achieving 500 GW of non-fossil fuel capacity by 2030, large-scale ground-mounted solar projects will remain the biggest contributor to the nation's clean energy future, supporting energy security, reducing carbon emissions, and driving sustainable economic growth.



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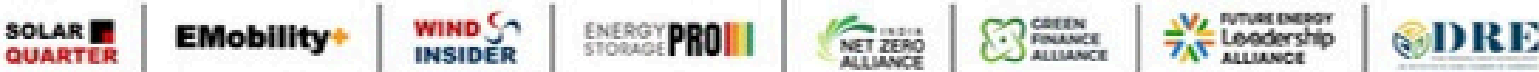
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