

The Newsletter brings out News , Views , Opinions, Trends , Policy Changes , Technology Advancements and other Developments in the Solar Industry

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Solar

Energy is the lifeguard of earth, help us save the planet and switch to solar



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India's Solar Decade: The Opportunity Ahead

India's renewable energy transition is entering its most decisive phase. What we are witnessing today is not just capacity addition - it is the restructuring of the country's entire energy architecture.

With rising power demand driven by urbanization, industrial expansion, digital infrastructure, EV adoption, and green hydrogen ambitions, India's electricity consumption is expected to grow consistently over the next decade. Solar energy stands at the center of this expansion due to its scalability, speed of deployment, and declining cost structure.

Why India's Growth Potential is Unmatched

1. Rising Energy Demand

India is one of the fastest-growing major economies. Manufacturing expansion, data centers, metro cities, and rural electrification are creating sustained demand for reliable and affordable power. Solar provides the quickest route to meet this demand at scale.

2. Policy Stability & Vision

The Government of India has laid a clear roadmap toward 500 GW of non-fossil fuel capacity by 2030. Schemes like PM-KUSUM and PM Surya Ghar Muft Bijli Yojana are democratizing access to solar energy - from farmers to middle-class households.

3. Manufacturing Expansion

India is rapidly strengthening its domestic manufacturing ecosystem under Production Linked Incentive (PLI) schemes. From modules to cells and backward integration into wafers and polysilicon, the country is moving toward a more self-reliant supply chain.

4. Corporate & Industrial Adoption

Commercial and Industrial (C&I) consumers are aggressively shifting toward captive and open-access solar to reduce energy costs and meet ESG commitments. This segment alone represents one of the largest growth engines for the coming years.

5. Technological Advancements

The transition from Polycrystalline to advanced Mono PERC, Bi-facial, and now TOPCon technologies has significantly improved module efficiency and energy yield. Storage integration, smarter inverters, and digital monitoring are further enhancing system performance.



Vikas Jain

Managing Director
Insolation Energy Ltd.
(INA Solar)

The Road to 2030: What Lies Ahead

India's installed solar base is expected to multiply substantially by 2030, supported by:

- Utility-scale mega parks
- Rooftop solar expansion in urban India
- Solar-powered irrigation and rural electrification
- Hybrid projects combining solar, wind, and storage
- Growing demand from green hydrogen projects

INA Solar: Building for the Long Term

At INA Solar, we see this as India's defining energy decade.

Our focus is on expanding high-efficiency module manufacturing, investing in next-generation technologies, and delivering bankable, reliable solar solutions for utility, C&I, and residential segments. We believe India's next wave of growth will be driven by quality manufacturing, deeper backward integration, and innovation-led competitiveness.

As India accelerates toward energy independence, INA Solar is committed to contributing not only capacity - but capability.

The coming years will not just determine how much solar India installs, but how strongly it positions itself as a global clean energy manufacturing hub. The opportunity is immense - and the momentum is real.



A Powerhouse of Policy, Technology & Talent

Jaipur | 16–18 January 2026 | VT Road Ground, Mansarovar

The **Bharat Renewable Expo (BRE) 2026**, organized by **Rajasthan Solar Association**, concluded as one of India's most comprehensive and impactful renewable energy platforms.

Hosted across **18,000 square meters**, the three-day mega event welcomed **25,000+ visitors** and featured **300+ exhibitors**, reaffirming Rajasthan's emergence as a national clean energy powerhouse.

30+ High-Impact Technical Panel Discussions

A defining strength of BRE 2026 was its 30+ expert-led panel discussions, addressing real-world challenges and future opportunities across the renewable energy ecosystem.



Key Themes Covered:

- Grid integration of large-scale renewables
- Energy storage, hybrid & RTC solutions
- Policy, regulation & market design
- Open access & green energy corridors
- Transmission planning & infrastructure
- Digitalization & smart grids
- Financing & risk mitigation



These sessions brought together policymakers, regulators, CEOs, grid operators, EPC leaders, financiers, researchers, and technology innovators — enabling actionable dialogue and industry collaboration.

BRE 2026 was not just an exhibition — it was a strategic platform accelerating India's renewable transition.



Bharat Renewable Expo 2026 Hosts High-Level Investment-CEO Roundtable Meet

Strategic policy dialogue strengthens Rajasthan's leadership in renewable energy

Bharat Renewable Expo 2026 marked a major milestone in India's clean energy journey with the successful organization of the **Investment-CEO Roundtable Meet** by the **Rajasthan Solar Association (RSA)**.

The exclusive high-level session brought together senior government leadership and the country's most influential renewable energy developers, investors, and technology providers on one platform to drive policy dialogue and unlock new investment opportunities in Rajasthan.

The roundtable was chaired by **Shri Ajitabh Sharma, IAS**, Additional Chief Secretary (Energy), Government of Rajasthan, and **Dr. Rohit Gupta, IAS**, Chairman & Managing Director, RRECL.

Their leadership reinforced the state's strong commitment to creating an enabling ecosystem for renewable energy expansion.

Key discussions focused on strengthening grid infrastructure, improving policy implementation, enhancing land availability, introducing financial incentives, and ensuring reliable round-the-clock power supply through advanced storage solutions.

A major attraction of the session was the presentation of the visionary **Pugal Solar Park** Project, envisioned as one of India's largest integrated renewable energy parks with 2,450 MW of solar capacity and 1,600 MW / 6,400 MWh of Battery Energy Storage Systems (BESS) — setting a new national benchmark for solar-plus-storage development.

The meet also witnessed the launch of the green initiative "Kejri se Kal", reflecting the sector's commitment to sustainable development through environmental stewardship and community participation.

The Investment-CEO Roundtable Meet reaffirmed **Rajasthan's leadership** in renewable energy and strengthened investor confidence in the state's clean energy roadmap.

Event Highlights

- High-level government-industry interaction
- Investor-friendly policy dialogue
- Focus on grid & infrastructure readiness
- Launch of "Kejri se Kal" green initiative
- Pugal Solar Park unveiled as flagship project
- Rajasthan positioned as India's renewable hub



Driving the Future of Renewable Energy

The **Investment-CEO Roundtable** and the launch of "**Khejri se Kal**" at Bharat Renewable Expo 2026 marked a defining moment in Rajasthan's renewable energy journey. By aligning policy vision with industry expertise and environmental action, the Expo strengthened investor confidence and showcased a forward-looking model of clean energy development. Rajasthan continues to lead the way in powering India's growth through innovation, sustainability, and strategic partnerships.



KHEJRI SE KAL

Rooted in Tradition. Powering Tomorrow.

Bharat Renewable Expo 2026 marked a defining moment with the launch of “Khejri Se Kal”—an initiative inspired by Rajasthan’s iconic Khejri tree and India’s collective resolve to build a cleaner, greener future.

The Launch Moment

Unveiled by **Shri Nitin Agarwal, CEO, Rajasthan Solar Association (RSA)**, alongside **Shri Subrahmanyam Pulipaka, CEO, National Solar Energy Federation of India (NSEFI)**, Khejri Se Kal stands as a powerful symbol of forward-thinking leadership and collaborative action.

The unveiling captured the essence of sustainability—where heritage meets innovation, and resilience fuels progress.



Why “Khejri Se Kal”?

The Khejri tree has long been a lifeline of the Thar—protecting soil, sustaining life, and thriving against all odds. Drawing from this legacy, Khejri Se Kal represents:

-  Resilience in the face of climate challenges
-  Clean energy leadership rooted in Indian values
-  Collective responsibility across industry, policy, and communities

Vision for India’s Clean Energy Future

Khejri Se Kal envisions an India where renewable energy growth is:

- **Inclusive** — empowering local ecosystems and livelihoods
- **Scalable** — accelerating solar and clean technologies nationwide
- **Sustainable** — balancing progress with ecological stewardship

This initiative aims to inspire policy dialogue, industry innovation, and grassroots participation—turning intent into impact.



Bharat Renewable Talent Fest 2026, organized by the **Rajasthan Solar Association (RSA)**, is a national-level renewable energy hiring and skill development platform scheduled from **16-18 January 2026** at **VT Road Ground, Jaipur**.

The Talent Fest is a **100% free-of-cost** initiative for students, job seekers, institutions, and participating companies, designed to bridge the gap between industry and skilled renewable energy talent.

This three-day event will bring together leading EPC companies, OEMs, IPPs, startups, and MSMEs from the Solar, Wind, EV, Energy Storage, and Green Hydrogen sectors. The platform enables direct hiring, on-spot interviews, career guidance, and industry-academia interaction.

The objective of the Talent Fest is to:

- Strengthen India's renewable workforce pipeline
- Support Skill Development & Employment generation
- Promote industry-ready talent
- Align with India's clean energy and sustainability goals



With a targeted participation of **800+ students, 40+ companies, and 50+ institutions**, Bharat Renewable Talent Fest 2026 aims to become a powerful employment and industry-connection platform in the renewable energy sector.



Organised during **Bharat Renewable Expo 2026**, the Olympiad emerged as a prestigious national platform celebrating India's academic excellence in renewable energy.

With participation from **50+ universities, 25 shortlisted** institutions showcased breakthrough innovations in solar technology, green hydrogen, energy storage, EV charging systems, smart grids, and advanced materials. Projects were evaluated by an expert jury on innovation, scalability, sustainability impact, and real-world applicability.

1 Indian Institute of Information Technology, Nagpur
AI-Enabled Hybrid Solar Energy Loss Prevention System

2 Parishkar College of Global Excellence
Solar-Driven Green Hydrogen from High TDS Water

3 Motilal Nehru National Institute of Technology, Prayagraj
Solar PV Integrated EV Battery Charging with Storage

4 Banasthali Vidyapith
Grid-Integrated Smart Energy Meter

5 Malaviya National Institute of Technology, Jaipur
Advanced Alloys for Solar Hydrogen Storage



The prize ceremony was led by
Shri Vasudev Devnani
Speaker of the Rajasthan Legislative Assembly.

SOLAR OPEN ACCESS BOOM IN INDIA: FIVE STATES DRIVE 85% OF INSTALLATIONS IN 2025

India's solar open access market witnessed a record-breaking year in 2025, with 7.8 GW of new capacity additions, marking the highest annual installation ever recorded in the segment. The growth highlights the accelerating shift of commercial and industrial (C&I) consumers toward renewable energy procurement to reduce electricity costs, meet ESG commitments, and secure long-term green power supply. According to sector assessments, the top five states alone contributed nearly 85% of the total solar open access installations, demonstrating a strong regional concentration of demand and enabling policy ecosystems. Solar open access continues to be one of the fastest-growing renewable energy procurement models in India, especially for corporates seeking predictable energy prices and sustainability compliance.

RANKING OF TOP STATES FOR SOLAR OPEN ACCESS (2025)

States	2025 Rank	2024 Rank	YoY Change
Karnataka	1	3	↑
States	2025 Rank	2024 Rank	YoY Change
Karnataka	2	4	↑
States	2025 Rank	2024 Rank	YoY Change
Karnataka	3	5	↑

KARNATAKA LEADS THE NATION

Karnataka emerged as India's leading solar open access state in 2025, contributing 24.5% of total installations and registering a 70.3% growth compared to the previous year. The growth was driven largely by strong corporate demand for decarbonization and electricity cost optimization. However, developers continue to face challenges as distribution companies remain cautious in signing long-term renewable power agreements due to seasonal demand mismatches with renewable generation.

MAHARASHTRA SECURES SECOND POSITION

Maharashtra ranked second with 20.3% of total installations, reflecting steady market growth supported by regulatory clarity. Policy improvements enabled industries to combine rooftop solar with open access procurement, creating flexible energy procurement models for large energy consumers. However, regulatory adjustments in energy banking and open access charges moderated the pace of investments.

RAJASTHAN EMERGES AS A STRONG RENEWABLE HUB

Rajasthan ranked third in the country, accounting for 18.2% of total solar open access capacity additions and achieving a 14% year-on-year growth. The state's progress has been supported by:

- **High solar irradiation levels**
- **Forward-looking regulatory policies**
- **Expanded open access eligibility for consumers above 100 kW**
- **Transmission infrastructure expansion**

The commissioning of major transmission corridors and the availability of **significant spare grid capacity expected by FY2026** have strengthened confidence among developers and corporate power buyers. With its vast land availability, solar resource potential, and evolving policy framework, **Rajasthan continues to position itself as one of India's most strategic renewable energy destinations.**

GUJARAT MAINTAINS STABILITY

Gujarat retained the **fourth position with 11.6% share of installations.** The state introduced an **Integrated Renewable Energy Policy in 2025**, designed to consolidate renewable energy development, storage integration, and open access growth under a unified framework.

Despite strong policy backing, **increased banking charges and additional grid costs** have slightly reduced short-term developer margins.

TAMIL NADU RETURNS TO THE TOP FIVE

Tamil Nadu secured the **fifth position with a 10.9% share**, showing a **16.8% year-on-year increase in installations.**

Growth in the state has been supported by:

- Streamlined regulatory frameworks
- Strong industrial demand
- Higher grid tariffs encouraging renewable adoption
- Faster project approvals

EARTH CONNECT PERSPECTIVE

India's solar open access market is entering a **new phase of corporate-driven renewable adoption**, where industries are becoming **active participants in the energy transition rather than just consumers of electricity.**

The strong concentration of installations in five leading states demonstrates that **policy clarity, grid readiness, and industrial demand remain the key drivers for scaling open access solar across the country.**

For states like **Rajasthan**, the opportunity is even larger — with massive solar resources, emerging energy storage integration, and expanding transmission infrastructure, the state is poised to **play a defining role in India's next phase of renewable energy growth.**



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HYBRID POWER SURGE: 600 MW ISTS WIND-SOLAR AUCTION SETS NEW COMPETITIVE BENCHMARK

India's hybrid renewable momentum accelerates as Calcutta Electric Supply Corporation (CESC) concludes its 600 MW ISTS-connected wind-solar hybrid auction with sharply competitive tariffs in the ₹3.74–₹3.75/kWh range.

The November-issued tender has attracted strong developer participation, reinforcing hybrid energy as the next frontier of firm and reliable renewable power.

AUCTION RESULTS SNAPSHOT

Bidder / Developer	Capacity Awarded (MW)	Quoted Tariff (₹/kWh)	Approx. \$/kWh
Vismaya Renewables India Project (Subsidiary of UPC	100	3.74	0.0412
Hexa Climate Solutions	100	3.75	0.0413
Purvah Green Power	300	3.75	0.0413
Sprng Energy	100	3.75	0.0413
Total Awarded Capacity	600 MW	—	—

The narrow tariff band highlights aggressive pricing confidence and improved hybrid economics.

PROJECT ARCHITECTURE & KEY CONDITIONS

Under the Build-Own-Operate (BOO) structure:

- Projects must connect to the **Interstate Transmission System (ISTS)** at ≥ 220 kV.
- The **wind-to-solar capacity ratio must be at least 2:1**, enhancing generation stability.
- Commissioning timeline: **20 months** from PPA signing.
- CESC will execute a **25-year Power Purchase Agreement (PPA)** with successful bidders.
- Only **commercially established technologies** are allowed.
- Solar modules must be sourced from **ALMM List I**, ensuring compliance and performance reliability.

Developers are responsible for land acquisition, transmission infrastructure up to the interconnection point, and all regulatory approvals.

WHY THIS AUCTION MATTERS

Strengthens CESC’s Renewable Purchase Obligations (RPO) complianceExpands India’s ISTS-based hybrid footprint Demonstrates maturity of hybrid cost structures below ₹3.75/kWh Signals investor confidence in multi-location wind-solar integrationAdvances grid-friendly renewable deployment Hybrid power is no longer an experimental segment — it is rapidly becoming the backbone of reliable renewable procurement in India.

For the renewable ecosystem, this 600 MW award is not just a tender result — it is a **clear market signal that firm, competitive, and scalable hybrid energy is shaping India’s next growth cycle.**

HISTORIC RELIEF FOR WIND PROJECTS IN GIB HABITAT: RERC APPROVES CHANGE-IN-LAW COMPENSATION FOR BIRD DIVERTER INSTALLATION

In a significant regulatory development for Rajasthan's renewable energy sector, the Rajasthan Electricity Regulatory Commission (RERC) has allowed compensation to a 151.2 MW wind power developer for expenses incurred in installing bird flight diverters in the Great Indian Bustard (GIB) habitat.

This order marks an important precedent in balancing wildlife conservation with renewable energy expansion.

Background: Compliance with Supreme Court Mandate

Following directions of the Supreme Court of India, renewable energy developers operating in priority and potential GIB habitats were required to:

- Convert overhead transmission lines to underground lines wherever feasible
- Install bird flight diverters where undergrounding was not practical

The developer installed bird diverters across 33 kV and 220 kV transmission lines for its projects at a total cost of approximately ₹12.27 crore.

RERC's Key Observations & Ruling

After reviewing the petition, RERC concluded:

- The Supreme Court directive qualifies as a **Change-in-Law event** under existing PPAs.
- Since the event occurred after PPA execution, the developer is entitled to compensation.
- Carrying cost will be applicable **from the date of petition filing (2025) until issuance of the order.**
- Recovery will be made through **annuity payments over 15 years or the remaining PPA tenure (whichever is shorter).**
- A discount rate of 9% will apply for annuity calculations.
- Payment must be made within 60 days, failing which late payment surcharge will apply as per PPA terms.

The Commission clarified that carrying cost shall be limited to the lowest of:

1. Actual interest rate incurred,
2. Working capital interest rate under RERC tariff regulations, or
3. Late payment surcharge rate under the PPA.

Tariff Context & Capital Cost Structure

During FY 2011–FY 2016, wind tariffs determined by RERC ranged between ₹4.1/kWh to ₹5.74/kWh based on normative capital costs that included transmission line expenses.

However, the Commission noted that **bird diverter installation costs were not factored into the originally determined tariffs**, strengthening the Change-in-Law claim.

Wider Policy Context

In January 2026, the Ministry of New and Renewable Energy (MNRE) granted time extensions to renewable energy projects delayed due to prolonged litigation concerning transmission infrastructure in GIB habitats across Rajasthan and Gujarat.

Why This Order Matters

- Establishes regulatory clarity for wildlife-related compliance costs
- Strengthens investor confidence in Rajasthan's wind ecosystem
- Reinforces contractual sanctity of Change-in-Law provisions
- Creates a structured recovery mechanism without burdening project viability

For Rajasthan's renewable energy sector, this is more than a compensation order — it is a **policy signal that conservation compliance will be contractually and financially recognized.**



POLICY WATCH – ALMM LIST-II (SOLAR CELLS) & INDUSTRY OUTLOOK BY RAJASTHAN SOLAR ASSOCIATION

India's solar sector is approaching a critical policy milestone as the June 1, 2026 deadline for mandatory sourcing of solar cells under ALMM List-II draws closer. The industry is witnessing an active debate between developers and manufacturers over supply readiness, pricing dynamics, and execution risks



ALMM List-II Deadline: Industry at a Turning Point

The mandate issued by the Ministry of New and Renewable Energy (MNRE) requires all solar modules commissioned

after June 1, 2026 to use cells sourced exclusively from manufacturers listed under ALMM List-II. The objective is to strengthen domestic manufacturing, reduce import dependence, and accelerate India's self-reliance in the solar value chain.

With only a few months remaining, project developers have raised concerns regarding supply readiness—particularly for advanced TOPCon cell technology.

Developers' Perspective: Demand for Time-Bound Extension

Developers across utility-scale, EPC, and C&I segments are seeking a calibrated, time-bound extension of ALMM List-II implementation, potentially up to October 2026, to ensure:

- Stable availability of TOPCon cells
- Smooth project execution
- Prevention of supply-demand mismatches
- Avoidance of cost escalation and pricing volatility



Industry stakeholders indicate that while nameplate manufacturing capacity appears adequate, actual stabilized production capacity is still evolving. Newly commissioned cell lines typically require several months to reach optimal performance and consistent output.

Developers also highlight that TOPCon technology is increasingly preferred due to higher efficiency and lower land requirements, especially in the commercial and industrial segment. Limited availability at the right quality and price could impact competitiveness and project viability.

Additionally, working capital constraints continue to affect manufacturing operations, with production lines sometimes operating below optimal capacity—impacting actual output versus announced capacity.

Manufacturing View: Policy Stability is Critical

Manufacturers have expressed reservations about any deferment of the ALMM List-II mandate, emphasizing that:

- Domestic capacity investments have been made in anticipation of the deadline
- Policy consistency is essential to maintain investor confidence
- Repeated extensions could slow domestic manufacturing growth

According to manufacturers, sufficient capacity is being developed, and adherence to timelines will help accelerate ecosystem maturity and localization.

Capacity Reality vs Nameplate Numbers

Industry observers note a gap between announced capacity and stabilized production. While multiple TOPCon cell lines are being commissioned, actual utilization and consistent quality output remain key concerns.

Developers are cautious because:

- Chemical process stabilization in cell manufacturing takes time
- OEM timelines for consistent production may extend beyond commissioning dates
- EPC and IPP players must commit to long-term performance guarantees

Without reliable supply, developers fear price escalation and increased project risks.

Market Implications

If the deadline proceeds without transitional measures, potential impacts include:

- Higher module and project costs
- Delays in utility and C&I installations
- Reduced bankability of new solar bids
- Possible slowdown in deployment despite strong demand

Conversely, postponement could affect:

- Domestic manufacturing investment momentum
- Supply chain confidence
- Policy credibility



Need for Regulatory Clarity

With the deadline approaching, the industry's primary demand is clarity.

Both developers and manufacturers agree that a clear decision—whether to proceed, phase implementation, or provide a time-bound extension—must be communicated well in advance. Early visibility will allow stakeholders to recalibrate procurement strategies, financing structures, and project pipelines.

RSA Perspective: Ensuring a Balanced Transition

The Rajasthan Solar Association believes India's solar growth depends on maintaining a careful balance between:

- Strengthening domestic manufacturing
- Ensuring uninterrupted project execution
- Protecting investor confidence
- Keeping solar tariffs competitive

A pragmatic and phased approach—supported by real production data—can ensure that India's push for self-reliance strengthens both manufacturing and deployment without unintended disruptions.



INDIA'S RENEWABLE ENERGY CAPACITY REACHES 263.19 GW; GUJARAT LEADS OVERALL WHILE RAJASTHAN REMAINS THE SOLAR POWERHOUSE

India's renewable energy sector has reached another major milestone, with the country's **total installed renewable energy capacity touching 263.19 GW (263,189.36 MW)** as of **31 January 2026**, according to the latest state-wise data released by the Ministry of New and Renewable Energy (MNRE).

The figures include **solar, wind, bio-energy, small hydro, waste-to-energy and large hydro projects**, reflecting the rapid transformation of India's power sector toward clean energy.

Gujarat Emerges as India's Largest Renewable Energy State

As per the MNRE data, Gujarat has emerged as India's leading renewable energy state with a total installed capacity of 43,997.64 MW. The state's leadership is driven by a strong mix of wind and solar power, along with large renewable parks and strong transmission infrastructure.

Rajasthan Close Behind, Continues to Dominate Solar Energy

Rajasthan ranks second with 43,798.06 MW of installed renewable energy capacity, remaining one of the most critical pillars of India's clean energy ecosystem.

The state continues to be widely recognized as **India's solar capital**, driven by world-class solar infrastructure and mega projects such as **Bhadla Solar Park**, one of the largest solar parks globally. Rajasthan's high solar irradiation, vast land availability and strong policy support have made it the preferred destination for large-scale solar investments.

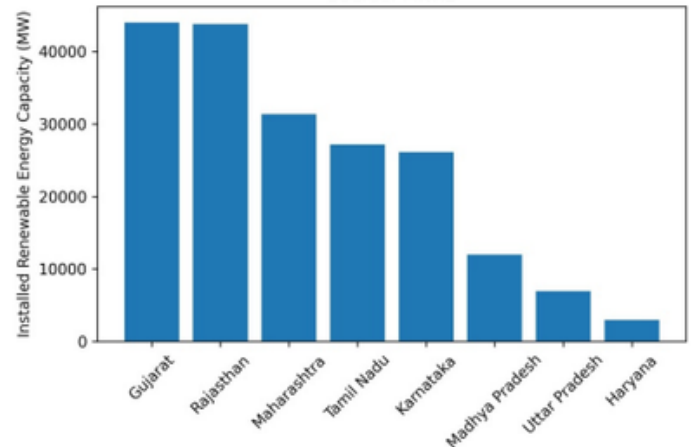
Other Major Renewable Energy States

Several other states are playing a crucial role in India's renewable energy expansion:

- **Maharashtra – 31,381.20 MW**, supported by wind, solar and strong bio-energy capacity.



State-wise Renewable Energy Capacity in India (as on 31 Jan 2026)
Source: MNRE



- **Tamil Nadu – 27,189.04 MW**, one of India's historic leaders in wind power.
- **Karnataka – 26,138.62 MW**, with strong contributions from both solar and wind sectors.
- **Madhya Pradesh – 11,960.96 MW**, emerging as a major solar hub in central India.
- **Uttar Pradesh – 6,917.16 MW**, driven by bio-energy and expanding solar installations.
- **Haryana – 2,939.25 MW**, primarily through solar and distributed renewable energy projects.

Western India Driving the Renewable Transition

The latest data shows that **western India—particularly Gujarat and Rajasthan—has become the core renewable energy corridor of the country**, hosting some of the world's largest solar parks and rapidly expanding hybrid renewable projects.

With India targeting **500 GW of non-fossil fuel capacity by 2030**, the growing renewable capacity across states signals strong momentum toward achieving the country's clean energy ambitions.

Source: State-wise installed renewable energy capacity data published by the **Ministry of New and Renewable Energy**, status as on 31 January 2026.

RAJASTHAN UNLOCKS HYBRID ROOFTOP SOLAR ERA: DISCOM GREENLIGHTS HYBRID INVERTERS TO STRENGTHEN GRID STABILITY

In a progressive step toward modernizing distributed solar, Jaipur Vidyut Vitran Nigam Limited (JVNL) has officially permitted the installation of **hybrid inverters** alongside rooftop solar systems across Rajasthan. The move applies to consumers operating under **Net Metering, Gross Net Metering, and Virtual Net Metering** frameworks — marking a significant policy shift toward integrating storage-ready infrastructure in the state's rooftop solar ecosystem.

Storage-Ready Rooftops: A Strategic Grid Move

The order recognizes the growing importance of Battery Energy Storage Systems (BESS) in:

- Grid stability enhancement
- Peak-load management
- Voltage and power quality improvement
- Future-ready distributed energy architecture

Importantly, Rajasthan's *Grid-Interactive Distributed Renewable Energy Generating Systems, 2025* regulations already acknowledge battery storage as part of renewable energy systems — creating a regulatory backbone for this transition.

CFA Clarity: Modules Decide Subsidy, Not Storage

JVNL clarified that while hybrid inverters and storage components are now permissible, **Central Financial Assistance (CFA)** calculations will continue to be based solely on the installed solar module capacity.

This aligns with guidelines issued by the Ministry of New and Renewable Energy (MNRE), ensuring financial support remains module-centric while enabling storage flexibility

Rooftop Tariff Momentum

The development follows JVNL's recent revision of rooftop solar tariffs:

- **Net Metering (Residential):** ₹3.26/kWh (20% increase from ₹2.71/kWh)
- **Net Billing:** ₹3.65/kWh (20% increase from ₹3.04/kWh)

These upward revisions signal growing policy confidence in decentralized solar generation.

Compliance & Technical Standards

All installations must comply with safety and technical standards prescribed under *JPR5-1219*, reinforcing quality and grid compatibility benchmarks

Why This Matters for Rajasthan

This decision:

- Encourages consumers to adopt storage-compatible systems
- Prepares rooftops for future time-of-day and demand-response mechanisms
- Strengthens grid resilience amid rising solar penetration
- Aligns Rajasthan with next-generation distributed energy models

For the state's renewable energy ecosystem, this is more than an administrative order — it is a **clear signal that Rajasthan is transitioning from solar adoption to solar optimization.**

RSA Earth Connect will continue to track and decode regulatory developments shaping Rajasthan's renewable future.



RSA KNOWLEDGE ADDA

A NEW SOLAR ERA FOR APARTMENT OWNERS: FROM BALCONY SYSTEMS TO VIRTUAL NET METERING

Jaipur. Rising electricity tariffs and limited rooftop access have long posed a question for urban apartment residents: *Can flat owners truly benefit from solar energy?*

Today, the answer is a confident yes.

With regulatory clarity and technology innovation, apartment dwellers in Rajasthan can now access solar energy through **Balcony Solar, Virtual Net Metering (VNM), and Group Net Metering (GNM)** — supported under frameworks approved by the Rajasthan Electricity Regulatory Commission (RERC).

1 Balcony Solar: Plug-and-Play Urban Solar

Balcony solar systems are compact, modular installations consisting of:

- 1–2 solar panels
- A grid-synchronized micro-inverter
- Direct connection through a household plug point

These systems support daytime base loads such as refrigerators, fans, TVs, routers, and lighting — reducing monthly bills without complex approvals.

Key Technical Safeguards (RERC-aligned Standards)

- Anti-Islanding Protection: Automatic disconnection during grid failure.
- Grid synchronization for voltage and frequency stability.
- Compliance with Central Electricity Authority (CEA) safety standards.
- Balcony solar is ideal for residents seeking immediate savings with minimal investment and no structural modifications.



2. Virtual Net Metering: Solar Without Rooftop Ownership

For apartment owners without sufficient sunlight or space, Virtual Net Metering (VNM) offers a powerful alternative.

Under RERC-approved provisions:

- Consumers invest in or subscribe to capacity in an offsite solar plant.
- Electricity generated from their share is adjusted against their monthly electricity bill.
- No physical installation is required at the consumer's residence.

RERC-Approved Technical Highlights

- Monthly energy adjustment against consumption.
- Credits apply to energy charges (fixed charges remain applicable).
- Applicable wheeling and grid usage charges as per DISCOM norms.
- Capacity allocation linked to sanctioned load limits.

Example:

If a consumer's share generates 300 units and monthly consumption is 450 units, payment is required only for the remaining 150 units. VNM is especially suitable for dense urban housing with limited common rooftop access.



3. Group Net Metering: Collective Solar for Housing Societies

For residential societies, **Group Net Metering (GNM)** enables a collective approach:

- A larger solar plant is installed on the society rooftop.
- Total generation is allocated among residents in a predefined ratio.
- Each member receives proportional energy credits in their electricity bill.

RERC Technical Conditions

- Mandatory installation of **bi-directional net meters**.
- System capacity aligned with sanctioned load of participating consumers.
- Compliance with state grid codes and transformer capacity norms.
- Adherence to voltage level and safety standards.
- Because of economies of scale, per-unit solar cost decreases, improving financial viability for participants.

Economic & Environmental Impact

- Stable energy savings for 15–25 years
- Reduced carbon emissions in urban centers
- Daytime load support for distribution transformers
- Enhanced energy independence for city residents



A Shift in Urban Energy Thinking

Just as internet connectivity and modern appliances became standard in every home, decentralized solar solutions may soon become a norm in apartment living.

The real question today is not whether solar is possible in flats —but which model urban residents will adopt to take their first step toward energy independence.



Rooftop Solar Crossroads: Maharashtra's New Capacity Norm Triggers Industry Pushback

Maharashtra's rooftop solar ecosystem is witnessing fresh turbulence after reports that the Maharashtra State Electricity Distribution Company Limited (MSEDCL) has begun approving rooftop solar capacities based **on average electricity consumption of the past 12 months**, instead of the previously accepted **sanctioned load / contract demand**.

The shift, reportedly effective from mid-February, has sparked strong reactions from installers, who warn that the move could significantly restrict system sizing and slow rooftop solar adoption in one of India's leading residential solar markets.

What Has Changed?

Earlier Framework: Consumers could install rooftop solar systems up to their sanctioned load — allowing flexibility to plan for future demand growth.

Revised Practice (as per installers): Capacity approvals are now being processed based on **historical consumption averages**, reportedly calculated from the last 12 months of billing data. However, stakeholders claim that **no formal notification** has yet been issued, with the only evidence being revised capacity limits reflected on the approval portal.

Industry Concerns: Impact on Growth & Consumer Value

1. Future Planning Gets Restricted

Installers argue that households planning for:

- Electric vehicle charging
- Additional air conditioners
- Expanded appliance usage

are now unable to size systems for anticipated demand.

2. New Homes Face Barriers

Newly constructed or recently occupied homes with limited billing history are reportedly receiving **very low capacity approvals**, even when rooftop space and sanctioned load permit higher installations.



3. Small System Economics Weaken

In several cases, approvals are reportedly limited to 1–1.5 kW systems for homes consuming 100–150 units/month.

- A 1 kW system generates roughly 100–120 units per month.
- Installation costs (wiring, earthing, mounting) remain largely similar irrespective of system size.
- Smaller systems reduce financial attractiveness without reducing execution complexity.

Installers also highlight that even minor excess capacity installations (100–120 W above approval) are now attracting penalties ranging from ₹10,000 to ₹70,000 — tightening compliance risk.

4. Impact on PM Surya Ghar Momentum

Maharashtra is among the top-performing states under the PM Surya Ghar Yojana.

As of January 2025:

- Maharashtra recorded **192,936 installations (22.79%)**, the second-highest in India.
- Gujarat leads with 351,273 installations.

Industry representatives warn that any capacity restriction could slow the state's rooftop acceleration under the national mission.

Divided Industry Views

While many installers criticize the move as restrictive, some industry voices suggest that:

- Approved load often does not reflect actual consumption.
- Historical consumption-based sizing may better align with net metering settlement.
- The revised system could streamline approvals in cases where sanctioned load values are outdated.

MSDCL officials have indicated that stakeholder concerns are under review.

The Larger Question: Grid Stability vs. Rooftop Freedom

Installers acknowledge that voltage management challenges may arise in high rooftop penetration areas, especially during mid-day generation peaks.

However, they argue that solutions such as:

- Time-of-Day tariffs
- Battery storage integration
- Transformer capacity upgrades
- Demand-side management

would be more effective than restricting system sizes.

Why This Matters Nationally

Maharashtra's policy direction carries weight because:

It is one of India's largest rooftop solar markets

It plays a key role in achieving distributed renewable targets

It influences installer confidence and supply-chain planning

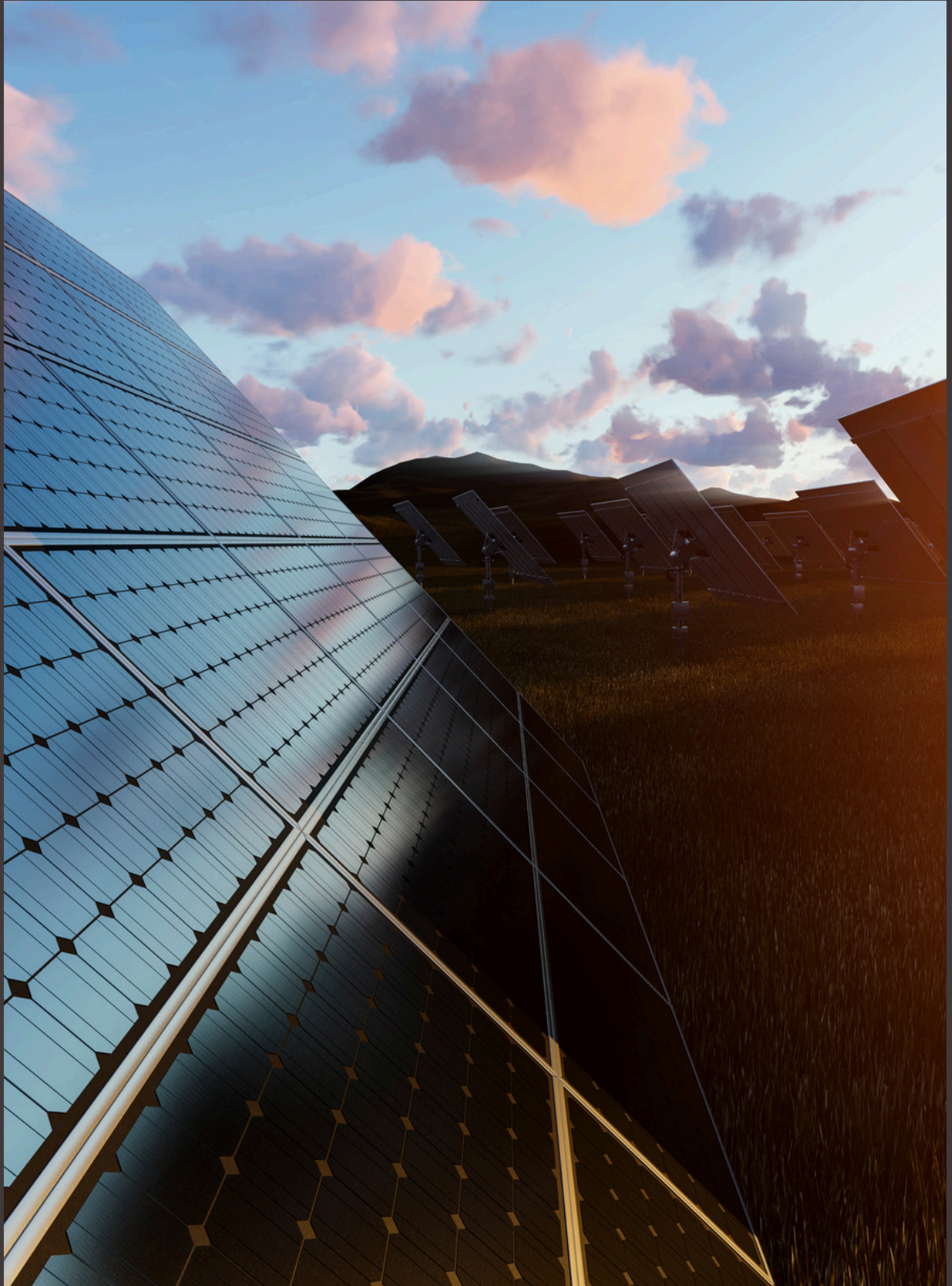
It shapes the pace of residential energy transition

The coming weeks will determine whether this is a temporary system recalibration or a structural policy shift.

For India's distributed solar journey, the debate underscores a critical balance — **ensuring grid stability without dampening consumer-driven solar adoption.**



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