



EARTH CONNECT

INSIGHTS. INNOVATION. IMPACT.
POWERING INDIA'S CLEAN ENERGY TRANSFORMATION



POLICY UPDATE

RIPS Amendments 2026:
Stability for Investors,
Ambition for Manufacturing



BESS DEEP DIVE

Engineering, Chemistry &
Grid Integration for Rajasthan



INDIA REACHES

274 GW Renewable Capacity
Rajasthan Leads the Way



GRID REVOLUTION

₹7.93 Trillion Investment
Transforming India's
Power Infrastructure

INFORMING TODAY.
SHAPING TOMORROW.



KNOWLEDGE
SHARING



INDUSTRY
COLLABORATION



SUSTAINABLE
FUTURE



CLEAN ENERGY
FOR ALL



**RAJASTHAN
SOLAR
ASSOCIATION**

TOGETHER FOR A SOLAR FUTURE

EARTH CONNECT

MAY 2026 EDITION

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INFORMING TODAY.
SHAPING TOMORROW.



KNOWLEDGE
SHARING



INDUSTRY
COLLABORATION



SUSTAINABLE
FUTURE



CLEAN ENERGY
FOR ALL

 EDITORIAL

BUILDING TODAY, POWERING TOMORROW

Stability. Innovation. Sustainability.
The pillars of India's clean energy future.



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INSIDE

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It gives me immense pleasure to pen this editorial for **Earth Connect** and reach out to my esteemed colleagues and stakeholders across Rajasthan's vibrant renewable energy landscape. Rajasthan has become a pivotal force in India's journey toward its ambitious 500GW renewable energy target, setting a remarkable standard for leadership that continues to inspire the nation's transition to a greener future. Thanks to our shared dedication, the proactive efforts of the government, and the active participation of the local population, Rajasthan stands at the forefront of solar and renewable energy development, laying the groundwork for a cleaner, more sustainable tomorrow.



As the sector enters its next phase of growth, it presents both significant opportunities and critical challenges:

- Timely and comprehensive grid strengthening at both the state utility and CTU levels is essential.
- Continued support from the state government, especially for land acquisition and right-of-way clearances, remains critical.
- Persistent grid congestion and the risk of renewable generation backdowns affect investor confidence and reliability of green power delivery.

Rajasthan must continue to lead the development of progressive grid-management frameworks that safeguard commercial viability. Relief from backdowns and DSM penalties is vital to sustaining momentum.



With rapid capacity additions and ambitious national targets, grid integration has become more complex than ever. Battery Energy Storage Systems (BESS), strategically deployed on the grid side, are critical enablers of stability and reliability.

BESS provides:

- A more effective solution than strict DSM mechanisms
- Reduced forecasting risks
- Better grid stability support

Generators should focus on optimizing green power output and providing reasonable forecasts, while grid operators—supported by storage technologies—ensure overall system stability.



Investment & Energy Security

Socializing the cost of BESS—similar to the TBCB framework in the transmission sector—can:

- Attract significant domestic and international investment
- Strengthen India's long-term energy security

Recent global developments, including the West Asia crisis, further reinforce the need for energy independence and reduced reliance on fossil fuels.



Industry Commitment

On behalf of the Mahindra Group, I reaffirm our commitment to Rajasthan by expanding our renewable energy footprint in the state—currently at approximately 7 GWp across:

- Mahindra Susten (IPP)
- Sustainable Energy Infra Trust (India's largest RE InvIT listed on NSC)
- Mahindra TEQO (one of India's largest ISP)



Acknowledgment

As we advance on this journey, I extend sincere gratitude to the Rajasthan Solar Association and its office bearers for their ongoing advocacy and support.

Initiatives like **"Khejri Se Kal: Greener Rajasthan Mission"** reflect RSA's commitment to sustainability—aligning industry growth with local sentiments, strengthening community relationships, and protecting ecosystems.

“ Together, let's build a sustainable, self-reliant and empowered India. ”

REGULATORY CHANGE

MADHYA PRADESH REDEFINES ROOFTOP SOLAR GROWTH WITH SIMPLER NET METERING FRAMEWORK UNDER PM SURYA GHAR

Madhya Pradesh moves toward a consumer-friendly solar ecosystem by reducing procedural barriers and accelerating rooftop solar adoption



In a significant step toward accelerating decentralized renewable energy adoption, the state of Madhya Pradesh has proposed major reforms in its rooftop solar and net metering framework under the PM Surya Ghar: Muft Bijli Yojana. The proposed changes are expected to simplify the consumer journey, reduce administrative hurdles, and strengthen the pace of rooftop solar deployment across the state.



Simplifying Rooftop Solar Adoption

The proposed amendments under the Renewable Energy Systems Related Matters Regulations, 2024 aim to create a more streamlined ecosystem for residential solar consumers. One of the key highlights is the proposal to exempt consumers under PM Surya Ghar from processing fees and meter testing charges, reducing upfront compliance burdens and making rooftop solar adoption more accessible.



Simplifying Net Metering Approvals

A major policy shift under the proposal is the removal of the requirement for a separate net metering agreement for consumers participating under the scheme. The measure could substantially reduce documentation and approval timelines, enabling faster project execution and easier onboarding for households.

The move reflects a broader policy trend toward integrating distributed renewable energy systems into mainstream power planning while supporting India's clean energy transition objectives.



Direct Recognition of Generation

Further, where renewable generation meters are installed, the total renewable energy produced would directly qualify for RPO accounting. In cases where generation data is unavailable, calculations would follow provisions under existing renewable energy regulations.

Why This Matters for Industry

- Reduced paperwork can significantly improve consumer participation rates
- Lower transaction costs could accelerate rooftop solar installations
- Better alignment of distributed solar generation with utility RPO targets
- Stronger policy support for PM Surya Ghar implementation
- Potential model for other states seeking faster rooftop solar penetration

RSA EARTH CONNECT - KNOWLEDGE ADDA

BESS DEEP DIVE:

ENGINEERING, CHEMISTRY & GRID INTEGRATION

POWERING RELIABILITY. ENABLING FLEXIBILITY. BUILDING A RESILIENT GRID.


EXECUTIVE INSIGHT

Battery Energy Storage Systems (BESS) are transforming from a support technology into a core grid asset—especially in solar-rich states like Rajasthan.

India is projected to require:



~336 GWh

of energy storage by 2030
Driven by:

- Solar intermittency (day-night mismatch)
- Peak demand management
- Grid stability requirements

CORE FUNCTIONS OF BESS
Energy Shifting

Store daytime solar, supply evening peak

Grid Stabilization

Sub-second response for frequency control

Power Quality

Voltage regulation & reactive support

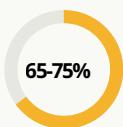
Black Capability

Start

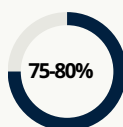
Restart grid independently


EFFICIENCY MATTERS
Round Trip Efficiency (RTE)


Lithium-ion
(LFP / NMC)



Vanadium
Flow



Lead Acid

Higher efficiency = better revenue realization

BATTERY CHEMISTRY SIMPLIFIED

SAFETY & THERMAL ENGINEERING

Lithium Iron Phosphate

- ✓ Safe, long life
- ✗ Lower energy density

Nickel Manganese Cobalt

- ✓ High energy density
- ✗ Thermal risk

Lithium Titanate

- ✓ Fast charging
- ✗ Expensive

LFP is most preferred for grid applications



Optimal temperature:
15–35°C



High temperature
→ Thermal runaway risk

Safety systems include:

- BMS shutdown
- Fire suppression
- Ventilation
- Thermal management

INSIDE A BESS CONTAINER

A utility-scale BESS is deployed in modular containers (20ft / 40ft).



1 Battery Modules
Core energy storage

2 BMS (Battery Management System)
Monitors temperature, voltage, health

3 PCS (Power Conversion System)
Converts DC ↔ AC

4 Thermal System
Maintains optimal temperature (15–35°C)

5 Fire Protection
Advanced fire suppression systems

6 EMS (Energy Management System)
Controls dispatch & optimization

Typical capacity: 2–5 MWh per container


GRID INTEGRATION ROLE

BESS enables:



Frequency regulation



Peak shaving

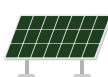


Load shifting



Spinning reserve

Acts as a buffer between generation & demand

SIZING LOGIC (EXAMPLE)


100 MW Solar Plant



20 MW /
80 MWh BESS

✓ Typically 10–20% of solar capacity
✓ Duration: 2–4 hours

WHY BESS IS CRITICAL FOR RAJASTHAN


Solar peak:
12–3 PM



Demand peak:
7–10 PM



Curtailment up to
~50%

BESS Solves:

- ✓ Time mismatch
- ✓ Grid instability
- ✓ Revenue losses


KEY TAKEAWAY

BESS is no longer optional—
it is essential for a reliable
renewable future.



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THE RAJASTHAN SOLAR ASSOCIATION

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WHERE ENERGY LEADERS SHAPE TOMORROW



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Clean Energy Future



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POLICY REFORMS

RAJASTHAN UNLOCKS A NEW ERA FOR RENEWABLE ENERGY

LANDMARK LAND CONVERSION REFORMS SET TO ACCELERATE GREEN INVESTMENTS



State introduces a streamlined framework to fast-track renewable energy projects and strengthen Rajasthan's position as India's clean energy powerhouse.



A MAJOR POLICY STEP

The Government of Rajasthan has amended the Rajasthan Land Revenue (Conversion of Agricultural Land for Non-Agricultural Purposes) Rules, introducing a dedicated framework for renewable energy projects.

WHAT THE AMENDMENTS COVER

The amended framework covers a wide spectrum of clean energy technologies:



Solar Projects



Wind Projects



Biomass & Biogas Projects



Bio-CNG / CBG Facilities



Hydropower Projects



Pumped-Storage Systems



Battery Energy Storage Systems (BESS)
(Min. 85% charging from renewable energy)

MAJOR HIGHLIGHTS OF THE AMENDMENT



LOWER CONVERSION CHARGES

Conversion charges for renewable energy projects reduced to only **10%** of the industrial land conversion rate.



STRUCTURED APPROVAL MECHANISM

Designated authorities with defined timelines ensure faster decision-making and greater transparency in land conversion processes.



AUTO ESCALATION FOR PENDING CASES

If applications remain pending beyond the prescribed period, they will automatically move to the next level of authority for resolution.



SELF-CERTIFICATION FOR ACCESS ROADS

For projects without an officially recorded approach road, developers may proceed through a self-certification mechanism, reducing documentation delays while ensuring accountability.



TIMELY PROCESSING & CLEARANCE

Completed applications will be reviewed promptly, conversion charges communicated within defined timelines, and conversion orders issued within a fixed period.

WHY THIS MATTERS FOR INDUSTRY



Lower land conversion costs improve project viability and investment attractiveness.



Defined timelines can reduce project approval delays.



Simplified procedures support faster execution and commissioning.



Stronger policy clarity improves investor confidence.



Expanded coverage includes next-generation technologies such as BESS and pumped storage.



Reinforces Rajasthan's position as one of India's leading renewable energy destinations.



“As renewable energy development moves beyond generation into integrated storage and advanced energy infrastructure, policy reforms such as these are expected to play a pivotal role in strengthening Rajasthan's journey toward becoming a global clean energy hub.



RENEWABLE ASSET LONGEVITY

BEYOND CAPACITY ADDITION: HPERC'S NEW DRAFT RULES AIM TO DEFINE THE LIFESPAN OF INDIA'S RENEWABLE FUTURE

Beyond adding renewable capacity, the industry is increasingly focusing on asset longevity and performance. Clear project life standards can help ensure long-term value creation, investment certainty, and a more reliable renewable energy ecosystem.



Under the proposed framework:



Wind Power Projects – 25 Years



Biomass Power Projects – 25 Years



Small Hydro Projects – 40 Years



**Municipal Solid Waste /
RDF Projects – 20 Years**

Addressing this critical aspect, the Himachal Pradesh Electricity Regulatory Commission (HPERC) has released draft amendments proposing standardized “Useful Life” definitions for various renewable energy technologies. The proposal is expected to strengthen regulatory consistency, improve project bankability, and create greater long-term confidence for investors and developers.

The draft framework introduces clearer definitions for biomass-related technologies while creating a structured roadmap for operational life cycles across multiple renewable technologies.

The proposal also brings clarity for emerging project structures.

For hybrid renewable projects, the useful life would be determined based on the shortest operational life among the combined technologies. Similarly, for renewable projects integrated with energy storage systems, the useful life would remain aligned with that of the primary generation project.

The Commission has also invited stakeholders to submit feedback within 30 days, creating an opportunity for industry participants to contribute toward shaping the final framework.

RSA Industry Perspective

The renewable sector today is moving beyond simple project execution into a phase of asset optimization, financial sustainability, and long-term infrastructure planning.

Clear definitions of project life can influence:

As India's clean energy sector expands rapidly, the next phase of growth will not only depend on how fast projects are installed — but also on how effectively their value is sustained across decades.

The future of renewable energy is not only about building assets; it is increasingly about defining their longevity and maximizing their lifecycle value



POWER HIKE

TRIPURA TARIFF RESET:
CONSUMERS PROTECTED
FROM 43% POWER HIKE

Tripura's electricity sector has entered a critical transition phase as the state electricity regulator approved a ₹12.75 billion tariff recovery framework while preventing a steep 43% tariff increase that could have significantly impacted consumers and industries.



The order, effective 1 May 2026, includes the truing-up exercise for FY2025, annual performance review for FY2026, and determination of ARR and retail tariff for FY2027.

KEY HIGHLIGHTS

₹17.09 BILLION
REVENUE GAP REDUCED

- TSECL had proposed recovery of ₹17.09 billion through tariff revisions and regulatory surcharge.
- The Commission rejected full recovery in the current cycle and approved a phased approach.

NO REGULATORY
SURCHARGE FOR CONSUMERS

- Proposal for an additional surcharge was rejected.
- Revenue recovery will happen through calibrated tariff adjustments instead of imposing sudden financial burden.

MAJOR
CONSUMER RELIEF

- The regulator determined that recovering the entire ARR would require a 43% tariff increase, considered excessively high.

Approved Average
Cost of Supply

₹8.90/kWh

TSECL Claimed
Cost

₹18.13/kWh

TARIFF RATIONALIZATION
MEASURES

Marginal increases in energy charges approved:



Domestic Consumers ₹0.15 – ₹0.20/kWh



Irrigation, Public Water Works & Public Lighting ₹0.20/kWh



Other Consumer Categories ₹0.35/kWh

The Commission also rationalized fixed charges across consumer categories to improve revenue balance.

POWER & DISTRIBUTION OUTLOOK FY2027



Approved Distribution ARR ₹21.53 Billion



Power Purchase Cost ₹16.18 Billion



Projected Electricity Sales 1,519.41 Million Units



Government Subsidy Considered ₹770 Million



Transmission & Distribution Loss Target 18.30%



Current actual loss level for FY2025 stood at 27.56%, indicating substantial efficiency improvement requirements.

OPERATIONAL REFORM DIRECTIVES

The Commission instructed TSECL to:

- ✓ Complete financial segregation of power generation and transmission operations
- ✓ Introduce voltage-wise loss measurement mechanisms
- ✓ Finish feeder energy audits within six months
- ✓ Ensure uniform billing across all subdivisions
- ✓ Implement boundary metering systems
- ✓ Submit regular performance and compliance reports



OPEN ACCESS & TRANSMISSION HIGHLIGHTS

For 33 kV Open Access consumers:

Wheeling Charge
Approved
₹0.47/kWhWeighted Average
Power Purchase Cost
₹4.78/kWhTotal System Loss for
Cross-Subsidy Calculation
18.30%

INDUSTRY TAKEAWAY

The latest order reflects a balanced regulatory approach — protecting consumers from abrupt tariff shocks while preserving the financial sustainability of the utility sector. The decision also signals a stronger push toward operational efficiency, lower system losses, and greater transparency in power sector governance.



CONSUMER PROTECTION, UTILITY VIABILITY,
AND OPERATIONAL REFORMS EMERGE AS THE
THREE PILLARS SHAPING TRIPURA'S ELECTRICITY ROADMAP.



Protecting Consumers
Shielding consumers from
steep tariff shocks



Ensuring Utility Viability
Enabling phased recovery for
financial sustainability



Driving Operational Excellence
Strengthening efficiency, transparency
and accountability

BESS CONTRACT

NLC AWARDS LANDMARK 250 MW / 500 MWH BATTERY STORAGE CONTRACT



In a major development for India's energy storage landscape, **NLC India has announced the winner** for a large-scale **250 MW / 500 MWh grid-connected Battery Energy Storage System (BESS)** project, awarded through a highly competitive EPC bidding process initiated earlier this year.

The project will be implemented across key substations in Tamil Nadu—**Ottapidaram, Annupankulam, and Kayathar**—and is expected to significantly strengthen grid flexibility, enhance renewable energy integration, and improve peak power management in the region.

The EPC contract, valued at approximately **₹7.10 billion (≈ USD 73.6 million)**, includes complete engineering, procurement, and construction of the BESS infrastructure, along with a long-term **12-year operations and maintenance (O&M) commitment**, ensuring lifecycle performance and reliability.

End-to-End Turnkey Execution Scope

The scope of work includes full turnkey execution of the project, covering design, engineering, manufacturing, installation, testing, and commissioning of advanced battery energy storage systems.

The project also integrates critical grid-support infrastructure such as **reactive power compensation systems** and **harmonic filters**, ensuring stable operation, power quality compliance, and seamless grid interaction.

The contractor will also execute all associated civil works, including site grading, earthworks, internal roads, and complete infrastructure development required for commissioning and grid connectivity.

All statutory and regulatory responsibilities—such as environmental clearances, land-use permissions, water arrangements for construction and O&M, and transmission connectivity approvals—are included within the contractor's scope of execution.

Performance Benchmarks for Grid Reliability

The project is designed to meet stringent utility-scale performance standards:

- **Round-trip efficiency:** Minimum 87% in Year 1, and at least 85% from Year 2 onwards
- **System availability:** 95% throughout the operational lifecycle
- Mandatory compliance with **Central Electricity Authority (CEA)** and other regulatory approvals prior to charging and commissioning

These benchmarks underline India's growing focus on high-performance, grid-grade battery storage infrastructure.

Long-Term Warranty & Lifecycle Assurance

The project includes a **comprehensive 12-year warranty** covering all equipment and execution works, ensuring long-term operational stability. Additionally, the **power conversion system is backed by a 5-year dedicated warranty**, reinforcing reliability and asset performance assurance.

ALCM TRANSITION

INDIA'S SOLAR SECTOR AT A CRITICAL ALCM TRANSITION POINT

THE CURRENT REALITY


33.78 GW
APPROVED DOMESTIC
SOLAR CELL CAPACITY

India has crossed ~33.78 GW of approved domestic solar cell manufacturing capacity, a significant milestone in the nation's renewable manufacturing journey.


220+ GW
SOLAR MODULE MANUFACTURING
ECOSYSTEM

However, this must be viewed against India's rapidly expanding 220+ GW solar module manufacturing ecosystem, creating a substantial gap between module scale and compliant domestic solar cell availability.



STRUCTURAL GAP

This gap may create temporary pressure across the renewable energy ecosystem after 31 May 2026.

IMPACT ON PRICES & PROJECT VIABILITY



Industry assessments indicate that DCR module prices are expected to rise significantly, directly impacting project viability, renewable tariffs, financial returns and investment decisions.

EXPECTED MARKET CORRECTION (2-3 MONTHS)



The sector may witness a temporary market correction phase of approximately 2-3 months immediately after implementation, driven by:

- Limited availability of compliant solar PV cells
- Supply-chain uncertainty
- Inventory correction
- Procurement disruptions

The impact may extend well beyond module manufacturers.

WIDER INDUSTRY IMPACT

MODULE MANUFACTURING UNITS


~60%


Approximately 60% of module manufacturing units may face reduced production utilization or temporary operational stress due to limited compliant solar cell availability.

ANCILLARY INDUSTRIES AT RISK


~60%

Similarly, nearly 60% of ancillary industries may also experience temporary demand contraction and production disruptions.



EVA Sheet Manufacturers



Solar Glass Industry



Junction Box Manufacturers



Ribbon and Supply Chain Industries

TECHNOLOGY TRANSITION READINESS – A KEY CHALLENGE



India's current manufacturing base is still heavily dependent on Mono PERC technology (~16.20 GW)



Developers and investors have increasingly aligned project designs and financial assumptions around TOPCon technology (~11.53 GW) current manufacturing capacity



This creates a significant mismatch between project assumptions and manufacturing reality.



SOLAR CELL MANUFACTURING IS TIME-INTENSIVE

~6 MONTHS
for plant installation



~6 MONTHS
for stabilization and
efficiency optimization



BEFORE REACHING
COMMERCIAL-SCALE MATURITY



RSA had earlier highlighted before the Ministry of Power that aggressive transmission infrastructure timelines might not align with practical implementation realities, and subsequent extensions validated these concerns.

A similar pragmatic reassessment is now required for solar cell manufacturing readiness, technology scalability and infrastructure preparedness.

RSA REQUESTS MNRE TO CONSIDER



A phased and calibrated implementation approach for ALCM / ALMM-II



Transitional support for projects already in advanced stages of execution



Reassessment of implementation timelines based on actual manufacturing capacity and technology readiness



Consideration of state-specific infrastructure realities, especially in solar-intensive regions such as Rajasthan

A balanced transition is essential not only for strengthening domestic manufacturing, but also for preserving India's renewable growth momentum, investor confidence and long-term clean energy leadership.

INDUSTRY UPDATE

RAJASTHAN SECURES NEW 2 MW ROOFTOP SOLAR OPPORTUNITY

RSA EARTH CONNECT | INDUSTRY UPDATE
**Strategic Push Reinforces Rajasthan's Position
in India's Advanced Clean Energy Landscape**

In another positive development for India's renewable energy ecosystem, the Department of Atomic Energy (DAE) has invited bids for the design, supply, installation, testing, and commissioning of a 2 MW rooftop solar project in Rajasthan, further strengthening the state's growing clean energy footprint. The project is intended to serve the captive electricity requirements of NFC Kota's internal electrical network, highlighting increasing institutional adoption of sustainable energy solutions beyond conventional grid dependency.

**TECHNOLOGY STANDARDS RAISING INDUSTRY
BENCHMARKS**

The tender emphasizes high-performance and future-ready technologies, requiring:

- ✓ Bifacial Solar Modules
- ✓ Half-cut TOPCon or higher technologies
- ✓ HJT / IBC or next-generation alternatives permitted
- ✓ Minimum average cell efficiency: 23%+

**LONG-TERM PERFORMANCE EXPECTATIONS
INCLUDE:**

- Minimum 90% output retention after 10 yea
- Minimum 80% output retention after 25 years

The move signals increasing focus on quality-driven deployment, technology advancement, and long-term energy reliability.

RSA Perspective

"Large institutional rooftop deployments continue to create strong opportunities for EPC players, technology providers, and the broader domestic manufacturing ecosystem. Rajasthan is steadily expanding beyond utility-scale solar and moving toward diversified clean energy adoption across industrial and strategic sectors." Rajasthan Solar Association (RSA) continues to track emerging opportunities and policy developments shaping the renewable energy ecosystem.

PROJECT SNAPSHOT

	Project Capacity	2 MW Rooftop Solar
	Estimated Project Value	₹8.5 Crore
	Bid Submission Deadline	10 June 2026
	Bid Opening Date	12 June 2026
	Completion Timeline	Within 10 months from project award

KEY ELIGIBILITY REQUIREMENTS

Interested bidders are expected to demonstrate:

-  Strong EPC execution experience in similar projects
-  Healthy financial performance over recent years
-  Solvency strength and proven project delivery capabilities
-  Compliance with approved domestic manufacturing requirements


RSA EARTH CONNECT

Connecting Industry • Policy • Innovation • Sustainability

SOLAR LEADER

RAJASTHAN LEADS INDIA'S RENEWABLE ENERGY GROWTH

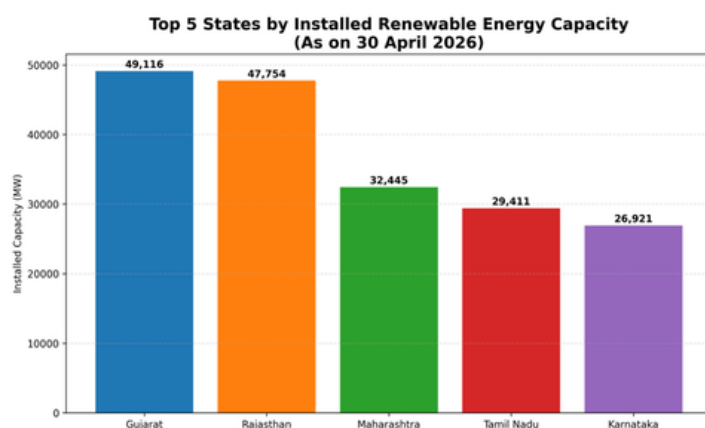
MNRE STATE-WISE RENEWABLE ENERGY CAPACITY REPORT (AS ON 30 APRIL 2026) HIGHLIGHTS INDIA'S CLEAN ENERGY SURGE

India's renewable energy sector has reached another historic milestone, with total installed Renewable Energy (RE) capacity touching 279.26 GW as of 30 April 2026, according to the latest data released by the Ministry of New and Renewable Energy (MNRE). Solar energy continues to dominate the growth story with 154.24 GW, followed by 56.44 GW of wind power, reflecting the country's accelerating transition towards a clean and sustainable energy future.

The latest state-wise capacity data reveals that Rajasthan remains one of India's undisputed renewable energy powerhouses, leading the nation in utility-scale solar deployment and emerging as the focal point for next-generation renewable infrastructure, including large-scale Battery Energy Storage Systems (BESS). The state's strategic location, abundant solar resources, strong transmission infrastructure, and proactive policy environment continue to attract record investments from developers and manufacturers alike.

TOP 5 STATES BY INSTALLED RENEWABLE ENERGY CAPACITY (30 APRIL 2026)

Rank	State	Total RE Capacity (MW)
1	Gujarat	49,115.60
2	Rajasthan	47,754.45
3	Maharashtra	32,444.56
4	Tamil Nadu	29,411.28
5	Karnataka	26,920.56



Source: MNRE State-wise Installed Renewable Energy Capacity Report, 30 April 2026.

RAJASTHAN: THE SOLAR CAPITAL DRIVING INDIA'S ENERGY TRANSITION

With an installed renewable energy capacity of 47.75 GW, Rajasthan has firmly established itself among India's largest renewable energy markets. The state continues to lead the country in utility-scale solar deployment, supported by world-renowned renewable energy hubs such as Bhadla and the upcoming Pugal Solar Park, which is expected to become India's largest integrated Solar + BESS project.

GREEN CORRIDOR

WESTERN INDIA EMERGES AS THE RENEWABLE ENERGY GROWTH CORRIDOR

The MNRE data highlights a remarkable concentration of renewable energy development across Western India.

**RAJASTHAN – GUJARAT:
INDIA'S GREEN ENERGY
TWIN ENGINES**


Together, Rajasthan and Gujarat now account for nearly

97 GW of installed renewable energy capacity, representing over one-third of India's total RE portfolio.



Solar and wind continue to drive growth across both states.



Supported by robust transmission networks and manufacturing investments.

**MADHYA PRADESH:
THE EMERGING
SOLAR CHALLENGER**


With

12.33 GW

of installed renewable capacity, Madhya Pradesh continues to strengthen its position as a major renewable energy destination.



Driven by large solar parks across the state.



Increasing private-sector participation accelerating growth.

**MAHARASHTRA:
INDUSTRIAL DEMAND
FUELS RENEWABLE
EXPANSION**


Maharashtra's renewable energy capacity has crossed

32.44 GW



Supported by growing industrial demand.



Green Open Access adoption gaining strong momentum.



Increasing investments in solar and wind projects.

**GUJARAT:
ACCELERATING THROUGH
SOLAR, WIND & STORAGE**


Gujarat has further consolidated its leadership through:



Aggressive capacity additions



Rooftop solar adoption



Battery storage initiatives

Creating one of the country's most diversified renewable energy portfolios.

WHAT THIS MEANS FOR THE INDUSTRY


The latest MNRE figures demonstrate that India's renewable energy transition is increasingly being led by states with strong policy frameworks, transmission readiness, and large-scale project ecosystems.



Rajasthan's continued leadership reinforces its strategic importance in achieving India's long-term energy security, decarbonisation, and manufacturing ambitions.



FOR DEVELOPERS, INVESTORS, EPC COMPANIES, MANUFACTURERS, AND ENERGY CONSUMERS, THE MESSAGE IS CLEAR:

The future of India's renewable energy sector is being shaped in Rajasthan and its neighbouring states.



As utility-scale solar, wind, hybrid projects, battery storage systems, and Green Open Access markets continue to expand, Rajasthan is expected to remain at the centre of India's next phase of clean energy growth.



FINANCIAL REFORM

INSURANCE SURETY BONDS

A Game-Changer for Project Financing

India is introducing Insurance Surety Bonds as an alternative to traditional bank guarantees—unlocking capital and improving liquidity for infrastructure and renewable energy projects.

A major step toward financial innovation in the energy sector



Unlocks Capital



Improves
Liquidity



Reduces
Financial Risk



Enables Sustainable
Infrastructure

Aligned with amendments to the General Financial Rules 2017, this move signals a fundamental shift in how energy projects are financed, secured, and executed in India. It marks a transition away from capital-intensive safeguards toward a more flexible and efficient financial architecture—one that could significantly accelerate project development across the renewable ecosystem.

For years, Bank Guarantees have been a critical but restrictive requirement, locking up substantial working capital and limiting the ability of developers—especially mid-sized players—to scale operations. By recognizing ISBs as equivalent instruments, the government has effectively unlocked a new pathway for capital efficiency. Developers can now reduce collateral dependency, optimize cash flows, and redirect financial resources toward faster execution and capacity expansion.

Beyond liquidity, the reform has deeper market implications. By lowering entry barriers, it opens the door for wider participation from MSMEs and emerging developers, fostering greater competition and potentially improving tariff discovery. This democratization of access is particularly relevant as India moves toward more complex project structures, including hybrid renewable systems and storage-linked solutions.

The timing is also significant. As sectors such as Battery Energy Storage Systems (BESS), Firm & Dispatchable Renewable Energy (FDRE), and pumped storage gain momentum, financial flexibility becomes critical. ISBs can play a key role in improving the viability of such projects by reducing upfront financial burdens and enabling more innovative project configurations—ultimately supporting the transition toward reliable, round-the-clock renewable power.

At a broader level, the reform strengthens India's ease of doing business in the power sector. By diversifying financial instruments and reducing reliance on traditional banking channels, it aligns the country with global best practices and enhances its attractiveness as a renewable investment destination.

However, the real impact of this reform will depend on how effectively it is implemented. Uniform adoption by states, DISCOMs, and utilities will be essential, along with clear operational frameworks and active participation from the insurance ecosystem. Without coordinated execution, the benefits of this policy risk remaining uneven and limited.

Even so, the direction is clear. India is moving toward a more agile and investor-friendly financial framework—where capital efficiency, flexibility, and innovation will play a defining role in scaling the next phase of its power and renewable energy growth.

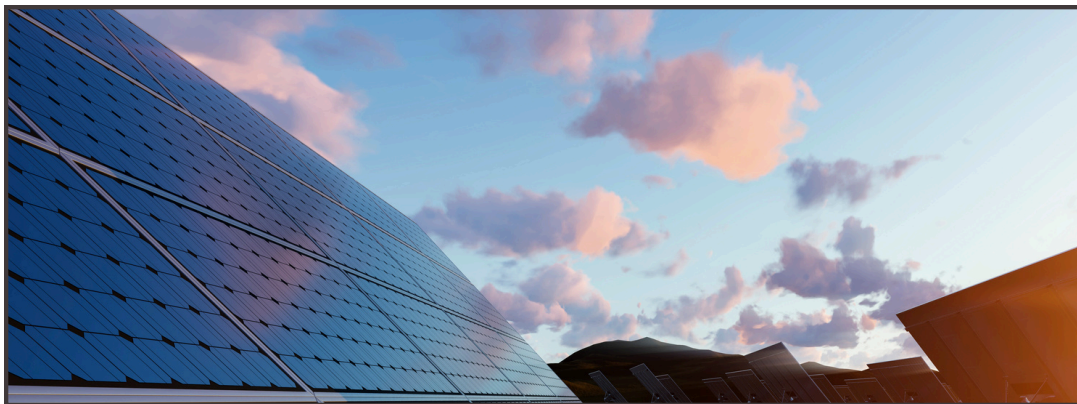
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