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India's Solar Growth Enters a New Era

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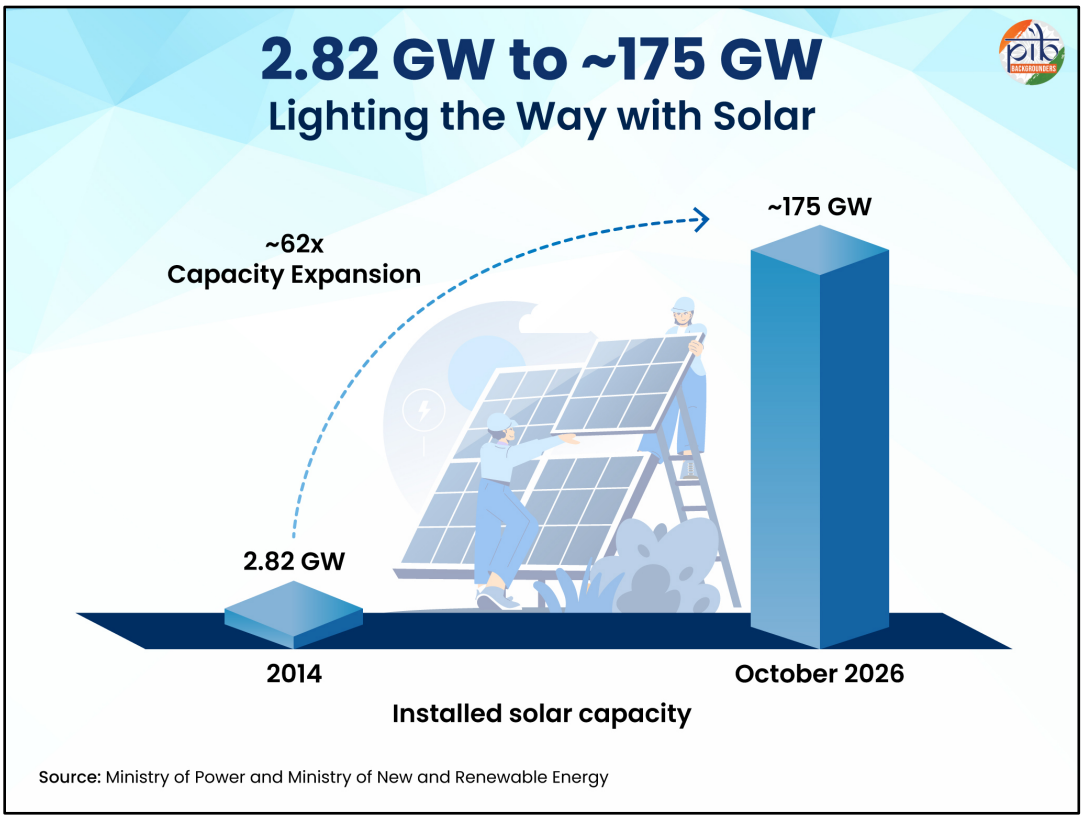
India's solar energy sector has expanded significantly over the past decade, emerging as a key driver of the country's energy transition. Growth in installed capacity, domestic manufacturing and distributed solar adoption reflects the sector's expanding reach. Policy support, infrastructure development and citizen participation are accelerating this transformation. Solar power is strengthening energy security, supporting economic development and advancing climate action. These developments formed part of the broader discussions at the Bharat Renewable Energy Summit & Expo (BRESE) 2026, held in New Delhi from 2–5 November.

India's Solar Rise

A decade ago, solar power occupied only a small place in India's electricity mix. Today, it forms the largest share of the country's renewable energy capacity. From an installed capacity of **2.82 GW in 2014**, the sector has expanded approximately 62 fold, reaching **~175 GW till 31 October 2026**.

This transformation is driven by policy support, infrastructure development, manufacturing expansion, and citizen participation. Initiatives such as solar parks, rooftop systems, and solarised agricultural pumps are accelerating deployment across the country. India's expanding renewable energy sector was in focus at the Bharat Renewable Energy Summit & Expo (BRESE) 2026. The event brought together global stakeholders to advance cooperation, investment and innovation in clean energy.

The **Bharat Renewable Energy Summit & Expo (BRESE) 2026** was organised from 2–5 November at Bharat Mandapam, New Delhi. Held under the theme **'Invest. Innovate. Inspire.'**, it brought together **participants from over 130 countries,** including policymakers, industry leaders, investors and researchers. Co-located with the **9th International Solar Alliance (ISA) Assembly and the 4th International Conference on Green Hydrogen**, the Summit hosted high-level discussions and ministerial meetings. It also facilitated business engagements and featured an exhibition involving over 400 organisations. 13 states participated as Partner States, showcasing their renewable energy potential and investment opportunities. The Summit also recognised winners of the **Bharat Renewable Energy Hackathon 2026**, featuring solutions to ten real-world renewable energy challenges.



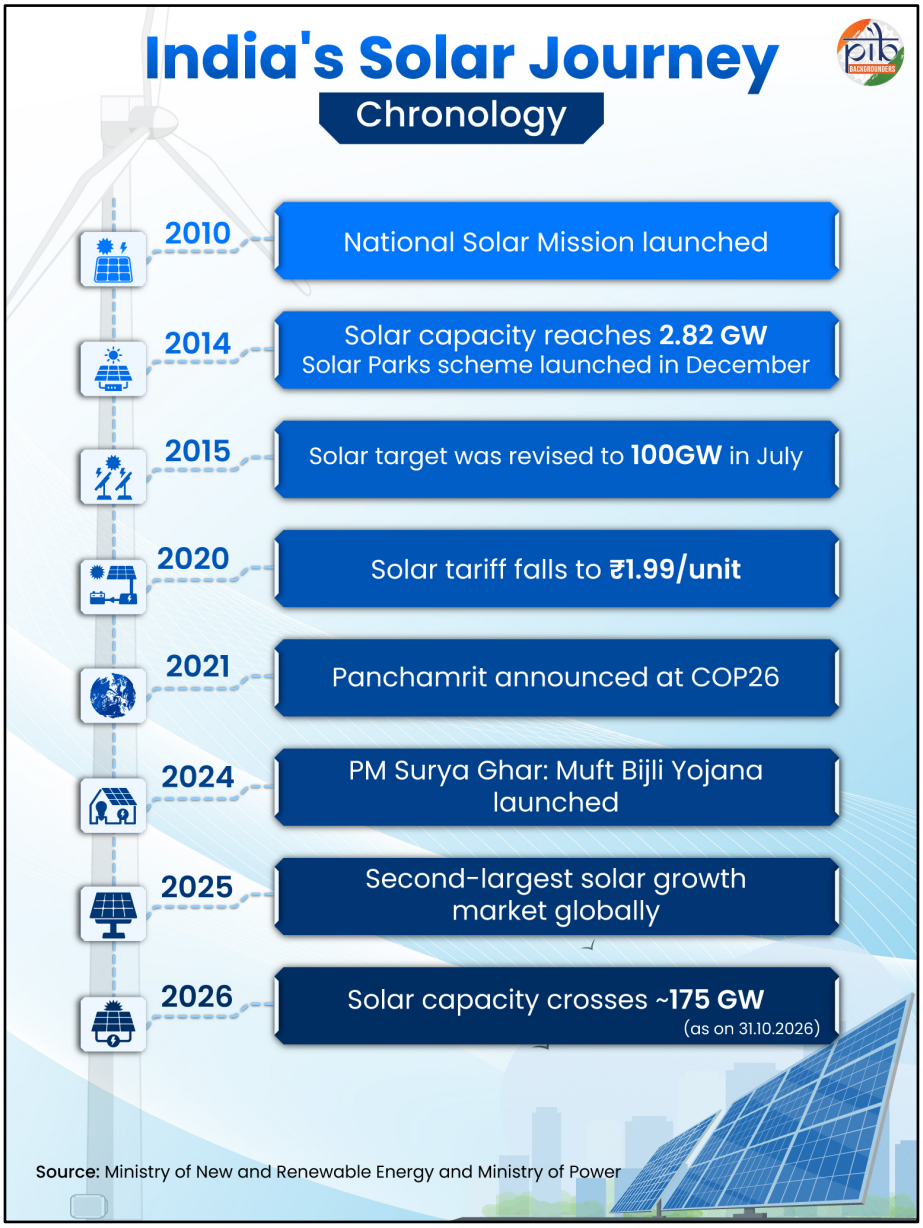
India's solar momentum has translated into measurable outcomes. The country has added 37 GW of solar capacity in 2025, surpassing the United States in annual additions. India has also emerged as the **world's second-largest solar growth market**, underlining its growing role in the global clean energy transition.

A Decade of Solar Expansion

A strong policy framework laid the foundation for India's solar expansion. Key initiatives included the National Solar Mission (2010), the Solar Parks Scheme, the Green Energy Corridor Programme, and competitive bidding. Together, they accelerated large-scale solar deployment.

Solar Capacity Across India

Solar deployment spans diverse geographies and climatic zones. Rajasthan, Gujarat, Karnataka, Tamil Nadu, Andhra Pradesh, and Maharashtra account for a significant share of installed capacity. **Large solar projects** contribute **133 GW** (including solar component of hybrid projects) **of installed capacity**. Some of the large solar projects include the **Bhadla Solar Park (Rajasthan), Pavagada Solar Park (Karnataka), Ananthapuramu & Kurnool Solar Parks (Andhra Pradesh), and Rewa Ultra Mega Solar Park (Madhya Pradesh).** Rooftop solar systems connected to the electricity grid contribute another **34.97 GW**. The remaining capacity comes from off-grid solar systems. Hybrid projects combine solar power with battery storage or other power sources, while Off-grid systems provide electricity in areas not connected to the grid.



Record Growth in Recent Years

India has recorded significant additions to solar and non-fossil fuel capacity in recent years, reflecting its expanding clean energy transition.

- India added **44.61 GW** of solar capacity in the last FY 2025-26, nearly double the **23.83 GW** added in FY 2024–25. In the current FY 2026-27, already 24.29 GW of solar capacity, following the same pace as of previous FY.
- Solar module manufacturing capacity increased from **2.3 GW in 2014** to about **172 GW** as of 31 March 2026. It further increased to 192 GW by June 2026.
- Total non-fossil fuel capacity reached 308.03 GW as of 30 September 2026, including 299.25 GW of renewable energy capacity and 8.78 GW of nuclear power capacity.
- Highest-ever annual addition of non-fossil fuel capacity recorded at **55.29 GW** in FY 2025-26.
- On 29 July 2025, renewable energy sources met **51.5%** of India's electricity demand, the highest monthly share recorded so far.

Policy Architecture Behind the Solar Expansion

A stable policy framework, competitive bidding mechanisms, and long-term targets have helped create a conducive environment for large-scale solar deployment. A set of mutually reinforcing measures has supported India's solar expansion. These can be broadly grouped into five pillars:

Creating Vision: Climate Commitments and Long-Term Targets

At COP26 in Glasgow, India announced the Panchamrit goals, which include 500 GW of non-fossil fuel capacity by 2030 and net-zero emissions by 2070. These commitments were reflected in India's updated Nationally Determined Contributions under the Paris Agreement.

Complementing these efforts, **Mission LiFE (Lifestyle for Environment)** promotes sustainable consumption and encourages citizens to adopt environmentally conscious practices.

Creating Demand: National Missions and Renewable Purchase Obligations

Strong and sustained demand has been central to India's solar growth. The National Solar Mission established long-term capacity targets and provided an early impetus to solar deployment.

Renewable Purchase Obligations (RPOs) require electricity distribution companies and other obligated entities to procure a specified share of their electricity from renewable sources. RPOs provide long-term market certainty for developers and investors while encouraging greater renewable energy adoption. The RPO trajectory has been notified through **2029–30**, with the target for 2026–27, set at **35.95 per cent**.

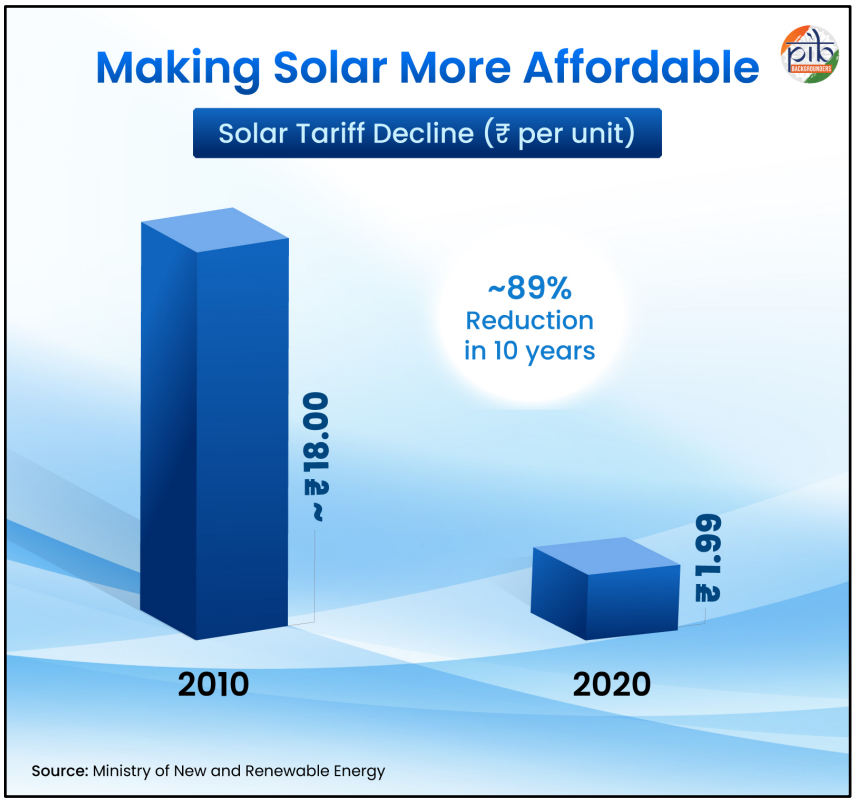
Demand has also expanded beyond utilities and large developers**. PM Surya Ghar: Muft Bijli Yojana** is encouraging households to adopt rooftop solar systems. Meanwhile, **Pradhan Mantri Kisan Urja Suraksha evam Utthaan Mahabhiyan (PM-KUSUM)** is supporting the adoption of solar pumps and feeder solarisation in the agriculture sector. Together, these initiatives are expanding the market for solar energy and strengthening participation across consumers, farmers, businesses, and power utilities.

Lowering Costs: Competitive Bidding and Tariff Discovery

One of the most significant developments in solar sector has been the **decline in power tariffs over the past decade**. This was driven by bidding through the **e-Reverse Auction mechanism**, where developers compete to supply electricity at the lowest tariff.

Procurement agencies such as the **Solar Energy Corporation of India (SECI)** have played a key role in scaling this transparent tariff discovery mechanism. As more developers participated, the tariffs declined from around **₹18 per unit in 2010 to a record-low of ₹1.99 per unit.** This was achieved by the Gujarat Urja Vikas Nigam Ltd (GUVNL) in 2020. This made solar power more affordable and accelerated its adoption across India.

The decline in tariffs has made solar power increasingly affordable. As a result, India has emerged as one of the world's lowest-cost solar power markets. In 2025, the Levelised Cost of Electricity (LCOE) from utility-scale solar PV stood at USD 35 per MWh, well below the global average of USD 44 per MWh.



Enabling Infrastructure

The government launched the **Solar Parks Scheme** to provide developers with ready access to land and supporting infrastructure. The scheme was initially launched with a target of 20 GW and later expanded to 40 GW in 2017. As of October 2026, **56 solar parks with a combined sanctioned capacity of 39,461 MW** have been approved across the country.

Solar parks have emerged as important hubs for utility-scale renewable energy generation across multiple states:

S.no	States/Union Territories	No. of Parks	Capacity Sanction (MW)
1	**Andhra Pradesh**	5	4200
2	**Bihar**	1	150
3	**Chhattisgarh**	1	100
4	**Gujarat**	7	12,150
5	**Jharkhand**	2	562
6	**Jharkhand and West Bengal***	1	310
7	**Karnataka**	1	2000
8	**Kerala**	3	255
9	**Madhya Pradesh**	9	4208
10	**Maharashtra**	4	1,000
11	**Mizoram**	1	20
12	**Odisha**	1	40
13	**Rajasthan**	11	10,726
14	**Uttar Pradesh**	8	3,740
	Total	**54**	**39,461**

* *Includes one inter-state floating solar park spanning Jharkhand and West Bengal.*

The scheme has enabled the development of some of India's most prominent solar parks.

Bhadla Solar Park: From Desert Landscape to Clean Energy Hub



Located in Rajasthan's arid Bhadla region, the park has transformed vast stretches of barren land into one of the world's largest solar power complexes. Development began in **2015** under the Solar Parks Scheme and was completed in phases by **2020**.

Spread across nearly **5,700 hectares (56 sq. km.)**, the park has an installed capacity of **2,245 MW**. The region's high solar irradiation, low rainfall, and sparse vegetation make it well-suited for large-scale solar generation.

Beyond its scale, Bhadla showcases the solar park model in action. Common infrastructure, including land preparation and transmission facilities, enabled rapid project development and attracted significant private investment. Competitive bidding at the park also contributed to some of India's lowest solar tariffs, helping make solar energy more affordable.

Supporting the Solar Parks Scheme, the **Green Energy Corridor (GEC) Programme** aims to facilitate the transfer of power from RE-rich areas to demand centres across the country. The initiative strengthens transmission networks and supports the seamless integration of renewable energy into the electricity grid.

As of February 2026, the programme had enabled the evacuation of 24,567.8 MW of renewable energy through strengthened transmission networks. Green Energy Corridor projects across ten states are planned to support the evacuation of around 44 GW of renewable energy. These projects will also strengthen the integration of renewable energy into the national grid.

Floating Solar and Energy Storage

The Government approved the **Pradhan Mantri Surya Sarovar Yojana (PM-SSY)** on 31 July 2026. The scheme aims to support **5,000 MW** of Floating Solar Photovoltaic (FSPV) projects with co-located Energy Storage Systems (ESS). The ESS with a minimum storage capacity of **two hours (10,000 MWh)** will further help states manage peak demand. By utilising existing reservoirs and industrial ponds, the scheme will reduce pressure on scarce land resources. It will also improve **grid reliability** through integrated energy

storage. With an outlay of **₹5,070 crore**, the scheme will be implemented from **FY 2026– 27 to FY 2030–31**.

The scheme is based on an assessment by the **National Institute of Solar Energy (NISE)**. The assessment estimates a **floating solar potential of about 102.18 GWp** across India's reservoirs and suitable inland water bodies. The scheme is expected to reduce **around 10 million tonnes of CO_2 emissions** annually. It will generate **16,000–17,000 full-time equivalent jobs**. It will also promote domestic manufacturing of floatation systems, PV cells, modules and energy storage systems. All **States and Union Territories** will be eligible to benefit through this scheme. The initiative will increase India's floating solar capacity by **5,000 MW**, from the current level of around **800 MW**.

Supporting Manufacturing

The Government has introduced measures to strengthen domestic solar manufacturing and reduce import dependence.

Production Linked Incentive (PLI) Scheme for High-Efficiency Solar PV Modules

Launched in 2021 with an initial outlay of ₹4,500 crore, the PLI Scheme for High-Efficiency Solar PV Modules was expanded in 2022 with an additional ₹19,500 crore. The scheme promotes domestic manufacturing, reduces import dependence, and encourages value addition across the solar value chain. By October 2024, the scheme had attracted investments of around **₹35,000 crore**. It had also generated direct employment for about **10,000 people**.

Approved List of Models and Manufacturers (ALMM)

Introduced in **2019**, ALMM is a quality assurance framework for solar PV modules and cells. It ensures that solar equipment used in eligible projects meet specified quality and performance standards. Only manufacturers and models included in the approved lists are eligible for specified government-supported and competitively bid solar projects. The framework also promotes domestic manufacturing by encouraging the use of approved products.

Together, the PLI Scheme and ALMM have strengthened India's domestic solar manufacturing ecosystem. They have supported greater self-reliance while enabling rapid expansion of solar deployment. The framework also provides greater confidence to consumers and project developers by ensuring the use of approved solar equipment.

Taking Solar to Every Household and Farm

India's solar transition extends beyond large-scale power plants. Through dedicated schemes for households and farmers, solar is improving energy access, reducing electricity costs, and creating new livelihood opportunities.

PM Surya Ghar: Muft Bijli Yojana

Launched on 13 February 2024 with an outlay of ₹75,021 crore, PM Surya Ghar: Muft Bijli Yojana brings rooftop solar benefits directly to households nationwide. It is the world's largest domestic rooftop solar programme. Eligible households receive subsidies for rooftop solar installations, while collateral-free loans facilitate adoption. The scheme is implemented through a dedicated national portal, enabling seamless registration, installation, and subsidy disbursement.

Key Achievements

- About **65 lakh households** were solarised as of November 2026.
- **₹ 28,024 crore** disbursed as Central Financial Assistance till July 2026.
- Over **21 lakh households** received zero electricity bills as of November 2026.

The scheme enables households to generate their own electricity. It reduces electricity bills and promotes rooftop solar adoption. PM Surya Ghar: Muft Bijli Yojana has also received international support, with the World Bank approving financing to help scale up residential rooftop solar adoption in India.

From High Electricity Bills to Solar Savings

On learning about the PM Surya Ghar: Muft Bijli Yojana, Sudhanshu Dubey, a resident of Jawar Colony in Gwalior, opted for rooftop solar.

The installation and subsidy process were completed smoothly, and the subsidy amount was credited directly to his bank account. For more than a year now, the benefits have been visible every month. Earlier, his household electricity bill often exceeded ₹10,000; today, it is almost negligible. The rooftop solar system continues to generate power reliably, helping the family meet its electricity needs while reducing monthly expenses.

For Sudhanshu, the scheme has turned sunlight into savings. His experience reflects how PM Surya Ghar is enabling households across the country to adopt clean energy and gain greater control over their electricity costs.

Pradhan Mantri-Kisan Urja Suraksha Evam Utthaan Mahabhiyan (PM-KUSUM)

Launched in 2019, the PM-KUSUM seeks to expand the use of solar energy in agriculture. The scheme supports the installation of decentralised solar power plants, standalone solar agriculture pumps, and the solarisation of grid-connected agricultural pumps. It aims to provide reliable daytime power for irrigation, reduce dependence on diesel, and enhance income opportunities for farmers.

PM-KUSUM enables farmers to harness solar energy both for irrigation and power generation. Under the scheme, farmers install solar pumps for irrigation and sell surplus electricity to distribution companies, where eligible. The scheme is focused on adding around **34,800 MW** of solar capacity by 2026-27, with Central financial support of **₹34,422 crore**.

Key Achievements (As of 30.09.2026)

- Nearly **11.91 lakh off-grid solar pumps** installed for agricultural use.
- More than **17.18 lakh agricultural pumps** are covered through feeder-level solarisation.
- Around **2,426 MW** of decentralised solar power capacity commissioned on farmers' land.
- Over **21.77 lakh farmers** benefited across the country, as of 31 December 2025.

Both schemes have emerged as an important pillar of India's distributed solar energy landscape.

In FY 2025–26, distributed solar solutions contributed **16.3 GW**, or **36%**, of the **44.61 GW** of solar capacity added during the year. Of this, **7.6 GW** came from PM-KUSUM and **8.7 GW** from rooftop solar.

India's Growing Leadership in Global Solar Cooperation

India's leadership in solar energy extends beyond its borders. The country is strengthening international cooperation, technology exchange, and capacity building.

- **International Solar Alliance (ISA):** Co-founded by India and France at COP21 in Paris in 2015, the ISA has emerged as a key platform for global solar cooperation. The Alliance brings together countries including the Maldives, Greece, Germany, Italy, Bhutan, Luxembourg, and Argentina to accelerate solar deployment, share knowledge and technology. The ISA has evolved into an important platform for cooperation among member countries.

- **One Sun One World One Grid (OSOWOG):** Proposed by India in 2018, OSOWOG is a vision for an interconnected global renewable energy network. To advance this vision, India and the United Kingdom launched the **Green Grids Initiative–One Sun One World One Grid (GGI–OSOWOG) at COP26 in 2021.** The initiative is supported by Australia, France, the United States, and the International Solar Alliance. It promotes cross-border RE trade through interconnected electricity grids, strengthening energy security and accelerating the clean energy transition.

Through the ISA and other partnerships, India has strengthened renewable energy cooperation across the Global South. During its G20 Presidency, India also helped build consensus on tripling global renewable energy capacity by 2030.

The Road Ahead

India's achievements in the solar market reflect sustained policy support, expanding manufacturing, strengthened infrastructure, and growing public participation. As India progresses towards its Panchamrit commitments and net-zero target by 2070, solar power will remain a key pillar. It will continue to drive the clean energy transition.

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