India Solar Rooftop Market Size and Share Outlook - Forecast Trends and Growth Analysis Report (2025-2034)

Market Report | 2025-10-08 | 124 pages | EMR Inc.

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Report description:

The India solar rooftop market attained a volume of 13.70 Gigawatt in 2024 . The market is expected to grow at a CAGR of 28.40% during the forecast period of 2025-2034 to reach a volume of 166.87 Gigawatt by 2034 . Urban EV charging hubs powered by rooftop solar systems are primarily driving demand by combining clean mobility with decentralised energy generation.

Key Market Trends and Insights:

- The North India solar rooftop market dominated the industry in 2024 and is projected to grow at a CAGR of 31.2% over the forecast period.
- By end user, the industrial category is expected to register the fastest CAGR over the forecast period.
- By grid type, the on-grid category is projected to exhibit a CAGR of 31.2% over the forecast period.

Market Size & Forecast:

- Market Volume in 2024: 13.70 Gigawatt
- Projected Market Volume in 2034: 166.87 Gigawatt
- CAGR from 2025 to 2034: 28.40%
- Dominant Regional Market: North India

The market is undergoing a structural shift, driven by the commercialisation of distributed energy and evolving electricity economics. One major driving factor is the surge in time-of-day (ToD) tariff regimes and corporate decarbonisation mandates. With the Central Electricity Regulatory Commission pushing for ToD metering in 2024 and mandating its rollout in 2025, commercial users, especially in IT hubs and industrial clusters, are fast-tracking rooftop solar adoption to hedge against peak hour charges. As per the India solar rooftop market analysis, the country's capacity is expected to reach 25-30 GW by FY27, led by the

commercial and industrial (C&I) sector, which made up 75% of installations.

Government-backed incentives are also amplifying this momentum. The PM Surya Ghar Muft Bijli Yojana, launched in December 2024, targeting 1 crore households, has achieved 10 lakh application conversion within the first quarter of 2025. Moreover, the Rooftop Solar Programme Phase II, extended till 2026, is funding for infrastructure, directly supporting discom-tied projects in both urban and peri-urban zones.

Moreover, India's net metering cap for residential systems is prompting residential users with larger rooftops (especially in tier-1 and tier-2 cities) to participate actively in decentralised generation. Together, policy traction, tariff rationalisation, and private sector PPA models are shaping the India solar rooftop market dynamics that is moving beyond its subsidy-first identity.

India Solar Rooftop Market Report Summary

Description

Value

Base Year

Gigawatt

2024

Historical Period

Gigawatt

2018-2024

Forecast Period

Gigawatt

2025-2034

Market Size 2024

Gigawatt

13.70

Market Size 2034

Gigawatt

166.87

CAGR 2018-2024

Percentage

XX%

CAGR 2025-2034

Percentage

28.40%

CAGR 2025-2034 - Market by Region

North India

31.2%

CAGR 2025-2034 - Market by Region

South India

30.1%

CAGR 2025-2034 - Market by End User

Industrial

XX%

CAGR 2025-2034 - Market by Grid Type

On Grid

31.2%

2024 Market Share by Region

South India

XX%

Key Trends and Recent Developments

June 2025

As part of its 'Ghar Ghar Solar' campaign, Tata Power Renewable Energy Limited (TPREL), India's top rooftop solar company and a

fully owned subsidiary of Tata Power, announced the opening of the country's most reasonably priced rooftop solar solution in Bhubaneshwar, Odisha. This launch supports wider affordability and regional penetration of rooftop solar, targeting untapped semi-urban and tier-2 markets through cost-effective, consumer-friendly solutions, propelling the India solar rooftop market opportunities.

June 2025

IndiGrid Infrastructure Trust (IndiGrid) finalised agreements to purchase a solar asset in Rajasthan and Koppal Narendra Transmission Ltd, an operational ISTS transmission network. This indicates growing integration between rooftop solar generation and grid infrastructure, boosting overall transmission readiness for decentralised solar growth.

May 2025

In order to quickly expand India's 30-gigawatt residential solar industry, Husk announced the development of BEEM, a specialised residential rooftop solar service. This India solar rooftop market development directly accelerates the country's residential solar ambition by offering a dedicated service model tailored to middle-income and underserved housing clusters.

May 2025

The renewable energy division of India's biggest power company, NTPC Ltd., NTPC Green Energy Limited (NGEL), announced plans to aggressively buy solar project assets across the nation in order to expand its portfolio of renewable energy sources. This signals stronger institutional backing for rooftop solar scalability, enhancing investor confidence and driving portfolio diversification across distributed energy markets.

Surge in Corporate Renewable Procurement & Green Building Mandates

The India solar rooftop market is being rapidly reshaped by corporate buyers. Leading real estate developers such as DLF and Embassy are now embedding rooftop solar in all Grade A commercial properties, responding to updated GRIHA and IGBC certification benchmarks. For example, TATA Power's cumulative installed rooftop solar capacity was 343 MW as of June 2024. It had over 300 projects and more than 200 clients in India 2024. Additionally, multinational companies such as Infosys and Amazon India have committed to 100% RE usage across operations, with rooftop solutions forming a vital part of their decentralised energy sector.

Adoption of Building-Integrated Photovoltaics (BIPV)

A growing trend in the India solar rooftop market is the use of Building-Integrated Photovoltaics (BIPV), where solar panels are seamlessly built into architectural elements like facades, skylights, and windows. Such innovations have been driven by government incentives and encouragement. For example, in June 2025, through its Renewable Energy Research and Technology Development (RE-RTD) Program, the Ministry of New and Renewable Energy (MNRE) has introduced a brand-new "Innovation Challenge for Circularity in Renewable Energy Technologies - Batteries and Solar Photovoltaic." This approach not only generates clean energy but also enhances building aesthetics and thermal efficiency. Companies like Waaree and Jakson have begun offering BIPV solutions tailored for commercial spaces and green-certified buildings. BIPV is especially gaining traction in high-density cities like Mumbai and Bengaluru, where rooftop space is limited.

Hybridisation of Rooftop Solar with Storage and EV Infrastructure

With India's EV push going mainstream, the market is witnessing more hybridised use cases. Start-ups like Oorjan and Sun

Mobility are also pioneering battery-solar combos for gated communities. This convergence is not just enhancing grid resilience but also opening up new India solar rooftop market opportunities in urban mobility and micro-energy hubs, especially in Tier-1 and Tier-2 cities. Real estate developers are now integrating rooftop-EV combos into project blueprints, while state EV policies are incentivising co-located solar charging infrastructure.

Discom-Led Virtual Net Metering and Peer-to-Peer Models

Virtual net metering (VNM) has also picked up momentum. Platforms like Power Ledger and SunExchange are also entering India's peer-to-peer rooftop energy trading space, with trials initiated in Uttar Pradesh and Karnataka. These new business models, supported by blockchain technology are enabling tenants, SMEs and rental spaces to indirectly participate in solar ownership, which was earlier a major India solar rooftop market hurdle.

Digital Twin and AI Integration in Rooftop Solar Planning

The integration of digital twin and AI models is redefining solar project design and performance forecasting. For example, ReNew Power offers an AI-based platform that simulates rooftop yield under varying pollution and angle conditions, reducing project planning time to a significant extent. On the other hand, L&T-SuFin is offering real-time yield dashboards to commercial clients via its procurement marketplace. These innovations, while subtle, are improving investor confidence, reducing payback uncertainty and supporting scalable PPA structures, essential for B2B scalability in sectors like textiles, logistics and pharma manufacturing, boosting the India solar rooftop market value.

India Solar Rooftop Industry Segmentation

The EMR's report titled ?India Solar Rooftop Market Report and Forecast 2025-2034? offers a detailed analysis of the market based on the following segments:

Market Breakup by End User

- Industrial
- Commercial
- Residential

Key Insight: Commercial users are driven by operational cost control, sustainability metrics, and compliance. Residential buyers, on the other hand, respond more to capital subsidies, metering flexibility, and increasing awareness around energy independence, boosting the rooftop solar consumption in India. Industrial players, especially in textiles, chemicals and food processing, are adopting solar to comply with green export norms and reduce diesel genset dependency. This varied landscape ensures no one-size-fits-all model, making customisation and service flexibility crucial for solution providers.

Market Breakup by Grid Type

- On Grid
- Off Grid

Key Insight: While on-grid remains the preferred choice for commercial and residential users in metro and tier-2 cities, the off-grid category is gradually expanding its footprint in rural and defence-heavy regions, propelling growth in the India solar rooftop market. The key motivators here include energy access, reliability, and self-sufficiency. For EPC players and battery technology firms, this offers new growth pockets beyond traditional city-centric installations. Regulatory clarity and funding from schemes like

PM-KUSUM are further bridging viability gaps. Both grid types now co-exist with distinct roles, making portfolio diversification essential for rooftop solution providers.

Market Breakup by Region

- North India
- South India
- East India
- West India

Key Insight: The southern region remains a key market stabilising the India solar rooftop demand forecast, with strong discom-tech partnerships and solar-friendly urban planning. West India's momentum is sustained by evolving state-level financial incentives and integration with mobility infrastructure. North India shows promise in government buildings and educational institutions, while East India's uptake remains gradual due to financial and infrastructural limitations. For investors and solution providers, a regional diversification strategy is critical to hedge against policy asymmetries and demand variances across geographies.

CAGR 2025-2034 - Market by

Region

North India

31.2%

South India

30.1%

East India

XX%

West India

XX%

India Solar Rooftop Market Share

By end user, commercial users lead solar rooftop adoption due to energy cost optimisation measures

Commercial entities currently lead rooftop solar adoption, owing to volatile grid tariffs and the long-term cost advantages of solar PPAs. Hospitality chains like Lemon Tree and corporate campuses in Bengaluru and Gurugram are investing in onsite generation to meet RE targets. According to the India solar rooftop market analysis, the predicted 4,151 MW of new installations in the year ending June 2024 represented a startling 73% increase over the previous year. Additionally, rooftop deployment is being tied to ESG compliance, particularly post-SEBI's BRSR mandate, making solar installations a priority for listed firms.

The residential end user is now emerging as the fastest-growing category due to improved policy visibility, digital application portals, and easier financing access. The PM Surya Ghar Yojana has simplified upfront capital burdens, while housing societies in cities like Ahmedabad and Hyderabad are adopting solar under group metering models. Furthermore, the surge in rooftop solar awareness campaigns, often pushed by discoms, is encouraging middle-income families, especially as resale property value can improve with solar integration, thereby boosting growth of the India solar rooftop market.

By grid type, on-grid systems dominate the industry due to net metering support and urban focus

On-grid solar dominates the market, primarily owing to net metering policies and discom support mechanisms. States like Gujarat, Tamil Nadu, and Delhi offer stable policies for energy banking, ensuring energy surplus is monetised. Additionally, the growing presence of solar EPCs like Tata Power Solar and Fourth Partner Energy makes project execution and maintenance seamless for urban consumers, accelerating demand in the India solar rooftop market. On-grid solar is particularly attractive to commercial users looking to sign long-term PPAs and lower their peak hour energy bills without investing in storage.

Off-grid rooftop solar is rapidly gaining momentum, especially in border regions, hilly areas, and under-electrified zones, led by government initiatives. In October 2023, Prime Minister Narendra Modi's Union Cabinet authorised the 13-gigawatt renewable energy project in Ladakh's Green Energy Corridor (GEC) Phase-II, the Inter-State Transmission System (ISTS). Moreover, DRDO and the Indian Army are collaborating with local vendors to solarise camps and logistics posts in sensitive regions. Additionally, off-grid rooftop solar with lithium-ion integration is being adopted among agri-processing units in remote Maharashtra and Odisha, where grid access remains unreliable, broadening the India solar rooftop market scope. As battery prices decline, this category is projected to expand rapidly into MSME and micro-grid formats.

India Solar Rooftop Market Regional Analysis

South India occupies the leading position in the market owing to policy stability and solar penetration

South India is the current frontrunner in rooftop solar adoption, largely due to early policy clarity, active discom participation, and high solar radiation. Tamil Nadu and Karnataka continue to drive rooftop installations in the commercial and institutional sectors, supported by developers like CleanMax and Amplus. Academic institutions in Bengaluru and Hyderabad have emerged as key micro-markets, using rooftop generation to meet sustainability goals and reduce OPEX.

The West India rooftop solar market, especially Gujarat and Maharashtra, is witnessing a spurt in rooftop installations owing to revised subsidy rules and EV-charging integrations. For instance, Maharashtra's rooftop solar-linked EV charging corridors are prompting adoption among commercial building owners. With aggressive solarisation plans in Smart City zones like Pune, Ahmedabad, and Surat, this region is rapidly catching up on previously lagging focus areas like group housing and MSME units.

Competitive Landscape

Leading India solar rooftop market players are shifting focus from hardware to holistic energy solutions. Companies are concentrating on integrating smart metering, digital monitoring tools, and battery hybrid systems to enhance value delivery. As state policies favour EV-charging integration and peer-to-peer solar trading, new growth opportunities are emerging for digital solar service providers.

Emerging India solar rooftop companies are collaborating to offer rooftop-as-a-service models, which reduce capex barriers for MSMEs and residential buyers. With rising ESG scrutiny, firms offering data-backed carbon tracking and audit-ready solar dashboards are gaining preference among corporates. Innovative financing options such as subscription solar and group net metering are also opening opportunities in underserved markets. Companies that diversify regionally and bundle ancillary

services like storage and maintenance contracts are most likely to stay ahead.

Avaada Group

Avaada Group, established in 2017 and headquartered in Mumbai, focuses on rooftop solar for industrial and institutional clients. The company offers turnkey EPC solutions and has introduced green hydrogen-linked rooftop projects for sustainable campuses.

Waaree Energies Ltd.

Waaree Energies Ltd., founded in 1989, manufactures high-efficiency solar panels and provides integrated rooftop solutions. It caters to both residential and C&I clients, with a growing focus on BIPV systems and digital energy management tools.

Tata Power Renewable Energy Limited

Tata Power Renewable Energy Limited, set up in 2007 and headquartered in Mumbai, delivers rooftop solar solutions across residential, commercial, and institutional segments. The firm emphasises digital platforms, smart metering, and project financing under government subsidy schemes.

Adani Group

Adani Group, through Adani Solar, established in 2015 and based in Ahmedabad, offers rooftop systems with vertically integrated panel production. It focuses on high-capacity industrial installations and recently expanded into community solar and peer-to-peer trading pilot projects.

Other key players in the market are Goldi Solar Pvt Ltd., Premier Energies, Mahindra Group, Vikram Solar Ltd., ENPEE Group, and Gensol Group, among others.

Key Highlights of the India Solar Rooftop Market Report:

- Comprehensive performance tracking with data-driven forecasts till 2034.
- Analysis of cutting-edge trends like EV-integrated rooftops and peer-to-peer energy trading platforms.
- Profiling of market disruptors, including AI-enabled EPC firms and IoT-based monitoring startups.
- Deep regional mapping uncovering high-growth corridors in Tier-2 cities and peri-urban belts.
- Investor-oriented perspective featuring insights into subscription solar models and carbon-accountable rooftop PPAs.

Why Rely on Expert Market Research?

- Dedicated expertise in cleantech and distributed energy systems.
- Insight-rich deliverables tailored to EPCs, financiers, and solar tech innovators.
- Proprietary frameworks combining primary insights with granular policy mapping.
- Actionable intelligence shaped by simulation modelling, localised case studies, and scenario testing.

Call to Action

Explore the latest trends shaping the India solar rooftop market 2025-2034 with our in-depth report. Gain strategic insights, future forecasts, and key market developments that can help you stay competitive. Download a free sample report or contact our team for customised consultation on India solar rooftop market trends 2025 .

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