

# **India Renewable Energy Market, By Type [Solar Energy, Wind Energy, Hydroelectric Energy, Geothermal Energy, Others], By Application [Residential, Commercial, Industrial, Others], By Sales Channel [Direct, Channel], By Region, Opportunities and Forecast, FY2017-FY2031F**

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## **Abstracts**

India renewable energy market size was valued at USD 37.6 billion in FY2023, which is expected to reach USD 103.6 billion in FY2031, with a CAGR of 13.5% for the forecast period between FY2024 and FY2031. The market is anticipated to grow due to rising environmental concerns and the need to reduce greenhouse gas emissions—comprehensive government policies and subsidies aid in promoting the adoption of renewable energy. India's energy consumption is anticipated to rise exponentially due to its size and enormous growth and development potential. As a result, low-carbon and renewable sources can satisfy increased energy demand.

Furthermore, the market for renewable energy has experienced significant growth due to advancements in technology and ongoing innovation. Additionally, India's expanding population and growing economy have led to an increased demand for energy. Adopting green energy sources has emerged as a critical strategy to meet growing demand in an environmentally sustainable manner. India's commitment to achieving net-zero carbon emissions by 2070 and sourcing 50% of its electricity from renewables by 2030 represents a noteworthy global milestone in the fight against climate change. The country's renewable energy sector has garnered substantial foreign investments, with international companies channeling their efforts and financial resources into solar and wind energy projects within India.

## Renewable Energy's Dominance in Meeting India's Escalating Power Demand

India is poised to experience the most significant upsurge in energy demand on a global scale. This surge is primarily driven by urbanization and industrialization, resulting in an anticipated annual growth rate of 3%. India is actively advancing towards its domestic objective of achieving 500 gigawatts (GW) of renewable energy capacity by 2030. Renewable sources meet approximately two-thirds of the country's rapidly expanding electricity needs.

Renewable energy is vital in meeting India's surging power demand, responsible for over 60% of its growth. Projections suggest that 2030 renewables will constitute 35% of the electricity supply, with solar photovoltaics (PV) making up more than 15% of their share. The Central Electricity Authority anticipates that India's power demand will reach 817 GW by 2030, driven mainly by the burgeoning real estate and transportation sectors. This underscores a critical role in renewables, especially solar PV, which significantly shape India's energy landscape to sustainably meet its rising energy needs.

## Global Commitments Spur India's Renewable Energy Growth

International commitments play a pivotal role in propelling India's renewable energy market. They influence domestic policies, attract investments, facilitate technology transfer, and elevate India's position within the global renewable energy community. These commitments give India a compelling incentive to maintain its rapid expansion of renewable energy capacity.

In February 2022, India and Nepal signed an agreement to establish a Joint Hydro Development Committee, marking a significant milestone in their cooperation in hydropower. The committee's core objective is to jointly evaluate prospective hydropower ventures' viability. It seeks to identify opportunities where both nations can mutually benefit from harnessing their combined resources and expertise in hydropower development. This initiative signifies a remarkable step forward in fostering bilateral collaboration and tapping into the vast hydropower potential available in the region. By working together, India and Nepal aim to advance sustainable energy generation and positively impact their energy landscapes, showcasing the power of cross-border cooperation in renewable energy endeavors.

## Government Initiatives are Backing Up the Market

The Indian government has implemented a series of policies to foster the growth of the

renewable energy sector within the nation. These policies include establishing ambitious targets for increasing renewable energy capacity, the provision of financial incentives for renewable energy ventures, and actively promoting technological innovation within the sector. The government has been both proactive and dedicated in its efforts to promote the utilization of renewable energy sources. The National Solar Mission, launched in 2010, aimed to deploy 100 GW of solar power capacity by 2022, which has been revised to 450 GW by 2030. The government launched a wind energy program with a goal of 60 GW by 2022, promoting renewable energy adoption nationwide.

In November 2021, the Indian government announced plans to increase funding for domestic solar cell and module production through the Production Linked Incentive (PLI) scheme, aiming to increase the allocated funding from USD 594.68 million to USD 3,170 million, aiming to position India as a leading player in the solar energy sector.

### Solar Energy Soars in India

India's solar energy sector has been experiencing remarkable growth, driven by its abundant solar resources, advantageous geographical location, and government incentives. The combination of government policies, financial incentives, and ambitious targets for renewable energy has stimulated substantial investments in the solar industry, positioning it as a central force in India's renewable energy landscape. Notably, solar capacity has undergone a remarkable surge, escalating from 2.63 GW in March 2014 to an impressive 63.3 GW by 2022. This expansion has led to significant cost savings in fuel expenditure, amounting to USD 4.2 billion, and has resulted in the avoidance of 19.4 million tons of coal consumption during the first half of 2022.

In the first nine months of 2022, India generated a substantial 70.24 billion units of solar power, reflecting a remarkable year-on-year increase of 36%. Notably, the Bhadla Solar Park, situated in Rajasthan's Jodhpur district, holds the distinction of being the world's largest solar power plant, spanning an expansive 14,000 acres with a capacity of 2,250 MW.

### India's Commercial Sector Embraces Renewable Energy

The renewable energy market in India has experienced significant growth in recent years, primarily driven by increased adoption of renewable energy sources within commercial establishments. Utilizing renewable energy sources in business settings offers many advantages beyond carbon emissions reduction. These sources deliver substantial long-term cost savings, making them financially attractive company options.

Additionally, incorporating renewable energy sources helps businesses establish a positive corporate image and identity, contributing to a more sustainable future.

Many companies are incorporating renewable energy into their corporate social responsibility initiatives. For example, Unilever has committed to achieving 100% renewable energy usage by 2030. As a part of this commitment, they are enhancing access to renewable electricity. In India, for instance, Unilever plans to install solar panels at six of its manufacturing plants in four different states. This proactive approach is anticipated to yield significant cost savings, estimated at approximately USD 5.2 million over a 15-year period while aligning with their sustainability objectives.

### Impact of COVID-19

The sudden onset of the COVID-19 pandemic led to the implementation of stringent lockdown measures nationwide, temporarily halting the construction of green energy-focused power plants. The pandemic had a dual impact on India's green energy sector. In the short term, it disrupted supply chains, project timelines, and execution. However, it acted as a catalyst for the shift towards green energy and sparked heightened investor enthusiasm. For instance, fiscal year 2021 saw a 36% decrease in solar power capacity additions when compared to the preceding fiscal year, largely attributable to supply chain interruptions, construction delays, and logistical constraints arising from the lockdown measures.

### Impact of Russia-Ukraine War

The repercussions of the Russia-Ukraine conflict have reverberated across global energy markets and India's renewable energy sector has not been immune to the indirect consequences. One significant outcome has been the fluctuation in global energy prices. The conflict has injected a degree of uncertainty into oil and gas markets, leading to erratic price fluctuations. Although India's renewable energy market is primarily driven by factors such as government policies and environmental considerations, the potential decline in fossil fuel prices may diminish the economic incentive for renewable energy sources. International relations strains to disrupt global supply chains for renewable energy projects, causing delays and increased costs, potentially affecting India's renewable energy sector growth trajectory.

### Key Players Landscape and Outlook

Government policies and initiatives support market players in India renewable energy

market. Technological advancements and R&D activities are crucial for growth and sustainability. Mergers and acquisitions are strategic pathways for companies to gain a competitive edge.

In January 2023, Adani Green Energy Limited (AGEL) purchased a 50% stake in Essel Saurya Urja Company of Rajasthan Limited (ESUCRL) for USD 1.8 million. ESUCRL specializes in solar park development and owns and manages a 750 MW solar park in Rajasthan. The transaction demonstrates the importance of strategic partnerships in the renewable energy industry.

Additionally, in March 2023, JSW Energy's subsidiary, JSW Neo Energy, completed the acquisition of 1,331 MW of wind capacity and 422 MW of solar capacity from Mytrah Energy for a total of USD 1,235 million. This acquisition significantly increased JSW's operational capacity by over 36%, elevating it from 4,811 MW to 6,564 MW. Furthermore, with approximately 2.9 GW of under-construction projects expected to be commissioned in phases by the end of 2024, JSW Energy is well on track to reach 10 GW of operating capacity by FY2025, with renewables accounting for 61% of its portfolio.

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