

INDIA RE INSTALLED CAPACITY DIGEST: TRENDS, INSIGHTS & PATHWAYS

Examining installed capacity of renewable energy, policy support, investment opportunity & development track in India

Publishing – March 2025

<u>Key Highlights – RE installed</u> <u>capacity in India</u>

- The FY26 budget allocated INR 256.49 billion to the renewable energy sector, a 39% increase from last year's initial estimate of INR 191 billion for MNRE.
- The solar sector received the largest share of the allocation, with INR 241 billion, including INR 1.5 billion for solar power (grid) and INR 2.6 billion for PM KUSUM, which supports farmers by subsidizing solar pumps and solarizing existing gridconnected pumps.
- The bulk of the funding went to PM Surya Ghar Muft Bijli Yojana, which saw a significant 81% increase in allocation, rising from INR 110 billion in FY25 to INR 200 billion in FY26.
- The National Green Hydrogen Mission saw a major funding increase, with INR 6 billion allocated in the latest budget, double the INR 3 billion revised estimate for FY25, highlighting the government's commitment to boosting the green hydrogen economy.

Research Base

India aims for 500 GW of renewable energy installed capacity by 2030

As of January 2025, India has a total installed renewable energy capacity of approx. 213 GW, with a target of reaching 500 GW by 2030. This means India needs to nearly double its renewable energy capacity within the next five years, a monumental task that requires an aggressive and sustained effort. To achieve this, the country must significantly scale up its capacity on a monthly basis, making it crucial to accelerate the development and deployment of renewable energy projects, particularly in solar and wind power. The need for rapid expansion emphasizes the importance of improving project execution speeds, enhancing grid infrastructure, increasing investments, and streamlining regulatory processes. This ambitious scaling will be vital in not only meeting the 500 GW target but also in positioning India as a global leader in renewable energy and contributing significantly to its climate goals.

When comparing the sources of renewable energy, solar power stands out with a significant contribution of 47%. This makes solar energy a key player in India's renewable energy strategy, underlining the need to focus on increasing the installed capacity of solar power. Given its vast potential, especially in regions with abundant sunlight, solar energy is essential for India to meet its ambitious renewable energy targets. Expanding solar capacity will not only help India reach its goal of 500 GW by 2030 but also contribute significantly to reducing carbon emissions and improving energy security.

As of January 2025, India has an installed solar renewable energy capacity of 100.32 GW, marking significant progress toward its ambitious goal of reaching 280 GW by 2030. In the year between January 2024 and January 2025, India added 26.02 GW of solar renewable energy capacity, showcasing a robust growth rate and highlighting the country's accelerated transition to clean energy. This annual addition reflects the continued expansion of India's renewable energy sector, driven by strong government policies, increased investments in solar and wind power, and the development of key infrastructure like green energy corridors. Still India needs more policy support to scale the installed capacity to almost 2.5x in a span of 5 years.



Research Objectives

- Examining the growth & trend of renewable installed capacity in India.
- Investment opportunity in renewable energy.
- Pathways to Decarbonization and Net-Zero Targets
- Sustainability Strategies and Energy Efficiency Initiatives
- Grid Modernization and Energy Storage Integration
- Role of Public-Private Partnerships in Accelerating Growth
- Growth Patterns & Projections for Renewable Energy
- Comparative Analysis: Renewable vs Conventional Energy Growth
- All insights over each source of renewable energy
- State-wise Distribution of RE Installed Capacity

Figure 1.1

8.0

1.98

1.48

23.07

Northern Region state having greatest contribution in renewable energy

■ Off-grid Solar/

KUSUM

Comp.

Hybrid Solar

PM-Surya Ghar

Mounted Solar

Yojna (Solar

Rooftop)

Ground







Research Results

- Emerging Trends in Renewable Energy
- Comparative Analysis: Renewable vs Conventional Energy Growth
- Renewable Energy's Role in India's Energy Mix Transformation
- Key Policy Changes & Government Initiatives
- Regulatory Challenges & Opportunities
- Role of Public-Private Partnerships in Accelerating Growth
- Breakthroughs in Energy Storage and Grid Integration
- Long-term Forecasts for Renewable Energy Installed Capacity
- Emerging Technologies and Their Impact on Future Growth

Research Case

India surpasses China in attracting clean funds on a greenfield

In recent months, India has surpassed China as a leading destination for clean technology funding, driven by efforts to boost domestic green manufacturing and attract investors. According to Bloomberg NEF data, deals worth around \$2.4 billion were completed in the third quarter, more than four times the value of those in China, positioning India as the second-largest recipient of clean tech investments globally, behind only the US. This growth is fueled by India's focus on expanding local clean energy capacity to reduce dependence on China and its ambition to become a technology exporter. Raj Pai of GEF Capital Partners notes that the clean tech sector is highly appealing to both public and private investors, with India set to see the fastest expansion in renewable energy among major economies through the decade, as forecasted by the International Energy Agency.

A series of government initiatives under Prime Minister Narendra Modi's administration is further strengthening India's clean energy sector. The country has witnessed a surge in public listings of renewable energy and electric vehicle companies, such as Waaree Energies Ltd. and Ola Electric Mobility Ltd., which are fueling investor confidence. Furthermore, shares in clean power firms like NTPC Green Energy Ltd. have risen more than 30% since their trading debut. Abhinav Sinha of British International Investment Plc highlights that climate technology is the "hottest topic" for venture capital in India, with BII committing to invest at least \$1 billion in climate-related projects by 2026.

While India has made significant strides in attracting clean tech funding, it still lags behind China in total investment. As of this year, India has raised \$3.6 billion, compared to China's \$5.6 billion, according to BNEF. The path to achieving net-zero emissions by 2050 could require investments of up to \$12.4 trillion, a challenge given the current level of funding. Only about a quarter of India's 800 climate-focused startups have secured capital in the past decade, and green startups often struggle to attract growth-stage funding. Despite these challenges, the market for climate technology is expected to grow rapidly as solutions to reduce pollution gain traction. Investors like Avaana Capital and family offices are increasingly backing climate-focused sectors, with optimism about continued development in this space.



<u>Renewable Energy of India:</u> <u>Growing center for</u> <u>Investments</u>

- NTPC to invest Rs 96,000 crore in Chhattisgarh's clean energy projects.
- Tata Power to Invest ₹30,000 Crore in Assam for 5000 MW Renewable Energy Projects
- Assam Cabinet Approves Assam Integrated Clean Energy Policy 2025
- Amazon invests in three new wind energy projects in India
- Andhra Pradesh Approves 180 Billion Investments in Clean Energy
- Clean energy investments to surpass fossil fuels in 2025
- Welspun New Energy to invest Rs 13.5k cr in clean energy projects in Odisha
- Invest Karnataka-2025: Karnataka Attracts Major Renewable Energy Investments From JSW Neo Energy
- Invest Karnataka: State gets huge investment proposals; attracts Rs 5L cr

Table 1.1

Region wise contribution in RE, source wise contribution in RE, Solar contribution in RE

Aspect	Renewable Energy	Conventional Energy
Growth Rate	Rapid growth, particularly in solar and wind energy	Constant growth rate
Installed Capacity (India)	~203 GW (2024), with solar and wind dominating	~236 GW (2024), with coal, gas, diesel
Technological Advancements	Significant advancements in solar panels and wind turbines	Relatively slower, though efficiency improvements exist
Environmental Impact	Minimal emissions, supports sustainability goals	High emissions, significant impact on climate change
Cost Trends	Decreasing costs, making renewable energy more competitive	Stable or increasing, especially for fossil fuels
Energy Security	Reduces dependency on imported fuels, increases local production	Heavy dependence on coal, oil, and gas imports.
Government Support	Strong government policies and incentives (e.g., subsidies, targets)	Declining support as transition to cleaner energy accelerates
Reliability	Intermittent but improving with storage solutions	Consistent and stable but facing environmental and cost concerns
Future Outlook	High growth expected, aiming for 500 GW by 2030	More shift towards renewable energy can be seen



Region wise contribution in RE, source wise contribution in RE, Solar contribution in RE



Must Buy For

- Power Distribution Utilities
- State Electricity Boards
- State Electricity Regulatory Commissions
- Central Power Generation Utilities
- State Power Generation Utilities
- Independent Power Producers
- Solar Power Developers
- Power Transmission Utilities
- Research Institutes / Industry Associations
- Power Project Funding Bodies
- Foreign Collaborating Agencies
- RE Project Developers

Key Queries Resolved

- What are the game-changing trends shaping India's Renewable future?
- How are regulatory shifts and government policies shaping the renewable energy landscape in India?
- What market dynamics and technological advancements are impacting renewable energy integration and adoption?
- What strategies and opportunities are driving India's sustainable energy transition?
- What are the gaps in policies and regulations to support renewable energy?
- What are the emerging technologies like Geothermal, Tidal, and Waste-to-Energy?
- What is the long-term Forecasts for Renewable Energy generation?
- What are the pathways to decarbonization and Net-Zero Targets?
- What are the emerging Technologies and Their Impact on Future Growth?
- What lessons India should learn from Global Energy Transition Leaders
- What is the role of Public-Private Partnerships in accelerating growth of India's Renewable energy installed capacity?
- What are the Investment Prospects in Renewable Energy Expansion?

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