

India at high table of clean energy superpowers with over 200 GW capacity; investments to double in 2025

By PTI Last Updated: Dec 31, 2024, 10:51:00 AM IST

Synopsis

India's renewable energy capacity has surpassed 200 GW. The country plans to reach 500 GW by 2030. Investments will double to USD 32 billion by 2025. Green hydrogen policies, and improvements in energy storage and infrastructure are key areas of focus. Pilot projects and public-private partnerships are essential for the growth of the sector.



Representative image.

As barren arid land gets covered with solar panels and giant windmills dot the coastline, [India](#) made it to the high table of clean energy superpowers with installed capacity crossing 200 gigawatts and projections of investment doubling to over USD 32 billion in 2025. According to the [International Energy Agency](#), India's annual renewable capacity additions through 2030 are expected to increase more quickly than any other major economy, including China. It seeks India's capacity addition more than quadrupling from 15 GW in 2023 to 62 GW in 2030. By the end of 2024, its installed capacity touched 205 GW.

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Alongside, domestic solar PV and wind turbine manufacturing is being scaled up as part of the broader commitment to decarbonise and shift away from fossil fuels. India, which has set 2070 as the target for Net Zero, is aiming 500 GW of renewable energy capacity by 2030. To achieve this it is looking to add 50 GW of renewable energy (RE) capacity annually.

Talking to PTI, Union New & Renewable Energy Minister Pralhad Joshi said, "We have installed a total capacity addition of 24.72 GW RE in the country during the last 11 months of 2024 (from 1st January 2024 to 30th November 2024), compared to 11.83 GW capacity addition during the same period last year."

Back-of-envelope calculations show that the RE capacity addition of 50GW will entail an investment of Rs 2,75,000 crore or USD 32.35 billion (at Rs 85 per USD)

Joshi said that 2024 has been a remarkable year for the RE sector and added, "We are working relentlessly to chart the growth of the sector."



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He informed that in December 2023, as much as 1.23GW RE capacity was added which means that in the entire 2023, 13.06GW of RE capacity was added.

The 24.72 GW capacity added from 1st January 2024 to 30th November 2024 includes 20.85 GW Solar Power, 3.22 GW Wind Power, 0.50 GW Bio Power and 0.09 GW Small Hydro Power and 0.06 Large Hydro Power.

It has a share of 86.86 per cent in the total installed power generation capacity added during this period (Jan to Nov) in the country (28.46 GW).

"For the very first time in 2024, a record amount of Rs 32.45 lakh crore has been pledged," he said.

About the PM-Surya Ghar Muft Bijli Yojana for installing rooftop solar and providing free electricity up to 300 units every month for 1 crore households, Joshi informed that there are more than 1.5 crore registrations so far and over 6.85 lakh installations are done till now.

On challenges in 2025, he mentioned about the development of new policies to further reduce the cost of [Green Hydrogen](#) as well as pursuing remaining States & UTs to issue their Green [Hydrogen](#) Policies.

According to Joshi, getting additional standards to be published in various categories such as, hydrogen production, storage and transportation, application, aviation and railway etc. by relevant organizations is also a challenge.

He thinks that identifying demand in domestic & international markets for [Green](#) Hydrogen consumption is also a challenge.

However, Joshi is optimistic about the award of additional production capacity of 7.80 Lakh MTPA of Green Hydrogen and its derivatives in India in 2025.

Green Hydrogen Certification Scheme of India is likely to be published in 2025, he said, adding that the draft scheme has been published in public domain for stakeholders' comments.

He said that the ministry will be encouraging potential use of Hydrogen in Hard-to-Abate/new sectors and the pilot projects in steel and transport sector are likely to be awarded.

Three pilot projects in the steel sector for a total plant capacity of 3,290 TPD using hydrogen have already been awarded in 2024 for a total amount of Rs 347 crore.

At least two more pilot projects may be awarded in the coming year in this sector, he stated. He also hinted about setting up a Centre of Excellence for dedicated research in Green Hydrogen in 2025.

The MNRE has proposed to create testing facilities for Green Hydrogen, for developing a Robust Standards and Regulatory Framework.

Sandeep Agarwal, Founder and [MD of Greenzo Energy India](#) said that success in 2025 will hinge on forging public-private partnerships, promoting innovation, and ensuring that the green hydrogen roadmap is not only visionary but also actionable and inclusive.

Debi Prasad Dash, President, India Energy Storage Alliance said, "2025 will be a pivotal year for the sector, estimating a cumulative market potential of around 250 gigawatt-hours of battery energy storage requirements by 2032."

Devansh Jain, Executive Director, [INOXGFL Group](#) suggested that India needs to expedite project awarding and PPA/PSA (power purchase agreement) signing and any policy directive, capitalization support for nodal agencies, etc. will help in this context.

He also called for a dedicated low-cost financing line to fund the approximately USD 2 trillion for these (RE) projects will also aid significantly.

Prafulla Pathak, President [Solar Energy Society of India](#) said, "On policy level, the policy for Solar Thermal technology is required. The growth and new development in this sector will help us in our reduction in fossil fuel use."

Girishkumar Kadam, Senior Vice President & Group Head - Corporate Ratings, ICRA said, "At a policy level, measures are required to enforce RPO obligations at state level thereby enabling timely signing of PPAs / PSAs by the state discoms for the tendered projects."

He pointed out that the levelized cost of Green hydrogen and hydrogen-derived products remains significantly higher than fossil fuel derived products.

[Vineet Mittal](#), Chairman, CII Task Force on Green Hydrogen pointed out that upgrading the grid and building new transmission lines to evacuate renewable energy is a major hurdle.

He pointed out that the sector urgently needs a dedicated Inter-State Transmission System network to evacuate 100 GW of power from renewable-rich states like Rajasthan, Madhya Pradesh, and Gujarat in the next 2 years.

He stated that while government policies like Production-Linked Incentives and Approved List of Models and Manufacturers have boosted solar module and cell manufacturing, a clear roadmap is needed for manufacturing other components like glass, wind blades, and transformers.

About green hydrogen he said that high production and infrastructure costs require subsidies and R&D support and scaling hydrogen storage and transportation infrastructure is critical.

Ankur Kumar, CEO, Essar Renewables, said, "Looking ahead to 2025, emerging technologies such as floating solar, offshore wind, and green hydrogen offer considerable opportunities."

Atanu Mukherjee, CEO & President, Dastur Energy said India's RE ambitions demand a robust policy framework that lowers costs, enhances reliability and builds domestic capabilities.

Amit Uplenchwar, Director Kalpataru Projects International Ltd (KPIL) said the national electricity plan envisages massive investment into line and grid infrastructure to transmit conventional and 500 GW of RE installed capacity by the year 2030 and over 600 GW of RE installed capacity by the year 2032.

To meet such an aspirational target, project awarding by various bodies need to be expedited, single window RoW clearance mechanism set up, additional supplier base for key transmission infra products (hardware, conductors etc) be developed, project closure and commissioning fast tracked and pre-requisites for prequalification tightened to ensure participation of only qualified and trusted partners, he said.

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