India's Wind Energy Transition

Charting Path towards 156 GW and Beyond

Posted On: 18 NOV 2026 11:00AM by PIB Delhi

Wind Energy: Expanding Capacity, Strengthening Energy Security

Wind energy is emerging as a key pillar of India's transition towards a cleaner and more sustainable energy future. **By harnessing the natural movement of air to generate electricity, wind power offers a renewable alternative to fossil fuels**. It can help meet growing electricity demand while reducing dependence on conventional energy sources. As India expands its renewable energy capacity, wind energy is becoming increasingly important for building a diverse, resilient and low-carbon emission system.

As of 30 September 2026, India's total installed renewable energy capacity stood at **299.25 GW**. Wind power accounted for **59.20 GW**, representing approximately **19.8% of the total** installed renewable energy capacity. Between March 2014 and September 2026, installed wind capacity grew from 21 GW to 59.20 GW, **nearly a 2.8-fold increase**, reflecting wind energy's growing role in India's renewable electricity mix.

With continued capacity addition, technological advancement and supportive government initiatives, wind energy is expected to remain a key pillar of India's efforts to diversify its energy mix, strengthen energy security and achieve its renewable energy targets.

India's Wind Energy Landscape

India's wind energy sector is expanding steadily with rising installed capacity and strong wind resource potential across key states. It is increasingly supported by domestic manufacturing and its role in meeting renewable energy targets.

Wind Resource Potential

- India's estimated **gross wind power potential is 695.5 GW at 120 metres** and **1,163.9 GW at 150 metres** above ground level.
- Majority of the assessed wind potential at 150 Meter is concentrated in eight high-resource states: **Rajasthan:** 284.2 GW; **Gujarat:** 180.8 GW; **Maharashtra**: 173.9 GW; **Karnataka:** 169.3 GW; **Andhra Pradesh**: 123.3 GW; **Tamil Nadu:** 95.1 GW; **Madhya Pradesh:** 55.4 GW; **Telangana:** 54.7 GW.
- More than 900 **wind-monitoring stations** have been installed nationwide by NIWE to map wind resources and identify high-potential sites for wind energy development.

- Wind potential maps have been developed at **50 m, 80 m, 100 m, 120 m, and 150 m hub heights**.
- India's vast wind resource base provides a strong foundation for achieving **100 GW wind capacity by 2030** and **156 GW by 2036.**

Wind Capacity and Manufacturing Growth

- India ranks **4th globally** in installed wind power capacity.
- Wind energy capacity has more than doubled over the past 12 years.
- An additional **28 GW** is under implementation.
- India recorded its **highest-ever annual wind capacity addition of 6.05 GW in 2025-26**, surpassing the previous record of **5.4 GW in 2016-17**.
- Nearly **45% of wind generation occurs during peak demand hours**, complementing solar power and strengthening grid reliability.
- **Wind Turbine Manufacturing Capacity** has increased from 10 GW in 2014 to about 24 GW, as on March 2026.
- The sector has achieved **70-80% indigenisation** across key components.
- Strong domestic supply chains exist for blades, towers, gearboxes, and other critical equipment.
- India generated 106.7 billion units of wind power in FY 2025–26, reflecting its contribution to the country's electricity supply.

Wind energy is becoming a more stable and integrated part of India’s power system.
Its role will expand further with technological upgrades and diversified deployment.

Key Government Interventions

Government priorities focus on expanding wind deployment, offshore development, and grid modernisation. These are supported by targeted schemes, financial incentives, and regulatory reforms.

- **₹6,853 crore Viability Gap Funding (VGF)** approved for **1,000 MW of offshore wind projects**, comprising **500 MW each off the coasts of Gujarat and Tamil Nadu**.
- **Generation Based Incentive (GBI) Scheme** was available for projects commissioned before March, 2017.
- A **500 MW pilot project** launched under the **Contracts for Difference (CfD)**. CfD is a mechanism designed to reduce price volatility and provide revenue certainty to renewable energy developers.
- A **Task Force constituted** in **January 2026** to address regulatory, land, transmission, and implementation challenges.
- Dedicated wind component introduced under **Renewable Purchase Obligations (RPOs)** to ensure sustained demand.
- **Green Energy Open Access Rules** introduced to facilitate direct procurement of renewable power by industries.
- Implementation of the **Approved List of Models and Manufacturers (ALMM)**, transparent bidding guidelines, and Late Payment Surcharge Rules has strengthened investor confidence.
- Promotion of hybrid and **Round-the-Clock (RTC) Renewable Energy** projects to improve grid efficiency.

Priorities for Wind Energy include:

- Expanding wind deployment into emerging states such as Madhya Pradesh, Telangana, and Odisha.
- Launching India's offshore wind sector through identified leasing areas in Gujarat and Tamil Nadu.
- Integrating wind power into **Round-the-Clock (RTC) Renewable Energy** solutions through storage-linked business models.
- Modernising the grid and deploying **Artificial Intelligence (AI)**-based forecasting tools for renewable energy management.
- Strengthening domestic manufacturing across the entire wind energy value chain.

Global Partnerships in Wind Energy

India is strengthening wind energy cooperation with the UK, Denmark, Belgium, Germany and EU to accelerate sector development. These partnerships focus on offshore wind deployment, advanced technology transfer, and improved grid integration. They also enable knowledge sharing on policy design, financing models, and project execution.

India–United Kingdom:

- The **India–United Kingdom Offshore Wind Taskforce** was launched in February 2026 under **Vision 2035** and the **Fourth India–UK Energy Dialogue**.
- Focus areas include market design, port infrastructure, supply chains, and blended finance.

India-Belgium:

- At the World Economic Forum (WEF) 2026, India and Belgium reaffirmed cooperation in offshore wind, research and development, and green taxonomy, signalling growing European interest in India's clean energy transition.

India-Denmark:

- India signed a cooperation agreement with Denmark's **Ministry for Energy, Utilities and Climate** in 2019 for offshore wind capacity building.
- The bilateral **Memorandum of Understanding (MoU)** was renewed in May 2025.
- Cooperation now includes power system modelling, integration of variable renewable energy, and joint expert training.

The Road Ahead for Wind Energy

As India enters the next phase of its energy transition, wind power will play an increasingly important role in delivering reliable, affordable, and domestically sourced clean electricity. The country's extensive onshore and offshore wind resources provide a strong foundation for long-term growth, but realizing this opportunity will require faster project execution, stronger transmission infrastructure, improved forecasting capabilities, and continued policy support. By expanding into new geographies, integrating wind with storage and round-the-clock power solutions, and strengthening domestic manufacturing and export competitiveness, India can position wind energy not only as a key contributor to its climate and energy security goals, but also as a driver of industrial development and economic growth.

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