India's Wind Energy Transition

Charting the Path Towards 156 GW and Beyond

PIB analysis

Current Status of Wind Energy

- India's installed wind energy capacity reached **59.20 GW (September 2026)**, accounting for 19.8% of total renewable energy capacity (299.25 GW).
- Installed capacity increased from 21 GW in 2014 to 59.20 GW in 2026 – a nearly 2.8-fold increase.
- India ranks **4th globally** in installed wind power capacity.
- Wind power generation stood at **106.7 billion units in FY 2025–26**.
- Highest-ever annual capacity addition of **6.05 GW** was recorded in FY 2025–26.
- Around 28 GW of additional wind capacity is under implementation.

Wind Energy Potential

- India's gross wind power potential:
  - 695.5 GW at 120 metres.
  - 1,163.9 GW at 150 metres above ground level.
- Eight major wind-rich 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
- NIWE has established over 90 wind-monitoring stations to identify high-potential sites.

Manufacturing and Technological Growth

- Wind turbine manufacturing capacity increased from 10 GW (2014) to approximately 24 GW (March 2026).
- Achieved 70–80% indigenisation across key components.
- Strong domestic supply chains for blades, towers and gearboxes.
- Nearly 45% of wind generation occurs during peak demand hours, complementing solar power and improving grid reliability.

Key Government Initiatives

- **Offshore Wind VGF:** ₹6,853 crore approved for 1,000 MW offshore wind projects – 500 MW each off Gujarat and Tamil Nadu.
- **Generation Based Incentive (GBI):** Incentive scheme for wind projects commissioned before March 2017.
- **Contracts for Difference (CfD):** 500 MW pilot project to reduce price volatility and ensure revenue certainty for developers.
- **Task Force (January 2026):** Established to address regulatory, land, transmission and implementation challenges.
- **Renewable Purchase Obligations (RPOs):** Dedicated wind energy component to ensure sustained demand.
- **Green Energy Open Access Rules:** Facilitate direct procurement of renewable electricity by industries.
- **ALMM and transparent bidding guidelines:** Strengthen domestic manufacturing and investor confidence.
- Promotion of hybrid and Round-the-Clock (RTC) renewable energy projects.

International Cooperation

- **India–UK:** Offshore Wind Taskforce launched in February 2026 under Vision 2035, focusing on market design, port infrastructure, supply chains and blended finance.
- **India–Belgium:** Cooperation in offshore wind, research and development, and green taxonomy.
- **India–Denmark:** Offshore wind cooperation agreement signed in 2019; MoU renewed in May 2025. Cooperation includes power system modelling, renewable energy integration and expert training.
- **European Cooperation:** Partnerships with Germany and the EU for technology transfer, offshore wind development and grid integration.

Challenges and Way Forward

- **Land acquisition and clearances:** Streamline land allocation and regulatory approvals.
- **Inadequate transmission infrastructure:** Modernise electricity grids and strengthen transmission networks.
- **Intermittency:** Integrate wind with solar, battery storage and hybrid energy systems.
- **Limited offshore development:** Operationalise identified offshore wind zones in Gujarat and Tamil Nadu.
- **Forecasting challenges:** Deploy AI-based forecasting and smart grid technologies.
- **Financing constraints:** Expand VGF, CfD and innovative financing mechanisms.
- **Manufacturing gaps:** Strengthen domestic supply chains and technological innovation.
- **Geographical concentration:** Expand wind energy development into emerging states such as Madhya Pradesh, Telangana and Odisha.

Targets Ahead

- **2030:** Achieve 100 GW of installed wind energy capacity.
- **2036:** Achieve 156 GW of installed wind energy capacity.

Conclusion

Wind energy is crucial for India's energy security, decarbonisation and green industrial growth.

Accelerating offshore wind development, strengthening transmission infrastructure, integrating energy storage and promoting domestic manufacturing will help India achieve its 156 GW target and build a reliable, affordable and sustainable energy system.

Reference

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