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Wind Energy

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Why is in news? Rajasthan, Gujarat and Tamil Nademerge Top Achievers in Wind Energy Adoption

The Ministry of New and Renewable Energy, Government of India joined the worldwide celebrations of **15th June as Global Wind Day**, through the organization of a day-long event in New Delhi, 15th June, 2023.

Held with an intent to celebrate the success so far and discuss the potential ways forward for accelerating wind energy adoption in India, the event had the central **theme of "Pawan – Urja: Powering the Future of India"**.

The celebration featured in-depth discussions on Wind Energy Progress in India, Offshore Wind development, strengthening of wind energy manufacturing ecosystem and Green Finance for Wind Energy.

Delivering the keynote address, the Ministry of New & Renewable Energy, emphasized that the Government of India is **fully committed to achieve the target of 500 GW renewable energy capacity by the year 2030**.

The Minister congratulated the states of **Rajasthan, Gujarat and Tamil Nadu** for their achievements during the financial year 2022-'23.

Rajasthan was felicitated for achieving the highest wind capacity addition, Gujarat for achieving the highest wind capacity addition through open access and Tamil Nadfor initiating repowering of wind turbines.

The event also witnessed the **launch of Wind Atlas at 150 meter above ground level, prepared by National Institute of Wind Energy (NIWE)**. The onshore wind potential of the country is now estimated at 1,164 GW at 150 meter above ground level.

The event had the active participation of central and state government authorities, wind turbine manufacturers and developers, international and domestic financial institutions, Central Public Sector Enterprises, academia, think-tanks, and other key stakeholders.

The celebration was organized in collaboration with the National Institute of Wind Energy, Shakti Sustainable Energy Foundation, Indian Wind Turbine Manufacturers Association, Indian Wind Power Association, and Wind Independent Power Producers Association.

Wind Energy:

India has made great strides in the generation of wind energy over the years, and it **now ranks fourth in wind power capacity in the world**.

Its **initial costs are high**. But, once the generation starts, cost-free power is available for about 20 years, as there are less recurring cost on Wind Energy Infrastructure

Wind energy is crucial to India's efforts to **achieve its goal of having 50% of its electric power installed capacity from non-fossil fuel-based energy resources by 2030** and to achieve Net Zero by 2070.

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Wind energy today typically comes in two different types: **Onshore wind farms** which are large installations of wind turbines located on land. **Offshore wind farms** which are installations located in bodies of water.

India has significant potential for **both onshore and offshore wind energy production**. With the continuous efforts from the government, the country has developed around 15 GW of domestic wind manufacturing capacity, making it Aatma Nirbhar.

The state of Gujarat has highest Wind Energy potential, followed by Rajasthan, Maharashtra, Tamil Nadu, Madhya Pradesh, Karnataka, Andhra Pradesh.

The largest Wind Farm in India is the **Muppandal Wind Farm in Tamil Nadu** followed by **Jaisalmer Wind Park, Rajasthan** and **Vankusawade wind park, Maharashtra**.

Challenges associated with Wind Power:

Even though the cost of wind power has decreased dramatically in the past several decades, **wind projects must be able to compete economically with the lowest-cost source of electricity**, and some locations may not be windy enough to be cost competitive

Wind resource development **might not be the most profitable use of the land**. Land suitable for wind-turbine installation must compete with alternative uses for the land, which might be more highly valued than electricity generation

Although wind power plants have relatively little impact on the environment compared to conventional power plants, **concern exists over the noise produced by the turbine blades and visual impacts to the landscape**

Wind plants can **impact local wildlife**. Birds have been killed by flying into spinning turbine blades. Also, Like all energy sources, wind projects can alter the habitat on which they are built.