

GOVERNMENT OF INDIA
MINISTRY OF NEW AND RENEWABLE ENERGY
RAJYA SABHA
UNSTARRED QUESTION NO. 1901
ANSWERED ON 05/08/2025

ELECTRICITY GENERATION CAPACITY FROM NON-FOSSIL FUEL SOURCES

1901. SHRI ASHOKRAO SHANKARRAO CHAVAN

Will the Minister of New and Renewable Energy be pleased to state:

- (a) whether India has achieved the milestone of having 50 per cent of its total installed electricity generation capacity from non fossil fuel sources, five years ahead of the 2030 target set under the Paris Agreement;
- (b) if so, the total installed capacity and breakup of non fossil versus fossil sources;
- (c) the details of initiatives being pursued by Government to address intermittency in renewable energy, especially through energy storage systems, grid modernization, green hydrogen, and hybrid plant development; and
- (d) whether Government proposes to use artificial intelligence in demand forecasting, predictive maintenance, automated grid management and system efficiency enhancement and if so, the details thereof?

ANSWER

**THE MINISTER OF STATE FOR NEW & RENEWABLE ENERGY AND POWER
(SHRI SHRIPAD YESSO NAIK)**

(a) & (b) Yes. As per Central Electricity Authority (CEA) installed capacity report, India's total installed electricity capacity as of 30th June, 2025 stands at 484.82 GW, of which non-fossil fuel based electricity capacity is 242.78 GW i.e. 50.08%.

(c) Government has taken several initiatives to address intermittency in renewable energy, as given at **Annexure**.

(d) As per the information received from Central Electricity Authority (CEA), Ministry of Power (MoP) and Ministry of Earth Sciences (MoES) have been interacting very closely and regularly to ensure sharing of accurate weather data to stakeholders for Renewable Energy (RE) generation forecasting. As a result of close coordination between the two Ministries, India Meteorological Department (IMD), National Centre for Medium Range Weather Forecasting (NCMRWF) and Indian Space Research Organisation (ISRO) are sharing weather forecast data to various stakeholders which is being utilised for RE and demand forecasting.

The Renewable Energy Management Centres (REMCs) have been operational since 2020-2021 across 7 State Load Despatch Centres (SLDCs), 3 Regional Load Despatch Centres (RLDCs), and National Load Despatch Centre (NLDC), with later additions in Telangana and Andaman & Nicobar. Established under the Green Energy Corridor project, these centres facilitate RE forecasting through Artificial Intelligence.

Given the current level of variability and uncertainty introduced by weather-variables, the integration of Artificial Intelligence in demand forecasting is seen as a significant enabler for enhancing forecast accuracy and overall grid reliability.

**Annexure-I referred to in reply of part (c) of the Rajya Sabha Unstarred Question
No. 1901 to be answered on 05.08.2025**

Government has taken several initiatives to address intermittency in renewable energy. These, inter alia, include the following:

- National Electricity Plan (Volume II: Transmission) regarding modernization of grid and storage systems launched in October, 2024.
- National Framework to promote Energy Storage Systems (ESS) in the country was issued by Ministry of Power in August, 2023.
- Ministry of Power vide order dated 10.06.2025 has granted 100% Inter State Transmission System (ISTS) charges waiver for co-located Battery Energy Storage Systems (BESS) projects, commissioned on or before 30th June 2028.
- Central Electricity Authority issued an advisory on 18.02.2025 recommending the co-location of ESS with solar power projects to enhance grid stability and cost efficiency.
- Ministry of Power brought out Viability Gap Funding (VGF) for development of approx. 43 GWh of Battery Energy Storage Systems.
- Ministry of New and Renewable Energy issued National Wind-Solar Hybrid Policy to provide a framework for promotion of large grid connected wind-solar PV hybrid system to help in reducing the intermittency in renewable energy and achieving better grid stability.
- Issued Standard Bidding Guidelines for tariff based competitive bidding process for procurement of power from Grid Connected Wind-Solar Hybrid and Firm & Dispatchable Renewable Energy (FDRE) projects.
- Implementing Green Energy Corridor (GEC) scheme to strengthen Intra State and Inter State Transmission Systems to integrate renewable energy into the national grid.
- Government through Renewable Energy Implementing Agencies (REIAs), viz. Solar Energy Corporation of India Ltd. (SECI), NTPC Ltd., SJVN Ltd. and NHPC Ltd. carried out bids for Wind-Solar Hybrid Projects, including projects with assured supply during peak hours, Firm & Dispatchable Renewable Energy (FDRE) and Round the Clock (RTC) renewable Power to reduce the intermittency in renewable energy.
- Set up thirteen Renewable Energy Management Centres (REMCs) for better forecasting and real time monitoring of RE generation.
- Load dispatch centres ensure that electricity demand is fully met using dispatchable sources such as hydro and thermal power when the wind does not blow and sun does not shine.
- Installation of Static Synchronous Compensators (STATCOMs) to improve the grid reliability and voltage stability limit. A STATCOM acts as a voltage controller for the electricity grid, quickly adding or removing extra power to keep the system running smoothly.
- Central Electricity Authority (Technical Standards for Connectivity to the Grid) Regulations lay down the minimum technical requirements for RE generating plants to ensure the safe, secure and reliable operation of the grid.