GOVERNMENT OF INDIA
MINISTRY OF NEW AND RENEWABLE ENERGY
LOK SABHA
UNSTARRED QUESTION NO. 5520
ANSWERED ON 25.03.2026

IMPACT OF RENEWABLE ENERGY PENETRATION ON GRID STABILITY

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Will the Minister of NEW AND RENEWABLE ENERGY be pleased to state:

(a) whether the Government has assessed the impact of increasing renewable energy penetration on grid stability particularly in high renewable –energy States such as Karnataka, Chhattisgarh, Jharkhand, Maharashtra, Jammu & Kashmir, Rajasthan particularly in Bharatpur Lok Sabha Constituency and if so, the details thereof;
(b) the steps taken by the Government to strengthen transmission infrastructure and grid capacity for evacuation of renewable energy in the said States including progress made under the Green Energy Corridor initiative;
(c) the details of number of renewable energy projects in the aforesaid States that are facing delays due to grid connectivity or transmission constraints;
(d) whether energy storage systems such as battery storage or pumped hydro are being integrated with renewable energy projects in the said States and if so, the extent of such integration and the roadmap for expanding storage-backed renewable capacity in the coming years;
(e) the measures taken by the government to improve grid management, forecasting and renewable energy integration for urban centers such as Bengaluru where demand for clean energy is rapidly increasing; and
(f) whether the Government is implementing large-scale renewable energy corridors under the Green Energy Corridor initiative and if so, the details thereof, State-wise including Rajasthan and Chhattisgarh?

ANSWER

THE MINISTER OF STATE FOR NEW & RENEWABLE ENERGY AND POWER

(SHRI SHRIPAD YESSO NAIK)

(a) to f) Government of India has notified National Electricity Plan (Volume-II Transmission) in 2024, which outlines the transmission system requirements for the period 2023 to 2032, including the states Karnataka, Chhattisgarh, Jharkhand, Rajasthan, Maharashtra and Jammu and Kashmir, commensurate with projected generation capacity additions to meet the projected electricity demand.

Further following measures have been undertaken by the Government to strengthen transmission infrastructure, grid management and forecasting to facilitate integration of renewable energy into the grid while maintaining grid stability:

i. Comprehensive Regulations and Standards governing interconnection and operations of renewable plants such as CEA (Central Electricity Authority) connectivity standards, flexible thermal plant operations, and the Indian Electricity Grid Code 2023;
ii. Advanced grid support technologies such as STATCOMs and synchronous condensers for voltage stability and dynamic response have been considered in the transmission planning and are at various stages of implementation.
iii. Establishment of Renewable Energy Management Centers (REMCs) for real-time forecasting, scheduling, and monitoring of RE generation across 12 RE-rich regions.
iv. Ministry of New and renewable energy is implementing Green Energy Corridor (GEC) scheme in ten states viz., Andhra Pradesh, Gujarat, Himachal Pradesh, Karnataka, Kerala, Madhya Pradesh, Maharashtra, Rajasthan, Tamil Nadu and Uttar Pradesh. A total of 9856 ckm transmission lines and 24, 300 MVA substation have been commissioned under GEC scheme.
v. Regulatory framework for Solar Hour and Non-Solar Hour access enabling optimal utilisation of transmission and encouraging hybridisation with storage.
vi. Implementing two Viability Gap Funding (VGF) schemes to support development of approximately 43.8 GWh of Battery Energy Storage Systems, launched in March 2024 and June 2025, to accelerate early-stage deployment.
vii. As of 28.02.2026, a total of 13 Battery Energy Storage System (BESS) projects with an aggregate capacity of 798.20 MWh have been commissioned across the country. The present installed capacity of pumped storage projects in the country is 7175.6 MW.
viii. Providing budgetary support for enabling infrastructure (Roads, Transmission lines etc.) for development of Hydro PSP.

Details of projects whose transmission system is delayed is placed at **Annexure-I**.

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Annexure-I to reply part (f) of Lok Sabha unstarred question no. 5520 to be answered on 25/03/2026

Details of projects whose transmission system is delayed

State	**No. of Generators**	**RE Quantum whose transmission is delayed (MW)**
Karnataka	6	487.48
Maharashtra	4	109.00
Rajasthan	18	2637.00
Total	**28**	**3233.48**