

GOVERNMENT OF INDIA  
MINISTRY OF POWER

**RAJYA SABHA**  
**UNSTARRED QUESTION NO.1903**  
**ANSWERED ON 17.03.2025**

**GRID RESILIENCE AMIDST EXTREME WEATHER EVENTS**

**1903 SHRI BABUBHAI JESANGBHAI DESAI:**  
**SHRI IRANNA KADADI:**  
**DR. MEDHA VISHRAM KULKARNI:**

Will the Minister of **POWER** be pleased to state:

- (a) whether Government has assessed the impact of extreme weather conditions on the reliability of country's power supply;
- (b) if so, the findings of such assessments and their implications for future power planning; and
- (c) the initiatives proposed to strengthen grid infrastructure and diversify energy sources to mitigate the risks associated with climate-induced disruptions?

**A N S W E R**

THE MINISTER OF STATE IN THE MINISTRY OF POWER

(SHRI SHRIPAD NAIK)

**(a) to (c) :** Under the provisions of Section 37 of Disaster Management Act, 2005, Disaster Management Plan (DMP) for Power Sector has been prepared by the Central Electricity Authority (CEA). This plan is revised on regular basis to keep it abreast with the new challenges. The impact of extreme weather conditions on power reliability has been assessed in the DMP for Power Sector issued in 2022. This assessment identifies risks from events like heatwaves, cyclones, floods, and lightning and their effects on generation, transmission, and distribution. The plan ensures proactive risk mitigation, grid resilience, and emergency preparedness to maintain a stable power supply.

The assessment highlights India's commitment to reliable power infrastructure despite climate challenges. Measures focus on grid resilience, renewable integration, and enhanced energy storage. Future planning emphasizes diversified energy sources and disaster-resistant transmission networks. These proactive steps ensure reliable power supply amid changing climate patterns.

The Government of India has launched several initiatives to enhance grid infrastructure and diversify energy sources. Green Grids Initiative — One Sun, One World, One Grid (GGI-OSOWOG), a global project proposed by India has been launched in collaboration with the International Solar Alliance. This initiative aims to connect regional grids to enable the transfer of renewable energy, particularly solar power. Additionally, the Government is investing in grid modernization and expanding renewable energy capacity (500 GW by 2030), including solar, wind, green hydrogen, and battery storage. Strengthening transmission networks with advanced technology and disaster-resistant designs ensures better reliability. These initiatives position India's power sector as resilient, sustainable, and future-ready.

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Further, Disaster resilient infrastructure works specified in the Disaster Management Plan for Power Sector issued by Central Electricity Authority and the Disaster Resilient Works specified by National Disaster Management Authority (NDMA) have been allowed for financial assistance under the ongoing RDSS scheme of Ministry of Power.

In addition, following provisions for disaster resilience of the system have been provided under Central Electricity Authority (Technical Standards for Construction of Electrical Plants and Electric Lines) Regulations, 2022 and Central Electricity Authority (Grid Standards) Regulations, 2010:

- a) In coastal areas underground cables shall be used.
- b) Emergency Restoration System (ERS) for restoration of transmission lines of 400 kV and 220 kV lines in order to minimize the outage time of the transmission lines in case of tower failures.
- c) Gas Insulated Sub-station shall be constructed in seismic prone areas, coastal areas, high altitude areas, very heavily polluted areas etc.
- d) Aerial Bunched Cables (ABC) or Insulated Cables or covered conductor shall be used in the congested and accident-prone areas.
- e) Wherever required, the vehicle mounted mobile sub-station comprising of trailer, incoming and outgoing high voltage and low voltage gas insulated or hybrid switchgears, power transformer, and associated connectors etc. shall be considered for putting into immediate service to resume power supply in short time in case of emergency or disaster.

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