GOVERNMENT OF INDIA
MINISTRY OF POWER

RAJYA SABHA
UNSTARRED QUESTION NO.792
ANSWERED ON 10.02.2025

ONE NATION, ONE GRID (ONOG) INITIATIVE

792 SHRI KUNWAR RATANJEET PRATAP NARAYAN SINGH:

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

(a) the economic benefits achieved through One Nation One Grid (ONOG) initiative in terms of reducing power purchase costs for states and utilities since its inception, year-wise;

(b) the details of the partnerships with international organizations or countries for technological innovation in the national grid;

(c) the details on the inter-regional transmission capacity established under the initiative;

(d) the measures implemented to protect the national grid from outages and ensure resilience against potential disruptions; and

(e) whether Government has implemented projects under ONOG to facilitate the transfer of renewable energy from surplus to deficit regions, if so, the details thereof?

A N S W E R

THE MINISTER OF STATE IN THE MINISTRY OF POWER

(SHRI SHRIPAD NAIK)

(a) : Since December 2013, India's unified national power grid, after integrating five regional grids, has strengthened the inter-state and inter-regional transmission system, reducing network congestion. The single national grid offers benefits like enhanced reliability, efficient power transmission, load balancing, integration of diverse energy sources, and resilience. A key indicator of efficient transmission is the reduction in congestion at power exchanges. Since 2017-18, the volume of electricity that couldn't be cleared, as a percentage of unconstrained cleared volume, has consistently remained below 1%, reflecting minimal congestion. The year-wise details are available in **Annexure.**

(b) : Technical issues are typically discussed at meetings of GO15, the association of 15 major international power grid operators, of which GRID-INDIA is a member. These issues are also addressed at CIGRE (International Council on Large Electric Systems), where key central power sector PSUs like POWERGRID and GRID-INDIA are members

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(c) : The inter-regional transmission capacity (as on 31st December, 2024) is 1,18,740 MW. The region wise bifurcation is as follows:

Region	ER-NR	ER-WR	WR-NR	ER-SR	WR-SR	ER-NER	NER-NR	Total
MW	22,530	21,190	38,320	7,830	22,320	3,550	3,000	1,18,740
Source-CEA/GRID-INDIA								

(d) : The measures taken to protect the national grid from outages and ensure its resilience against disruptions include steps to handle natural disasters, cyber threats, and operational challenges. The Disaster Management (DM) Act, 2005 provides a clear framework for crisis response in the power sector, with strong financial, legal, and coordination systems in place. The Central Electricity Authority (CEA) has also created a Crisis & Disaster Management Plan (C&DMP), which outlines strategies for preparation, response, and recovery.

To strengthen the grid's ability to respond to emergencies, Emergency Restoration Systems (ERS) and extra equipment are used to quickly restore transmission infrastructure. Emergency Response Teams (ERTs) are stationed at key substations and control centers for fast action. Black Start facilities and mobile diesel generators (DG sets) are ready to help restart the system if needed. Phasor Measurement Units (PMUs) monitor real-time faults, improving grid visibility and speeding up corrective actions.

In addition, Ministry of Power has established Computer Security Incident Response Team (CSIRT -Power) as an extended arm of Indian Computer Emergency Response Team (CERT-In) for effective implementation of cyber security measures for the power sector.

(e) : The basic idea behind this initiative is to establish a robust national grid to facilitate the transfer of power from power surplus regions including the Renewable energy rich states/regions to power deficit regions. Expansion of the capacity of National Grid is a continuous process commensurate with the growth in electricity generation and demand.

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ANNEXURE

ANNEXURE REFERRED IN REPLY TO PART (a) OF UNSTARRED QUESTION NO. 792 ANSWERED IN THE RAJYA SABHA ON 10.02.2025

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Network congestion in the power exchanges

Year	Unconstrained Cleared Volume (BU)	Actual Cleared Volume and hence scheduled (BU)	Volume of electricity that could not be cleared due to congestion (BU)	Volume of electricity that could not be cleared as % to Unconstrained Cleared Volume
2009-10	8.10	7.09	1.01	12.0%
2010-11	14.26	13.54	0.72	5.0%
2011-12	17.08	14.83	2.26	13.0%
2012-13	27.67	23.02	4.65	17.0%
2013-14	35.62	30.03	5.59	16.0%
2014-15	31.61	28.46	3.14	9.9%
2015-16	36.36	34.20	2.16	5.9%
2016-17	41.60	40.08	1.52	3.7%
2017-18	45.86	45.65	0.21	0.5%
2018-19	50.69	50.22	0.47	0.9%
2019-20	49.36	49.16	0.20	0.4%
2020-21	70.13	70.09	0.04	0.06%
2021-22	86.09	86.01	0.06	0.09%
2022-23	79.39	79.37	0.02	0.02%
2023-24	86.35	86.26	0.08	0.10%
Source-CEA/GRID-INDIA				

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