

**GOVERNMENT OF INDIA  
MINISTRY OF POWER**

**LOK SABHA  
UNSTARRED QUESTION NO.4386  
ANSWERED ON 27.03.2025**

**FLUCTUATION IN HYDROPOWER GENERATION**

**4386. SHRI GURMEET SINGH MEET HAYER:**

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

- (a) the details of the highest recorded peak power demand and the corresponding peak power shortage in 2024;**
- (b) the details of the projected peak power demand and potential shortages assessed for 2025 and measures planned to address them;**
- (c) the manner in which the fluctuations in hydropower generation impacted overall power availability in 2024 and the steps taken/being taken by the Government to mitigate similar challenges in the future; and**
- (d) the details of the initiatives that are in place to enhance the integration of renewable energy into the national grid and specific capacity addition targets set for 2025?**

**A N S W E R**

**THE MINISTER OF STATE IN THE MINISTRY OF POWER**

**(SHRI SHRIPAD NAIK)**

**(a): All India Peak Demand for FY 2024-25 (upto February, 2025) was 2,49,856 MW which occurred on 30.05.2024. This peak demand was successfully met with only a marginal gap of 2 MW.**

**(b): There is adequate availability of power in the country. Present installed generation capacity of the country is 470 GW. Government of India has addressed the critical issue of power deficiency by adding 238 GW of generation capacity since April, 2014 transforming the country from power deficit to power sufficient. Further, addition of 2,01,088 circuit kilometer (ckm) of Transmission lines, 7,78,017 MVA of Transformation capacity and 82,790 MW of Inter-Regional capacity has been done since 2014 with capability of transferring 1,18,740 MW from one corner of the country to another.**

**As per mid-term review of 20th Electric Power Survey, the All India Peak Demand of the country is expected to be 277 GW in 2025-26. The country is confident to meet this projected demand with optimal usage of existing and under construction capacities.**

**Further, Government of India has taken following measures to ensure uninterrupted and reliable power supply in the country:**

- (i) All the GENCOs including IPPs and Central generating stations have been advised to generate and maintain full availability on daily basis excluding the period of planned maintenance or forced outage.**
  - (ii) Hydro based generation is being scheduled in a manner so as to conserve water for meeting demand during peak period.**
  - (iii) Planned maintenance of generating units is being minimized during period of high demand.**
  - (iv) New power generation capacity is being monitored closely for timely addition.**
  - (v) Steady supply of coal to all the thermal power plants is being ensured to prevent fuel shortages.**
  - (vi) Directions under Section 11 of Electricity Act have been issued to imported coal based plants to operate and generate power to their full capacity.**
  - (vii) Gas-based power plants of NTPC as well as other generators are being scheduled during high power demand period.**
  - (viii) Government has facilitated power trading through regulatory framework whereby states with surplus generation can sell power to states which are in deficit through three (3) power exchanges viz. Indian Energy Exchange (IEX), Power Exchange India Ltd (PXIL) and Hindustan Power Exchange Ltd.**
  - (ix) Electricity market has been reformed by adding the Real Time Market (RTM), Green Day Ahead Market (GDAM), Green Term Ahead Market (GTAM), High Price Day Ahead Market (HPDAM) in Power exchange. Also, there is DEEP portal for e-bidding and e-Reverse for procurement of short-Term power by DISCOMs.**
- (c) : The hydro generation during the year 2024-25 (April, 2024 to February, 2025) was 1,39,780 Million Units (MUs) as compared to 1,27,038 MUs during corresponding period of 2023-24, showing a growth of 10 % in Hydro generation. Any shortfall/variation in generation from RE Sources including hydro is handled with corresponding change in thermal generation so as to adequately meet the power demand.**
- (d) : The Government has taken various measures to facilitate the integration of Renewable Energy (RE) resources into the National Grid to ensure reliability and stability as under:**
- i. Development of intra-state transmission network is being planned to keep pace with RE capacity addition. Strong inter connection of ISTS RE schemes with the intra-state network to ensure better reliability in terms of anchoring voltage stability, angular stability, losses reduction etc. is being done.**

- ii. **Central Financial Assistance (CFA) is being provided to the States for setting up Transmission infrastructure for RE integration within their State under the Green Energy Corridor Scheme.**
- iii. **Encouraging setting up of RE projects with storage facilities for optimal utilisation of transmission facilities.**
- iv. **Flexibilization of thermal generation is mandated to address the variability of RE generation.**
- v. **CEA (Technical Standards for Connectivity to the Grid) Regulations lay down the minimum technical requirements for the RE generating plants to ensure the safe, secure and reliable operation of the grid. The compliances to the said regulations by RE plants are verified jointly by Central Transmission Utility (CTUIL) and Grid-India/RLDCs before granting connectivity/interconnection to the national grid. Robust compliances verification is done before interconnection of any new plant to the grid.**
- vi. **Indian Electricity Grid Code mandates that RE plants participate in the primary and secondary frequency control in case of contingencies. Hybrid RE power plants, Energy Storage Systems such as BESS (Battery Energy Storage System) and PSP (Pump Storage Project) are being promoted for mitigating variability in RE generation and provide adequate frequency support to the grid.**
- vii. **Establishment of dedicated 13 No. of Renewable Energy Management Centres (REMC) in RE rich States and Regions for dedicated, monitoring, forecasting and scheduling of Solar and Wind plants.**

**The details of capacity addition for the FY 2025-26 are given at Annexure.**

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## ANNEXURE

ANNEXURE REFERRED IN REPLY TO PART (d) OF UNSTARRED QUESTION NO. 4386  
ANSWERED IN THE LOK SABHA ON 27.03.2025

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The details of capacity addition for the FY2025-26 :

Project	Implementing Agency	Unit No.	State	Capacity (MW)	Commissioning Schedule
<b>THERMAL (As on 10.03.2025)</b>					
<b>CENTRAL SECTOR</b>				<b>4,900 MW</b>	
Ghatampur TPP	NUPPL	U-2	Uttar Pradesh	660	May-25
Buxar TPP	SJVN	U-1	Bihar	660	May-25
Khurja SCTPP	THDC	U-2	Uttar Pradesh	660	Jun-25
Buxar TPP	SJVN	U-2	Bihar	660	Sep-25
Ghatampur TPP	NUPPL	U-3	Uttar Pradesh	660	Oct-25
Patratu STPP	PVUNL	U-2	Jharkhand	800	Dec-25
Patratu STPP	PVUNL	U-3	Jharkhand	800	Mar-26
<b>STATE SECTOR</b>				<b>4,380 MW</b>	
Udangudi STPP St-I	TANGEDCO	U-1	Tamil Nadu	660	May-25
Sagardighi TPP St-III	WBPDC	U-1	West Bengal	660	May-25
Yadadri TPS	TSGENCO	U-4	Telangana	800	Jun-25
Yadadri TPS	TSGENCO	U-3	Telangana	800	Jul-25
Udangudi STPP St-I	TANGEDCO	U-2	Tamil Nadu	660	Aug-25
Yadadri TPS	TSGENCO	U-5	Telangana	800	Sep-25
<b>PRIVATE SECTOR</b>				<b>0</b>	
<b>TOTAL THERMAL (CENTRAL + STATE + PRIVATE)</b>				<b>9,280</b>	
<b>HYDRO (As on 12.03.2025)</b>					
<b>CENTRAL SECTOR</b>				<b>3,170 MW</b>	
Parbati-II	NHPC	U-1 to 4	Himachal Pradesh	800	Mar-25
Rangit-IV	NHPC	U-1 to 3	Sikkim	120	Dec-25
Subansiri Lower	NHPC	U-1 to 5	Arunachal Pradesh	1250	Dec-25
Tehri PSS	THDC	U-1 to 4	Uttarakhand	1000	Oct-25
<b>STATE SECTOR</b>				<b>950 MW</b>	
Uhl-III	BVPCL	U-1 to 3	Himachal Pradesh	100	Mar-25
Lower Sileru Extension	APGENCO	U-1 to 2	Andhra Pradesh	230	Oct-25
Lower Kopili	APGCL	U-1 to 5	Assam	120	Sep-25
Kundah Pumped Storage (Phase-I, Phase-II & Phase-III)	TANGEDCO	U-1 to 4	Tamil Nadu	500	Dec-25
<b>PRIVATE SECTOR</b>				<b>1,920 MW</b>	
Kutehr	JSW	U-1 to 3	Himachal Pradesh	240	Jul-25
Pinnapuram	GREENKO	U-1 to 8	Andhra Pradesh	1680	Jul-25
<b>TOTAL HYDRO (CENTRAL + STATE + PRIVATE)</b>				<b>6,040 MW</b>	

<b>NUCLEAR</b>					
<b>CENTRAL SECTOR</b>				<b>5,900 MW</b>	
<b>Kudankulam Nuclear Power Plant</b>	<b>NPCIL</b>	<b>U-3</b>	<b>Tamil Nadu</b>	<b>4000</b>	<b>Mar-26</b>
<b>Prototype Fast Breeder Reactor (PFBR)</b>	<b>BHAVINI</b>		<b>Tamil Nadu</b>	<b>500</b>	<b>2025-26</b>
<b>Rajasthan Atomic Power Station (RAPS)</b>	<b>NPCIL</b>	<b>U-7 to 8</b>	<b>Rajasthan</b>	<b>1400</b>	<b>2025-26</b>
<b>TOTAL (THERMAL + HYDRO+NUCLEAR)</b>				<b>21,220 MW</b>	

#### **Renewable Energy :**

**1,53,920 MW Renewable Capacity including 84,310 MW of Solar, 28,280 MW of Wind and 40,890 MW Hybrid power is under construction. Out of this, 34,855 MW RE capacity is likely to be added by 2025-26.**

#### **Energy Storage Projects :**

**In energy storage systems, 13,050 MW/78,300 MWh Pumped Storage Projects are under construction/concurred and 14,970 MW/54,803 MWh Battery Energy Storage System are currently under various stages of construction/bidding. Out of this, 6,853 MW/ 36,592 MWh of energy storage system (3,180 MW/19,080 MWh Pumped Storage Projects and 3,673 MW/ 17,512 MWh of Battery Energy Storage System) is likely to be added by 2025-26.**

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