GOVERNMENT OF INDIA
MINISTRY OF POWER

LOK SABHA
UNSTARRED QUESTION NO.3255
ANSWERED ON 20.03.2025

POWER CAPACITY EXPANSION

3255. DR. SHASHI THAROOR:

Will the Minister of POWER
be pleased to state:

(a) whether there has been any progress on the planned thermal power capacity of 80,000 MW by 2031-32, including the current status of the 28,020 MW under construction and 19,200 MW awarded in the year 2024-25;

(b) if so, the details thereof and if not, the reasons therefor;

(c) the details of the key challenges faced in hydropower expansion;

(d) the details of the key challenges faced in nuclear power expansion with only 7,300 MW under construction against a 100 GW target by 2047;

(e) whether any measures have been taken to tackle the issues of challenging hydropower and nuclear power expansion;

(f) if so, the details thereof and if not, the reasons therefor;

(g) the primary hurdles in integrating renewable energy into the grid–including grid integration, storage and regulation; and

(h) whether any measures are proposed to overcome the same and if so, the details thereof?

A N S W E R

THE MINISTER OF STATE IN THE MINISTRY OF POWER

(SHRI SHRIPAD NAIK)

(a) & (b) : Government of India (GoI) has proposed in November, 2023 for setting up of an additional minimum 80,000 MW coal-based thermal capacity by 2031-32. Against this target, a total coal-based capacity of 9,350 MW has already been commissioned in 2023-24 & 2024-25 and currently, 29,900 MW of thermal capacity is under construction (Annexure-I). In FY 2024-25, contracts for 22,640 MW thermal capacity have been awarded (Annexure-II), out of which, 5,600 MW thermal capacity is now under construction.

(c) : The key challenges faced in Hydropower expansion are Land acquisition, Environment and Forest clearances, Rehabilitation & Resettlement, Inadequate Infrastructural facilities & accessibility, Law & Order/Local issues, Geological Surprises, Natural Calamities, Inter-state issues, Unfavorable State policies etc.

(d) : The key challenges faced in development of new nuclear power projects are the availability of suitable site & its acquisition, Rehabilitation & Resettlement, Environment and Forest clearances, Law & Order / Local issues, timely supplies of equipment, availability of skilled workforce and addressing public apprehensions etc. Further, there are high upfront cost of reactors, regulatory requirements, and the dependency on imported nuclear fuel.

In addition to under construction 7300 MW nuclear power capacity, an additional capacity of 7000 MW is also under implementation, at pre-project activities stage.

(e) & (f) : Central Government has taken following measures

(I) To promote the development of hydropower projects in the country:

- **Govt. of India on 08.03.2019 approved Large Hydro Power (LHPs) (> 25 MW projects) as Renewable Energy source, Hydro Purchase Obligation (HPO) as a separate entity within Non-solar Renewable Purchase Obligation (RPO), Tariff rationalization measures for bringing down hydro power tariff, Budgetary Support for Flood Moderation/Storage Hydro Electric Projects (HEPs), Budgetary Support to Cost of Enabling Infrastructure, i.e. roads/bridges.**

- **Govt. of India on 11.09.2024 has approved the modified scheme of budgetary support towards enabling infrastructure of hydroelectric projects wherein the ambit of enabling infrastructure has been widened.**

- **The timeline for concurrence of Detailed Project Report (DPR) of Hydro Electric Projects (HEPs) has been reduced to 125 days.**

- **Waiver of Inter-state Transmission System (ISTS) Charges on the transmission of power from new Hydro Power Projects, for which construction work is awarded and Power Purchase Agreement (PPA) is signed on or before 30.06.2025. Subsequently, part waiver of ISTS charges, in steps of 25% from 01.07.2025 to 01.07.2028, have been extended for Hydro Power Projects for which construction work is awarded and PPA is signed up to 30.06.2028.**

- **Govt. of India on 08.10.24 has approved the Central Financial Assistance (CFA) to the State Governments of NER towards their equity participation for development of Hydro Electric Projects in the North Eastern Region (NER) through Joint Venture (JV) Collaboration between State entities and Central Public Sector Undertakings.**

- **Measures to reduce time and cost overrun has been notified by Government of India on 8.11.2019.**

- **An IT portal, namely Jal Vidyut Amrit has been developed for monitoring the progress of under-construction hydroelectric projects.**

- **To proactively prevent contractual disputes in hydro projects, a Dispute Avoidance Mechanism has been implemented using an 'Independent Engineer' (IE) system from the project's outset. The Ministry has curated a panel of domain experts renowned for their integrity and track record. CPSEs and contractors jointly select an expert from this panel for each works package, designated as the 'Independent Engineer' (IE) for the respective contract. Disputes referred to the IE are resolved through hearings and site inspections.**

- **Government of India has established three Conciliation Committees of Independent Experts (CCIE) to address contractual disputes in projects carried out by CPSUs and Statutory Bodies under the Ministry of Power.**

(II) To promote the development of Nuclear Power projects in the country:

- **Nuclear Power Projects are being closely monitored with state governments to expedite land acquisition and implementation of Rehabilitation & Resettlement (R&R) packages for the Project Affected Persons (PAPs).**

- **Taking up pre-project activities in advance and expediting them, close monitoring and follow-up with manufacturers to ensure their timely delivery.**

- **Implementation of an exhaustive, structured, multi-pronged public awareness programme to allay the concerns of the public regarding nuclear power plants..**

(g) & (h) : **A robust national grid has been established to facilitate the transfer of power from power surplus regions to power deficit regions. The inter-regional transmission capacity has been increased from 75,050 MW during 2016-17 to 1,18,740 MW as on 31.12.2024. The capacity of National Grid is being expanded on a continuous basis commensurate with the growth in electricity generation and electricity demand.**

The primary challenges in integrating renewable energy into the grid are intermittency in RE generation, non-availability of adequate flexible resources, etc.

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) **Construction of Intra-State and Inter-State transmission systems for evacuation of Renewable power.**

(ii) **Transmission plan for integration of more than 500 GW RE capacity by 2030 has been prepared.**

(iii) **Setting up of Regional Energy Management Centers (REMCs) for better forecasting of renewable power and to assist grid operators to manage variability and intermittency of renewable power.**

(iv) **Innovative products like Solar-Wind Hybrid Projects, RE projects with energy storage systems and supply of RE power balanced with power from non-RE sources launched to reduce intermittency.**

(v) **Implementation of Green Term Ahead Market (GTAM) and Green Day Ahead Market (GDAM) for sale of renewable energy.**

(vi) **Flexibility in generation and Scheduling of Thermal/Hydro Power Stations through bundling with Renewable Energy and Storage Power. Flexibilization of thermal generation is mandated to address the variability of RE generation.**

(vii) **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.**

(viii) **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/ Regional Load Despatch Centres (RLDCs) before granting connectivity/interconnection to the national grid. Robust compliances verification is done before interconnection of any new plant to the grid.**

(ix) **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.**

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ANNEXURE-I

ANNEXURE REFERRED IN REPLY TO PARTS (a) & (b) OF UNSTARRED QUESTION NO. 3255 ANSWERED IN THE LOK SABHA ON 20.03.2025

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Details of Under Construction Thermal Capacity (Financial Year Wise)						
						(As on 01-03-2025)
Sl. No	**Project Name/ Impl. Agency**	**Sector**	**State**	**Unit No.**	**Capacity (MW)**	**Anticipated Trial Run Date**
F Y. 2024-25						
1	North Chennai TPP, St-III (TANGEDCO)	STATE	Tamil Nadu	U-1	800	Mar-25
2	Yadadri TPS (TSGENCO)	STATE	Telangana	U-1	800	Mar-25
3	Obra-C STPP (UPRVUNL)	STATE	Uttar Pradesh	U-2	660	Mar-25
4	Patratu STPP (PVUNL)	CENTRAL	Jharkhand	U-1	800	Mar-25
5	North Karanpura STPP(NTPC)	CENTRAL	Jharkhand	U-3	660	Mar-25
6	Barh STPP St-I (NTPC)	CENTRAL	Bihar	U-3	660	Mar-25
Sub-Total					4,380	
F Y. 2025-26						
7	Udangudi STPP St-I (TANGEDCO)	STATE	Tamil Nadu	U-1	660	May-25
8	Sagardighi TPP St-III (WBPDCL)	STATE	West Bengal	U-1	660	May-25
9	Ghatampur TPP (NUPPL)	CENTRAL	Uttar Pradesh	U-2	660	May-25
10	Buxar TPP (SJVN)	CENTRAL	Bihar	U-1	660	May-25
11	Yadadri TPS (TSGENCO)	STATE	Telangana	U-4	800	Jun-25
12	Khurja SCTPP (THDC)	CENTRAL	Uttar Pradesh	U-2	660	Jun-25
13	Yadadri TPS (TSGENCO)	STATE	Telangana	U-3	800	Jul-25
14	Udangudi STPP St-I (TANGEDCO)	STATE	Tamil Nadu	U-2	660	Aug-25
15	Yadadri TPS (TSGENCO)	STATE	Telangana	U-5	800	Sep-25
16	Buxar TPP (SJVN)	CENTRAL	Bihar	U-2	660	Sep-25
17	Ghatampur TPP (NUPPL)	CENTRAL	Uttar Pradesh	U-3	660	Oct-25
18	Patratu STPP (PVUNL)	CENTRAL	Jharkhand	U-2	800	Dec-25
19	Patratu STPP (PVUNL)	CENTRAL	Jharkhand	U-3	800	Mar-26
Sub-Total					9,280	
F Y. 2026-27						
20	Ennore SCTPP (TANGEDCO)	STATE	Tamil Nadu	U-1	660	Sept-26
21	Ennore SCTPP (TANGEDCO)	STATE	Tamil Nadu	U-2	660	Nov-26
22	Mahan STPP,St-II (Mahan Energen)	PRIVATE	M. P.	U-3	800	Dec-26
Sub-Total					2,120	

F Y. 2027-28						
23	**Mahan STPP,St-II (Mahan Energen)**	**PRIVATE**	**M. P.**	**U-4**	**800**	**May-27**
24	**Raigarh USCTPP, St-II/ Adani Power**	**PRIVATE**	**Chhattisgarh**	**U-3**	**800**	**Jun-27**
25	**Talcher TPP St-III (NTPC)**	**CENTRAL**	**Odisha**	**U-1**	**660**	**Sep-27**
26	**Raigarh USCTPP, St-II/ Adani Power**	**PRIVATE**	**Chhattisgarh**	**U-4**	**800**	**Oct-27**
27	**Talcher TPP St-III (NTPC)**	**CENTRAL**	**Odisha**	**U-2**	**660**	**Dec-27**
28	**Lara STPP St-II (NTPC)**	**CENTRAL**	**Chhattisgarh**	**U-1**	**800**	**Dec-27**
29	**Raipur Ext TPP, Ph-II /Adani Power**	**PRIVATE**	**Chhattisgarh**	**U-1**	**800**	**Jan-28**
Sub-Total					**5,320**	
F Y. 2028-29						
30	**Lara STPP St-II (NTPC)**	**CENTRAL**	**Chhattisgarh**	**U-2**	**800**	**Jun-28**
31	**Raipur Ext TPP, Ph-II /Adani Power**	**PRIVATE**	**Chhattisgarh**	**U-2**	**800**	**Jul-28**
32	**Koderma TPS, St-II/ DVC**	**CENTRAL**	**Jharkhand**	**U-1**	**800**	**Aug-28**
33	**Koderma TPS, St-II/ DVC**	**CENTRAL**	**Jharkhand**	**U-2**	**800**	**Dec-28**
34	**NLC TALABIRA TPP (NLC)**	**CENTRAL**	**Odisha**	**U-1**	**800**	**Mar-29**
Sub-Total					**4,000**	
F Y. 2029-30						
35	**Singrauli STPP, St-III (NTPC)**	**CENTRAL**	**UP**	**U-1**	**800**	**May-29**
36	**NLC TALABIRA TPP (NLC)**	**CENTRAL**	**Odisha**	**U-2**	**800**	**Sep-29**
37	**DCR TPP Ext., Yamunanagar**	**State**	**Haryana**	**U-1**	**800**	**Sep-29**
38	**Sipat STPP, St-III (NTPC)**	**CENTRAL**	**Chhattisgarh**	**U-1**	**800**	**Sep-29**
39	**Singrauli STPP, St-III (NTPC)**	**CENTRAL**	**UP**	**U-2**	**800**	**Nov-29**
40	**NLC TALABIRA TPP (NLC)**	**CENTRAL**	**Odisha**	**U-3**	**800**	**Mar-30**
Sub-Total					**4,800**	
Grand Total					**29,900**	

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ANNEXURE-II

ANNEXURE REFERRED IN REPLY TO PARTS (a) & (b) OF UNSTARRED QUESTION NO. 3255 ANSWERED IN THE LOK SABHA ON 20.03.2025

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Details of Awarded Thermal Capacity during the year 2024-25					
					(As on 01-03-2025)
Sl. No	**Project Name/ Impl. Agency**	**Sector**	**State**	**Capacity (MW)**	**Remarks**
1	Sipat STPP, St-III (NTPC)	Center	Chhattisgarh	800	Under Construction
2	Darlipalli-II (NTPC)	Center	Odisha	800	-
3	Raigarh USCTPP, St-II/ Adani Power	Private	Chhattisgarh	1,600	Under Construction
4	Mahan STPP,St-III (Mahan Energen)	Private	Madhya Pradesh	1,600	-
5	KodermaTPS , St-II (DVC)	Center	Jharkhand	1,600	Under Construction
6	Raipur Ext TPP, St-II /Adani Power	Private	Chhattisgarh	1,600	Under Construction
7	Mirjapur TPS / Adani Power	Private	Uttar Pradesh	1,600	-
8	Kawai STTP St-II / Adani Power	Private	Rajasthan	3,200	-
9	Telangana Stage II (NTPC)	Center	Telangana	2,400	-
10	New Nabi Nagar- II (NTPC)	Center	Bihar	2,400	-
11	Gadarwara Stage II (NTPC)	Center	Madhya Pradesh	1,600	-
12	Koradi TPP St-V (MSPGCL)	State	Maharashtra	1,320	-
13	Raghunathpur TPS, PH-II (DVC)	Center	West Bengal	1,320	-
14	Singareni St-II (SCCL)	State	Telangana	800	-
Total				22,640	

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