

GOVERNMENT OF INDIA
MINISTRY OF POWER

RAJYA SABHA
UNSTARRED QUESTION NO.676
ANSWERED ON 10.02.2025

INTEGRATION OF RENEWABLE ENERGY INTO POWER GRID

676 SMT. REKHA SHARMA:

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

- (a) the steps taken by Government to integrate renewable energy into the national grid;
- (b) the current capacity of renewable energy connected to the grid, source-wise (solar, wind, etc.);
- (c) the measures being taken to address grid stability and storage challenges; and
- (d) the role of renewable energy in meeting the country's energy transition goals?

A N S W E R

THE MINISTER OF STATE IN THE MINISTRY OF POWER

(SHRI SHRIPAD NAIK)

(a) : The steps taken by Government to integrate renewable energy into the grid include, *inter-alia*, the following:

- (i) A transmission plan for connecting 500 GW RE Capacity by 2030 has been prepared.
- (ii) Development of Inter-state Transmission System (ISTS) for evacuation of RE.
- (iii) Waiver of inter-state transmission charges on transmission of electricity generated from solar and wind projects.
- (iv) Central Financial Assistance to States for setting up transmission infrastructure for RE integration within their State.
- (v) Aggregation of demand and procurement of RE through intermediary procurers (RE Implementing Agencies) like SECI, NTPC, etc. for Distribution Companies.
- (vi) Mandating minimum prescribed flexibility in coal and lignite power plants.
- (vii) Implementation of Green Term Ahead Market (GTAM) and Green Day Ahead Market (GDAM) for sale of renewable energy.

(b) : As of 31.12.2024, the total installed RE capacity stands at 209.44 GW. The source-wise break-up is as follows:

Capacity in GW					
Small Hydro Power	Wind Power	Bio Energy#	Solar Power*	Large ^Hydro	Total Capacity
5.10	48.16	11.35	97.86	46.97	209.44
# Includes Waste to Energy off grid capacity of 0.37 GW					
* Includes 75.19 GW from Ground Mounted and 15.67 GW of Rooftop. 2.77 GW of Solar Component of hybrid Projects and 4.23 GW from Off-Grid Solar					
^ Large Hydro includes 4.745 GW of Pump Storage					
Source- MNRE/CEA					

(c) : Wind and Solar energy are variable and intermittent sources of power. To address the issue of variability in power supply the measures taken include:

- (i) Government has set up thirteen Renewable Energy Management Centres (REMCs) for better forecasting and real time monitoring of RE generation.
- (ii) Load dispatch centres ensure that electricity demand is fully met using dispatchable sources such as hydro and thermal power when the wind does not blow and sun does not shine.
- (iii) installation of Static Synchronous Compensators (STATCOMs) to improve the grid reliability and voltage stability limit. A STATCOM acts as a voltage controller for the electricity grid, quickly adding or removing extra power to keep the system running smoothly.
- (iv) Central Electricity Authority (Technical Standards for Connectivity to the Grid) Regulations lay down the minimum technical requirements for RE generating plants to ensure the safe, secure and reliable operation of the grid.

The measures taken by the Government to promote Energy Storage Systems (ESS) include the following:

- (i) ESS a part of the power system as defined under clause (50) of Section 2 of the Electricity Act, 2003.
- (ii) Issuing guidelines for the procurement and utilization of Battery Energy Storage Systems (BESS) as part of generation, transmission, and distribution assets, along with ancillary services.
- (iii) Issuing Energy Storage Obligation (ESO) trajectory for the period until 2029-30, starting at 1.0% in FY 2023-24 and increasing to 4% by FY 2029-30.
- (iv) Incorporating ESS in the Guidelines for assessment of resource adequacy as an element of planning in the power sector planning process.
- (v) Publishing a National Framework for promoting & developing Energy Storage Systems.
- (vi) Providing waiver on ISTS charges for a period of 12 years for Battery Energy Storage System and 25 years for Pumped Hydro Storage System from the date of the award of the construction work.
- (vii) Providing Viability Gap Funding for development of approximately 13 GWh of BESS
- (viii) Providing budgetary support for enabling infrastructure. (Roads, Transmission lines etc.) for development of Pumped Storage Projects.

(d) : India has achieved its commitment made at COP 21- Paris Summit by meeting 40% of its installed power capacity from non-fossil fuel nine years ahead of its commitment. As on 31.12.2024, the non-fossil fuel installed capacity is about 47.10% (217.62 GW out of total 462.00 GW) against updated NDC target of achieving about 50 percent cumulative electric power installed capacity from non-fossil fuel-based energy resources by 2030.

GOVERNMENT OF INDIA
MINISTRY OF POWER

RAJYA SABHA
UNSTARRED QUESTION NO.788
ANSWERED ON 10.02.2025

SUPPLY CHAIN FOR TRANSMISSION SEGMENT

788 # SMT. SUNETRA AJIT PAWAR:

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

- (a) whether the country needs to deliberate upon the need of a PLI-like scheme to develop the domestic supply chain in the transmission segment;
- (b) if so, the reaction of the Central Government thereto and the steps taken or proposed to be taken in this regard;
- (c) whether there is a need to localize the supply chain for transmission, if so, the steps taken in this regard;
- (d) whether the country still lacks adequate capacity of transmission equipment; and
- (e) if so, the reaction of Government thereto and the steps taken by the Central Government in this regard?

A N S W E R

THE MINISTER OF STATE IN THE MINISTRY OF POWER

(SHRI SHRIPAD NAIK)

(a) to (e) : As per the National Electricity Plan (NEP-Vol II - Transmission), non-fossil fuel-based power generation will reach approximately 600 GW by 2032. To achieve this, a strong transmission infrastructure is necessary.

Currently, the country relies on imports for critical materials/items/equipments required to build very high voltage transmission systems. These include, *inter-alia*, power transistors and other items used in High Voltage Direct Current equipment, Cold Rolled Grain Oriented (CRGO) steel used in transformers and reactors, STATCOMs, Gas Insulated systems, Sub-Sea Cables. Historically, the manufacturing of these items has been concentrated in a few countries that have technological advantages and benefit from economies of scale. In addition to financial and non-financial support, domestic manufacture of some of these items requires technology.

Recognising the need to develop domestic supply chains for these items, Government has initiated the following steps:

- (i) Ministry of Steel has included CRGO steel as a sub-category under the PLI scheme for Specialty Steel used in manufacturing of Transformers & Reactors.
- (ii) Government has already announced to set up a National Manufacturing Mission covering small, medium and large industries for furthering “Make in India” by providing policy support, execution roadmaps, governance and monitoring framework for central ministries and states. The Mission will aim to improve domestic value addition and build our ecosystem. It will also support very high voltage transmission equipment and grid scale batteries.
- (iii) Government has introduced a Public Procurement Order that mandates products with at least 50% local content and sufficient domestic capacity to be sourced from Class-I local suppliers.
- (iv) Ministry of Power has engaged in discussions with stakeholders, including manufacturers and industry associations, to explore the feasibility of localising the supply chains for transmission equipment in India.

GOVERNMENT OF INDIA
MINISTRY OF POWER

RAJYA SABHA
UNSTARRED QUESTION NO.789
ANSWERED ON 10.02.2025

ENERGY CONSERVATION

789 # SHRI DEEPAK PRAKASH:

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

- (a) whether the performance of the country in the field of energy conservation is satisfactory as compared to other countries, if so, the details thereof;
- (b) the details of energy conservation programmes being implemented by Government; and
- (c) the extent of success achieved with regard to meet the set goals?

A N S W E R

THE MINISTER OF STATE IN THE MINISTRY OF POWER

(SHRI SHRIPAD NAIK)

(a): The performance of the country with regard to energy conservation is one of the best when compared to other countries of the world. As per the estimates of International Energy Agency, the improvement of global energy intensity during the period from 2010-19 was 2% whereas same for India was 2.5%. During the period from 2021-24, the global energy intensity improved by 1.3% whereas, India's energy intensity improved by 1.6%. It is estimated that in 2024 itself the global energy intensity is expected to improve by around 1% in 2024 whereas, India's energy intensity is expected to improve by 2.5%. (Energy intensity has been measured in terms of Mega Joule/USD at 2015 Purchasing Power Parity in the above estimations.)

(b) & (c) : The major Energy Conservation programmes being implemented by Government include Perform, Achieve and Trade for industries, Standards and Labelling scheme for appliances, Unnat Jyoti by Affordable LEDs for All (UJALA) scheme, Energy Conservation Building Code and adoption of electric mobility.

As per the report of Bureau of Energy Efficiency, a statutory body under Ministry of Power, the implementation of various energy efficiency schemes/ programmes have led to an overall energy savings of 53.60 Million tonnes of Oil Equivalent (MTOE) which is about 5.89% of the total primary energy supply of the country for the year 2023-24.

GOVERNMENT OF INDIA
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RAJYA SABHA
UNSTARRED QUESTION NO.790
ANSWERED ON 10.02.2025

CALORIFIC VALUE OF INDIAN COAL

790 SHRI AJIT KUMAR BHUYAN:

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

- (a) whether loss in calorific value of Indian coal from mine end to central generating plants is much higher than national average T&D loss and is upto 35 per cent;
- (b) if so, the list of plants with loss in calorific value;
- (c) year-wise quantity of coal produced in the country, average calorific value and cost thereof for last five years i.e. from 2020–24; and
- (d) year-wise and central generating station wise quantity of Indian coal received, quality of coal received and charges paid for last five years i.e. from 2020-24?

A N S W E R

THE MINISTER OF STATE IN THE MINISTRY OF POWER

(SHRI SHRIPAD NAIK)

(a) & (b): Coal Controller Organisation (CCO) regularly assesses and declares grades of coal mine. However, due to the inherent heterogeneous nature of Indian coal, the calorific value of coal extracted within the same seam at different points tends to vary.

As per the Fuel Supply Agreement (FSA), once delivery of coal have been effected at delivery point by the coal company, the property / title and risk of coal so delivered shall stand transferred to the power plants. Thus, for billing purpose, the quality of coal is assessed at the loading-end.

In order to ascertain coal quality at loading end, power plant and coal company jointly engage Third-party Sampling Agencies (TPSA).

Coal company initially bills as per the declared grade of coal. However, whenever the grade of coal at loading end, as per TPSA, is found to be lower / higher than the declared grade, coal company issues credit / debit note to power plants.

There are instances of loss in calorific value of coal received at thermal power plant end. The plant wise details in case of NTPC, DVC and NLCIL are given at **Annexure-I**.

(c): The details of quantity of coal produced in the country during the last five years are given at **Annexure-II**. The details of average calorific value for the last five years are given at **Annexure-III**. The details of the cost of production of coal of CIL and SCCL are given at **Annexure-IV**.

(d): The details of the year-wise and central generating station wise quantity of Indian coal received, quality of coal received and charges paid for last five years i.e. from 2020-24 are given at **Annexure-V**.

ANNEXURE-I

ANNEXURE REFERRED IN REPLY TO PARTS (a) & (b) OF UNSTARRED QUESTION
NO. 790 ANSWERED IN THE RAJYA SABHA ON 10.02.2025

Plant wise details of loss of calorific value in case of NTPC, DVC and NLCILNTPC Ltd. (FY 19-20 to 21-22)

FY	FY19-20			FY20-21			FY21-22		
	Avg. Mines end GCV (Kcal/Kg)	Avg. GCV at NTPC Power-House end (Kcal/Kg)	% Loss in GCV w.r.t. Mines end and Unloading end	Avg. Mines end GCV (Kcal/Kg)	Avg. GCV at NTPC Power-House end (Kcal/Kg)	% Loss in GCV w.r.t. Mines end and Unloading end	Avg. Mines end GCV (Kcal/Kg)	Avg. GCV at NTPC Power-House end (Kcal/Kg)	% Loss in GCV w.r.t. Mines end and Unloading end
Barauni	4659	4258	8.6	4675	4431	5.2	4142	4118	0.6
Barh	3875	3894	-0.5	4236	3836	9.4	4726	3981	15.8
Bongaigaon	5367	4767	11.2	5312	4955	6.7	5038	4503	10.6
Dadri - Coal	4536	3953	12.9	4530	3874	14.5	4483	4122	8
DARLIPALLI	3422	3275	4.3	3400	3295	3.1	3296	3233	1.9
Farakka	4509	4048	10.2	4285	3961	7.6	5171	4247	17.9
Gadarwara	5084	4462	12.2	4402	3966	9.9	4319	3794	12.2
Kaanti									
Kahalgaon	3740	3594	3.9	3665	3518	4	4013	3603	10.2
Khargone	4831	4352	9.9	4513	4168	7.6	4450	3926	11.8
Korba	4108	3752	8.7	4138	4002	3.3	4158	3951	5
Kudgi	4900	4499	8.2	3863	3541	8.3	4136	3731	9.8
Lara	4886	4442	9.1	4340	4120	5.1	3878	3464	10.7
Mouda	4244	3928	7.5	4189	3925	6.3	4062	3499	13.9
North Karanpura									
NPGC Nabinagar	4763	4309	9.5	5178	4366	15.7	4412	4205	4.7
Ramagundam	4354	4129	5.2	4074	4000	1.8	4194	4092	2.4
Rihand	4522	4467	1.2	4415	4302	2.6	4441	4385	1.3
Simhadri	4243	3749	11.6	3898	3493	10.4	3918	3495	10.8
Singrauli	4462	4102	8.1	4553	4272	6.2	4661	4232	9.2
Sipat	4078	4001	1.9	4101	3983	2.9	3816	3742	2
Solapur	4694	4139	11.8	3940	3671	6.8	4149	3797	8.5
Talcher Super	3509	3154	10.1	4002	3609	9.8	3749	3380	9.8
TALCHER-THER	3717	3739	-0.6	3816	3595	5.8			
Tanda	4430	4022	9.2	4073	3780	7.2	4325	4034	6.7
Telangana									
Unchahar	4644	4118	11.3	4093	3822	6.6	4574	4055	11.4
Vindhyachal	4724	3862	18.3	4538	3943	13.1	4507	3990	11.5

NTPC Ltd. (FY 22-23 to 23-24)

FY	FY22-23			FY23-24		
Stations	Avg. Mines end GCV (Kcal/Kg)	Avg. GCV at NTPC Power-House end (Kcal/Kg)	% Loss in GCV w.r.t. Mines end and Unloading end	Avg. Mines end GCV (Kcal/Kg)	Avg. GCV at NTPC Power-House end (Kcal/Kg)	% Loss in GCV w.r.t. Mines end and Unloading end
Barauni	4349	3807	12.5	4662	3746	19.6
Barh	4728	3961	16.2	4965	3966	20.1
Bongaigaon	5252	4449	15.3	5473	4529	17.2
Dadri - Coal	4574	3928	14.1	4706	3648	22.5
DARLIPALLI	3192	3203	-0.3	3295	3261	1
Farakka	5158	4187	18.8	5614	4581	18.4
Gadarwara	4418	3684	16.6	4656	3749	19.5
Kaanti	4687	4041	13.8	4765	3853	19.2
Kahalgaon	4552	3865	15.1	4152	3603	13.2
Khargone	4461	3840	13.9	4792	4033	15.8
Korba	4059	3775	7	4181	3909	6.5
Kudgi	3964	3360	15.2	4210	3426	18.6
Lara	3479	3156	9.3	3367	3527	-4.7
Mouda	3923	3578	8.8	4155	3627	12.7
North Karanpura				4158	3657	12
NPGC Nabinagar	4525	4057	10.4	4676	4069	13
Ramagundam	3871	3688	4.7	3987	3714	6.8
Rihand	4524	4346	3.9	4385	4137	5.7
Simhadri	3685	3172	13.9	3670	3239	11.8
Singrauli	4668	4323	7.4	4592	4325	5.8
Sipat	3862	3780	2.1	3890	3715	4.5
Solapur	4150	3633	12.4	4436	3648	17.8
Talcher Super	3878	3659	5.7	3811	3451	9.4
TALCHER-THER						
Tanda	4253	3912	8	4733	3972	16.1
Telangana				3495	3437	1.7
Unchahar	4617	4030	12.7	4888	3988	18.4
Vindhyachal	4494	4158	7.5	4585	4337	5.4

Damodar Valley Corporation (DVC)

GCV data for FY 2019-20 to FY 2023-24					
Period	Plants	Avg. Mines end GCV (Kcal/Kg)	Avg. GCV at DVC Power-House end (Kcal/Kg)	Difference between Avg. Mines end GCV & AVG Power house end GCV (Kcal/Kg)	% Loss in GCV w.r.t. Mines end and Unloading end
FY 2019-20	BTPS	5060	4303	757	15%
	CTPS	5113	3928	1185	23%
	DSTPS	5320	3827	1493	28%
	KTPS	5235	3983	1252	24%
	MTPS	5229	3653	1576	30%
	RTPS	4926	3851	1075	22%
FY 2020-21	BTPS	5038	4275	763	15%
	CTPS	4952	3988	964	19%
	DSTPS	4998	3685	1313	26%
	KTPS	5071	4120	951	19%
	MTPS	5000	3675	1325	26%
	RTPS	5350	3787	1563	29%
FY 2021-22	BTPS	4920	4212	708	14%
	CTPS	4897	3920	977	20%
	DSTPS	4551	3571	980	22%
	KTPS	4963	3887	1076	22%
	MTPS	4998	3569	1429	29%
	RTPS	5139	3623	1516	30%
FY 2022-23	BTPS	5194	4129	1065	21%
	CTPS	5200	3612	1588	31%
	DSTPS	4386	3564	822	19%
	KTPS	5128	3710	1418	28%
	MTPS	4937	3427	1510	31%
	RTPS	4990	3507	1483	30%
FY 2023-24	BTPS	5081	3996	1085	21%
	CTPS	5037	3544	1493	30%
	DSTPS	5305	3995	1310	25%
	KTPS	5133	3844	1289	25%
	MTPS	5173	3516	1657	32%
	RTPS	5075	3663	1412	28%

BTPS : Bokaro Thermal Power Station, Jharkhand

CTPS : Chandrapura Thermal Power Station, Jharkhand

DSTPS : Durgapur Steel Thermal Power Station, West Bengal

KTPS :Koderma Thermal Power Station, Jharkhand

MTPS : Mejia Thermal Power Station, West Bengal

RTPS : Raghunathpur Thermal Power Station, West Bengal

NLC India Limited (NLCIL)

Financial Year	PLANT	MINE END AVERAGE GCV (KCAL/KG)	DISCHARGE END AT NTPL UNLOADING POINT AVERAGE GCV (KCAL/KG)	DIFFERENCE BETWEEN AVERAGE MINE END AND AVERAGE DISCHARGE END GCV (KCAL/KG)	% LOSS IN GCV WRT MINES END AND UNLOADING END
2019-20	NTPL	4290	4102	188	4.38%
2020-21		4480	4254	226	5.04%
2021-22		3970	3828	142	3.59%
2022-23		3682	3568	114	3.10%
2023-24		3696	3614	82	2.22%

ANNEXURE-II

**ANNEXURE REFERRED IN REPLY TO PART (c) OF UNSTARRED QUESTION NO. 790
ANSWERED IN THE RAJYA SABHA ON 10.02.2025**

The details of quantity of coal produced in the country during the last five years

Year	Production (Million Tonnes)
2023-24	997.826
2022-23	893.191
2021-22	778.210
2020-21	716.083
2019-20	730.874

ANNEXURE REFERRED IN REPLY TO PART (c) OF UNSTARRED QUESTION NO. 790
ANSWERED IN THE RAJYA SABHA ON 10.02.2025

The details of average calorific value for the last five years

Subsidiary wise FY wise Weighted average GCV of Non Coking Coal		
FY	Subsidiary	Weighted Average GCV (Kcal/Kg)
2019-20	BCCL	5264
	CCL	4326
	ECL	5146
	MCL	3500
	NCL	4724
	NEC	6396
	SECL	4218
	WCL	4276
	CIL	4240
	SCCL	4031
2020-21	BCCL	5245
	CCL	4267
	ECL	5120
	MCL	3470
	NCL	4656
	NEC	6675
	SECL	4204
	WCL	4285
	CIL	4192
	SCCL	4072
2021-22	BCCL	5168
	CCL	4245
	ECL	5547
	MCL	3527
	NCL	4646
	NEC	6653
	SECL	4182
	WCL	4240
	CIL	4180
	SCCL	4113

2022-23	BCCL	5335
	CCL	4255
	ECL	5610
	MCL	3539
	NCL	4692
	NEC	6627
	SECL	4182
	WCL	4233
	CIL	4187
	SCCL	4094
2023-24	BCCL	5015
	CCL	3996
	ECL	5271
	MCL	3613
	NCL	4742
	NEC	6775
	SECL	4196
	WCL	4233
	CIL	4192
	SCCL	4116

ANNEXURE-IV

**ANNEXURE REFERRED IN REPLY TO PART (c) OF UNSTARRED QUESTION NO. 790
ANSWERED IN THE RAJYA SABHA ON 10.02.2025**

The details of the cost of production of coal of CIL and SCCL

	2023-24	2022-23	2021-22	2020-21	2019-20
Cost of Production of CIL (₹ per Tonne)	1337	1447	1406	1305	1319
Cost of Production of SCCL (₹ per Tonne)	2993	2693	2547	2098	2098

**ANNEXURE REFERRED IN REPLY TO PART (d) OF UNSTARRED QUESTION NO. 790
ANSWERED IN THE RAJYA SABHA ON 10.02.2025**

**The details of the quantity and quality of domestic coal received and charges paid for the same
at power plants of NTPC, Damodar Valley Corporation (DVC) and NTPL**

NTPC Ltd. (FY – 19-20 to 21-22)

Coal Receipt Qty in LMT, Quality of Coal Recvd in Kcal/kg, Charges paid in Cr

Year	FY 19-20			FY 20-21			FY 21-22		
NTPC Stations	Coal Receipt Qty	Quality of Coal Recvd	Charges paid	Coal Receipt Qty	Quality of Coal Recvd	Charges paid	Coal Receipt Qty	Quality of Coal Recvd	Charges paid
Singrauli	99.01	4102	2,507.32	95.4	4272	2,116.88	94.78	4232	1,850.09
Rihand	131.33	4467	2,977.99	143.81	4302	2,952.57	140.67	4385	2900.02
Vindhyachal	247.88	3862	4922.86	249.04	3943	5748.73	246.63	3990	4796.95
Ramagundam	105.63	4129	4048.53	101.03	4000	3879.84	107.96	4092	3782.16
Korba	140.76	3752	2407.52	138.15	4002	2597.77	140.35	3951	2567.42
Sipat	139.23	4001	2278.13	152.28	3983	2859.86	139.32	3742	2425.92
Talcher - Kaniha	157.6	3154	3121.19	161.82	3609	3408.17	168.78	3380	2879.04
Talcher - Thermal	30.23	3739	542.7	28.64	3595	514.07			
Farakka	96.59	4048	3645.05	80.52	3961	2729.41	78.21	4247	2,833.86
Kahalgaon	133.1	3594	3222.9	108.87	3518	2,731.17	114.91	3603	3,178.33
Lara	16.66	4442	339.38	41.57	4120	942.29	80.33	3464	1,811.55
Darlipalli	6.99	3275	94.21	35.37	3295	478.29	65.4	3233	772.97
North Karanpura									
Unchahar	56.91	4118	1,775.23	48.85	3822	1,397.43	51.93	4055	1,576.30
Tanda	30.7	4022	429.64	35.56	3780	1,049.38	55.32	4034	1,293.64
Dadri	44.21	3953	1043.87	19.74	3874	601.51	36.02	4122	816.56
Mouda	70.76	3928	1,745.17	39.69	3925	1,289.72	70.55	3499	2271.26
Solapur	7.97	4139	233.28	22.35	3671	487.99	26.03	3797	737.73
Kudgi	24.03	4499	577.19	28.94	3541	786.17	34.67	3731	1,030.39
Simhadri	76.85	3749	1,929.91	59.11	3493	1,485.41	89.76	3495	1,808.35
Barh	54.97	3894	1,108.63	51.1	3836	1,369.18	57.09	3981	1,976.17
Bongaigaon	26.51	4767	785.97	14.27	4955	527.17	24.06	4503	755.6
Gadarwara	8.72	4462	127.57	27.93	3966	701.46	49.44	3794	1,339.71
Barauni	2.7	4258	113.41	9.06	4431	249.12	16.28	4118	424.66
Khargone	9.95	4352	202.94	26.41	4168	383.4	37.47	3926	917.29
KBUNL Kanti*									
NPGCL Nabinagar*									
Telangana									

*Kanti & NPGCL were JVs prior to 2022-23

^Commissioning Coal

NTPC Ltd. (FY –22-23 to 23-24)

Coal Receipt Qty in LMT, Quality of Coal Recvd in Kcal/kg, Charges paid in Cr

Year	FY 22-23			FY 23-24		
NTPC Stations	Coal Receipt Qty	Quality of Coal Recvd	Charges paid	Coal Receipt Qty	Quality of Coal Recvd	Charges paid
Singrauli	96.76	4323	2023.5	98.58	4325	2178.34
Rihand	140.85	4346	3170.4	144.61	4137	3256.63
Vindhyachal	238.79	4158	4991.92	223.66	4337	5282.22
Ramagundam	102.69	3688	4917.78	116.48	3714	5644.63
Korba	140.74	3775	2447.11	136.37	3909	2541.7
Sipat	133.22	3780	2423.49	147.79	3715	2676.68
Talcher -Kaniha	156.98	3659	2922.57	163.09	3451	2942.34
Talcher -Thermal						
Farakka	71.22	4187	2,927.41	86.62	4581	3448.75
Kahalgaon	103.75	3865	3,524.33	125.09	3603	3,694.65
Lara	83.02	3156	1,362.36	83.61	3527	1,087.41
Darlipalli	83.79	3203	1,040.80	90.7	3261	1,096.71
North Karanpura				39.35	3657	914
Unchahar	52.54	4030	1,456.49	53.07	3988	1,800.20
Tanda	58.91	3912	1,626.92	63.89	3972	1,719.08
Dadri	55.85	3928	1,439.89	65.72	3648	1,881.72
Mouda	87.83	3578	2,936.30	96.77	3627	3,162.73
Solapur	32.88	3633	990.89	45.18	3648	1,792.66
Kudgi	58.71	3360	1,473.23	71.24	3426	2,387.01
Simhadri	84.99	3172	1,641.89	80.45	3239	1,860.07
Barh	83.67	3961	2,545.34	96.46	3966	2,840.02
Bongaigaon	29.76	4449	1,167.61	32.22	4529	923.38
Gadarwara	50.14	3684	1,305.37	56.9	3749	1,605.65
Barauni	24.09	3807	630.36	23.58	3746	602.56
Khargone	29.39	3840	1,082.39	44.82	4033	1,439.03
KBUNL Kanti*	19.66	4041	352.93	21.4	3853	540.9
NPGCL Nabinagar*	70.91	4057	1,016.33	89.96	4069	2,437.81
Telangana			26.54^	18.79	3437	904.17

*Kanti & NPGCL were JVs prior to 2022-23

^Commissioning Coal

Damodar Valley Corporation (DVC)

FY	2019-20			2020-21			2021-22		
DVC TPPs	Coal Received Qty (MT)	Quality of coal Received GCV (Kcal/Kg)	Charges paid in Cr. (cost of coal)	Coal Received Qty (MT)	Quality of coal Received GCV (Kcal/Kg)	Charges paid in Cr. (cost of coal)	Coal Received Qty (MT)	Quality of coal Received GCV (Kcal/Kg)	Charges paid in Cr. (cost of coal)
Bokaro TPS	1.71	4303	579	1.84	4275	637	1.78	4212	604
Chandrapura TPS	2.08	3928	687	1.83	3988	645	2.32	3920	813
Durgapur Steel TPS	4.12	3827	1607	3.65	3685	1314	4.02	3571	1358
Koderma TPS	4.25	3983	1515	4.46	4120	1533	4.27	3887	1461
Mejia TPS	9.15	3653	3285	8.47	3675	2866	9.74	3569	3391
Raghunathpur TPS	3.46	3851	1252	3.11	3787	1104	3.99	3623	1564

FY	2022-23			2023-24		
DVC TPPs	Coal Received Qty (MT)	Quality of coal Received GCV (Kcal/Kg)	Charges paid in Cr. (cost of coal)	Coal Received Qty (MT)	Quality of coal Received GCV (Kcal/Kg)	Charges paid in Cr. (cost of coal)
Bokaro TPS	2.00	4129	735	2.38	3996	887
Chandrapura TPS	2.13	3612	709	2.56	3544	938
Durgapur Steel TPS	4.19	3564	1406	4.46	3995	1965
Koderma TPS	4.32	3710	1414	4.44	3844	1625
Mejia TPS	10.32	3427	3623	10.77	3516	4276
Raghunathpur TPS	3.44	3507	1414	4.65	3663	1897

NLC India Limited (NLCIL)

FY		2020			2021			2022		
Thermal Power Station	Received from	Coal received (MT)	Quality Coal received GCV (Kcal / Kg)	Charges Paid Rs. Cr.	Coal received (MT)	Quality Coal received GCV (Kcal / Kg)	Charges Paid Rs. Cr.	Coal received (MT)	Quality Coal received GCV (Kcal / Kg)	Charges Paid Rs. Cr.
NLCIL	From ECL-G12	996773	6100 - 6400	300.03	554775	6100-6400	166.69	14500	6100 - 6400	4.36
	From MCL- G4	1685678	3700-4000	151.04	1696635	3700-4000	152.02	1511282	3700-4000	135.41
NUPPL	From MCL G10	Unit-1 COD from 12.12.2024								

FY		2023			2024		
Thermal Power Station	Received from	Coal received (MT)	Quality Coal received GCV (Kcal / Kg)	Charges Paid Rs. Cr.	Coal received (MT)	Quality Coal received GCV (Kcal / Kg)	Charges Paid Rs. Cr.
NLCIL	From ECL-G12	--	--	--	--	--	--
	From MCL-G4	1737603	3700-4000	155.69	730241	3700-4000	65.43
NUPPL	From MCL G10	Unit-1 COD from 12.12.2024			295221	4300-4600	87.29

NTPL- NLC Tamil Nadu Power Limited, Tuticorin, TN.

NUPPL-Neyveli Uttar Pradesh Power Project Limited, Ghatampur, UP.

GOVERNMENT OF INDIA
MINISTRY OF POWER

RAJYA SABHA
UNSTARRED QUESTION NO.791
ANSWERED ON 10.02.2025

FLUE GAS DESULFURIZATION SYSTEMS (FGD)

791 SMT. RANJEET RANJAN:

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

- (a) the current status of the installation of Flue Gas Desulfurization (FGD) systems in thermal power plants across the country, including the number of plants with completed installations;
- (b) the timeline set for the completion of FGD installations to ensure compliance with emission control standards mandated by environmental regulations;
- (c) the challenges faced in the installation process, such as financial constraints, technical issues, or delays, and the measures being taken to address these;
- (d) the steps being taken to enforce adherence to FGD installation; and
- (e) the deadlines to meet the country's emission reduction commitments?

A N S W E R

THE MINISTER OF STATE IN THE MINISTRY OF POWER

(SHRI SHRIPAD NAIK)

(a) : Total 537 Units [2,04,160 Mega Watt (MW)] have been identified for installation of Flue Gas Desulphurization (FGDs) in Thermal Power Plants (TPPs). Out of these, FGD installation has been completed in 49 Units (25,590 MW), contracts awarded / under implementation in 211 Units (91,880 MW), 180 Units (58,997 MW) are under various stages of tendering process and 97 Units (27,693 MW) are under pre-tendering process.

(b) to (d): Ministry of Environment Forest & Climate Change (MoEF&CC) vide its revised notification dated 30.12.2024 has prescribed the following timelines for TPPs to comply with the SO₂ emission norms:

Sl. No.	Category	Location/Area	Timelines for Compliance (Non-retiring units)	Last date for retirement of units for exemption from compliance
1	Category A	With 10 km radius of National Capital Region or cities having million plus population	Up to 31st December, 2027	Up to 31st December, 2030

2	Category B	With 10 km radius of Critically Polluted Areas or Non-attainment cities	Up to 31st December, 2028
3	Category C	Other than those included in category A and B	Up to 31st December, 2029

In case of non-compliance beyond the specified timelines, MoEF&CC has prescribed the following Environment Compensation on the non-retiring TPPs:

Non-Compliant operation beyond the Timeline	Environmental Compensation (Rs. Per unit electricity generated)
0-180 days	0.20
181-365 days	0.30
366 days and beyond	0.40

Major issues/challenges being faced by TPPs during the implementation of FGD system in thermal power plants are as below:

- (i) FGD technology being new to our country, there are at present limited vendors with limited capacity to supply and install FGD components. Vendor's capacity for FGD installation is about 16-20 GW per annum (33 to 39 units) in the country and installation time is about 36 to 40 months which has led to mismatch in demand and supply of FGD equipment, leading to escalating costs and delays.
- (ii) India had manufacturing capability of 70% FGD components which has now increased to 80% with the passage of time. However, it still depends on the imports from other countries for technology, critical equipment and skilled manpower.
- (iii) The installation of FGD systems is more like a Renovation and Modernization (R&M) project which has distinguished difficulties in terms of conceptualization and design challenges. Standardization could not be done as different sites have different requirements like space constraints, lay-out and orientation etc.

To address the above issues, vendors have been encouraged to enhance their capacity and to maximize the indigenous production of all FGD parts in order to reduce import dependence.

(e): Regarding, Green House Gas (GHGs) emission, India's Nationally Determined Contribution (NDC) have been submitted to United Nations Framework Convention on Climate Change (UNFCCC). The target to reduce the emissions intensity of Gross Domestic Product (GDP) has been set at 45 percent by 2030 from the 2005 level and 'Net Zero' is targeted to be achieved by 2070.

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

(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.

ANNEXURE

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

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				

GOVERNMENT OF INDIA
MINISTRY OF POWER

RAJYA SABHA
UNSTARRED QUESTION NO.793
ANSWERED ON 10.02.2025

USE OF BIO-GAS BY THERMAL POWER PLANTS

793 SHRI VIKRAMJIT SINGH SAHNEY:

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

- (a) the quantum of Bio Gas from crop residue stubble being used by various thermal plants in the country, tonnage-wise, thermal power plant-wise;
- (b) whether Government is planning to incentivise the farmers who are not burning stubble and processing it to be sent to Bio Gas/Thermal Plant, if so, the details thereof, if not, the reasons therefor; and
- (c) whether Government is planning to incentivise the stubble processing plants, if so, the details thereof, if not, the reasons therefor?

A N S W E R

THE MINISTER OF STATE IN THE MINISTRY OF POWER

(SHRI SHRIPAD NAIK)

(a) : Biogas from crop residue stubble is not being used in Thermal Power Plants (TPPs). However, Biomass pellets made from crop residue are being co-fired in TPPs along with coal.

(b) & (c) : The Government of India has taken various measures to utilize stubble and tackle air pollution caused by stubble burning, which include:

- (i) Ministry of Agriculture & Farmers Welfare (MoA&FW) in 2018 launched scheme for providing subsidy for purchase of crop residue management machinery and establishment of Custom Hiring Centres (CHCs) in National Capital Territory (NCT) of Delhi and the States of Punjab, Haryana and Uttar Pradesh for in-situ management of paddy straw. The scheme provides 50% financial assistance to farmers for purchasing crop residue management machinery, and 80% assistance to rural entrepreneurs (Rural youth & Farmer as an entrepreneur), Cooperative Societies of farmers, Farmer Producer Organizations (FPOs) and Panchayats for setting up Custom Hiring Centers. It also offers 65% financial support (up to Rs. 1.5 crore) for paddy supply chain projects involving machinery like tractors and balers. During the period from 2018 to 2024-25 (till 31.01.2024), a total of Rs. 3698.45 crores have been released (Punjab - Rs. 1756.45 crores, Haryana - Rs. 1081.71 crores, Uttar Pradesh - Rs. 763.67 crores, NCT of Delhi - Rs. 6.05 Crores and ICAR-Rs. 83.35 crores). The states have distributed more than 3.00 lakh machines to the individual farmers and to more than 40,000 Custom Hiring Centres in these 4 States, which also include more than 4,500 Balers & Rakes which are used for collection of straw in the form of bales for further ex-situ utilization.

.....2.

- (ii) Ministry of New and Renewable Energy (MNRE), Government of India notified the National Bioenergy Programme (NBP) on November 2nd, 2022 for the period from FY 2021-22 to 2025-26. The Programme was recommended for implementation with a budget outlay of Rs. 858 Crore. The NBP of MNRE aims to promote the use of bioenergy and waste-to-energy technologies to enhance energy security and support sustainable development in India and sustainable use of biogenic waste for energy production.

MNRE has been implementing the following three Bioenergy schemes under the umbrella of National Bioenergy Programme (NBP):

- a. **Waste to Energy programme:** The objective of the programme is to support setting up of waste to energy projects for generation of Biogas/ Bio-CNG/ Power / producer or syngas from urban, industrial and agricultural waste / residues;
- b. **Biomass Power programme:** The objective of the programme is to support setting up of biomass-based briquettes / pellets manufacturing plants and to support biomass (non-bagasse) based Cogeneration Projects in Industries in the country; and
- c. **Biogas programme:** This programme focuses on supporting small and medium size biogas plants (ranging from 1 to 2500 m³ biogas generation per day) to provide clean cooking fuel and decentralized power and thermal applications by use of animal waste and other suitable waste for anaerobic digestion.

Crop residue stubble is being used as a feedstock for various bioenergy projects such as generation of biogas, manufacturing of briquette & pellets, compressed biogas (CBG) and biomass (non-bagasse) based Cogeneration Projects. The Central Financial Assistance (CFA) being provided under the NBP by MNRE is placed at **Annexure**.

- (iii) Central Pollution Control Board (CPCB) provides one-time financial support under Environment Protection Charge (EPC) funds for establishment of palletisation and Torrefaction plants to promote utilisation of paddy straw. Under this scheme, for setting up of palletisation plant, Rs. 28 lakhs per tonne per hour (TPH), or 40% of the capital cost considered for plant and machinery of a 01 TPH plant, whichever is lower, is provided as one-time financial assistance with a maximum total financial support of Rs. 1.4 crore per proposal. For setting up of torrefaction plants, Rs. 56 lakhs per TPH, or 40% of the capital cost considered for plant and machinery of a 01 TPH plant, whichever is lower, is provided as one-time financial assistance with a maximum total financial support of Rs. 2.8 crore.
- (iv) Ministry of Power revised the biomass policy on 16.06.2023, amending the earlier policy of 08.10.2021. The revised policy mandates a 5% biomass co-firing in Thermal Power Plants (TPPs) along with coal from FY 2024-25, with the obligation increasing to 7% from FY 2025-26.
- (v) Ministry of Petroleum and Natural Gas (MoP&NG) has launched “Sustainable Alternative Towards Affordable Transportation (SATAT)” initiative on 1st October 2018, with the aim of establishing an ecosystem for production and use of Compressed Bio Gas (CBG) produced from various waste/ biomass sources including Agri-residue. MoP&NG has also implemented a Scheme for providing financial assistance to CBG producers for procurement of biomass aggregation machinery. Under this scheme maximum financial assistance of 50% of the procurement cost of biomass aggregation machinery or Rs. 90 lakh per set (whichever is less) is being provided to CBG producers. The financial assistance of Rs. 1.8 crore for 4 tonnes per day (TPD) CBG capacity project would be provided with a capping of Rs. 9 crore per project on pro rata basis.

ANNEXURE REFERRED IN REPLY TO PARTS (b) & (c) OF UNSTARRED QUESTION NO. 793 ANSWERED IN THE RAJYA SABHA ON 10.02.2023

1	Waste to Energy Programme	Central Financial Assistance (CFA) in Rs Crore
1.1	Biogas generation	Rs 0.25 Crore per 12000 Cum/day
1.2	BioCNG generation	Rs 4.0 Crore per 4800 kg/day (for BioCNG generation from new biogas plant) Rs 3.0 Crore per 4800 kg/day (for BioCNG generation from existing Biogas plant)
1.3	Power generation based on Biogas	Rs 0.75 Crore/MW (for power generation from new biogas plant) Rs 0.5 Crore/MW (for power generation from existing Biogas plant)
1.4	Power based on bio & agro-industrial waste	Rs 0.4 Crore/MW
1.5	Biomass Gasifier	Rs. 2,500 per kWe with dual fuel engines for electrical application Rs. 15,000 per kWe with 100% gas engines for electrical application Rs. 2 lakh per 300 kWth for thermal applications

2	Biomass Programme	CFA
2.1	Briquette manufacturing plants	Rs. 9.00 Lakhs/ TPH (Maximum CFA- Rs. 45.00 Lakh per project).
2.2	Non-Torrefied Pellet manufacturing plant	Rs. 21 lakhs/MTPH production capacity or 30% of the capital cost considered for plant and machinery of 1 TPH plant, whichever is lower (Maximum Rs. 105 lakhs per project)
2.3	Torrefied Pellet manufacturing plant	Rs. 42 lakhs/MTPH production capacity or 30% of the capital cost considered for plant and machinery of 1 TPH plant, whichever is lower (Maximum Rs. 210 lakhs per project)
2.4	Non-Bagasse Cogeneration Projects	Rs. 40 Lakhs/ Megawatt Maximum CFA- Rs. 5.00 Crore per project).

GOVERNMENT OF INDIA
MINISTRY OF POWER

RAJYA SABHA
UNSTARRED QUESTION NO.794
ANSWERED ON 10.02.2025

ELECTRICAL SAFETY OF HOUSEHOLD EQUIPMENT

794 DR. AJEET MADHAVRAO GOPCHADE:

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

- (a) the actions taken by the Central Government and State Governments as on date, to ensure the electrical safety of household wiring and equipment;
- (b) the reasons as to why Government is not considering amending the act to mandate regular electrical safety checks for household wiring and equipment; and
- (c) whether the Central Government has received any representations regarding this important issue, if so, from whom and the actions taken in response to those representations?

A N S W E R

THE MINISTER OF STATE IN THE MINISTRY OF POWER

(SHRI SHRIPAD NAIK)

(a) & (b) : Under the provisions of Section 53 and Clause (b) of Sub-section 2 of Section 177 of the Electricity Act, 2003, the Central Electricity Authority (CEA) has issued the "Central Electricity Authority (Measures relating to Safety and Electric Supply) Regulations, 2023".

As per these regulations, electrical installation works, with some exceptions, in the premises of any consumer shall be carried out only by a licensed electrical contractor. The works shall be carried, on behalf of such contractors, by a person permitted by the State Government, under the direct supervision of a person holding a certificate of competency.

Bureau of Indian Standards (BIS) has published a Code of Practice for Electrical Wiring Installation (IS-732-as amended) and Code of Practice for Earthing (IS-3043-as amended) to be followed by electrical contractors to maintain the quality and standards of household wiring and switches. BIS has also published National Electrical Code (revised in 2023) providing guidelines for regulating electrical installation practices across the country. Further, in order to ensure the quality of wires and household equipment, Ministry of Commerce & Industries, Government of India has notified orders.

To promote ease of living, CEA Safety regulations mandate that the electrical installations below or equal to the notified voltage shall be, periodically, self-certified by the owner or consumer. The Appropriate Government shall decide voltage level and periodicity. However, the owner or consumer has the option to get his installation inspected and tested by an Electrical Inspector of the Appropriate Government. It is also provided that the owner or consumer may take assistance of Chartered Electrical Safety Engineer (CESE), authorized by the Appropriate Government for periodic self certification.

(c): The Central Government has provided reply to the two representations received from Dr. Ajeet Madhavrao Gopchade, Member of Parliament on similar issues.

GOVERNMENT OF INDIA
MINISTRY OF POWER

RAJYA SABHA
UNSTARRED QUESTION NO.795
ANSWERED ON 10.02.2025

POWER DEMAND IN THE COUNTRY

795 DR. DHARMASTHALA VEERENDRA HEGGADE:

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

- (a) whether power demand in country has gone up in energy terms and total quantum of power produced in the country till now;
- (b) the present renewable energy capacity and capacity under installation;
- (c) the details of initiatives Government has taken to modernize and restructure the nation's electricity market particularly to facilitate the seamless integration of Renewable Energy sources into the power grid, ensuring optimal utilization of electricity generation resources;
- (d) the details of the concerted efforts made to make Power Sector viable; and
- (e) the steps being implemented in order to reduce the AT & C losses?

A N S W E R

THE MINISTER OF STATE IN THE MINISTRY OF POWER

(SHRI SHRIPAD NAIK)

(a) : There has been consistent growth in energy requirement and peak demand in the country. The details of all India power supply position during the last five years and current year (Upto December, 2024) are given at **Annexure-I**.

The details of power generated in the country during the last five years and current year (Upto December, 2024) are given at **Annexure-II**.

(b): As on 31.12.2024, the country has achieved 209.44 Gigawatts (GW) of installed capacity from Renewable Energy (RE) Sources (including Large Hydro) and 167.21 GW RE capacity is under installation.

(c): The Government of India has taken following initiatives to modernise and restructure the nation's electricity market including integration of renewable energy resources into the power grid:

(i) At present, three Power Exchanges namely Indian Energy Exchange (IEX), Power Exchange India Limited (PXIL) and Hindustan Power Exchange (HPX) are functional in the country to ensure optimal utilization of electricity generation resources.

(ii) Electricity (Promoting Renewable Energy Through Green Energy Open Access) Rules, 2022, has been notified on 06th June 2022 with objective of ensuring access to affordable, reliable, and sustainable green energy for all. Green Energy Open Access is allowed to any consumer with contract demand of 100 kW or above through single or multiple single connection aggregating Hundred kW or more located in same electricity division of a distribution licensee.

(iii) Various market instruments, such as Green Open Access, Green Day-Ahead Market (GDAM), and Green Term Ahead Market (GTAM), have been introduced to facilitate the trading of green energy. Additionally, a Real-Time Market has been implemented to help stakeholders manage their portfolios closer to real-time, addressing variability from renewable energy. Ancillary services are also being strengthened to support system balancing with higher renewable energy penetration.

(iv) A Renewable Energy Certificates (RECs) mechanism provides a market-based framework to balance the geographically concentrated availability of renewable energy resources. The REC framework also includes a multiplier to incentivize the adoption of new technologies.

(v) To boost RE consumption, Renewable Purchase Obligation (RPO) followed by Renewable Consumption Obligation (RCO) trajectory has been notified till 2029-30. The RCO which is applicable to all designated consumers under the Energy Conservation Act 2001 will attract penalties for non-compliance.

(vi) Standard Bidding Guidelines for tariff based competitive bidding process for procurement of Power from Grid Connected Solar, Wind, Wind-Solar Hybrid and Firm & Despatchable RE (FDRE) projects have been issued.

(d) & (e) : Government of India has been implementing various performance linked and result oriented schemes with the objective to have a financially viable and sustainable power sector. These initiatives have been designed to tackle financial and operational issues of the distribution utilities to bring in desired financial discipline in them and the State Governments. The details of steps taken are:

- (i) Putting in place Rules to ensure timely payment of subsidy by State Government.
- (ii) Timely issuance of tariffs orders.
- (iii) Proper Energy Accounting and Energy Audit.
- (iv) Ensuring that the generating companies are paid on time through Electricity Late Payment Surcharge Rules.
- (v) Compliance to Additional Prudential Norms for lending by Power Finance Corporation (PFC) Limited and REC Limited, based on the financial performance of the utilities.
- (vi) Bringing Liquidity Infusion Scheme (LIS) for payment of GENCO dues by the distribution utilities.
- (vii) Allowing additional borrowing space of 0.5% of GSDP to State Governments linked with power sector reforms.
- (viii) Corporate Governance Guidelines to enable mechanisms for performance improvement and accountability in DISCOMs.

- (ix) The release of funds under Revamped Distribution Sector Scheme (RDSS) have been linked to performance of the Distribution Utilities against various financial parameters, the prominent among them being Aggregate Technical and Commercial (AT&C) losses and ACS-ARR Gap.

Electricity being a concurrent subject, supply and distribution of electricity to the consumers is within the purview of the respective State Government/Power Utility. Government of India has been supporting the States/ UTs through schemes like Deen Dayal Upadhyaya Gram Jyoti Yojana (DDUGJY), Integrated Power Development Scheme (IPDS), Pradhan Mantri Sahaj Bijli Har Ghar Yojana (SAUBHAGYA) to improve access and quality of power supply to all consumers. Under these schemes, projects worth Rs. 1.85 lakh Cr. were executed for strengthening of power distribution infrastructure including works of covered conductor in high loss areas and creation of new/upgradation of sub-stations. These works have helped reduce losses and improve quality of supply of power.

Under the scheme of RDSS, the objective is to reduce the AT&C losses to pan-India levels of 12-15% and ACS-ARR gap to zero. Under the Scheme, Projects worth Rs. 2.78 lakh Cr. have been sanctioned. These involve loss reduction infrastructure works worth Rs. 1.48 lakh Cr. which includes replacement of bare conductors with covered conductors, laying Low Tension Aerial Bunched (LT AB) cables, and upgradation/augmentation of Distribution transformers (DT)/sub-stations, etc. Further, Smart Metering works sanctioned under the scheme cover 19.79 Cr consumers, 2.11 lakh feeders and 52.53 lakhs Distribution Transformers (DT). Implementation of these works would further help reduce losses and improve quality of supply of power to consumers.

Prepaid smart metering is one of the critical interventions envisaged under RDSS to improve the AT&C losses. It allows the Distribution Utilities to timely collect the revenues and measure energy flows at all levels, without any human interference. Proper and accurate energy accounting is the key to identification of high loss and theft prone areas, which will improve the billing and collection efficiencies of the utilities significantly.

As a result of concerted efforts made by the Government, the AT&C losses have come down from 21.91% in FY2021 to 15.37% in FY2023

ANNEXURE-I

ANNEXURE REFERRED IN REPLY TO PART (a) OF UNSTARRED QUESTION NO. 795 ANSWERED IN THE RAJYA SABHA ON 10.02.2025

The details of All India power supply position during the last five years and current year (upto December, 2024):

Year	Energy Requirement		Energy Supplied		Energy Not Supplied	
	(MU)	% Growth	(MU)	% Growth	(MU)	(%)
2019-20	12,91,010		12,84,444		6,566	0.5
2020-21	12,75,534	-1.2*	12,70,663	-1.1*	4,871	0.4
2021-22	13,79,812	8.2	13,74,024	8.1	5,787	0.4
2022-23	15,13,497	9.7	15,05,914	9.6	7,583	0.5
2023-24	16,26,132	7.4	16,22,020	7.7	4,112	0.3
2023-24 (upto December 2023)	1,224,918	--	1,221,718	--	3,134	0.3
2024-25 (upto December 2024)	1,280,037	4.5	1,278,565	4.6	1,472	0.1

*Due to Covid Pandemic

Year	Peak Demand		Peak Met		Demand not Met	
	(MW)	% Growth	(MW)	% Growth	(MW)	(%)
2019-20	1,83,804		1,82,533		1,271	0.7
2020-21	1,90,198	3.5	1,89,395	3.8	802	0.4
2021-22	2,03,014	6.7	2,00,539	5.9	2,475	1.2
2022-23	2,15,888	6.3	2,07,231	3.3	8,657	4.0
2023-24	2,43,271	12.7	2,39,931	15.8	3,340	1.4
2024-25 (upto December 2024)	2,49,856	2.7	2,49,854	4.1	2	0.001

ANNEXURE-II

ANNEXURE REFERRED IN REPLY TO PART (a) OF UNSTARRED QUESTION NO. 795 ANSWERED IN THE RAJYA SABHA ON 10.02.2025

The details of power generated in the country during the last five years and current year (Upto December, 2024):

Year	Total Generation (In Million Units)
2019-20	13,89,121
2020-21	13,81,855
2021-22	14,91,859
2022-23	16,24,465
2023-24	17,39,091
2024-25 (upto December 2024)	13,79,930

GOVERNMENT OF INDIA
MINISTRY OF POWER

RAJYA SABHA
UNSTARRED QUESTION NO.796
ANSWERED ON 10.02.2025

24 HOUR POWER SUPPLY

796 # DR. BHIM SINGH:

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

- (a) the impact of the schemes and policies run by Government in order to ensure 24-hour power supply in the country, the details thereof; and
- (b) the major technical and administrative challenges faced during implementation of smart grid and smart metering, and the steps taken by Government to deal with these challenges?

A N S W E R

THE MINISTER OF STATE IN THE MINISTRY OF POWER

(SHRI SHRIPAD NAIK)

(a) : There is adequate availability of power in the country. Present installed generation capacity of the country is 462 GW. Government of India has addressed the critical issue of power deficiency by adding 230 GW of generation capacity since April, 2014 transforming the country from power deficit to power sufficient.

Further, addition of 2,00,168 circuit kilometer (ckm) of Transmission lines, 7,66,859 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.

Electricity being a concurrent subject, supply and distribution of electricity to the consumers is within the purview of the respective State Government/Power Utility. As per the Electricity (Rights of Consumers) Rules, 2020, the distribution licensee shall supply 24x7 power to all consumers. However, the Commission may specify lower hours of supply for some categories of consumers like agriculture.

Government of India has been supporting the States/ UTs through schemes like Deen Dayal Upadhyaya Gram Jyoti Yojana (DDUGJY), Integrated Power Development Scheme (IPDS), Pradhan Mantri Sahaj Bijli Har Ghar Yojana (SAUBHAGYA) to improve access and quality of power supply to all consumers. These schemes stand closed as on 31.03.2022. Under these scheme, projects worth Rs. 1.85 lakh Cr. were executed for strengthening of power distribution infrastructure. A total of 18,374 villages were electrified under the DDUGJY and 2.86 Cr households were electrified during SAUBHAGYA.

Further, Government of India launched the Revamped Distribution Sector Scheme (RDSS) in July, 2021 with the objective of improving the quality and reliability of power supply to consumers through a financially sustainable and operationally efficient Distribution Sector. Under the scheme, infrastructure works worth Rs. 2.78 lakh Cr. have been sanctioned for the distribution utilities.

With the collective efforts of the Centre and States/UTs, the average hours of electricity supply have improved from 12.5 hours in rural areas in FY 2014 to 21.9 hours in FY 2024, and from 22.1 hours in urban areas in FY 2014 to 23.4 hours in FY 2024.

Further, the Government of India has taken following steps to ensure round the clock 24x7 power for all:

1. Generation Planning:

- (i) Installed generation capacity in 2031-32 is likely to be 874 GW. This includes capacity from conventional sources- Coal, Lignite etc., renewable sources- Solar, Wind and Hydro.
- (ii) With a view to ensure generation capacity remains ahead of projected peak demand, all the States, in consultation with CEA, have prepared their “ **Resource Adequacy Plans (RAPs)**”, which are dynamic 10 year rolling plans and includes power generation as well as power procurement planning.

(iii) All the States were advised to initiate process for creation of generation capacities; from all generation sources, as per their Resource Adequacy Plans.

(iv) In order to augment the power generation capacity, the Government of India has initiated following capacity addition programme:

(A) Ministry of Power, in consultation with States, has envisaged a plan to add thermal capacity of a minimum 80,000 MW by 2031-32. Against this target, 28,020 MW Thermal Capacity is already under construction and contracts for 19,200 MW thermal capacity have been awarded in FY 2024-25. Further, 36,320 MW of coal and lignite based candidate capacity has been identified which is at various stages of planning in the country.

(B) 13,997.5 MW of Hydro Electric Projects are 8,000 MW Pumped Storage Projects (PSPs) are under construction and 24,225.5 MW of Hydro Electric Projects and 50,760 MW of PSPs are under various stage of planning and targeted to be completed by 2031-32.

(C) 7,300 MW of Nuclear Capacity is under construction and targeted to be completed by 2029-30. 7,000 MW of Nuclear Capacity is under various stages of planning and approval.

(D) 147,160 MW Renewable Capacity including 84,190 MW of Solar, 26,200 MW of Wind and 36,330 MW Hybrid power is under construction while 79,270 MW of Renewable Capacity including 50,830 MW of Solar, 600 MW of Wind and 27,840 MW Hybrid Power is at various stages of planning and targeted to be completed by 2029-30.

(E) Six (06) Battery Energy Storage System (BESS) projects of 522.60 MW capacity are under construction and 45 BESS projects of 14,242.29 MW capacity are at various stages of planning.

2. **Transmission Planning:** Inter and Intra-State Transmission System has been planned and implementation of the same is taken up in matching time frame of generation capacity addition. As per the National Electricity Plan, about 1,91,474 ckm of transmission lines and 1274 GVA of transformation capacity is planned to be added (at 220 kV and above voltage level) during the ten year period from 2022-23 to 2031-32.

3. **Promotion of Renewable Energy Generation:**

(i) Ministry of New & Renewable Energy (MNRE) has issued Bidding Trajectory for issuance of RE power procurement bids of 50 GW/annum by Renewable Energy Implementing Agencies from FY 2023-24 to FY 2027-28.

(ii) Foreign Direct Investment (FDI) has been permitted up to 100 percent under the automatic route.

(iii) Inter State Transmission System (ISTS) charges have been waived for inter-state sale of solar and wind power for projects to be commissioned by 30th June 2025, for Green Hydrogen Projects till December, 2030 and for offshore wind projects till December, 2032.

(iv) To boost RE consumption, Renewable Purchase Obligation (RPO) followed by Renewable Consumption Obligation (RCO) trajectory has been notified till 2029-30. The RCO which is applicable to all designated consumers under the Energy Conservation Act, 2001 will attract penalties for non-compliance.

(v) Standard Bidding Guidelines for tariff based competitive bidding process for procurement of Power from Grid Connected Solar, Wind, Wind-Solar Hybrid and Firm & Dispatchable RE (FDRE) projects have been issued.

(vi) Schemes such as Pradhan Mantri Kisan Urja Suraksha evam Utthaan Mahabhiyan (PM-KUSUM), PM Surya Ghar Muft Bijli Yojana, National Programme on High Efficiency Solar PV Modules, National Green Hydrogen Mission, Viability Gap Funding (VGF) Scheme for Offshore Wind Energy Projects have been launched.

(vii) Scheme for setting up of Ultra Mega Renewable Energy Parks is being implemented to provide land and transmission to RE developers for installation of RE projects at large scale.

(viii) Laying of new transmission lines and creating new sub-station capacity has been funded under the Green Energy Corridor Scheme for evacuation of renewable power.

- (ix) "Strategy for Establishment of Offshore Wind Energy Projects" has been issued indicating a bidding trajectory of 37 GW by 2030 and various business models for project development.
- (x) The Offshore Wind Energy Lease Rules, 2023 have been notified vide Ministry of External Affairs notification dated 19th December 2023, to regulate the grant of lease of offshore areas for development of offshore wind energy projects.
- (xi) To achieve the objective of increased domestic production of Solar PV Modules, the Govt. of India is implementing the Production Linked Incentive (PLI) scheme for High Efficiency Solar PV Modules. This will enable manufacturing capacity of Giga Watt (GW) scale in High Efficiency Solar PV Module

(b) : Smart Grids and Smart Meters are comparatively newer and innovative technologies being introduced in the Indian Distribution Sector to make it modern and future ready. Some of the main challenges being faced by the utilities during implementation of Smart Grid and Smart Meters under ongoing RDSS scheme are, Lack of awareness of adoption of new technology by consumers & Utilities, Delay in tendering and award of smart metering works by utilities for approved smart metering projects under RDSS, Lack of dedicated IT team with distribution utilities having knowledge of new technologies including smart grid and smart metering, Shortage of skilled manpower, Collection and validation of data for Consumer Indexing, Delays in Testing and approvals like Field installation and integration test, Factory acceptance test and likewise, and Delay in administrative approvals such as signing of agreements etc.

The following measures have been / are being taken to expedite installation of the sanctioned Smart meters:

- (i) Regular follow up with the States and Distribution Utilities through coordination meetings, conferences, etc. on the progress of tendering, award and physical progress of the Smart meter works is being carried out by Ministry of Power.
- (ii) Advisories have been issued for Installation of check meters for up-to 5% of the Smart meters installed and mandatorily in case of complaints related to Smart meters.
- (iii) Smart meter advisories and Standard operating Procedures (SoPs) prioritizing installation of Smart meter in Government Establishments, Government colonies and Industrial and commercial category of consumers and other high load consumers. Based on successful demonstration in above category of consumers, Smart meter installation may be rolled out for other category of consumers. SoP also prescribes for regular consumer engagement exercise in respect of Smart meters and its benefits so as to build consumer confidence.
- (iv) Monitoring and review of works sanctioned under RDSS is being done by the Ministry on a regular basis. Weekly review meetings are conducted by the Ministry of Power along with nodal agencies for monitoring the progress. Further, an institutional mechanism at the State level i.e., Distribution Reforms Committee headed by Chief Secretary of the State concerned, and at the Central level i.e., Inter-Ministerial Monitoring Committee headed by Secretary (Power), has been put in place under the RDSS guidelines to review and monitor the implementation of the works sanctioned under the Scheme.
- (v) A Standard Bidding Document (SBD) for Smart metering projects in TOTEX (Total Expenditure which includes both Capital and Operational Expenditure) mode and SBD for infrastructure works have been issued to help the States/Discoms in tendering the works.
- (vi) A Smart Grid Expert Group (SGEG) has also been constituted to advise/help the States to expedite the implementation of smart metering projects in the country.
- (vii) A comprehensive consumer engagement plan has been developed and is being taken up by AMISP (Advanced Metering Infrastructure Service Provider)/Utilities/nodal agencies in the State.
- (viii) Skill Development programs are being conducted under RDSS on emerging topics including smart meters.

GOVERNMENT OF INDIA
MINISTRY OF POWER

RAJYA SABHA
UNSTARRED QUESTION NO.797
ANSWERED ON 10.02.2025

POLLUTION FROM THERMAL POWER PLANTS

797 SMT. RENUKA CHOWDHURY:

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

- (a) the total number of power plants irrespective of ownership, that have installed Flue Gas Desulphurisation (FGD) to remove the sulphur from the exhaust gas across the country;
- (b) the funds utilised for the same to date;
- (c) whether Government has authenticated the fact that FGD has very little impact in curbing pollution, if so, the details thereof; and
- (d) whether Government is considering replacing the FGD with something effective and affordable, if so, the details thereof?

A N S W E R

THE MINISTER OF STATE IN THE MINISTRY OF POWER

(SHRI SHRIPAD NAIK)

(a) to (d): All Thermal Power Plants (TPPs) are required to comply with the emission norms as notified by the Ministry of Environment, Forest and Climate Change (MoEF&CC) and directions given by Central Pollution Control Board (CPCB) from time to time. MoEF&CC vide notification dated 07.12.2015, 31.03.2021, 05.09.2022 and 30.12.2024 have stipulated stack emission norms [including for Sulfur Di-oxide (SO₂)] and timelines for compliance in respect of coal based TPPs, categorized as Category-A, B and C.

In order to meet the SO₂ emission norms and timelines notified by MoEF&CC, Flue Gas Desulphurization (FGD) systems are being installed in coal based TPPs. Total 537 Units [2,04,160 Mega Watt (MW)] have been identified for installation of FGDs in TPPs. Out of these, FGD installation has been completed in 49 Units (25,590 MW), contracts awarded / under implementation in 211 Units (91,880 MW), 180 Units (58,997 MW) are under various stages of tendering process and 97 Units (27,693 MW) are under pre-tendering process.

FGD is an effective system in controlling SO₂ emission at stack level in the coal based TPPs. Post installation and operationalization of FGD systems in TPPs, SO₂ emission from their stacks has come down to the prescribed range of norms. It has also helped in reducing the Suspended Particulate Matter (SPM) emission from stacks.

The capital and operating costs of FGD systems vary from plant to plant, depending upon availability of space and size of Units. Standardization cannot be done as different sites have different requirements in terms of layout and orientation. Therefore, the cost of installation of FGD systems varies in the range of approximately Rs 0.85 Crore to Rs 1.2 Crore per MW.

GOVERNMENT OF INDIA
MINISTRY OF POWER

RAJYA SABHA
UNSTARRED QUESTION NO.798
ANSWERED ON 10.02.2025

REGARDING THE POWER DEMAND OF OPERATIONAL AND
UPCOMING DATA CENTRES IN INDIA

798 SHRI KARTIKEYA SHARMA:

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

- (a) the total power demand of operational and upcoming data centres in India, if so, the state-wise details thereof;
- (b) the steps taken to ensure reliable and uninterrupted power supply to data centres, particularly in urban hubs;
- (c) whether renewable energy sources are being integrated into power supply plans for data centres, and if so, the details thereof; and
- (d) the incentives being provided to data centres developers for adopting energy-efficient technologies?

A N S W E R

THE MINISTER OF STATE IN THE MINISTRY OF POWER

(SHRI SHRIPAD NAIK)

(a) to (d): As per an Industry Research Report, the Data Centre Capacity in India is 854 MW of Information Technology (IT) load. Power Demand due to upcoming data centers in India is likely to arise and estimated to be 5,640 MW by FY 2031-32. Out of this, 3,535 MW is likely to come up by FY 2027-28, and the remaining 2,105 MW by FY 2031-32. State-wise details of the upcoming data centers are given at **Annexure**.

Transmission system has been planned for upcoming data centers at Navi Mumbai, Maharashtra, and Shadnagar, Telangana.

A robust national grid has been established to facilitate the transfer of power from power surplus regions to power deficit regions. The capacity of the National Grid is being expanded on a continuous basis commensurate with the growth in electricity generation and electricity demand. The National Electricity Plan (Transmission) was released in October 2024, which inter-alia outlines the transmission system for integration of over 6,00,000 MW of Renewable Energy (RE) generation capacity by the year 2032. The Renewable Energy Sources being integrated in the National Grid would also meet the electricity demand of data centers.

Several State Governments viz Karnataka, Tamil Nadu, Uttar Pradesh, Odisha, Telangana, West Bengal, Haryana, Andhra Pradesh, Gujarat, Madhya Pradesh, Punjab, Maharashtra, Rajasthan, Himachal Pradesh and Chhattisgarh have introduced Data Centre Policies to attract investment and promote the development of Data Centre infrastructure. The incentive includes granting of infrastructure status to Data Centre, Single Window clearance system to streamline the approval process, tax exemptions. Further, several States have provided incentives/ subsidy for use of energy efficient equipment, reduced charges for renewable energy and reducing carbon footprints etc. These policies collectively aim to create a conducive environment for Data Centre operators, addressing their unique requirements and fostering growth in the digital economy.

ANNEXURE

ANNEXURE REFERRED IN REPLY TO PARTS (a) TO (d) OF UNSTARRED QUESTION NO. 798 ANSWERED IN THE RAJYA SABHA ON 10.02.2025

State-Wise details of the upcoming data centres:

S. No.	Power Capacity requirement (MW)	Location	Expected Time Line
1	700	Mumbai, Maharashtra	FY 2027-28
2	200	Greater Noida, UP	FY 2031-32
3	70	Greater Noida, UP	FY 2031-32
4	127	Chennai, Tamil Nadu	FY 2027-28
5	352	Chennai, Tamil Nadu	FY 2027-28
6	37	Chennai, Tamil Nadu	FY 2027-28
7	180	Chennai, Tamil Nadu	FY 2027-28
8	161	Chennai, Tamil Nadu	FY 2027-28
9	160	Chennai, Tamil Nadu	FY 2027-28
10	38	Chennai, Tamil Nadu	FY 2027-28
11	195	Chennai, Tamil Nadu	FY 2027-28
12	430	Chennai, Tamil Nadu	FY 2027-28
13	285	Chennai, Tamil Nadu	FY 2027-28
14	285	Chennai, Tamil Nadu	FY 2027-28
15	225	Chennai, Tamil Nadu	FY 2027-28
16	90	Chennai, Tamil Nadu	FY 2027-28
17	125	Chennai, Tamil Nadu	FY 2031-32
18	95	Chennai, Tamil Nadu	FY 2031-32
19	90	Chennai, Tamil Nadu	FY 2031-32
20	95	Chennai, Tamil Nadu	FY 2031-32
21	200	Vishakhapatnam, AP	FY 2031-32
22	1500	Shadnagar, Telangana	FY 2031-32
Total	5640		

GOVERNMENT OF INDIA
MINISTRY OF POWER

RAJYA SABHA
UNSTARRED QUESTION NO.799
ANSWERED ON 10.02.2025

FUNDING FOR SCADA/EMS SYSTEM UPGRADATION

799 DR. JOHN BRITTAS:

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

- (a) whether Government is aware that SCADA/EMS systems in the southern region, including Kerala's SLDC, are being upgraded as a package by Grid India at an estimated cost of ₹71 crore for Kerala; and
- (b) if so, whether the Ministry will consider this project under the Power System Development Fund (PSDF) scheme and provide 100 per cent grant funding for the upgradation?

A N S W E R

THE MINISTER OF STATE IN THE MINISTRY OF POWER

(SHRI SHRIPAD NAIK)

(a) : Yes.

(b) : Power system Development Fund (PSDF) is a regulatory fund constituted by Central Electricity Regulatory Commission (CERC). As per the extant Guidelines, funds are disbursed to the eligible project entities for implementation of the projects to improve the security and reliability of the Indian Power system.

SCADA (Supervisory Control And Data Acquisition) is a system designed to monitor and control operation of massive electrical network in a way that is both safe and dependable and also ensure reliable and economical power system operation in the state grid. Proposal for funding of SCADA/ EMS upgradation projects of Regional Load Dispatch Centres (RLDCs) and State Load Dispatch Centres (SLDCs) through PSDF was considered by the Monitoring Committee on 21.12.2022. It was decided that Upgradation/Replacement of SCADA/EMS in Southern Region (SR) & Western Region (WR) Load Despatch Centres (LDCs) will be executed by Grid-India through the respective LDC funding and Eastern Region (ER) & Northern Region (NR) LDCs by POWERGRID through tariff mode. No support from PSDF was envisaged.

Subsequently, tender for Replacement/ Upgradation of SCADA/ EMS system for SR region (excluding Karnataka) was issued by Grid-India on March 06, 2023. Letter of Intent (LOI) has been issued to the successful bidder on August 30, 2024 for Upgradation/ Replacement of SCADA/ EMS system in a unified manner at RLDC and SLDCs. As per the Memorandum of Understanding (MoU) between Grid-India and the States concerned, including Kerala, the respective LDCs will issue the Notification of Award (NOA) and subsequent contract agreement with the successful bidder. Kerala SLDC has already issued the NOA to the bidder.

GOVERNMENT OF INDIA
MINISTRY OF POWER

RAJYA SABHA
UNSTARRED QUESTION NO.800
ANSWERED ON 10.02.2025

SMART METERS UNDER RDSS

800 SHRI RAGHAV CHADHA:

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

- (a) whether Government is aware that only 3.7 per cent of the 20.33 crore smart meters sanctioned under Revamped Distribution Sector Scheme (RDSS) have been installed so far;
- (b) the reasons for the slow pace of installation, and whether timelines for achieving full implementation have been revised;
- (c) the steps being taken to expedite the installation of the remaining sanctioned smartmeters to meet RDSS objectives;
- (d) the measures to ensure the financial viability of DISCOMs and consumer affordability during the rollout of smart meters; and
- (e) whether Government has identified States lagging in implementation, if so, the specific interventions planned to address regional disparities?

A N S W E R

THE MINISTER OF STATE IN THE MINISTRY OF POWER

(SHRI SHRIPAD NAIK)

(a) : Out of the total target of 20.33 crore Smart meters sanctioned under Revamped Distribution Sector Scheme (RDSS), approximately 99.51 lakh (4.89%) Smart meters have been installed in the country. Ministry of Power is regularly monitoring the progress of installation of Smart meters by various Distribution Utilities and is taking action to resolve the implementation issues between the Advanced Metering Infrastructure Service Provider (AMISP) and the Distribution Utilities.

(b): The installation of Smart meters has been affected due to the following reasons:

- Smart meter being a new concept, there were delays in issue of tenders and establishment of direct debit facility.
- Collection and validation of data for Consumer Indexing.
- Delays in Testing and approvals like Field installation and integration test, Factory acceptance test and likewise.

.....2.

The installation of the Smart meters is to be completed by the end of the scheme period, i.e., 31.03.2026.

(c) : The following measures have been / are being taken to expedite installation of the sanctioned Smart meters:

- Regular follow up with the States and Distribution Utilities through coordination meetings, conferences, etc. on the progress of tendering, award and physical progress of the Smart meter works is being carried out by Ministry of Power.
- Advisories have been issued for Installation of check meters for up-to 5% of the Smart meters installed and mandatorily in case of complaints related to Smart meters.
- Smart meter advisories and Standard operating Procedures (SoPs) prioritizing installation of Smart meter in Government Establishments, Government colonies and Industrial and commercial category of consumers and other high load consumers. Based on successful demonstration in above category of consumers, Smart meter installation may be rolled out for other consumers. SoP also prescribes for regular consumer engagement exercise in respect of Smart meters and its benefits so as to build consumer confidence.

(d) : Smart Metering supports Distribution Utilities in improving their financial viability through benefits such as improvement in billing and collection efficiency, automatic energy accounting, improved load forecasting, optimized power purchase costs and renewable energy integration through net metering. Under RDSS, Smart Metering is being implemented through the AMISP in TOTEX (Total Expenditure) mode, wherein Distribution Utilities are not required to incur upfront capital expenditure and pay per-month-per-meter cost to the AMISP. It expected that as a result of improvement in billing and collection/ power purchase optimization etc., Distribution Utilities will be able to pay the per-month-per-meter cost thus making it self-financing without any additional burden on the consumers. The reduction in losses and improved power purchase optimization would help in reducing the cost of power.

(e) : The State-wise progress of Smart meters is attached at **Annexure**. The specific interventions taken to address the disparities in implementation have been mentioned at (c) above.

ANNEXURE

ANNEXURE REFERRED IN REPLY TO PART (e) OF UNSTARRED QUESTION NO. 800
ANSWERED IN THE RAJYA SABHA ON 10.02.2025

State/UTs	Smart Meters under RDSS (Nos.)		
	Sanctioned	Awarded	Installed
Andaman and Nicobar	84,835	0	0
Andhra Pradesh	59,19,344	59,81,561	8,23,382
Arunachal Pradesh	2,98,250	2,98,250	276
Assam	64,45,127	65,58,446	25,20,475
Bihar	26,07,153	25,98,542	18,61,464
Chhattisgarh	61,79,479	73,45,604	10,46,898
Delhi	3,521	0	0
Goa	7,50,356	0	0
Gujarat	1,67,87,587	1,10,71,687	4,25,818
Himachal Pradesh	28,41,908	9,34,409	1,03,524
Jammu and Kashmir	14,97,690	14,90,727	14,707
Jharkhand	13,62,044	13,62,044	15,680
Kerala	1,33,83,001	2,91,690	0
Madhya Pradesh	1,34,29,206	54,90,509	13,66,302
Maharashtra	2,40,04,866	2,52,73,775	6,96,405
Manipur	1,66,208	1,66,208	628
Meghalaya	4,72,743	0	0
Mizoram	2,92,081	2,92,081	0
Nagaland	3,23,878	3,23,878	0
Puducherry	4,07,052	0	0
Punjab	89,81,414	0	0
Rajasthan	1,47,36,692	1,47,54,023	11,416
Sikkim	1,48,542	1,48,542	11,170
Tamil Nadu	3,04,90,774	0	0
Tripura	5,62,870	4,27,013	3,694
Uttar Pradesh	2,85,26,731	2,85,26,730	8,58,147
Uttarakhand	16,49,684	16,49,684	12,720
West Bengal	2,10,35,262	40,31,566	1,78,681
All India Total	20,33,88,298	11,90,16,969	99,51,387
