

GOVERNMENT OF INDIA
MINISTRY OF POWER

RAJYA SABHA
UNSTARRED QUESTION NO.1582
ANSWERED ON 05.08.2024

EXPANSION OF THERMAL POWER CAPACITY

1582 # SHRI MITHLESH KUMAR:

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

- (a) whether Government proposes to expand thermal power capacity in the country;
- (b) if so, the details thereof and the total estimated cost for expansion of thermal power capacity;
- (c) the steps taken to reduce dependence on coal based power plants and reduce emission levels of such thermal power plants; and
- (d) the details of percentage of electricity generated from various sources like coal, gas, hydro and renewable energy since 2019?

A N S W E R

THE MINISTER OF STATE IN THE MINISTRY OF POWER

(SHRI SHRIPAD NAIK)

(a) & (b) : In order to meet the estimated electricity demand by the year 2031-32, generation planning studies have been carried out by Central Electricity Authority (CEA). As per the study results, it is envisaged that to meet the base load requirement of the country in 2032, the required coal & lignite based installed capacity would be 283 GW against the present installed capacity of 217.5 GW. Considering this, the Government of India proposes to set up an additional minimum 80 GW coal based capacity by 2031-32.

The estimated capital cost for setting up of new coal based thermal capacity as considered in National Electricity Plan is Rs 8.34 Cr/ MW (at 2021-22 price level). Hence, the thermal capacity addition is expected to entail an expenditure of minimum Rs. 6,67,200 Crs by 2031-32.

(c) : (i) To reduce the dependency on coal based thermal power plants, the Government of India has planned to augment non-fossil fuel based installed electricity generation capacity. India in its Intended Nationally Determined Contributions (INDCs) stands committed to achieve about 50 percent cumulative electric power installed capacity from non-fossil fuel-based energy resources by 2030. At present, India has already achieved 45.5% Installed Capacity from non-fossil fuel-based resources. To achieve this objective, following steps have been taken to promote Renewable Energy Generation in the country:

- Permitting Foreign Direct Investment (FDI) up to 100 percent under the automatic route;
- Waiver of Inter State Transmission System (ISTS) charges for inter-state sale of solar and wind power for projects to be commissioned by 30th June 2025;

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- Declaration of trajectory for Renewable Purchase Obligation (RPO) up to the year 2029-30;
- Setting up of Ultra Mega Renewable Energy Parks to provide land and transmission connectivity to Renewable Energy developers for installation of RE projects at large scale;
- Schemes such as Pradhan Mantri Kisan Urja Suraksha evam Utthaan Mahabhiyan (PM-KUSUM), Solar Rooftop Phase II, 12,000 MW CPSU Scheme Phase II; PM Surya Ghar: Muft Bijli Yojna.
- Laying of new transmission lines and creating new sub-station capacity under the Green Energy Corridor Scheme for evacuation of renewable power;
- Notification of standards for deployment of solar photovoltaic system/devices.
- Setting up of Project Development Cell for attracting and facilitating investments;
- Standard Bidding Guidelines for tariff based competitive bidding process for procurement of Power from Grid Connected Solar PV and Wind Projects;
- Government has issued orders that power shall be dispatched against Letter of Credit (LC) or advance payment to ensure timely payment by distribution licensees to RE generators;
- Notification of Promoting Renewable Energy through Green Energy Open Access Rules 2022;
- Launch of Green Term Ahead Market (GTAM) to facilitate sale of Renewable Power through exchanges;
- National Green Hydrogen Mission launched with an aim to make India a global hub for production, utilization and export of Green Hydrogen and its derivatives; and,
- Notification of prescribed trajectory for RE power bids to be issued by Renewable Energy Implementation Agencies from FY 2023-24 to FY 2027-28 with an annual target of 50 GW of RE bids.

(ii) Further, for reduction of emission levels of thermal power plants, following measures have been taken by the Government:

- MoEF&CC vide notification dated 07.12.2015 and its subsequent amendments has notified norms in respect of reducing stack emissions such as Suspended Particulate Matter (SPM), SO_x & NO_x from coal based Thermal Power Plants. To meet these standards, Thermal Power Plants are using techniques like Electro Static Precipitator (ESP), Flue Gas Desulphurization (FGD), NO_x Combustion Modification etc.
- Promotion of installation of efficient Supercritical /Ultra Supercritical units over Subcritical Thermal Units.
- Ministry of Power has issued a policy on utilization of Biomass for Power generation through co-firing in coal based power plants. The policy mandates 5-7% co-firing of Biomass primarily of agro residue with coal, after assessing the technical feasibility.

(d): The details of the percentage of electricity generated from various sources such as coal, gas, hydel and renewable energy since 2019 is attached as **Annexure**.

ANNEXURE REFERRED IN REPLY TO PART (d) OF UNSTARRED QUESTION NO. 1582 ANSWERED IN THE RAJYA SABHA ON 05.08.2024

Percentage of Electricity Generated From Various Sources

Year-Wise Generation from 2018-19 to 2024-25 (Up to May, 2024)									
Source Name		2018-19	2019-20	2020-21	2021-22	2022-23	2023-24	2024-25 (upto May)	
		% of Total Gen	% of Total Gen	% of Total Gen	% of Total Gen	% of Total Gen	% of Total Gen	% of Total Gen	
Conventional	Thermal	Coal	71.77	69.20	68.82	69.81	70.54	72.50	73.29
		Lignite	2.51	2.37	2.21	2.49	2.23	1.95	1.94
		Diesel	0.01	0.01	0.01	0.01	0.01	0.02	0.03
		Naptha	0.00	0.00	0.01	0.00	0.00	0.00	0.00
		Natural gas	3.62	3.49	3.68	2.41	1.47	1.80	2.75
	Sub Total	77.92	75.07	74.72	74.72	74.25	76.28	78.00	
	Nuclear	2.75	3.35	3.11	3.16	2.82	2.76	2.76	
	Hydro	9.80	11.21	10.88	10.16	9.98	7.71	6.42	
	Bhutan Import	0.32	0.42	0.63	0.50	0.42	0.27	0.06	
Conventional Total		90.79	90.04	89.34	88.54	87.47	87.01	87.24	
Renewable Energy	Wind	4.51	4.65	4.35	4.60	4.42	4.79	4.03	
	Solar	2.85	3.61	4.37	4.93	6.28	6.67	7.65	
	Biomass	0.20	0.21	0.25	0.23	0.19	0.20	0.18	
	Bagasse	0.99	0.78	0.82	0.84	0.79	0.62	0.34	
	Small Hydro	0.63	0.68	0.74	0.70	0.69	0.55	0.41	
	Others	0.03	0.03	0.12	0.15	0.16	0.16	0.15	
Renewable Energy Total		9.21	9.96	10.66	11.46	12.53	12.99	12.76	
Grand Total		100.00	100.00	100.00	100.00	100.00	100.00	100.00	

GOVERNMENT OF INDIA
MINISTRY OF POWER

RAJYA SABHA
UNSTARRED QUESTION NO.1583
ANSWERED ON 05.08.2024

SHORTAGE OF ELECTRICITY

1583 SHRI RAGHAV CHADHA:

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

- (a) whether there is a shortage of electricity in the country due to its increased consumption as a result of heatwaves;
- (b) if so, the details thereof, State-wise;
- (c) whether the country witnessed lowest electricity production in the last five years due to delay in commissioning of new power plants; and
- (d) the details of steps taken/proposed to be taken by Government to increase the per capita consumption of electricity?

A N S W E R

THE MINISTER OF STATE IN THE MINISTRY OF POWER

(SHRI SHRIPAD NAIK)

(a) & (b): There is adequate availability of power in the country. Government of India has addressed the critical issue of power deficiency by adding 2,14,237 MW of generation capacity in the last ten years transforming our country from power deficit to power sufficient.

The details of Power Supply Position during the last five years i.e., 2019-20 to 2023-24 and the current year 2024-25 (upto June, 2024) are given at **Annexure-I**. The details of State-wise/UT-wise Power Supply Position in the country for the year 2023-24 and current year 2024-25 (April,2024 to June, 2024), are given at **Annexure-II**.

The growth in Energy Supplied has been commensurate to the growth in Energy Requirement in the country. There is only a marginal gap between Energy Requirement and Energy Supplied which is generally on account of constraints in the State transmission/distribution network etc.

(c): There has been consistent growth in generation of electricity in the country except for a marginal decline in 2020-21 due to lower energy requirement in the country due to COVID-19 pandemic. The details of total quantity of power generated in the country during the last five years and the current year (upto June, 2024), are given at **Annexure-III**.

(d): The following steps have been taken to increase the per capita consumption of electricity:

(i) Under Deen Dayal Upadhyaya Gram Jyoti Yojana (DDUGJY), Integrated Power Development (IPDS) and Pradhan Mantri Sahaj Bijli Har Ghar Yojana (SAUBHAGYA) schemes, 18,374 villages have been electrified and 2.86 crore household were provided electricity connections. The availability of power supply in rural areas has increased from 12.5 Hours in 2015 to 21.9 Hours in 2024. The power supply in urban areas has increased to 23.4 Hours in 2024. As a result of these measures, per capita power consumption has increased from 957 kWh in 2013-14 to 1331 kWh in 2022-23.

(ii) The Government of India has launched “Revamped Distribution Sector Scheme (RDSS) - a Reforms based and Results linked Scheme” on 20th 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 RDSS, all identified Particularly Vulnerable Tribal Group (PVTG) Households under PM-JANMAN (Pradhan Mantri Janjati Adivasi Nyaya Maha Abhiyan) are eligible for funding for on-grid electricity connection. Till date, 1,23,581 PVTG households have been sanctioned for electrification.

ANNEXURE-I**ANNEXURE REFERRED IN REPLY TO PARTS (a) & (b) OF UNSTARRED QUESTION NO. 1583 ANSWERED IN THE RAJYA SABHA ON 05.08.2024**

The details of Power Supply Position during the last five years i.e., 2019-20 to 2023-24 and the current year 2024-25 (upto June, 2024).

Year	Energy [in Million Units (MU)]			
	Energy Requirement	Energy Supplied	Energy Not Supplied	
	(MU)	(MU)	(MU)	(%)
2019-20	12,91,010	12,84,444	6,566	0.5
2020-21	12,75,534	12,70,663	4,871	0.4
2021-22	13,79,812	13,74,024	5,787	0.4
2022-23	15,13,497	15,05,914	7,583	0.5
2023-24	16,26,132	16,22,020	4,112	0.3
2024-25 (April,2024 to June, 2024)	4,52,399	4,51,811	588	0.1

ANNEXURE-II

ANNEXURE REFERRED IN REPLY TO PARTS (a) & (b) OF UNSTARRED QUESTION NO. 1583 ANSWERED IN THE RAJYA SABHA ON 05.08.2024

The details of State-wise/UT-wise Power Supply Position in the country for the year 2023-24 and current year 2024-25 (April,2024 to June, 2024).

State/ System / Region	April, 2023 - March, 2024				April, 2024 - June, 2024			
	Energy Requirement	Energy Supplied	Energy not Supplied		Energy Requirement	Energy Supplied	Energy not Supplied	
	(MU)	(MU)	(MU)	(%)	(MU)	(MU)	(MU)	(%)
Chandigarh	1,789	1,789	0	0.0	578	578	0	0.0
Delhi	35,501	35,496	5	0.0	11,613	11,605	8	0.1
Haryana	63,983	63,636	348	0.5	19,332	19,321	11	0.1
Himachal Pradesh	12,805	12,767	38	0.3	3,306	3,291	15	0.5
Jammu & Kashmir	20,040	19,763	277	1.4	4,815	4,791	25	0.5
Punjab	69,533	69,528	5	0.0	20,475	20,475	0	0.0
Rajasthan	1,07,422	1,06,806	616	0.6	28,940	28,738	202	0.7
Uttar Pradesh	1,48,791	1,48,287	504	0.3	48,902	48,822	80	0.2
Uttarakhand	15,644	15,532	112	0.7	4,678	4,665	14	0.3
Northern Region	4,76,852	4,74,946	1,906	0.4	1,43,040	1,42,686	354	0.2
Chhattisgarh	39,930	39,872	58	0.1	7,637	11,220	2	0.0
Gujarat	1,45,768	1,45,740	28	0.0	41,942	41,942	0	0.0
Madhya Pradesh	99,301	99,150	151	0.2	25,397	25,373	23	0.1
Maharashtra	2,07,108	2,06,931	176	0.1	53,413	53,408	5	0.0
Dadra & Nagar Haveli and Daman & Diu	10,164	10,164	0	0.0	2,697	2,697	0	0.0
Goa	5,111	5,111	0	0.0	1,441	1,441	0	0.0
Western Region	5,17,714	5,17,301	413	0.1	1,38,856	1,38,826	30	0.0
Andhra Pradesh	80,209	80,151	57	0.1	20,504	20,504	0	0.0
Telangana	84,623	84,613	9	0.0	19,292	19,292	0	0.0
Karnataka	94,088	93,934	154	0.2	23,710	23,710	0	0.0
Kerala	30,943	30,938	5	0.0	8,533	8,531	2	0.0
Tamil Nadu	1,26,163	1,26,151	12	0.0	35,675	35,675	0	0.0
Puducherry	3,456	3,455	1	0.0	970	970	0	0.0
Lakshadweep (#)	64	64	0	0.0	18	18	0	0.0
Southern Region	4,19,531	4,19,293	238	0.1	1,08,697	1,08,695	2	0.0
Bihar	41,514	40,918	596	1.4	8,086	12,565	90	0.7
DVC	26,560	26,552	8	0.0	6,764	6,762	1	0.0
Jharkhand	14,408	13,858	550	3.8	4,150	4,097	53	1.3
Odisha	41,358	41,333	25	0.1	11,990	11,980	10	0.1
West Bengal	67,576	67,490	86	0.1	20,886	20,843	43	0.2
Sikkim	544	543	0	0.0	140	140	0	0.0
Andaman- Nicobar (#)	386	374	12	3.2	109	106	2	2.0
Eastern Region	1,92,013	1,90,747	1,266	0.7	56,597	56,400	197	0.3
Arunachal Pradesh	1,014	1,014	0	0.0	245	245	0	0.0
Assam	12,445	12,341	104	0.8	3,314	3,309	5	0.1
Manipur	1,023	1,008	15	1.5	264	264	0	0.0
Meghalaya	2,236	2,066	170	7.6	491	491	0	0.0
Mizoram	684	684	0	0.0	166	166	0	0.0
Nagaland	921	921	0	0.0	233	233	0	0.0
Tripura	1,691	1,691	0	0.0	494	494	0	0.0
North-Eastern Region	20,022	19,733	289	1.4	5,208	5,204	5	0.1
All India	16,26,132	16,22,020	4,112	0.3	4,52,399	4,51,811	588	0.1

ANNEXURE-III

**ANNEXURE REFERRED IN REPLY TO PART (c) OF UNSTARRED QUESTION NO. 1583
ANSWERED IN THE RAJYA SABHA ON 05.08.2024**

The total quantity of power generated in the country during the last five years and the current year (upto June, 2024)

(All figures are in Million Units)

	2019-20	2020-21	2021-22	2022-23	2023-24	2024-25 (Upto June)
Total Power Generated	13,89,121	13,81,855	14,91,859	16,24,466	17,39,091	4,84,001

GOVERNMENT OF INDIA
MINISTRY OF POWER

RAJYA SABHA
UNSTARRED QUESTION NO.1584
ANSWERED ON 05.08.2024

24X7 POWER SUPPLY

1584 SHRI SAMIK BHATTACHARYA:

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

- (a) the current status of 24x7 power supply across all States in the country;
- (b) the key initiatives and investments Government is undertaking to achieve uninterrupted 24x7 power supply across the country;
- (c) update on the progress made towards achieving the goal of universal 24x7 power supply in rural and urban areas; and
- (d) whether there is a timeline or roadmap set by Government for achieving 24x7 power supply nationwide, including targets for specific regions or States?

A N S W E R

THE MINISTER OF STATE IN THE MINISTRY OF POWER

(SHRI SHRIPAD NAIK)

(a) : Details of State/ UT wise average daily hours of supply in the country, as reported by the States, is placed at **Annexure**.

(b) & (c) : Government of India launched schemes like Deen Dayal Upadhyaya Gram Jyoti Yojana (DDUGJY), Integrated Power Development Scheme (IPDS), Pradhan Mantri Sahaj Bijli Har Ghar Yojana (SAUBHAGYA) etc., to support States in achieving the objective of providing uninterrupted power supply to all households. Projects worth Rs. 1.85lakh crore were executed for strengthening the distribution system across States which includes works like new/upgradation of substations, new/ upgradation of HT & LT lines, agricultural feeder segregation, Aerial Bunched Cable and underground cabling etc. A total of 18,374 villages were electrified under DDUGJY and 2.86 crore households were electrified during SAUBHAGYA.

Further, Government of India launched Revamped Distribution Sector Scheme (RDSS) with the objective of improving the quality and reliability of power supply to consumers through a financially sustainable and operationally efficient Distribution Sector. The Scheme has an outlay of Rs. 3,03,758 crore with a Gross Budgetary Support of Rs. 97,631 crore from Government of India over a period of five years from 2021-22 to FY 2025-26. Projects worth Rs. 2.62 lakh crore for distribution infrastructure works and smart metering works have been sanctioned under the scheme.

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In addition to above, Government has taken following initiatives to achieve uninterrupted power supply across the country:

(i). 2,14,237 MW of generation capacity were added in the last ten years. Generation capacity increased by 79.5% from 2,48,554 MW in March 2014 to 4,46,190 MW in June, 2024.

(ii). 1,95,181 ckt kilometre of transmission lines were added since April, 2014 connecting the whole country into one grid running on one frequency. This has enabled to transfer 1,18,740 MW from one corner of the country to another.

(iii). Generation Capacity addition (under construction and identified) by 2032 as given below:

- a) Thermal capacity of minimum 80,000 MW by 2032.
- b) Hydro capacity of 25,010 MW by 2032.
- c) Nuclear capacity of 14,300 MW by 2032.
- d) Pump Storage Plants (PSP) capacity of 50,760 MW by 2032.
- e) Small Hydro Capacity of 510 MW by 2032.
- f) Solar Power Capacity of 1,43,980MW by 2032.
- g) Wind Power Capacity of 23,340 MW by 2032.

Thus, total anticipated capacity addition by 2032 will be 3,37,900 MW.

(d) : As per Rule (10) of 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. The Rules are universally applicable in the country.

ANNEXURE

ANNEXURE REFERRED IN REPLY TO PART (a) OF UNSTARRED QUESTION NO. 1584 ANSWERED IN THE RAJYA SABHA ON 05.08.2024

Average daily hours of supply

State/ UT	2022-23 (Rural)	2022-23 (Urban)	2023-24 (Rural)	2023- 24 (Urban)
A&N Island	22.2	22.6	22.2	22.4
Andhra Pradesh	23.5	23.9	23.6	23.9
Arunachal Pradesh	18.3	19.4	20.1	22.1
Assam	22.5	23.7	22.5	23.8
Bihar	20.1	23.6	22.2	23.6
Chandigarh	*	22.5	*	23.8
Chhattisgarh	21.6	23.8	21.6	23.8
Delhi	*	24.0	*	24.0
Goa	23.8	23.9	23.8	23.9
Gujarat	23.8	23.8	23.7	23.9
Haryana	19.4	23.6	19.4	23.8
Himachal Pradesh	23.0	23.9	23.0	23.9
Jammu & Kashmir	17.7	22.5	19.0	21.7
Jharkhand	21.2	22.8	22.1	23.1
Karnataka	22.2	23.5	21.4	23.7
Kerala	23.5	24.0	22.4	24.0
Ladakh	22.2	23.4	22.2	23.3
Madhya Pradesh	20.7	23.6	22.6	23.8
Maharashtra	23.8	23.9	23.8	23.9
Manipur	22.0	23.8	22.0	23.9
Meghalaya	21.9	22.8	21.8	23.1
Mizoram	23.4	23.7	22.3	23.6
Nagaland	19.0	21.0	18.0	20.0
Odisha	23.4	23.5	23.4	23.7
Puducherry	22.4	23.8	22.7	23.7
Punjab	21.8	23.6	22.8	23.7
Rajasthan	21.0	23.6	21.7	23.9
Sikkim	21.4	22.5	21.5	22.6
Tamil Nadu	23.9	24.0	23.5	24.0
Telangana	21.8	23.9	21.9	24.0
Tripura	19.7	23.9	22.3	23.7
Uttar Pradesh	17.4	23.3	18.1	23.4
Uttarakhand	21.4	23.6	21.4	23.7
West Bengal	23.4	23.8	23.4	23.9
National Average	21.7	23.3	21.9	23.4

*rural area not present

GOVERNMENT OF INDIA
MINISTRY OF POWER

RAJYA SABHA
UNSTARRED QUESTION NO.1585
ANSWERED ON 05.08.2024

COAL-BASED THERMAL PLANTS

1585 SHRI P. WILSON:

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

- (a) whether Government has invoked Section 11 of the Electricity Act, 2003 to issue directions for imported coal based generating companies to operate at full capacity to meet the increasing demand;
- (b) if so, the reasons for not giving same direction to domestic coal-based plants, in order to strengthen and incentivize them, and details thereof; and
- (c) the details of current progress of green energy corridors and inter-State transmission scheme in the State of Tamil Nadu?

A N S W E R

THE MINISTER OF STATE IN THE MINISTRY OF POWER

(SHRI SHRIPAD NAIK)

(a) & (b) : Post Covid, the power demand increased rapidly, while at the same time, the domestic coal supply was not commensurate with the demand. The Imported Coal Based (ICB) generating stations were not generating to their full capacity due to increased prices of Imported Coal. Similarly the generation from Domestic Coal Based Generating stations was not optimum due to less availability of domestic coal. In light of the emergent circumstances, to ensure optimum utilization of the coal based generation capacity, directions were issued under section 11 of the Electricity Act, 2003, from time to time. These directions were issued by the Government, in larger public interest, to facilitate both domestic and imported coal based generating companies to generate at the full capacity to meet the growing demand of electricity and ensuring reliable power supply to consumers.

The directions under Section 11 of the Electricity Act, 2003 to Imported Coal Based (ICB) generating companies, were initially issued on 5th May, 2022, which were applicable till 31st December, 2022. Subsequently, the directions were again issued on 20th February, 2023, which are in force till 15th October, 2024. These directions have provisions related to mechanism for suitable compensation due to increased coal prices and timely payment to the generators, to enable maximum generation.

Due to surge in power demand and mismatch in demand and supply of domestic coal, Domestic Coal Based (DCB) Generating companies were advised for blending of imported coal. To provide a mechanism for compensation on account of increase in cost of generation due to blending and timely payment to the generators, directions were issued under Section 11 of the Electricity Act, 2003 to Domestic Coal Based (DCB) Generating companies. Initially such directions had been issued on 26th May, 2022, which were applicable till 11th August, 2022. Subsequently, directions were again issued on 21st March, 2023, which were applicable till 30th September, 2023.

(c): All transmission projects under Green Energy Corridor (GEC) Phase-I, in the state of Tamil Nadu have been completed. Further, transmission projects under GEC Phase-II in the state of Tamil Nadu are under various stages of award. There are no Inter-state transmission projects under construction in the State of Tamil Nadu.

GOVERNMENT OF INDIA
MINISTRY OF POWER

RAJYA SABHA
UNSTARRED QUESTION NO.1586
ANSWERED ON 05.08.2024

SAFETY AUDITS ON HOUSEHOLD WIRING

1586 DR. AJEET MADHAVRAO GOPCHADE:

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

- (a) the actions taken by Government to develop a standard draft law that has been sent to all State Governments requiring certified engineers to conduct safety audits on household wiring regularly as in our home, the electrical wiring is mainly concealed in cement plaster on the walls, and it is crucial to perform routine safety audits; and
- (b) whether there is a specific lifespan for safe operation of each electrical wire?

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".

In accordance with these regulations, no electrical installation work, including additions, alterations, repairs and adjustments to existing installations, except such replacement of lamps, fans, fuses, switches, domestic appliances of voltage not exceeding 250 V and fittings as in no way alters its capacity or character, shall be carried out upon the premises of or on behalf of any consumer, supplier, owner or occupier for the purpose of supply to such consumer, supplier, owner or occupier except by an electrical contractor licenced in this behalf by the State Government and on its behalf under the direct supervision of a person holding a certificate of competency and by a person holding a permit issued or recognized by the State Government.

Under these regulations, it is mandated that the electrical installations below or equal to the notified voltage shall be self-certified by the owner or consumer, as the case may be. However, the owner or supplier or consumer has the option to get his installation inspected and tested by the Electrical Inspector of the Appropriate Government. It is also provided that in case of voltage level equal to or below the notified voltage, Chartered Electrical Safety Engineer (CESE) can also test the installation on request of the owner. The guidelines regarding CESE have been issued by the Central Electricity Authority to all State Governments on 21st June, 2018. The respective State Government or Central Government, as the case may be, can notify voltage below which self-Certification to be carried out in their respective jurisdictions. Central Government has notified 11 kV for this purpose.

The lifespan of the electrical wire depends on a number of factors including the quality of wire as well as the electrical work, quality of other equipment like switches, socket, conduit etc., loading and environmental conditions.

GOVERNMENT OF INDIA
MINISTRY OF POWER

RAJYA SABHA
UNSTARRED QUESTION NO.1587
ANSWERED ON 05.08.2024

GAP IN DEMAND AND SUPPLY IN ELECTRICITY GENERATION

1587 SHRI NARAIN DASS GUPTA:

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

- (a) the total electricity demand and the electricity generated in the country;
- (b) whether there is surplus or deficit of electricity, if deficit, steps taken by Government to fill the gap;
- (c) the different sources of generation of electricity, cost of generation (source-wise), carbon-emissions figures (source-wise);
- (d) steps taken to improve more cost effective generation of electricity in future; and
- (e) the future plan of Government to reduce carbon emission while producing electricity?

A N S W E R

THE MINISTER OF STATE IN THE MINISTRY OF POWER

(SHRI SHRIPAD NAIK)

(a) & (b) : There is adequate availability of power in the country. Government of India has addressed the critical issue of power deficiency by adding 2,14,237 MW of generation capacity in the last ten years transforming our country from power deficit to power sufficient.

The details of Energy Requirement and Energy Supplied for the years 2021-22 to 2023-24 and the current year 2024-25 (upto June, 2024) is given at **Annexure-I**. The total quantity of power generated in the country during the last three years and the current year (upto June, 2024) is given at **Annexure-II**.

The growth in Energy Supplied has been commensurate with the growth in Energy Requirement in the country. Marginal gap between Energy Requirement and Energy Supplied is generally on account of constraints in the State transmission/distribution network etc.

(c) : The source-wise details of generation of electricity in the country during years 2021-22 to 2023-24 and the current year 2024-25 (upto June, 2024)is given at **Annexure-III**.

The per unit cost of generation for various generating stations varies depending on the technology used, location, utilization factor or plant load factor, financing structure, vintage, efficiency etc. The Weighted Average Rate of Sale of Power (WARSP) of Power Generation from Thermal, Nuclear and Hydro for the year 2020-21 to 2022-23 and Weighted Average Rate for Solar and Wind for the year 2024 is given at **Annexure-IV**.

The source-wise carbon-emission figures from grid connected thermal stations for F.Y. 2022-23 is given at **Annexure -V**.

(d): Government of India has taken the following steps to reduce the cost of power generation and resultant reduction in cost of electricity to consumers:

- (i) Introduction of flexibility in utilization of domestic coal by State/Central Generation Companies (GENCOs)
- (ii) Rationalization of linkage sources of State/Central Generating Companies (GENCOs) and Independent Power Producers (IPPs) with a view to optimize transportation cost has been allowed.
- (iii) Issuance of guidelines for tariff based bidding process for procurement of electricity under Section 63 of Electricity Act, 2003 to promote competitive procurement of electricity by distribution licensees.
- (iv) Reduction of Aggregate Technical & Commercial (AT&C) losses under RDSS will improve the finances of the utilities, which will enable them to better maintain the system and buy power as per requirements; benefitting the consumers.
- (v) Operationalisation of National Merit Order Dispatch with the objective of lowering the cost of electricity to consumers.

(e): In order to reduce carbon emission, the Government is presently adopting various technologies and practices as mentioned below:

- (i) Ministry of Power is promoting installation of efficient Supercritical/ Ultra Super-critical units over Subcritical Thermal Units as these units are more efficient and their CO₂ emission per unit of electricity generation is less than subcritical units.
- (ii) To improve the energy efficiency, the Perform Achieve and Trade (PAT) scheme has been implemented in various thermal power plants. Improvement in energy efficiency reduces carbon dioxide emission in thermal power generation.
- (iii) Carbon Capture Utilization and Storage (CCUS) project are under implementation in few thermal power plants on pilot basis to reduce carbon dioxide in the flue gases.
- (iv) Ministry of Power has issued policy on Bio-mass utilization for Power Generation through Co-firing in Coal based Power Plants to use 5-10 % blend of biomass pellets made, primarily of agro-residue along with coal after assessing the technical feasibility.

ANNEXURE-I

ANNEXURE REFERRED IN REPLY TO PARTS (a) & (b) OF UNSTARRED QUESTION NO. 1587 ANSWERED IN THE RAJYA SABHA ON 05.08.2024

The details of Energy Requirement and Energy Supplied for the years 2021-22 to 2023-24 and the current year 2024-25 (upto June, 2024).

Year	Energy Requirement	Energy Supplied	Energy not Supplied	
	(MU)	(MU)	(MU)	(%)
2021-22	13,79,812	13,74,024	5,788	0.4
2022-23	15,13,497	15,05,914	7,583	0.5
2023-24	16,26,132	16,22,020	4,112	0.3
2024-25 (upto June, 2024)	4,52,399	4,51,811	588	0.1

ANNEXURE-II

**ANNEXURE REFERRED IN REPLY TO PARTS (a) & (b) OF UNSTARRED QUESTION
NO. 1587 ANSWERED IN THE RAJYA SABHA ON 05.08.2024**

The total quantity of power generated in the country during the last three years and the current year (upto June, 2024)

(All figures are in Million Units)

	2021-22	2022-23	2023-24	2024-25 (Upto June)
Total Power Generated	14,91,859.37	16,24,465.61	17,39,091.19	4,84,000.61

ANNEXURE-III

ANNEXURE REFERRED IN REPLY TO PART (c) OF UNSTARRED QUESTION NO. 1587
ANSWERED IN THE RAJYA SABHA ON 05.08.2024

Source-wise details of generation of electricity in the country during years 2021-22 to 2023-24 and the current year 2024-25 (upto June, 2024)

All figures are in Million Units

Fuel		2021-22	2022-23	2023-24	2024-25 (Upto Jun, 2024)
THERMAL	COAL	10,41,487.43	11,45,907.58	12,60,902.62	3,49,749.26
	DIESEL	117.24	229.71	400.58	117.24
	HIGH SPEED DIESEL	0	0	0	0
	LIGNITE	37,094.04	36,188.34	33,949.79	9,054.06
	MULTI FUEL				
	NAPHTHA	0	0.83	0.03	0
	NATURAL GAS	36,015.77	23,884.21	31,295.91	13,496.51
THERMAL Total		11,14,714.48	12,06,210.67	13,26,548.93	3,72,417.07
NUCLEAR		47,112.06	45,861.09	47,937.41	13,108.27
HYDRO		1,51,627.33	1,62,098.77	1,34,053.92	34,878.24
Bhutan Import		7,493.2	6,742.4	4,716.1	744
TOTAL [Conventional]		13,20,947.07	14,20,912.93	15,13,256.36	4,21,147.58
Wind		68,640.07	71,814.16	83,385.35	23,121.80
Solar		73,483.94	1,02,014.24	1,15,975.11	36,112.70
Biomass		3,482.70	3,161.32	3,417.19	847.32
Bagasse		12,573.88	12,863.16	10,825.59	1,286.79
Small Hydro		10,463.55	11,170.62	9,485.04	2,104.37
Others		2,268.17	2,529.18	2,746.55	716.21
TOTAL [Renewable excluding conventional Hydro]		1,70,912.30	2,03,552.68	2,25,834.83	64,189.19
GRAND TOTAL:		14,91,859.37	16,24,465.61	17,39,091.19	4,85,336.77

Note: Gross generation figures of conventional power plants, is for plants of capacity 25 MW and above only.

ANNEXURE-IV

**ANNEXURE REFERRED IN REPLY TO PART (c) OF UNSTARRED QUESTION NO. 1587
ANSWERED IN THE RAJYA SABHA ON 05.08.2024**

Details of Weighted Average Rate of Sale of Power (WARSP) for different sources of Power Generation for the year 2020-21 to 2022-23.

Sr. No.	Mode of Generation/category	Weighted Average Rate of Sale of Power (Paisa/kWh)		
		2020-21	2021-22	2022-23
1	All India Hydro	244.84	251.03	298.34
2	All India Thermal (coal)	368.72	394.16	446.25
3	All India Nuclear	311.33	315.54	353.03
4	All India Thermal (N/LSHS/WHR/HSD) N – Naptha LSHS - Low Sulphur Heavy Stock WHR - Waste Heat Recovery HSD - High Speed Diesel	386.46	431.34	490.24

Details of Weighted Average Rate of Solar and Wind for 2024 as provided by NLDC:

S. No	Mode of Generation	Average PPA Rate
1	Solar	₹ 2.938 / kWh
2	Wind	₹2.936 / kWh

ANNEXURE-V

**ANNEXURE REFERRED IN REPLY TO PART (c) OF UNSTARRED QUESTION NO. 1587
ANSWERED IN THE RAJYA SABHA ON 05.08.2024**

The source-wise carbon-emission figures from grid connected thermal stations for F.Y. 2022-23

Sl. No.	Source of Generation	CO₂ Emissions (gmCO₂ /kWh)
1.	Coal	978
2.	Lignite	1286
3.	Gas	478

GOVERNMENT OF INDIA
MINISTRY OF POWER

RAJYA SABHA
UNSTARRED QUESTION NO.1588
ANSWERED ON 05.08.2024

TARGET TO ENSURE 24-HOURS POWER SUPPLY IN RURAL AREAS

1588 # SHRI DEEPAK PRAKASH:

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

- (a) whether Central Government has set any target to ensure 24 hours power supply in all urban and rural areas of Jharkhand and if so, the details thereof; and
- (b) the steps being taken to ensure 24 hours power supply in all areas of Jharkhand in the coming time along with time-frame thereof?

A N S W E R

THE MINISTER OF STATE IN THE MINISTRY OF POWER

(SHRI SHRIPAD NAIK)

(a) & (b): As per Rule (10) of 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. The Rules are applicable for all States and for all areas including urban and rural areas.

Government of India launched schemes like Deen Dayal Upadhyaya Gram Jyoti Yojana (DDUGJY), Integrated Power Development Scheme (IPDS), Pradhan Mantri Sahaj Bijli Har Ghar Yojana (SAUBHAGYA) etc., to support States achieve the objective of providing uninterrupted power supply to all households. Projects worth Rs. 11,391 crore were executed for strengthening the distribution system in the State of Jharkhand which includes works like new/upgradation of substations, new/ upgradation of HT & LT lines, ABC and underground cabling etc. A total of 2,583 villages were electrified under DDUGJY and 17,30,708 households were electrified under the SAUBHAGYA.

Further, Government of India launched Revamped Distribution Sector Scheme (RDSS) with the objective of improving the quality and reliability of power supply to consumers through a financially sustainable and operationally efficient Distribution Sector. The Scheme has an outlay of Rs. 3,03,758 crore with a Gross Budgetary Support of Rs. 97,631 crore from Government of India over a period of five years from 2021-22 to FY 2025-26. Projects worth Rs. 4,181 crore for distribution infrastructure works and smart metering works have been sanctioned for the State of Jharkhand.

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In addition, all identified PVTG Households under PM-JANMAN (Pradhan Mantri Janjati Adivasi Nyaya Maha Abhiyan) are being taken up under RDSS for on-grid electricity connection as per the scheme guidelines. Till date, works amounting to Rs 53.39 Cr have been sanctioned for electrification of 9,134 PVTG households for the State of Jharkhand.

Further, during last 5 years, out of total 6,220 MW of thermal capacity commissioned in the eastern region of the country (having share of Jharkhand), power allocated to the State of Jharkhand is 613 MW. In addition, three units each of 800 MW are under construction at Patratu and one unit of 660 MW is under construction at North Karanpura in the State of Jharkhand. One unit of 660 MW is under construction at Barh, Bihar. The total share of Jharkhand in these projects would be about 2,272 MW.

As a result of these measures, there has been negligible gap between the peak demand and demand met during the first quarter of FY 2024-2025 (details placed at **Annexure**).

ANNEXURE

ANNEXURE REFERRED IN REPLY TO PARTS (a) & (b) OF UNSTARRED QUESTION
NO. 1588 ANSWERED IN THE RAJYA SABHA ON 05.08.2024

Jharkhand: Power Supply Position during 2024-25

Year	Energy Details				Peak Details			
	Energy Required	Energy Available	Surplus / Deficit (-)		Peak Demand	Demand Met	Surplus/ Deficit	
	MU	MU	MU	%	MW	MW	MW	%
April-24	1,313	1,284	-30	-2.2	2,133	2,133	0	0.0
May-24	1,403	1,395	-9	-0.6	2,295	2,292	-3	-0.1
June-24	1,424	1,410	-13	-0.9	2,330	2,330	0	0.0
Total (Upto June)	4,140	4,089	-52	-1.3	6,758	6,755	0	0.0

GOVERNMENT OF INDIA
MINISTRY OF POWER

RAJYA SABHA
UNSTARRED QUESTION NO.1589
ANSWERED ON 05.08.2024

HYDROELECTRIC POWER PLANTS IN HIMACHAL PRADESH

1589 DR. SIKANDER KUMAR:

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

- (a) the number of hydroelectric power plants in Himachal Pradesh along with their capacity, and fuel-wise;
- (b) whether Government plans to undertake renovation of old hydro power plants;
- (c) if so, the status thereof along with the norms laid down in this regard; and
- (d) the measures taken by Government to modernise hydroelectric power plants in Himachal Pradesh?

A N S W E R

THE MINISTER OF STATE IN THE MINISTRY OF POWER

(SHRI SHRIPAD NAIK)

(a) : Presently, there are 29 Hydroelectric Power Plants with aggregate Installed Capacity of 10281 MW (capacity more than 25 MW) in Himachal Pradesh. The details are at **Annexure-I**. The details of installed capacity (other than Hydroelectric Power Plants of capacity more than 25 MW) in Himachal Pradesh is at **Annexure-II**.

(b) to (d) : Hydroelectric Power Plants Utilities in the country undertake Renovation & Modernisation (R&M) of old and inefficient generating units to improve efficiency, life extension of old plants and to augment capacity. In this regard, Central Electricity Authority (CEA) has published “Guidelines for Renovation & Modernisation of Hydro Power Stations” in July 2020. The status of R & M of Hydroelectric Power Plants in Himachal Pradesh are attached at **Annexure- III**.

ANNEXURE-I

ANNEXURE REFERRED IN REPLY TO PART (a) OF UNSTARRED QUESTION
NO. 1589 ANSWERED IN THE RAJYA SABHA ON 05.08.2024

**Sector-wise/Developer-wise Installed Capacity of Hydroelectric Power Plants in
Himachal Pradesh (capacity more than 25 MW Capacity)**

Sl. No.	Utilities/Stations	Capacity (MW)
	Central Sector	
A	Bhakra Beas Management Board (BBMB)	
1	Bhakra Left	630
2	Bhakra Right	785
3	Dehar	990
4	Pong	396
	Sub-Total BBMB	2801
B	NHPC Limited	
5	Baira Siul	180
6	Chamera-I	540
7	Chamera-II	300
8	Chamera-III	231
9	Parbati-III	520
	Sub-Total NHPC	1771
C	SJVN Limited	
10	Nathpa Jhakri	1500
11	Rampur	412
	Sub-Total SJVNL	1912
D	NTPC Limited	
12	Koldam	800
	Sub-Total NTPC	800
	Total Central Sector	7284
State Sector		
A	Himachal Pradesh State Electricity Board Limited (HPSEBL)	
1	Bassi	66
2	Giri Bata	60
3	Larji	126
4	Sanjay	120
	Sub-Total HPSEBL	372
B	Himachal Pradesh Power Corporation Limited (HPPCL)	
5	Integrated Kashang	195
6	Sainj	100
7	Sawra Kuddu	111
	Sub-Total HPPCL	406
C	Punjab State Power Corporation Limited (PSPCL)	
8	Shanan	110
	Sub-Total PSPCL	110
	Total State Sector	888

Private Sector		
A	Malana Power Company Limited (MPCL)	
1	Malana	86
B	Greenko Budhil Hydro Power Private Limited (GBHPPL)	
2	Budhil	70
C	Everest Power Private Limited (EPPL)	
3	Malana-II	100
D	IA Energy Private Limited (IA Energy)	
4	Chanju-I	36
E	AD Hydro Power Limited (ADHPL)	
5	Allain Duhangan	192
F	Himachal Baspa Power Company Limited (HBPCL)	
6	Baspa	300
G	JSW Energy	
7	Karcham Wangtoo	1045
H	Himachal Sorang Power Pvt. Ltd. (HSPPL)	
8	Sorang	100
I	GMR Energy Ltd. (GMR)	
9	Bajoli Holi	180
	Total Private Sector	2109
	Grand Total	10281

ANNEXURE-II

ANNEXURE REFERRED IN REPLY TO PART (a) OF UNSTARRED QUESTION NO. 1589
ANSWERED IN THE RAJYA SABHA ON 05.08.2024

Installed capacity (other than hydro power [capacity more than 25 MW])
in Himachal Pradesh

(As on 30.06.2024)

Renewable Energy Sources (RES)*		Installed Capacity (MW)
Small Hydro Power		970
Bio-Power	Biomass Cogeneration (Non-Bagasse)	9
	Waste to Energy (Off-grid)	1
	Bio-Power Total	10
Solar Power	Ground Mounted Solar	74
	PM-Surya Ghar Yojna	20
	Off-grid Solar/ KUSUM	35
	Solar Power Total	129
Total Capacity of RES		1248

*Source: MNRE website.

There is no Thermal (Coal, Lignite, Gas, Diesel) and Nuclear Power Plant under operation in Himachal Pradesh.

ANNEXURE-III

**ANNEXURE REFERRED IN REPLY TO PARTS (b) TO (d) OF UNSTARRED QUESTION
NO. 1589 ANSWERED IN THE RAJYA SABHA ON 05.08.2024**

Status of Renovation & Modernisation of Hydroelectric Power Plants in Himachal Pradesh

Sr. No.	Name of Project, Organization	Installed Capacity (in MW)	Completion Schedule
1.	Giri HEP, HPSEBL.	60	2025-26
2.	Pong Power House, BBMB.	396	2028-29

GOVERNMENT OF INDIA
MINISTRY OF POWER

RAJYA SABHA
UNSTARRED QUESTION NO.1590
ANSWERED ON 05.08.2024

INCREASING USE OF ENERGY EFFICIENT ELECTRONIC DEVICES

1590 SHRI MILIND MURLI DEORA:

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

- (a) whether Government has directed the Bureau of Energy Efficiency to conduct any research into increasing energy efficiency of end-use electronic appliances;
- (b) if so, details regarding the steps undertaken to increase use of energy-efficient electronic appliances in India and funding allocated for the same, especially in Maharashtra;
- (c) if not, reasons therefor; and
- (d) whether Government has considered offering any incentives to domestic manufacturers in order to increase energy efficiency of electronic appliances, if so, details thereof and if not, reasons therefor?

A N S W E R

THE MINISTER OF STATE IN THE MINISTRY OF POWER

(SHRI SHRIPAD NAIK)

(a) : Under the Energy Conservation Act, 2001, Bureau of Energy Efficiency (BEE) is mandated to promote or undertake research and development in the field of energy conservation. BEE promotes such research and development as per the requirements assessed by them.

(b) & (c) : To promote the adoption of energy efficient appliances among end-users, BEE has already implemented Standard & Labeling (S&L) program which also includes electronic appliances. The programme provides consumers with information on energy savings and cost savings potential of various appliances. Currently, the S&L programme covers 38 types of appliances including electronic appliances. List of appliances covered under S&L programme is at **Annexure**.

During the current year 2024-25 and last three years, BEE has incurred total expenditure of about Rs. 45.98 crores to implement S&L programme. The expenditure includes expenses towards capacity building, awareness campaign, implementation and enforcement of S&L programme etc.

To spread awareness about S&L programme, BEE has also launched Retailer Training Programme (RTP) for training of authorized traders, sellers, dealers, Resident Welfare Associations (RWAs) and government institutions to spread awareness about the S&L Program.

RTPs are organized at the state level by State Designated Agencies (SDAs). BEE has provided Maharashtra Energy Development Agency with total amount of ₹53.12 lakh for organizing these RTPs in the last two years.

(d): Ministry of power has not offered any incentive to domestic manufacturers for increasing energy efficiency of electronic appliances. Domestic manufactures invest on their own to produce enhanced energy efficient appliances as per the extant regulations and market scenario.

ANNEXURE

ANNEXURE REFERRED IN REPLY TO PARTS (b) & (c) OF UNSTARRED QUESTION NO. 1590 ANSWERED IN THE RAJYA SABHA ON 05.08.2024

List of appliances under S&L programme:

S. N.	Mandatory	S. N.	Voluntary
1	Frost Free Refrigerator	1	General Purpose Industrial Motor
2	Direct Cool Refrigerator	2	Agricultural Pump Set
3	Deep Freezer	3	Domestic Gas Stove
4	Room Air Conditioner (Variable Speed)	4	Computer
5	Room Air Conditioner (Fixed Speed)	5	Ballast
6	RAC (Cassette, Floor Standing Tower, Ceiling, Corner AC)	6	Office Automation Products
7	Light Commercial AC Fixed Speed	7	Diesel Engine Driven Monoset Pumps for Agricultural Purposes
8	Stationary Storage Type Electric Water Heater	8	Solid State Inverter
9	Tubular Fluorescent Lamps (TFL)	9	Diesel Generator Set
10	LED LAMPS	10	Microwave Oven
11	Ultra-High Definition (UHD) Televisions	11	Solar Water Heater
12	Colour Television	12	Air Compressors
13	Distribution Transformer	13	High Energy Li-Battery
14	Ceiling Fan	14	Tyres/Tires
15	Chillers	15	Side by Side/Multi Door Refrigerator
16	Washing Machine	16	Pedestal Fan
		17	Table/Wall Fan
		18	Induction Hob
		19	Solar PV
		20	Commercial Beverage Cooler (Vishu Cooler)
		21	Packaged Boiler
		22	Grid Connected Solar Inverter

GOVERNMENT OF INDIA
MINISTRY OF POWER

RAJYA SABHA
UNSTARRED QUESTION NO.1591
ANSWERED ON 05.08.2024

UPPER SIANG HYDROPOWER PROJECT IN ARUNACHAL PRADESH

1591 MS. SUSHMITA DEV:

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

- (a) whether Government is aware about the ongoing protests against the Upper Siang Hydro power Project in Arunachal Pradesh; and
- (b) if so, the measures being undertaken to address the concerns regarding environmental impact, biodiversity loss and loss of ancestral abode for locals?

A N S W E R

THE MINISTER OF STATE IN THE MINISTRY OF POWER

(SHRI SHRIPAD NAIK)

(a) & (b) : The local villagers have raised concerns about the Upper Siang Multipurpose Project. However, the same is being addressed by undertaking confidence building measures through outreach & awareness activities.

Environment Clearance (EC) is required before start of construction of such project. The EC process involves detailed study on baseline data of flora, fauna, socio-economic status and other environmental parameters. Further, Project affected persons are suitably compensated by the project developer as per the Rehabilitation Scheme approved by the respective State Government. The Upper Siang Multipurpose Project is presently at preliminary stage of investigation.

GOVERNMENT OF INDIA
MINISTRY OF POWER

RAJYA SABHA
UNSTARRED QUESTION NO.1592
ANSWERED ON 05.08.2024

WAIVING OF ISTS CHARGES

1592 SHRI K.R.N. RAJESHKUMAR:

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

- (a) whether Government is considering waiving inter-State transmission system (ISTS) charges for all renewable energy projects and if so, the details thereof, if not, the reasons therefor;
- (b) the measures taken by Government to ensure proper integration of renewable energy projects into the power grid; and
- (c) whether Government is considering the establishment of more joint ventures by the power grid with State Governments to enhance the inter-State power transmission system 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) : Waiver of Inter State Transmission System (ISTS) Charges has been provided for specific category of projects including Renewable Energy (RE), Energy Storage Systems (ESS) and Green Hydrogen/Green Ammonia projects in order to promote addition of renewable energy capacity in the country. The details are enclosed at **Annexure**.

(b) : In order to facilitate integration of large scale Renewable Energy (RE) generation capacity addition in the country, various measures have been taken which include:

- i. Establishment of a robust National Grid to facilitate the transfer of power from power surplus regions to power deficit regions. The inter-regional transmission capacity has been increased from 35,950 MW as on 31st March, 2014 to 1,18,740 MW as on 31st March 2024. The capacity of National Grid is being augmented on a continuous basis commensurate with the growth in electricity generation and electricity demand.
- ii. Setting up of Green Energy Corridor to enhance the capacity of the grid to integrate and transmit renewable energy.
- iii. Transmission plan for integration of more than 500 GW RE generation capacity by 2030. The transmission schemes associated with RE generation projects are under various stages viz. Commissioned, under construction, being taken up for implementation in a phased manner.

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- iv. 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.
- v. Flexibalization of coal-fired power plants to better accommodate the variable and intermittent nature of renewable energy sources.
- vi. Implementation of Green Term Ahead Market (GTAM) , Green Day Ahead Market (GDAM) and Real Time Market (RTM) for sale of renewable energy to facilitate sale of RE power by generators and to help distribution licensees in meeting the challenge in maintaining generation-demand balance due to intermittent and variable nature of RE generation.
- vii. Waiver of Inter-State Transmission charges on transmission of electricity generated from RE sources.
- viii. Facilitating development of Energy Storage Systems (ESS) through various policy interventions including issuance of National Framework for ESS and the Guidelines to promote development of Pump Storage Projects (PSP), providing Viability Gap Funding (VGF) for development of Battery Energy Storage Systems (BESS) and waiver of ISTS charges.

(c): Presently, no Joint Ventures (JV) have been formed by POWERGRID with State Governments for taking up inter-state transmission projects. However, POWERGRID has signed an MoU with Rajasthan Rajya Vidyut Prasaran Nigam Ltd (RVPNL), Rajasthan for formation of a JV for taking up intra-state transmission system.

ANNEXURE

ANNEXURE REFERRED IN REPLY TO PART (a) OF UNSTARRED QUESTION NO. 1592 ANSWERED IN THE RAJYA SABHA ON 05.08.2024

Waiver of ISTS charges for Solar, Wind, Hydro, Hydro Pumped Storage Plant, Battery Energy Storage System, Offshore Wind, Green Hydrogen

Sl. No.	Type of project	Deadline for 100% waiver*	Duration of waiver from commissioning date
1	Solar/ Wind	Commissioning of the project by 30 June 2025	25 years
2	Hydro Pumped Storage Plant	Award of construction work by 30 June 2025	25 years
3	Battery Energy Storage System	Commissioning of the project by 30 June 2025	12 years
4	Large hydro projects (>25 MW)	Award of construction work and signing of Power Purchase Agreements by 30 June 2025	18 years
5	Green Hydrogen/Green Ammonia Plants that utilize renewable energy from Solar, Wind, Large Hydro or Energy Storage Systems or any hybrid combination of the aforementioned technologies	Commissioning of the project by 31 Dec 2030	25 years
6	Offshore wind power	Commissioning of the project by 31 Dec 2032	25 years

*100% waiver of ISTS charges is subject to the Projects adhering to the terms and conditions as well as timelines specified in the relevant orders issued by Ministry of Power. For the Projects meeting waiver requirements (Commissioning or award of construction work and / or signing of PPA) after these dates, the applicable ISTS charges shall increase gradually in successive years to become 100% from the fourth year. In the first following year after the deadline, the applicable ISTS charges would be 25%; in the second year, 50%; in the third year, 75%; and thereafter, 100%.

GOVERNMENT OF INDIA
MINISTRY OF POWER

RAJYA SABHA
UNSTARRED QUESTION NO.1593
ANSWERED ON 05.08.2024

NATIONAL FRAMEWORK FOR PROMOTING ENERGY STORAGE SYSTEMS

1593 # SHRI RAJENDRA GEHLOT:

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

- (a) whether Government has notified the National Framework for Promoting Energy Storage Systems, if so, the details thereof;
- (b) whether Government has set any target to achieve cumulative installed capacity from non-fossil fuel-based energy source by 2030, if so, the details thereof along with the progress made in this regard; and
- (c) whether any national framework has been prepared to promote energy storage system, 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) & (c) : Yes. Government of India has notified the “National Framework for Promoting Energy Storage Systems” in Aug, 2023 to promote the rapid development and deployment of technology agnostic Energy Storage Systems (ESS) in the country. This framework provides a gist of the rules, resolutions and orders issued by the Government so far to encourage the faster adoption of energy storage system to ensure an environmentally sustainable and financially viable power sector. The framework also covers the estimated storage requirement and required policy interventions including financial incentives, Guidelines for Resource Adequacy Plan, facilitating Connectivity and Grid Access, Bidding Guidelines for procurement of ESS, promoting indigenous technology and waiver of Cess, Tax and duties. It will help in achieving twin objectives of ensuring energy transition and energy security.

(b) : As per the updated Nationally Determined Contribution (NDC) submitted to the United Nations Framework Convention for Climate Change (UNFCCC), India has committed to achieve about 50 percent cumulative electric power installed capacity from non-fossil fuel-based energy resources by 2030. As on 30.06.2024, a total of 203 GW (45.5 %) non-fossil fuel-based capacity has been installed in the country out of the overall installed electricity capacity of 446 GW.

GOVERNMENT OF INDIA
MINISTRY OF POWER

RAJYA SABHA
UNSTARRED QUESTION NO.1594
ANSWERED ON 05.08.2024

NEW HYDRO-ELECTRIC PROJECTS IN KERALA

1594 SMT. JEBI MATHER HISHAM:

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

- (a) whether the State Government of Kerala has submitted any proposal as an alternative to Athirappilly hydro-electric project;
- (b) whether any proposal for new hydroelectric projects have been submitted by the State Government of Kerala; and
- (c) the quantum of electricity additionally generated (in MW) in Kerala over the last five years and which year witnessed the maximum production and the name of the projects?

A N S W E R

THE MINISTER OF STATE IN THE MINISTRY OF POWER

(SHRI SHRIPAD NAIK)

(a) : No.

(b) : One proposal namely Idukki Extension Scheme (Hydro Electric Project) with installed capacity of 800 MW was submitted in April, 2022 by Kerala State Electricity Board Limited (KSEBL) (wholly owned by the Government of Kerala) in Central Electricity Authority (CEA). However, the proposal was returned in July, 2024 as there was no progress by the developer in preparation of Detailed Project Report (DPR).

(c) : The quantum of electricity generated in Kerala over the last five years including maximum production and the name of the projects is **annexed**.

ANNEXURE

ANNEXURE REFERRED IN REPLY TO PART (c) OF UNSTARRED QUESTION NO. 1594 ANSWERED IN THE RAJYA SABHA ON 05.08.2024

Details of Power Plants of Kerala and their generation during last five years

Sl. No.	Name of Station	Installed Capacity (MW)	Generation in Million Units (MU)					2024-25 (as on 30.06.2024)	Total Generation in MU
			2019-20	2020-21	2021-22	2022-23	2023-24		
A	Hydro Electric Stations								
1	Idamalayar	75	261	290	377	409	198	80	1615
2	Idukki	780	1830	2530	3710	3262	1645	689	13666
3	Kakkad	50	176	185	273	243	189	63	1129
4	Kuttiady & Kuttiady Additional	225	591	748	747	787	523	152	3548
5	Lower Periyar	180	427	538	812	689	489	94	3049
6	Neriamangalam	53	315	285	312	238	183	47	1380
7	Pallivasal	38	142	134	162	148	157	43	786
8	Panniar	30	137	181	211	199	165	30	923
9	Poringalkuthu	32	95	153	220	157	96	21	742
10	Sabarigiri	300	1113	1228	2047	1532	1130	422	7472
11	Sengulam	48	151	118	184	127	132	25	737
12	Sholayar	54	216	238	263	198	250	51	1216
Total Generation Hydro		1865	5454	6628	9318	7989	5157	1717	36263
Generation Target		-	6034	5900	6505	7414	7668	1577	35098

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Sl. No.	Name of Station	Installed Capacity (MW)	Generation in Million Units (MU)					2024-25 (as on 30.06.2024)	Total Generation in MU
			2019-20	2020-21	2021-22	2022-23	2023-24		
B	Thermal								
1	Bramhapuram DG	64	0	0	0	0	0	0	
2	Cochin CCPP(Liquid)	174	0	0	0	0	0	0	
3	Kozikhode DG	96	12	8	0	0	0	20	
4	R. Gandhi CCPP (Liquid)	360	0	101	0	0	0	101	
Total Generation (Thermal)		694	12	109	0	0	0	121	
Generation Target (Thermal)		-	10	10	10	0	0	30	
Grand Total Generation (Hydro +Thermal)		-	5466	6737	9318	7989	5157	36384	
Grand Total Generation Target (Hydro +Thermal)		-	6044	5910	6515	7414	7668	35128	
Variation wrt Generation Target (both Hydro and Thermal) (+ more)/(-less)		-	-578	827	2803	575	-2511	1256	
C	Renewable Energy Sources (RES)								
1	Wind	64	120	130	136	179	215	810	
2	Solar	1165	144	275	497	880	1195	3445	
3	Bio Power	3	11	46	49	63	78	268	
4	Small hydro	277	530	641	932	824	716	3792	
Total Generation (RES)		1509	805	1092	1614	1946	2204	8315	
Total Generation from Hydro, Thermal & RES		4068	6271	7829	10932	9935	7361	44699	

GOVERNMENT OF INDIA
MINISTRY OF POWER

RAJYA SABHA
UNSTARRED QUESTION NO.1595
ANSWERED ON 05.08.2024

VILLAGE ELECTRIFICATION PROGRAMME

1595 # SHRI BABURAM NISHAD:

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

- (a) steps taken to increase the pace of electrification in the villages since 2019;
- (b) status of the village electrification programme; and
- (c) the increase in the quantum of electricity available per day in the villages since 2019?

A N S W E R

THE MINISTER OF STATE IN THE MINISTRY OF POWER

(SHRI SHRIPAD NAIK)

(a) & (b) : The Government of India launched Deen Dayal Upadhyaya Gram Jyoti Yojana (DDUGJY) in 2014 to strengthen the sub-transmission and distribution networks in rural areas of the country. Under the scheme, all census villages were electrified.

Under Pradhan Mantri Sahaj Bijli Har Ghar Yojana (SAUBHAGYA) (2017-2019) all willing un-electrified households in rural areas and all willing poor households in urban areas in the country were electrified. Certificates were also given by the States regarding 100% electrification of all households.

Thereafter, some States reported left-out un-electrified households. Accordingly, 23,29,074 households were electrified. The Scheme of SAUBHAGYA and DDUGJY was closed in 2019 and 2022 respectively.

Further, Government of India launched Revamped Distribution Sector Scheme (RDSS) with the objective of improving the quality and reliability of power supply to consumers through a financially sustainable and operationally efficient Distribution Sector. The Scheme has an outlay of Rs. 3,03,758 crore with a Gross Budgetary Support of Rs. 97,631 crore over a period of five years from 2021-22 to FY 2025-26. Projects worth Rs. 2.62 lakh crore for distribution infrastructure works and smart metering works have been sanctioned under the scheme.

.....2.

In addition, un-electrified households left-out during SAUBHAGYA and all identified Particularly Vulnerable Tribal Groups (PVTG) habitations/ households under PM-JANMAN (Pradhan Mantri Janjati Adivasi Nyaya Maha Abhiyan) are being electrified under RDSS as per the scheme guidelines. State-wise detail of household electrification sanction along with status is placed at **Annexure**.

Further, under New Solar Power Scheme (for PVTG Habitations/Villages under PM JANMAN) of Ministry of New & Renewable Energy, 5,067 HHs have been sanctioned for electrification through off-grid solar.

(c) : At present, Power availability in rural areas is 21.9 hours. The average hours of supply of electricity in rural areas year-wise, as reported by the States/UTs, since 2019 is as given below:

Year	Average daily power supply(in hours)
2019-20	20.8
2020-21	20.5
2021-22	20.5
2022-23	21.7
2023-24	21.9

ANNEXURE

ANNEXURE REFERRED IN REPLY TO PARTS (a) & (b) OF UNSTARRED QUESTION NO. 1595 ANSWERED IN THE RAJYA SABHA ON 05.08.2024

Electrification under RDSS (PVTG+Addl HHs+ Vibrant Village Program)

S. No.	Name of State	Sanctioned Outlay (Rs. Crores)	Sanctioned GBS (Rs. Crores)	Total Households Sanctioned	Households Electrified as on 18.07.2024
A. Addl. HHs Sanctioned under RDSS					
1	Rajasthan	459.18	275.51	190,959	62,160
2	Meghalaya	435.70	392.13	50,501	0
3	Mizoram	68.94	62.04	13,715	0
4	Nagaland	65.10	58.59	10,398	0
5	Uttar Pradesh	931.04	558.62	251,487	0
6	Andhra Pradesh	49.24	29.54	15,475	11,384
7	Jharkhand	7.47	4.48	872	0
8	Jammu & Kashmir	14.96	13.46	1,936	0
9	Bihar	119.57	71.74	21,658	0
10	Assam	785.55	706.99	127,111	0
	Total (A)	2,936.75	2,173.12	684,112	73,544
B. Electrification works sanctioned under RDSS in Vibrant Villages					
1	Himachal Pradesh	6.08	5.47	3,536	0
2	Arunachal Pradesh	20.18	18.16	1,683	0
3	Uttarakhand	13.08	11.77	1,154	0
	Total (B)	39.34	35.40	6,373	
C. Household Electrification through Grid Connectivity under PM-JANMAN					
Sanctioned under RDSS					
1	Andhra Pradesh	88.71	53.23	25,054	22,245
2	Chhattisgarh	38.17	22.90	7,077	3,172
3	Jharkhand	53.39	32.03	9,134	0
4	Madhya Pradesh	136.07	81.65	27,358	7,517
5	Maharashtra	26.61	15.96	8,556	8,556
6	Rajasthan	40.34	24.20	17,633	9,815
7	Karnataka	3.77	2.26	1,615	811
8	Kerala	0.86	0.52	345	303
9	Tamil Nadu	29.89	17.94	10,673	4,781
10	Telangana	6.79	4.07	3,884	3,862
11	Tripura	61.52	55.37	11,664	2,367
12	Uttarakhand	0.41	0.37	221	667
13	Uttar Pradesh	1.10	0.66	316	157
	Total (C)	487.63	311.15	123,530	64,253
	Grand Total (A+B+C)	3,463.72	2,519.67	814,015	137,797
