

GOVERNMENT OF INDIA
MINISTRY OF POWER

RAJYA SABHA
UNSTARRED QUESTION NO.1911
ANSWERED ON 19.12.2023

STATUS OF POWER GENERATION AND DEMAND SUPPLY IN THE COUNTRY

1911 SHRI PARIMAL NATHWANI:

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

- (a) the status of power generation and demand supply in the country and the details of the sources and their capacity in total power production in the country at present; and
- (b) the sources from which carbon-free power would be generated in the next ten years and the quantum of power production fixed for these sources and the details of measures taken in this regard?

A N S W E R

THE MINISTER OF POWER AND NEW & RENEWABLE ENERGY

(SHRI R.K. SINGH)

(a): The Power sector has been transformed in the past few years. It was earlier power deficit. In the past nine (09) years power generation capacity of 193794 MW has been added ensuring adequate availability of power. The demand has increased rapidly; and we have met the demand. There has been 50.8% increase in energy requirement in the country as compared to 2014. The peak demand has gone up from 135918 MW in 2013-14 to 243271 MW in September 2023. This is a rise of almost 79% and the demand has been met. The gap between energy requirement and energy supplied is just 0.3% - which is because of system constraints or some DISCOMs not having funds to procure power. The gap between peak demand and peak met is just 1.4%. The average gap between Peak demand and Peak supply was 4.5 % in 2013-14 - when the demand was just 136 GW.

Details of source- wise Power Generation in the country for the past two years and current year upto October -2023 are given at **Annexure-I**. The details of All India State-wise Power Supply position for the past two years and current year upto November, 2023 are given at **Annexure-II**.

(b): According to the National Electricity Plan notified in May, 2023, installed Capacity in the country for the year 2031-32 is expected to be 900,422 MW, out of which carbon free capacity is expected to be 6,15,955 MW. Source wise details are as under:

1. Nuclear- 19,680 MW
2. Large Hydro-62,178 MW
3. Solar-364,566 MW
4. Wind-121,895 MW
5. Small Hydro-5450 MW
6. Biomass-15,500 MW
7. Pump Storage Power-26,686 MW

In addition to this, Battery Energy Storage System capacity of 47,244 MW/236,220 MWh is also expected to be installed.

Government has set an ambitious plan to meet the NDC (Nationally Determined Contribution) under COP-Paris Agreement of reducing the emissions intensity of its GDP by 45% by 2030 from 2005 level and achieving 50% of electric power installed capacity from non-fossil fuel by 2030.

We have taken several measures to promote development of Renewable Energy (RE) Projects in the country which, inter-alia, include the following:

1. Permitting Foreign Direct Investment (FDI) up to 100 percent under the automatic route;
2. 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,
3. Declaration of trajectory for Renewable Purchase Obligation (RPO) up to the year 2029-30;
4. Setting up of Ultra Mega Renewable Energy Parks to provide land and transmission to RE developers for installation of RE projects at large scale;
5. Schemes such as Pradhan Mantri Kisan Urja Suraksha evam Utthaan Mahabhiyan (PM-KUSUM), Solar Rooftop Phase II, 12000 MW CPSU Scheme Phase II;
6. Laying of new transmission lines and creating new sub-station capacity under the Green Energy Corridor Scheme for evacuation of renewable power;
7. Notification of standards for deployment of solar photovoltaic system/devices;
8. Setting up of Project Development Cell for attracting and facilitating investments;
9. Standard Bidding Guidelines for tariff based competitive bidding process for procurement of Power from Grid Connected Solar PV and Wind Projects;
10. 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;
11. Notification of Promoting Renewable Energy through Green Energy Open Access Rules 2022;
12. Launch of Green Term Ahead Market (GTAM) to facilitate sale of Renewable Energy Power through exchanges;
13. 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,
14. Notification of prescribed trajectory for RE power bids to be issued by Renewable Energy Implementation Agencies from FY 2023-24 to FY 2027-28. Under the trajectory, 50 GW/annum of RE bids to be issued.

Further, we have taken a number of policy initiatives, to boost the production of the hydropower in the country including the following:

1. Declaring Large Hydro Power (LHPs) (> 25 MW projects) as Renewable Energy source.
2. Hydro Purchase Obligation (HPO) as a separate entity. The HPO trajectory, for the period 2021-22 to 2029-30 has also been notified by the Govt. on 29.01.2021.
3. Tariff rationalization measures for bringing down hydro power tariff.
4. Budgetary Support for Flood Moderation/Storage Hydro Electric Projects (HEPs).
5. Budgetary Support to Cost of Enabling Infrastructure, i.e. roads/bridges.
 - a) Rs. 1.5 crore per MW for projects upto 200 MW.
 - b) Rs. 1.0 crore per MW for projects above 200 MW.

Besides above, we have also taken following initiatives:

1. Waiver of ISTS Charges on the transmission of power from new Hydro Power Projects, for which construction work is awarded and PPA is signed on or before 30.06.2025. Subsequently, part waiver of ISTS charges, in steps of 25% from 01.07.2025 to 01.07.2028, have been extended for HEPs for which construction work is awarded and PPA is signed up to 30.06.2028.
2. Waiver of ISTS charges has been inter-alia extended to Pumped Storage Projects for which construction work is awarded up to 30.06.2025, subject to certain conditions. Subsequently, part waiver of ISTS charges, in steps of 25% from 01.07.2025 to 01.07.2028, have been extended for PSPs for which construction work is awarded up to 30.06.2028.
3. Guidelines to promote development of Pumped Storage Projects issued on 10.04.2023.
4. Measures to reduce time and cost overrun in hydro-electric projects have been notified by MoP on 8-11-2019.
5. Dispute Avoidance Mechanism for avoidance and resolution of contractual disputes of contracts executed by hydro CPSUs at initial stage by engagement of an Independent Engineer has been devised on 27.09.2021.
6. Dispute Resolution Mechanism for resolution of disputes of contracts executed by CPSUs / other organizations under MoP through Conciliation Committees has been devised on 29.12.2021.

ANNEXURE-I

**ANNEXURE REFERRED TO IN REPLY TO PART (a) OF UNSTARRED
QUESTION NO. 1911 ANSWERED IN THE RAJYA SABHA ON 19.12.2023**

Details of source- wise Power Generation in the country for the past 2 years and current year upto October -2023.

CATEGORY	Fuel	Monitored Capacity as on 31.10.2023 (MW)	Generation (MU)	
			2023-24 (upto- October 23)	2022-23
THERMAL	COAL	207045.5	732309.61	1145908
	DIESEL	589.201	232.56	229.71
	HIGH SPEED DIESEL	255	0	0
	LIGNITE	6620	18744.69	36188.34
	NAPHTHA	701.58	0	0.83
	NATURAL GAS	24071.629	20342.18	23884.21
NUCLEAR	NUCLEAR	7480	27562.06	45861.09
HYDRO	HYDRO	46850.17	101969.37	162098.8
BHUTAN IMP	HYDRO	-	4644	6742.4
Sub-Total		293613.08	905804.47	1420913
RENEWABLE (Solar, Wind, Biomass, Small Hy., Others)		132132.44	141634.57	203552.7
Grand Total		425745.52	1047439.04	1624466

**ANNEXURE REFERRED TO IN REPLY TO PART (a) OF UNSTARRED QUESTION NO. 1911
ANSWERED IN THE RAJYA SABHA ON 19.12.2023**

Power Supply Position for 2021-22 (Revised)								
State / System / Region	Energy				Peak			
	April,2021 - March,2022				April,2021 - March,2022			
	Energy Requirement	Energy Supplied	Energy not Supplied		Peak Demand	Peak Met	Demand not Met	
	(MU)	(MU)	(MU)	(%)	(MW)	(MW)	(MW)	(%)
Chandigarh	1,606	1,606	0	0.0	426	426	0	0.0
Delhi	31,128	31,122	6	0.0	7,323	7,323	0	0.0
Haryana	55,499	55,209	290	0.5	12,120	12,120	0	0.0
Himachal Pradesh	12,115	12,088	27	0.2	2,030	2,030	0	0.0
UT of J&K and Ladakh	19,957	18,434	1,524	7.6	3,076	2,826	250	8.1
Punjab	62,846	62,411	436	0.7	13,556	13,431	125	0.9
Rajasthan	89,814	89,310	504	0.6	15,784	15,784	0	0.0
Uttar Pradesh	129,448	128,310	1,138	0.9	24,965	24,795	170	0.7
Uttarakhand	15,521	15,426	94	0.6	2,468	2,468	0	0.0
Northern Region	417,934	413,915	4,019	1.0	73,305	72,935	370	0.5
Chhattisgarh	31,908	31,872	35	0.1	5,019	5,014	5	0.1
Gujarat	123,953	123,666	287	0.2	19,451	19,431	20	0.1
Madhya Pradesh	86,501	86,455	46	0.1	15,917	15,917	0	0.0
Maharashtra	172,823	172,809	14	0.0	28,075	28,016	59	0.2
Daman & Diu	2,594	2,594	0	0.0	371	369	2	0.4
Dadra & Nagar Haveli	6,839	6,839	0	0.0	891	888	3	0.3
Goa	4,448	4,448	0	0.0	703	701	2	0.3
Western Region	429,065	428,683	383	0.1	65,433	65,205	228	0.3
Andhra Pradesh	68,413	68,219	194	0.3	12,551	12,032	519	4.1
Telangana	70,539	70,523	16	0.0	14,163	14,160	3	0.0
Karnataka	72,437	72,417	20	0.0	14,830	14,818	12	0.1
Kerala	26,579	26,570	9	0.0	4,374	4,364	10	0.2
Tamil Nadu	109,816	109,798	18	0.0	16,891	16,891	0	0.0
Puducherry	2,894	2,893	1	0.0	469	467	2	0.4
Lakshadweep #	56	56	0	0.0	11	11	0	0.0
Southern Region	350,678	350,421	258	0.1	61,138	59,781	1,357	2.2
Bihar	36,216	35,761	455	1.3	7,154	6,490	664	9.3
DVC	23,741	23,736	4	0.0	3,355	3,338	17	0.5
Jharkhand	11,148	10,590	558	5.0	1,887	1,611	276	14.6
Odisha	38,339	38,332	7	0.0	5,643	5,643	0	0.0
West Bengal	54,001	53,945	57	0.1	9,089	9,087	2	0.0
Sikkim	610	609	0	0.0	133	133	0	0.0
Andaman- Nicobar #	335	327	8	2.3	60	60	0	0.0
Eastern Region	164,054	162,973	1,081	0.7	26,019	25,145	874	3.4
Arunachal Pradesh	875	874	1	0.1	197	168	29	14.6
Assam	10,844	10,825	19	0.2	2,126	2,121	5	0.2
Manipur	1,019	1,018	1	0.1	258	258	0	0.0
Meghalaya	2,256	2,243	13	0.6	408	408	0	0.0
Mizoram	656	644	12	1.8	169	156	13	7.6
Nagaland	852	851	1	0.1	173	153	20	11.7
Tripura*	1,578	1,578	0	0.0	328	327	1	0.3
North-Eastern Region	18,079	18,033	47	0.3	3,427	3,360	67	1.9
All India	1,379,812	1,374,024	5,787	0.4	203,014	200,539	2,475	1.2
# Lakshadweep and Andaman & Nicobar Islands are stand- alone systems, power supply position of these, does not form part of regional requirement and supply.								
* Excludes the supply to Bangladesh.								
Note: Power Supply Position Report has been compiled based on the data furnished by State Utilities/ Electricity Departments. The MU & MW figures has been rounded off to nearest unit place.								

Power Supply Position for 2022-23 (Revised)								
State /	Energy				Peak			
	April,2022 - March,2023				April,2022 - March,2023			
System /	Energy Requirement	Energy Supplied	Energy not Supplied		Peak Demand	Peak Met	Demand not Met	
Region	(MU)	(MU)	(MU)	(%)	(MW)	(MW)	(MW)	(%)
Chandigarh	1,788	1,788	0	0.0	407	407	0	0.0
Delhi	35,143	35,133	10	0.0	7,695	7,695	0	0.0
Haryana	61,451	60,945	506	0.8	12,768	12,768	0	0.0
Himachal Pradesh	12,649	12,542	107	0.8	2,071	2,071	0	0.0
UT of J&K and Ladakh	19,639	19,322	317	1.6	3,137	2,967	170	5.4
Punjab	69,522	69,220	302	0.4	14,311	14,311	0	0.0
Rajasthan	101,801	100,057	1,745	1.7	17,399	17,206	193	1.1
Uttar Pradesh	144,251	143,050	1,201	0.8	27,369	26,589	780	2.8
Uttarakhand	15,647	15,386	261	1.7	2,594	2,594	0	0.0
Northern Region (##)	463,088	458,640	4,449	1.0	77,337	76,561	776	1.0
Chhattisgarh	39,051	38,979	72	0.2	5,399	5,399	0	0.0
Gujarat	137,960	137,916	44	0.0	21,464	21,382	82	0.4
Madhya Pradesh	92,326	91,969	358	0.4	17,347	17,238	109	0.6
Maharashtra	186,573	186,461	111	0.1	30,935	28,846	2,089	6.8
Dadra & Nagar Haveli and Daman & Diu	9,960	9,960	0	0.0	1,278	1,278	0	0.0
Goa	4,674	4,674	0	0.0	718	718	0	0.0
Western Region (##)	475,743	475,157	586	0.1	71,677	71,677	0	0.0
Andhra Pradesh	72,302	71,893	410	0.6	13,167	12,293	874	6.6
Telangana	77,832	77,799	34	0.0	15,497	15,497	0	0.0
Karnataka	75,688	75,663	26	0.0	15,828	15,828	0	0.0
Kerala	27,747	27,726	21	0.1	4,699	4,370	329	7.0
Tamil Nadu	114,798	114,722	77	0.1	17,729	17,729	0	0.0
Puducherry	3,051	3,050	1	0.0	501	501	0	0.0
Lakshadweep (#)	64	64	0	0.0	12	12	0	0.0
Southern Region (##)	371,467	370,900	567	0.2	64,337	64,337	0	0.0
Bihar	39,545	38,762	783	2.0	7,852	6,631	1,221	15.5
DVC	26,339	26,330	9	0.0	3,402	3,396	7	0.2
Jharkhand	13,278	12,288	990	7.5	2,253	1,918	336	14.9
Odisha	42,631	42,584	47	0.1	6,566	6,391	175	2.7
West Bengal	60,348	60,274	74	0.1	10,125	9,900	225	2.2
Sikkim	587	587	0	0.0	124	124	0	0.0
Andaman- Nicobar (#)	348	348	0	0.1	62	62	0	0.0
Eastern Region (##)	182,791	180,888	1,903	1.0	28,275	27,218	1,057	3.7
Arunachal Pradesh	915	892	24	2.6	167	167	0	0.0
Assam	11,465	11,465	0	0.0	2,379	2,376	3	0.1
Manipur	1,014	1,014	0	0.0	248	248	0	0.0
Meghalaya	2,237	2,237	0	0.0	404	404	0	0.0
Mizoram	645	645	0	0.0	159	159	0	0.0
Nagaland	926	873	54	5.8	168	167	1	0.5
Tripura (*)	1,547	1,547	0	0.0	333	333	0	0.0
North-Eastern Region (##)	18,758	18,680	78	0.4	3,603	3,603	0	0.0
All India	1,511,847	1,504,264	7,583	0.5	215,888	207,231	8,657	4.0
(#) Lakshadweep and Andaman & Nicobar Islands are stand- alone systems, power supply position of these, does not form part of regional requirement and supply.								
(*) Excludes the supply to Bangladesh.								
Note:								
1. Power Supply Position Report has been compiled based on the data furnished by State Utilities/ Electricity Departments. The MU & MW figures has been rounded off to nearest unit place.								
2. (##) The Regional figures include data of other miscellaneous entities drawing power directly from ISTS.								

Power Supply Position for 2023-24 (Provisional)								
State /	Energy				Peak			
	April,2023 - November,2023				April,2023 - November,2023			
System /	Energy Requirement	Energy Supplied	Energy not Supplied		Peak Demand	Peak Met	Demand not Met	
Region	(MU)	(MU)	(MU)	(%)	(MW)	(MW)	(MW)	(%)
Chandigarh	1,289	1,289	0	0.0	411	411	0	0.0
Delhi	26,126	26,123	3	0.0	7,437	7,437	0	0.0
Haryana	45,855	45,605	250	0.5	13,088	12,844	244	1.9
Himachal Pradesh	8,348	8,324	24	0.3	1,977	1,977	0	0.0
UT of J&K and Ladakh	12,770	12,577	193	1.5	2,890	2,890	0	0.0
Punjab	51,458	51,453	5	0.0	15,293	15,293	0	0.0
Rajasthan	69,851	69,352	499	0.7	17,956	17,840	116	0.6
Uttar Pradesh	107,129	106,875	254	0.2	28,704	28,284	420	1.5
Uttarakhand	10,524	10,444	80	0.8	2,536	2,436	100	3.9
Northern Region (##)	334,239	332,930	1,309	0.4	80,980	80,548	432	0.5
Chhattisgarh	26,253	26,202	51	0.2	5,836	5,832	4	0.1
Gujarat	98,536	98,509	27	0.0	24,829	24,544	285	1.1
Madhya Pradesh	64,255	64,192	63	0.1	17,097	17,097	0	0.0
Maharashtra	138,065	137,891	174	0.1	31,178	27,996	3,182	10.2
Dadra & Nagar Haveli and Daman & Diu	6,719	6,719	0	0.0	1,327	1,327	0	0.0
Goa	3,413	3,413	0	0.0	776	776	0	0.0
Western Region (##)	343,422	343,107	315	0.1	76,050	72,556	3,494	4.6
Andhra Pradesh	54,616	54,561	55	0.1	13,028	13,028	0	0.0
Telangana	54,096	54,089	7	0.0	15,380	15,370	10	0.1
Karnataka	59,533	59,382	151	0.3	16,958	16,950	8	0.0
Kerala	20,203	20,199	4	0.0	5,010	5,010	0	0.0
Tamil Nadu	84,230	84,221	9	0.0	19,045	19,045	0	0.0
Puducherry	2,371	2,371	1	0.0	524	524	0	0.0
Lakshadweep (#)	42	42	0	0.0	12	12	0	0.0
Southern Region (##)	275,083	274,856	227	0.1	64,103	64,103	0	0.0
Bihar	30,448	29,963	485	1.6	8,049	7,420	629	7.8
DVC	18,066	18,062	4	0.0	3,451	3,451	0	0.0
Jharkhand	9,721	9,401	320	3.3	2,193	2,020	173	7.9
Odisha	28,999	28,984	15	0.1	6,443	6,443	0	0.0
West Bengal	48,465	48,403	63	0.1	11,626	11,626	0	0.0
Sikkim	312	312	0	0.0	106	106	0	0.1
Andaman- Nicobar (#)	254	246	9	3.4	63	55	8	12.7
Eastern Region (##)	136,056	135,170	887	0.7	30,256	29,299	957	3.2
Arunachal Pradesh	646	646	0	0.0	167	167	0	0.0
Assam	9,062	8,983	78	0.9	2,413	2,413	0	0.0
Manipur	625	625	0	0.0	214	214	0	0.0
Meghalaya	1,464	1,301	164	11.2	363	363	0	0.0
Mizoram	424	424	0	0.0	144	144	0	0.0
Nagaland	640	640	0	0.0	174	174	0	0.1
Tripura (*)	1,219	1,219	0	0.0	362	362	0	0.0
North-Eastern Region (##)	14,086	13,844	242	1.7	3,678	3,678	0	0.0
All India	1,102,887	1,099,907	2,980	0.3	243,271	239,931	3,340	1.4
(#) Lakshadweep and Andaman & Nicobar Islands are stand- alone systems, power supply position of these, does not form part of regional requirement and supply.								
(*) Excludes the supply to Bangladesh.								
Note:								
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