GOVERNMENT OF INDIA
MINISTRY OF POWER

LOK SABHA
UNSTARRED QUESTION NO.5406
ANSWERED ON 03.04.2025

RENEWABLE ENERGY GENERATION IN KARNATAKA

5406. SHRI P C MOHAN:

Will the Minister of POWER be pleased to state:

(a) the total power/electricity generation capacity in the country specifying the sources of energy like coal, natural gas, hydro, solar, wind, etc. State-wise including Karnataka;

(b) the details of power generation by these sources during the last three years, year-wise;

(c) the plans and initiatives proposed by the Government to enhance renewable energy capacity in each State including Karnataka including specific targets and timelines; and

(d) the challenges faced by the States including Karnataka in transitioning to renewable energy and the strategies being implemented to address these challenges?

A N S W E R

THE MINISTER OF STATE IN THE MINISTRY OF POWER

(SHRI SHRIPAD NAIK)

(a) : The State/ UT-wise and source-wise details of electricity generation capacity in the country (as on 28.02.2025) including Karnataka are given at Annexure-I and Annexure-II.

(b) : The details of electricity generated from various sources during the last three years and the current year (upto Feb, 2025) are given at Annexure-III.

(c) & (d) : The Government of India has committed to augment non-fossil based installed electricity generation capacity to 500 GW by the year 2030. As on 28.02.2025, a total of 2,14,680 MW Renewable Energy capacity has been installed in the country including 23,074.89 MW Renewable Energy capacity in Karnataka.

Further, 1,75,890 MW Renewable Capacity including 84,310 MW of Solar, 28,280 MW of Wind, 40,890 MW Hybrid power and 21,970 MW of large Hydro is under construction. 70,210 MW of Renewable Capacity including 46,670 MW of Solar, 600 MW of Wind and 22,940 MW Hybrid Power is at various stages of planning and targeted to be completed by 2029-30.

The Government of India has taken following steps to enhance Renewable Energy Generation in the country including Karnataka:

(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

Further, Government has taken various measures to facilitate the integration of Renewable Energy (RE) resources into the National Grid to ensure reliability and stability as under:

i. **Development of intra-state transmission network is being planned to keep pace with RE capacity addition. Strong inter connection of ISTS RE schemes with the intra-state network to ensure better reliability in terms of anchoring voltage stability, angular stability, losses reduction etc. is being done.**

ii. **Central Financial Assistance (CFA) is being provided to the States for setting up Transmission infrastructure for RE integration within their State under the Green Energy Corridor Scheme.**

iii. **Encouraging setting up of RE projects with storage facilities for optimal utilisation of transmission facilities.**

iv. **Flexibilization of thermal generation is mandated to address the variability of RE generation.**

v. **CEA (Technical Standards for Connectivity to the Grid) Regulations lay down the minimum technical requirements for the RE generating plants to ensure the safe, secure and reliable operation of the grid. The compliances to the said regulations by RE plants are verified jointly by Central Transmission Utility (CTUIL) and Grid-India/RLDCs before granting connectivity/interconnection to the national grid. Robust compliances verification is done before interconnection of any new plant to the grid.**

vi. **Indian Electricity Grid Code mandates that RE plants participate in the primary and secondary frequency control in case of contingencies. Hybrid RE power plants, Energy Storage Systems such as BESS (Battery Energy Storage System) and PSP (Pump Storage Project) are being promoted for mitigating variability in RE generation and provide adequate frequency support to the grid.**

vii. **Establishment of dedicated 13 No. of Renewable Energy Management Centres (REMC) in RE rich States and Regions for dedicated, monitoring, forecasting and scheduling of Solar and Wind plants.**

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ANNEXURE-I

ANNEXURE REFERRED IN REPLY TO PART (a) OF UNSTARRED QUESTION NO. 5406 ANSWERED IN THE LOK SABHA ON 03.04.2025

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The details of State/ UT-wise and source-wise Installed Generation Capacity as on 28.02.2025

(All fig in MW)

Sl. No.	STATES / UTs	Coal	Lignite	Gas	Diesel	Hydro	RES (other than Large Hydro)	Nuclear	Total
1	Andhra Pradesh	13,190.00	0.00	4,678.54	36.80	1,610.00	10,013.58	0.00	29,528.92
2	Arunachal Pradesh	0.00	0.00	0.00	0.00	1,115.00	155.46	0.00	1,270.46
3	Assam	750.00	0.00	597.36	0.00	350.00	228.45	0.00	1,925.81
4	Bihar	9,060.00	0.00	0.00	0.00	0.00	530.36	0.00	9,590.36
5	Chhattisgarh	23,688.00	0.00	0.00	0.00	120.00	1,693.63	0.00	25,501.63
6	Goa	0.00	0.00	48.00	0.00	0.00	57.43	0.00	105.43
7	Gujarat	14,692.00	1,400.00	7,551.41	0.00	1,990.00	30,934.03	1,840.00	58,407.44
8	Haryana	5,330.00	0.00	431.59	0.00	0.00	2,391.30	0.00	8,152.89
9	Himachal Pradesh	0.00	0.00	0.00	0.00	10,281.02	1,181.17	0.00	11,462.19
10	Jammu & Kashmir	0.00	0.00	175.00	0.00	3,360.00	264.42	0.00	3,799.42
11	Jharkhand	5,570.00	0.00	0.00	0.00	210.00	224.06	0.00	6,004.06
12	Karnataka	9,480.00	0.00	370.05	25.20	3,689.20	19,385.69	880.00	33,830.14
13	Kerala	0.00	0.00	533.58	159.96	1904.15	1,824.66	0.00	4,422.35
14	Ladakh	0.00	0.00	0.00	0.00	89.00	53.59	0.00	142.59
15	Madhya Pradesh	22,000.00	0.00	0.00	0.00	2,235.00	8,131.76	0.00	32,366.76
16	Maharashtra	24,666.00	0.00	3207.08	0.00	3,047.00	18,537.30	1,400.00	50,857.38
17	Manipur	0.00	0.00	0.00	36.00	105.00	19.24	0.00	160.24
18	Meghalaya	0.00	0.00	0.00	0.00	322.00	73.11	0.00	395.11
19	Mizoram	0.00	0.00	0.00	0.00	60.00	75.86	0.00	135.86
20	Nagaland	0.00	0.00	0.00	0.00	75.00	35.84	0.00	110.84
21	Odisha	9,600.00	0.00	0.00	0.00	2,154.55	797.52	0.00	12,552.07
22	Punjab	5,680.00	0.00	0.00	0.00	1,096.30	2165.78	0.00	8,942.08
23	Rajasthan	9,200.00	1580.00	1022.83	0.00	411.00	33,056.98	1,180.00	46,450.81
24	Sikkim	0.00	0.00	0.00	0.00	2,282.00	62.67	0.00	2,344.67
25	Tamil Nadu	10,522.50	3,640.00	1,027.18	211.70	2,178.20	22,456.40	2,440.00	42,475.98
26	Telangana	10,242.50	0.00	0.00	0.00	2,405.60	5,282.74	0.00	17,930.84
27	Tripura	0.00	0.00	1,067.60	0.00	0.00	37.25	0.00	1,104.85
28	Uttar Pradesh	28,035.00	0.00	1,493.14	0.00	501.60	5,680.28	440.00	36,150.02
29	Uttarakhand	0.00	0.00	664.00	0.00	4,035.35	969.13	0.00	5,668.48
30	West Bengal	1,3487.00	0.00	80.00	0.00	1341.20	767.48	0.00	15,675.68
31	Andaman & Nicobar	0.00	0.00	0.00	92.71	0.00	35.16	0.00	127.87
32	Chandigarh	0.00	0.00	0.00	0.00	0.00	78.85	0.00	78.85
33	Dadar & Nagar Haveli/ Daman & Diu	0.00	0.00	0.00	0.00	0.00	51.87	0.00	51.87
34	Delhi	0.00	0.00	2,208.40	0.00	0.00	397.40	0.00	2,605.80
35	Lakshadweep	0.00	0.00	0.00	26.83	0.00	4.97	0.00	31.80
36	Puducherry	0.00	0.00	32.50	0.00	0.00	54.11	0.00	86.61
	Total	2,15,193.00	6,620.00	25,188.26	589.20	46,968.17	1,67,709.53	8,180.00	4,70,448.16

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ANNEXURE-II

ANNEXURE REFERRED IN REPLY TO PART (a) OF UNSTARRED QUESTION NO. 5406 ANSWERED IN THE LOK SABHA ON 03.04.2025

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The details of State/UT-wise Installed Renewable Capacity (Excl Large Hydro) as on 28.02.2025

(All fig in MW)

Sl. No.	STATES / UTs	Small Hydro Power	Wind Power	Bio Power	Solar Power	Total Capacity
1	Andhra Pradesh	163.31	4,096.65	574.39	5,179.23	10,013.58
2	Arunachal Pradesh	140.61	0.00	0.00	14.85	155.46
3	Assam	34.11	0.00	2.00	192.34	228.45
4	Bihar	70.70	0.00	140.22	319.44	530.36
5	Chhattisgarh	76.00	0.00	277.09	1340.54	1,693.63
6	Goa	0.05	0.00	1.94	55.44	57.43
7	Gujarat	106.64	12583.88	118.10	18,125.41	30,934.03
8	Haryana	73.50	0.00	292.62	2,025.18	2,391.30
9	Himachal Pradesh	1,000.71	0.00	10.20	170.26	1,181.17
10	Jammu & Kashmir	189.93	0.00	0.00	74.49	264.42
11	Jharkhand	4.05	0.00	20.14	199.87	224.06
12	Karnataka	1,284.73	6878.30	1909.95	9312.71	19385.69
13	Kerala	276.52	63.50	2.50	1482.14	1824.66
14	Ladakh	45.79	0.00	0.00	7.80	53.59
15	Madhya Pradesh	123.71	2844.29	150.88	5012.88	8131.76
16	Maharashtra	384.28	5279.08	2992.57	9881.37	18537.30
17	Manipur	5.45	0.00	0.00	13.79	19.24
18	Meghalaya	55.03	0.00	13.80	4.28	73.11
19	Mizoram	45.47	0.00	0.00	30.39	75.86
20	Nagaland	32.67	0.00	0.00	3.17	35.84
21	Odisha	115.63	0.00	60.05	621.84	797.52
22	Punjab	176.10	0.00	568.25	1,421.43	2,165.78
23	Rajasthan	23.85	5195.82	200.56	27,636.75	33,056.98
24	Sikkim	55.11	0.00	0.00	7.56	62.67
25	Tamil Nadu	123.05	11,518.94	1,045.45	9,768.96	22,456.40
26	Telangana	90.87	128.10	221.67	4,842.10	5,282.74
27	Tripura	16.01	0.00	0.00	21.24	37.25
28	Uttar Pradesh	49.10	0.00	2273.67	3,357.51	5,680.28
29	Uttarakhand	233.82	0.00	142.24	593.07	969.13
30	West Bengal	98.50	0.00	348.36	320.62	767.48
31	Andaman & Nicobar	5.25	0.00	0.00	29.91	35.16
32	Chandigarh	0.00	0.00	0.00	78.85	78.85
33	Dadar & Nagar Haveli/ Daman & Diu	0.00	0.00	3.75	48.12	51.87
34	Delhi	0.00	0.00	84.00	313.40	397.40
35	Lakshadweep	0.00	0.00	0.00	4.97	4.97
36	Puducherry	0.00	0.00	0.00	54.11	54.11
	Total	5,100.55	48,588.56	11,454.40	1,02,566.02	1,67,709.53

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ANNEXURE-III

ANNEXURE REFERRED IN REPLY TO PART (b) OF UNSTARRED QUESTION NO. 5406 ANSWERED IN THE LOK SABHA ON 03.04.2025

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The details of Electricity generated from various sources /Fuel from 2021-22 to 2024-25 (upto Feb, 2025):

(All Figures are in Million Units)

Fuel		2021-22	2022-23	2023-24	2024-25(Upto Feb,2025)
		Generation (in MU)	Generation (in MU)	Generation (in MU)	Generation (in MU)
THERMAL	COAL	10,41,487.43	11,45,907.58	12,60,902.62	11,80,980.70
	DIESEL/HSD	117.24	229.71	400.58	400.83
	LIGNITE	37,094.04	36,188.34	33,949.79	30,177.23
	MULTI FUEL	0.00	0.00	0.00	0.00
	NAPTHA	0	0.83	0.03	0.00
	NATURAL GAS	36,015.77	23,884.21	31,295.91	29,702.23
THERMAL Total		11,14,714.48	12,06,210.67	13,26,548.93	12,41,261.08
NUCLEAR		47,112.06	45,861.09	47,937.41	51,961.76
HYDRO		1,51,627.33	1,62,098.77	1,34,053.92	1,39,780.44
Bhutan Import		7,493.20	6,742.40	4,716.10	5,368.78
Conventional Total:		13,20,947.07	14,20,912.93	15,13,256.36	14,38,372.06
Renewable Total (excluding Conventional Hydro)		1,70,912.30	2,03,552.68	2,25,834.83	2,29,731.15
Grand Total :		14,91,859.37	16,24,465.61	17,39,091.19	16,68,103.21

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