GOVERNMENT OF INDIA
DEPARTMENT OF ATOMIC ENERGY
LOK SABHA
STARRED QUESTION NO. *63
TO BE ANSWERED ON 26.06.2019

SHARE OF ATOMIC ENERGY IN POWER PRODUCTION

*63 SHRI SANTOKH SINGH CHAUDHARY:
DR. SANJAY JAISWAL:

Will the PRIME MINISTER be pleased to state:

(a) the total electrical energy requirement of people of the country and the amount of power actually generated, State/UT-wise;

(b) the amount and percentage share of atomic energy in total power production of the country;

(c) whether any steps are being taken to increase the share of atomic energy in total power generation and if so, the details thereof;

(d) the comparison of financial costs incurred in generating 1 MW each of solar power, hydropower, nuclear power and thermal power; and

(e) whether the Government proposes to allow foreign direct investment in the area of atomic energy and if so, the details thereof?

ANSWER

THE MINISTER OF STATE FOR PERSONNEL, PUBLIC GRIEVANCES & PENSIONS AND PRIME MINISTER'S OFFICE (Dr. JITENDRA SINGH):

(a)to(e) A statement is placed on the Table of the House.

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Government of India
Department of Atomic Energy

STATEMENT REFERRED TO IN REPLY TO LOK SABHA STARRED QUESTION NO. *63 DUE FOR ANSWER ON 26.06.2019 BY SHRI SANTOKH SINGH CHAUDHARY AND DR.SANJAY JAISWAL REGARDING SHARE OF ATOMIC ENERGY IN POWER PRODUCTION .

(a) The details of State/UT-wise energy requirement during last five years and the current year, 2019-20 (up to May 2019) are enclosed at **Annexure-I**. The details of electricity generation from conventional sources having installed capacity of 25 MW and above, State-wise, in the country during the last five years & current year i.e. 2019-20 (up to May 2019) are enclosed as **Annexure-II**.

(b) Details of amount and percentage share of atomic energy in the total generation of the country for last five years and current year, 2019-20 (up to May, 2019) are enclosed at **Annexure-III**. The share of nuclear power in the total electricity generation in the country was about 3% in 2018-19.

(c) Yes, Sir. To increase the share of nuclear power generation, the government has taken several steps to increase the nuclear power capacity and to provide adequate quantity of fuel. These include:

(i) Resolution of issues related to Civil Liability for Nuclear Damage (CLND) Act & creation of Indian Nuclear Insurance Pool (INIP).

(ii) Accord of administrative approval and financial sanction of - ten (10) indigenous 700 MW Pressurized Heavy Water Reactors (PHWRs) to be set up in fleet mode & two (02) units of Light Water Reactors (LWRs) to be set up in cooperation with Russian Federation.

(iii) Amendment of the Atomic Energy Act to enable Joint Ventures of Public Sector Companies to set up nuclear power projects.

(iv) Entering into enabling agreements with foreign countries for nuclear power cooperation including supply of fuel.

(d) The capital cost for 1 MW Solar photovoltaic (PV) power plant is in the range of Rs.4 to 5 crore. In respect of Thermal power projects presently under construction, the capital cost varies from about Rs. 5 crore to Rs.10 crore per MW. Similarly, the capital cost of hydro power projects presently under construction vary widely from Rs. 4 crore to Rs.20 crore/ MW.

In respect of nuclear power, the completion cost of Indigenous 700 MW PHWR is about Rs.15 crore per MW. The cost per MW of reactors to be set up with foreign cooperation depends on the business model adopted. However, the tariffs of electricity generated by nuclear power are competitive with those of contemporary base load generators like thermal power, owing to the low energy (fuel) cost component of nuclear power.

(e) The present policy (Consolidated FDI Policy of Government) puts atomic energy in the list of prohibited sectors. However, there is no restriction on Foreign Direct Investment (FDI) in the nuclear industry for manufacturing of equipment and providing other supplies for nuclear power plants and related other facilities.

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Annexure-I

State-wise Energy Requirement (in MUs)

State / System /Region	2019-20 (upto May*,2019)	2018-19	2017-18	2016-17	2015-16	2014-15
Chandigarh	271	1,571	1,610	1645	1,607	1,616
Delhi	6,065	32,299	31,826	30829	29,626	29,231
Haryana	8,679	53,665	50,775	48895	47,506	46,615
Himachal Pradesh	1,654	9,850	9,399	8831	8,821	8,807
Jammu & Kashmir	3,364	18,988	18,808	17398	16,572	16,214
Punjab	8,475	55,328	54,812	53098	49,687	48,629
Rajasthan	13,313	79,815	71,194	67838	67,417	65,717
Uttar Pradesh	22,897	1,17,133	1,20,052	107569	1,06,351	1,03,179
Uttarakhand	2,449	13,845	13,457	13069	12,889	12,445
Northern Region	**67,166**	**3,82,493**	**3,71,934**	**349172**	**3,40,476**	**3,32,453**
Chattisgarh	5,765	26,471	25,916	23750	25,649	21,499
Gujarat	21,748	1,16,372	1,09,984	103706	1,03,544	96,235
Madhya Pradesh	12,735	76,056	69,925	65759	62,374	53,374
Maharashtra	29,295	1,58,295	1,49,761	139295	1,41,817	1,34,897
Daman & Diu	443	2,558	2,534	2398	2,337	2,086
Dadar Nagar Haveli	1,106	6,303	6,168	6021	5,925	5,307
Goa	801	4,295	4,117	4319	5,120	3,969
Western Region	**71,893**	**3,90,349**	**3,68,405**	**345247**	**3,46,768**	**3,17,367**
Andhra Pradesh	11,709	63,861	58,384	54300	50,436	59,198
Telangana	10,772	66,489	60,319	53030	50,254	43,337
Karnataka	13,569	71,764	67,869	66899	64,302	62,643
Kerala	4,888	25,016	25,002	24296	23,318	22,459
Tamil Nadu	20,031	1,09,482	1,06,006	104511	97,276	95,758
Puducherry	517	2,766	2,668	2548	2,437	2,402
Lakshadweep #	8	46	47	48	48	48
Southern Region	**61,486**	**3,39,377**	**3,20,248**	**305588**	**2,88,025**	**2,85,797**
Bihar	5,662	30,061	27,019	25711	23,961	19,294
DVC	3,757	22,745	21,549	18929	18,437	18,222
Jharkhand	1,505	8,737	7,907	7960	7,735	7,599
Odisha	5,261	32,145	28,802	26758	26,762	26,482
West Bengal	9,920	51,471	50,760	47948	47,359	47,086
Sikkim	78	527	485	475	399	399
Andaman- Nicobar #	58	346	328	240	240	240
Eastern Region	**26,182**	**1,45,686**	**1,36,522**	**127783**	**1,24,654**	**1,19,082**
Arunachal Pradesh	127	869	799	729	626	677
Assam	1,573	9,566	9,094	9020	8,762	8,527
Manipur	135	905	874	764	840	705
Meghalaya	336	1,957	1,557	1715	1,833	1,930
Mizoram	100	643	497	514	471	4SS
Nagaland	124	888	794	757	755	688
Tripura ##	292	1,863	2,602	1644	1,202	1,242
North-Eastern Region	**2,686**	**16,691**	**16,216**	**15140**	**14,488**	**14,224**
All India	**2,29,413**	**12,74,595**	**12,13,326**	**1142928**	**11,14,408**	**10,68,923**

* Provisional Data

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.

Annexure-II

Statewise Generation for last five and current years (upto May, 2019)

State/UT	Monitored Capacity as on 31.05.2019 (in MW)	Generation (in MUs)					
		2019-20 (upto-May 19)*	2018-19	2017-18	2016-17	2015-16	2014-15
ANDAMAN NICOBAR	40.05	19.89	120.73	258.79	215.56	182.85	153.76
ANDHRA PRADESH	17657.20	11473.46	62049.76	61851.80	65248.16	58230.59	45245.42
ARUNACHAL PRADESH	515.00	235.78	1399.02	1416.74	1249.01	1280.25	1109.48
ASSAM	1669.21	1372.33	7021.16	5972.12	5981.37	4522.12	4299.84
BBMB	#	#	#	5134.02	5168.27	5892.62	5268.15
Bhutan (IMP)	-	592.70	4406.62	4778.33	5617.34	5244.21	5007.74
BIHAR	5730.00	5700.46	32170.52	28440.03	24514.85	20827.01	18272.27
CHHATTISGARH	23448.00	20553.28	115714.33	110041.76	105686.18	89513.29	79710.57
DELHI	2343.40	938.15	7136.04	7048.70	6253.26	6206.10	8722.83
DVC	7233.20	7250.07	36857.25	35950.56	33566.47	28029.93	25551.11
GOA	48.00	0.00	0.00	0.00	0.00	0.00	12.61
GUJARAT	25473.41	19424.51	96591.35	96519.87	99748.61	104917.26	105538.54
HARYANA	5971.59	2881.13	25435.43	26605.97	18890.44	22247.14	28748.61
HIMACHAL PRADESH	7044.02	5325.15	26931.50	28921.17	27326.86	27620.06	23826.95
JAMMU AND KASHMIR	3624.00	3860.98	16541.58	14937.56	15377.69	15136.15	14485.02
JHARKHAND	2380.00	2390.84	13453.31	13997.33	14727.43	15933.67	14621.88
KARNATAKA	14157.32	9016.43	49756.96	44668.81	43766.67	47553.25	50163.29
KERALA	2550.04	1313.48	7325.09	5248.02	4130.61	6653.34	8034.17
MADHYA PRADESH	22020.00	21782.50	121677.77	111173.47	98239.84	95361.99	74822.34
MAHARASHTRA	33540.08	25873.78	137023.78	124468.30	118451.85	117622.94	107699.34
MANIPUR	141.00	70.89	602.61	837.74	741.07	536.64	372.44
MEGHALAYA	372.00	146.65	1133.35	1401.03	916.70	1035.99	863.15
MIZORAM	60.00	7.89	168.44	78.37	-	-	-
NAGALAND	75.00	5.54	231.47	274.39	258.94	163.14	165.15
ORISSA	9822.25	8236.66	46824.37	46512.83	55841.18	57221.80	51332.44
PUDUCHERRY	32.50	42.61	229.88	226.45	246.84	227.59	102.14
PUNJAB	9541.30	6405.55	39676.71	34180.16	31421.03	28736.60	27784.71
RAJASTHAN	11774.13	9253.24	56978.26	51643.61	51792.17	53947.35	54185.92
SIKKIM	2169.00	1978.11	9022.07	8887.99	4330.40	3551.92	3345.29
TAMIL NADU	18507.08	13982.21	83778.51	82386.30	84581.68	76406.83	71418.41
TELANGANA	10048.10	9419.97	51057.09	49913.97	43391.23	36868.20	40901.97
TRIPURA	1132.10	1202.32	6630.85	5999.27	5873.89	5109.38	3824.44
UTTAR PRADESH	24183.74	22773.05	122772.40	128542.28	120142.11	111329.53	111901.74
UTTARAKHAND	4206.35	2831.23	14995.36	15606.60	14250.54	12765.92	11439.22
WEST BENGAL	10883.00	9649.43	53623.13	52381.91	52192.69	46946.62	49742.02
Grand Total	**278392.07**	**226010.27**	**1249336.70**	**1206306.25**	**1160140.94**	**1107822.28**	**1048672.96**

* PROVISIONAL BASED ON ACTUAL-CUM-ASSESMENT

Note:

1. Figures given above indicate gross generation of all power stations(Central, State& Private Sector) located geographically in the respective State/UT.
2. Gross Generation is from conventional sources (Thermal, Hydro and Nuclear) stations of 25 MW and above only.
3. # From 2018-19 onwards BBMB generation /capacity has been included in hydro generation/capacity of respective states of the stations.

Annexure-III

Statewise and Categorywise Generation for last five and current years (upto May)

Category	Monitored Capacity as on 31.05.2019 (in MW)	Generation (in MUs)											
		2019-20 (upto-May 19)*	% 2019-20 (upto-May 19)*	2018-19	% of total 2018-19	2017-18	% of total 2017-18	2016-17	% of total 2016-17	2015-16	% of total 2015-16	2014-15	% of total 2014-15
THERMAL	226212.85	193323.82	85.54	1072223.88	85.82	1037059.10	85.97	994230.17	85.70	943787.70	85.19	878320.03	83.76
NUCLEAR	6780.00	6941.95	3.07	37812.59	3.03	38346.12	3.18	37915.87	3.27	37413.62	3.38	36101.54	3.44
HYDRO	45399.22	25151.80	11.13	134893.61	10.80	126122.70	10.46	122377.56	10.55	121376.75	10.96	129243.65	12.32
Bhutan Import	-	592.70	0.26	4406.62	0.35	4778.33	0.40	5617.34	0.48	5244.21	0.47	5007.74	0.48
Grand Total	**278392.07**	**226010.27**		**1249336.70**		**1206306.25**		**1160140.94**		**1107822.28**		**1048672.96**	

* PROVISIONAL BASED ON ACTUAL-CUM-ASSESMENT

Note: 1. Gross Generation from conventional sources (Thermal, Hydro and Nuclear) stations of 25 MW and above only.