

GOVERNMENT OF INDIA
MINISTRY OF POWER

RAJYA SABHA
STARRED QUESTION NO.244
ANSWERED ON 17.03.2020

POWER GENERATION FROM THERMAL AND HYDRO POWER PLANTS

†*244. SHRI LAL SINH VADODIA:

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

- (a) the quantum of power generated in terms of megawatts by hydro-power stations as on date;
- (b) the quantum of power generated in terms of megawatts by thermal power stations; and
- (c) the cost of per unit power generation by hydro-power stations and per unit cost of power generation by thermal power stations?

A N S W E R

THE MINISTER OF STATE (INDEPENDENT CHARGE) FOR POWER, NEW & RENEWABLE ENERGY AND THE MINISTER OF STATE FOR SKILL DEVELOPMENT & ENTREPRENEURSHIP

(SHRI R.K. SINGH)

(a) to (c) : A Statement is laid on the Table of the House.

STATEMENT

STATEMENT REFERRED TO IN REPLY TO PARTS (a) TO (c) OF STARRED QUESTION NO. 244 ANSWERED IN THE RAJYA SABHA ON 17.03.2020 REGARDING POWER GENERATION FROM THERMAL AND HYDRO POWER PLANTS.

(a) & (b): As on 29.02.2020, the installed generation capacity of hydro and thermal power stations are 45,699 megawatts (MW) and 2,30,190 MW respectively. The electricity generated from the hydro and thermal power plants during the current year 2019-20 (upto February, 2020) are about 146.7 Billion Units (BU) and about 960 BU respectively.

(c): The cost of power generation from thermal and hydro to power projects depends upon various factors, which *inter alia* are:

1. Type of fuel – Coal, lignite, gas, naphtha, diesel etc.
2. Source of Coal - Cost of coal is different for imported coal and domestic coal. Cost of coal from various domestic mines are also different.
3. Plant location – Plants located near mines pay less freight charges as compared to plants which are located away from the coal mines.
4. Efficiency of the plant and Technology of the plant. Supercritical power plants are more efficient as compared to sub critical power plants.
5. Time of construction – Old plants are having less fixed cost as compared to the new plants.
6. In case of hydro power plants, the cost of generation depends upon availability of water, type of dam, location of the plant etc.

Thus, the cost per unit generation by hydro power stations and thermal power stations varies for each such power plant. The average cost per unit of power generation of some of the Central Generating Companies during the current year 2019-20 is **given at Annexure.**

ANNEXURE

ANNEXURE REFERRED TO IN PART (c) OF THE STATEMENT LAID IN REPLY TO STARRED QUESTION NO. 244 ANSWERED IN THE RAJYA SABHA ON REGARDING POWER GENERATION FROM THERMAL AND HYDRO POWER PLANTS

Average cost of per unit (Rs./unit) power generation of some of the Central Generating Companies during the current year 2019-20

Sl. No.	Generation Company	Average Cost of per unit power generation (Rs./unit)	
		Hydro	Thermal
01.	DVC	2.86	4.95
02.	NTPC	4.77	3.79
03.	NHPC	3.30	-
04.	SJVNL	2.53	-
05.	THDC	5.02	-
06.	NEEPCO	3.50	-

GOVERNMENT OF INDIA
MINISTRY OF POWER

RAJYA SABHA
STARRED QUESTION NO.252
ANSWERED ON 17.03.2020

**TECHNICAL ASSISTANCE TO REDUCE LOSSES
INCURRED BY DISCOMS**

***252. SHRI T. G. VENKATESH:**

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

- (a) whether Government is planning to help DISCOMs to trim their losses and reduce their debt in the coming years;
- (b) if so, the details thereof; and
- (c) whether it is a fact that Government is planning to extend technical assistance and provide modern equipments to help address their losses, if so, the details thereof?

A N S W E R

THE MINISTER OF STATE (INDEPENDENT CHARGE) FOR POWER, NEW &
RENEWABLE ENERGY AND THE MINISTER OF STATE FOR SKILL
DEVELOPMENT & ENTREPRENEURSHIP

(SHRI R.K. SINGH)

(a) to (c) : A Statement is laid on the Table of the House.

STATEMENT

STATEMENT REFERRED TO IN REPLY TO PARTS (a) TO (c) OF STARRED QUESTION NO. 252 ANSWERED IN THE RAJYA SABHA ON 17.03.2020 REGARDING TECHNICAL ASSISTANCE TO REDUCE LOSSES INCURRED BY DISCOMS.

(a) to (c): Yes, Sir. The Government of India have been assisting states and distribution utilities in strengthening of the distribution system and thereby reducing the losses. Under the DeenDayal Upadhyaya Gram Jyoti Yojana (DDUGJY) and Integrated Power Development Scheme (IPDS) grants have been sanctioned and released to state distribution utilities for separation of Feeders; IT enablement; metering of Feeders, Distribution transformers and consumers to facilitate energy accounting etc.

In addition, for operational and financial turnaround of distribution utilities by reducing Aggregate Technical and Commercial (AT&C) losses, the Government initiated UjwalDiscom Assurance Yojana (UDAY). Further, in the budget speech for the year 2020-21, the Government informed the Parliament of its intention to promote the prepaid smart metering and the undertake measures to reforms DISCOMs, so as to enable them to reduce the losses.

GOVERNMENT OF INDIA
MINISTRY OF POWER

RAJYA SABHA
UNSTARRED QUESTION NO.2696
ANSWERED ON 17.03.2020

DECLINE IN POWER GENERATION FROM CONVENTIONAL SOURCES

2696. SHRI SAMBHAJICHHATRAPATI:

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

- (a) whether the growth of overall power generation in the country has remained almost static despite substantial contribution of over 20 per cent through renewable energy sources for the last four years;
- (b) if so, the reasons for such a negative trend especially with respect to conventional hydro-power generation;
- (c) whether hydro power generation has been lowered down as part of policy shift for the negative trend; and
- (d) if not, the other reasons for decrease in power generation from conventional sources, including hydro power?

A N S W E R

THE MINISTER OF STATE (INDEPENDENT CHARGE) FOR POWER, NEW & RENEWABLE ENERGY AND THE MINISTER OF STATE FOR SKILL DEVELOPMENT & ENTREPRENEURSHIP

(SHRI R.K. SINGH)

(a) : No, Sir, the total power generation from conventional fuel sources including hydro and renewable energy sources has registered a compound annual growth rate of 5.45% from 1.17 billion units (BU) in 2015-16 to 1.38 BU in 2018-19.

(b) : The question does not arise.

(c) : No, Sir. Generation from hydro power projects mainly depends on the availability of water. Power generation from hydro sources has registered a compound annual growth rate of 3.3% from 0.121 BU in 2015-16 to 0.134 BU in 2018-19. Hydro power generation has not been lowered down as part of any policy. Rather realizing the need for development of hydropower projects, especially the pumped storage projects due to growing need of peaking and balancing power, Govt. of India have approved a number of measures in March, 2019 for promoting hydro power sector including, declaring large hydro power (LHPs) (>25 MW projects) as renewable energy source, mandating Hydro Purchase Obligation (HPO) as a separate entity within Non-solar Renewable Purchase Obligation (RPO) from new projects, tariff rationalization measures for bringing down hydro power tariff, budgetary support for Flood Moderation/Storage Hydro Electric Projects (HEPs) and towards cost of enabling infrastructure, i.e. roads/bridges. As a result of these measures, the capital cost as well as the project tariff would be reduced especially in initial years which would improve project viability & salability, and thus, promote the hydroelectric projects.

(d) : Although the generation of power depends on its demand, there is no decline in power generation from conventional sources including hydro. Generation of power from conventional sources has shown a compound annual growth rate of 4.09% from 1.1 BU in 2015-16 to 1.25 BU in 2018-19.

GOVERNMENT OF INDIA
MINISTRY OF POWER

RAJYA SABHA
UNSTARRED QUESTION NO.2697
ANSWERED ON 17.03.2020

UDAY 2.0 SCHEME

2697. SHRI D. KUPENDRA REDDY:

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

- (a) whether there is any proposal to launch UDAY 2.0 in the current year, if so, the details thereof; and
- (b) whether the shortcomings, if any, in the UDAY scheme found and rectified, if so, the details thereof ?

A N S W E R

THE MINISTER OF STATE (INDEPENDENT CHARGE) FOR POWER, NEW & RENEWABLE ENERGY AND THE MINISTER OF STATE FOR SKILL DEVELOPMENT & ENTREPRENEURSHIP

(SHRI R.K. SINGH)

(a) & (b): Electricity is a concurrent subject, and the distribution of electricity is handled by the states and state distribution utilities. In the Budget speech of year 2020-21, Government have informed Parliament that it would take measures to improve the viability of Distribution Companies (DISCOMs), and also that the Ministry of Power intends to promote smart metering. Decisions have also been taken in the Government to incentivize and enable states to undertake effective DISCOM reforms; and link central sector schemes to institutional reforms. However, no new scheme regarding the above has been approved yet.

While the distribution utilities in Haryana have turned around under UDAY, some utilities have not been able to adhere to the reform paths envisaged under UDAY. The reasons for the same include tariffs not being reflective of costs; inadequate budgeting of subsidies; high aggregate technical and commercial (AT&C) losses etc. States have been advised to clear their Government Department dues and ensure monthly clearance of the same; put in place a strict system of energy accounting; ensure timely payment of subsidy every month; begin a campaign to reduce AT&C losses; and conversion of all consumer meters into smart prepaid meters/prepaid meters in a period of 3 years.

GOVERNMENT OF INDIA
MINISTRY OF POWER

RAJYA SABHA
UNSTARRED QUESTION NO.2698
ANSWERED ON 17.03.2020

**EMPLOYMENT TO MEMBERS OF DISPLACED FAMILIES BY
NTPC PLANT AT LARA IN CHHATTISGARH**

†2698. SHRI MOTILAL VORA:

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

- (a) the number of families who have been displaced due to land acquisition by NTPC for project Lara in Chhattisgarh, the details thereof;
- (b) whether any scheme has been launched by NTPC to upgrade the skills of displaced people, if not, by when they would be provided technical expertise to obtain self-reliance;
- (c) whether State Government of Chhattisgarh has also announced to provide employment to the people of affected families on priority basis; and
- (d) if so, the number of people from displaced families who have been provided employment till date, if not, the reason therefor?

A N S W E R

THE MINISTER OF STATE (INDEPENDENT CHARGE) FOR POWER, NEW & RENEWABLE ENERGY AND THE MINISTER OF STATE FOR SKILL DEVELOPMENT & ENTREPRENEURSHIP

(SHRI R.K. SINGH)

(a) & (b): As per The Right to Fair Compensation and Transparency in Land Acquisition, Rehabilitation and Resettlement Act, (RFCT LARR Act), the definition of displaced family is as under:

“Displaced family means any family, who on account of acquisition of land has to be relocated and resettled from the affected area to the resettlement area “.

It is to mention that no homesteads were acquired from any of the landowners for construction of NTPC Lara and therefore no families have been displaced due to land acquisition for Lara project.

NTPC Lara has been organizing capacity building programmes under its Rehabilitation and Resettlement (R&R) Plan from time to time for the local/affected families through vocational training with a view to give opportunities to Project Affected Persons (PAPs) for income generation/self-employment.

.....2.

Further, NTPC Lara has extended support to Government Industrial Training Institute (ITI) at Pussore to make it a Model ITI for capacity building of surrounding population. In addition, an MOU has been entered into with Government of Chhattisgarh by NTPC for releasing a total of Rs. 100 Crore to Government Medical College at Raigarh in phases and an amount of Rs. 200 Crore has been sanctioned for International Institute of Information Technology (IIIT) Naya Raipur. This is in addition to support of Rs. 10 Crore provided by NTPC to Kirodimal Institute of Technology (KIT) at Raigarh.

(c) &(d): Chhattisgarh Government has announced “Chhattisgarh AadarshPunarvasNiti, 2007 (amended time to time) to provide employment and others facilities to the people of affected families on priority basis which is also applicable to NTPC Lara project too.

Accordingly, the Rehabilitation and Resettlement (R&R) plan for NTPC, Lara was prepared after series of consultation with the stakeholders in Village Development Advisory Committee (VDAC) under Chairmanship of Collector, Raigarh. The R&R plan incorporated the provisions of “Chhattisgarh AadarshPunarvasNiti, 2007” which was approved by Collector, Raigarh subsequently and ratified by stakeholders in VDAC meeting.

It is pertinent to mention that in NTPC Lara till date 31 numbers of PAPs have availed the Annuity and 1789 PAPs have availed the benefit of one time settlement. For the balance 629, PAPs verification are being done by State Administration.

Further, it is to add that vide advertisement no: WR-II/Raipur: 01/2019, vacancies for 79 posts under different trades of ITI/Diploma/Graduates have been notified exclusively for PAP candidates.

In addition to the above, alternate employment opportunities have also been provided to 1345 affected / local persons as per data given below:

Sl. No.	Particulars	Numbers
1	Contract Laborers (Unskilled, Semi skilled, skilled) for 09 Project Affected Villages	498
2	Contract Laborers (Unskilled, Semi skilled, skilled) from Chhattisgarh	730
3	Shop allotment in township for Project Affected Persons (PAPs)	14
4	Vehicle Hiring for Project Affected Persons (PAPs)	33
5	PAP vendors for Project Affected Persons (PAPs)	56
6	Co-operative Societies for Project Affected Persons (PAPs)	14
TOTAL		1,345

GOVERNMENT OF INDIA
MINISTRY OF POWER

RAJYA SABHA
UNSTARRED QUESTION NO.2699
ANSWERED ON 17.03.2020

STATUS OF POWER GENERATION IN THE COUNTRY

2699. DR. SASMIT PATRA:

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

- (a) the details of power generation in India during last five years, State-wise and year-wise; and
- (b) the numbers of new projects that are undergoing/to be commissioned in power generation in India, the details thereof?

A N S W E R

THE MINISTER OF STATE (INDEPENDENT CHARGE) FOR POWER, NEW & RENEWABLE ENERGY AND THE MINISTER OF STATE FOR SKILL DEVELOPMENT & ENTREPRENEURSHIP

(SHRI R.K. SINGH)

(a): Details of state-wise power generation from conventional fuel sources (thermal, hydro & nuclear) of 25 MW and above in the country during the last five years & the current year (Up to February, 2020) **are given at Annexure-I.** Details of State-wise Renewable Energy generation during the last five years & the current year (Up to January 2020) **are given at Annexure-II.**

(b): The number of new power projects which are at various stages of construction in the country, includes 62 thermal power projects with total capacity of 39031.15 MW, 38 hydroelectric projects aggregating to 12973.5 MW capacity and 06 nuclear power plants totalling to 7000 MW capacity. Details of thermal, hydro and nuclear power projects **are given at Annexure-III, Annexure-IV and Annexure-V respectively.** Further, Govt. of India have set a target of 1,75,000 MW installed capacity from renewable sources by the end of 2021-22 against which a capacity of 86,759 MW has been installed and 33,720 MW is under installation.

ANNEXURE-I

ANNEXURE REFERRED TO IN REPLY TO PART (a) OF UNSTARRED QUESTION NO. 2699 ANSWERED IN THE RAJYA SABHA ON 17.03.2020.

Details of State-wise power generation from Conventional fuel sources (Thermal, Hydro & Nuclear) of 25 MW and above in the country during the last five years & current year (Up to Feb.2020)

State	Monitored Capacity as on 29.02.2020 MW	Generation(inMU)					2019-20 (upto-Feb. 20)*
		2014-15	2015-16	2016-17	2017-18	2018-19	
DELHI	2208.4	8722.83	6206.1	6253.26	7048.7	7136.04	5624.27
HARYANA	5971.59	28748.61	22247.14	18890.44	26605.97	25435.43	16560.57
HIMACHAL PRADESH	9809.02	33573.52	38586.58	37049.74	38783	35908.55	39123.6
JAMMU AND KASHMIR**	3624	14485.02	15136.15	15377.69	14937.56	16541.58	17036.71
PUNJAB	6776.3	23306.29	23662.7	26866.42	29452.35	30699.66	25365.77
RAJASTHAN	11774.13	54185.92	53947.35	51792.17	51643.61	56978.26	52172.95
UTTAR PRADESH	24843.74	111901.74	111329.53	120142.11	128542.28	122772.4	115609.8
UTTARAKHAND	4206.35	11439.22	12765.92	14250.54	15606.6	14995.36	15581.76
CHHATTISGARH	23248	79710.57	89513.29	105686.18	110041.76	115714.33	107573.83
GOA	48	12.61	0	0	0	0	0
GUJARAT	26213.41	105538.54	104917.26	99748.61	96519.87	96591.35	99086.3
MADHYA PRADESH	22725	74822.34	95361.99	98239.84	111173.47	121677.77	111764.23
MAHARASHTRA	32620.08	107699.34	117622.94	118451.85	124468.3	137023.78	120632.43
ANDHRA PRADESH	18135.344	46532.53	59463.73	66080.06	62961.57	63143.82	58281.51
KARNATAKA	14029.4	50163.29	47553.25	43766.67	44668.81	49756.96	39774.59
KERALA	2550.04	8034.17	6653.34	4130.61	5248.02	7325.09	5019.02
PUDUCHERRY	32.5	102.14	227.59	246.84	226.45	229.88	233.16
TAMIL NADU	19007.081	71418.41	76406.83	84581.68	82386.3	83778.51	75784.38
TELANGANA	9588.1	39614.86	35635.06	42559.33	48804.2	49963.03	48045.62
ANDAMAN NICOBAR	40.048	153.76	182.85	215.56	258.79	120.73	85.03
BIHAR	6390	18272.27	20827.01	24514.85	28440.03	32170.52	32276.83
JHARKHAND	4800	23219.46	26268.41	25970.09	27624.58	26981.63	24189.79
ORISSA	11942.25	51332.44	57221.8	55841.18	46512.83	46824.37	43329.51
SIKKIM	2169	3345.29	3551.92	4330.4	8887.99	9022.07	10714.58
WEST BENGAL	15586.2	66695.55	64641.81	74516.5	74705.22	76952.06	68631.29
ARUNACHAL PRADESH	815	1109.48	1280.25	1249.01	1416.74	1399.02	1698.16
ASSAM	1719.205	4387.7	4697.17	6178.47	6232.89	7224.98	7479.25
MANIPUR	141	372.44	536.64	741.07	837.74	602.61	343.86
MEGHALAYA	322	775.29	860.94	719.6	1140.26	929.53	985.7
MIZORAM	60				78.37	168.44	169.9
NAGALAND	75	165.15	163.14	258.94	274.39	231.47	176.39
TRIPURA	1132.1	3824.44	5109.38	5873.89	5999.27	6630.85	5722.67
Bhutan (IMP)	0	5007.74	5244.21	5617.34	4778.33	4406.62	5711.99
Grand Total	282602.288	1048672.96	1107822.28	1160140.94	1206306.25	1249336.7	1154785.45

** Including Ladakh

* PROVISIONAL BASED ON ACTUAL-CUM-ASSESSMENT

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

2. Figures given above indicate gross generation of all power stations(Central, State& Private Sector) located geographically in the respective State/UT.

ANNEXURE-II

ANNEXURE REFERRED TO IN REPLY TO PART (a) OF UNSTARRED QUESTION NO. 2699 ANSWERED IN THE RAJYA SABHA ON 17.03.2020.

Details of State-wise Renewable Energy generation during the last five years & current year (up to January 2020)

Renewable Energy Generation Year Wise state wise							
						(All figures in MU)	
Sl. No.	State/Utility	2014-15	2015-16	2016-17	2017-18	2018-19	2019-20 (Upto January 2020)
1	Chandigarh	2.23	3.40	13.16	7.87	13.51	10.22
2	Delhi	116.63	128.97	144.73	241.09	287.65	362.64
3	Haryana	470.69	1343.15	449.54	560.70	662.36	606.45
4	HP	1685.08	1921.77	2015.58	1903.05	2287.93	1907.04
5	J & K	313.23	304.79	326.12	324.37	312.20	389.79
6	Ladakh						0.00
7	Punjab	1159.29	1474.20	2149.49	2343.87	2445.21	2232.83
8	Rajasthan	5596.57	6600.24	7973.85	9484.23	11863.41	11684.91
9	Uttar Pradesh	3075.02	3201.49	3638.26	4606.29	5694.80	3703.21
10	Uttarakhand .	664.38	703.42	999.19	1184.50	1104.97	993.97
11	NTPC Dadri/FBD/Unchahar/Singrauli/Bhadla*	22.90	42.41	74.90	480.99		
12	Oil India Ltd (Rajasthan) *	126.93	193.67	227.20	251.25		
13	Chhattisgarh	1066.29	1202.42	1446.22	1069.21	945.09	880.14
14	NTPC Rajgarh/Raojmal/Mandsaur *	62.94	81.00	82.21	381.99		
15	Gujarat	7222.27	8003.73	9497.99	11759.63	13976.86	14850.83
16	Madhya Pradesh	1427.51	2910.42	5268.67	6292.90	8246.45	6845.08
17	Maharashtra	10283.93	10756.58	11292.70	12036.98	14974.91	11743.66
18	Dadra and Nagar Haveli	0.03	0.50	1.31	5.23	5.76	4.93
19	Daman & Diu	0.15	4.25	14.43	18.53	18.94	17.60
20	Goa						0.54
21	Oil India Ltd (Madhya Pradesh & Gujrat) *	0.00	2013.04	3187.85	6354.11		
22	Andhra Pradesh	2711.06	1093.57	2507.34	4438.65	14550.51	11890.19
23	Telangana	802.86	5825.85	7846.60	11847.28	7045.98	5468.76
24	Karnataka	9694.90	5314.53	3599.62	6152.15	21657.53	21382.97
25	Kerala	629.64	567.33	490.13	675.87	770.33	701.02
26	NTPC Ramagundam/Anantapuram *	15.62	16.02	350.53	426.37		
27	Tamil Nadu	11902.39	9331.47	15153.87	16179.86	16898.48	17603.61
28	Lakshadweep	46.09	1.02	1.59	1.79	1.12	0.53
29	Punducherry	0.00	0.00	0.34	1.17	2.58	3.41
30	Andaman & Nicobar	0.47	18.72	20.03	19.65	30.42	14.99
31	Bihar	209.13	165.11	292.53	309.06	488.14	263.45
32	Jharkhand	8.32	19.77	38.47	19.47	19.14	13.52
33	Odisha	329.82	434.45	507.71	517.56	653.44	663.04
34	Sikkim	20.88	41.93	35.78	30.54	28.10	57.88
35	West Bengal	1553.63	1608.15	1569.77	1590.54	1486.16	1222.61
36	DVC	146.86	118.26	14.09	9.54	2.63	1.60
37	NTPC Andaman/ Talcher *	18.79	18.91	20.00	20.43		
38	Arunachal Pradesh	51.94	18.44	27.43	0.70	1.75	1.80
39	Assam	64.52	90.94	14.15	24.49	52.69	54.26
40	Manipur	0.00	0.00	0.01	0.15	1.88	3.57
41	Meghalaya	66.94	65.96	59.10	70.56	50.51	56.01
42	Mizoram	34.86	27.62	49.62	54.67	40.09	43.75
43	Nagaland	84.14	88.73	92.73	91.00	87.46	69.61
44	Tripura	29.37	18.47	46.47	44.48	50.12	22.23
45	NEEPCO *	0.98	6.15	6.89	6.71		
	Total	61719.25	65780.85	81548.21	101839.48	126759.09	115772.65

* From 2018-19,CPSUs RE generation is included in RE generation data of respective states in which these plants are physically located.

ANNEXURE REFERRED TO IN REPLY TO PART (b) OF UNSTARRED QUESTION NO. 2699 ANSWERED IN THE RAJYA SABHA ON 17.03.2020.

Details of under construction thermal power projects

Sl.No.	Project Name / Implementing Agency	Unit No	Capacity (MW)
CENTRAL SECTOR			
1	Barh STPP-I /NTPC	U-1	660
2	Barh STPP-I /NTPC	U-2	660
3	Barh STPP-I /NTPC	U-3	660
4	Nabi Nagar TPP / JV of NTPC & Rly.	U-4	250
5	New Nabi Nagar TPP /JV of NTPC & BSPGCL	U-2	660
6	New Nabi Nagar TPP /JV of NTPC & BSPGCL	U-3	660
7	North Karanpura TPP/ NTPC	U-1	660
8	North Karanpura TPP/ NTPC	U-2	660
9	North Karanpura TPP/ NTPC	U-3	660
10	Gadarwara TPP/ NTPC	U-2	800
11	Khargone TPP/ NTPC	U-2	660
12	Darlipalli STPP/ NTPC	U-2	800
13	Neyveli New TPP/ NLC	U-2	500
14	Telangana Ph-I/NTPC	U-1	800
15	Telangana Ph-I/NTPC	U-2	800
16	Lara STPP / NTPC	U-2	800
17	Meja STPP/ JV of NTPC & UPRVUNL	U-2	660
18	Tanda TPP St-II/ NTPC	U-6	660
19	Ghatampur TPP/ NLC JV	U-1	660
20	Ghatampur TPP/ NLC JV	U-2	660
21	Ghatampur TPP/ NLC JV	U-3	660
22	Barsingsar TPP ext/NLC	U-1	250
23	Bithnok TPP /NLC	U-1	250
24	Patratu STPP / JV of NTPC & Jharkhand BidyutVitran Nigam Ltd.	U-1	800
25	Patratu STPP / JV of NTPC & Jharkhand BidyutVitran Nigam Ltd.	U-2	800
26	Patratu STPP / JV of NTPC & Jharkhand BidyutVitran Nigam Ltd.	U-3	800
27	Rourkela PP-II Expansion/NTPC-Sail Power Co Ltd	U-1	250
28	Khurja SCTPP	U-1	660
29	Khurja SCTPP	U-2	660
30	Buxar TPP	U-1	660
31	Buxar TPP	U-2	660
TOTAL (CENTRAL SECTOR)			19780
STATE SECTOR			
1	Namrup CCGT / APGCL / BHEL	ST	36.15
2	Dr N T Rao TPS St-V/APGENCO	U-1	800
3	Sri Damodaram TPS St-II/APGENCO	U-1	800
4	Suratgarh TPS/ RRVUNL	U-7	660
5	Suratgarh TPS/ RRVUNL	U-8	660

6	Bhadradri TPP / TSGENCO	U-1	270
7	Bhadradri TPP / TSGENCO	U-2	270
8	Bhadradri TPP / TSGENCO	U-3	270
9	Bhadradri TPP / TSGENCO	U-4	270
10	Ennore exp. SCTPP(Lanco) / TANGEDCO	U-1	660
11	Ennore SCTPP / TANGEDCO	U-1	660
12	Ennore SCTPP / TANGEDCO	U-2	660
13	North Chennai TPP St-III/TANGEDCO	U-1	800
14	Uppur SCTPP/TANGEDCO	U-1	800
15	Uppur SCTPP/TANGEDCO	U-2	800
16	Harduaganj Exp.-II TPP / UPRVUNL	U-1	660
17	Yelahanka CCPP / KPCL	GT+ST	370
18	Jawaharpur STPP/ UPRVUNL	U-1	660
19	Jawaharpur STPP/ UPRVUNL	U-2	660
20	Obra-C STPP/ UPRVUNL	U-1	660
21	Obra-C STPP/ UPRVUNL	U-2	660
22	Yadadri TPS/TSGENCO/BHEL	U-1	800
23	Yadadri TPS/TSGENCO/BHEL	U-2	800
24	Yadadri TPS/TSGENCO/BHEL	U-3	800
25	Yadadri TPS/TSGENCO/BHEL	U-4	800
26	Yadadri TPS/TSGENCO/BHEL	U-5	800
27	Panki TPS Extn./ UPRVUNL	U-1	660
28	Udangudi STPP Stage I/ TANGEDCO	U-1	660
29	Udangudi STPP Stage I/ TANGEDCO	U-2	660
30	Bhusawal TPS/MAHAGENCO	U-6	660
	TOTAL (STATE SECTOR)		18726.15
	PRIVATE SECTOR		
1	Tuticorin TPP St-IV / SEPC	U-1	525
	TOTAL (PRIVATE SECTOR)		525
	GRAND TOTAL		39031.15

ANNEXURE REFERRED TO IN REPLY TO PART (b) OF UNSTARRED QUESTION NO. 2699 ANSWERED IN THE RAJYA SABHA ON 17.03.2020.

List of under construction Hydro projects (above 25 MW) – Sector wise
(As on 29.02.2020)

Sl. No.	Name of Project / Installed Capacity	Unit No.	State/District Implementing Agency	River/Basin	Capacity (MW)
Central Sector					
1	PakalDul 4x250= 1000 MW	U-1 to U-4	Jammu & Kashmir /Kishtwar/ CVPPL (Joint Venture of NHPC, JKSPDC & PTC)	Marusadar/ Chenab / Indus	1000
2	Kiru 4x156=624 MW	U-1 to U-4	Jammu & Kashmir /Kishtwar/ CVPPL (Joint Venture of NHPC, JKSPDC & PTC)	Chenab / Indus	624
3	Parbati St. II 4x200= 800 MW	U-1 to U-4	Himachal Pradesh/Kullu/ NHPC	Parbati/Beas/Indus	800
4	Subansiri Lower 8x250= 2000 MW	U-1 to U-8	Arunachal Pradesh/L. Subansiri, Dhemaji/NHPC	Subansiri/ Brahmaputra	2000
5	Teesta- VI 4x125= 500 MW	U-1 to U-4	Sikkim/South Sikkim/ LANCO / NHPC	Teesta/ Brahmaputra	500
6	TapovanVishnugad 4x130=520 MW	U-1 to U-4	Uttarakhand /Chamoli/ NTPC	Dhauliganga / Alaknanada& /Ganga	520
7	Rammam III 3x40=120 MW	U-1 to U-3	West Bengal/Darjeeling/ NTPC Ltd.	Rammam/ Rangit/Teesta Brahmaputra	120
8	LataTapovan 3x57= 171 MW	U-1 to U-3	Uttarakhand/Chamoli/ NTPC	Dhauliganga /Alaknanada& Ganga	171
9	Tehri PSS 4x250= 1000 MW	U-1 to U-4	Uttarakhand/TehriGarhwal/ THDC	Bhilingna/Bhagirathi/ Ganga	1000
10	VishnugadPipalkoti 4x111= 444 MW	U-1 to U-4	Uttarakhand/Chamoli/ THDC	Alaknanada/ Ganga	444
11	Kameng 4x150= 600 MW (2 units taken in operation)	U-3 to U-4	Arunachal Pradesh/West Kameng/ NEEPCO	Bichom&Tenga / Kameng/Brahmaputra	300
12	Naitwar Mori 2x30=60 MW	U-1 to U-2	Uttarakhand/Uttarkashi/ SJVN	Tons/Yamuna/Ganga	60
13	Ratle # 4x205+1x30= 850 MW	U-1 to U-5	Jammu & Kashmir/Kishtwar/ Ratle Hydro Electric Project Pvt. Ltd. / NHPC	Chenab/ Indus	850
			Sub- total (Central):		8389
State Sector					
14	Parnai 3x12.5= 37.5 MW	U-1 to U-3	J&K/Poonch/ JKSPDC	Jhelum/ Indus	37.5
15	Lower Kalnai 2x24= 48 MW	U-1 to U-2	J&K/Kishtwar/ JKSPDC	Chenab/ Indus	48
16	Shahpurkandi 3x33+3x33+1x8= 206 MW	U-1 to U-7	Punjab/Gurdaspur/ Irr. Deptt. & PSPCL	Ravi/ Indus	206
17	Uhl-III 3x33.33= 100 MW	U-1 to U-3	Himachal Pradesh/Mandi/ Beas Valley Power Corp. Ltd. (BVPC)	Uhl/Beas/ Indus	100
18	SawraKuddu 3x37= 111 MW	U-1 to U-3	Himachal Pradesh/Shimla/ HPPCL	Pabbar/Tons/ Yamuna/Ganga	111
19	ShongtongKarcham 3x150= 450 MW	U-1 to U-3	Himachal Pradesh/Kinnaur/ HPPCL	Satluj/ Indus	450
20	Vyasi 2X60=120 MW	U- 1 & U- 2	Uttarakhand/Dehradun/ UJVNL	Yamuna/ Ganga	120

21	Koyna Left Bank PSS 2x40= 80 MW	U-1 to U-2	Maharashtra/Satara/ WRD, Gov. of Mah.	Koyna/Krishna/ EFR	80
22	Polavaram 12x80= 960 MW	U-1 to U-12	Andhra Pradesh/East & West Godavari/ APGENCO/ Irr. Deptt., A.P.	Godavari/ EFR	960
23	Pallivasal 2x30= 60 MW	U-1 to U-2	Kerala/Idukki/ KSEB	Mudirapuzha/ Periyar/BayporePeriyar / WFR	60
24	Thottiyar 1x30 + 1x10= 40 MW	U-1 to U-2	Kerala/Idukki/ KSEB	Thottiyar/Periyar/ / BayporePeriyar/ WFR	40
25	Kundah Pumped Storage (Phase-I, Phase-II & Phase-III) 4x125= 500 MW	U-1to4	Tamil Nadu/Nilgiris/ TANGEDCO	Kundah/Bhavani/ Cauvery/ EFR	500
			Sub- total (State):		2712.5
	Private Sector				
26	Sorang 2x50= 100 MW	U-1 & U-2	Himachal Pradesh/Kinnaur/ Himachal Sorang Power	Sorang/Satluj/ Indus	100
27	Tangu Romai- I 2x22= 44 MW	U-1 to U-2	Himachal Pradesh/Shimla/ TanguRomai Power Generation	Pabbar/Tons/Yamuna /Ganga	44
28	Bajoli Holi 3x60= 180 MW	U-1 to U-3	Himachal Pradesh/Chamba/ GMR Bajoli Holi Hydro Power Pvt. Ltd	Ravi/ Indus	180
29	Tidong-I 2x50= 100 MW	U-1 to U-2	Himachal Pradesh/Kinnaur/ M/s Statkraft India Pvt. Ltd.	Tidong/Satluj/ Indus	100
30	PhataByung 2x38= 76 MW	U-1 to U-2	Uttarakhand/Rudraprayag M/s Lanco	Mandakini/Alaknanda Ganga	76
31	SingoliBhatwari 3x33= 99 MW	U-1 to U-3	Uttarakhand/ Rudraprayag/ L&T Uttaranchal Hydro power Limited	Mandakini/Alaknanda Ganga	99
32	Maheshwar ## 10x40= 400 MW	U-1 to U-10	Madhya Pradesh/Khargone& Khandwa/ SMHPCL	Narmada/ CIRS	400
33	Rangit-IV 3x40= 120 MW	U-1 to U-3	Sikkim/West Sikkim/ Jal Power corp. Ltd.	Rangit/ Teesta/ Brahmaputra	120
34	Bhasmey 2x25.5= 51 MW	U-1 to U-2	Sikkim/East Sikkim/ Gati Infrastructure	Rangpo/ Teesta/ Brahmaputra	51
35	Rangit-II 2x33= 66 MW	U-1 to U-2	Sikkim/West Sikkim/ Sikkim Hydro Power Ltd.	Greater Rangit/ Teesta/ Brahmaputra	66
36	Rongnichu 2x48= 96 MW	U-1 to U-2	Sikkim/East Sikkim/ Madhya Bharat Power Corporation Ltd.	Rongnichu/ Teesta/ Brahmaputra	96
37	Panan 4x75= 300 MW	U-1 to U-4	Sikkim/North Sikkim/ Himgiri Hydro Energy Pvt. Ltd.	Rangyongchu/ Teesta/ Brahmaputra	300
38	Kutehr 3x80= 240 MW	U-1 to U-3	Himachal Pradesh/Chamba/ JSW Energy (Kutehr) Ltd.	Ravi/ Indus	240
			Sub- total (Private):		1872
	Total (C.S. +S.S.+P.S.)				12973.5

Govt. of J&K, PDD have terminated PPA on 09.02.2017 and directed JKSPDC to take over the project. MoU between NHPC (51% share) & JKSPDC (49% share) signed for implementation of project in JV mode on 03.02.2019.

PFC as lead lender have acquired majority equity i.e. 51% in the SMHPCL w.e.f. 1st June, 2016. Matter Sub-judice.

ANNEXURE-V

ANNEXURE REFERRED TO IN REPLY TO PART (b) OF UNSTARRED QUESTION NO. 2699 ANSWERED IN THE RAJYA SABHA ON 17.03.2020.

List of under construction nuclear power plants

SI. No.	Project Name	State	Agency	Capacity
1	Kakrapar Atomic Power Plant	Gujarat	NPCIL	1400
2	Rajasthan Atomic Power Station	Rajasthan	NPCIL	1400
3	PFBR (Kalpakkam)	Tamil Nadu	BHAVINI	500
4	Kudankulam Nuclear Power Project (U3&4)	Tamil Nadu	NPCIL	2000
5	GHAVP(U1)	Haryana	NPCIL	700
6	Kudankulam Nuclear Power Project (U5)	Tamil Nadu	NPCIL	1000
GRAND TOTAL				7000

GOVERNMENT OF INDIA
MINISTRY OF POWER

RAJYA SABHA
UNSTARRED QUESTION NO.2700
ANSWERED ON 17.03.2020

SUSTAINABLE ENERGY INFRASTRUCTURE

2700. DR. PRABHAKAR KORE:

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

- (a) whether it is a fact that the significant structural change in energy system currently underway can become more manageable only if proactive measures are set in motion;
- (b) whether Indian energy companies are taking steps to quickly adopt and adapt to these energy transitions and digital technologies at a faster pace; and
- (c) if so, the details of the steps taken by Government to build sustainable energy infrastructure that can cater to the energy needs?

A N S W E R

THE MINISTER OF STATE (INDEPENDENT CHARGE) FOR POWER, NEW & RENEWABLE ENERGY AND THE MINISTER OF STATE FOR SKILL DEVELOPMENT & ENTREPRENEURSHIP

(SHRI R.K. SINGH)

(a) to (c): It is a fact that significant structural changes are currently underway in the energy system in the country. Electricity access in India has improved remarkably through creation of a single national power system and major investments in thermal and renewable capacity. India's power system is experiencing a major shift to higher shares of variable renewable energy, which is making system integration and flexibility priority areas. Government has set a target to install 175 GW of renewable energy capacity in the country by the year 2022 for sustainable development and to meet the growing demand.

Government of India has already taken various initiatives for integration of electricity generation from renewable energy sources in the grid, as under:-

- Green Energy Corridors comprising Inter-State and Intra-State transmission system,
- Transmission system for integration of Ultra Mega Solar Power parks,
- Setting up of 11 nos. Renewable Energy Management Centres at the renewable resource rich States,
- Transmission planning for Renewable Energy Zones (66.5 GW) by 2022 etc.

Further, it is stated that distribution of electricity, including modernization of infrastructure to adapt to new requirements, is the responsibility of the States and their distribution utilities. However, Government of India has been assisting States through schemes such as Integrated Power Development Scheme (IPDS) and National Smart Grid Mission (NSGM) in constructing a robust, resilient and adaptive distribution system. Assistance under these schemes includes smart metering of consumers for ascertaining near real time energy flows; Supervisory control and data acquisition system (SCADA); Information Technology (IT)/ Operational technology (OT) enabled feeders; rooftop solarisation of government buildings; etc.

Besides, for achieving sustainable energy infrastructure in the country, Bureau of Energy Efficiency (BEE), a statutory body under the Ministry of Power (MoP) has been taking many steps for conserving energy through various flagship programmes in the areas of industries, appliances, buildings, transport, agriculture and demand side management etc.

GOVERNMENT OF INDIA
MINISTRY OF POWER

RAJYA SABHA
UNSTARRED QUESTION NO.2701
ANSWERED ON 17.03.2020

CLOSURE OF OLD POLLUTED COAL-BASED POWER PLANTS

2701. SHRI BHASKAR RAO NEKKANTI:

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

- (a) the number of old polluting coal-based power plants that have been identified to be shut down as mentioned by the Finance Minister during the budget speech on 1st February 2020, the details thereof along with dates of shut down as decided;
- (b) the number of coal-based power plants that have been given environmental clearance during the last five years by MoEF&CC, along with the list with location and developer information; and
- (c) the number of coal-based power plants that have been shut down during the last five years due to environmental issues in the country, the details thereof along with the reason for the shut downs?

A N S W E R

THE MINISTER OF STATE (INDEPENDENT CHARGE) FOR POWER, NEW & RENEWABLE ENERGY AND THE MINISTER OF STATE FOR SKILL DEVELOPMENT & ENTREPRENEURSHIP

(SHRI R.K. SINGH)

(a) & (c): Generation is a delicensed activity;and the decision to retire power generating units is taken by the concerned utilities themselves based on techno-commercial considerations. As per report received from the Central Electricity Authority (CEA), 102 units of 43 Thermal Power Stations /Plants with capacity of 10,002.88 MW have been retired from April 2014 till date (List furnished at **Annexure-I**) based on techno-commercial reasons such as age, efficiency and compliance with emission norms etc. by the Thermal Power Plants. CEA have formed a committee to examine the status of the remaining units of old Thermal Power Stations/Plants (as per Budget speech dated 01.02.2020) which might not be able to meet the emission norms set by Ministry of Environment, Forest and Climate Change (MoEF&CC) and Central Pollution Control Board (CPCB). As per the preliminary report, 39 units of 5489 MW which have not submitted their plan to install Flue Gas Desulphurisation (FGD) might have to be considered for retirement if they do not take corrective actions to meet emission norms as stipulated by MoEF&CC and CPCB.

(b): 39 coal-based power plants that have been given environmental clearance during the last five years, as reported by MoEF&CC. The details are given at **Annexure-II**.

ANNEXURE-I

ANNEXURE REFERRED TO IN REPLY TO PARTS (a) & (c) OF UNSTARRED QUESTION NO. 2701 ANSWERED IN THE RAJYA SABHA ON 17.03.2020.

**List of Coal-based Units Retired from April, 2014 onwards
(As on 12.03.2020)**

Sl. No.	Name of Station/Plant	State	No of Units	Unit No.	Retired Capacity (MW)	Retired on
1	Satpura Thermal Power Station	Madhya Pradesh	1	1	62.50	July,2014
2	Amarkantak TPS	Madhya Pradesh	2	3,4	240.00	04.03.2016
3	New Cossipore TPS	West Bengal	4	1,2,3,4	160.00	04.04.2016
4	Panipat TPS	Haryana	4	1,2,3,4	440.00	12.04.2016
5	Koradi TPS	Maharashtra	4	1,2,3,4	420.00	02.08.2016
6	CHANDRAPUR(MAH) STPS	Maharashtra	2	1,2	420.00	21.10.2016
7	PARLI TPS	Maharashtra	1	3	210.00	21.10.2016
8	DURGAPUR TPS	West Bengal	1	3	130.00	21.10.2016
9	PATRATU TPS	Jharkhand	5	1,2,3,5,8	315.00	21.12.2016
10	SANTALDIH TPS	West Bengal	4	1,2,3,4	480.00	21.12.2016
11	GANDHI NAGAR TPS	Gujarat	2	1,2	240.00	12.01.2017
12	ENNORE TPS	Tamil Nadu	1	5	110.00	12.01.2017
13	CHANDRAPURA(DVC) TPS	Jharkhand	1	1	130.00	17.01.2017
14	TROMBAY TPS	Maharashtra	1	4	150.00	08.02.2017
15	DPL TPS	West Bengal	3	3,4,5	220.00	20.02.2017
16	ENNORE TPS	Tamil Nadu	4	1,2,3,4	340.00	31.03.2017
17	Koradi TPS	Maharashtra	1	5	200.00	24.04.2017
18	CHANDRAPUR(ASSAM)	Assam	2	1,2	60.00	18.08.2017
19	UKAI TPS	Gujarat	2	1,2	240.00	18.08.2017
20	SIKKA REP. TPS	Gujarat	2	1,2	240.00	18.08.2017
21	HARDUAGANJ TPS	Uttar Pradesh	1	5	60.00	18.08.2017
22	OBRA TPS	Uttar Pradesh	2	1,2	90.00	18.08.2017
23	BHUSAWAL TPS	Maharashtra	1	2	210.00	31.08.2017
24	CHINAKURI TPS	West Bengal	3	1,2,3	30.00	31.08.2017
25	Dishergarh TPS	West Bengal	4	1,3,4,5	18.00	31.08.2017
26	Seebpore TPS	West Bengal	4	1,2,3,4	8.38	31.08.2017
27	CHANDRAPURA(DVC) TPS	Jharkhand	1	2	130.00	04.09.2017
28	BOKARO 'B' TPS	Jharkhand	2	1,2	420.00	04.09.2017
29	PATRATU TPS	Jharkhand	5	4,6,7,9&10	455.00	23.11.2017
30	PANKI TPS	Uttar Pradesh	2	3,4	210.00	16.03.2018
31	OBRA TPS	Uttar Pradesh	1	8	94.00	03.04.2018
32	BANDEL TPS	West Bengal	2	3,4	120.00	20.04.2018
33	BHATINDA TPS	Punjab	4	1,2,3,4	440.00	31.08.2018
34	ROPAR TPS	Punjab	2	1,2	420.00	31.08.2018
35	Badarpur TPS	Delhi	5	1,2,3,4,5	705.00	30.10.2018
36	Kothagudem TPS	Telangana	3	3,6,8	300.00	19.03.2019
37	Korba-II	Chhattisgarh	4	1,2,3,4	200.00	13.08.2019
38	Trombay TPS	Maharashtra	1	6	500.00	12.09.2019
39	Sabarmati (C Station)	Gujarat	2	15,16	60.00	13.09.2019
40	Rajghat TPS	Delhi	2	1,2	135.00	23.09.2019
41	Parli TPS	Maharashtra	2	4,5	420.00	23.01.2020
42	D.P.L. TPS	West Bengal	1	6	110.00	28.01.2020
43	Kothagudem TPS	Telangana	1	2	60.00	03.03.2020
Total			102		10002.88	

ANNEXURE REFERRED TO IN REPLY TO PART (b) OF UNSTARRED QUESTION NO. 2701 ANSWERED IN THE RAJYA SABHA ON 17.03.2020.

List of Plants given Environment Clearance from 2015
Year 2015

Sl. No.	Name of the Project	Date of Issue
1.	Dr. Narla Tata Rao Thermal Power Station (Dr. NTTPS) Stage – V (1x800 MW) at Ibrahimpatnam (M), Krishna, Andhra Pradesh Company: M/s Andhra Pradesh Power Generation Corporation Ltd. (APGENCO)	26.06.2015
2.	Expansion by addition of 1x800 MW capacity (Stage II) to 2x800 MW (Stage-I) for imported coal-based Sri DamodaramSanjeevaiah Thermal Power Station at Village Nelaturu, Tehsil Muttukuru, Sri PottiSriramulu Nellore District in Andhra Pradesh by M/s. Andhra Pradesh Power Development Company Limited (APPDCL).	02.07.2015
3.	Installation of 20 MW Captive Power Plant for recycle paper production at Survey No. 56/1, Village Morai, Tehsil Pardi, District Valsad, Gujarat Company: M/s. MWV India Paperboard Packaging Pvt. Ltd. (formerly Ruby Macons Ltd.)	22.06.2015
4.	Imported coal based Supercritical Thermal Power Plant of 3960 (6x660) MW at Village LayjaMota, Mandvi Taluk, Kutch District, Gujarat Company: M/s. Nana Layja Power Co. Ltd.	26.6.2015
5.	Expansion of existing (2x150) 300 MW TPP by installation of (165+20) 185 MW Imported coal-based TPP at Meramandali, Distt. Dhenkanal in Orissa Company: M/s.Bhushan Energy Ltd.	12.02.2015
6.	Expansion of existing 155 MW CPP by installation of (175+3x27) 256 MW Imported Coal based Thermal Power Plant at Meramandali, Distt. Dhenkanal, in Orissa Company: M/s.Bhushan Steel Ltd.	12.02.2015
7.	Chhabra Second unit of Supercritical Coal-based Thermal Power Plant Stage – II (1x660 MW – Unit-6) at Village Chowki-Motipura at Chhabra, in BaranDistt., Rajasthan Company: M/s. Rajasthan Rajya VidyutUtpadan Nigam Ltd.	02.02.2015
8.	2x660 MW Khargone Super Critical Thermal Power Project at Village Selda and Dalchi, Khargone District, Madhya Pradesh by M/s. NTPC Ltd.	31.03.2015
9.	Expansion of Supercritical Coal-based Kothagudem Thermal Power Station by Addition of 800 MW as Stage-VII at Village & Tehsil Paloncha, Distt. Khammam, Telangana by M/s. Telangana State Power Generation Corporation Ltd. (TSGENCO).	16.07.2015
10.	Expansion by addition of 6 MW Turbine to existing 60 MW CPP at Villages Govindapuram&Aminabad, Taluk &Distt. Ariyalur, Tamil Nadu by M/s. The Ramco Cements Ltd.	07.08.2015
11.	Expansion by addition of 1x660 MW coal based Super Critical Unit at Harduaganj TPP at Kasimpur, Aligarh District, Uttar Pradesh Company: M/s Uttar Pradesh RajyaVidyut Nigam Ltd.	12.05.2015
12.	Environmental Clearance to Super Critical Imported Coal-based Ghatampur Thermal Power Station of 1980 (3x660) MW Capacity at Tehsil Ghatampur, District Kanpur Nagar, Uttar Pradesh Company: M/s.Neyveli Uttar Pradesh Power Ltd.	17.06.2015
13.	Expansion/Modernization by installation of 50 TPH FBC Boiler and 8 MW Steam Turbine Captive Power Plant at Village Mohammad Ganj, Thakurdwara Taluk, Moradabad District, in Uttar Pradesh Company: M/s.PasupatiAcrylon Ltd.	22.06.2015
14.	Durgapur Captive Power Project-III (2x20 MW) at Durgapur, District Burdwan, West Bengal Company: M/s. NTPC-SAIL Power Company Private Ltd.	29.09.2015

Year 2016

Sl. No.	Name of the Project	Date of Issue
15.	2,000 MW Gas-based Combined Cycle Power Plant (CCPP) at Village Godhra, Kutch Distt, Gujarat by M/s. Nana Layja Power Co. Ltd.	29.09.2016
16.	4,000 MW (6x660 MW) Coal-based Ultra Mega Power Project (UMPP) near Bhedabahal Village, Sundergarh Tehsil, District Sundergarh, Odisha by M/s. Orissa Integrated Power Ltd.	17.10.2016
17.	Expansion by addition of 1x800 MW (Stage-III), North Chennai TPP at Villages Ennore&Puzhdivakkam, Taluk Ponneri, District Thiruvallur, Tamil Nadu by M/s. Tamil Nadu Generation & Distribution Corporation Ltd. (TANGEDCO).	20.01.2016
18.	2x660 MW Supercritical coal based Thermal Power Plant at Villages Ottapidaram&Sillanatham, in Ottapidaram Taluk, in ThoothukkudiDistt., Tamil Nadu. Company: M/s. KU Thermal Power Pvt. Ltd.	31.03.2016
19.	2x800 MW Uppur Supercritical Thermal Power Plant at Villages Uppur, Valamavoor&Thiruppalaikudi, Tehsil Tiruvadana, District Ramanatahapuram, Tamil Nadu Company: M/s. Tamil Nadu Generation & Distribution Corporation Ltd. (TANGEDCO).	18.05.2016
20.	Addition of 6 MW Turbine to existing 2x18 MW Captive Power Plant (CPP) of Alathiyur Cement Plant at Village Alathiyur, Taluk Sendurai, District Ariyalur, Tamil Nadu Company: M/s. The Ramco Cements Ltd.	04.07.2016
21.	Expansion of Ramagundam STPP by addition of 2x800 MW (Stage-IV, Telangana STPP, Phase-I) at Village & Mandal Ramagundam, District Karimnagar, Telangana by M/s. NTPC Ltd.	20.01.2016
22.	Expansion of Obra TPP by addition of 2x660 MW at Obra, Tehsil Robertsganj, District Sonbhadra, Uttar Pradesh by M/s. Uttar Pradesh Rajya VidyutUtpadan Nigam Ltd. (UPRVUNL).	21.06.2016
22.	2x660 MW Coal-based Thermal Power Project near village Malwan, District Etah, Uttar Pradesh by M/s. Jawaharpur VidyutUtpadan Nigam Ltd (JVUNL).	26.10.2016

Year 2017

S.N	Name of the Project/ Locations/ Developers	Date of Issue of EC
23.	2x660 MW Coal-based Super Critical Buxar Thermal Power Project (BTTP) at near Village Chausa, District Buxar, Bihar by M/s. SJVN Thermal Pvt. Ltd.	28.2.2017
24.	4x270 MW (1080 MW) Coal-based Bhadradi Thermal Power Station (BTPS) at Villages Ramanujavaram, Eddulabayyaram&Seethampuram, Mandals Manuguru&Pinapaka, District BhadradiKothagudem (Erstwhile Khammam dist.), Telangana by M/s. Telangana State Power Generation Co. Ltd.	15.3.2017
25.	5x800 Super Critical Coal-based Thermal Power Project at Veerlapalem Village, Damaracherla Mandal, District Nalgonda, Telangana by M/s. Telangana State Power Generation Co. Ltd.	29.6.2017
26.	2x660 Coal-based Khurja Super Thermal Power Project at Villages DushharaKherli, Jahanpur, Naiphal and Rukanpur in Khurja Taluk, BulandshaharDistt., Uttar Pradesh by M/s. THDC India Ltd..	30.3.2017

27.	1x660 MW Coal-based Supercritical Panki Extension Power Project at Panki, Distt. Kanpur, Uttar Pradesh M/s. Uttar Pradesh RajyaVidyutUtpadan Nigam Ltd.	29.6.2017
28.	Expansion by addition of 2x800 MW (Phase-II) coal-based TPP at Padubidri Industrial Area in Villages Yellure and Santhru, Tehsil & District Udupi, Karnataka by M/s. Udupi Power Co. Ltd.	01.08.2107
29.	1,600 (2x800) MW Godda Thermal Power Project at Villages Motia, Gangta&Gaighat, Tehsils Godda&Poraiyahaat, District Godda, Jharkhand by M/s Adani Power (Jharkhand) Ltd.	31.8.2017
30.	Patratu Super Thermal Power Project, Phase-I (3x800 MW) at Patratu, District Ramgarh, Jharkhand by M/s. PatratuVidyutUtpadan Nigam Ltd.	07.11.2017

Year 2018

Sl. No.	Name of the Project	Date of Issue
31.	Proposed 200 MW (1x135 MW and 1x65 MW) Coal-based Thermal Power Project at Pedaveedu Village, Mattampalli Mandal, Nalgonda District, Telangana State by the M/s. M.G Power Projects Limited.	24.04.2018
32.	Proposed 25 MW Municipal Solid Waste-based Thermal Power Plant (Waste to Energy) at Tehkhand, Okhla, South East Delhi, New Delhi by M/s.Tehkhand Waste to Electricity Project Ltd.	26.7.2018
33.	2x660 MW (Stage-III, Expansion) Coal based Ultra Super Critical Talcher Thermal Power Project, Near Talcher Town, Tehsil TalcherSadar, Angul District, Odisha by M/s. NTPC Ltd.	12.9.2018
34.	Proposed expansion of 2x660 MW Super Critical Lignite-based Thermal Power Project at VillgesMudanai, Kunakurichi, Uthangal, Tehsil Vridhachalam, District Cuddalore, Tamilnadu by M/s. NLC India Ltd.	29.10.2018

Year 2019

Sl. No.	Name of the Project	Date of Issue
35.	Proposed 21 MW Municipal Solid Waste-based Power Plant at Villages KoluaKhurd, AdampurChhavani, Phanda Block, Huzur Tehsil, Bhopal Districtby M/s. Bhopal Municipal Solid Waste Pvt. Ltd.	11.01.2019
36.	Modernization & Expansion in Power Plant from 125.3 MW to 141 MW (15.7 MW) at Tehsil - Ladpura, District - Kota, Rajasthan by M/s. DCM Ltd.	03.01.2019
37.	1x660 MW Ennore Supercritical Thermal Power Project (Expansion), Village Ernavur, District Ennore, Tamil Nadu by M/s. Tamil Nadu Generation and Distribution Corporation Ltd. (TANGEDCO).	12.12.2019
38.	3x800 MW Coal-based Super-Critical Thermal Power Project (Greenfield) at Village AnnapurnaKhamar, Taluk Kamakhyanagar, Dhenkanal District, Odisha by M/s. Odisha Thermal Power Co. Ltd.	10.12.2019
39.	1x800 MW Supercritical Coal-based Singareni Thermal Power Plant (Expansion from 2x600 MW to 2000 MW) at Pegadapalli Village, Jaipur Mandal, Mancherial District, Telangana by M/s Singareni Collieries Company Ltd.	18.12.2019

GOVERNMENT OF INDIA
MINISTRY OF POWER

RAJYA SABHA
UNSTARRED QUESTION NO.2702
ANSWERED ON 17.03.2020

NATIONAL E-MOBILITY PROGRAMME

2702. SHRI SANJAY SETH:

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

- (a) whether Government is implementing National e-mobility programme and if so, the achievements made so far;
- (b) whether Energy Efficiency Services Limited has signed a Memorandum of Understanding with Bharat Heavy Electricals Limited to set up a network of Public Charging Infrastructure for electric mobility at various highways across the country; and
- (c) if so, the details thereof and the terms and condition of the MoU?

A N S W E R

THE MINISTER OF STATE (INDEPENDENT CHARGE) FOR POWER, NEW & RENEWABLE ENERGY AND THE MINISTER OF STATE FOR SKILL DEVELOPMENT & ENTREPRENEURSHIP

(SHRI R.K. SINGH)

(a) : As a part of the National Electric Mobility Mission Plan 2020 (NEMMP), Department of Heavy Industry, Ministry of Heavy Industries and Public Enterprises, Government of India have formulated a Scheme namely Faster Adoption and Manufacturing of (Hybrid &) Electric Vehicles in India (FAME India) Scheme. The Phase-I of this Scheme was initially launched for a period of 2 years, commencing from 1st April 2015, which was subsequently extended from time to time and the last extension was allowed up to 31st March 2019. The achievements made are as under:-

In the first phase of the scheme, about 2.8 lakh hybrid and electric vehicles were supported by way of demand incentive at a cost of about Rs.359 crore, 425 electric and hybrid buses at a cost of Rs.300 crore and 500 charging stations/infrastructure at a cost of about Rs.43 crore, were sanctioned. Under Phase II of FAME, about 15878 e-vehicles were supported by way of demand incentive at a cost of Rs.50 crore till date. In addition, 5595 e-buses involving incentive of Rs.2800 crore and 2636 e-vehicles charging stations with incentive amounting to Rs.500 crore were also sanctioned. Besides, Energy Efficiency Service Limited (EESL), a joint venture company of PSUs under Ministry of Power and NTPC, a PSU under Ministry of Power, have set up 68 and 72 number e-vehicle charging stations respectively. EESL has also completed the process of procuring 10,000 e-cars and deployed 1514 e-cars in Government organizations, besides setting up 488 captive chargers for these vehicles.

(b) & (c) : EESL has signed a Memorandum of Understanding (MoU) with Bharat Heavy Electricals Limited (BHEL) to set up a network of public charging infrastructure for electric mobility at various highways across the country.

As per this MoU, EESL will make the entire upfront investment on services, along with the operation and maintenance of the public charging infrastructure, while BHEL will offer complete Engineering, Procurement and Commissioning (EPC) solutions from concept to commissioning. The MoU covers collaboration for identifying, planning, development and installation of charging stations at suitable locations.

GOVERNMENT OF INDIA
MINISTRY OF POWER

RAJYA SABHA
UNSTARRED QUESTION NO.2703
ANSWERED ON 17.03.2020

COMPLETION OF HYDRO POWER PROJECTS IN NORTH EASTERN STATES

2703. SHRI SANJAY RAUT:

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

- (a) whether it is a fact that nearly 103 private hydro power projects failed to takeoff in Arunachal Pradesh totaling about 35 gigawatts (GW) and are still to take off despite Government's Act East Policy focus;
- (b) if so, the details thereof and the reasons for the delay;
- (c) the current status of Subansiri hydroelectric project and reasons for the delay;
- (d) the details of steps taken by Government since 2014 for completion of the various hydro projects in North-East; and
- (e) whether Government has planned any action plan for early completion of hydro projects in North-East, if so, the details thereof?

A N S W E R

THE MINISTER OF STATE (INDEPENDENT CHARGE) FOR POWER, NEW & RENEWABLE ENERGY AND THE MINISTER OF STATE FOR SKILL DEVELOPMENT & ENTREPRENEURSHIP

(SHRI R.K. SINGH)

(a) & (b) : State Government of Arunachal Pradesh had allotted 103 hydropower projects of above 25 MW capacity to various developers of which 92 hydropower projects were allotted to the private sector. Of the 103 projects, 2 projects of 515 MW allotted to NEEPCO, a CPSU, have been commissioned. 2 out of 4 units of 600 MW Kameng Hydro Electric Project of NEEPCO have also been commissioned and the remaining 2 units are due for commissioning in early part of next financial year. Subansiri Lower Project (2000 MW) allotted to NHPC is under construction and is scheduled for commissioning in 2023-24.

Of the 92 private sector projects, construction of Gongri HE project (144 MW) has started but, presently, it is stalled due to financial issues of the developer and the allotment has subsequently been terminated by Govt. of Arunachal Pradesh. DPRs have been concurred for 14 projects of 13,518 MW by CEA and for 7 projects of 397 MW by the State Government. 11 projects of 1181 MW have been dropped after Basin studies etc. The State Government is reviewing the progress of all the projects and allotment of the projects, where no progress has been made by the developers, is being terminated. As on date, allotment of 16 projects of total capacity of over 4000 MW has been terminated. Hydropower projects have long gestation period as processes like land acquisition, resettlement & rehabilitation, environmental and forest clearances etc take several years.

(c) : The current status of Subansiri Lower hydroelectric project (8x250=2000 MW), and the reasons for delay is given at **Appendix**.

(d) & (e) : A number of steps have been taken by Government since 2014 for completion of the various hydro projects in the North-East, which include revival of many stalled projects viz., Teesta – III (1200 MW), Subansiri Lower (2000 MW), Teesta – VI (500 MW) and Rangit – IV (120 MW). Further, Pre-investment approval has been accorded for India's largest hydropower project i.e. Dibang Multipurpose project (2880 MW) of NHPC in Arunachal Pradesh. In order to promote hydropower sector in view of the various challenges faced by it, the Union Cabinet, in March 2019, approved various measures, viz., (i) *Declaring Large Hydropower Projects (> 25 MW projects) as Renewable Energy Source*, (ii) *Hydropower Purchase Obligation (HPO) as a separate entity within Non-solar Renewable Purchase Obligation (RPO) for new projects commissioned and for the untied capacity of earlier projects*, (iii) *Tariff Rationalisation measures*, (iv) *Budgetary Support for Enabling Infrastructure, i.e., roads/ bridges and* (v) *Budgetary Support for Flood Moderation*. These measures would promote hydropower sector in the entire country including the North East.

Ministry of Power have issued guidelines in Nov. 2019 to reduce incidents of time and cost overrun which interalia includes introduction of e-diary, enhanced delegation of powers at project level, time-bound decision making and making top management accountable for delays etc. Also regular meetings are taken by Central Electricity Authority (CEA) and Ministry of Power to review the progress of the projects, identify the constraints areas and facilitate resolution of issues affecting the progress of the hydropower projects.

APPENDIX REFERRED TO IN REPLY TO PART (c) OF UNSTARRED QUESTION NO. 2703 ANSWERED IN THE RAJYA SABHA ON 17.03.2020.

Status of Subansiri Lower HEP (8x250=2000 MW) being executed by NHPC Ltd. in Arunachal Pradesh, as on 29.02.2020

- Dam (116m high and 217m long):- Dam concreting 53.42% & Intake concreting 96% completed.
- Head Race Tunnel (9.5m diameter):- 98% heading excavation, 73.65% benching excavation & 56.80% concrete overt lining completed.
- Surge Tunnel (28x 19 x 62m deep oval shaped x 8 nos.):- Heading excavation 86.40% & benching excavation 12% completed.
- Pressure Shaft (8m dia.):- Vertical PS slashing 199m (51.82%) out of 384m.
- Power House (285m x 61m x 64m size):- Excavation almost completed & concreting 35% completed
- Electro Mechanical Works:-
 - Unit-1: Elbow Erection (1 to 6) and Turbine Stay Ring and Spiral Case erection completed.
 - Unit-2: Elbow Erection (2 to 6) and Turbine Stay Ring and Spiral Case erection completed.
- Hydro Mechanical Works:
 - Erection of Diversion Tunnel Gates: 51.80% completed. Erection of Intake Gates: 8% completed.
 - Out of total 1594m, 293m pressure shaft steel liner erected.
- Project is now scheduled to be commissioned by September, 2023.

Reasons for delay in execution of Subansiri Lower HEP

- Delay in transfer of the forest land.
- Disruption of works by locals at Arunachal Pradesh side.
- Slope failure in the Power House in Jan, 2008.
- Damage to the bridge on Ranganadiriver.
- Change in design of surge shafts to surge tunnels.
- Construction activities were stalled due to agitation by activists in Assam December, 2011.
- Hon'ble NGT stayed recommencement of work vide order dated 11.12.2015.

However, Hon'ble NGT, vide its order dated 31.07.2019, has dismissed the applications and the construction work has resumed w.e.f 15.10.2019 and is in progress.

GOVERNMENT OF INDIA
MINISTRY OF POWER
RAJYA SABHA
UNSTARRED QUESTION NO.2704
ANSWERED ON 17.03.2020

PENAL ACTION AGAINST POWER PLANTS FOR NOT OBLIGING TO ENVIRONMENTAL PROVISIONS

2704. SHRI BHASKAR RAONEKKANTI:

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

- (a) the number of power plants that have been penalised by environmental compensation and shut downs for not complying with the timeline for reducing pollution under MoEF&CC notification {S.0.3305(E)} dated 7th December, 2015;
- (b) the details of actions taken against the power plants showing non-compliance to the timeline provided under MoEF&CC notification {S.0.3305(E)} dated 7th December, 2015 to install Flue Gas Desulfurisation (FGD) till now, power plant-wise; and
- (c) whether penal actions have not been taken on such non-complying power plants as mentioned above, if so, the reason therefor?

A N S W E R

THE MINISTER OF STATE (INDEPENDENT CHARGE) FOR POWER, NEW & RENEWABLE ENERGY AND THE MINISTER OF STATE FOR SKILL DEVELOPMENT & ENTREPRENEURSHIP

(SHRI R.K. SINGH)

(a) to (c): Ministry of Environment, Forest and Climate Change (MoEF&CC) notified new environmental norms for Particulate Matter, Sulphur Oxides (SOx), Nitrogen Oxides (NOx), Water consumption and Mercury, for Thermal Power Plants (TPPs) on 7th December 2015. In order to ensure uninterrupted power supply position in the country, a phased implementation plan (to be implemented by 2022) for installation of Flue Gas De-Sulphurization (FGD) in plants for a capacity of 1,61,402 MW and upgradation of Electrostatic Precipitator in plants for a capacity of 64,525 MW was prepared by Central Electricity Authority (CEA) in consultation with the stakeholders and this plan was submitted to MoEF&CC on 13.10.2017.

Accordingly, on the directions of MoEF&CC, Central Pollution Control Board (CPCB) issued directions under section 5 of Environment (Protection) Act, 1986 to TPPs. CPCB has informed that those TPPs which fail to comply with new emission norms by the specified timelines are considered to be non-complying and are liable for penal action including closure of the plant and imposition of Environmental Compensation.

CEA has also sent letters to Thermal Power Stations for strict compliance of existing Environment norms within the stipulated time given by MoEF&CC/CPCB. So far, CPCB has issued show cause notice on 31.01.2020 under Section 5 of Environment (Protection) Act, 1986 to 31 units of 14 TPPs as to why non-complying units of the plant should not be closed and Environmental Compensation be imposed for continuing non-compliance of CPCB directions. List of these 14 Thermal Power Plants is furnished at **Annexure – I**.

Further, CPCB has issued directions/show cause notice for closure under Section 5 of Environment (Protection) Act, 1986 on 26.02.2020 to 11 units of 4 TPPs. List of these four Thermal Power Plants is furnished at **Annexure – II**.

ANNEXURE REFERRED TO IN REPLY TO PARTS (a) TO (c) OF UNSTARRED QUESTION NO. 2704 ANSWERED IN THE RAJYA SABHA ON 17.03.2020.

Plants For Not Obliging To Environmental Provisions

List of Thermal Power Plants issued with Show Cause Notice by CPCB on 31.01.2020

Sl. No.	Thermal Power Plant	Unit No. (Capacity in MW)
1.	Vizag Hinduja TPP, HNPCL, Visakhapatnam, Andhra Pradesh	2 (520)
2.	Sri DamodaramSanjeevaiah TPP, APPDCL, SPSR Nellore, Andhra Pradesh	2 (800)
3.	Aravalli Power Corporation Limited (Indira Gandhi STPP), NTPC, Jhajjar, Haryana	1 (500) 2 (500) 3 (500)
4.	Panipat Thermal Power Station, HPGCL, Panipat, Haryana	6 (210), 7 (250) 8 (250)
5.	DeenBandhuChhotu Ram TPS, HPGCL, Yamunanagar, Haryana	1 (300) 2 (300)
6.	Rajiv Gandhi TPP, HPGCL, Hisar, Haryana	1 (600) 2 (600)
7.	Rajpura Thermal Power Plant, Nabha Power Ltd, Patiala, Punjab	1 (700) 2 (700)
8.	Talwandi Sabo Power Ltd., Mansa, Punjab	1 (660), 2 (660), 3 (660)
9.	Guru Hargobind Singh TPS, PSPCL, LehraMohabbat, Bhatinda, Punjab	1 (210), 2 (210) 3 (250), 4 (250)
10.	Singareni Thermal Power Project, SCCL, Adilabad, Telangana	1 (600) 2 (600)
11.	Kothagudem (New) Thermal Power Station, TSGENCO, Khammam, Telangana	11 (500)
12.	North Chennai Thermal Power Station-II, TANGEDCO, Chennai, Tamilnadu	1 (600)
13.	National Capital Thermal Power Station, NTPC Dadri, GautamBudh Nagar, U.P	3 (210), 4 (210), 5 (490), 6 (490)
14.	Harduaganj Thermal Power Station, UPRVUNL, Aligarh, U.P.	8 (250) 9 (250)
	Total	31 Units (13,830 MW)

ANNEXURE REFERRED TO IN REPLY TO PARTS (a) TO (c) OF UNSTARRED
QUESTION NO. 2704 ANSWERED IN THE RAJYA SABHA ON 17.03.2020.

Plants For Not Obliging To Environmental Provisions

List of Thermal Power Plants issued with directions by CPCB on 26.02.2020

Sl. No.	Thermal Power Plant	Unit No. (Capacity in MW)
1.	Guru Gobind Singh TPS, PSPCL, Ropar, Punjab	3 (210) 4 (210) 5 (210) 6 (210)
2.	Chandrapura TPS, DVC, Chandrapura, Jharkhand	3 (130)
3.	Kothagudem TPS (Stage I-IV), TSGENCO, Kothagudem, Telangana	1 (60) 2 (60) 4 (60) 5 (120) 7 (120)
4.	Harduaganj Thermal Power Station, UPRVUNL, Aligarh, U.P.	7 (105)
	Total	11 units(1495 MW)

GOVERNMENT OF INDIA
MINISTRY OF POWER

RAJYA SABHA
UNSTARRED QUESTION NO.2705
ANSWERED ON 17.03.2020

POWER DEMAND GROWTH IN VILLAGES

2705. SHRI M.P. VEERENDRA KUMAR:

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

- (a) whether the villages across the country are experiencing a huge growth in their electricity demand;
- (b) if so, the details thereof, State-wise; and
- (c) whether Government has taken steps to increase production of electricity through various sources including atomic energy, if so, the details thereof?

A N S W E R

THE MINISTER OF STATE (INDEPENDENT CHARGE) FOR POWER, NEW & RENEWABLE ENERGY AND THE MINISTER OF STATE FOR SKILL DEVELOPMENT & ENTREPRENEURSHIP

(SHRI R.K. SINGH)

(a) & (b) : Based on the reports submitted by the States, all the inhabited Census 2011 villages across the country stand electrified on 28.04.2018. No specific information is available with regard to electricity demand of the villages. However, the growth in energy supplied during 2017-18 and 2018-19 vis-à-vis the previous years was 6.1% and 5.2% respectively. The state-wise growth in energy supplied during 2017-18 and 2018-19 **is given at Annexure.**

(c): The following measures are taken by Government of India to increase power production:

- (i) Thermal and hydro power plants are at various stages of construction in the country;
- (ii) 1,700 MW of nuclear power project are in an advanced stage of planning; and
- (iii) The Government has a target of 1,75,000 MW installed capacity from renewable sources, including solar, wind, biomass and small hydro; out of which 86,759 MW have been installed and 33,720 MW are under installation.

**ANNEXURE REFERRED TO IN REPLY TO PARTS (a) & (b) OF UNSTARRED QUESTION
NO. 2705 ANSWERED IN THE RAJYA SABHA ON 17.03.2020.**

Growth in Energy Availability during 2017-18 over 2016-17

Region / States	2017-18				2016-17				Growth / Variance	
	Energy Requirement	Energy Availability	Surplus/Deficit (-)		Energy Requirement	Energy Availability	Surplus/Deficit (-)		Growth in Req.	Growth in Avail.
	MU	MU	MU	%	MU	MU	MU	%	MU	MU
Chandigarh	1610	1601	-9	-0.5	1645	1645	0	0.0	-2.1%	-2.6%
Delhi	31826	31806	-19	-0.1	30830	30799	-31	-0.1	3.2%	3.3%
Haryana	50775	50775	0	0.0	48894	48894	0	0.0	3.8%	3.8%
Himachal Pradesh	9399	9346	-53	-0.6	8832	8779	-54	-0.6	6.4%	6.5%
Jammu & Kashmir	18808	15050	-3759	-20.0	17397	14196	-3201	-18.4	8.1%	6.0%
Punjab	54812	54812	0	0.0	53098	53098	0	0.0	3.2%	3.2%
Rajasthan	71194	70603	-591	-0.8	67838	67417	-421	-0.6	4.9%	4.7%
Uttar Pradesh	120052	118303	-1749	-1.5	107569	105700	-1869	-1.7	11.6%	11.9%
Uttarakhand	13457	13426	-31	-0.2	13070	12987	-83	-0.6	3.0%	3.4%
Northern Region	371934	365723	-6211	-1.7	349172	343513	-5659	-1.6	6.5%	6.5%
Chhattisgarh	25916	25832	-84	-0.3	23750	23699	-51	-0.2	9.1%	9.0%
Gujarat	109984	109973	-12	0.0	103704	103703	-1	0.0	6.1%	6.0%
Madhya Pradesh	69925	69925	0	0.0	65760	65759	0	0.0	6.3%	6.3%
Maharashtra	149761	149531	-230	-0.2	139294	139229	-65	0.0	7.5%	7.4%
Daman & Diu	2534	2534	0	0.0	2397	2397	0	0.0	5.7%	5.7%
D.N.Haveli	6168	6168	0	0.0	6021	6021	0	0.0	2.4%	2.4%
Goa	4117	4117	0	0.0	4321	4318	-2	-0.1	-4.7%	-4.7%
Western Region	368405	368080	-326	-0.1	345247	345127	-120	0.0	6.7%	6.7%
Andhra Pradesh	58384	58288	-96	-0.2	54301	54257	-44	-0.1	7.5%	7.4%
Telangana	60319	60235	-83	-0.1	53029	53017	-12	0.0	13.7%	13.6%
Karnataka	67869	67701	-168	-0.2	66900	66538	-362	-0.5	1.4%	1.7%
Kerala	25002	24917	-85	-0.3	24297	24261	-37	-0.2	2.9%	2.7%
Tamil Nadu	106006	105839	-166	-0.2	104511	104488	-24	0.0	1.4%	1.3%
Pondicherry	2668	2661	-7	-0.3	2548	2546	-2	-0.1	4.7%	4.5%
Lakshadweep	47	47	0	0.0	48	48	0	0.0	-2.7%	-2.7%
Southern Region	320248	319642	-606	-0.2	305586	305107	-480	-0.2	4.8%	4.8%
Bihar	27019	26603	-417	-1.5	25712	25131	-580	-2.3	5.1%	5.9%
DVC	21549	21373	-176	-0.8	18929	18790	-138	-0.7	13.8%	13.7%
Jharkhand	7907	7753	-154	-1.9	7960	7906	-53	-0.7	-0.7%	-1.9%
Orissa	28802	28706	-96	-0.3	26759	26756	-3	0.0	7.6%	7.3%
West Bengal	50760	50569	-191	-0.4	47949	47809	-140	-0.3	5.9%	5.8%
Sikkim	485	484	0	-0.1	474	474	0	0.0	2.2%	2.1%
Andaman-Nicobar	328	299	-29	-8.9	240	180	-60	-25.0	36.8%	66.2%
Eastern Region	136522	135489	-1034	-0.8	127783	126868	-916	-0.7	6.8%	6.8%
Arunachal Pradesh	799	788	-10	-1.3	728	713	-15	-2.1	9.7%	10.6%
Assam	9094	8779	-315	-3.5	9021	8692	-329	-3.6	0.8%	1.0%
Manipur	874	827	-46	-5.3	764	738	-26	-3.4	14.4%	12.1%
Meghalaya	1557	1553	-3	-0.2	1714	1714	0	0.0	-9.2%	-9.4%
Mizoram	497	488	-9	-1.7	513	499	-13	-2.6	-3.1%	-2.2%
Nagaland	794	774	-20	-2.5	758	743	-15	-1.9	4.7%	4.2%
Tripura	2602	2553	-49	-1.9	1642	1621	-22	-1.3	58.4%	57.5%
North-Eastern Region	16216	15763	-453	-2.8	15140	14720	-420	-2.8	7.1%	7.1%
All India	1213326	1204697	-8629	-0.7	1142929	1135334	-7595	-0.7	6.2%	6.1%

NOTE: Lakshadweep and Andaman & Nicobar Islands are stand-alone systems, power supply position of these, does not form part of regional requirement and availability.

Growth in Energy Availability during 2018-19 over 2017-18

Region / States	2018-19				2017-18				Growth / Variance	
	Energy Requirement	Energy Availability	Surplus/Deficit(-)		Energy Requirement	Energy Availability	Surplus/Deficit(-)		Growth in Req.	Growth in Avail.
	MU	MU	MU	%	MU	MU	MU	%	MU	MU
Chandigarh	1571	1571	0	0.0	1610	1601	-9	-0.5	-2.4%	-1.9%
Delhi	32299	32282	-17	-0.1	31826	31806	-19	-0.1	1.5%	1.5%
Haryana	53665	53665	0	0.0	50775	50775	0	0.0	5.7%	5.7%
Himachal Pradesh	9850	9618	-232	-2.4	9399	9346	-53	-0.6	4.8%	2.9%
Jammu & Kashmir	18988	15616	-3372	-17.8	18808	15050	-3759	-20.0	1.0%	3.8%
Punjab	55328	55315	-13	0.0	54812	54812	0	0.0	0.9%	0.9%
Rajasthan	79815	79626	-189	-0.2	71194	70603	-591	-0.8	12.1%	12.8%
Uttar Pradesh	117133	116149	-984	-0.8	120052	118303	-1749	-1.5	-2.4%	-1.8%
Uttarakhand	13845	13753	-92	-0.7	13457	13426	-31	-0.2	2.9%	2.4%
Northern Region	382493	377595	-4898	-1.3	371934	365723	-6211	-1.7	2.8%	3.2%
Chhattisgarh	26471	26417	-54	-0.2	25916	25832	-84	-0.3	2.1%	2.3%
Gujarat	116372	116356	-15	0.0	109984	109973	-12	0.0	5.8%	5.8%
Madhya Pradesh	76056	76054	-2	0.0	69925	69925	0	0.0	8.8%	8.8%
Maharashtra	158295	158157	-137	-0.1	149761	149531	-230	-0.2	5.7%	5.8%
Daman & Diu	2558	2558	0	0.0	2534	2534	0	0.0	1.0%	1.0%
D.N.Haveli	6303	6302	0	0.0	6168	6168	0	0.0	2.2%	2.2%
Goa	4295	4292	-3	-0.1	4117	4117	0	0.0	4.3%	4.2%
Western Region	390349	390136	-212	-0.1	368405	368080	-326	-0.1	6.0%	6.0%
Andhra Pradesh	63861	63804	-58	-0.1	58384	58288	-96	-0.2	9.4%	9.5%
Telangana	66489	66427	-62	-0.1	60319	60235	-83	-0.1	10.2%	10.3%
Karnataka	71764	71695	-69	-0.1	67869	67701	-168	-0.2	5.7%	5.9%
Kerala	25016	24898	-118	-0.5	25002	24917	-85	-0.3	0.1%	-0.1%
Tamil Nadu	109482	109380	-102	-0.1	106006	105839	-166	-0.2	3.3%	3.3%
Pondicherry	2766	2756	-10	-0.3	2668	2661	-7	-0.3	3.7%	3.6%
Lakshadweep	46	46	0	0.0	47	47	0	0.0	-0.8%	-0.8%
Southern Region	339377	338960	-417	-0.1	320248	319642	-606	-0.2	6.0%	6.0%
Bihar	30061	29825	-236	-0.8	27019	26603	-417	-1.5	11.3%	12.1%
DVC	22745	22372	-372	-1.6	21549	21373	-176	-0.8	5.5%	4.7%
Jharkhand	8737	8490	-247	-2.8	7907	7753	-154	-1.9	10.5%	9.5%
Orissa	32145	32115	-30	-0.1	28802	28706	-96	-0.3	11.6%	11.9%
West Bengal	51471	51287	-184	-0.4	50760	50569	-191	-0.4	1.4%	1.4%
Sikkim	527	527	0	-0.1	485	484	0	-0.1	8.8%	8.8%
Andaman- Nicobar	346	323	-23	-6.7	328	299	-29	-8.9	5.4%	8.0%
Eastern Region	145686	144616	-1070	-0.7	136522	135489	-1034	-0.8	6.7%	6.7%
Arunachal Pradesh	869	859	-9	-1.1	799	788	-10	-1.3	8.7%	9.0%
Assam	9566	9238	-328	-3.4	9094	8779	-315	-3.5	5.2%	5.2%
Manipur	905	895	-10	-1.2	874	827	-46	-5.3	3.6%	8.1%
Meghalaya	1957	1956	-2	-0.1	1557	1553	-3	-0.2	25.7%	25.9%
Mizoram	643	635	-8	-1.2	497	488	-9	-1.7	29.4%	30.1%
Nagaland	888	795	-93	-10.5	794	774	-20	-2.5	11.9%	2.7%
Tripura @	1863	1841	-22	-1.2	2602	2553	-49	-1.9	-28.4%	-27.9%
North-Eastern Region	16691	16219	-472	-2.8	16216	15763	-453	-2.8	2.9%	2.9%
All India	1274595	1267526	-7070	-0.6	1213326	1204697	-8629	-0.7	5.0%	5.2%

NOTE: Lakshadweep and Andaman & Nicobar Islands are stand-alone systems, power supply position of these, does not form part of regional requirement and availability. @ Excludes energy exported to Bangladesh
