

GOVERNMENT OF INDIA
MINISTRY OF NEW AND RENEWABLE ENERGY
LOK SABHA
UNSTARRED QUESTION NO. 3931
TO BE ANSWERED ON 12.12.2019

HARNESSING RENEWABLE ENERGY IN WESTERN AND SOUTHERN STATES

3931. SHRI HEMANT SRIRAM PATIL
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Will the Minister of NEW AND RENEWABLE ENERGY be pleased to state:

- (a) the details of estimated potential available for harnessing renewable energy in Western and Southern States;
- (b) whether the Government has reviewed/assessed the great potential of solar, hydro and wind energy in Western and Southern India and if so, the details along with the outcome thereof;
- (c) whether the Government has failed to utilize the full potential of renewable energy in these States;
- (d) if so, the problem faced by the Government in this regard and the steps taken to overcome it;
- (e) whether the Government has sanctioned setting up of solar parks in different parts of Western and Southern States, if so, the details thereof along with the funds allocated and spent for the said purpose;
- (f) whether the Government has also proposed to set up hydro power plants in Western and Southern States, if so, places identified for the purpose and the time by which the same will be set up; and
- (g) the other steps taken by the Government for utilising the solar energy with special focus on Western and Southern States?

ANSWER

THE MINISTER OF STATE (I/C) FOR NEW & RENEWABLE ENERGY, POWER and MoS for SKILL DEVELOPMENT AND ENTREPRENEURSHIP

(SHRI R.K. SINGH)

(a) to (d) The details of estimated renewable energy potential identified for various renewable energy sources in the country including western & southern states are given at **Annexure I**.

The details of installed renewable energy capacity in the country including western & southern India as on 31st October, 2019 are given at **Annexure-II**.

The production of energy from solar, wind and other renewable sources varies from place to place depending upon, inter-alia, intensity of solar radiations, speed of wind, geographical location, capacity of project, technology deployed, etc.

The issues faced by the Government in this regard inter-alia, include availability of land, transmission infrastructure, low cost finance, conducive state policies etc.

(e) The details of the Solar Parks sanctioned in the different parts of the country including Western and Southern States of the country as on 30th November, 2019 are given in **Annexure-III**.

The details of the Central Financial Assistance (CFA) released to various states including Western and Southern States for setting up of solar parks in the country as on 31st October, 2019 are given in **Annexure-IV**.

(f) The details of Small hydro & Large hydro power projects under implementation in the Western and Southern States as on 31st October, 2019 are given in **Annexure V**.

(g) The steps taken by the Government for utilising solar energy in the country including Western and Southern States inter-alia, include the following:-

- Announcement of a target of installing 100 GW of solar energy capacity by the year, 2022;
- Permitting Foreign Direct Investment (FDI) up to 100 percent under the automatic route.
- Waiver of Inter State Transmission System (ISTS) charges and losses for inter-state sale of solar power for projects to be commissioned up to December, 2022.
- Notification of standard bidding guidelines to enable distribution licensee to procure solar power at competitive rates in cost effective manner.
- Declaration of trajectory for Renewable Purchase Obligation (RPO) up to the year 2022.
- Implementation of Green Energy Corridor project to facilitate grid integration of large scale renewable energy capacity addition.
- Launching of New Schemes, such as, PM-KUSUM, solar rooftop phase II, 12000 MW CPSU scheme Phase II.

Annexure-I referred to in reply to parts (a to d) of Lok Sabha Unstarred Question No. 3931 for 12/12/2019 regarding 'Harnessing Renewable Energy in Western and Southern States' including Western and Southern states

“Source and State-wise details of estimated potential of Renewable Energy in MW”

Sl. No.	STATES / Uts	Wind Power	Small Hydro Power	Bio-Energy			Solar	Total
				Biomass Power	Bagasse Cogeneration	Waste To Energy		
		(MW) @ 100m	(MW)	(MW)	(MW)	(MW)	(MW)	(MW)
1	Andhra Pradesh	44229	409.32	578	300	123	38440	84079
2	Arunachal Pradesh		2064.92	8			8650	10723
3	Assam		201.99	212		8	13760	14182
4	Bihar		526.98	619	300	73	11200	12719
5	Chhatisgarh	77	1098.20	236		24	18270	19705
6	Goa	1	4.70	26			880	911
7	Gujarat	84431	201.97	1221	350	112	35770	122086
8	Haryana		107.40	1333	350	24	4560	6374
9	Himachal Pradesh		3460.34	142		2	33840	37444
10	Jammu & Kashmir		1707.45	43			111050	112800
11	Jharkhand		227.96	90		10	18180	18508
12	Karnataka	55857	3726.49	1131	450		24700	85864
13	Kerala	1700	647.15	1044		36	6110	9538
14	Madhya Pradesh	10484	820.44	1364		78	61660	74406
15	Maharashtra	45394	786.46	1887	1250	287	64320	113925
16	Manipur		99.95	13		2	10630	10745
17	Meghalaya		230.05	11		2	5860	6103
18	Mizoram		168.90	1		2	9090	9261
19	Nagaland		182.18	10			7290	7482
20	Orissa	3093	286.22	246		22	25780	29428
21	Punjab		578.28	3172	300	45	2810	6905
22	Rajasthan	18770	51.67	1039		62	142310	162233
23	Sikkim		266.64	2			4940	5209
24	Tamil Nadu	33800	604.46	1070	450	151	17670	53745
25	Telangana	4244	102.25				20410	24756
26	Tripura		46.86	3		2	2080	2131
27	Uttar Pradesh		460.75	1617	1250	176	22830	26333
28	Uttarakhand		1664.31	24		5	16800	18493
29	West Bengal	2	392.06	396		148	6260	7198
30	Andaman & Nicobar	8	7.27				0	15
31	Chandigarh					6	0	6
32	Dadar & Nagar Haveli						0	0
33	Daman & Diu						0	0
34	Delhi					131	2050	2181
35	Lakshwadeep	8					0	8
36	Pondicherry	153				3	0	156
37	Others					1022	790	1812
	Total	302251	21133.62	17536	5000	2554	748990	1097465

Annexure-II

Annexure-II referred to in reply to part (a to d) of Lok Sabha Unstarred Question No. 3931 for 12/12/2019 regarding 'Harnessing Renewable Energy in Western and Southern States' Source-wise and State-wise installed capacity of Grid Interactive Renewable Power including Western and Southern states (As on 31.10.2019)

S. No.	STATES / Uts	Small Hydro Power	Wind Power	Bio Power	Solar Power	Total
(MW)						
1	Andhra Pradesh	162.11	4092.45	500.34	3316.82	8071.72
2	Arunachal Pradesh	131.105			5.61	136.72
3	Assam	34.11			41.23	75.34
4	Bihar	70.70		121.20	149.35	341.25
5	Chhattisgarh	76.00		230.50	231.35	537.85
6	Goa	0.05			4.78	4.83
7	Gujarat	62.35	7203.77	77.30	2687.57	10030.99
8	Haryana	73.50		205.66	247.52	526.68
9	Himachal Pradesh	906.51		7.20	29.63	943.34
10	Jammu & Kashmir	180.03			19.13	199.16
11	Jharkhand	4.05		4.30	38.40	46.75
12	Karnataka	1256.73	4753.40	1827.80	6497.42	14335.35
13	Kerala	222.02	62.50	0.72	141.39	426.63
14	Madhya Pradesh	95.91	2519.890	120.75	2116.08	4852.63
15	Maharashtra	379.575	4794.13	2528.69	1661.33	9363.73
16	Manipur	5.45			4.30	9.75
17	Meghalaya	32.53		13.80	0.12	46.45
18	Mizoram	36.47			1.42	37.89
19	Nagaland	30.67			1.00	31.67
20	Odisha	64.625		59.22	397.28	521.13
21	Punjab	173.55		327.85	947.10	1448.50
22	Rajasthan	23.85	4299.72	121.30	4737.63	9182.50
23	Sikkim	52.11			0.07	52.18
24	Tamil Nadu	123.05	9231.76	1003.95	3097.97	13456.73
25	Telangana	90.87	128.10	177.60	3620.75	4017.32
26	Tripura	16.01			9.41	25.42
27	Uttar Pradesh	25.10		2115.51	1045.10	3185.71
28	Uttarakhand	214.320		130.50	314.99	659.81
29	West Bengal	98.50		319.92	108.49	526.91
30	Andaman & Nicobar	5.25			12.19	17.44
31	Chandigarh				36.99	36.99
32	Dadar & Nagar Haveli				5.46	5.46
33	Daman & Diu				16.02	16.02
34	Delhi			52.00	148.41	200.41
35	Lakshwadeep				0.75	0.75
36	Pondicherry				3.20	3.20
37	Others		4.30			4.30
	Total (MW)	4647.107	37090.020	9946.11	31696.26	83379.50

Annexure-III referred to in reply to part (e) of Lok Sabha Unstarred Question No. 3931 for 12/12/2019 regarding 'Harnessing Renewable Energy in Western and Southern States'**List of Solar Parks as on 30-11-2019 (including Western and Southern states)**

Sl. No.	State	Solar Park	Capacity (MW)
1	Andhra Pradesh	Ananthapuramu-I Solar Park	1500
2		Kurnool Solar Park	1000
3		Kadapa Solar Park	1000
4		Ananthapuramu-II Solar Park	500
5		Hybrid Solar Wind Park	160
6	Arunachal Pradesh	Lohit Solar Park	30
7	Gujarat	Radhnesada Solar Park	700
8		Harsad Solar Park	500
9		Dholera Solar Park Ph-I	1000
10		Dholera Solar Park Ph-II	4000
11	Jharkhand	Floating Solar Park	150
12	Karnataka	Pavagada Solar Park	2000
13	Kerala	Kasargod Solar Park	105
14	Madhya Pradesh	Rewa Solar Park	750
15		Neemuch-Mandsaur Solar Park	750
16		Agar Solar Park	550
17		Shajapur Solar Park	450
18		Morena (Chambal) Solar Park	250
19	Maharashtra	Sai Guru Solar Park (Pragat)	500
20		Patoda Solar Park (Paramount)	500
21		Dondaicha Solar Park	500
22	Manipur	Bukpi Solar Park	20
23	Meghalaya	Solar park in Meghalaya	20
24	Mizoram	Vankal Solar Park	20
25	Nagaland	Solar Park in Nagaland	23
26	Odisha	Solar Park in Odisha	275
27		Solar Park by NHPC	100
28	Rajasthan	Bhadla-II Solar Park	680
29		Bhadla-III Solar Park	1000
30		Bhadla-IV Solar Park	500
31		Phalodi-Pokaran Solar Park	750
32		Fatehgarh Phase-1B Solar Park	421
33		Nokh Solar Park	980
34	Tamil Nadu	Kadaladi Solar Park	500
35	Uttar Pradesh	Solar Park in UP	440
36		UP Kanpur Dehat Solar Park	50
37		UP Jalaun Solar Park	50
38		UP Kanpur Nagar Solar Park	30
39	West Bengal	Solar park in West Bengal	125

Annexure-IV referred to in reply to part (e) of Lok Sabha Unstarred Question No. 3931 for 12/12/2019 regarding 'Harnessing Renewable Energy in Western and Southern States'

Central Financial Assistance (CFA) released under the Solar Park Scheme by SECI to various Solar Power Park Developers (SPPDs), State Transmission Utilities (STUs) and Central Transmission Utility (CTU) as on 31.10.2019

(In Rs. Lakh)

Sl. No.	State	Solar Park	Total CFA disbursed
1	Andhra Pradesh	Ananthapuramu-I Solar Park	13525.00
2		Kurnool Solar Park	10818.81
3		Kadapa Solar Park	5425.00
4		Ananthapuramu-II Solar Park	5124.80
5		Solar-Wind Hybrid Park	25.00
6		Ext Trans. PGCIL- Ananthapuramu-I solar park	10955.54
7		Ext Trans. APTRANCO- Ananthapuramu-II solar park	2000.00
8		Ext Trans. APTRANCO-Kurnool solar park	7400.00
9	Arunachal Pradesh	Lohit Solar Park	19.65
10	Chhattishgarh	Rajnandgaoun Solar Park	15.00
11	Gujarat	Radhnesada Solar Park	3311.35
12		Ext Trans PGCIL-Radhnesada solar park	2800.00
13	Karnataka	Pavagada Solar Park	17980.00
14		Ext Trans PGCIL-Pavagada solar park	12000.00
15	Kerala	Kasargod Solar Park	200.00
16	Madhya Pradesh	Rewa Solar Park	7633.51
17		Neemuch-Mandsaur Solar Park	2548.50
18		Ext Trans PGCIL-Rewa solar park	6000.00
19	Maharashtra	Sai Guru Solar Park	435.00
20		Patoda Solar Park	25.00
21		Dondaicha Solar Park	625.00
22		Latur Solar Park	10.00
23		Washim solar park	15.00
24		Yavatmal Solar Park	10.00
25		Kacharala solar park	15.00
26	Manipur	Bukpi Solar Park	10.00
27	Meghalaya	Solar park in Meghalaya	3.07
28	Mizoram	Vankal Solar Park	10.00
29	Rajasthan	Bhadla-II Solar Park	6120.00
30		Bhadla-III Solar Park	9614.16
31		Bhadla-IV Solar Park	5125.00
32		Phalodi-Pokaran Solar Park	1825.00
33		Fatehgarh Phase-1B Solar Park	25.00
34		Nokh Solar Park	25.00
35		RVPN- Bhadla Phase-II, III and IV solar parks	10747.10
36		PGCIL- Bhadla Phase-III IV, Phalodi-Pokaran and Fatehgarh Ph-1B solar parks	6000.00
37	Tamil Nadu	Kadaladi solar park	25.00
38	Telangana	Gattu Solar Park	25.00
39	Uttar Pradesh	Solar Park in UP	2081.80
40		Ext Trans. UPPTCL- UP solar park	1719.15
41	Uttarakhand	Solar park in Uttarakhand	8.25
42	West Bengal	Solar park in West Bengal	25.00

Annexure-V referred to in reply to part (f) of Lok Sabha Unstarred Question No. 3931 for 12/12/2019 regarding 'Harnessing Renewable Energy in Western and Southern States'

List of and on-going Large & Small Hydro power projects as on 31.10.2019

(a) List of on-going Small Hydro Power Projects as on 31.10.2019, expected to be commissioned by 2022

S. No.	State	Small Hydro Power (< 25 MW) Capacity (MW)
Western Region		
1	Madhya Pradesh	7.6
2	Gujarat	48.81
3	Maharashtra	10.4
Sothern Region		
4	Karnataka	37.0
5	Kerala	80.5
Total		184.31

(b) List of State wise Under Construction Large Hydro Electric Projects

List of State wise Under Construction Large Hydro Electric Projects in Western & Southern States (above 25 MW)				
Sl No.	State	Location	Capacity(MW)	Expected date of Commissioning
Madhya Pradesh				
1	Maheshwar (SMHPCL) #	Khargone & Khandwa	400.00	2020-22 *
Sub-total: Madhya Pradesh			400.00	
Maharashtra				
2	Koyna Left Bank (WRD,MAH)	Satara	80.00	2022-23 *
Sub-total: Maharashtra			80.00	
Sub Total Western Region			480.00	
Andhra Pradesh				
3	Polavaram (APGENCO/ Irrigation Dept., A.P.)	East & West Godavari	960.00	2021-23 (Mar'23)
Sub-total: Andhra Pradesh			960.00	
Kerala				
4	Pallivasal (KSEB)	Idukki	60.00	2021-22 (Dec'21)
5	Thottiyar (KSEB)	Idukki	40.00	2020-21 (Dec'20)
Sub-total: Kerala			100.00	
Sub Total Southern Region			1060.00	

*Subject to restart of works