

GOVERNMENT OF INDIA
MINISTRY OF NEW AND RENEWABLE ENERGY
LOK SABHA
UNSTARRED QUESTION NO. 3539
TO BE ANSWERED ON 23.03.2017

CAPACITY OF SOLAR ENERGY STORAGE

3539. SHRI RAJENDRA AGRAWAL:

Will the Minister of NEW & RENEWABLE ENERGY be pleased to state:

- (a) the present capacity of solar energy storage in the country;
- (b) whether the present capacity is enough to meet the storage requirement, especially on account of intermittent nature of renewable power generation and if so, the details thereof; and
- (c) the total funds allocated and spent for research in solar energy storage during the last three years and the current year?

ANSWER

THE MINISTER OF STATE FOR POWER, COAL, NEW & RENEWABLE ENERGY AND MINES (INDEPENDENT CHARGE) (SHRI PIYUSH GOYAL)

(a) & (b): Energy storage systems are an integral part in the off-grid decentralized solar energy systems. State-wise cumulative capacity of such off grid Solar Photovoltaic Power plants installed since Financial Year 2013-14 is given at **Annexure-I**.

(c): Four projects were sanctioned as part of Solar Research & Development (R&D) budget, the details of which are furnished at **Annexure-II**.

Annexure I

State Wise Off-Grid Solar Photovoltaic Power Plants with Energy Storage (Installed since Financial Year 2013-14)

State	During 2013-14 (KWp)	During 2014-15 (KWp)	During 2015-16 (KWp)	During 2016-17 (KWp)	Cumulative (As on 28.02.17) (KWp)
Andhra Pradesh	392	1323	1046	153	3785.595
Arunachal Pradesh	200	313	70	0	600.1
Assam	0	300	395	0	1605
Bihar	0	66	180	2947	3968.6
Chhattisgarh	2430	3500	4782	5298	28196.72
Delhi	0	239	698	0	1269
Goa	0	30	1	0	32.72
Gujarat	9078	1285	2839	0	13576.6
Haryana	0	463	994	0	2321.25
Himachal Pradesh	607	167	0	15	1390.5
Jammu & Kashmir	3122	908	3223	158	7719.85
Jharkhand	0	0	3059	100	3639.9
Karnataka	1302	867	2213	0	4676.41
Kerala	0	635	3045	10000	13894.39
Madhya Pradesh	0	538	205	928	3654
Maharashtra	0	941	2003	0	3857.7
Manipur	240	356	429	0	1241
Meghalaya	123	250	461	0	884.5
Mizoram	0	649	295	534	1719
Nagaland	0	0	242	214	1506
Odisha	0	152	331	0	567.515
Punjab	382	539	748	0	1950
Rajasthan	4612	1195	530	500	10850
Sikkim	530	115	55	0	850
Tamil Nadu	3396.83	2875	5533	338	12752.6
Telangana	0	1833	2304	1237	5374
Tripura	0	0	17	275	657
Uttar Pradesh	21	2772	3538	240	10041.46
Uttarakhand	0	348	906	0	1534.03
West Bengal	0	237	604	0	1730
Andaman & Nicobar	0	0	0	0	167
Chandigarh	730	0	0	0	730
Lakshadweep	0	0	1100	0	2190
Puducherry	0	40	81	0	121
Others	15815	0	0	0	23885
Total	42,980.83	22,936	41,927	22,937	172,938.44

Annexure-II**Projects sanctioned as part of Solar Research & Development (R&D) budget**

S. No.	Project Title	Name of Organization	Project Outlay (in Rs. Lakhs)
1	1 MW el. (3.5 MW) solar thermal power plant with 16 hours thermal storage Project location: Mt. Abu	World Renewal Spiritual Trust (WRST), Mumbai	Total Cost: 8100.00 MNRE share: 2120.00
2	Development of Modular Central Receiver Concentrated Solar Power Plant for Decentralized Power Generation Project location: National Institute of Solar Energy (NISE), Gurugram	Sun Borne Energy Technologies Pvt. Ltd., Gurugram and NISE, Gurugram	Total Cost: 1600.00 MNRE share: 1096.00
3	High Energy Density Thermal Energy Storage for Concentrated Solar Plant	Ram Krishna Dharmarth Foundation (RKDF) University, Bhopal	Total Cost: 41.00 MNRE share: 36.00
4	Development of 2.5 MW Solar PV and Wind Hybrid power plant with 1 MWh battery storage at Kaza, Himachal Pradesh	Solar Energy Corporation of India (SECI)	Total Cost: 2982.00 MNRE share 1491.00