

GOVERNMENT OF INDIA
MINISTRY OF NEW AND RENEWABLE ENERGY
LOK SABHA
UNSTARRED QUESTION NO. 1567
TO BE ANSWERED ON 09.03.2017

INTRODUCTION OF LATEST TECHNOLOGY IN NRE SECTOR

1567. SHRIMATI V. SATHYA BAMA:

SHRI PR. SENTHIL NATHAN:

SHRI BHARATHI MOHAN R.K:

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

- (a) whether the Government proposes to introduce state of the art technology for harnessing new and renewable energy sources in the country;
- (b) if so, the details thereof and the new and renewable energy projects being implemented in various States/UTs in the country including Tamil Nadu;
- (c) the details of funds provided for the implementation of such projects, Statewise;
- (d) whether the Government has conducted any studies on introduction of different types of new and renewable energy projects with foreign collaboration and funding ;
- (e) if so, the details thereof; and
- (f) whether the Government has provided adequate financial and technological support for harvesting the new and renewable energy sources in the country to reach the target for production of 20000 MW renewable energy and if so, the details thereof?

ANSWER

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

(a) to (c): Ministry of New and Renewable Energy (MNRE) has been incessantly working to introduce various technologies and application for harnessing New and Renewable Energy resources by financing various R&D projects in state of the art technology and applications. The detailed list of such R&D projects financed by MNRE during the last 3 years including Tamil Nadu is given at Annexure I.

(d) & (e): Yes Madam. Government of India has undertaken several projects in collaboration with various foreign Governments on various Renewable Energy applications for Energy Access and improvement. The detail of the study/project is given at Annexure-II.

(f): MNRE is providing financial, technological and awareness support under various schemes for harvesting new and renewable energy projects in the country. So far, 50744.76 MW of Grid Interactive Renewable Power has been installed in the country from various renewable energy sources upto 31-01-2017, which include 9235.24 MW from Solar power, 28871.59 MW from Wind Power, 4341.85 MW from Small Hydro Power and 8296.08 MW from Biopower.

ANNEXURE I

REFERRED TO IN REPLY TO PARTS (a) to (c) OF LOK SABHA UNSTARRED QUESTION NO. 1567 FOR ANSWER ON 09.03.2017

The details of the R&D projects financed by MNRE during the last 3 years

S. No.	Name of the Project	Name of the PI and Institution	Date of Sanction	Expected Date of completion	Sanction & MNRE contribution (Lakh)
1.	Development of novel, efficient and cost effective power electronics based single phase system to convert Solar Energy from solar PV to Electric Energy.	Dr.Atheshamul Haque, Jamia Milia Islamia University, New Delhi	20/03/2014	19/03/2017	Total Cost: 106.31 Release 50.00 (20/03/2014) 47.38 (07/08/2015)
2.	Design and development of an efficient soft-switching converter with adaptive maximum power point tracking (MPPT) controller for a standalone photovoltaic power generation system.	Dr. Rajneesh Kumar, Associate Professor Birla Institute of Technology and Science Pilani, Rajasthan	23/07/2014	22/07/2016 (Extension Requested)	Project cost = 29.39 Release: 12.00(19/01/2015)
3.	Development of improved DS process for mc-Si wafers and their application to Solar Cells	Prof. P. Ramasamy, SSN College of Engineering, Kalavakkam, Tamil Nadu	15/01/2015	14/01/2019	Project cost = 468.42 MNRE Share =100% Duration =4 Years Release 50.00 (15/1/2015) 235.00 (18/12/2015)
4.	Development of High Efficiency selective large area N-Type crystalline silicon solar cell.	Prof.Utpal Gangopadhyay Megnad Saha Institute of Technology, Nazirabad Kolkata.	31/12/2015	01/01/2018	Project cost = 298.40 MNRE Share = 298.40 Duration = 3Year Release: 225.00 (15/1/2015)
5.	Determination of Wind Forces on Solar Photovoltaic Panels Mounted on Different Types of Roof and on/above Ground in India Using Computational Fluid Dynamics Techniques	Dr. Hassan Irtaza, Department of Civil Engineering, Aligarh Muslim University, Aligarh.	28/09/2016	28/09/2018	Project cost = 38.59 MNRE share = 100% Duration = 2Years Release amount = 7.00
6.	Facilitating the target of 100GW Solar by 2022: An Inclusive Analysis towards achievement"	Dr.Shaibal Chakravarty. National Institute of Advanced Studies, Indian Institute of Science, Bangalore	26/9/2016	26/05/2017	Project cost = 20.00 MNRE share = 100% Duration =8 months Release amount = 9.00
7.	National Centre for Photovoltaic Research and Education (NCPRE) Phase-II	Prof. B G Fernandes and Prof C S Solanki, Indian Institute of Technology Mumbai	15.06.2016	15.06.2021	Project cost = 6235 MNRE share = 100% Duration =5 years Release amount = 600 (15.06.2016) for creation of capital asset 400 (15.06.2016) for Grant in aid
8.	"Development and field testing of Solar powered clean drinking water systems for communities without piped water line and	Dr. O S Shastri, National Institute of Solar Energy and M/s Saurya Enertech, Gurgaon	19.04.2016	19.04.2019	Project cost = 320.14 MNRE share = 214.22 (Rs.108.31 lakhs for NISE and Rs. 105.91 lakhs for M/s Saurya

	electricity”				Enertech) M/s Saurya Enertech Share: 105.91 lakh - Duration =3 years Release amount = 100.00 to NISE towards creation of capital assets Release date: 06.05.2016
9.	Development of Electrode Materials for High Energy Density Lithium ion Batteries and Computational Studies of Solar Absorber layers	Dr. M. Sasidharan, Professor, SRM Research Institute, SRM University, Kattankulathur	17.05.2016	17.05.2019	Project cost = 1117 MNRE share = 505.56 Duration =3 years Release amount = 250 Release date: 17.05.2016
10.	From Cell towards Module using low cost Organo-Metal Halide Perovskite Materials	Dr.Shaibal K. Sarkar Indian Institute of Technology Bombay, Powai, Mumbai-	31.03.2016	31.05.2019	Project cost = 318.00 MNRE share = 100% Duration =3 years Release amount = 74 (31.03.2016) 76 (11.05.2016)
11.	Development of Solar PV and wind hybrid power plant with large scale battery storage at Kaza, Himachal Pradesh-	Dr. Y.B.K. Reddy, Sr. Manager (PV), Solar Energy Corporation of India, New Delhi	31.03.2015	31.03.2018	Project cost = 2982 MNRE share = 50%, 1491 Duration =3 years Release amount = 50.00 (31.03.2015) 850.00(09.06.2016)

Solar Thermal

Sl. No.	Project Title	Name of PI & Organization	Date of Sanction	Actual/ Expected Date of completion	Total & MNRE share (Lakh)
1.	30 kW cross liner-CSP system Test Unit	Dr.MukeshPanday Rajiv Gandhi Proudyogiki Vishwavidyalaya, University Institute of Technology, (RGPV) Bhopal.	25/03/2014	24/03/2016 Extended upto Sept 2017	Total cost: 970.18 MNRE Share: 223.66 Releases 22.00 L (31/03/2014) 28.00 L (06/05/2014) 91,66,916/- (06/05/2015)
2.	Design, Construction and Demonstration of zero energy building for Solar Decathlon Europe 2014	Prof. Rangan Banerjee, Department of Energy Science and Engineering, Indian Institute of Technology Bombay	25/09/2014	24/09/2016	Total cost: 301.17 MNRE Share: 30.00 Releases: 15.00 (25/09/2014)
3.	“High Energy Density Thermal Energy Storage for Concentrated Solar Plant”	Dr. V K Sethi, Vice Chancellor, Ram Krishna Dharmarth Foundation University, (RKDF) Bhopal.	21/07/2015	21/01/2017	Total cost: 41.00 Lakhs MNRE Share: 36.00 Rensselaer Polytechnic Institute, NY, USA (RPI) share: Rs.5 lakhs Releases: 20.00 lakhs (21/07/2015)

4.	“Development of a monitoring system for the energy reception elements in Solar Thermal plants” by under Indo-Spanish Joint Programme for Technological co-operation in Renewable Energy	Mr. Shirish Garud, The Energy and Resources Institute (TERI), IHC Complex, Lodi Road, New Delhi.	11/02/2016	11/02/2018	Total cost: Rs. 2190.5 lakhs MNRE Share: Rs. 410 lakhs TERI share :Rs. 173 lakhs Spain Share :Rs. 1606 lakhs in which Rs. 1204 lakhs is as loan @Rs. 84 per euro under Indo-Spanish Joint Programme for Technological co-operation in Renewable Energy. Releases: 100 lakhs (11/02/2016)
5.	“Design Development and Proto building a Solar Energy Driven desiccant & Ejector based Environmental friendly Air Conditioning System”	Prof. Anitha A Nene, Department of Mechanical Engineering, MAEERS's Maharashtra Institute of Technology, Kothurd, Pune	30/06/2016	30/06/2018	Total Cost: Rs 9.37 lakhs MNRE Share: 100% Released Amount & Date: Rs. 4.68 Lakhs towards Creation of Capital Assets on 30.06.2016
6.	“Development of fully automatic double axis tracking of Scheffler Dish System for enhanced performance”	Prof. Jyotirmoy Mathur, Mechanical Engg. Deptt. Malviya National Institute of Technology, Bhopal	28/09/2016	28/09/2018	Total project Cost: Rs. 37.07 lakhs MNRE share: 100 % Released amount: Rs 1.50 lakhs towards Grants-in-Aid Rs 14.5 Lakh towards Capital Assets
7.	Studies on utilization of Solar Energy in Tasar Post Cocoon Technology Operations	Dr. ZMS Khan, Central Tasar Research & Training Institute, Ranchi	30/09/2016	30/09/2019	Total project Cost: Rs. 50.73 lakhs MNRE share: Rs.38.73 lakhs Released amount: Rs 16.23 lakhs towards Grants-in-Aid 30.09.2016
8.	Development of high efficiency receiver for supercritical CO2 integrated with static focus parabolic dish	Prof. Pradip Dutta, IISc Bangalore and Dr. B K Jaysimha, World Renewal Spiritual Trust (WRST), Bombay	28/06/2016	28/06/2019	Project cost = Rs. 342.49 lakhs MNRE share = 100 % (Rs.223.49 lakhs for IISc Bangalore and Rs. 119 lakhs for M/s WRST, Mumbai) Duration =3 years Release amount = Rs 30,00,000/- to IISc towards Grants in aid Release date: 28.06.2016 &Rs.120 Lakh towards Grants for creation of capital assets Release date: 28.06.2016

**REFERRED TO IN REPLY TO PARTS (d) & (e) OF LOK SABHA UNSTARRED QUESTION NO.
1567 FOR ANSWER ON 09.03.2017**

The details of the study/projects taken in collaboration with foreign governments

S. No.	Project	Grant	Agency
1.	Offshore wind Power (FOWIND): (i) Facilitating India's transition towards low carbon development by supporting implementation of national policies and programme for offshore wind power (ii) Installation of LIDAR	4.0 million Euro 500,000 Euro --	EU GPCL
2.	First offshore wind farm project of India (FOWPI)	1.8 million Euro	EU