

(c) whether there is any such technology in the world to store electricity, be it solar or wind or conventional; and

(d) if so, details thereof and the countries that are using that technology and whether Government tried to get that technology?

THE MINISTER OF STATE OF THE MINISTRY OF NEW AND RENEWABLE ENERGY (SHRI RAJ KUMAR SINGH): (a) and (b) The power distribution companies of the State of Andhra Pradesh have floated tenders for 5 MW Solar Power plant along with 4 MWh battery energy storage system, one each in Vizianagaram and Nellore Districts.

(c) and (d) There are a variety of energy storage technologies available for storing electricity. These include chemical, electrical, electrochemical, thermal and mechanical energy storage technologies. Some of them are pump storage and grid scale battery storage systems.

The Government of India is supporting research in energy storage technologies.

#### **Impact of tariffs on use of rooftop solar systems**

1740. SHRI R. VAITHILINGAM: Will the Minister of NEW AND RENEWABLE ENERGY be pleased to state:

(a) whether to boost the use of rooftop solar systems in residences, Government would mandate domestically sourced components which could inspire confidence among potential customers;

(b) whether the biggest issues facing solar power project in India are getting lost in the overt focus on lower tariffs;

(c) whether the installed capacity of rooftop solar systems in India is so far only 1247 MW out of target of 40 GW by 2022; and

(d) whether the reason for poor adoption of rooftop solar in India is that the tariffs in place do not make business sense for residential rooftop solar systems?

THE MINISTER OF STATE OF THE MINISTRY OF NEW AND RENEWABLE ENERGY (SHRI RAJ KUMAR SINGH): (a) To promote rooftop solar projects in residential sector, the Ministry of New and Renewable Energy is providing financial support upto 30% of the benchmark cost in general category States/UTs and upto 70% of the benchmark cost in special category States/UTs. In such cases, indigenously manufactured PV modules are required to be used to avail financial support.

(b) In most of solar power projects the tariff is being discovered through a transparent bidding process and tariffs are quoted by the bidders after considering all factors. The Government has a focus on over all development of renewable energy sector which include grid management, development of green energy corridors, solar rooftop scheme, solar manufacturing etc.

(c) As on 27.12.2017, 883.64 MWp grid connected rooftop solar PV systems have been reported commissioned in the country.

(d) In order to reduce the cost of power generated by rooftop solar, the Ministry is providing financial support upto 30% benchmark cost in general category States/UTs and upto 70% of benchmark cost in special category States/UTs, to residential rooftop projects. Net-metering regulations/tariff orders have been issued by all states which would further enable rooftop solar scheme in residential sector.

#### **Efficient solar PV modules**

1741. DR. V. MAITREYAN: Will the Minister of NEW AND RENEWABLE ENERGY be pleased to state:

(a) whether Government has conducted any studies to find out impact of efficient, cost effective Solar PV modules and windstream technologies in generation of renewable energy in the country;

(b) if so, the details thereof and list of studies conducted and projects implemented annually in last three years, year-wise and State-wise;

(c) detailed list of Renewable Energy (RE) projects proposed and executed during last three years in installations/buildings of both Centre and State Governments/Private Institutes;

(d) whether Government has any plans to approve such new RE projects to make it mandatory for Government/Private sectors; and

(e) if so, details thereof?

THE MINISTER OF STATE OF THE MINISTRY OF NEW AND RENEWABLE ENERGY (SHRI RAJ KUMAR SINGH): (a) to (e) The Government has prescribed quality standards for solar modules being utilized in production of solar power and for wind equipment so as to ensure that the solar and wind energy equipment used are efficient.

State-wise details of Renewable Energy capacity commissioned, source-wise, year-wise during each of the last three years are given in the Statement (*See* below).

The Government has set up a target of installing Renewable Energy capacity of 175 GW by 2022 with 100 GW of Solar, 60 GW of Wind, 10 GW of Bio Mass and 5 GW of Small Hydro Projects. The Government has also laid down the bidding trajectory of 80 GW of solar and 29 GW of wind till 2019-2020 so as to achieve the target. The projects are taken up both in the Central and the State sector. Government has also laid down Renewable Purchase Obligation on distribution companies wherein all States have been obligated to purchase solar and non-solar power. Further, Renewable Generation obligations have been laid down for new coal and lignite based thermal power plants.