

GOVERNMENT OF INDIA  
MINISTRY OF NEW AND RENEWABLE ENERGY  
**LOK SABHA**  
**UNSTARRED QUESTION NO. 3635**  
TO BE ANSWERED ON 23.03.2017

**INVESTMENT FOR GENERATION OF SOLAR ENERGY**

3635. SHRI RAVINDRA KUMAR PANDEY:  
SHRI DIBYENDU ADHIKARI:

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

- (a) the total investment required for achieving the target to generate one lakh MW power through solar energy by the end of 2022;
- (b) the steps taken/proposed to be taken by the Union Government for the indigenous production of photovoltaic cells in the country and for imparting training in the field and for marketing of photovoltaic cells;
- (c) whether the batteries in which the power generated through solar cells is stored are very costly;
- (d) if so, the details thereof along with the steps proposed to be taken to bring down the prices of batteries; and
- (e) whether any alternative to the batteries is being developed in the country 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):** In order to achieve the target to generate one lakh MW power through solar energy by the end of 2022, the overall investment required would be around Rs. 6,00,000 crores @ Rs.6 crores per MW, at the present costs.

**(b):** Government of India is supporting indigenous production of solar cells/modules by way of incentives such as concession on custom duty on import of components of solar cells/modules, exemption on excise duty on manufacturing of solar cells/modules. Government has also been supporting solar manufacturing through a Modified Special Incentive Package Scheme (M-SIPS) of Department of Electronics & Information Technology (DeitY).

A short term training programme called Suryamitra Training Programme has been designed primarily for the skill development of unemployed youth in such a way that after training they could be engaged in installation, commissioning, operation, maintenance and repair of solar power projects.

**(c):** Yes Madam.

**(d):** At present, lead acid batteries are used to store the energy generated for solar photovoltaic for off-grid applications, which are of reasonable cost. However, the modern battery technologies such as Li ion, redox flow batteries are relatively very costly. Ministry of New & Renewable Energy (MNRE) has sanctioned five Research and Development (R&D) projects for development of efficient storage systems.

**(e):** Alternative storage systems in form of thermal storage (Thermal cast iron cavity receiver with heat storage); high Energy Density Thermal Energy Storage for Concentrated Solar Plant; Cylindrical conical thermal heat storage have been tried.

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