

GOVERNMENT OF INDIA  
MINISTRY OF NEW AND RENEWABLE ENERGY  
**LOK SABHA**  
**UNSTARRED QUESTION NO. 816**  
TO BE ANSWERED ON 28.04.2016

**NEW CAPEX FOR SOLAR PV PLANTS**

816. SHRI FEROZE VARUN GANDHI:

Will the Minister of New and Renewable Energy be pleased to state:

- (a) whether while determining the new CAPEX for Solar PV plants for financial year 2016-17, the Central Electricity Regulatory Commission (CERC) has assumed that module prices, land and mounting structures cost will remain the same;
- (b) if so, the details thereof and reasons therefor;
- (c) the manner in which the CERC manage the cost system as a result of increase of module prices in lieu of the lower level of domestication of solar PV modules and further contention in WTO;
- (d) the State-wise details of the land chosen to introduce and implement these projects for the solar energy production;
- (e) whether in lieu of increased import of steel, the CERC has assumed that the cost of mounting structures will not vary and the backup cost has been set aside in case of increase in the cost;
- (f) if so, the details thereof; and
- (g) the extent to which this cost Fluctuation may eventually result in stalling of projects and increase in the cost of project and details of safeguards put in place to ensure that eventually projects do not run into losses?

ANSWER

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

**(a):** No, Madam.

**(b):** A statement indicating the benchmark capital cost norm and its breakup for financial years 2015-16 and 2016-17 is given at Annexure I. The basis for arriving at the solar PV module cost, land cost and cost towards mounting structures has been explained in the Order dated 23.3.2016 of the Commission, the relevant extracts of which are given at Annexure-II, Annexure-III and Annexure-IV respectively.

**(c):** The issue was examined by the CERC while determining the benchmark capital cost for Solar PV projects for the year 2016-17. The relevant extract from the Order dated 23.3.2016 discussing the issue is given at Annexure II.

**(d):** Under the scheme of Solar Parks, 32 solar parks have been sanctioned and State-wise details covering the land chosen are given at Annexure-V. For other Solar power projects, the land is identified by the project developers.

**(e)&(f):** The issue was examined by the Commission while determining the benchmark capital cost for Solar PV projects for the year 2016-17. The relevant extract from the Order dated 23.3.2016 discussing the issue is given at Annexure-IV.

**(g):** Solar power projects are selected on transparent bidding basis and the CERC tariff is taken only as benchmark.

\*\*\*\*\*

**ANNEXURE-I REFERRED TO IN REPLYH TO PART (A) OF LOK SABHA UNSTARRED  
QUESTION NO. 816 FOR 28.4.2016**

<b>S.No.</b>	<b>Particulars</b>	<b>Capital Cost norm for FY 2016-17 (Rs. lakhs/MW), for Solar PV projects</b>	<b>Capital Cost norm for FY 2015-16 (Rs. lakhs/MW), for Solar PV projects</b>
1	PV Modules	328.39	332.35
2	Land Cost	25	25
3	Civil and General Works	35	50
4	Mounting Structures	35	50
5	Power Conditioning Unit	35	45
6	Evacuation Cost up to Inter-connection Point (Cables and Transformers)	44	55
7	Preliminary and Pre- Operative Expenses including IDC and Contingency	27.63	48.50
	<b>Total Capital Cost</b>	<b>530.02</b>	<b>605.85</b>

**ANNEXURE-II REFERRED TO IN REPLYH TO PART (a) OF LOK SABHA UNSTARRED  
QUESTION NO. 816 FOR 28.4.2016**

**Para 1 of CERC Order in Petition No. 17/SM/2015, dated 23.03.2016**

“ .....

**Analysis and Decision**

Several stakeholders have pointed out that assuming a drop of 11% in module prices might be unjustified, as the module prices have stabilized over last few months. Module price trends, starting April 2015, are as below:

Table1:Crystalline PV Module Costs

(All Figures in \$ per watt)

Country	Germany	Japan, Korea	China	Southeast-Asia, Taiwan
Apr-15	0.65	0.69	0.59	0.52
May-15	0.67	0.73	0.62	0.55
Jun-15	0.66	0.73	0.63	0.55
Jul-15	0.64	0.72	0.63	0.55
Aug-15	0.63	0.72	0.63	0.55
Sep-15	0.65	0.72	0.64	0.54
Oct-15	0.65	0.73	0.63	0.54
Nov-15	0.63	0.70	0.59	0.52
Dec-15	0.64	0.70	0.60	0.51
Jan-16	0.64	0.72	0.61	0.52

Source: pvXchange.com

Mercom has also reported stagnant prices for Chinese/Taiwanese modules for past several months in their newsletter. This sentiment has been echoed in stakeholder comments.

While the spot prices reflect short term market rates, for planned projects, it is a standard practice for developers to negotiate price and quantity ahead of time. However, given quality concerns and to ensure life of 25 years, we must consider Tier-1 module prices. Industry players such as Adani Power, Tata Solar, Welspun etc. have also suggested that module prices be considered at \$0.48/W. Thereby, the Commission sets module prices at \$0.48/W, assuming prices are expected to be fairly stable in the coming year.

**Regarding the domestic content requirement, the Commission would like to clarify that the present exercise of benchmark capital cost is for generic tariff and not for project specific projects. ”**



**ANNEXURE-III REFERRED TO IN REPLYH TO PART (A) OF LOK SABHA UNSTARRED  
QUESTION NO. 816 FOR 28.4.2016**

**Para 4 of CERC Order in Petition No. 17/SM/2015, dated 23.03.2016**

“.....

**Analysis and Decision**

It is understood that land costs vary from state to state and based on the particular location of the projects. However, it must be noted that typically land deployed for these projects is barren in nature. Additionally, land cost has been stagnant over the last financial year. Thus, the Commission retains the land cost at Rs. 25 lakhs/MW.”

**ANNEXURE-IV REFERRED TO IN REPLYH TO PART (A) OF LOK SABHA UNSTARRED  
QUESTION NO. 816 FOR 28.4.2016**

**Para 6 of CERC Order in Petition No. 17/SM/2015, dated 23.03.2016**

“.....

**Analysis and Decision**

..... The Commission feels that 40-45 MT of steel per MW is a good benchmark assumption for the amount of steel used in mounting structures, if based on cold rolled coil. For very strong wind conditions, one can assume 50 MT/MW at the high end of the spectrum. If based on hot rolled coil, the weight of the structure might be slightly higher. Price of hot or cold rolled coil as raw material for the c-channel may be assumed to be Rs. 41,500/ton on average\*, with an additional cost for galvanization and channel preparation. Price of finished structure may be assumed to be around Rs.60,000 - 70,000/ton. Thus, the cost of mounting structures, assuming 50 tons/MW, is determined to be Rs.35 lakhs/MW. The Commission retains the cost of mounting structures at Rs.35 lakhs/MW.”

\*Source: [http://www.sail.co.in/sites/default/files/buyers\\_notice/bilingual\\_eng\\_2.pdf](http://www.sail.co.in/sites/default/files/buyers_notice/bilingual_eng_2.pdf)

ANNEXURE-V REFERRED TO IN REPLYH TO PART (D) OF LOK SABHA UNSTARRED  
QUESTION NO. 816 FOR 28.4.2016

## List of Solar Parks approved

Sl. No.	State	Capacity (MW)	Land identified at
1.	Andhra Pradesh	1500	NP Kunta of Anantpuramu & Galiveedu of Kadapa Districts
2.	Andhra Pradesh	1000	Kurnool District
3.	Andhra Pradesh	1000	Galiveedu Madal, Kadapa district
4.	Andhra Pradesh	500	Talaricheruvu Village, Tadipatri Mandal, Anathapuramu District of Andhra Pradesh
5.	Arunachal Pradesh	100	Tezu township in Lohit district
6.	Assam	69	Amguri in Sibsagar district
7.	Chhattisgarh	500	Rajnandgaon, Janjgir Champa districts
8.	Gujarat	700	Radhanesda, Vav, Distt. Banaskantha
9.	Haryana	500	Bugan in Hisar district, Baralu and Singhani in Bhiwani district and Daukhera in Mahindergarh district
10.	Himachal Pradesh	1000	Spiti Valley of Lahaul & Spiti District
11.	Jammu & Kashmir	100	Mohagarh and Badla Brahmana, District-Samba
12.	Karnataka	2000	Pavagada taluk Tumkur dist.
13.	Kerala	200	Paivalike, Meenja, Kinanoor, Kraindalam and Ambalathara villages of Kasargode district
14.	Madhya Pradesh	750	Rewa, MP
15.	Madhya Pradesh	1000	Neemuch, Agar and Mandsaur

Sl. No.	State	Capacity (MW)	Land identified at
16.	Madhya Pradesh	500	Rajgarh and Shajapur
17.	Madhya Pradesh	500	Chhattarpur and Morena
18.	Maharashtra	500	Sakri, Dhule district of Maharashtra
19.	Maharashtra	500	Dondaicha, district Dhule, Maharashtra
20.	Maharashtra	500	Taluka Patoda, district Beed, Maharashtra
21.	Meghalaya	20	West Jaintia Hills & East Jaintia Hills districts
22.	Nagaland	60	Dimapur, Kohima and New Peren districts
23.	Odisha	1000	Balasore, Keonjhar, Deogarh, Boudh, Kalahandi and Angul
24.	Rajasthan	680	Bhadla Phase II, Bhadla, Rajasthan
25.	Rajasthan	1000	Bhadla Phase III, Bhadla, Rajasthan
26.	Rajasthan	750	Villages Ugraas, Nagnechinagar & Dandhu, tehsil Phalodi, dist Jodhpur (450 MW) and villages Lavan & Purohitsar, tehsil Pokaran, dist Jaisalmer (300 MW)
27.	Rajasthan	500	Bhadla Phase IV, Bhadla, Jodhpur Rajasthan
28.	Rajasthan (321 MW through support of Gol out of 1500 MW)	321	Fatehgarh & Pokaran, Jaisalmer, Rajasthan
29.	Telangana	500	Gattu, Mehboob Nagar Distt.
30.	Uttar Pradesh	600	Jalaun, Allahabad, Mirzapur and Kanpur Dehat districts
31.	Uttarakhand	50	Industrial Area, Sitarganj (Phase I), Industrial Area, Sitarganj (Phase II) and Industrial Area, kashipur



Sl. No.	State	Capacity (MW)	Land identified at
32.	West Bengal	500	East Mednipur, West Mednipur, Bankura
33.	<b>TOTAL</b>	<b>19400</b>	