



To

**PUNJAB STATE POWER CORPORATION LIMITED**

O/o CHIEF ENGINEER/ARR&TR, Regd. office: PSEB Head Office, The Mall Patiala-147001.

Tel.No.0175-2302531, Fax No.0175-2302416, email ce-arr-tr@pspcl.in

Corporate Identity Number: U40109PB2010SGC033813 Website: www.pspcl.in

Registrar,  
Punjab State Electricity Regulatory Commission,  
Chandigarh.

Memo. No. / TR-5 /967 Dated

Subject:

*Handwritten notes:*  
6/7  
VA (PUB)  
8.7.2020

Petition No. 08 of 2020 filed by PEDA under Section 62 of Electricity Act, 2003, Chapter VI of Conduct of Business Regulations and MYT Regulations 2014 read with other relevant provisions of the Electricity Act 2003 as well as regulations framed by this Hon'ble commission from time to time, for Determination of Levelised Generic Tariff in terms of Pradhan Mantri Kisan Urja Suraksha evam Utthaan Mahabhiyaan (PM-KUSUM) Scheme for setting up of grid connected solar power plants of individual capacity ranging between 500Kw to 2MW in the State of Punjab under Component-A of the ibid scheme for sale of solar power generated thereof to the DISCOM in the State of Punjab.

Please find enclosed reply on behalf of PSPCL in the subject cited petition for kind consideration of the Hon'ble Commission.

DA/ As above

*Handwritten signature and date:* 31/6/20  
Chief Engineer/ARR&TR  
PSPCL, Patiala

*Handwritten:* 5553  
30/6/2020

*Handwritten:* CC:- Punjab Energy Development Agency,

*Handwritten:* Plot No. 1 + 2

*Handwritten:* Sector - 33-D

*Handwritten:* Chandigarh

Punjab Energy Dev. Agency  
Chandigarh

Diary No. 1446

Date 6/7/2020

8

27

0

0

BEFORE THE PUNJAB STATE ELECTRICITY REGULATORY COMMISSION  
SCO 220-221, SECTOR 34-A, CHANDIGARH

PETITION NO. 8 OF 2020

IN THE MATTER OF:

Petition under Section 62 of Electricity Act, 2003, Chapter VI of Conduct of Business Regulations and MYT Regulations 2014 read with other relevant provisions of the Electricity Act 2003 as well as regulations framed by this Hon'ble Commission from time to time for determination of Levellised Generic Tariff in terms of Pradhan Mantri Kisan Urja Suraksha evam Utthaan Mahabhiyaan (PM-KUSUM) Scheme for setting up of grid connected solar power plants of individual capacity ranging between 500KW to 2MW in the State of Punjab under Component-A of the said scheme for sale of solar power generated thereof to the Distribution Company in the State of Punjab.

AND

IN THE MATTER OF:

Punjab Energy Development Agency,  
having office at Plot No. 1 and 2,  
Sector 33 D, Chandigarh

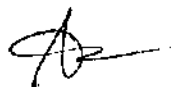
- Petitioner

REPLY ON BEHALF OF PUNJAB STATE POWER CORPORATION LIMITED (PSPCL) TO THE PETITION FILED BY PUNJAB ENERGY DEVELOPMENT AGENCY FOR DETERMINATION OF LEVELLISED FEED IN TARIFF BY THIS HON'BLE COMMISSION IN TERMS OF PRADHAN MANTRI KISAN URJA SURAKSHA EVAM UTTHAAN MAHABHIYAAN (PM-KUSUM) SCHEME FOR SETTING UP OF GRID CONNECTED SOLAR POWER PLANTS OF INDIVIDUAL CAPACITY RANGING BETWEEN 500KW TO 2MW IN THE STATE OF PUNJAB UNDER COMPONENT-A OF THE SAID SCHEME

MOST RESPECTFULLY SHOWETH:

1. The Petitioner - Punjab Energy Development Agency (hereinafter referred to as 'PEDA' or 'Petitioner' as the case may be) is the state nodal agency for implementation, promotion and development of

-1-



renewable energy programmes/projects and energy conservation programme in the State of Punjab.

2. PEDA has filed the present petition seeking determination of levelled feed-in tariff in terms of Pradhan Mantri Kisan Urja Suraksha Evam Utthaan Mahabhiyaan (hereinafter referred to as 'PM-KUSUM') Scheme for setting up of grid connected solar power plants of individual capacity ranging from 500KW to 2MW under Component-A of the said scheme.
3. Under Component-A of the PM-KUSUM Scheme, the Government of India has decided to setup 10,000 MW of Decentralized Ground/Stilt Mounted Grid Connected Solar or other Renewable Energy based Power Plants of individual plant size ranging from 500KW to 2MW to be setup by the individual farmers/ group of farmers/ cooperatives/ Panchayats/ Farmer Producer Organizations (FPO)/Water User Associations (WUA) in the entire country during the F.Y 2019-20. These plants are preferably to be installed within 5 Kilometer radius of the sub stations in order to avoid high cost of transmission lines and reduce transmission losses. The Ministry of New and Renewable Energy, Government of India has allocated a target of 30MW grid connected solar power plants to State of Punjab for setting up of 30MW capacity under component-A of PM-KUSUM Scheme
4. In terms of the Scheme, the renewable power generated will be purchased by the Distribution Company at a pre-fixed levelised generic tariff. The Distribution Company shall sign a PPA for 25 years from the Commercial Operation Date (COD) of the project. The total energy purchased from these RE plants will be accounted for fulfillment of RPO by PSPCL. A draft of the PPA to be entered into has been provided along with the Scheme.

*[Handwritten signature]*

5. Punjab State Power Corporation Limited (hereinafter referred to as 'PSPCL') is undertaking the generation and distribution of electricity in the State of Punjab and is a distribution licensee under the provisions of the Electricity Act, 2003. The present Petition has been filed for the determination of levellized tariff payable by PSPCL to the agricultural farmers for the solar project set up. Therefore, PSPCL is a necessary party to the present Petition.

6. In Para 19 of the Petition, PEDA has proposed the normative parameters for the solar power plants to be setup under PM-KUSUM scheme as under:

• Capacity	=	1MW
• Aux. Consumption	=	0%
• <u>CUF</u>	=	<u>17.14% (As per existing projects)</u>
• Capital cost	=	Rs. 3,40,00,000/-
• Debt 70%	=	Rs. 2,38,00,000/-
• Equity 30%	=	Rs. 1,02,00,000/-
• Interest Rate	=	10.41% (as per CERC order 2019-20)
• Loan Moratorium	=	0 years
• Loan term	=	13 years
• Depreciation 1 to 13 years	=	5.28% ( as per CERC order 2019-20)
• Depreciation 14 to 25 years	=	1.78%
• Income tax	=	15% (as per finance bill 2020)
• O & M for 1 <sup>st</sup> year	=	4.50 (As per RERC)
• O & M Escalation	=	5.72% (as per CERC 2019-20)
• Discount rate	=	9.36% (as per CERC 2019-20)
• ROE	=	16.47% (as per Calculations attached)
• Life and tariff period	=	25 years

7. PSPCL wishes to place on record its specific comments as regards the Capacity Utilization Factor (CUF) and Depreciation as under:

**A. CAPACITY UTILIZATION FACTOR (CUF)**

8. PEDA has proposed a CUF of 17.14% on the basis of the data derived from 43 small capacity (1 to 4 MW) IPP solar power plants which were setup in Punjab during 2014 to 2017. (Annexure P-5 to the Petition)
9. As opposed to a CUF of 17.14%, based on the data pertaining the years 2014-2017, PSPCL submits that this Hon'ble Commission should consider the CUF as prevalent, as on date. In this regard, PSPCL would crave leave to refer the following Regulations/orders passed by the various Commissions for the FY 2019-20/FY 2020-21 -

(a) Central Electricity Regulatory Commission (Terms and Conditions for Tariff determination from Renewable Energy Sources) Regulations, 2020 (hereinafter referred to as 'RE Regulations, 2020') issued by the Central Electricity Regulatory Commission which shall come into force on 1.7.2020:

***Chapter 7: Parameters for solar PV power projects, solar thermal power projects and floating solar projects***

***46. Capital Cost***


*The Commission shall determine only project specific capital cost considering the prevailing market trends.*

***47. Capacity Utilisation Factor***

*The Commission shall only approve capacity utilisation factor for project specific tariff:*

*Provided that the minimum capacity utilization factor for solar PV power projects shall be 21%:*

*Provided further that the minimum capacity utilization factor for solar thermal power projects shall be 23%:*

 -4-

*Provided also that the minimum capacity utilisation factor for floating solar projects shall be 19%.*

A copy of the RE Regulations, 2020 is attached hereto and marked as Annexure A.

In its Explanatory Memorandum to the Draft RE Regulations, 2020 issued by the Central Commission in May, 2020, the reasons for determining the Solar PV CUF at 21% have been stated as under:

### **5.5.2 CAPACITY UTILISATION FACTOR**

#### **Solar PV Project**

*The Commission in its RE Tariff Regulations, 2009 specified the Capacity Utilisation Factor for Solar PV project at 19%. Similarly, the Commission in its RE Tariff Regulation, 2012 specified the Capacity Utilisation Factor for Solar PV project at 19%. The existing provisions regarding Capacity Utilisation Factor parameters for Solar PV Power Project in RE Tariff Regulations, 2017 are mentioned below:*

*"53. Capacity Utilisation Factor*

*The CUF for Solar PV project shall be 19%."*

*The Commission analysed CUF of Solar PV Power Projects funded during last three years and is given in Table below:*

**Table 35- Analysis of Actual CUF of Solar Power Plants**

Size	No. of Projects	CUF (%)
Up to 10 MW	17	16%-27%
>10MW to 50 MW	32	17%-28%
>50MW to 100 MW	17	18%-29%
>100MW to 150 MW	3	23%-29%
>150MW	9	19%-28%

*Source: Data received from IREDA and PFC*

*The Commission observes that the prevailing market trend of CUF has been in the range of 21% and above. In view of the*

*A*

- 5 -

above, the Commission proposes the minimum CUF norm for Solar PV power project as 21%.

The relevant extracts of the Explanatory Memorandum are attached hereto and marked as Annexure B.

(b) Order dated 20.12.2019 issued by the Haryana Electricity Regulatory Commission determining the tariff for purchase of power by Discoms from decentralized Solar Power Plants:

*The Commission has perused the aforesaid regulations and observes that with advancement in technology and continuous improvement in the efficiency of the solar modules including capability to generate power even in diffused sunlight, the CUF has also witnessed improvement. Hence, for the limited purpose of working out levelized tariff in the present Order, the Commission has considered CUF of 20%.*

A copy of the Order dated 20.12.2019 issued by the Haryana Electricity Regulatory Commission is attached hereto and marked as Annexure C.

10. In light of the above, PSPCL submits that the Technological enhancement and material upgradation has drastically improved the efficiency of the solar panels which is clearly reflected in the RE Regulations, 2020 notified by the Central Commission, which has enhanced the minimum CUF to 21 % in case of solar PV power projects
11. When PEDDA is itself relying on parts of the Central Commission Order, it should rely on the Regulations which are prevailing and not the Orders whose control period has expired. There is no reason why for

*AC*

*-6-*



CUF, PEDDA has not considered as guidelines, the Regulations of Central Commission.

12. In this regard, Section 61(a) of the Electricity Act, 2003 prescribes as under:

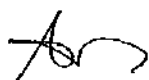
*Section 61. (Tariff regulations): The Appropriate Commission shall, subject to the provisions of this Act, specify the terms and conditions for the determination of tariff, and in doing so, shall be guided by the following, namely:-*

*(a) the principles and methodologies specified by the Central Commission for determination of the tariff applicable to generating companies and transmission licensees;*

13. In the past also, this Hon'ble Commission has been pleased to determine the generic tariff of RE Projects as per the Regulations notified by the Central Commission from time to time. Reference in this regard may be made to the Staff Paper issued by this Hon'ble Commission for determination/ Fixation of levellised generic Tariff for various Renewable Energy Technologies / Projects for FY 2018-19:

*Keeping the above in view, it is proposed to consider the adoption of the levellised generic tariff for RE Projects for FY 2018-19 as determined by CERC in its Order dated 28.03.2018 in Petition no. 02/SM/2018 (Suo-Motu). In that case, the levellised generic tariff, as determined by CERC for the State of Punjab, for various RE Technologies i.e. Biomass based Power Projects, Biomass Gasifier Power Projects, Biogas based Power Projects, Small Hydro Power Projects and Non-Fossil fuel based Co-Generation Projects shall become applicable. For other technologies such as Solar PV, Solar Thermal, Wind, MSW and RDF based projects, project specific tariff shall be determined as provided in the CERC RE Regulations, 2017.*

A copy of the Staff Paper issued by this Hon'ble Commission is attached hereto and marked as Annexure D



-7-

14. Further, the Draft PPA circulated alongwith the Scheme defines CUF as '*shall have the same meaning as provided in CERC (Terms and Conditions for Tariff determination from Renewable Energy Sources) Regulations, 2009 as amended from time to time; .....*'
15. Therefore, the CUF should be taken as 21% - 27% as per the latest Regulations issued by the Central Commission.

#### B. DEPRECIATION

16. As regards the rate of depreciation, PEDA has proposed as under:
- (a) Depreciation 1 to 13 years = 5.28%
  - (b) Depreciation 14 to 25 years = 1.78%
17. PSPCL submits that the depreciation rate should be considered as 4.67% per annum for the first 15 years and the remaining depreciation to be evenly spread during remaining Useful Life of the project, in terms of the RE Regulations, 2020 notified by the Central Commission. Accordingly, the rate of Depreciation to be considered by this Hon'ble Commission should be as under:
- (a)(Depreciation (1 to 15 years =4.67%)
  - (b) (Depreciation 16 to 25 years =1.9%)
18. In regard to the above, Regulation 15 of the RE Regulations, 2020 reads as under:

*i) The value base for the purpose of depreciation shall be the capital cost of the project admitted by the Commission. The salvage value of the project shall be considered as 10% and depreciation shall be allowed up to maximum of 90% of the capital cost of the project:*

- 8 -

