

PUNJAB STATE ELECTRICITY REGULATORY COMMISSION
SITE NO. 3, BLOCK B, SECTOR 18-A MADHYA MARG, CHANDIGARH

Petition No. 07 of 2020
Date of Order: 15.10.2020

Petition under Section 62 of the 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 the Commission from time to time, for Determination of Levellised feed in Tariff in terms of Pradhan Mantri KisanUrja Suraksha evam Utthaan Mahabhiyaan (PM-KUSUM) Scheme for Solarisation of 3900 Grid connected agriculture pumps in the State of Punjab under Component –C of the ibid scheme, for sale of surplus power generated by solar PV array of 4 KW for 3 HP capacity Pump,7KW for 5 HP and 10 KW for 7.5 HP grid connected agriculture pumps after meeting power requirements for irrigation of agriculture land.

AND

In the matter of: Punjab Energy Development Agency, having its office at Plot No. 01 and 02, Sector 33-D, Chandigarh.

.. Petitioner

Present: Ms. Kusumjit Sidhu, Chairperson
Ms. Anjuli Chandra, Member

ORDER

- 1.1. Punjab Energy Development Agency (PEDA), the state nodal agency for promotion and development of renewable energy programmes/projects and energy conservation programme in the state of Punjab, has filed the present petition for determination of Levellised Generic Tariff in terms of The Pradhan Mantri Kisan Urja Suraksha evam Utthaan Mahabhiyaan (PM-KUSUM) Scheme for Solarisation of 3900 Grid connected agriculture pumps in the State of Punjab under Component –C of the ibid scheme, for sale of surplus power generated by solar PV array of 4 KW for 3 HP capacity Pump, 7KW for 5 HP and 10 KW for 7.5 HP grid connected agriculture pumps after meeting the power requirements for irrigation of agriculture land.
- 1.2. The Commission vide Order dated 10.07.2020 inquired from PSPCL whether it was ready to purchase the power under KUSUM Scheme at the tariff determined by the Commission. PEDA was directed to submit a copy of the letter of Govt. of Punjab referred to during hearing. PEDA submitted a copy of the sanction given by Govt. of Punjab for setting up Solar Pump set as per component-C of the PM-KUSUM Scheme. PSPCL filed an additional affidavit vide memo No. 5468 dated 28.07.2020 and PEDA filed its rejoinder thereto on 04.08.2020. The Petition was admitted vide Order dated 10.08.2020. PEDA was directed to issue a public notice inviting objections/suggestions from the public/stakeholders. The public notice was published by PEDA on 12.08.2020 in 'The Tribune' (English), 'Hindustan Times' (English) and Punjabi Tribune. The last date for submission of objections was fixed as 15 days from the date of publication of the notice. In response to the

public notice three objections were received. The petition was taken up for hearing/public hearing on 27.08.2020 and the objections raised by Sh. Kuljit Singh Nagra, MLA, Punjab, Sh. B.S. Rajewal, BKU and Sh. M.S. Randhawa, President, Farmers Association, during the public hearing through video conference were heard. PEDDA was directed to submit its reply to the objections with a copy to PSPCL. PEDDA was also asked to submit its calculation of rate per unit under the PM-KUSUM Scheme. Further, PSPCL was directed to file its reply to the information/calculation submitted by PEDDA alongwith its comments on the issue of capacity utilization factor with a copy to PEDDA. The petition was fixed for hearing on 16.09.2020.

- 1.3 PEDDA, vide letter dated 31.08.2020, submitted the calculation sheets for component A and C of PM-Kusum Scheme alongwith replies of objections raised by the stakeholders during the public hearing. PSPCL submitted its reply vide Memo No. 5763/TR-5/966 dated 14.09.2020. PEDDA filed rejoinder dated 22.09.2020 requesting to consider all the parameters of CERC regulations while deciding the tariff. The Petition was taken up for hearing on 16.09.2020 and after hearing the parties Order was reserved vide Order dated 18.09.2020.

2.0 PEDDA'S Submissions:

- 2.1. As per the sanction rendered by Government of India vide order dated 20.09.2019 issued by Ministry of New and Renewable Energy, the State of Punjab has been given a target of solarisation of 3900 Grid connected agriculture pumps. The Order provides that PEDDA shall carry out various activities as provided under the section – Responsibilities of the State implementation agency under component – C of the

Guidelines including creating awareness about the scheme. PEDDA has been appointed as the State implementation agency for the ibid scheme in the State of Punjab and is responsible for the successful implementation of the PM-KUSUM Scheme in the State of Punjab. The scheme also provides for the implementation and commissioning of the projects within a specified timeline.

- 2.2. Under component–C of the PM-KUSUM Scheme, it has been provided that the individual farmers having grid connected agriculture pump will be supported to solarise their pumps. Solar PV capacity of upto twice the pump capacity in kW is allowed under the scheme. However, the State may specify a lower solar PV capacity in kW, which in any case shall not be less than pump capacity in HP e.g. for 5 HP pump, the solar PV capacity allowed should not be less than 5 kWp and may go up to 7.5 kWp (1HP- 0.75 kW). Under the scheme the respective State has been given the prerogative to specify the solar PV capacity vis-à-vis the pump capacity. Accordingly, PEDDA being the State implementation agency under the scheme as well as nodal agency under NRSE policy notified by Government of Punjab has decided to allow setting up of solar PV array of 4 kW for 3 HP capacity Pump, 7 kW for 5 HP and 10 kW for 7.5 HP grid connected agriculture pumps.
- 2.3. The scheme provides that the farmer will be able to use the generated solar power to meet his irrigation needs and the excess solar power will be sold to DISCOMs. It will be mandatory to use indigenously manufactured solar panels with indigenous solar cells and modules. Further, the rest of the system should also be manufactured indigenously.

- 2.4. The scheme stipulates that Central Financial Assistance (CFA) of 30% of the benchmark cost or the tender cost, whichever is lower, of the solar PV component will be provided by Government of India and the State Government will give a subsidy of 30% and the remaining 40% will be invested by the farmer. Further, the CFA will be limited to Solar PV capacity up to two times of pump capacity in kW for pumps up to 7.5 HP. Solarisation of Pumps of capacity higher than 7.5 HP may be allowed. However, the CFA will be limited to the CFA applicable for pump of 7.5 HP in the respective State/UTs.
- 2.5. Bank finance may be made available for the farmer's contribution, so that farmer has to initially pay only 10% of the cost and the remaining amount up to 30% of the cost as loan.
- 2.6. The Scheme provides that the model will help to create an avenue for extra income to the farmers, and enable the DISCOMs to meet their RPO targets. Both the solar power fed into the Grid and the solar power utilized by farmer will be taken into account for fulfillment of Solar RPO by the DISCOM.
- 2.7. The DISCOM may adopt any of the modalities for solarisation of pumps viz, (i) Net-metering: in this case the agriculture pump will continue to run at rated capacity taking power from solar panels and balance power from grid, if required, and in case solar power generation is higher than required by pump, the additional solar power would be fed to the grid; (ii) Pump to run on solar power only: in this case the pump will run on solar power as in case of stand-alone off grid solar pump and no power will be drawn from the grid for operation of pump. In case solar power generation is higher than that required by the pump, the additional solar

power would be fed to the grid.

- 2.8. It has been mandated that the DISCOMs will purchase excess power from the farmer at the rate decided by the respective SERC. Directions have been rendered to the DISCOMs that it will ensure “must-run” status to the solarised feeders and will keep such feeders ‘ON’ during sunshine hours of a day.
- 2.9. PEDDA has stated that the scheme shall be beneficial not only for the farmers to whom the projects shall be allotted, it shall also be of great benefit to the DISCOM. It will also act as a boon to the entire State, as it will reduce the cross subsidy burden on other consumers and the agriculture subsidy burden of GOP. The solar power purchased by the DISCOM and utilized by the pump set, will be accounted towards the fulfillment of solar RPO by the DISCOM.
- 2.10. As per provisions of the Electricity Act 2003, the Commission is empowered to determine the tariff for the sale of power by a generating company to a distribution licensee
- i. Ministry of New and Renewable Energy, Government of India has fixed the benchmark cost of the solar PV systems for agriculture pumps at Rs. 54 per watt. The benchmark cost of 3 HP grid connected agriculture pump with 4 KW solar PV array, 5 HP with 7kW and 7.5 HP with 10kW solar PV array works out to be Rs. 2,16,000/-, 3,78,000/- and 5,40,000/- respectively.
 - ii. PEDDA at its own level on the basis of the technical knowhow and the information gathered from the solar pump developers, has worked out the cost for solarisation of 7.5HP pump through 10kW

Solar PV array as Rs. 4,10,000/- and the cost of 3 & 5 HP pumps shall be in proportion thereof.

2.11. PEDDA has also stated that Rajasthan Electricity Regulatory Commission (RERC) has finalized the tariff for sale of solar power under PM-KUSUM Scheme vide order dated 11.02.2020, in which they have taken 20% CUF and Rs. 4.50 lacs/MW (Rs. 4500 per pump of 10kW) as O&M cost whereas as per CERC 2016-17 order (last determined tariff by CERC), O&M is Rs. 7 lacs / MW and CUF is 19%. Solar insolation in Punjab is less than Rajasthan and accordingly CUF for Punjab has been proposed as 18% whereas O&M has been taken as per RERC. Other parameters are as per CERC order for FY 2019-20 which are required for determination of the tariff qua the projects under reference.

2.12. The Proposal with the above parameters was sent to PSPCL for concurrence, PSPCL vide e-mail dated 18.02.2020 has sent its comments for incorporating in the proposal. The comments of PSPCL and PEDDA's views are as under:

- a. PSPCL has proposed the rate of depreciation at 5.28% for first 13 years and 1.78% for the next 14 to 25 years.

PEDDA's response was that this can be adopted if debt equity ratio is 70:30. However, since in this case the debt is 75% and equity is 25% on actual basis, as such PEDDA proposes to adopt Debt equity as per actuals.

- b. Further, PSPCL has proposed a CUF of 19% in line with CERC Regulations.

PEDA responded by stating that as per information collected by PEDA 43 small capacity (1 to 4 MW) IPP solar power plants were setup in Punjab during 2014 to 2017 and 17.14% CUF has been derived from the power sold by 27 Nos. solar power plants having CUF more than 15% during FY 2017-18 & FY 2018-19 as per true up data submitted by PSPCL to PSERC in the ARR for 2019-20 and 2020-21. These plants of aggregate capacity 59.50 MW had generated 88.49 MU with cumulative CUF of 16.98% during FY 2017-18 and 85.66 MU with cumulative CUF of 16.43% during FY 2018-19. Degradation of 1% per year has been taken and is applied with which the CUF of the commissioning years works out to be 17.26% for the projects based on power purchased by PSPCL during FY 2017-18 and 17.01% for the projects based on power purchased by PSPCL during FY 2018-19. The aggregate CUF of both the years works out to be 17.14%.

- c. PSPCL has considered Return on Equity with 15% Income Tax. PEDA's view is that the said proposal is applicable only to new companies to be formed for setting up NRSE projects whereas the present proposal is for individual farmers and formation of company for individual pump is neither envisaged nor applicable here. Therefore, the ROE has been kept same as per CERC/PSERC order for FY 2019-20 i.e. 17.60%.

2.13. Government of India and Government of Punjab are to provide 30% subsidy each on installation of 3, 5 & 7.5 HP grid connected solar pumps. The investment of the farmer for 7.5 HP solar pump would be 40% i.e. Rs. 1,64,000/- and for 3 & 5 HP the investment would be in

proportion thereof.

2.14. The proposed normative parameters for pump and solar PV array submitted by PEDDA are as under by PEDDA:-

- Capacity = 7.5 HP / 10kW
- CUF = 17.14%
- Total cost = Rs. 4,10,000/-
- Farmer Investment = Rs. 1,64,000 (40% of total cost)
- Debt 75% = Rs. 1,23,000/- (30% of total cost)
- Equity 25% = Rs. 41,000/- (10% of total cost)
- Interest Rate = 10.41%(as per CERC order 2019-20)
- Loan Moratorium = 0 years
- Loan term = 13 years
- Depreciation 1 to 13 years = 5.77%
- Depreciation 14 to 25 years = 1.25%
- Income tax = 29.12%
- Income tax MAT = 20.46%
- O & M for 1 to 5 years = 0% (5years AMC by EPC)
- O & M for 6 to 25th years = 0.063 lacs/ 10 kW
(Rs 4.50 lakh/MW as per RERC 2019-20 for 1st year further escalated @ 5.72% per year)
- O & M Escalation = 5.72%
- Discount rate = 9.36% (as per CERC order 2019-20)
- ROE = 17.60% (as per CERC order 2019-20)

- Life and tariff period = 25 years

2.15. In view of the provisions of PM-KUSUM scheme, the farmer will run the pump on solar power only and will sell the surplus power to PSPCL at the tariff to be determined by the Commission. As such the contribution of farmer towards the project and net power to be sold to PSPCL are proposed to be considered to work out the tariff.

2.16. That PEDA has to call bids from the companies for solarisation of grid connected pumps after selection of agriculture feeders by PSPCL and receipt of 30% funds from the State Government.

2.17. PEDA made the following prayer before the Commission

- i) Determine levelled feed in tariff in terms of Pradhan Mantri Kisan Urja Suraksha Evam Utthaan Mahabhiyaan (PM-KUSUM) Scheme for Solarisation of 3900 Grid connected agriculture pumps in the State of Punjab under Component –C of the ibid scheme, for sale of surplus power generated by solar PV array of 4 kW for 3 HP capacity Pump, 7 kW for 5 HP and 10 KW for 7.5 HP grid connected agriculture pumps after meeting power requirements for irrigation of agriculture land;
- ii) Pass any other order or grant any other relief in favor of the petitioner in the facts and circumstances of the instant case.

3.0 Stakeholders' objections/submission:

3.1 Sh. Deep S Brar requested that the tariff of Rs. 4.50 per kWh be fixed for ensuring good return to the farmers. Sh. Gurbaj Brar and Sh. Amit Kamboj requested the tariff to be fixed at Rs. 4.40/kWh and Rs. 4.35/kWh respectively. All the three submitted that since the farmers

have meager resources which will be invested in this project, hence in order to complement their investment the tariff should ensure a good return on the same.

4.0 PEDDA's reply to objections:

- 4.1. In reply to the said objections PEDDA stated that the tariff needs to be decided on the basis of different parameters and CUF may be taken on actual basis as mentioned in the petition submitted by it. It has been submitted by PEDDA that this scheme will provide a source of income for the farmer in addition to his agricultural income and therefore should be encouraged to strengthen the rural economy.

5.0 PSPCL's Submissions:

- 5.1. PSPCL vide Memo No. 5763/TR-5/966 dated 14.09.2020 submitted the detailed calculation for levellised solar tariff under component C of KUSUM Scheme. PSPCL submitted that as per latest norms and parameters the levellised tariff for 25 years works out to Rs. 2.08/kWh.
- 5.2. Further, PSPCL submitted that it had given its concurrence for implementation of the PM-KUSUM Scheme in the Meetings held on 12.06.2019 and 20.06.2019 under the chairmanship of Principal Secretary, New and Renewable Energy Sources, Govt. of Punjab, subject to the scheme being economically viable and beneficial to all the stakeholders. The relevant extracts from the Minutes of the Meetings reads as under:

Component C (Grid Connected Pumps) – it was decided that 50,000 grid connected pumps shall be solarized subject to that the scheme is economically viable and beneficial for farmers, GoP and PSPCL.

.....

The salient features of techno commercial analysis for a single 7.5 HP Grid connected solar pump is as under –

Sale Tariff = Rs 2.50/KWh

.....

Benefit to PSPCL = Power purchase at much lower rate of Rs 2.50/KWH at 11kW as compared to solar power now being purchased by PSPCL @ Rs 2.66/kWh from outside the State at the border on 400/220kV.

*The Committee observed that the above proposal is economically viable and beneficial for the farmers. GOP and PSPCL as the farmers earn income of Rs 20,600/annum from sale of surplus power to PSPCL and AP subsidy burden on GOP reduces after payback period of 5.25 years and **PSPCL gets power at a much lower rate of Rs 2.50/kWh at 11kW reducing the T&D losses.** The officers of PSPCL gave their concurrence for implementation of the Scheme and decided that PEDDA may send the targets to MNRE, Gol for approval.*

Therefore, as far back as June, 2019, PSPCL had stated that the scheme is implementable, subject to a ceiling tariff of Rs 2.50/KWh

- 5.3. PSPCL submitted that in its Rejoinder dated 04.08.2020, PEDDA has admitted that the Petition was filed in the last quarter of FY 2019-20, as per the rates prevalent at the relevant time and as per the CERC RE Regulations, 2017. Subsequently, the norms and parameters have been revised by the Central Commission and the same have been incorporated in the CERC RE Regulations, 2020 notified on 23.06.2020 and the Order dated 21.07.2020 in Petition No. 13/SM/2020. PEDDA has admitted that the implementation process of the Scheme shall be

completed only by December, 2020, the Solar Projects shall be commissioned only in FY 2021-22 and FY 2022-23. Therefore, the latest norms, parameters and technology, as prevalent on the present date should form the basis of the computation of the tariff by the Commission.

- 5.4. PSPCL further submitted that as per Regulation 12 of the CERC RE Regulation 2020, for project specific tariff where equity deployed is less than 30% of the capital cost, the actual equity shall be considered for determination of tariff. Therefore, along with change in Debt: Equity ratio to 70:30, the depreciation factor correspondingly changes from 4.67% to 5% for the first 15 years and 1.5% for the rest of the useful life of the project.
- 5.5. Further, as per PSPCL's submission the Capacity Utilization Factor (CUF) should be considered as 21%, as per latest data available and incorporated by the Central Commission in its RE Regulations, 2020. Earlier PSPCL had sought a CUF of 19%, however, PSPCL has now submitted that the latest data as regards the CUF became available only in June/July, 2020. Uptil then, the prevalent norms were as notified by the Central Commission for FY 2019-20 and as adopted by the Commission. Rebutting, PEDDA's reliance on the data pertaining to the years 2014-17 to claim a CUF of 17.14%, PSPCL stated that there have been significant advancement in the Solar PV technology leading to a higher CUF in recent times. The size/capacity of the Plant does not have a significant impact on the CUF. As is evident from the data produced by PEDDA, there is a marginal difference in the CUF on account of the capacity of the Plant.

- 5.6. PSPCL submitted that annual income of Rs. 20,600/- per annum is not taxable for the farmers and no income tax is payable. The details of the savings in tariff on account of the CUF and Income Tax implications are as under:

Table:1 Details of savings in tariff submitted by PSPCL

Sr. No.	Parameters	PEDA	PSPCL	Impact
1	CUF	17.14%	21%	-0.89 Rs.(decrease)
2	Income tax	15%	0%	-0.11 Rs.(decrease)

6.0 Commission's Analysis and Decision:

The Commission on the basis of the submissions made by PEDA and PSPCL and after considering the objections and suggestions of objectors/stakeholders, decides as under:

- 6.1. The Commission vide Suo-Motu Order dated 18.09.2020 in Petition No. 26 of 2020 has adopted the Central Electricity Regulatory Commission (Terms and Conditions for Tariff determination from Renewable Energy Sources) Regulations, 2020 with State specific amendment in respect of CUF for small hydro projects and accordingly determined the levelled generic Tariff for various Renewable Energy Technologies/ Projects for FY 2020-21. These Regulations are applicable from the date of the Order i.e. 18.09.2020.
- 6.2. PEDA vide submission dated 31.08.2020, has given the calculation of Rs. 3.18 per kWh, based on the revised assumptions. Further, considering the gross generation of 15025 units (with CUF of 17.14%), PEDA has assumed self-consumption of 7000 units per year by the farmer and the remaining 8025 Units per year have been considered for sale to PSPCL. PSPCL has also considered the self consumption of

7000 units per year by the farmer but due to higher gross generation of 18409 Units (CUF 21%), the net sales to PSPCL have been worked out to 11409 Units per year.

6.3. The Commission has observed the following points in the calculations of levelled tariff submitted by PEDDA:

- i) The loan term as per CERC Regulations is 15 years and the same has been considered by PEDDA, however, while calculating interest on long term loan the same has been worked out for 13 years instead of 15 years
- ii) Similarly, PEDDA has worked out depreciation for the first 13 years instead of the first 15 years at 5%.

6.4 The capital cost has been considered as Rs. 1.64 Lakh/MW after taking into account the capital subsidy to be provided by MNRE (30%) and Government of Punjab (30%) as submitted by PEDDA in its Petition and by PSPCL in its submission dated 14.09.2020. The Commission has considered the financial and operational parameters as per PSERC Regulations (CERC RE Regulations, 2020 as adopted) while determining the solar PV tariff in this petition except for three minor variations, which have been allowed as, explained hereinafter i,ii,iii.

- i. **Corporate Tax/MAT and Grossing up of ROE:** PSERC Regulations 2020 (as adopted) specify that the normative Return on Equity shall be grossed up by the latest available notified Minimum Alternate Tax (MAT) rate for the first 20 years of the Tariff Period and by the latest available notified Corporate Tax rate for the remaining Tariff Period. Since the individual farmers do not fall under the purview of either MAT or Corporate Tax, the

Commission has grossed up the normative equity of 14% with Income Tax of 18.33% as proposed by PEDDA in its Petition.

- ii. **O&M Expenses:** As per the guidelines for KUSUM scheme under component C, selected vendors will mandatorily provide AMC for a period of 5 years from the date of commissioning of the systems including insurance coverage for the installed systems against natural calamities and theft. The normative O&M expenses for FY 2020-21 have been considered as 0.045 Lacs/10 kW. In line with the guidelines of the scheme, the O&M expenses for first 5 years have been considered as NIL. From the 6th year onwards, the O&M expenses have been considered after applying escalation rate of 3.84% on the normative O&M expenses in line with PSERC Regulations, 2020 as adopted.
- iii **AP Consumption:** Based on the AP consumption and load data for the past 4 years, the average AP consumption works out to 6689 kWh as per Tariff Orders. Both PEDDA and PSPCL have considered AP consumption (Self consumption by farmer) as 7000 kWh per annum. The Commission for the purpose of this Petition also considers the yearly AP consumption equivalent to 7000 kWh in line with PEDDA and PSPCL's submission. Since, the farmers gets free power for agricultural consumption, the same (7000 kWh) has been accounted for in the tariff calculation. Accordingly, sale to PSPCL works out to 0.01127 (0.0183-0.007) MU.

6.5 The financial and operational parameters are as hereunder:

Table 2: Financial and Operational Parameters

Sr. No	Particulars	As per PEDA Petition	As per PEDA submission dated 31.08.2020	As per PSPCL submission dated 14.09.2020	PSERC Regulations (As per CERC Regulation 2020)
1	Capacity	10kW	10 kW	10kW	10 kW
2	Aux. Consumption	0.00%	0.00%	0.00%	0.75%
3	Capacity Utilization Factor(CUF)	17.14%	17.14%	21%	21%
4	Capital Cost(Rs.)/10kW	1.64 Lacs (40% of Capital Cost of Rs. 4.10 Lacs)	1.64 Lacs (40% of Capital Cost of Rs. 4.10 Lacs)	1.64 Lacs (40% of Capital Cost of Rs. 4.10 Lacs)	1.64 Lacs (40% of Capital Cost of Rs. 4.10 Lacs)
5	Debt Ratio	75%	75%	75%	70%
6	Equity Ratio	25%	25%	25%	30%
7	Debt(Rs.)	1.23 Lacs	1.23 Lacs	1.23 Lacs	1.15 lacs
8	Equity(Rs.)	0.41 Lacs	0.41 Lacs	0.41 Lacs	0.49 lacs
9	Interest rate on term loan	10.41%	9.67%	9.67%	9.67%
10	Loan Moratorium period	0 years	0 years	0 years	0 years
11	Term of Loan	13 years	13 years	15 years	15 years
12	Depreciation upto	90%	90%	90%	90%
13	Depreciation	5.77% (upto 13 years)	5.00% (upto 13 years)	5.00% (upto 15 yrs)	4.67% (upto 15 yrs)
		1.25%	1.50% (after 13 years)	1.50% (after 15 yrs)	2% (after 15 yrs)
14	Rate of Income Tax	20.46%	Normal Tax- 18.33% MAT-0%	0%	*Income Tax- 18.33%
15	O&M for 1st year to 5 th year	NIL	NIL	NIL	*NIL
16	O&M for 6 th year to 25 th year	0.063 Lacs/10kW	0.06283 Lacs/10 kW	0.5430 Lacs/10kW	*0.5430 Lacs/10kW
17	O&M Escalation	5.72%	3.84%	3.84%	3.84%
18	Interest rate (Working Capital)		0.00%	0.00%	11.17%
19	Discount rate	9.36%	8.61%	8.61%	9.73%

Sr. No	Particulars	As per PEDA Petition	As per PEDA submission dated 31.08.2020	As per PSPCL submission dated 14.09.2020	PSERC Regulations (As per CERC Regulation 2020)
20	ROE for 1 to 20 years	17.60%	17.14% (after grossing up with income tax @ 18.33%)	14.00%	*17.14% (after grossing up with income tax @ 18.33%)
21	ROE from 21st to 25th years				
22	Life and Tariff Period	25 years	25 years	25 years	25 years
23	Gross Generation (kWh)		15025	18409	18409
24	Auxiliary Consumption (kWh)		0.00	0.00	138.065
25	Net Generation (kWh)		15025	18409	18270.536
26	Self-Consumption by Farmer (kWh)		7000	7000	7000
27	Sale to PSPCL (kWh)		8025	11409	11270.536

**As explained in Para 6.4(i) and 6.4(ii)*

6.6 Based on the above normative parameters and determinants the solar tariff works out to Rs.1.405 per kWh. The details of same are attached as Annexure-A. However, after deducting the farmers own consumption from the net generation and considering only the sale to PSPCL, the levellised tariff for 10 kW solar PV project works out to Rs. 2.278 per kWh ($1.405 \times 0.0183 / 0.01127$) without accelerated depreciation benefit. The excess power being injected by the farmer in the grid will help PSPCL to meet its RPO targets. Further, the Commission is of the view that currently the agriculture consumers in the State of Punjab are getting full subsidy for the power being used by them, which is proposed to be offset under this scheme. Hence, the rate at which the farmer injects excess energy to grid should be remunerative, otherwise farmers will not opt for the solarisation and objectives of the PM- KUSUM scheme would not be achieved.

- 6.7 As a special dispensation, in order to incentivize small and marginal farmers, the Commission decides to adopt the tariff of Rs. 2.60 per kWh under Component –C of KUSUM scheme.
- 6.8 **The other terms and conditions stated under the PM- KUSUM Scheme shall remain applicable and should be followed by the concerned entities. The Commission further directs PEDA/PSPCL to develop a user friendly mobile application which can be downloaded by the farmers on their mobile phones to be able to monitor generation, consumption and sale to PSPCL along with other details on the Gujarat pattern, i.e. SKY App used by the farmers in Gujarat under Suryashakti Kisan Yojana (SKY).**

The Petition is disposed of accordingly.

**Sd/-
(Anjuli Chandra)
Member**

**Sd/-
(Kusumjit Sidhu)
Chairperson**

Chandigarh
Dated:15.10.2020

Levelling Tariff for Solar PV Pumpsets in Petition No. 07 of 2020

Annexure-A

Units Generation	Unit	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25
Installed Capacity	KW	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10
Gross Generation	MU	0.0184	0.0184	0.0184	0.0184	0.0184	0.0184	0.0184	0.0184	0.0184	0.0184	0.0184	0.0184	0.0184	0.0184	0.0184	0.0184	0.0184	0.0184	0.0184	0.0184	0.0184	0.0184	0.0184	0.0184	0.0184
Auxiliary Consumption	MU	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001
Net Generation	MU	0.0183	0.0183	0.0183	0.0183	0.0183	0.0183	0.0183	0.0183	0.0183	0.0183	0.0183	0.0183	0.0183	0.0183	0.0183	0.0183	0.0183	0.0183	0.0183	0.0183	0.0183	0.0183	0.0183	0.0183	0.0183

Fixed Cost	Unit	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25
O&M Expenses	Rs Lakh	0.000	0.000	0.000	0.000	0.000	0.054	0.056	0.059	0.061	0.063	0.066	0.068	0.071	0.073	0.076	0.079	0.082	0.085	0.089	0.092	0.096	0.099	0.103	0.107	0.111
Depreciation	Rs Lakh	0.077	0.077	0.077	0.077	0.077	0.077	0.077	0.077	0.077	0.077	0.077	0.077	0.077	0.077	0.077	0.033	0.033	0.033	0.033	0.033	0.033	0.033	0.033	0.033	0.033
Interest on term loan	Rs Lakh	0.107	0.100	0.093	0.085	0.078	0.070	0.063	0.055	0.048	0.041	0.033	0.026	0.018	0.011	0.004	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Interest on working Capital	Rs Lakh	0.004	0.004	0.004	0.003	0.003	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.006	0.006	0.006	0.006
Return on Equity	Rs Lakh	0.084	0.084	0.084	0.084	0.084	0.084	0.084	0.084	0.084	0.084	0.084	0.084	0.084	0.084	0.084	0.084	0.084	0.084	0.084	0.084	0.084	0.084	0.084	0.084	0.084
Total Fixed Cost	Rs Lakh	0.272	0.265	0.257	0.250	0.242	0.291	0.286	0.280	0.275	0.270	0.265	0.260	0.256	0.251	0.246	0.201	0.204	0.208	0.211	0.215	0.218	0.222	0.226	0.230	0.234
Per unit Fixed Cost	Rs/k Wh	1.489	1.448	1.407	1.366	1.325	1.593	1.564	1.535	1.507	1.479	1.452	1.425	1.398	1.373	1.348	1.101	1.118	1.136	1.155	1.174	1.194	1.215	1.237	1.259	1.283

Discount Factor		1.000	0.911	0.831	0.757	0.690	0.629	0.573	0.522	0.476	0.434	0.395	0.360	0.328	0.299	0.273	0.248	0.226	0.206	0.188	0.171	0.156	0.142	0.130	0.118	0.108
Levelling Tariff	1.405	Rs. per unit																								