

MADHYA PRADESH ELECTRICITY REGULATORY COMMISSION

5th Floor, "Metro Plaza", Bittan Market, Bhopal - 462016



Petition No. 50 of 2020

PRESENT:

S.P.S Parihar, Chairman

Mukul Dhariwal, Member

Shashi Bhushan Pathak, Member

IN THE MATTER OF:

In the matter of petition for determination of Feed-in-Tariff for sale of power from decentralized solar power plants having capacity of 500 kW to 2MW to be set up under Component-A of the Pradhan Mantri Kisan Urja Surakhsha Evam Utthan Mahabhiyan (PM KUSUM) Scheme introduced by Gol.

M.P. Urja Vikas Nigam Limited

Petitioner

Vs.

1. **M.P. Power Management Company Ltd.,**
Block No. 2, Shakti Bhawan, Rampur, Jabalpur – 482008
2. **M. P. Madhya Kshetra Vidyut Vitaran Co. Ltd.**
Nishtha Parisar, Govindpura, Bhopal – 462023
3. **M. P. Paschim Kshetra Vidyut Vitaran Co. Ltd.**
GPH Compound, Pologround, Indore – 452003
4. **M. P. Poorv Kshetra Vidyut Vitaran Co. Ltd.**
Shakti Bhawan, Rampur, Jabalpur – 482008.
5. **Energy Department,**
Govt. of Madhya Pradesh, Bhopal

Respondents

ORDER

(Passed on this day of 16th February' 2021)

Shri Bhuvnesh Kumar Patel appeared on behalf of the petitioner.

Shri Manoj Dubey, Advocate and Shri Rajneesh Reja, DGM appeared for the Respondent No.1 and 5.

Shri Dharmendra Patidar appeared on behalf of the Respondent No.3

1. The subject petition is filed for determination of Feed-in-Tariff for sale of power from decentralized solar power plants having capacity of 500 kW to 2 MW to be set up under Component-A of the Pradhan Mantri Kisan Urja Suraksha Evam Utthan Mahabhiyan (PM KUSUM) Scheme introduced by the Government of India. The petition is filed under Section 86(1)(e), Section 61(h) of the Electricity Act, 2003 and Regulation 5 of MPERC (Cogeneration and Generation of Electricity from Renewable Energy Source of Energy) (Revision-I) Regulations, 2010 as amended.
2. The petitioner submitted the following in the subject petition:
 - (i) *Ministry of New and Renewable Energy (MNRE) has launched the guidelines for implementation of Pradhan Mantri Kisan Urja Suraksha evam Utthan Mahabhiyan (PM KUSUM) Scheme on 22nd July 2019. This scheme has provision for the decentralized renewable energy plants, Solar agriculture water pumps and solarization of existing Grid connected Agriculture pumps.*
 - (ii) *MNRE has designated MPUVNL as the State Implementing Agency (SIA) vide letter No: F.No. 32/54/2018 – SPV Division, dated 26th November 2019 for implementation of Component A of PM KUSUM Scheme in the state of Madhya Pradesh attached as Annexure I. MNRE will be allocating the targets to SIA for every year and, SIA will be responsible for implementation of projects within the defined timeframe. The SIA is responsible for coordinating with DISCOMs and farmers for implementation of the scheme.*
 - (iii) *A State level Committee is set up under the chairmanship of Principal Secretary, New and Renewable Energy Department along with three members from Petitioner and one member each from the Respondents for*

implementation of the scheme and settlement of any issues arising during selection of Renewable Power Generator (RPG). In addition, SIAs will ensure publicity of the scheme among Farmers and create awareness through advertisements.

- (iv) For successful implementation of the scheme, a feed-in-tariff needs to be determined. Hence, MPUVNL is filing a petition for determination of Feed-in-tariff for sale of power from decentralized Solar Power Plants having capacity of five hundred (500) kW to two (2) MW to be set up under Component-A of the PM KUSUM Scheme to the MPPMCL / DISCOMs of the state.

Component A of PM KUSUM Scheme:

- (v) MNRE vide letter No: F.No. 32/54/2018 – SPV Division, dated 26th November 2019 as attached in Annexure I, has given the target of hundred (100) MW for FY 2019-20 for installation of Decentralized Renewable Energy Power Plant (REPP) of capacity five hundred (500) kW to two (2) MW.
- (vi) Such REPP will be setup by individual farmers/ group of farmers/ cooperatives/ panchayats/ Farmer Producer Organizations (FPO)/Water User associations (WUA) or project developer hereinafter called Renewable Power Generator (RPG).
- (vii) The REPP will be preferably be installed within five (5) km radius of the sub-stations identified by the DISCOMs in order to avoid high cost of sub-transmission lines and to reduce transmission losses. The identified list of sub-stations will be notified on the website of SIA / DISCOM. In case the farmers/ group of farmers/ cooperatives/ panchayats/ FPO/ WUA etc. are not able to arrange equity required for setting up the REPP, they can opt for developing the REPP through project developer. In such a case, the landowner will get lease rent as mutually agreed between the parties. The lease rent may be in terms of Rs per year per acre of land or in terms of Rs per unit energy generated. The REPP under the scheme would be implemented primarily on barren land.

Implementation of Component A of PM KUSUM Scheme:

- (viii) DISCOM shall assess and notify RE generation capacity that can be injected into all 33/11 kV sub-stations in the state and place such notification on the website of SIA for information of all stakeholders.
- (ix) To facilitate farmers willing to lease out their land for development of RE plants within five (5) km of radius of the notified substation(s), as per provisions of this scheme, SIA may also place list of such farmers on their website. The SIA would request RPGs to submit non-refundable processing fee which in no case shall be higher than Rs. 5,000 per MW or part thereof.
- (x) However, the leasing of land of any farmers will be a bi-partite agreement between the farmer and the project developer and DISCOM will not be held responsible for failure in getting the land leased out to the RPG. To meet additional demand DISCOM will augment the capacity of sub-station under IPDS or any other scheme.
- (xi) SIA shall invite 33/11 kV sub-station wise Request for Proposal (RFP) from RPG to participate in selection process for development of decentralized renewable power plants. The RPG shall submit their proposal against the RFP as per the schedule notified by SIA. The RPG will not be allowed to apply for more than one REPP for a particular 33/11 kV sub-station.
- (xii) REPP of capacity up to two (2) MW shall be connected at eleven (11) kV side of sub-station and the selected RPG will be responsible for laying of dedicated eleven (11) kV line from REPP to sub-station, construction of bay and related switchgear at sub-station where the REPP is connected to the grid and metering is done.
- (xiii) Alternatively, RPG can get constructed the eleven (11) kV lines through DISCOM by paying the applicable cost and other charges. RPG will be responsible for maintaining this dedicated eleven (11) kV line.

A. General Principle

1. Control Period:

- a. The tariff certainty is required for consistent progress and successful implementation of the scheme in the state. Hence, the Petitioner proposes the validity of the tariff determined by Hon'ble MPERC till three (3) years from the notification of this order.

B. Project Specific Principles

1. Operational Parameters for determination of Feed-in-tariff for REPPs:

i Useful Life of a REPP:

- a. Life of a REPP including evacuation system till substation is considered as 25 years, as per CERC (Terms and Conditions for Tariff determination from Renewable Energy Sources) Regulation 2020 dated 23rd June 2020 (CERC RE Tariff Regulation 2020).

ii Capacity Utilization Factor (CUF):

- a. CUF of a REPP is a site-specific parameter. Madhya Pradesh is one of the largest states in India and solar irradiance varies from one place to another considerably. Hence, it is necessary to consider the CUF which will represent the State as a whole.
- b. During the discussion held amongst the members of committee, it was suggested by MPPMCL that average CUF achieved from large scale ground mounted solar projects located in Rewa is 21% per annum.
- c. Therefore, as per above mentioned fact we have considered CUF of 21% per annum over the useful life of the REPP without considering any system degradation.

iii Auxiliary Consumption:

- a. In last few years of solar project operations, it is found that auxiliary consumption is generally lower than 1%. Further, CERC RE Tariff Regulation 2020 mention that for the project specific tariff, maximum Auxiliary consumption would be 0.75% Hence, it is considered as 0.75% of the total energy generated per annum for the calculation of Feed-in-tariff.

2. Financial Parameters for determination of Feed-in-tariff for REPPs:

i Debt Equity Ratio:

- a. Based on the CERC RE Tariff Regulation 2020 and MPERC (Terms and condition for Tariff determination of energy from Renewable Energy Sources) Regulation 2017, Debt Equity ratio is considered as 70:30.

ii Capital Cost:

- a. There is continuous improvement in the Renewable Energy Technologies and the cost has considerably reduced over the past few years due to multiple factors including economies of scale, technological advancement, efficiency improvement and several other factors, hence it is pertinent to consider the latest capital cost as per the prevailing market norms.
- b. On reviewing tariff order related to PM KUSUM Scheme passed by multiple states and also Solar tariff orders of other states for smaller projects, it is of the view to adopt the latest capital cost of the project as per KERC tariff order dated: Aug, 2019 in the matter of Determination of tariff in respect of Solar Power Projects (including solar rooftop photovoltaic projects) for FY 20. KERC has briefly described the methodology to determine the project cost.
- c. However, as we understand that module is a biggest cost component of project cost which consist around 50% of the total project cost. Hence, we have taken latest available module procurement cost from the Final Findings of review investigation for continued imposition of Safeguard duty on imports of “Solar Cells whether or not assembled in modules or panels” into India- Proceedings under the Customs Tariff Act, 1975 and the Custom Tariff (Identification and Assessment of Safeguard Duty) Rules, 1997 - Reg dated 18th July 2020.
- d. Based on the above-mentioned notification, the latest module cost is Rs. 14.86 per watt has been considered while remaining cost of BoS including inverter is considered from the KERC tariff order. We have calculated the cost of the project Rs. 330.45 per MW. However, it is important to note that this cost is exclusive of land cost, evacuation cost and safeguard duty. However, we have included the applicable GST of 8.9% (5% on 70% of solar project cost and 18% on rest of the 30% project cost).
- e. Moreover, as mentioned above in clause 4 of Part B, it is the responsibility of the RPG for laying of dedicated eleven (11) kV line from REPP to sub-station, construction of bay and related switchgear at sub-station where the REPP is connected to the grid and metering is done. Hence the cost of evacuation line, eleven (11) kV bay and related switchgear shall be added in the capital cost of

the project. As per the SOR rates for FY 2019-20, the cost of evacuation line is Rs. 2.60 Lakh per km. As the REPP are to be developed in the range of five (5) km radius from the 33/11 kV substation notified by DISCOMs, the length of evacuation line is considered as five (5) km. Hence total cost of evacuation line is considered Rs. 13 Lakh. The cost of developing eleven (11) kV bay and related switchgear is considered as Rs. 7.13 Lakh as per the SOR rates for FY 2019-20. Hence the total cost of evacuation line, eleven (11) kV bay and related switchgear i.e. 20.14 Rs. Lakh shall be added in the capital cost of the project.

- f. So, the capital cost of the project considered is Rs. 350.59 Lakh per MW [i.e. Rs. 330.45 Lakh + Rs. 20.14 Lakh (cost of evacuation line, eleven (11) kV bay and related switchgear)].
- g. It is also important to inform that presently we have considered CUF of 21% based on the Rewa UMSPP performance which is large scale project and located in one district. Further, Developers of such large-scale project have taken DC AC ratio of more than 1.25:1. Hence for our projects, we have considered the DC AC ratio of 1.1:1 to arrive at a tariff.
- h. It is important to inform the Hon'ble Commission that safeguard duty has been implied on the solar power projects and presently we have not considered in the capital cost.
- i. Further, as mentioned above in clause 2 of Part B, it is pertinent to highlight to the Hon'ble Commission that these decentralized power plants are unique of its kind and the aim of this scheme is to double the income of farmer. Hence the land will be leased out by the RPG from the farmer and the land cost is not considered in the calculation of Capital Cost of the project.
- j. Hence, Hon'ble Commission is requested to consider the impact on Feed-in-tariff while assessing the other variables since we have not considered the applicable safeguard duty on modules (ultimately impact the Capital Cost of the Project) and also considered the lower DC to AC ratio as compared to large scale projects like Rewa UMSPP.

iii Interest and Tenure of Loan:

- a. Interest rate for both deposits and loans keep on changing with advent time. Moreover, as noted by the petitioner the lending rate of solar projects are in the range of 9.55% to 11.45%. So, the petitioner here relies on the latest

regulation published by Hon'ble CERC. i.e. CERC RE Tariff Regulation 2020 for Interest and Tenure of Loan.

- b. As per CERC RE Tariff Regulation 2020, “normative interest rate of two hundred (200) basis points above the average State Bank of India Marginal Cost of Funds based Lending Rate (MCLR) (one-year tenor) prevalent during the last available six months shall be considered”.

Below mentioned table shows the SBI MCLR rate (one-year tenor) of last available six months.

Table: MCLR Rate of SBI

Month	SBI MCLR rate (one-year tenor)
January 2020	7.90%
February 2020	7.85%
March 2020	7.75%
April 2020	7.40%
May 2020	7.25%
June 2020	7.00%
Average of 6 months	7.53%

- c. So, Interest on Loan is considered as 9.53% (7.53% + 2.00 %) per annum.
- d. It is to be noted that the loan tenure for solar projects is in the range of 8 to 20 years for solar projects as provided by CERC’s Explanatory Memorandum on Draft CERC (Terms and Condition for Tariff Determination from RE Sources) Regulation, 2020 (“CERC RE Tariff Regulation EM”). So, in line with the current market trends and as per CERC RE Tariff Regulation 2020, the tenure of loan is considered as 15 years for tariff computation.

iv Return on Equity (RoE):

- a. The Return on Equity tariff component in essence, is provided such that the RPG is able to get reasonable returns after recovery of all applicable cost components. It is imperative that the return on equity is commensurate to the risks associated with RE projects under considerations.
- b. Majority of the states including but not limited to Karnataka and Haryana in recent Orders have relied on CERC RE Tariff Regulation for considering RoE for small scale solar projects.

c. Hence, Petitioner has relied on CERC RE Tariff Regulation 2020 for the same.

As per CERC RE Tariff Regulation 2020, “The normative Return on Equity shall be 14%. 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”.

d. Latest available MAT rate is 15% plus applicable surcharge (10%) and Health and Education Cess (4%).

e. Latest Corporate Tax applicable is 30% for domestic company, plus applicable surcharge (12%) and Health and Education Cess (4%).

f. Hence Pre-tax RoE for first 20 years considered for the determination of tariff is as given below:

$$\begin{aligned}\text{Applicable MAT} &= 15\% * 1.10 * 1.04 \\ &= 17.16\%\end{aligned}$$

$$\begin{aligned}\text{Pre-tax RoE} &= \text{Base Rate} / (1 - \text{tax rate}) \\ &= 14\% / (1 - 17.16\%) \\ &= 16.90\%\end{aligned}$$

g. Pre-tax RoE for the remaining Useful Life considered for the determination of tariff is as given below.

$$\begin{aligned}\text{Applicable Corporate Tax Rate} &= 30\% * 1.12 * 1.04 \\ &= 34.32\%\end{aligned}$$

$$\begin{aligned}\text{Pre-tax RoE} &= \text{Base Rate} / (1 - \text{tax rate}) \\ &= 14\% / (1 - 34.32\%) \\ &= 21.32\%\end{aligned}$$

v Discount Rate:

a. As per CERC RE Tariff regulation 2020, “for the purpose of Feed-in-tariff computation, discount factor equivalent to post-tax weighted average cost of capital shall be considered”.

b. Calculation of the same is given below.

$$\begin{aligned}\text{Discount Rate} &= [(Debt\ component\ X\ Interest\ on\ debt)\ X \\ &\quad (1 - Corporate\ Tax)] + \\ &\quad (Equity\ component\ X\ RoE) \\ &= [(70\% \times 9.53\%) \times (1 - 34.32\%)] + (30\% \times 14\%) \\ &= 8.58\%\end{aligned}$$

Hence, Discount Rate is considered as 8.58% per annum.

vi Depreciation:

- a. Depreciation is utilized to meet the debt repayment. As per CERC RE Tariff Regulation 2020, the Salvage value of the asset shall be considered as 10% and depreciation shall be allowed up to maximum of 90% of the Capital Cost of the asset.
- b. Hence, 70% of the capital cost of asset shall be depreciated up to the loan tenure and 20% of the capital cost of asset shall be depreciated over the remaining Useful Life of the Project.
- c. So, Depreciation up to the loan tenure is considered as 4.67% per annum and depreciation after the loan repayment tenure is considered as 2.00% per annum.

vii Interest on Working Capital:

- a. As we have appealed in earlier provisos, interest rate for both deposits and loans keep on changing with change in time. Hence, petitioner is relied on methodology given for calculating the interest on working capital in latest regulation of CERC i.e. CERC RE Tariff Regulation 2020.
- b. As per CERC RE Tariff Regulation 2020, “normative interest rate of threehundred fifty (350) basis points above the average State Bank of India Marginal Cost of Funds based Lending Rate (MCLR) (one-year tenor) prevalent during the last available six months shall be considered”.
- c. As mentioned in the table above under clause (b) of main clause (iii), Average of SBI MCLR (one-year tenor) of last six month (from January 2020 to June 2020) is 7.53%.
- d. So, for the computation of Feed-in-tariff, the Petitioner has considered the Interest on Working Capital as 11.03% (7.53% + 3.50%) per annum.

viii Operation and Maintenance Cost and escalation:

- a. The operation and maintenance expenses comprise of manpower expenses, insurance expenses, spares and repairs, consumables and other expenses. Moreover, the expense of manpower keeps on increasing and O&M of a REPP is more of services related work.
- b. O&M cost of the project is site specific parameter. Hence, as per MPERC (Terms and condition for Tariff determination of energy from Renewable Energy Sources) Regulation 2017, O&M cost is considered as Rs. 7 Lakh / MW.
- c. However, escalation in O&M cost is required to meet the escalation in CPI and WPI in last few years. As per CERC RE Tariff Regulation EM, average WPI and CPI escalation rate for FY 2014-15 to FY 2018-19 is 1.31% and 4.92% respectively. Further, to calculate the precise impact, escalation rate has been calculated based on the five years average CPI and WPI indices by considering the weightage of 70% CPI and 30% WPI. Hence, we have considered the escalation of 3.84% per annum on O&M expense, as given in CERC RE Tariff Regulation 2020, from second year to meet the increased operational expenses.

ix Working Capital:

- a. As per MPERC (Terms and condition for Tariff determination of energy from Renewable Energy Sources) Regulation 2017, the working capital is comprised of following components:

O&M Cost	1 Month
Maintenance Spare	15% of O&M Cost
Receivables	2 Months of energy charges for sale of electricity, calculated on the normative CUF.

- b. Moreover, as described in clause 2 of Part B, RPG will lease out the land from farmer, for which RPG has to pay the rent to the farmer before 5th day of the month following the month for which the lease rent is due. So, RPG also needs to maintain the Lease rent for 1 month in form of working capital.
- c. Hence, Lease Rent for 1 Month is also considered while calculating the requirement of the working capital.

x Lease Rent to be paid to farmers and its escalation.

- a. The word “Utthan Mahabhiyan” in “Pradhan Mantri Kisan Urja Surakhsha evam Utthan Mahabhiyan” specifies the sole purpose of the scheme, which is to increase the income of farmers. The farmers having barren land which does not generate any income to the farmers, such land be can leased to RPG. By doing so, farmer can earn income from it.
 - b. As per the Policy for Purchase of Land with Mutual Consent, Madhya Pradesh dated November 2014, procurement cost of private land is twice of the collector guideline rate.
 - c. Since, the Petitioner proposed to provide land to RPG on lease basis, it is necessary that farmer should get the lease rent in 25 years which must be equivalent to the current procurement cost of the land under the policy.
 - d. The Petitioner has assessed the circle rates of three districts, Neemuch, Agar and Shajapur. The average rates of unirrigated land of villages of these districts are considered and based on the policy mentioned above in clause (b), purchase cost of the barren land is considered as Rs. 15.66 Lakh/ Hectare attached as Annexure II. We have considered that the land requirement for one (1) MW is around two (2) hectares. Therefore, based on calculation methodology, a farmer should get the lease rent of Rs. 1.82Lakh / MW.
 - e. To avoid the inflation, a minimum escalation of 5% on lease rent is considered from second year, so that a farmer is compensated for inflation till the Useful Life of the REPP. It is important to note that the CPI’s average escalation rate for FY 2015 to FY 2019 is 4.92%. Hence, it is necessary to provide a minimum escalation of 5% in lease rent to compensate the farmer.
3. Above mentioned parameters as explained in Part D, are briefed in the table mentioned below for ready reference of the Hon’ble Commission. Moreover, detailed parameters are attached in Annexure II:

Life of a plant	25 years
CUF	21%
Auxiliary Consumption	0.75%
Debt Equity Ratio	70:30
Capital Cost	Rs 350.59 Lakh / MW
Loan Tenure	15 years
Interest on Loan	9.53%
Pre-tax RoE till 20 Years	16.90%

Pre-tax RoE for remaining Useful Life of REPP	21.32%
Discount Rate	8.58%
Salvage Value of Asset	10%
Depreciation up to loan period (remaining value to be spread equally over the remaining life of the project)	4.67%
Interest on Working Capital	11.03%
O&M cost (3.84% escalation from second year)	Rs. 7 Lakh / MW
First year Lease Rent to be paid to Farmers Land lease escalation from second year	Rs. 1.82 Lakh/MW 5%

With above mentioned parameters the Feed-in-tariff is determined as 3.18 Rs/kWh. Detailed calculation of the same is attached in the Annexure III.

- At the motion hearing held on the 29th September' 2020, the representative for the petitioner stated that the Ministry of New and Renewable Energy, Government of India issued guidelines for implementation of Pradhan Mantri Kisan Urja Suraksha Evam Utthan Mahabhiyan (PM KUSUM) scheme on 22.07.2019 and the petitioner (MPUVNL) is designated as State Implementing Agency (SIA) for implementation of Component A under PM KUSUM scheme. The petitioner requested to add Energy Department, Government of MP as one of the Respondents in this matter. The petition was admitted and the petitioner was allowed to add Energy Department, Government of MP as one of the Respondents in this matter. The petitioner was directed to serve copy of the petition on all the Respondents in the subject matter. The Respondents were directed to file their replies to the subject petition by 25th October'2020. The Respondents were also directed to serve a copy of their replies on the petitioner simultaneously.
- Vide Commission's order dated 03.10.2020, the petitioner was asked to explain its locus standi for filing the subject petition under PM KUSUM scheme by 15th October'2020. In response. Vide letter No. 2256 dated 14.10.2020, the petitioner submitted that a state level committee comprising of members from every DISCOM, MPPMCL and the petitioner (MPUVNL) has been constituted under the Chairmanship of Principal Secretary, New and Renewable Energy Department. The petitioner further submitted that it was decided in a meeting of aforesaid committee that the petitioner being State Implementing Agency (SIA) shall file a petition before MPERC on behalf of

the procurer. The petitioner mentioned the provisions under sub-clause I under Clause 3 of “Guidelines for Implementation of PM KUSUM Scheme” which provides that, “*In case the aggregate capacity offered by Applicants is more than notified capacity for a particular sub-station, bidding route will be followed by DISCOMs to select Renewable Power generator and in such cases the pre-fixed levelized tariff will be the ceiling tariff for bidding. Selection of bidders will be based on the lowest tariff offered in the ascending order as quoted by the bidders in the closed bid or e-reverse auction as the case may be*”. While mentioning aforesaid provision, the petitioner submitted that it would require the pre-fixed levelized tariff which will be the ceiling tariff for reverse auction for selection of renewable power generator.

5. At the next hearing held on 09.11.2020, the following status of compliance was observed:
 - (i) The Respondents No. 1 to 4 filed a common reply to the subject petition on 24.10.2020.
 - (ii) The petitioner has served copy of the petition to the Energy Department, Government of MP. However, the response from Energy Department, Government of MP was not filed.

6. In view of the above status, the following directives were issued to the parties in this matter:
 - (i) The petitioner was directed to file rejoinder on the reply filed by the Respondent No. 1.
 - (ii) The Respondent No. 5 was directed to file reply to the subject petition within a week.
 - (iii) The petitioner was directed to file a draft public notice in English and Hindi version on the gist of the petition within a week.

7. At the next hearing held on 05.01.2021, the following was observed by the Commission:
 - (i) The petitioner filed rejoinder on 27.11.2020 to the reply filed by the Respondents No. 1 to 4.
 - (ii) The Respondent No.1 filed Sur-rejoinder on 18.12.2020.
 - (iii) The public notice on the gist of subject petition was published in newspapers on 25.12.2020. A copy of the subject petition along with the public notice had

also been uploaded on Commission's web-site.

- (iv) Vide letter dated 05.01.2021, the Energy Department, GoMP has filed reply to the subject petition.
 - (v) Vide letter No. F/UVN/2020/SLP/01-363/3324 dated 30.12.2020, the petitioner requested to pre-pone the date of public hearing in the month of January'2021 instead of 09th February'2021.
8. The aforesaid request of the petitioner was examined by the Commission and it was observed that the time specified in the public notice dated 25.12.2020 for offering comments/suggestions by the stakeholders shall not be curtailed if the date of public hearing is re-scheduled from 09.02.2021 to 19.01.2021. Therefore, considering reasons in the request of the petitioner, the public hearing in the subject petition was fixed on 19th January,2021. The petitioner was directed to issue the revised public notice for aforesaid change in the date of public hearing in the newspapers within three days. The petitioner was also directed to submit the published copies of revised public notice to the Commission by 11.01.2021. The response of petitioner on all the objections/comments received by it was also sought by the 15.01.2021.
9. The public notice for rescheduling the date of public hearing from 9th February' 2021 to 19th January' 2021 was published on 09.01.2021 in the following newspapers:
- (i) Patrika (Hindi)
 - (ii) Naya Duniya (Hindi)
 - (iii) Raj Express (Hindi)
 - (iv) Dainik Jagran (Hindi)
 - (v) Dainik Bhaskar (Hindi)
 - (vi) The Pioneer (English)
 - (vii) Free Press, Indore (English)
10. In response to the public notices published on the gist of the subject petition in newspapers on 25th December' 2020 and 9th January' 2021, the written comments/suggestions were received by the Commission from the following within due date:
- (i) Prayas (Energy Group), Pune
 - (ii) Shri Ravi Gupta
 - (iii) Latent Renewable Energy Pvt. Ltd., Bhopal

11. At the public hearing held on 19th January' 2021, no one appeared on behalf of the above stakeholders who submitted their written comments/ suggestions in the subject petition. Taking on record the comments/ suggestions filed by all the respondents and above stakeholders and also the replies filed by the petitioner on aforesaid comments, the case was reserved for order.

Respondent's Submissions:

12. Vide letter dated 24.10.2020, the Respondent No. 1 to 4 broadly submitted the following:
- (i) *The petition is filed by the Petitioner- Madhya Pradesh Urja Vikas Nigam Limited (hereinafter referred to as "the Petitioner"), for determination of Feed-in-tariff for sale of power from Decentralized Solar Power Plants having capacity of Five hundred (500) kW to Two (2) MW to be set up under component-A of the Pradhan Mantri Kisan Urja Surakhsha Evam Utthan Mahabhiyan (PM KUSUM) scheme introduced by Government of India (GOI) to the state DISCOMs.*
 - (ii) *CERC vide notification dated 23rd June, 2020 has notified the CERC (Terms and conditions for tariff determination from Renewable Energy Sources) Regulations, 2020. This regulation prescribes the General Principles, Tariff Structure, Financial Principles and other parameters to cases where tariff for a grid connected generating station based on renewable energy sources, is to be determined under Section 62. It is submitted to rely on these General Principles, Tariff Structure, Financial Principles and other parameters for determination of tariff in the instant Petition.*
 - (iii) *In the petition as per clause B Implementation of Component A of PM KUSUM scheme, point 3, it states that:
".....To meet additional demand DISCOM will augment the capacity of sub-station under IPDS or any other scheme."
It is submitted that the maximum capacity of RPG will be within the installed capacity of 33/11 KV power transformers of the substation.*

- (iv) In the petition as per clause B Implementation of Component A of PM KUSUM scheme, point 4, it states that:

“REPP of capacity up to 2 MW shall be connected at 11 kV side of sub-station and the selected RPG will be responsible for laying of dedicated 11 kV line from REPP to sub-station, construction of bay and related switchgear at sub-station where the REPP is connected to the grid and metering is done”.

It is submitted that as per Madhya Pradesh Electricity Supply Code, 2013, Voltage of Supply to consumers is prescribed as below

Supply Voltage	Minimum Contract demand	Maximum Contract demand
11 kV	50 kVA	300 kVA
33 kV	100 kVA	10000kVA

Since REPP of capacity 500 kW to 2 MW are proposed to be connected at 11 kV side of sub-station, Therefore, it is submitted before Hon’ble Commission for notifying amendment in the supply code 2013 to the extent to connectivity of REPP of capacity up to 2 MW on 11kV side of sub-station.

- (v) The capital cost of the project as envisaged by the Petitioner @ Rs. 350.59 Lakh per MW seems to be on a higher side since, the capital cost of the Project as considered by other Regulatory Commission eg. KERC in its order for determination of the Tariff notified on dated 01.08.2019, (including solar rooftop photovoltaic projects) for the REPP Generator, the capital cost has been considered as Rs. 340 Lac per MW. (Annexure-A-1)
- (vi) Further to above, it is to submit that in respect of Solar Power Projects for FY 20. Hon’ble KERC has considered Rs. 340 Lakh / MW which includes cost of land, cost of power evacuation line, 11kV bay and associated protection switchgear. Taking into consideration that about 5-acre land is required for developing 1 MW project and the cost of one-acre land has been considered as Rs. 5 Lakh. Therefore, it is submitted before Hon’ble Commission for considering per MW Capital Cost of the Projects as Rs. 340 Lakh / MW.

- (vii) *It is to submit that, the Petitioner has also considered Lease Rent to be paid to farmers as well as its annual escalation in determining the Feed in tariff. In this regard, Respondent submits that as per the relevant clause of MP Land Revenue Code 1959, farm land cannot be leased out for a period of more than 6 years whereas, in the instant case the project life period is 25 years.*
- (viii) *Therefore, as per the MP Land Revenue Code 1959 the leased land cannot be utilised for the installation of a Solar PV based power project, therefore the plant can only be installed either by the land owner and in that case lease rent shall not be applicable. Further in case once the cost of land is considered as component in capital cost, then lease rent cannot not be considered i.e. either the cost of land is to be considered in the capital cost or lease rent is to be considered as operational cost in case land does not owned by the farmer.*
- (ix) *As per component A, of PM KUSUM Scheme, the Renewable power projects having capacity from 500 kW to 2 MW shall be setup by individual farmers/group of farmers/cooperatives/Panchayat/ Farm Producer Organizations (FPO). In case the above specified entities are not able to arrange equity required for setting up the REPP, they can opt for developing the REPP through developer(s) or even through local DISCOM, which will be considered as RPG in this case. Since this is initial phase of implementation, Respondent expect farmers/ cooperatives/ Panchayat/ Farm Producer Organizations (FPO) are able to install the solar power plant and gain the maximum benefits. Therefore, it is submitted before the Hon'ble Commission for not taking into consideration the component of Lease Rent and its escalation to be paid to Farmers for determination of tariff.*

The relevant para of the M.P. Land Revenue Code, 1959, clause no. 165 "Rights of Transfer" is reproduced hereunder: -

"165. Rights of transfer.** - (1) Subject to the other provisions of this section and the provision of Section 168 a bhumi swami may transfer [] any interest in his land.*

(2) Notwithstanding anything contained in sub-section (1) -

(a) no mortgage of any land by a bhumi swami shall hereafter be valid unless at least five acres of irrigated or ten acres of unirrigated land is left with him free from any encumbrance or charge;

(b) subject to the provisions of clause (a), no usufructuary mortgage of any land by a bhumi swami shall hereafter be valid if it is for a period exceeding six years and unless it is a condition of the mortgage that on the expiry of the period mentioned in the mortgage deed, the mortgage shall be deemed, without any payment whatsoever by the bhumi swami to have been redeemed in full and the mortgagee shall forthwith re-deliver possession of the mortgaged land to the bhumi swami;

(c) if any mortgagee in possession of the land mortgaged does not hand over possession of land after the expiry of the period of the mortgage or six years whichever expires first the mortgagee shall be liable to ejection by the orders of the Tahsildar as trespasser and the mortgagor shall be placed in possession of the land by the Tahsild

.....
"

(x) An analysis carried out by the Respondent with respect to as proposed by the Petitioner, on various parameters to be considered for determination of tariff by the Hon'ble Commission are as below: -

Particulars	In petition	Considered by Respondent	Remark/attribution
Life of a plant	25 years	25 years	
CUF	21%	21%	
Auxiliary Consumption	0.75%	0.75%	
Debt Equity Ratio	70:30	70:30	
Capital Cost	Rs 350.59 Lakh / MW	Rs 340 Lakh / MW	KERC orde dated 01.08.2019 Determination of tariff in respect of solar power project FY 20
Loan Tenure	15 years	15 years	
Interest on Loan	9.53%	9.53%	
Pre-tax RoE till 20 Years	16.90%	16.90%	
Pre-tax RoE for remaining Useful Life of REPP	21.32%	21.52%	Calculation Mistake in Petiton
Discount Rate	8.58%	8.58%	
Salvage Value of Asset	10%	10%	
Depreciation up to loan period (remaining value to be spread equally over the	4.67%	4.67%	

<i>remaining life of the project</i>			
<i>Interest on Working Capital</i>	11.03%	11.03%	
<i>O&M cost (3.84% escalation from second year)</i>	<i>Rs. 7 Lakh / MW</i>	<i>Rs. 7 Lakh / MW</i>	
<i>First Year Lease Rent to be paid to farmers. With 5% escalation from second year</i>	<i>Rs. 1.82 lakh/MW</i>	0	<i>Farmer can not be leased his land for more than 6 Years.</i>

(xi) *With above mentioned parameters the Feed-in-tariff is calculated as Rs. 2.93 per unit. Detailed calculation of the same is attached as Annexure II. Thus, Respondent humbly pray before the Hon'ble Commission to consider our submission and pass necessary order.*

13. In response to the above common reply filed by the Respondent No. 1 to 4, the petitioner filed rejoinder on 27.11.2020 mentioning the following:

(i) *It is pertinent to highlight to the Hon'ble Commission, data of maximum renewable energy that can be injected at any given 33/11 kV substation is sourced from respective distribution licensee of that area, hence the maximum capacity of Renewable Energy Power Plant (REPP) will be within the prescribed limit as mentioned by DISCOM. The petitioner has raised concern about notifying amendment in Supply Code 2013 to the extent of connecting REPP of capacity up to 2 MW on 11 kV side of the substation and has vehemently relied on clause B of the Implementation guidelines of Component A of PM KUSUM Scheme, point 4. It is to inform the Hon'ble Commission, Supply Code is referred while supplying the power to the consumer. The Renewable Power Generator (RPG) under KUSUM Scheme will be supplying power to DISCOM and will not be the consumer of DISCOM and so it will be governed by the Grid Code. Moreover, the model PPA provided by MNRE also mentions about referring to Grid Code while connecting the REPP with the grid. Clause 5.1.2 of Model PPA is mentioned below for the reference.*

"the Power Project may be synchronized by the RPG to the Grid System when it meets all the connection conditions prescribed in applicable Grid Code then in effect and otherwise meets all other Indian legal requirements for synchronization to the Grid System."

(ii) *Now, as per Regulation 5.14.2 of the Grid Code, 2019, specified by Hon'ble Commission.*

“Voltage may be LV side of power transformer i.e. 33 or 11kV or as agreed with STU.”

Hence, it is requested to the Hon’ble Commission, that for synchronizing the REPP with the network of DISCOM, no amendment is required in the supply code and that the RPG shall be allowed to connect at LV side of the notified 33/11 kV power transformer.

- (iii) Capital cost of the project is major component for determination of tariff for sale of power from REPP to DISCOM. Hence it is important to determine the capital cost of the project from time to time. On reviewing tariff order related to PM KUSUM Scheme passed by multiple states and Solar tariff orders of other states for smaller projects. The petitioner understand that module is a biggest cost component of project cost which consist around 50% of the total project cost, so the petitioner has decided to consider latest available module procurement cost from the Final Findings of review investigation for continued imposition of Safeguard duty on imports of “Solar Cells whether or not assembled in modules or panels” into India- Proceedings under the Customs Tariff Act, 1975 and the Custom Tariff (Identification and Assessment of Safeguard Duty) Rules, 1997 - Reg dated 18th July 2020.
- (iv) Based on the above-mentioned notification, the latest module cost is Rs. 14.86 per watt has been considered while remaining cost of BoS including inverter is considered from the KERC tariff order dated: Aug 2019 in the matter of Determination of tariff in respect of Solar Power Projects (including solar rooftop photovoltaic projects) for FY 20. **It is also humbly submitted that this price is already on the lower side in line with the current market conditions. Further, since the project must run for 25 years quality of the modules is of critical importance and low cost modules could compromise the same.** We have calculated the cost of the project Rs. 330.45 per MW as mentioned in the table below.

Cost Breakup	Rate	Unit	Amount (Rs. Lakh)
Avg. module cost	0.214	USD/Watt	0.21
USD in INR			75.05

Cost of Solar Module		INR/watt	14.86
Cost of Solar Module		INR Lakh /MW	148.60
Overload (DC AC Ratio)	10%	INR Lakh /MW	163.46
Safeguard Duty (SGD)	0.00%	INR Lakh /MW	0.00
Cost of Solar Module after SGD		INR Lakh /MW	163.46
Inverter		INR Lakh /MW	44.03
Balance of System		INR Lakh /MW	95.95
Total Capital Cost		INR Lakh /MW	303.44
GST for 70% of Capital Cost	5%	INR Lakh /MW	10.62
GST for 30% of Capital Cost	18%	INR Lakh /MW	16.39
Total Capital Cost after SGD and GST		INR Lakh /MW	330.45

- (v) Further, as mentioned in our petition in point e. of ii) capital cost under point 2 of Main part D, the total cost of evacuation line, eleven (11) kV bay and related switchgear i.e. 20.14 Rs. Lakh, which shall be added in the capital cost of the project. So, the capital cost of the project considered is Rs. 350.59 Lakh per MW [i.e. Rs. 330.45 Lakh + Rs. 20.14 Lakh (cost of evacuation line, eleven (11) kV bay and related switchgear)].
- (vi) Hence, it is requested to Hon'ble Commission to consider the impact of applicable safeguard duty on modules (which ultimately impact the Capital Cost of the Project) and also consider appropriate DC to AC ratio as compared to large scale projects like Rewa UMSP since we have considered 21% CUF as suggested by Respondent No.1, while assessing the other variables to determine the feed in tariff.
- (vii) As admitted by Respondent No. 1, if the land cost is not considered in the capital cost, it shall be considered in the operational cost in form of lease to be paid to the lessor. Basic premise of PM KUSUM Scheme is to increase the Farmer's income. If farmers / FPO / Cooperatives / WPO / panchayats has a land in the vicinity of notified substations as per the guidelines, and also have the equity to install the plant, it can install the REPP on its own, but if farmers /

FPO / Cooperatives / WPO / panchayats is not able to arrange the equity, it can lease its land to the developer and can earn the revenue from it.

- (viii) It is understood that the primary objective of Respondent No. 1 is to procure cheapest renewable power. But it is important to note that we are conducting reverse auction process which can help us in bring down the tariff further as we are determining the ceiling tariff for conducting the RA. If we consider only farmers / FPO / Cooperatives / WPO / panchayats to participate in this scheme, there might be a possibility that one may not achieve lowest tariff since Farmers do not have such capability to source cheaper material and arrange low cost financing. Also, the complexity in the tenders will increase by defining two separate rates for Farmer(s) and Developer(s).*
- (ix) If we determine Feed-in-Tariff too low, it might be the case where Developers might not show their interest or very few developers will show interest which will ultimately loses the whole purpose the Scheme. Hence, as explained in the para 3 above, since petitioner has not considered cost of land in the capital cost, it is request to the Hon'ble Commission to consider the lease rent while determining the feed-in tariff.*
- (x) Leasing of a land is governed by a separate agreement between a lesser and a lessee, of which neither any of the Respondent nor the Petitioner is a party thereof. Hence it is requested to the Hon'ble Commission to assess all the variables and pass an order as it deems fit.*

14. The Respondent No.5, Energy department, GoMP submitted the following in their reply filed on 05.01.2021:

- (i) The instant petition is filed by the MP Urja Vikas Nigam Ltd. (hereinafter referred to as "the petitioner"), for determination of Feed-in-tariff for sale of power from Decentralized Solar Power Plants having capacity between Five hundred (500) kW to Two (2) MW to be set up under component-A of the Pradhan Mantri Kisan Urja Surakhsha Evam Utthan Mahabhiyan (PM KUSUM) scheme introduced by Government of India (GOI) to the state DISCOMs.*
- (ii) CERC vide notification dated 23rd June, 2020 has notified the CERC (Terms and conditions for tariff determination from Renewable Energy Sources) Regulations, 2020. These regulations prescribe the General Principles, Tariff Structure, Financial Principles and other parameters for cases where tariff for*

a grid connected generating station based on renewable energy sources, is determined under Section 62. It is submitted to rely on these General Principles, Tariff Structure, Financial Principles and other parameters for determination of tariff in the instant petition.

- (iii) In the “clause B, Implementation of Component A of PM KUSUM scheme, point 3”, it has been stated by the petitioner that:

“.....To meet additional demand DISCOM will augment the capacity of sub-station under IPDS or any other scheme.”

It is submitted that the maximum capacity of RPG should be kept within the permissible limits of 33/11 KV power transformers of the substations maintained by DISCOMs.

- (iv) It has further been stated in clause B Implementation of Component A of PM KUSUM scheme, point 4, that:

“REPP of capacity up to 2 MW shall be connected at 11kV side of sub-station and the selected RPG will be responsible for laying of dedicated 11 kV line from REPP to sub-station, construction of bay and related switchgear at sub-station where the REPP is connected to the grid and metering is done”.

In this regard, it is submitted that in the Supply Code, 2013, notified by Hon'ble Madhya Pradesh Electricity Regulatory Commission, the Voltage Level for Supply to consumers is prescribed as below:

Supply Voltage	Minimum Contract demand	Maximum Contract demand
11 kV	50 kVA	300 kVA
33 kV	100 kVA	10000 kVA

However as per the proposal, the prospective REPP having installed Solar PV capacity between 500 KW to 2 MW and are envisaged to be connected at 11 kV Voltage Level of grid sub-station (33/11 KV). Therefore, it is submitted that necessary directives in the matter may kindly be issued by the Commission.

- (v) *The states like Rajasthan, Orissa, Punjab has considered the capital cost @ Rs. 340.00 Lakh per MW including the cost of transmission infrastructure and other switchgears for interconnecting the renewable energy power plant with the notified substation of DISCOM. Further, the land may be leased out to the Developer by the farmers/ FPO/ WUA/ panchayat or any other entity as mentioned in the implementation guidelines of KUSUM Component A. Hence, the land cost shall not be the part of capital cost and it shall be considered in the operational cost in form of lease rent to be paid to the relevant entity.*
- (vi) *The petitioner in point number b of clause x of main point 2 has considered the procurement cost of private land as twice that of collector guideline rate, which is applicable only, when the ownership of land is transferred. Whereas in this instant case, the ownership of the land will remain with the leasing entity after the 25 years life of the plant.*
- (vii) *As per the letter from MNRE D.O. No. 42/2/2020-SPV Division, dated 31st December 2020 (Annexure-1), it is of the view that farmer willing to lease out the land to developer renewable energy power plant can earn lease at rate of Rs. 20000 per acre per year.*
- (viii) *Considering the above factors, the Feed in Tariff derived will be Rs. 3.03 per unit (Annexure 2), and it is humbly prayed before the Hon'ble Commission to consider the submission and pass necessary order as deem fit.*

Commission's Analysis

15. It is made clear that the Commission, in this Order, is carrying out limited exercise for determination of ceiling tariff for purchase of power by Discoms from decentralized Solar Power Plants having capacity of 500 kW to 2MW to be set up by individual farmers/group of farmers/cooperatives/panchayats/Farmer Producer Organizations (FPO) /Water User Associations (WUA) in the vicinity of rural grid sub-stations under Component-A of the Pradhan Mantri Kisan Urja Suraksha evem Utthan Mahabhiyan (PM KUSUM) Scheme introduced by Government of India (Gol).

Tariff Design:

16. The Commission has considered a cost-plus tariff approach based on reasonable norms for determining tariff for Solar Power. In a cost-plus approach, the key elements that influence the determination of tariff for a project are mentioned below:

i. Capital Cost:

17. With regard to capital cost of the project, the petitioner broadly submitted the following:
- *There is continuous improvement in the Renewable Energy Technologies and the cost has considerably reduced over the past few years due to multiple factors including economies of scale, technological advancement, efficiency improvement and several other factors, hence it is pertinent to consider the latest capital cost as per the prevailing market norms.*
 - *On reviewing tariff order related to PM KUSUM Scheme passed by multiple states and also Solar tariff orders of other states for smaller projects, it is of the view to adopt the latest capital cost of the project as per KERC tariff order dated: August' 2019 in the matter of Determination of tariff in respect of Solar Power Projects (including solar rooftop photovoltaic projects) for FY 20. KERC has briefly described the methodology to determine the project cost.*
 - *However, as we understand that module is a biggest cost component of project cost which consist around 50% of the total project cost. Hence, we have taken latest available module procurement cost from the Final Findings of review investigation for continued imposition of Safeguard duty on imports of "Solar Cells whether or not assembled in modules or panels" into India.*
 - *Proceedings under the Customs Tariff Act, 1975 and the Custom Tariff (Identification and Assessment of Safeguard Duty) Rules, 1997 - Reg dated 18th July 2020.*
 - *Based on the above-mentioned notification, the latest module cost is Rs. 14.86 per watt has been considered while remaining cost of BoS including inverter is considered from the KERC tariff order. We have calculated the cost of the project Rs. 330.45 per MW. However, it is important to note that this cost is exclusive of land cost, evacuation cost and safeguard duty. However, we have included the applicable GST of 8.9% (5% on 70% of solar project cost and 18% on rest of the 30% project cost).*
 - *Moreover, it is the responsibility of the RPG for laying of dedicated eleven (11) kV line from REPP to sub-station, construction of bay and related switchgear at sub-*

station where the REPP is connected to the grid and metering is done. Hence the cost of evacuation line, eleven (11) kV bay and related switchgear shall be added in the capital cost of the project. As per the SOR rates for FY 2019-20, the cost of evacuation line is Rs. 2.60 Lakh per km. As the REPP are to be developed in the range of five (5) km radius from the 33/11 kV substation notified by DISCOMs, the length of evacuation line is considered as five (5) km. Hence total cost of evacuation line is considered Rs. 13 Lakh. The cost of developing eleven (11) kV bay and related switchgear is considered as Rs. 7.13 Lakh as per the SOR rates for FY 2019-20. Hence the total cost of evacuation line, eleven (11) kV bay and related switchgear i.e. 20.14 Rs. Lakh shall be added in the capital cost of the project.

- So, the capital cost of the project considered is Rs. 350.59 Lakh per MW [i.e. Rs. 330.45 Lakh + Rs. 20.14 Lakh (cost of evacuation line, eleven kV bay and related switchgear)].
- It is also important to inform that presently we have considered CUF of 21% based on the Rewa UMSPP performance which is large scale project and located in one district. Further, Developers of such large-scale project have taken DC AC ratio of more than 1.25:1. Hence for our projects, we have considered the DC AC ratio of 1.1:1 to arrive at a tariff.
- It is important to inform the Hon'ble Commission that safeguard duty has been implied on the solar power projects and presently we have not considered in the capital cost.
- Further, as mentioned above in clause 2 of Part B, it is pertinent to highlight to the Hon'ble Commission that these decentralized power plants are unique of its kind and the aim of this scheme is to double the income of farmer. Hence the land will be leased out by the RPG from the farmer and the **land cost is not considered in the calculation of Capital Cost** of the project.
- Hence, Hon'ble Commission is requested to consider the impact on Feed-in-tariff while assessing the other variables since we have not considered the applicable safeguard duty on modules (ultimately impact the Capital Cost of the Project) and also considered the lower DC to AC ratio as compared to large scale projects like Rewa UMSPP.

Respondents Submission on Capital Cost:

18. By affidavit dated 22nd October' 2020, MP Power Management Company Ltd (Respondent No. 1) has broadly submitted the following:

- *The capital cost of the project as envisaged by the Petitioner @ Rs. 350.59 Lakh per MW seems to be on a higher side since, the capital cost of the Project as considered by other Regulatory Commission eg. KERC in its order for determination of the Tariff notified on dated 01.08.2019, (including solar rooftop photovoltaic projects) for the REPP Generator, the capital cost has been considered as Rs. 340 Lac per MW.*
- *Further to above, it is to submit that in respect of Solar Power Projects for FY 20. Hon'ble KERC has considered Rs. 340 Lakh / MW which includes cost of land, cost of power evacuation line, 11kV bay and associated protection switchgear. Taking into consideration that about 5-acre land is required for developing 1 MW project and the cost of one-acre land has been considered as Rs. 5 Lakh. Therefore, it is submitted before the Commission for considering per MW Capital Cost of the Projects as Rs. 340 Lakh / MW.*

19. Vide letter dated 5th January' 2021, Energy department, Government of Madhya Pradesh has submitted the following on capital cost of the project:

- *The states like Rajasthan, Orissa, Punjab has considered the capital cost @ Rs. 340.00 Lakh per MW including the cost of transmission infrastructure and other switchgears for interconnecting the renewable energy power plant with the notified substation of DISCOM. Further, the land may be leased out to the Developer by the farmers/ FPO/ WUA/ panchayat or any other entity as mentioned in the implementation guidelines of KUSUM Component A. Hence, the land cost shall not be the part of capital cost and it shall be considered in the operational cost in form of lease rent to be paid to the relevant entity.*

20. The petitioner has filed the capital cost of the solar power project of Rs. 350.59 Lack/MW including cost of Rs. 20.14 Lakh towards for cost of evacuation line, eleven kV bay and related switchgear. While determining the capital cost of the project, the petitioner considered the basis of order issued by Karnataka Electricity Regulatory Commission (KERC) in August' 2019 in the matter of Determination of tariff in respect of Solar Power Projects (including solar rooftop photovoltaic projects).

21. The Respondent No. 1 (MPPMCL) submitted that the capital cost filed by the petitioner seems to be on a higher side since, the capital cost of the Project as considered by other Regulatory Commission like KERC for the renewable energy-based power plants (REPP), the capital cost has been considered as Rs. 340 Lac per MW. Respondent No. 1 (MPPMCL) has requested to consider the same capital cost as approved by KERC. Energy Department, Government of Madhya Pradesh (GoMP) has also submitted that the states like Rajasthan, Orissa, Punjab have considered the capital cost of Rs. 340 Lakh per MW including the cost of transmission infrastructure and other switchgears for interconnecting the renewable energy power plant with the substation. Energy Department, GoMP has requested to consider the capital cost of Rs. 340 Lakh per MW excluding the cost of land, however the lease rent has been separately claimed by the petitioner as a part of fixed of the project.

Commission's view on Capital Cost:

22. On examination of the subject petition and the responses/submissions filed by the Respondents, the Commission has observed that the innovation in technology, higher system efficiency, improved O&M, and decline in EPC cost has resulted in decrease in the solar power plant capital cost for decentralized distributed solar PV power project.
23. The Commission has also perused pre-fixed levelized tariff determined by other SERCs in the country. The KERC has considered Capital Cost of Rs. 340 Lakh / MW including the cost of land Rs. 5 Lakh/MW. The aforesaid capital cost determined by the KERC includes the cost of evacuation system i.e. lines and equipment's. The Commission is of the view that the Capital Cost of such projects especially cost of modules, inverter and civil work may not vary significantly across the country. Further, KERC has discussed in details the reasons for arriving at the capital cost. Some other SERCs have also considered the capital cost determined by KERC. Accordingly, the Capital Cost of Rs. 335 Lakh / MW excluding the cost of land is considered for determination of Levelized tariff in this order. The cost of land in this order has not been considered as yearly Lease rent is allowed in the tariff.

ii. Debt Equity ratio:

24. The petitioner in the subject petition has filed Debt : Equity ratio 70 : 30 in accordance to the MPERC (Terms and Conditions for tariff determination of energy from Renewable Energy Sources) Regulations, 2017. The Commission has considered the

same Debt : Equity ratio of 70 : 30 as claimed by the petitioner in accordance with the MPERC Regulations.

iii. Life of the project:

25. The petitioner has considered the life of solar PV power project including evacuation system till substation is 25 years in accordance to MPERC (Terms and Conditions for tariff determination of energy from Renewable Energy Sources) Regulations, 2017.
26. With regard to life of the project, Regulation 2(1)(za) of MPERC RE Tariff Regulations, 2017 provides that the useful life of Solar PV Project including evacuation system shall be 25 years. The CERC RE Tariff Regulation 2020 also provides that, the useful life of the Solar PV Project is 25 years. Therefore, the Commission has considered the useful life of the Solar PV Project as 25 years in accordance to the MPERC RE Tariff Regulations, 2017.

iv. Control Period:

27. The petitioner proposes the validity of the tariff determined by the Commission till three (3) years from the date of the order. Considering the request of the petitioner, the Commission has decided that the tariff determined in this order shall be applicable on all the projects commissioned under KUSUM Scheme Component-A till 31st March' 2024.

v. Capacity Utilization Factor (CUF);

28. The petitioner has considered CUF for Solar PV Power Project as 21% per annum based on the average CUF achieved from large scale ground mounted solar projects located in Rewa. The Respondents have also proposed the same CUF of 21%.
29. Regulation 44 of MPERC (Terms and Conditions for tariff determination of energy from Renewable Energy Sources) Regulations, 2017 provides the norms for Capacity Utilization Factor of Solar PV Power Project as 19%.
30. In CERC RE Tariff Regulation, 2020, the norms of CUF for Solar PV Power Projects is 21% mentioning the reasons that with the advancement of technology in the solar sector, the quality and efficiency of new solar panels has increased.

31. In view of the above and advancement of technology in the solar sector, the annual CUF of 21% for Solar PV Power Project as filed by the petitioner and suggested by the Respondents is considered in this order.

vi. Auxiliary Energy Consumption:

32. The petitioner has claimed Auxiliary Energy Consumption of 0.75% for the Solar PV Power Project in accordance to CERC RE Tariff Regulations. The Respondents have also proposed the same Auxiliary Energy Consumption of 0.75%.

33. Regulation 46 of MPERC (Terms and Conditions for tariff determination of energy from Renewable Energy Sources) Regulations, 2017 provides the norms for auxiliary energy consumption for Solar PV as 0.25%.

34. Further, the CERC has fixed the norms for auxiliary energy consumption of 0.75% for solar PV power project in its RE Tariff Regulations, 2020 issued on 23rd June' 2020 with the following reasons:

“For hydro power plants, in addition to the auxiliary consumption, transformation losses of 0.50% were also allowed separately. In line with the similar approach, the Commission is of the view that the transformation losses of 0.50% also needs to be allowed for grid connected Solar PV Projects.

In view of the above, the Commission has decided to revise the maximum auxiliary energy consumption for Solar PV Power Projects to 0.75%.

35. In view of the above, the Auxiliary Energy Consumption of 0.75% as claimed by the petitioner and suggested by the Respondents is considered in this order.

Fixed Cost Components:

i. Return on equity;

36. Regulation 15(1) of MPERC (Terms and Conditions for tariff determination of energy from Renewable Energy Sources) Regulations, 2017 specified that the normative Return on Equity shall be at 20% per annum for the useful life of the project.

37. With regard to Return on Equity for small scale solar projects, the petitioner has submitted that majority of the states including but not limited to Karnataka and Haryana in recent Orders have relied on CERC RE Tariff Regulations, 2020 which provides as under:

“The normative Return on Equity shall be 14%. 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”.

38. The petitioner has submitted that it has claimed Return on Equity based on the aforesaid approach specified by CERC. The petitioner further submitted that the latest available MAT rate is 15% plus applicable surcharge (10%) and Health and Education Cess (4%). The petitioner also considered that the latest applicable Corporate Tax is 30% for domestic company, plus applicable surcharge (12%) and Health and Education Cess (4%).
39. Based on the above, the petitioner has worked out applicable MAT rate 17.16% and Corporate Tax rate 34.94%. Accordingly, Pre-tax RoE for first 20 years after grossing up with MAT rate is worked out as 16.90% and Pre-tax RoE for the remaining Useful Life of the project after grossing up with Corporate Tax rate is worked out as 21.52%.
40. In view of the above, the Commission has considered the same approach for determining the Return on Equity as proposed by the petitioner in accordance with the CERC RE Regulations, 2020. Accordingly, the Return on Equity for useful life of the project is determined in this order.

ii. Interest on loan capital;

41. With regard to Interest on loan capital, Regulation 13 (2)(b) of MPERC (Terms and Conditions for tariff determination of energy from Renewable Energy Sources) Regulations, 2017 provides that *‘for the purpose of computation of tariff, the normative interest rate shall be considered **as may be estimated by the Commission**’.*
42. The petitioner has claimed interest on loan capital in accordance with Regulation 14(2)(b) of CERC RE Tariff Regulation 2020 which provides as follows:
“For the purpose of computation of tariff, normative interest rate of two hundred (200) basis points above the average State Bank of India Marginal Cost of Funds based Lending Rate (MCLR) (one-year tenor) prevalent during the last available six months shall be considered”.
43. Based on the above, the petitioner has worked out the rate of interest on loan as 9.53% considering the average of SBI MCLR rate of last available six months. The

petitioner has also considered loan tenure of 15 years in accordance to CERC RE Tariff Regulation 2020.

44. The Commission in its RE Tariff Regulations, 2017 provides that the normative interest rate shall be considered as may be estimated by the Commission. The Commission considered the submission of the petitioner which is in accordance with the CERC RE Tariff Regulations, 2020. Therefore, the rate of interest on loan capital @ 9.53% as filed by the petitioner is considered by the Commission in this order.
45. CERC has considered the loan tenure of 15 years for renewable power projects mentioning that various financial institutions provide loan tenure ranging from 10-15 years. As many RE technologies including Solar PV have achieved maturity level, it is now possible for the developers to get loan from lenders/financial institutions for longer duration say, 15 years.
46. In view of the above, the loan tenure of 15 years is considered in accordance to CERC RE Tariff Regulations, 2020 in this order.
47. With regard to repayment of loan, Regulation 13(2)(c) of MPERC (Terms and Conditions for tariff determination of energy from Renewable Energy Sources) Regulations, 2017 provides that the repayment of loan shall be considered from the first year of commercial operation of the project and shall be equal to the annual depreciation allowed.
48. Accordingly, the repayment of loan equal to annual depreciation is considered in this order.

iii. Depreciation and Useful plant life;

49. Regulation 14 of MPERC (Terms and Conditions for tariff determination of energy from Renewable Energy Sources) Regulations, 2017 provides as follows:

“The value base for the purpose of depreciation shall be the capital cost of the asset admitted by the Commission. The salvage value of the asset shall be considered as 10% and depreciation shall be allowed up to maximum 90% of the capital cost of the asset.”
50. Regarding the depreciation rate, the petitioner has submitted that the depreciation is utilized to meet the debt repayment. Hence, 70% of the capital cost of asset shall be depreciated up to the loan tenure (15-years) and balance 20% (excluding 10% salvage

value) of the capital cost of asset shall be depreciated over the remaining Useful Life of the Project. Accordingly, depreciation rate up to the loan tenure is 4.67% per annum and depreciation rate after the loan repayment tenure is 2.00% per annum claimed by the petitioner.

51. In view of the above, the Commission has observed that the depreciation rate as worked out by the petitioner in line of the provisions under MPERC RE Tariff Regulations, 2017. Therefore, the same rate of depreciation 4.67% per annum for 15 years loan tenure and 2.00% per annum for balance period of project life after the loan repayment tenure as worked out by the petitioner is considered in this order.

iv. Operation and maintenance expenses:

52. The petitioner claimed normative O&M expenses of Rs. 7 Lakhs / MW for the first year of operation in accordance with the Regulation 45(1) of MPERC (Terms and Conditions for tariff determination of energy from Renewable Energy Sources) Regulations, 2017. The petitioner has considered annual escalation factor of 3.84% in line with the CERC (Terms and Conditions for Tariff determination from Renewable Energy Sources) Regulations, 2020 for the solar PV power projects.
53. The Respondents have also proposed O&M expenses of Rs. 7 Lakhs / MW for the first year of operation with escalation factor as considered by the petitioner.
54. CERC has not prescribed the O&M norms for Solar PV Power Project mentioning that the Commission shall determine only project specific O&M expenses considering the prevailing market trends.
55. With regard to escalation factor, normative O&M expenses allowed during first year shall be escalated at the rate of 3.84% per annum. CERC worked out aforesaid escalation rate based on the average of CPI and WPI indices for last five years and by considering the weightage of CPI and WPI in the ratio of 70:30.
56. In view of the above, the normative O&M expenses of Rs. 7 Lakhs / MW for the first year of operation is considered in accordance with the Regulation 45(1) of MPERC RE Tariff Regulations, 2017. Further, the annual escalation @ 3.84% on O&M expenses is also considered in accordance to CERC RE Tariff Regulations, 2020 based on last five years average of CPI and WPI indices.

v. Interest on working capital:

57. Regulation 16(1) of MPERC (Terms and Conditions for tariff determination of energy from Renewable Energy Sources) Regulations, 2017 specified the following norms for working capital for Solar PV Power Projects:
- a) Operation and Maintenance Expenses for one month;
 - b) Receivables equivalent to two months of energy charges for sale of electricity calculated on the normative CUF;
 - c) Maintenance spares @ 15% of operation and maintenance expenses.
58. With regard to rate of interest on working capital, Regulation 16(3) of the MPERC RE Tariff Regulations, 2017 provides that 'the interest on working capital shall be at interest rate estimated by the Commission'.
59. The petitioner has claimed amount of working capital in accordance to the provisions under MPERC RE Tariff Regulations, 2017. With regard to rate of interest on working capital, the petitioner has mentioned that it has relied on methodology for calculating the interest on working capital specified in CERC RE Tariff Regulation 2020.
60. As per CERC RE Tariff Regulation 2020, "interest on working capital shall be at interest rate equivalent to the normative interest rate of three hundred and fifty (350) basis points above the average State Bank of India Marginal Cost of Funds based Lending Rate (MCLR) (one-year tenor) prevalent during the last available six months".
61. The petitioner has considered average of SBI MCLR (one-year tenor) of last six month (from January 2020 to June 2020) which is 7.53% and then worked out the Interest on Working Capital as 11.03% (7.53% + 3.50%) per annum.
62. In view of the above, the working capital is worked out in accordance to the norms for working capital specified under MPERC RE Tariff Regulations, 2017 in this order. With regard to rate of interest on working capital, the Commission has considered the Interest on Working Capital @ 11.03% as worked out by the petitioner in accordance to the provisions under CERC RE Tariff Regulations, 2020.

vi. Lease Rent

63. Regarding the Lease Rent to be paid to farmers and its escalation, the petitioner has submitted the following:
- f. The word “Utthan Mahabhiyan” in “Pradhan Mantri Kisan Urja Surakhsha evam Utthan Mahabhiyan” specifies the sole purpose of the scheme, which is to increase the income of farmers. The farmers having barren land which does not generate any income to the farmers, such land be can leased to RPG. By doing so, farmer can earn income from it.*
 - g. As per the Policy for Purchase of Land with Mutual Consent, Madhya Pradesh dated November 2014, procurement cost of private land is twice of the collector guideline rate.*
 - h. Since, the Petitioner proposed to provide land to RPG on lease basis, it is necessary that farmer should get the lease rent in 25 years which must be equivalent to the current procurement cost of the land under the policy.*
 - i. The Petitioner has assessed the circle rates of three districts, Neemuch, Agar and Shajapur. The average rates of unirrigated land of villages of these districts are considered and based on the policy mentioned above in clause (b), purchase cost of the barren land is considered as Rs. 15.66 Lakh/ Hectare. We have considered that the land requirement for one MW is around two hectares. Therefore, based on calculation methodology, a farmer should get the lease rent of Rs. 1.82 Lakh / MW.*
 - j. To avoid the inflation, a minimum escalation of 5% on lease rent is considered from second year, so that a farmer is compensated for inflation till the Useful Life of the project. It is important to note that the CPI’s average escalation rate for FY 2015 to FY 2019 is 4.92%. Hence, it is necessary to provide a minimum escalation of 5% in lease rent to compensate the farmer.*
64. On perusal of the petition, the Commission has observed that the purpose of the KUSUM scheme is to increase the income of farmers through lease of barren land which does not generate any income to the farmers. The petitioner has worked out the lease rent of Rs. 1.82 Lakh/MW/Year (details enclosed as annexure II with the

petition). The petitioner has also worked out an escalation @ 5% per year based on the average of CPI's of last five years (FY 15 to FY 19).

65. In view of the above, the lease rent of Rs. 1.82 Lakh/MW for first year of operation with annual escalation @ 5% as worked out by the petitioner is considered in this order.

Discounting Rate:

66. Regulation 20 of MPERC RE Tariff Regulations, 2017 provides that the Commission shall indicate the discounting factor in the tariff order for the purpose of working out the Levelized tariff for the useful life of the project.
67. In Regulation 10(2) of CERC RE Tariff regulation 2020, it is mentioned that “for the purpose of Feed-in-tariff computation, discount factor equivalent to post-tax weighted average cost of capital shall be considered”.
68. The petitioner has worked out the Discount Rate 8.58%. The Commission has observed that the petitioner has considered Corporate Tax 34.32% whereas the applicable Corporate Tax is 34.94% (Tax 30%, surcharge 12% and cess 4%). Accordingly, the Commission has worked out the discount factor as given below:

$$\begin{aligned} \text{Discount Rate} &= [(\text{Debt component} \times \text{Interest on debt}) \times \\ &\quad (1 - \text{Corporate Tax})] + (\text{Equity component} \times \text{RoE}) \\ &= [(70\% \times 9.53\%) \times (1 - 34.94\%)] + (30\% \times 14\%) \\ &= 8.54 \% \end{aligned}$$

69. In view of the above, the ‘Discount Rate’ of 8.54% per annum is worked out in accordance with the CERC RE Tariff Regulations, 2020 is considered in this order.
70. In view of the foregoing discussions, the Commission has determined the levelized tariff based on the following parameters: -

Parameters considered for determination of tariff for Solar PV under KUSUM-A Scheme:

Particulars	Units	
Number of days of Operation	Nos.	365
Plant Capacity	MW	1.00
Life of Plant	Years	25

Capacity Utilization Factor (CUF)	%	21
Auxiliary Energy Consumption	%	0.75
Financial Parameters		
Capital Cost excluding cost of land	Rs. Lakh	335.00
Debt : Equity ratio	Ratio	70 : 30
Loan Amount	Rs. Lakh	234.50
Equity Amount	Rs. Lakh	100.50
Normative ROE	%	14.00
Minimum Alternate Tax (MAT)	%	17.16
Corporate Tax (CT)	%	34.94
ROE till 20-years (Grossed up with MAT)	%	16.90
ROE after 20-years (Grossed up with CT)	%	21.52
Loan repayment period	Years	15
Moratorium Period	Years	0
Rate of Interest on Loan	%	9.53
Salvage value of Assets	%	10
Rate of Depreciation for first 15 years	%	4.67
Depreciation from 16 th year	%	2.00
O&M Expenses	Lakh/MW	7.00
Increment in O&M Expenses	%	3.84
Lease rent payable to farmers first year	Lakh/MW	1.82
Escalation on Lease rent	%	5.00
Working Capital Components		
O&M Expense	Months	1
Receivables	Months	2
Maintenance Spares as % of O&M Expenses	%	15
Rate of interest on working capital	%	11.03

71. Based on the aforesaid parameters, the Commission has determined the pre fixed levelized tariff of Rs. 3.07 / kWh under Component-A of KUSUM Scheme for entire life of the project commissioned till 31st March' 2024. This will act as a ceiling tariff for the competitive bidding in this matter. The duration of PPA shall be 25 years for all projects covered under this scheme. The computational details are placed at **Annexure – A**.

72. Regarding connectivity of the project with the grid, the Respondents have pointed out that REPP capacity up to 2 MW shall be connected at 11 KV side of the sub-station. However, the Supply Code 2013 notified by the Commission allows maximum contract demand of 300 KVA on 11 KV voltage of supply to the consumers. They have requested for amendment in the Supply Code.
73. The petitioner in the rejoinder correctly submitted that above mentioned provision of the Supply Code 2013 is applicable on the consumers while getting power supply from Distribution Licensee. It is not applicable on the generators. The petitioner further clarified that model PPA provided by MNRE for Kusum Project have a clause 5.1.2 which incorporates a condition that the project shall meet all the conditions applicable for synchronisation of generator as per the Grid Code. Moreover, the Commission has observed that bidding has been allowed only from 33/11 KV substation where adequate capacity is available. This shall be identified by the Distribution Licensee. Hence, a situation of overloading of the system should not arise. REG and Distribution Licensee shall also ensure to fulfil all the technical requirements for synchronisation of the project with the grid and comply with abovementioned clause 5.1.2 of the PPA.
74. With the above directions, this Petition No. 50 of 2020 is disposed of.

(Shashi Bhushan Pathak)
Member

(Mukul Dhariwal)
Member

(S.P.S Parihar)
Chairman

Date: 16th February' 2021

Place : Bhopal

Order for Solar PV Power Project under KUSUM Scheme

Tariff for Solar PV projects under KUSUM-A Scheme: Levelized Tariff determined by the Commission Rs. 3.077/kWh

Annexure-A

Particular	Unit	Year- 1	Year- 2	Year- 3	Year- 4	Year- 5	Year- 6	Year- 7	Year- 8	Year- 9	Year- 10	Year- 11	Year- 12	Year- 13
Capacity	MW	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Net Generation	MU's	1.826	1.826	1.826	1.826	1.826	1.826	1.826	1.826	1.826	1.826	1.826	1.826	1.826
Tariff Components														
Return on Equity	Rs. Crore	16.98	16.98	16.98	16.98	16.98	16.98	16.98	16.98	16.98	16.98	16.98	16.98	16.98
Interest on Loan	Rs. Crore	21.59	20.10	18.61	17.12	15.64	14.15	12.66	11.17	9.68	8.19	6.70	5.21	3.72
Depreciation	Rs. Crore	15.63	15.63	15.63	15.63	15.63	15.63	15.63	15.63	15.63	15.63	15.63	15.63	15.63
O&M Expenses	Rs. Crore	7.00	7.27	7.55	7.84	8.14	8.45	8.78	9.11	9.46	9.83	10.20	10.60	11.00
Interest on working capital	Rs. Crore	1.36	1.35	1.34	1.32	1.31	1.30	1.29	1.28	1.27	1.26	1.25	1.24	1.24
Lease Rent	Rs. Crore	1.82	1.91	2.01	2.11	2.21	2.32	2.44	2.56	2.69	2.82	2.96	3.11	3.27
Total Fixed Cost	Rs. Crore	64.39	63.25	62.12	61.01	59.92	58.84	57.78	56.74	55.72	54.72	53.74	52.78	51.85
Per Unit Tariff	Rs./kWh	3.527	3.464	3.402	3.342	3.282	3.223	3.165	3.108	3.052	2.997	2.943	2.891	2.840
Discounting Rate	%	8.54	8.54	8.54	8.54	8.54	8.54	8.54	8.54	8.54	8.54	8.54	8.54	8.54
Discounted Factor		1.00	0.92	0.85	0.78	0.72	0.66	0.61	0.56	0.52	0.48	0.44	0.41	0.37
Discounted Tariff	Rs./kWh	3.53	3.19	2.89	2.61	2.36	2.14	1.94	1.75	1.58	1.43	1.30	1.17	1.06

Particular	Unit	Year- 14	Year- 15	Year- 16	Year- 17	Year- 18	Year- 19	Year- 20	Year- 21	Year- 22	Year- 23	Year- 24	Year- 25
Capacity	MW	1.00	1.00	1.00	1.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Net Generation	MU's	1.826	1.826	1.826	1.826	1.826	1.826	1.826	1.826	1.826	1.826	1.826	1.826
Tariff Components													
Return on Equity	Rs. Crore	16.98	16.98	16.98	16.98	16.98	16.98	16.98	21.63	21.63	21.63	21.63	21.63
Interest on Loan	Rs. Crore	2.23	0.74	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Depreciation	Rs. Crore	15.63	15.63	6.70	6.70	6.70	6.70	6.70	6.70	6.70	6.70	6.70	6.70
O&M Expenses	Rs. Crore	11.42	11.86	12.32	12.79	13.28	13.79	14.32	14.87	15.44	16.04	16.65	17.29
Interest on working capital	Rs. Crore	1.23	1.23	1.07	1.09	1.12	1.15	1.17	1.29	1.32	1.35	1.38	1.42
Lease Rent	Rs. Crore	3.43	3.60	3.78	3.97	4.17	4.38	4.60	4.83	5.07	5.32	5.59	5.87
Total Fixed Cost	Rs. Crore	50.94	50.05	40.86	41.54	42.26	43.00	43.78	49.32	50.16	51.04	51.95	52.91
Per Unit Tariff	Rs./kWh	2.790	2.742	2.238	2.275	2.314	2.355	2.398	2.701	2.747	2.795	2.846	2.898
Discounting Rate	%	8.54	8.54	8.54	8.54	8.54	8.54	8.54	8.54	8.54	8.54	8.54	8.54
Discounted Factor		0.34	0.32	0.29	0.27	0.25	0.23	0.21	0.19	0.18	0.16	0.15	0.14
Discounted Tariff	Rs./kWh	0.96	0.87	0.65	0.61	0.57	0.54	0.51	0.52	0.49	0.46	0.43	0.41
Levelized Tariff	Rs./kWh	3.07											