

HIMACHAL PRADESH ELECTRICITY REGULATORY COMMISSION, SHIMLA

Suo-Moto Petition No.: 22/2021

CORAM

Sh. Devendra Kumar Sharma

Chairman

Sh. Bhanu Pratap Singh

Member

(Date of Order: 22.07.2021)

IN THE MATTER OF:-

Determination of Generic Levellised Tariff for Solar PV Projects for FY 2021-22 under Himachal Pradesh Electricity Regulatory Commission (Promotion of Generation from the Renewable Energy Sources and Terms and Conditions for Tariff Determination) Regulations, 2017.

ORDER

1. The Commission notified the Himachal Pradesh Electricity Regulatory Commission (Promotion of Generation from the Renewable Energy Sources and Terms and Conditions for Tariff Determination) Regulations, 2017 in the Rajpatra, Himachal Pradesh on 23rd November, 2017 and also made amendments from time to time. In the 4th amendment of the said Regulations, as carried out on 8th September, 2020 and notified in the Rajpatra, Himachal Pradesh on 15th September, 2020, the financial principles for the RE technologies, including solar PV projects, in respect of the 3rd control period (i.e. 01.04.2020 to 30.09.2023) have been specified. The said Regulations of 23rd November, 2017, read with subsequent amendments as aforesaid, have hereinafter jointly referred to as “RE Tariff Regulations, 2017”.
2. The Commission, in due discharge of the mandate under regulation 18 of RE Tariff Regulations, 2017 issued the proposal dated 26.04.2021 for categorization of solar PV projects, fixing the technology specific parameters and determination of the Generic Levellised Tariff for Solar PV projects (not exceeding 5.00 MW), alongwith associated terms and conditions, for FY 2021-22.
3. The Commission invited objections/suggestions from the public on its aforesaid proposal, by way of insertions in two News Papers i.e. “Indian Express” and “Daink Bhaskar” on 4th May, 2021. The text of said proposal was also made available on the Commission’s website www.hperc.org.
4. The Commission, vide letter dated 05.05.2021, also requested the major stakeholders, including the State Government, Directorate of Energy, HIMURJA, the Distribution Licensee i.e. HPSEBL, the Consumer representative and the Industries associations etc. to send their objections/suggestions as per the

aforesaid public notice on or before 21st May 2021. The public hearing in the matter was scheduled for 29th May, 2021.

5. Due to the corona curfew imposed by the Government of Himachal Pradesh on account of second wave of COVID-19 pandemic, the Commission decided to extend the last date for the submission of objections/suggestions on the aforesaid proposal upto 10th June, 2021. A public notice in this regard was published in the News Papers i.e. "Hindustan Times" and "Amar Ujala" on 3rd June, 2021. The public hearing was also rescheduled for 18th June, 2021.
6. The Commission, vide letter dated 03.06.2021, again requested the major stakeholders, including the State Government, Directorate of Energy, HIMURJA, the Distribution Licensee i.e. HPSEBL, the Consumer representative and the Industries associations etc. to send their objections/suggestions on or before 10th June, 2021.
7. On account of unforeseen circumstances, the public hearing in the matter was once again rescheduled for 28th June, 2021. A public notice was also issued in this regard in the News Papers "Times of India" and "Divya Himachal" on 16th June, 2021. The same was also conveyed to the major stakeholders vide letter dated 15.06.2021.
8. In response, the written comments/suggestions were received from the following stakeholders:-
 - (i) The SJVNL, Corporate Office Complex, Shakti Sadan, Shanan, Shimla, HP-171006.
 - (ii) Sh. Jiwan Singh Pathania (Jiwan Solar Power Project), VPO Bhaleta, Teh Nurpur, Distt. Kangra, HP – 176201.
 - (iii) Smt. Neelam Sharma (Jupiter Solar Power Project), Shop No.-2, SBI Complex, PNB Damtal, Kangra, HP.
 - (iv) Sh. Abhishek Sankhyan- VPO Dhar Tatoh, Tehsil Sadar, Distt. Bilaspur, HP.
 - (v) Smt. Narendra Devi-VPO Dhar Tatoh, Tehsil Sadar, Distt. Bilaspur, HP.
 - (vi) Sh. Tilak Raj Sharma (Rajakhasa Solar Power Project), VPO Rajakhasa Teh. Indora, Distt Kangra, HP.
 - (vii) M/s R.P. Suman & Co., VPO-Jahu, Tehsil- Bhoranj, Distt. Hamirpur, HP-176048.
 - (viii) Sh. Santosh Thakur, Village Bharathu, PO Binola, Tehsil Sadar, Distt. Bilaspur, HP.
 - (ix) Shri. Inderdeep Singh Khurana, (M/s Sunomatic Power Pvt. Ltd.), Vill.-Sihan, PO-Gagal, Teh.-Bal, Distt.- Mandi, HP-175006.
 - (x) Ms. Shradha Jaswal (Evaz Solar Park), VPO Chalet, Tehsil- Ghanari, Distt. UNA, HP-177204.

- (xi) Mr Pradeep Jaswal (Ayannaz Solar Park), VPO Chalet, Tehsil- Ghanari, Distt. UNA, HP-177204.
- (xii) Sh. Roop Lal Sankhyan, VPO Dhar Tatoh, Tehsil Sadar, Distt. Bilaspur, HP.
- (xiii) Sh. CSS Chauhan (Sadhvani Solar Plant), Distt Mandi.
- (xiv) Sh Kartik Upadhyay (K-Solr Power project), VPO & Tehsil-Shahpur, District Kangra, HP-176206.

9. As per the aforesaid public notice, the public hearing was held on 28th June, 2021 through video conferencing. The list of stakeholders who participated in the hearing is annexed at **Annexure-“A”**. During the course of public hearing, the following views were expressed:-

- (a) The representative of SJVNL stated that the impact of Safe Guard Duty and the Basic Custom Duty may be considered in the tariff determination alongwith degradation factor. He stated that the approved list of models and manufacturers of solar Module issued by the MNRE includes the modules having lower wattage only whereas the modules of higher range wattage capacity i.e. 520 to 530 Wp are in use currently in India for MW capacity scale projects and suggested that the higher wattage module may be considered in the benchmark normative capital cost.
- (b) The representative of Evaz Solar & Ayannaz Solar Parks stated that the normative net saleable energy of 1.84 MUs on annual basis considered in the tariff calculations with 21% of CUF is practically not feasible. As per the generation data of his projects, the annual generation may be to the tune of 1.4 MUs per MW. Apart from this, there is energy loss due to grid failure and poor maintenance of the evacuation system. He suggested that the generator may be compensated in case the annual generation is lower than the normative value worked out in tariff calculations. He also raised the issue of degradation of cells. He also stated that the time taken by the Directorate of Energy for the issuance of commissioning certificate results in delay in claiming the available incentive(s).
- (c) The representative of M/s Sunomatic Power Pvt. Ltd stated that since the total installed capacity of Solar Projects commissioned in the State is about 28 MW, the Commission may adopt the normative parameters for tariff determination of solar PV projects based on the actual conditions prevailing in the State instead of relying on the all India based data. He stated that to achieve 4.8 MWp AC generation the required installed capacity of solar PV plant may be about 6.5 MWp. He further stated that degradation is another major factor affecting the generation during the useful life of the project. He suggested that the rates available on other websites like Mercom India etc. may also be referred while fixing the normative capital cost of solar PV module. He mentioned that the interest rate considered in the tariff

calculations is not commensurate with the rates being charged by the financial institutions for the loans to the solar PV projects. He further mentioned that the cost of the modules with comparatively lower degradation is on higher side. He suggested that the escalation in O&M charges may be linked with the inflation/Dearness Allowance and it should be fixed around 4% on annual basis. He submitted that although 14% RoE is quite reasonable, however, the effective RoE may be on lower side on considering the normative parameters proposed viz-a-viz the actual parameters. He commented that the provision of deemed generation should also be made by the Commission.

- (d) The representative of M/s Bhandari Ram Solar Plant stated that for 1.00 MW_{AC} generation about 1.3 MW_{DC} generation capacity is needed to be installed and that 1.00 MW_{DC} generation capacity of solar PV plant generates about 1.45 MUs on annual basis. He stated that the normative module cost considered in the proposal, as per the website of pvinsights, needs to be further enhanced on account of transportation, insurance, duties and taxes etc. He also stated that the degradation factor may have an impact of 30 to 35 paise per unit in the levelled tariff. He further stated that there should be a separate category for the projects upto 500 kW.
- (e) The representative of M/s Sankhyan Solar Plant stated that even in the State of Rajasthan, a 1.00 MW solar PV project may generate only 1.7 MUs on annual basis. He stated that there should be a buffer allowance to cater the fluctuating interest rates and tariff may be fixed taking into account the conditions prevailing in the hilly States. He mentioned that the regular shutdowns in the evacuation system further deteriorate the generation of the plant. He suggested that the tariff should be fixed in such a way that the youth of the State may be attracted towards entrepreneurship.
- (f) The representative of M/s R.P.Suman & Co. stated that the minimum capacity of solar PV plant, to be considered for award, should be 2.00 MW instead of 500 kW in view of economy of scale. He stated that taking into account the price of steel and higher landed cost of modules, the normative per MW cost of solar PV project may be Rs. 4 Crore. He further stated that the interest rate should be on higher side since banks are asking 100% collateral security.
- (g) The representative of M/s Sadhwani Solar Plant stated that based on eight (8) months generation data of his project, he fully agrees with the comments/viewpoints expressed by the other solar power developers during this hearing. He added that separate O&M expenses should be fixed for 500 kW and 250 kW capacity.

- (h) The representative of HPSEBL stated that the proposal of the Commission seems to be fully justified and the normative parameters considered in the proposal are quite reasonable.
- (i) The representative of Directorate of Energy, GoHP assured in the public hearing that the matter relating to timely certification of COD of the solar PV projects is already under consideration and shall be sorted out within one month.

10. We now proceed further to consider the suggestions made by the stakeholders in their written submissions as well as in the oral submissions made during the public hearing.-

(A) CAPITAL COST.-

- (i) Sh. Jiwan Singh Pathania (Jiwan Solar Power Project), Smt. Neelam Sharma (Jupiter Solar Power Project), Sh. Santosh Thakur, Sh. Abhishek Sankhyan, Sh. Roop Lal Sankhyan and Sh. Kartik Upadhyay (K-Solr Power Project) have submitted that the normative capital cost proposed in the current proposal is on the lower side. They have suggested that to arrive at normative capital cost, budgetary prices should be ascertained from premier players (EPC) in solar project installation like TATA Power Solar, Vikram Solar, Adani Solar etc. as well as from the EPC players who have successfully installed solar projects of 500 kWp capacity in the state and thereafter, the normative capital cost should be decided after adding the cost of land and other Preliminary expenses. These stakeholders have also mentioned that the impact of Covid-19 Pandemic has not only caused demand-supply gap but the associated costs of material, transportation, manpower etc. have also increased by 20- 25% leading to overall higher cost and delays in completion of the solar projects. It has been suggested that the Commission may consider these factors also while arriving at the normative capital cost. Sh. Abhishek Sankhyan also submitted that the impact of degradation about 20% in the useful life of the project and the same may be considered separately on annual basis.
- (ii) Sh. Jiwan Singh Pathania (Jiwan Solar Power Project) has submitted that the various expenses like Statutory Fee of Rs. 2 lakh for Connection Agreement, Other Fee charged by various agencies HPSEBL & Himurja, Processing Fee of Banks for loans and other miscellaneous charges should be considered for arriving at the final normative capital cost and has also suggested that the impact of degradation of solar panels may be considered on annual basis.
- (iii) Smt. Neelam Sharma (Jupiter Solar Power Project), Smt. Narendra Devi, Sh. Roop Lal Sankhyan and Sh. Kartik Upadhyay (K-Solr Power Project) have submitted that the proposed 9% cost for misc. expenses is insufficient. They have submitted that the prices of module arrived at by including taxes, transportation, insurance

and contractor profit will be higher than the proposed cost. Smt. Neelam Sharma (Jupiter Solar Power Project) and Smt. Narendra Devi have also submitted that the cell degradation proposed in the “Normative capital cost” is not in order. It should be considered separately as it happens every year and generation efficiency may be approximately 80% after 25 years.

- (iv) Sh. Santosh Thakur has submitted that the assumption of annual gross generation of 18.40 lakh/MWp in the draft proposal should only be adopted if the modules with 30% more DC capacity are allowed to be installed by considering an increase of Module cost to around 2.10 Cr in place of 155.98 Lakh.
- (v) Sh. Tilak Raj (Rajakhasa Solar Power Project), Smt. Shradha Jaswal (Evaz Solar Park) and Sh. Pradeep Jaswal (Ayannaz Solar Park) have submitted that the normative capital cost proposed in draft proposal is on lower side. They have quoted the cost of their projects and have suggested that the capital cost of 1 MW project should not be less than 4.5 Cr. Sh. Tilak Raj (Rajakhasa Solar Power Project) has also suggested that the impact of degradation of solar panels may be considered on annual basis.
- (vi) M/s R.P. Suman & Co. have submitted that in actual, the capital cost varies from Rs. 400 Lakh to Rs. 420 Lakh and that the solar panel/module manufactures are charging Rs. 225-230 Lakh per MWp. It has been stated that with the introduction of GST, individual developers will not get input credit and that 5% contingences expenses be considered in the capital cost as per the normal practice.
- (vii) Sh. Roop Lal Sankhyan, Sh. Kartik Upadhyay (K-Solr Power Project) and Sh. Inderdeep Singh Khurana (M/s Sunomatic Power Pvt Ltd) have submitted that the rates of PV modules, as considered in the proposal, are based on international market prices but charges for transportation, taxes and duties being put on them, profit reserved by EPC contractor, labour cost and the rates of BOS (Balance of Supply other than panels and inverters) have also increased considerably and should also be included in the panel cost.
- (viii) The SJVNL has submitted that:-
 - (a) The Solar PV Module Rate has been considered as Rs 155.98 Lakh/MW which is based on the PV Module weekly spot prices accessed on 07.04.2021 at pvinsights website. It has been mentioned that as per the Industry practices, most of the Solar Power Projects (90%) install Mono PERC Modules whereas costs of only Poly and Thin Film Solar Modules have been considered in the proposal and has requested that the rate for Mono PERC Module may also be considered while determining the Normative Capital Cost. It has further been mentioned that the Chinese imports are still estimated to make up around 80% of components used in solar developments in India today, and the country's homegrown solar

manufacturing output remains comparatively small, the various taxes (i.e the Safe Guard Duty (SGD) and the Basic Custom Duty (BCD)) considered may also be elaborated in the document and the impact of the same needs to be captured in the generic tariff.

- (b) As per the MNRE order dated 10.03.2021, ALMM has been made mandatory for use by all the Developers and as per the present ALMM List, maximum wattage in respect of module is in the range of 395 Wp whereas modules of the range of 520 to 530 Wp are in use currently in India. Hence, resorting to lower wattage module will increase the capital cost substantially by increasing the land requirement and also the losses and need to be addressed while determining the generic tariff for FY 2021-22. The applicability of the ALMM list in the instant case may also be looked into.
- (c) The degradation factor used for arriving at the escalation factor may be indicated in the document and must be considered in the calculation sheet, as the Gross Generation cannot be consistent over the complete Project Life of 25 years and need to be adjusted in accordance with the degradation factor of the Module as it shall reduce the energy for every consecutive year and hence impacting the revenue from the Solar Project.
- (ix) Sh. Inderdeep Singh Khurana (M/s Sunomatic Power Pvt. Ltd), Sh. Roop Lal Sankhyan and Sh. Kartik Upadhyay (K-Solr Power Project) have submitted that the approximate power degradation of solar panels is 2.5% during 1st year and thereafter 0.68% every year up to 25 years and suggested that the same may be considered separately in the tariff calculations.

Commission's View:-

The Commission feels that some of the suggestions given by stakeholders merit consideration for marginal increase in normative capital cost. However, it is also felt that with the advancement of the technology, the increased efficiency is bound to result in savings in the cost of some other components such as requirement of space etc. As regards the de-gradation impact in the useful project life span, the same is envisaged to be met through O&M expenses. However, the normative capital cost takes into account, the initial spares to be procured for the purpose. The Commission also feels that with the advancement of technology, in future the requirement of such running maintenance spares shall also get reduced considerably. In relation to the suggestion given by SJVNL to consider the rate of Mono PERC Module while determining the Normative Capital Cost, the commission also feels that in view of the advancements in Solar Module Technology and adoption of such technology, the Thin Film Solar Panels may not be a viable option for Solar PV generation on commercial basis. After balancing the various related factors, the Commission decides to increase the normative capital cost to the following extent:-

- (a) Overheads shall be enhanced to 15% of the module cost as against 9% as per the proposal.
- (b) To consider the rates of Mono PERC Solar Modules and Poly Solar Modules to arrive at benchmarked normative cost of modules. Accordingly, the cost of Thin Film Solar Modules shall not be considered.
- (c) The cost of other components, including land shall be kept unchanged even though the higher wattage modules may otherwise result in some saving in this regard.

(B) Power Generation/CUF/ Net Saleable Energy:-

- (i) Smt. Neelam Sharma (Jupiter Solar Power Project), Sh. Roop Lal Sankhyan and Sh. Kartik Upadhyay (K-Solr Power Project) have submitted that the CERC in its RE Tariff Regulations, 2020 has defined the Installed capacity of Solar PV Projects in case of solar PV power projects and floating solar projects as the sum of name plate capacities (Nominal AC power) of the inverters of the projects has fixed normative Capacity Utilization Factor (CUF) for solar PV projects as 21% whereas the installed capacity defined in the Model PPA for Solar PV Projects means summation of the name plate kilowatt capacity(ies) of the solar PV cells of the projects and is actually the DC input being fed to the inverters of projects. They have submitted that any solar PV project having Installed capacity of 1000 kW_{DC} will generate about 750 kW_{AC} during its peak generation period and its Capacity Utilization Factor (CUF) comes down to about 16%. These stakeholders have suggested that in the interest of all the stake holders, the installed capacity of projects be fixed as defined in the regulation of 'CERC' i.e. in kW_{AC} and normative cost per kW be suitably increased to account for the addition of solar PV modules.
- (ii) Sh. Santosh Thakur, Sh. Abhishek Sankhyan and M/s R.P. Suman & Co have submitted that any solar PV project having installed capacity of 1000 kW_{DC} will generate about 750 kW_{AC} during its peak generation period and that to achieve the CUF 21% and 1.84 MU/MW, the DC capacity shall have to be increased by 30-35% which will increase the capital cost. They have suggested that lower CUF should be considered instead of 21%.
- (iii) Smt. Neelam Sharma (Jupiter Solar Power Project), Sh. Jiwan Singh Pathania (Jiwan Solar Power Project) and Sh. Inderdeep Singh Khurana (M/s Sunomatic Power Pvt. Ltd) have suggested that gross generation figure may be fixed based on available data of Solar power Projects that have been installed in state of Himachal Pradesh or may be obtained from the EPC players who are working in this field. They have mentioned that the gross generation is not more than 14.5 lakh unit from 1 MW plant.

- (iv) Sh. Tilak Raj (Rajakhasa Solar Power Project), Smt. Shradha Jaswal (Evaz Solar Park), Sh. Pradeep Jaswal (Ayannaz Solar Park), Sh. Roop Lal Sankhyan, Sh. Kartik Upadhyay (K-Solr Power Project) and Sh. CSS Chauhan (Sadhvani Solar Plant) have quoted the gross generation from various Solar PV projects and have suggested the gross generation figure should not be fixed more than 14.5 lakh units from 1 MW plant.

Commission's View:-

The Commission has proposed normative CUF as 21% in line with the existing definition of installed capacity and in case, the said definition is to be modified, the normative CUF shall also undergo an increase. The Commission also observes that even as per the CERC Regulations, the CUF is required to be kept at least at 21%. The auxiliary consumption has however been considered separately as 0.75% as per the CERC norms. The suggestion to compensate the solar power developer in case the annual generation is lower than the value worked out in the tariff model, may not be acceptable since it may lead to inefficiency in the operation of the project.

In view of above, the commission declines to make any changes in the proposal in this regard.

(C). Interest Rate.-

- (i) Sh. Jiwan Singh Pathania (Jiwan Solar Power Project), Smt. Neelam Sharma (Jupiter Solar Power Project), Sh. Roop Lal Sankhyan, Sh. Kartik Upadhyay (K-Solr Power Project), Smt. Narendra Devi and Sh. Abhishek Sankhyan have submitted that the RBI has reduced the interest rates two times in 2020 due to Corona and shall definitely increase the interest rates after Corona. They have further submitted that the interest rate charged by the Banks for loans, varies from individual to individual on the basis of CIBIL scores. Further, if one cannot afford 100% collateral security then his interest rate is increased by about 1%. They have stated that in situations when a regular loan from a bank is not enough, a solar project developer may have to take a personal loan for the remaining amount with interest rate from 11% - 16 %. They have suggested that also keeping the above in view and the time taken by PSU Banks, interest rate may be kept 9.5 - 11% or tariff may be revised as per RBI interest rate in future.
- (ii) M/s R. P. Suman & Co. have submitted that all the banks are demanding 100% collateral or BG for funding the project and further providing loan upto 60% of the total project cost. It has been submitted that since the banks do not provide term loan @ 9.00%, interest on loan may be considered @ 11-12 %.
- (iii) Sh. Inderdeep Singh Khurana (M/s Sunomatic Power Pvt Ltd) has suggested that since the loan tenure for the project is 13 years, the loan interest rate should be based on MCLR tenor of three years basis which is 20 basis points higher than the MCLR tenure of one year.

Commission's View:-

The rate of interest has been considered in accordance with the provisions specified in RE Tariff Regulations, 2017 in this regard, which is also in line with the regulations of Central Commission. It is beyond the scope of this proposal to consider any other rate. Even otherwise, it is felt that with the availability of assured market to the developers for sale of power to Discom under the Long term PPAs, risk perception shall be lower in such cases.

(D) Categorization

- (i) M/s R. P. Suman & Co. has submitted that in Maharashtra, the Generic Levellised Tariff is Rs. 3.30/- per kWh under Kisan Urja Suraksha evam Utthaan Mahabhiyan (KUSUM Yojana) and the size of the project is ranging from 500 kW to 2 MW. The stakeholder also submitted that the construction cost, labour cost, availability of material, transportation cost of material is low in Maharashtra as compared to the State of Himachal Pradesh. Based on above, he suggested that the minimum capacity of solar PV plant, to be considered for award, should be 2.00 MW instead of 500 kW in view of economy of scale.
- (ii) Sh. Santosh Thakur has submitted that normative capital cost of projects upto 500 kW may be considered separately as in the State, HIMURJA is allotting projects of 250-500 kW capacity which are being developed.
- (iii) Sh. Kartik Upadhyay (K-Solr Power Project) has submitted that the Commission has categorized the Solar PV projects in its "RE Tariff Regulations, 2017" and fixed common tariff up to 1 MW and that no Solar scheme of HP Govt. was available at that time and also there was no limit regarding installed capacity of Solar PV projects. As such, Categorization of capacity was quite reasonable. But thereafter, the Govt. of HP has announced two schemes (20 MW & 28 MW) to harness the solar system and restricted the capacity of projects between 250 to 500 kW. He has further suggested that for smaller projects, the cost of transformer and its associated power cables is quite substantial and has a considerable impact on per unit rates to be calculated, so that the normative capital cost of projects up to 500 kW may be considered separately as most of Solar PV projects being developed in the State are of 500kW capacity.
- (iv) Sh. CSS Chauhan (Sadhvani Solar Plant) has submitted that the O&M expenses for 250 kW capacity Solar PV Projects should be considered separately. Similar views were expressed during the public hearing also.
- (v) Sh. Roop Lal Sankhyan has also stated during the public hearing that there should be a separate category for projects upto 500 kW capacity.

Commission's View:-

The Commission has already proposed three separate categories. The first category includes the projects upto 1 MW capacity and the second category includes the projects above 1MW and upto 5 MW capacity. The projects with capacity more than 5 MW are covered in the third category. The Commission declines to accept the suggestion for creating a separate category for the projects upto 250 kW & 500 KW.

(E) Time period for Project Commissioning

Smt. Neelam Sharma, (Jupiter Solar Power Project) has submitted that the time given for construction and commissioning i.e. one year is not enough as Banks take approx 6 to 7 months for the processing of loan after signing of PPA and small EPC companies take 4-5 months to complete the project. This time may be increased from one year to one and a half year with same tariff.

Commission's View:-

The Commission has already allowed a normal period ranging from one year to two years for construction and commissioning of Solar PV projects depending upon the date of approval of the PPA. It is only in case of slippage that the tariff gets changed.

(F) O&M Escalation:

Sh. Inderdeep Singh Khurana (M/s Sunomatic Power Pvt Ltd), has submitted that the DA given by the government to its employees is 4% per annum while inflation is around 4.52%. Looking at these two figures, to retain good employees, he has commented that the escalation of O&M charges considered in the proposal is on lower side and has suggested that it should be at least 4% aligned to governments salary increase if it cannot be matched to inflation.

Commission's View:-

The rate of escalation in the normative O&M expenses has already been specified in the RE Tariff Regulations, 2017 based on norms specified by the Central Commission in their regulations. As such, the suggestion for further increase in escalation does not merit consideration in this order and accordingly the Commission declines to accept the same. Even otherwise dearness allowance to the government employees which is not given on the basis of annual compounding whereas the escalation in the O&M expenses is given on annual compounding basis.

(G) Rounding:

Sh. Inderdeep Singh Khurana (M/s Sunomatic Power Pvt Ltd) has submitted that for promotion of solar power projects in State of Himachal Pradesh which is still facing difficulty in meeting its RPO obligations of Solar Power, the rounding should be done as it will not increase the rate of power more than 1 paise per unit.

Commission's View:-

The proposal already provides for rounding based on the normal practice.

(H) Revisiting of previous solar PV tariff for FY 2020-21 and also redetermination of tariff worked out in the proposal:-

Sh. Jiwan Singh Pathania (Jiwan Solar Power Project) has requested that the tariff should be re-determined in below specified draft proposals and necessary relief as appropriate be granted to developers of solar projects in the state.

- i) Draft proposal vide HPERC, Shimla, Suo-Moto Petition No. 22/2021.
- ii) Earlier proposal vide HPERC, Shimla, Suo-Moto Petition No. 81/2019.

Commission's View:-

The subject matter under consideration relates to finalization of tariff under Suo-Moto Petition No. 22/2021 and cannot be extended to revisit the order issued under any other petitions. Moreover, the Commission has determined the tariff for one year and same cannot be opened & extended.

(I) Deemed Generation:-

Smt. Shradha Jaswal (Evaz Solar Park) & Sh Pradeep Jaswal (Ayannaz Solar Park) have submitted that lot of power losses occurs due to HPSEBL Grid failure too.

Commission's View:-

The provision of deemed generation is applicable in cases where the projects are interconnected with the grid at manned Sub-stations of the licensee. The deemed generation is not available in case of interconnection at 11KV, 22KV unmanned Sub-stations or through solid tap. However, otherwise Commission expects the evacuation system to be maintained efficiently so as to minimize loss of generation due to breakdowns.

11. After having addressed the comments/suggestions of the stakeholders, the Commission now proceeds further to categorize the solar PV plants, fix the technology specific norms for the financial year 2021-2022 and also to determine the generic levelled tariff for procurement of power by the distribution licensee from solar PV plants, as detailed in the succeeding paragraphs.

12. Categorization.-

The 2nd proviso of sub-regulation (2) of regulation 18 of RE Tariff Regulations, 2017 provides that the Commission may, by order, categorize the renewable energy technologies other than SHPs based on capacity of the projects, the available subsidy scheme and such other factors as may be considered appropriate by it. The Commission, after taking into account various factors like geographical and topographical conditions in the State and in order to promote smaller capacities of solar PV plants at different locations across the State, categorized solar PV projects

vide its previous orders of solar PV tariff determination. The Commission decides to retain similar categorization, as mentioned in the table below, for the solar PV generation capacity for the purposes of normative capital cost and determination of levelled tariff for FY 2021-22:-

Category	Capacity of Solar PV Project at one site
I	Upto 1 MW capacity
II	Above 1 MW to 5 MW capacity
III	Above 5 MW capacity

The capacity in the second category has been limited to 5.00 MW. All the solar PV projects with a capacity of more than 5.00 MW shall accordingly fall under the third category. The Commission expects that for higher capacities, the Distribution Licensee shall preferably purchase solar power through Solar Energy Corporation of India or else through the competitive bidding route. As such the generic levelled tariff is being determined only for such solar PV projects where the capacities does not exceed 5.00 MW.

13. Technology Specific Parameters.-

The sub-regulation (2) of regulation 18 of the RE Tariff Regulations, 2017 provides that the Commission may, in order to promote such technologies for smaller capacities, follow, mutatis mutandis, upto the limits as it may consider necessary separately for each such technology but not exceeding 5.00 MW for any such technology, the technological specific parameters, including capital cost, and other terms and conditions, or the tariff as specified or adopted by the Central Commission for determining project specific tariff for any project(s) or generic levelled tariff for any category of project(s); or the inputs available from any other sources, as the Commission may find appropriate.

The Central Commission has notified Renewable Energy Regulations, 2020 i.e. Central Electricity Regulatory Commission (Terms and Conditions for Tariff Determination from Renewable Energy Sources) Regulations, 2020 (hereinafter referred as “CERC RE Tariff Regulations, 2020”) vide which the normative. Capacity Utilization Factor (CUF) for solar PV projects has been specified as 21%. As regards the capital cost and O&M expenses, the CERC RE Tariff Regulations, 2020 provides that for these parameters, only project specific parameter(s), based on prevailing market trends, shall be taken into consideration. Thus the CERC has neither specified any benchmark for determination of normative capital cost for the solar PV projects nor envisage determination of generic levelled tariff for such projects in their RE Tariff Regulations, 2020. Accordingly, the Commission decides to evolve its own technology specific parameters after taking into account the various available inputs, including those notified by the CERC and considered by the HPERC in its previous solar PV tariff determination orders.

13.1 CAPITAL COST.-

As per the website reports of pvinsights.com, the solar PV Module Weekly Spot Price as on 07.04.2021 were as under:-

USD/Watt

Item	High	Low	Average
Poly Solar Module	0.280	0.160	0.177
Mono PERC Module	0.350	0.190	0.203

*PERC – Passivated Emitter and Rear Cell.

The average of these prices works out to 0.190 USD/Watt. In view of above discussion under para-10(A), the Commission finalises the cost of Solar PV Module as Rs. 139.42 Lakh/ MW considering the exchange rate of Rs. 73.381/ USD based on the average of six months, i.e. 11th October, 2020 to 8th April, 2021. The Commission decides to consider an all inclusive solar PV module rate of Rs. 160.33 Lakh/MW after escalating the above rate by about 15% to cover various miscellaneous costs including degradation of cells and taxes etc.

After taking into account the State specific features, the Commission fixes the normative capital cost for the solar PV projects above 1.00 MW to 5.00 MW capacity as under:-

Sr. No.	Particulars	Normative Capital Cost (Lakh Rs./MW)
1	PV Modules	160.33
2	Preliminary and Pre-operative expenses, Land Cost, Civil & General Works and Mounting Structures	132.30
3	Power Conditioning Units	31.50
4	Evacuation cost upto interconnection point	52.50
	Total Capital Cost	376.63

The normative capital cost for the solar PV projects upto 1.00 MW was proposed to be fixed by allowing an increase of about 1.5% on the normative cost for the projects above 1.00 MW and upto 5.00 MW as fixed above. Accordingly, the Commission decides to fix the normative capital cost for the solar PV projects upto 1.00 MW as Rs. 382.28 Lakh-per MW.

In line with the proposal, the Commission also decides to allow marginally higher capital cost in respect of Solar PV project(s) to be set up in Urban areas and Industrial areas notified by the State Government so as to encourage installation of such plant in such areas, keeping in view the fact that location of plants in such areas may generally help the distribution licensee to utilize the power from such plant in more optimum manner.

As such the additional capital cost for these area specific solar PV project(s) is allowed as Rs. 10.00 Lakh per MW (for capacity above 1.00 MW and upto 5.00 MW) over and above the normative capital cost considered for the project(s) to be set up in the areas other than Urban and Industrial areas. This additional cost of Rs. 10.00 Lakh per MW shall however be further increased by 1.5% for plants upto 1.00 MW located in the urban areas and industrial areas.

Explanation;-

For the purpose of this tariff order-

- (a) The “Urban Areas” mean the areas covered under a Municipal Corporation, Municipal Council or a Nagar Panchayat set up by the State Government under any law enacted by the State Legislative Assembly and shall also include the area falling under the Cantonment Board constituted by the Central Government under the Cantonment Act, 2006.
- (b) The “Industrial areas” mean the areas notified as such by the State Government through its Industries Department or through any such other department/ agency authorized by it.
- (c) For this purpose, a solar PV project shall be considered to be situated in the urban area or industrial area, as the case may be, if any one or both of the main components of the project i.e. the generating plant and the interconnection point fall in any such area(s) on the date of filing the petition for approval of PPA.

Accordingly, the Normative Capital Cost for respective categories of Solar PV plant is tabulated as under:-

Sr. No.	Category	Normative Capital Cost (Lakh Rs./MW)
1	Projects to be set up in areas other than urban areas and industrial areas	
(a)	Upto 1.00 MW	382.28
(b)	Above 1.00 MW & upto 5.00 MW	376.63
2	Projects to be set up in urban areas and industrial areas	
(a)	Upto 1.00 MW	392.43
(b)	Above 1.00 MW & upto 5.00 MW	386.63

13.2 OPERATION AND MAINTENANCE EXPENSES.-

In line with the proposal, the Commission decides to fix the O&M expenses as Rs. 9.08 Lakh/MW for FY 2021-22. These normative O&M charges shall also be escalated @ 3.84% per annum over the tariff period as per provision of regulations 28-B of the RE Tariff Regulations, 2017.

13.3 NORMATIVE NET SALEABLE ENERGY.-

The CUF shall be retained as 21%. The gross generation based on the same shall be reduced by 1.45% on auxiliary consumption, transformation losses and project line losses upto interconnection point on normative basis.

13.4 The other technology specific parameters viz. useful life of the project and tariff period, have already been specified in the RE Tariff Regulations, 2017, which are otherwise in line with the CERC Regulations also and the same shall be followed accordingly.

14. After having fixed the technology specific parameters as above, the Commission now proceeds to determine the generic levelled tariff, based on the provisions of RE Tariff Regulations, 2017 (i.e. 01.04.2020 to 30.09.2023) for solar PV projects

for FY 2021-22 under regulation 18 of the RE Tariff Regulations, 2017. The main details of the same are as follows:-

14.1 TARIFF STRUCTURE.-

Regulation 12 of the RE Tariff Regulations, 2017 stipulates that single part levellised tariff structure, comprising of the following fixed cost components shall be followed and that in case, where, no fuel cost component is involved in power generation, the following parameters shall be considered:-

- (a) Return on Equity;
- (b) Interest on loan capital;
- (c) Depreciation;
- (d) Interest on working capital.

Accordingly, single part generic levellised tariff has been worked out for the respective categories of solar PV projects by adopting the methodology, discussed in succeeding paragraphs.

14.2 TECHNOLOGICAL SPECIFIC PARAMETERS.-

The normative parameters for capital cost, O&M charges, CUF etc. as discussed in the para-13 above, have been followed.

14.3 USEFUL LIFE AND TARIFF PERIOD.-

Regulation 10, read with clause (ac) of sub-regulation (1) of regulation 2 of the RE Tariff Regulations, 2017, specifies the 'useful life' and tariff period in relation to a Solar PV plant as 25 years from the date of commencement of operation of the project. Accordingly, the useful life and tariff period has been taken as 25 years which is also in line with CERC RE Tariff Regulations, 2020.

14.4 DEBT EQUITY RATIO.-

The normative debt equity ratio has been considered as 70:30 in accordance with regulation 23-B of the RE Tariff Regulations, 2017.

14.5 Return on Equity.-

The normative return on equity has been taken as 14% in accordance with the provisions of RE Tariff Regulations, 2017. The grossed-up RoE for the first 20 years of the useful life of the project has been worked out as 16.96% by considering MAT @ 17.472% (15% MAT rate +12% Surcharge+ 4% Health and Education cess) and for the remaining 5 years the same has been grossed-up as 19.75% by considering corporate tax @ 29.12% (25% tax rate +12% Surcharge+ 4% Health and Education cess).

14.6 Interest on Loan.-

The sub-regulation (1) of regulation 24-B of the RE Tariff Regulation, 2017 provides that the loan tenure of 15 years shall be considered for the purpose of determination of tariff for RE projects. Sub-regulation (2) of the said regulation provides for computation of rate of interest of loan as under:-

“(2) Interest Rate.-

- (a) *The loan amount (i.e. the debt component) arrived at in the manner indicated in the regulation 23-B shall be considered as gross normative loan for calculation of interest on loan. The normative loan outstanding as on 1st April of every year shall be worked out by deducting the cumulative repayment up to 31st March of previous year from the gross normative loan.*
- (b) *For the purpose of computation of tariff(s) under these Regulations, 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, prior to the respective date(s) from which such tariff(s) the respective generic levellised tariffs are to be made applicable, shall be considered:
Provided that in case where the project specific tariff*
- (c) *Notwithstanding any moratorium period availed by the renewable energy generator, the repayment of loan shall be considered from the first year of the tariff period and shall be equal to the annual depreciation allowed.*
- (d) *The loan repayment for a financial year or the relevant part period thereof shall be considered to have been done in the middle of that financial year or the relevant part period thereof, as the case may be.”*

In view of above, the interest rate has been worked out as 9.00% per annum by adding 200 basis points above the average of Marginal Cost of Funds based Lending Rate (MCLR) (one year tenor) of State Bank of India (SBI) prevalent during the last available six months prior to the respective date(s) i.e. 01.04.2021 from which the generic tariff(s) are to be made applicable as shown in the table below:-

Month to	Tenor-wise MCLR of SBI
October, 2020	7.00
November, 2020	7.00
December, 2020	7.00
January, 2021	7.00
February, 2021	7.00
March, 2021	7.00
Avg. for last available 6 months.	7.00

14.7 Depreciation.-

(i) Regulation 25-B of the RE Tariff Regulations, 2017 provides as under:

“For the purpose of tariff determination, depreciation shall be computed in the following manner, namely:-

- (a) *the value base for the purpose of depreciation shall be equal to sum total of the debt and equity components as per the provisions of regulation 23-B;*
- (b) *the salvage value shall be considered as 10% and depreciation shall be allowed up to maximum of 90% of the value base as per clause (a) of this regulation:*

Provided that no depreciation shall be allowed to the extent of incentive, grant and capital subsidy available for the project.

(c) *depreciation per annum shall be based on ‘Differential Depreciation Approach’. For tariff purposes, the depreciation shall be allowed @ 4.67% per annum of the value base as per clause (a) of this regulation till such time the requirement for repayment of loan component of the capital cost as per regulations 21-B, 23-B and 24-B is fully provided and the remaining depreciation shall be spread over the residual useful life of the project on straight line method;*

(d) *depreciation shall be chargeable from the first year of commencement of operation of the project:*

Provided that purposes of project specific determination of tariff.”

Accordingly, the rate of depreciation for the first 15 years has been considered as 4.67% and the rate of depreciation from the 16th year onwards has been spread over the balance useful life as under:-

Details	Solar PV Power Plant
Useful life (in years)	25
Rate of depreciation for 15 years (%)	4.67
Rate of depreciation after first 15 years (%)	1.995

14.8 Interest on working capital.-

(i) In accordance with the regulation 27-B of the RE Tariff Regulations, 2017, the working capital requirement of the Solar PV project has been considered by including the following:-

- “(a) operation and maintenance expenses for one month;
 (b) receivables equivalent to 45 days of energy charges for sale of electricity calculated on the net saleable energy corresponding to the CUF considered for tariff determination on normative basis;
 (c) maintenance spare @ 15% of operation and maintenance expenses.”*

(ii) Interest rate on working capital has been worked out as 10.50% per annum by the adding 350 basis points above the average of Marginal Cost of Funds based Lending Rate (MCLR) (one year tenor) of State Bank of India (SBI) prevalent during the last available six months prior to the respective date(s) from which the generic tariff(s) are to be made applicable.

14.9 Incentive and/or subsidy and/or grant/budgetary support by the Central/ State Government.-

The sub-regulation (1) of regulation 22-B of the RE Tariff Regulations, 2017 provides as under:-

“(1) While determining the generic levellised or project specific levellised tariff, as the case may be, for the renewable energy project(s) under these Regulations, the Commission shall take into consideration any incentive and/or subsidy and/or grant available under the schemes of the Central or State Government or their agencies, but excluding accelerated depreciation benefit under the Income Tax Act:

Provided that the capital subsidy under the schemes of the Central or State Government or their agencies shall be adjusted in the normative capital cost and the cost so arrived, after such adjustment, shall be considered for computing Debt-Equity Components for the purposes of determination of generic levellised tariffs:

Provided further that where the Central Government or the State Government notifies, or has notified, any generation based incentive (GBI) scheme for a particular kind of renewable technology, such technology based generating station shall be assumed to have availed the benefit of such a scheme and their tariffs shall be reduced by the amount of generation based incentive (GBI) per unit for the period during which such incentive remains applicable.

(2) Where any additional project specific grant or budgetary support is available to any project, apart from the incentive and/or subsidy and/or grant available under sub-regulation (1) of this regulation, the Commission shall account for such budgetary support also, while determining project specific levellised tariff.

(3) *The amount of subsidy shall be considered for each renewable source as per the applicable policy of the MNRE/State Government/Central Government and if the amount and/or mechanism of subsidy is changed by the MNRE/State Government/Central Government, consequent corrections in tariffs may be carried out by the Commission in accordance with regulation 20.”*

14.10 No adjustment of incentive and/or subsidy and/or grant is being made in the tariff calculations. However, adjustment to be made in the rate on the basis of per million (rupees) of subsidy for each MW capacity has been worked out and mentioned in the attached calculation sheet of the project and adjustment, if any, on account of the same shall be made at appropriate stage while applying the tariff after taking into account the eligibility conditions in each case. Similarly, adjustment on account of any other subsidy scheme(s) available under the Government (Central/State) shall also be made at appropriate stage(s) after taking into account the extent of subsidy(ies) available under such scheme(s). The adjustments on account of subsidies, where available, are to be made at the rates indicated in the calculation sheet on normative basis by considering the provisions of regulations 20-B, 23-B, 24-B, 25-B and 26-B. For this purpose the total amount (in million rupees) of incentive and/or subsidy and/or grant etc., shall be divided by the installed capacity of the projects and the per MW amount (in million rupees) so arrived at, shall be multiplied by the rate indicated in the calculation sheet.

14.11 DISCOUNT FACTOR.-

In accordance with sub-regulation (4) of regulation 12 of the RE Tariff Regulations, 2017, the discount factor equivalent to the post tax weighted average cost of capital has been considered for the purpose of levelled tariff computation. The discount factor has been calculated on the basis of normative debt equity ratio (70:30) and weighed average of the post tax rates for debt and equity component. For this purpose, the interest rate on the loan component (i.e. 70%) of capital cost is 9.00%. For equity component (i.e. 30%), rate of Return of Equity (RoE) is considered as post tax rate of 14%. The discount factor has been calculated as 8.67%. The Corporate tax has been taken as 29.12% (25% IT rate+ 12% Surcharge+ 4% Health and Education cess).

14.13 ROUNDING.-

The tariff so worked out for solar PV projects has been rounded to nearest paise/kWh. The fraction of 0.5 paise/kWh or above has been rounded to next higher and fraction of less than 0.5 has been ignored.

15. GENERIC LEVELLED TARIFF AND ASSOCIATED TERMS & CONDITIONS.-

In light of the discussions made in the preceding paragraphs, the generic levelled tariff and the associated terms and conditions for solar PV power

project for FY 2021-22 under the RE Regulations, 2017 have been arrived at and are proposed to be determined as under:-

A. The generic levelled tariff for Solar PV power projects for FY 2021-22 shall be:-

Sr. No.	Capacity	Generic levelled tariff (Rs. Per kWh)
1	Projects to be set up in other than industrial areas and urban areas	
(a)	Upto 1.00 MW	3.38
(b)	Above 1.00 MW & upto 5.00 MW	3.34
2	Projects to be set up in industrial areas and urban areas	
(a)	Upto 1.00 MW	3.45
(b)	Above 1.00 MW & upto 5.00 MW	3.41

B. This tariff as per item A shall be subject to the RE Tariff Regulations, 2017 and the orders as may be issued by the Commission thereunder from time to time.

C. This tariff is applicable to solar photovoltaic (PV) power projects which directly convert Solar Energy into Electricity, using the poly crystalline silicon or Mono PERC technology or any other technology as approved by the Ministry of New and Renewable Energy and are connected to the Grid.

D. This tariff do not take into account any capital subsidy or any incentive or grant/budgetary support etc. and the adjustment in this regard shall be carried out in accordance with the RE Regulations, 2017. The adjustments, if any, to be made at the rate per kWh by considering Rs. 10.00 lakh per MW subsidy have however been indicated in the tariff calculation sheets.

E. The applicability of this tariff shall be governed as per the following provisions:-

(i) in cases where the joint petition for approval of PPA is submitted to the Commission on or after 01.04.2021, but not later than 31.03.2022, this tariff shall be applicable for such capacity(ies) as are commissioned on or before 31.03.2023.

(ii) in other cases, not covered in item (i) above, this tariff shall be applicable for such capacity(ies) for which the generic levelled tariff for 2021-22 is applicable in accordance with the provisions of the PPAs read with the applicable Tariff Order(s) of previous years.

F. This tariff shall not be applicable in cases where the distribution licensee procures power through Solar Energy Corporation of India or through competitive bidding at its level in accordance with Section 63 of the Electricity Act, 2003.

G. This tariff shall not be applicable in case of the solar PV projects which are installed by the consumers within their premises (rooftop or ground mounted) under net metering scheme.

16. The detailed computations for generic levelled tariff for FY 2021-22 for the categories of solar PV power projects, without considering any subsidies/incentives/grants as well as illustrations thereof are attached as per Appendix – “I & II” and “III & IV”.

Sd/-

(Bhanu Pratap Singh)

Member

Sd/-

(Devendra Kumar Sharma)

Chairman

Place: Shimla.

Dated: 22nd July, 2021.

Annexure-“A”

List of the stakeholders/participants who attended the public hearing on 28th June, 2021.

Sr. No.	Name
1	Er. Shivender S Patial, DGM (BDE), SJVNL.
2	Er. Ram Prakash, Chief Engineer(Comm.), HPSEBL.
3	Shri. Kamlesh Saklani, Law Officer, HPSEBL.
4	Sh. Roop Lal Sankhyan, M/s Bhandari Ram Solar Plant.
5	Shri Pradeep Jaswal, M/s Ayannaz Solar, Una.
7	Shri Abhishek Sankhyan, M/s Sankhyan Solar Plant.
8	Shri Inderdeep Singh Khurana, M/s Sunomatic Power Pvt. Ltd.
9	Shri Saurabh Sharma, M/s Rajakhasa Solar power project.
10	Shri CSS Chauhan, M/s Sadhwani Solar Plant.
11	Shri Santosh Thakur, Village Bharathu, PO Binola, Tehsil Tehsil Sadar, Distt. Bilaspur, HP.
12	Shri Tilak Raj Sharma, M/s Rajakhasa Solar power project
13	Er. Manoj Kumar (SE), Directorate of Energy
14	Shri Shanti Swaroop, Directorate of Energy
15	Shri R.P. Suman, M/s R. P. Suman & Co.

Assumption Parameters for Solar PV Power Projects upto 1 MW
(for project(s) to be setup in area other than Industrial areas and Urban areas)

Sr. No	Assumption Head	Sub Head	Sub Head(2)	Unit	Value
1	Power Generation	Capacity	Installed Generation Capacity	KW	1000
			Capacity Utilisation Factor	%	21
			Transmission losses, Auxillary Consumption including Transformation Losses	%	1.45
			Useful Life	Years	25
2	Project Cost	Capital Cost /MW	Project Cost	Lakh Rs./MW	382.28
3	Project Financing	Debt Equity	Tariff Period	Year	25
			Debt	%	70
		Debt Component	Equity	%	30
			Loan Amount	Lakh Rs./MW	267.596
			Moratorium Period	Year	0
			Repayment Period	Year	15
		Equity Component	Interst Rate	%	9.00
			Equity Amount	Lakh Rs./MW	114.684
			Return of equity for first 20 Years	%	16.96
			Return of equity from 21st Years onwards	%	19.75
4	Subsidy Depreciation	Subsidy Depreciation			0
5			Recovery of Depreciation	%	90
Annual Rate of Depreciation till completion of Loan Repayment (balance spread in remaining years) 16th year Onward			%	4.67	
6	Operation & Maintenance		Total O&M Expenses	Lakh Rs./MW	9.08
			Annual Escalation	%	3.84
7	Working Capital		O&M Charges	Month	1
			Maintenance Spares	% of O&M expenses of a Year	15
			Recievables	Months	1.5
			Interest on Working capital	%	10.50
8	Discount Factor		Discount Rate	%	8.67

Determination of Tariff for Solar PV Power Projects up to 1 MW

Sheet of Appendix I

Unit Generation	unit	year	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		1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000
Gross generation	MU		1.840	1.84	1.84	1.84	1.84	1.84	1.84	1.84	1.84	1.84	1.84	1.84	1.84	1.84	1.84	1.84	1.84	1.84	1.84	1.84	1.84	1.84	1.84	1.84	1.84
Losses	MU		1.45	1.45	1.45	1.45	1.45	1.45	1.45	1.45	1.45	1.45	1.45	1.45	1.45	1.45	1.45	1.45	1.45	1.45	1.45	1.45	1.45	1.45	1.45	1.45	1.45
Net Generation	MU		1.813	1.81	1.81	1.81	1.81	1.81	1.81	1.81	1.81	1.81	1.81	1.81	1.81	1.81	1.81	1.81	1.81	1.81	1.81	1.81	1.81	1.81	1.81	1.81	1.81
Fixed Cost		year																									
O&M Expences	Rs. lakh		9.08	9.429	9.79	10.17	10.56	10.96	11.38	11.82	12.27	12.75	13.24	13.74	14.27	14.82	15.39	15.98	16.59	17.23	17.89	18.58	19.29	20.03	20.80	21.60	22.43
Depriciation	Rs. lakh		17.85	17.85	17.85	17.85	17.85	17.85	17.85	17.85	17.85	17.85	17.85	17.85	17.85	17.85	17.85	7.63	7.63	7.63	7.63	7.63	7.63	7.63	7.63	7.63	7.63
Interest on Term Loan	Rs. lakh		23.28	21.68	20.07	18.46	16.86	15.25	13.65	12.04	10.44	8.83	7.23	5.62	4.01	2.41	0.80	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Interest on Working Capital	Rs. lakh		1.15	1.14	1.14	1.13	1.12	1.12	1.11	1.11	1.10	1.10	1.10	1.09	1.09	1.09	1.09	0.97	0.99	1.02	1.04	1.07	1.14	1.17	1.20	1.23	1.26
Return on Equity	Rs. lakh		19.45	19.45	19.45	19.45	19.45	19.45	19.45	19.45	19.45	19.45	19.45	19.45	19.45	19.45	19.45	19.45	19.45	19.45	19.45	19.45	22.65	22.65	22.65	22.65	22.65
Total fixed Cost	Rs. lakh		70.82	69.55	68.30	67.06	65.84	64.64	63.45	62.27	61.12	59.98	58.86	57.76	56.68	55.62	54.59	44.03	44.66	45.32	46.01	46.72	50.71	51.48	52.27	53.10	53.96
Levellised CoG																											
Per unit CoG	Unit	levellised																									
O&M Expences	Rs/kWh	0.70	0.50	0.52	0.54	0.56	0.58	0.60	0.63	0.65	0.68	0.70	0.73	0.76	0.79	0.82	0.85	0.88	0.92	0.95	0.99	1.02	1.06	1.11	1.15	1.19	1.24
Depriciation	Rs/kWh	0.88	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.42	0.42	0.42	0.42	0.42	0.42	0.42	0.42	0.42	0.42
Interest on Term Loan	Rs/kWh	0.65	1.28	1.20	1.11	1.02	0.93	0.84	0.75	0.66	0.58	0.49	0.40	0.31	0.22	0.13	0.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
Interest on Working Capital	Rs/kWh	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.05	0.05	0.06	0.06	0.06	0.06	0.06	0.07	0.07	
Return on Equity	Rs/kWh	1.09	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.25	1.25	1.25	1.25	1.25
Total CoG	Rs/kWh	3.38	3.91	3.8364	3.77	3.70	3.63	3.57	3.50	3.43	3.37	3.31	3.25	3.19	3.13	3.07	3.01	2.43	2.46	2.50	2.54	2.58	2.80	2.84	2.88	2.93	2.98
Discounted factor	%		1	0.92	0.85	0.78	0.72	0.66	0.61	0.56	0.51	0.47	0.44	0.40	0.37	0.34	0.31	0.29	0.26	0.24	0.22	0.21	0.19	0.17	0.16	0.15	0.14
Levellised Tariff	Rs/kWh	3.38	3.91	3.5303	3.19	2.88	2.60	2.35	2.13	1.92	1.73	1.57	1.41	1.28	1.15	1.04	0.94	0.70	0.65	0.61	0.57	0.53	0.53	0.50	0.46	0.43	0.40

Generic Levellised Tariff (without Subsidy) at Capital Cost of Rs 382.28 Lakh/MW = Rs. 3.38 /kWh
Indicative Generic Levellised Tariff by considering Subsidy/Incentive/Grant of Rs 10 Lakh/MW = Rs. 3.31/kWh
Adjustment to be made per 10 Lakh of Subsidy/Incentive/Grant per MW= Rs. 0.07/kWh

Assumption Parameters for Solar PV Power Projects above 1 MW upto 5 MW
(for project(s) to be setup in area other than Industrial areas and Urban areas)

Sr. No	Assumption Head	Sub Head	Sub Head(2)	Unit	Value
1	Power Generation	Capacity	Installed Generation Capacity	KW	1000
			Capacity Utilisation Factor	%	21
			Transmission losses, Auxillary Consumption including Transformation Losses	%	1.45
			Useful Life	Years	25
2	Project Cost	Capital Cost /MW	Project Cost	Lakh Rs./MW	376.63
3	Project Financing	Debt Equity	Tariff Period	Year	25
			Debt	%	70
		Debt Component	Equity	%	30
			Loan Amount	Lakh Rs./MW	263.641
			Moratorium Period	Year	0
			Repayment Period	Year	15
		Equity Component	Interst Rate	%	9.00
			Equity Amount	Lakh Rs./MW	112.989
			Return of equity for first 20 Years	%	16.96
			Return of equity from 21st Years onwards	%	19.75
4	Subsidy Depreciation	Subsidy Depreciation	Recovery of Depreciation	%	0
5			Annual Rate of Depreciation till completion of Loan Repayment (balance spread in remaining years)	%	90
16th year Onward			%	4.67	
6	Operation & Maintenance		Total O&M Expenses	Lakh Rs./MW	9.08
Annual Escalation			%	3.84	
7	Working Capital		O&M Charges	Month	1
			Maintenance Spares	% of O&M expenses of a Year	15
			Recievables	Months	1.5
			Interest on Working capital	%	10.50
8	Discount Factor		Discount Rate	%	8.67

Determination of Tariff for Solar PV Power Projects above 1 MW upto 5 MW

Sheet of Appendix II

Unit Generation	unit	year	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		1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000
Gross generation	MU		1.840	1.84	1.84	1.84	1.84	1.84	1.84	1.84	1.84	1.84	1.84	1.84	1.84	1.84	1.84	1.84	1.84	1.84	1.84	1.84	1.84	1.84	1.84	1.84	1.84
Losses	MU		1.45	1.45	1.45	1.45	1.45	1.45	1.45	1.45	1.45	1.45	1.45	1.45	1.45	1.45	1.45	1.45	1.45	1.45	1.45	1.45	1.45	1.45	1.45	1.45	1.45
Net Generation	MU		1.813	1.81	1.81	1.81	1.81	1.81	1.81	1.81	1.81	1.81	1.81	1.81	1.81	1.81	1.81	1.81	1.81	1.81	1.81	1.81	1.81	1.81	1.81	1.81	1.81
Fixed Cost		year																									
O&M Expences	Rs. lakh		9.08	9.429	9.79	10.17	10.56	10.96	11.38	11.82	12.27	12.75	13.24	13.74	14.27	14.82	15.39	15.98	16.59	17.23	17.89	18.58	19.29	20.03	20.80	21.60	22.43
Depriciation	Rs. lakh		17.59	17.59	17.59	17.59	17.59	17.59	17.59	17.59	17.59	17.59	17.59	17.59	17.59	17.59	17.59	7.51	7.51	7.51	7.51	7.51	7.51	7.51	7.51	7.51	7.51
Interest on Term Loan	Rs. lakh		22.94	21.35	19.77	18.19	16.61	15.03	13.45	11.86	10.28	8.70	7.12	5.54	3.95	2.37	0.79	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Interest on Working Capital	Rs. lakh		1.14	1.13	1.13	1.12	1.11	1.11	1.10	1.10	1.09	1.09	1.09	1.09	1.09	1.09	1.09	0.96	0.99	1.01	1.04	1.06	1.13	1.16	1.19	1.22	1.25
Return on Equity	Rs. lakh		19.16	19.16	19.16	19.16	19.16	19.16	19.16	19.16	19.16	19.16	19.16	19.16	19.16	19.16	19.16	19.16	19.16	19.16	19.16	19.16	19.16	22.32	22.32	22.32	22.32
Total fixed Cost	Rs. lakh		69.91	68.67	67.44	66.23	65.03	63.85	62.68	61.53	60.40	59.29	58.19	57.12	56.06	55.03	54.02	43.62	44.26	44.92	45.61	46.32	50.25	51.02	51.82	52.65	53.51
Levellised CoG																											
Per unit CoG	Unit	levellised																									
O&M Expences	Rs/kWh	0.70	0.50	0.52	0.54	0.56	0.58	0.60	0.63	0.65	0.68	0.70	0.73	0.76	0.79	0.82	0.85	0.88	0.92	0.95	0.99	1.02	1.06	1.11	1.15	1.19	1.24
Depriciation	Rs/kWh	0.87	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.41	0.41	0.41	0.41	0.41	0.41	0.41	0.41	0.41	0.41
Interest on Term Loan	Rs/kWh	0.64	1.27	1.18	1.09	1.00	0.92	0.83	0.74	0.65	0.57	0.48	0.39	0.31	0.22	0.13	0.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Interest on Working Capital	Rs/kWh	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.05	0.05	0.06	0.06	0.06	0.06	0.06	0.07	0.07	0.07
Return on Equity	Rs/kWh	1.07	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.23	1.23	1.23	1.23	1.23
Total CoG	Rs/kWh	3.34	3.86	3.7877	3.72	3.65	3.59	3.52	3.46	3.39	3.33	3.27	3.21	3.15	3.09	3.04	2.98	2.41	2.44	2.48	2.52	2.55	2.77	2.81	2.86	2.90	2.95
Discounted factor	%		1	0.92	0.85	0.78	0.72	0.66	0.61	0.56	0.51	0.47	0.44	0.40	0.37	0.34	0.31	0.29	0.26	0.24	0.22	0.21	0.19	0.17	0.16	0.15	0.14
Levellised Tariff	Rs/kWh	3.34	3.86	3.4855	3.15	2.85	2.57	2.32	2.10	1.90	1.71	1.55	1.40	1.26	1.14	1.03	0.93	0.69	0.65	0.60	0.56	0.53	0.53	0.49	0.46	0.43	0.40

Generic Levellised Tariff (without Subsidy) at Capital Cost of Rs 372.28 Lakh/MW = Rs. 3.34 /kWh
Indicative Generic Levellised Tariff by considering Subsidy/Incentive/Grant of Rs 10 Lakh/MW = Rs. 3.27 /kWh
Adjustment to be made per 10 Lakh of Subsidy/Incentive/Grant per MW= Rs. 0.07/kWh

Assumption Parameters for Solar PV Power Projects upto 1 MW
(for project(s) to be setup in Industrial areas and Urban areas)

Sr. No	Assumption Head	Sub Head	Sub Head(2)	Unit	Value
1	Power Generation	Capacity	Installed Generation Capacity	KW	1000
			Capacity Utilisation Factor	%	21
			Transmission losses, Auxillary Consumption including Transformation Losses	%	1.45
			Useful Life	Years	25
2	Project Cost	Capital Cost /MW	Project Cost	Lakh Rs./MW	392.43
3	Project Financing	Debt Equity	Tariff Period	Year	25
			Debt	%	70
		Debt Component	Equity	%	30
			Loan Amount	Lakh Rs./MW	274.701
			Moratorium Period	Year	0
			Repayment Period	Year	15
		Equity Component	Interst Rate	%	9.00
			Equity Amount	Lakh Rs./MW	117.729
			Return of equity for first 20 Years	%	16.96
			Return of equity from 21st Years onwards	%	19.75
4	Subsidy Depreciation	Subsidy Depreciation	Recovery of Depreciation	%	0
5			Annual Rate of Depreciation till completion of Loan Repayment (balance spread in remaining years)	%	90
16th year Onward			%	4.67	
6	Operation & Maintenance		Total O&M Expenses	Lakh Rs./MW	9.08
7			Annual Escalation	%	3.84
7	Working Capital		O&M Charges	Month	1
			Maintenance Spares	% of O&M expenses of a Year	15
			Recievables	Months	1.5
			Interest on Working capital	%	10.50
8	Discount Factor		Discount Rate	%	8.67

Determination of Tariff for Solar PV Power Projects up to 1 MW

Sheet of Appendix III

Unit Generation	unit	year	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		1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	
Gross generation	MU		1.840	1.84	1.84	1.84	1.84	1.84	1.84	1.84	1.84	1.84	1.84	1.84	1.84	1.84	1.84	1.84	1.84	1.84	1.84	1.84	1.84	1.84	1.84	1.84	1.84	
Losses	MU		1.45	1.45	1.45	1.45	1.45	1.45	1.45	1.45	1.45	1.45	1.45	1.45	1.45	1.45	1.45	1.45	1.45	1.45	1.45	1.45	1.45	1.45	1.45	1.45	1.45	
Net Generation	MU		1.813	1.81	1.81	1.81	1.81	1.81	1.81	1.81	1.81	1.81	1.81	1.81	1.81	1.81	1.81	1.81	1.81	1.81	1.81	1.81	1.81	1.81	1.81	1.81	1.81	
Fixed Cost		year																										
O&M Expences	Rs. lakh		9.08	9.429	9.79	10.17	10.56	10.96	11.38	11.82	12.27	12.75	13.24	13.74	14.27	14.82	15.39	15.98	16.59	17.23	17.89	18.58	19.29	20.03	20.80	21.60	22.43	
Depriciation	Rs. lakh		18.33	18.33	18.33	18.33	18.33	18.33	18.33	18.33	18.33	18.33	18.33	18.33	18.33	18.33	18.33	7.83	7.83	7.83	7.83	7.83	7.83	7.83	7.83	7.83	7.83	7.83
Interest on Term Loan	Rs. lakh		23.90	22.25	20.60	18.95	17.31	15.66	14.01	12.36	10.71	9.07	7.42	5.77	4.12	2.47	0.82	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Interest on Working Capital	Rs. lakh		1.17	1.16	1.16	1.15	1.14	1.14	1.13	1.12	1.12	1.12	1.11	1.11	1.11	1.11	1.11	0.98	1.00	1.03	1.05	1.08	1.15	1.18	1.21	1.24	1.27	
Return on Equity	Rs. lakh		19.97	19.97	19.97	19.97	19.97	19.97	19.97	19.97	19.97	19.97	19.97	19.97	19.97	19.97	19.97	19.97	19.97	19.97	19.97	19.97	23.25	23.25	23.25	23.25	23.25	
Total fixed Cost	Rs. lakh		72.45	71.14	69.84	68.56	67.30	66.05	64.82	63.60	62.40	61.22	60.06	58.92	57.79	56.69	55.61	44.75	45.39	46.05	46.74	47.45	51.52	52.29	53.09	53.92	54.78	
Levellised CoG																												
Per unit CoG	Unit	levellised																										
O&M Expences	Rs/kWh	0.70	0.50	0.52	0.54	0.56	0.58	0.60	0.63	0.65	0.68	0.70	0.73	0.76	0.79	0.82	0.85	0.88	0.92	0.95	0.99	1.02	1.06	1.11	1.15	1.19	1.24	
Depriciation	Rs/kWh	0.90	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	0.43	0.43	0.43	0.43	0.43	0.43	0.43	0.43	0.43	0.43	
Interest on Term Loan	Rs/kWh	0.67	1.32	1.23	1.14	1.05	0.95	0.86	0.77	0.68	0.59	0.50	0.41	0.32	0.23	0.14	0.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
Interest on Working Capital	Rs/kWh	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.05	0.06	0.06	0.06	0.06	0.06	0.06	0.07	0.07	0.07	
Return on Equity	Rs/kWh	1.11	1.10	1.10	1.10	1.10	1.10	1.10	1.10	1.10	1.10	1.10	1.10	1.10	1.10	1.10	1.10	1.10	1.10	1.10	1.10	1.10	1.28	1.28	1.28	1.28	1.28	
Total CoG	Rs/kWh	3.45	4.00	3.9239	3.85	3.78	3.71	3.64	3.58	3.51	3.44	3.38	3.31	3.25	3.19	3.13	3.07	2.47	2.50	2.54	2.58	2.62	2.84	2.88	2.93	2.97	3.02	
Discounted factor	%		1	0.92	0.85	0.78	0.72	0.66	0.61	0.56	0.51	0.47	0.44	0.40	0.37	0.34	0.31	0.29	0.26	0.24	0.22	0.21	0.19	0.17	0.16	0.15	0.14	
Levellised Tariff	Rs/kWh	3.45	4.00	3.6108	3.26	2.95	2.66	2.40	2.17	1.96	1.77	1.60	1.44	1.30	1.18	1.06	0.96	0.71	0.66	0.62	0.58	0.54	0.54	0.50	0.47	0.44	0.41	

Generic Levellised Tariff (without Subsidy) at Capital Cost of Rs 392.43 Lakh/MW = Rs. 3.45 /kWh
Indicative Generic Levellised Tariff by considering Subsidy/Incentive/Grant of Rs 10 Lakh/MW = Rs. 3.38 /kWh
Adjustment to be made per 10 Lakh of Subsidy/Incentive/Grant per MW= Rs. 0.07/kWh

Assumption Parameters for Solar PV Power Projects above 1 MW upto 5 MW
(for project(s) to be setup in Industrial areas and Urban areas)

Sr. No	Assumption Head	Sub Head	Sub Head(2)	Unit	Value
1	Power Generation	Capacity	Installed Generation Capacity	KW	1000
			Capacity Utilisation Factor	%	21
			Transmission losses, Auxillary Consumption including Transformation Losses	%	1.45
			Useful Life	Years	25
2	Project Cost	Capital Cost /MW	Project Cost	Lakh Rs./MW	386.63
3	Project Financing	Debt Equity	Tariff Period	Year	25
			Debt	%	70
		Debt Component	Equity	%	30
			Loan Amount	Lakh Rs./MW	270.641
			Moratorium Period	Year	0
			Repayment Period	Year	15
			Interst Rate	%	9.00
		Equity Component	Equity Amount	Lakh Rs./MW	115.989
			Return of equity for first 20 Years	%	16.96
			Return of equity from 21st Years onwards	%	19.75
4	Subsidy Depreciation	Subsidy Depreciation	Recovery of Depreciation	%	0
Annual Rate of Depreciation till completion of Loan Repayment (balance spread in remaining years)			%	90	
16th year Onward			%	4.67	
5					1.995
6	Operation & Maintenance		Total O&M Expenses	Lakh Rs./MW	9.08
			Annual Escalation	%	3.84
7	Working Capital		O&M Charges	Month	1
			Maintenance Spares	% of O&M expenses of a Year	15
			Recievables	Months	1.5
			Interest on Working capital	%	10.50
8	Discount Factor		Discount Rate	%	8.67

Determination of Tariff for Solar PV Power Projects above 1 MW upto 5 MW

Unit Generation	unit	year	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		1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000
Gross generation	MU		1.840	1.84	1.84	1.84	1.84	1.84	1.84	1.84	1.84	1.84	1.84	1.84	1.84	1.84	1.84	1.84	1.84	1.84	1.84	1.84	1.84	1.84	1.84	1.84	1.84
Losses	MU		1.45	1.45	1.45	1.45	1.45	1.45	1.45	1.45	1.45	1.45	1.45	1.45	1.45	1.45	1.45	1.45	1.45	1.45	1.45	1.45	1.45	1.45	1.45	1.45	1.45
Net Generation	MU		1.813	1.81	1.81	1.81	1.81	1.81	1.81	1.81	1.81	1.81	1.81	1.81	1.81	1.81	1.81	1.81	1.81	1.81	1.81	1.81	1.81	1.81	1.81	1.81	1.81
Fixed Cost		year																									
O&M Expences	Rs. lakh		9.08	9.429	9.79	10.17	10.56	10.96	11.38	11.82	12.27	12.75	13.24	13.74	14.27	14.82	15.39	15.98	16.59	17.23	17.89	18.58	19.29	20.03	20.80	21.60	22.43
Depriciation	Rs. lakh		18.06	18.06	18.06	18.06	18.06	18.06	18.06	18.06	18.06	18.06	18.06	18.06	18.06	18.06	18.06	7.71	7.71	7.71	7.71	7.71	7.71	7.71	7.71	7.71	7.71
Interest on Term Loan	Rs. lakh		23.55	21.92	20.30	18.67	17.05	15.43	13.80	12.18	10.55	8.93	7.31	5.68	4.06	2.44	0.81	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Interest on Working Capital	Rs. lakh		1.16	1.15	1.14	1.14	1.13	1.12	1.12	1.11	1.11	1.11	1.10	1.10	1.10	1.10	1.10	0.97	1.00	1.02	1.05	1.07	1.14	1.17	1.20	1.23	1.26
Return on Equity	Rs. lakh		19.67	19.67	19.67	19.67	19.67	19.67	19.67	19.67	19.67	19.67	19.67	19.67	19.67	19.67	19.67	19.67	19.67	19.67	19.67	19.67	22.91	22.91	22.91	22.91	22.91
Total fixed Cost	Rs. lakh		71.51	70.23	68.96	67.71	66.47	65.24	64.03	62.84	61.67	60.51	59.37	58.26	57.16	56.08	55.03	44.34	44.97	45.64	46.32	47.04	51.06	51.83	52.62	53.45	54.31
Levellised CoG																											
Per unit CoG	Unit	levellised																									
O&M Expences	Rs/kWh	0.70	0.50	0.52	0.54	0.56	0.58	0.60	0.63	0.65	0.68	0.70	0.73	0.76	0.79	0.82	0.85	0.88	0.92	0.95	0.99	1.02	1.06	1.11	1.15	1.19	1.24
Depriciation	Rs/kWh	0.89	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	1.00	1.00	0.43	0.43	0.43	0.43	0.43	0.43	0.43	0.43	0.43	0.43
Interest on Term Loan	Rs/kWh	0.66	1.30	1.21	1.12	1.03	0.94	0.85	0.76	0.67	0.58	0.49	0.40	0.31	0.22	0.13	0.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Interest on Working Capital	Rs/kWh	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.05	0.05	0.06	0.06	0.06	0.06	0.06	0.07	0.07	0.07
Return on Equity	Rs/kWh	1.10	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.26	1.26	1.26	1.26	1.26
Total CoG	Rs/kWh	3.41	3.94	3.8739	3.80	3.73	3.67	3.60	3.53	3.47	3.40	3.34	3.28	3.21	3.15	3.09	3.04	2.45	2.48	2.52	2.56	2.59	2.82	2.86	2.90	2.95	3.00
Discounted factor	%		1	0.92	0.85	0.78	0.72	0.66	0.61	0.56	0.51	0.47	0.44	0.40	0.37	0.34	0.31	0.29	0.26	0.24	0.22	0.21	0.19	0.17	0.16	0.15	0.14
Levellised Tariff	Rs/kWh	3.41	3.94	3.5648	3.22	2.91	2.63	2.37	2.14	1.94	1.75	1.58	1.43	1.29	1.16	1.05	0.95	0.70	0.66	0.61	0.57	0.53	0.53	0.50	0.47	0.44	0.41

Generic Levellised Tariff (without Subsidy) at Capital Cost of Rs 382.28 Lakh/MW = Rs. 3.41 /kWh
Indicative Generic Levellised Tariff by considering Subsidy/Incentive/Grant of Rs 10 Lakh/MW = Rs. 3.34 /kWh
Adjustment to be made per 10 Lakh of Subsidy/Incentive/Grant per MW= Rs. 0.07/kWh