

HIMACHAL PRADESH ELECTRICITY REGULATORY COMMISSION, SHIMLA

Suo-Motu Petition No.: 11/2023

Date of Order: 21.02.2023

CORAM: Hon'ble Sh. Devendra Kumar Sharma, Chairman
Hon'ble Sh. Yashwant Singh Chogal, Member(Law)
Hon'ble Sh. Shashi Kant Joshi, Member

IN THE MATTER OF:-

Determination of Generic Levellised Tariff for Solar PV Projects for FY 2023-24 (for a period w.e.f 01.04.2023 to 30.09.2023) under Himachal Pradesh Electricity Regulatory Commission (Promotion of Generation from the Renewable Energy Sources and Terms and Conditions for Tariff Determination) Regulations, 2017.

ORDER

The Commission has notified the Himachal Pradesh Electricity Regulatory Commission (Promotion of Generation from the Renewable Energy Sources and Terms and Conditions for Tariff Determination) Regulations, 2017, published in the Rajpatra, Himachal Pradesh, dated 23rd November, 2017 as amended from time to time (hereinafter jointly referred to as "RE Tariff Regulations, 2017").

2. As per the provisions of 4th amendment of RE Tariff Regulations, 2017, notified in the Rajpatra, Himachal Pradesh on 15th September, 2020, wherein financial principles for RE technologies for 3rd control period (i.e. 01.04.2020 to 30.09.2023) have been specified;
3. The provisions of Sub-regulation (3) of the Regulation 18 of the RE Tariff Regulations, 2017 provide that the Commission may, after having fixed the norms/parameters and other related terms and conditions as per Sub-regulation (2) of Regulation 18, determine, or otherwise fix, by order, either generic levellised tariff(s) for any or all categories of such renewable energy technology(ies);
4. As per the provisions of RE Tariff Regulations, 2017 amended from time to time, the control period is expiring on 30.09.2023;
5. Therefore, the Commission, in due discharge of the mandate under Regulation 18 of RE Tariff Regulations, 2017 proposes to determine the generic levellised tariff of solar PV projects and associated terms and conditions for a period w.e.f 01.04.2023 to 30.09.2023 as per Annexure-"A"; and
6. The comments and suggestions of the stakeholders on the above proposal are invited by **20th March, 2023**. A public hearing on the above proposal will be held on **25th March, 2023** at **11.00 AM** onwards or soon thereafter.

Sd/-
(Shashi Kant Joshi)
Member

Sd/-
(Yashwant Singh Chogal)
Member (Law)

Sd/-
(Devendra Kumar Sharma)
Chairman

Generic levellised tariff for Solar PV Projects for FY 2023-24 (for a period w.e.f 01.04.2023 to 30.09.2023) under RE Tariff Regulations, 2017.-

1. The Commission has notified the Himachal Pradesh Electricity Regulatory Commission (Promotion of Generation from the Renewable Energy Sources and Terms and Conditions for Tariff Determination) Regulations, 2017, on 23rd November, 2017 in the Rajpatra, Himachal Pradesh and carried out the 4th amendment of said Regulations on 8th September, 2020, as notified in the Rajpatra, Himachal Pradesh on 15th September, 2020 wherein financial principles for RE technologies for 3rd control period (i.e. 01.04.2020 to 30.09.2023) have been specified (hereinafter jointly referred to as “RE Tariff Regulations, 2017”).

The Regulation 18 of the RE Tariff Regulations, 2017, provides that:-

“18 (1).....xxxxxxxxxxxx.....

(2) Where the technological specific parameters and other terms and conditions, including the tariff period and useful life of the project, have not been specified, the Commission may, by an order, at any time and at such intervals as it considers appropriate to do so, fix the same:

Provided that.....xxxxxxx.....

Provided further that the Commission may, by order, categorise the renewable energy projects, other than small hydro projects, under the respective renewable energy technologies specified in sub-regulation (1), based on the capacity of projects, the available subsidy schemes and such other factors as may be considered appropriate by it:

Provided further 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 MW for any such technology, any or all of the technological specific parameters, including capital cost, and other terms and conditions or the tariff, in respect of the relevant part of the control period for the relevant renewable energy technology, as it may deem fit -

- (a) as specified or adopted by the Central Commission for determining project specific tariff for any project(s) or generic levellised tariff for any category of project(s); or
- (b) the rate discovered through competitive bidding undertaken by any Government agency; or
- (c) the inputs available from any other sources, as the Commission may find appropriate:

Provided further that the financial norms, except for capital cost, as specified under Chapter-IV of these Regulations shall also be considered as ceiling norms.

(3) The Commission may, after having fixed the norms/parameters and other related terms and conditions as per sub-regulation (2), determine, or otherwise fix, by order, either generic levellised tariff(s) for any or all categories of such renewable energy technology(ies):

Provided that the Commission may, by order, fix, at such time intervals as it may consider appropriate, the ceiling rates and associated terms and conditions to be used by the licensee for reverse bidding for procurement of power from the projects based on such technologies.

(4)xxxxxxxxxxxx..... .

(5)xxxxxxxxxxxx..... .

2. In view of above provisions contained in Regulation 18 of the RE Tariff Regulations, 2017, the Commission proposes to categorize the solar PV plants and also to fix the technological specific norms for the financial year 2023-2024 (for a period w.e.f 01.04.2023 to 30.09.2023) and also the generic levelled tariff for procurement of power by the Distribution Licensee from solar PV plants as detailed in the succeeding paragraphs.

3. **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 proposes 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 2023-24 (period 01.04.2023 to 30.09.2023) :-

Capacity	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

Since the capacity in the second category is proposed to be limited to 5.00 MW, so 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. All the solar PV projects with a capacity of more than 5.00 MW shall accordingly fall under the third category.

4. **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”. The Central Commission has

specified the technological parameters i.e. normative Capacity Utilization Factor (CUF) for solar PV projects as 21%. However, for 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.

The CERC has not made any provision for determination of normative (benchmark) capital cost for solar PV projects and its RE Tariff Regulations, 2020 do not envisage such a generic tariff determination. Accordingly, the Commission proposes 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.

4.1 CAPITAL COST.-

- a) The capital cost of solar PV module is not only the single largest component of the capital cost of the project but is also highly sensitive to the market conditions and the impact of the rapid technological development. The Commission accordingly feels that the cost of this component should be considered after taking all relevant factors into account.

As per the website of www.pvinsights.com, the latest Solar PV Module Weekly support Price, as accessed on 14.02.2023, is as under:-

USD/Watt	
Item	Average
Poly Solar Module	0.191
Mono PERC Module	0.217

The average of these prices works out to 0.204 USD/Watt. The Commission finds it appropriate to consider the cost of Solar PV Module as Rs. 166.50 Lakhs/MW considering the exchange rate of Rs. 81.60/USD based on the average of six months, ending 13th February, 2023. The Commission, while determining the generic tariff for Solar PV Plants for FY 2021-22 as per its Order dated 22nd July, 2021, had escalated the average price, based on the data for the relevant period, by 15% to account for the various factors such as DC/AC ratio, degradation factor, taxes etc. etc. Subsequently, the Government of India has announced levy of import duty, w.e.f. 01.04.2022, on the import of Solar PV Cells and Solar PV Modules @ 25% and 40% respectively. The applicability period of safeguard duty however expired on 30.06.2021 and has not been renewed. Moreover, the GST rate for the goods component has also been increased from 5% to 12%. Apart from the above, the Government of India has provided for the production linked incentive (PLI) of Rs. 4500 Crores, in addition to the PLI of Rs. 19500 Crore provided for in the budget proposals for FY 2022-23. The Commission, while finalising the order for FY 2022-23, allowed the additional 15% escalation on the basic cost subject to certain adjustment linked with the tax rates, as detailed in the said order.

All these factors would have overlapping and diverse effects and may also increase the competitiveness. Such factors shall definitely impact the market

rates at which the Solar PV Cells and Solar PV Modules shall be available from various sources. The Commission feels that as a result of all such developments in the recent years has resulted in increasing the production of solar module at the competitive rates in the Country. This trend is further likely to continue which may make the rates more and more competitive. Moreover, the difference in the cost of Solar PV Cells and Solar PV modules as well as taxes thereon, if availed optimally, can also facilitate marginal reduction in the overall cost of the panels. After taking all related factors into account, the Commission proposes to consider the normative cost of solar PV module as Rs. 166.50 Lakhs/MW and escalate the same by 15% to account for the various factors as mentioned above. The average normative price of Solar PV Modules on the above basis works out to Rs. 191.48 Lakhs/MW.

- b) As regards, the normative cost of the other components which was considered as Rs. 216.30 per/MW in the tariff order 28.03.2022, the Commission proposes to retain the same without any change.
- c) On the above basis, the per/MW normative capital cost of the project works out to Rs. 407.78 Lakhs/MW as detailed in the following table:-

Sr. No.	Particulars	Normative Capital Cost (Rs. Lakh/MW)
1	PV Modules	191.48
2	Preliminary and Pre-operative expenses, Land Cost, Civil & General Works and Mounting Structures. Power Conditioning Units, Evacuation cost up to interconnection point etc.	216.30
	Total Cost	407.78

- d) As regards, the normative capital cost for the Solar PV projects upto 1.00 MW, the Commission feels that the normative per MW capital cost for a category-I projects may now not be much different from the same for category-II projects. On one hand, the cost for the smaller projects may be slightly higher due to economy of scale consideration, but on the other hand there could be some saving in the smaller capacity solar PV projects.

As such, the Commission proposes to fix the normative capital cost for the Solar PV projects upto 1.00 MW capacity by allowing increase of 1.0% instead of 1.5% considered in the tariff order for FY 2022-23. The same works out as Rs. 411.86 Lakh/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. The additional capital cost for these area specific Solar PV project(s) is proposed as Rs. 7.50 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. 7.50 Lakh per MW shall, however, be further increased by 1.0% 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.
- e) 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	411.86
(b)	Above 1.00 MW & upto 5.00 MW	407.78
2	Projects to be set up in urban areas and industrial areas	
(a)	Upto 1.00 MW	419.43
(b)	Above 1.00 MW & upto 5.00 MW	415.28

4.2 OPERATION AND MAINTENANCE EXPENSES.-

The Commission considered the O&M expenses as Rs. 9.43 Lakhs/MW with escalation @ 3.84% for FY 2022-23 in its solar PV tariff order dated 28.03.2022.

The O&M expenses of Rs. 9.79 Lakh/MW are proposed to be considered for FY 2023-24 (for first six months). 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.

4.3 NORMATIVE NET SALEABLE ENERGY.-

The CUF shall be considered 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.

- 4.4 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.

5. After having proposed 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 2022-23 under Regulation 18 of the RE Tariff Regulations, 2017. The main details of the proposed tariff are as follows:-

5.1 TARIFF STRUCTURE.-

Regulation 12 of the RE Tariff Regulations, 2017 stipulates that single part levelled 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 levelled tariff has been worked out for the respective categories of solar PV projects by adopting the methodology, discussed in succeeding paragraphs.

5.2 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.

5.3 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.

5.4 Return on Equity.-

Regulation 26-B of the RE Tariff Regulations, 2017 provides that the value base for the equity (on which return on equity shall be calculated) shall be equal to the equity component computed in accordance with the provisions of Regulation 23-B.

It has also been specified that 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.

Accordingly, the normative return on equity 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 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 grossed-up as 19.75% by considering corporate tax @ 29.12% (25% tax rate+12% Surcharge+ 4% Health and Education cess).

5.5 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 10.02% 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) prevailing during the last available six months as shown in the table below:-

Month	Tenor-wise MCLR of SBI
August, 2022	7.70
September, 2022	7.70
October, 2022	7.95
November, 2022	8.05
December, 2022	8.30
January, 2023	8.40
Avg. for last available 6 months.	8.02

5.6 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

5.7 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 11.52% 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.

5.8 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 levlised or project specific levlised 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 levlised 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.”

5.9 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.

5.10 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 levellised tariff computation. The discount factor has been calculated on this basis of the 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 10.02%. 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 9.16%. The Corporate tax has been taken as 29.12% (25% IT rate+12% Surcharge+4% Health and Education cess).

5.11 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.

6. GENERIC LEVELLISED TARIFF AND ASSOCIATED TERMS & CONDITIONS.-

In light of the discussions made in the preceding paragraphs, the generic levellised tariff and the associated terms and conditions for solar PV power project for FY 2023-24 (for a period w.e.f 01.04.2023 to 30.09.2023) under the RE Regulations, 2017 have been arrived at and are proposed to be determined as under:-

- A. The generic levellised tariff for Solar PV power projects for FY 2023-24 (for a period w.e.f 01.04.2023 to 30.09.2023) shall be:-

Sr. No.	Capacity	Generic levellised tariff (Rs. Per kWh)
1	Projects to be set up in other than industrial areas and urban areas	
(a)	Upto 1.00 MW	3.74
(b)	Above 1.00 MW & upto 5.00 MW	3.71
2	Projects to be set up in industrial areas and urban areas	
(a)	Upto 1.00 MW	3.79
(b)	Above 1.00 MW & upto 5.00 MW	3.76

- 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 does 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 Lacs/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 01.04.2023, but not later than 30.09.2023, this tariff shall be applicable for such capacity(ies) as are commissioned on or before 31.03.2025.
 - (ii) in other cases, not covered in item (i) above, this tariff shall be applicable for such capacity(ies) for which the generic levellised tariff for

FY 2023-24 is applicable in accordance with the provisions of the PPAs read with the applicable tariff Order(s) of previous years. However, subject to any further clarification as the Commission may impart in case it decides to determine the generic levelled tariff for the period 01.10.2023 to 31.03.2024.

- 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.
7. The detailed computations for generic levelled tariff for FY 2023-24 (for a period w.e.f 01.04.2023 to 30.09.2023) 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”.

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	%	0.21
			Transmission losses, Auxillary	%	1.45
			Consumption including Transformation Losses		
			Useful Life	Years	25
2	Project Cost	Capital Cost /MW	Project Cost	Lakh Rs./MW	411.86
3	Project Financing	Debt Equity	Tariff Period	Year	25
			Debt	%	70
			Equity	%	30
		Debt Component	Loan Amount	Lakh Rs./MW	288.302
			Moratorium Period	Year	0
			Repayment Period	Year	15
			Interst Rate	%	10.02
		Equity Component	Equity Amount	Lakh Rs./MW	123.558
			Return of equity for first 20 Years	%	16.96
			Return of equity from 21st Years onwards	%	19.75
4	Subsidy	Subsidy			0
5	Depreciation	Depreciation	Recovery of Depreciation	%	90
			Annual Rate of Depreciation till completion of Loan Repayment (balance spread in remaining years)	%	4.67
			16th year Onward	%	1.995
6	Operation & Maintenance		Total O&M Expenses	Lakh Rs./MW	9.79
			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	%	11.52
8	Discount Factor		Discount Rate	%	9.16

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		9.79	10.166	10.56	10.96	11.38	11.82	12.27	12.74	13.23	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	23.29	24.18
Depreciation	Rs. lakh		19.23	19.23	19.23	19.23	19.23	19.23	19.23	19.23	19.23	19.23	19.23	19.23	19.23	19.23	19.23	8.22	8.22	8.22	8.22	8.22	8.22	8.22	8.22	8.22	8.22
Interest on Term Loan	Rs. lakh		27.92	26.00	24.07	22.15	20.22	18.30	16.37	14.44	12.52	10.59	8.67	6.74	4.81	2.89	0.96	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		1.41	1.39	1.38	1.37	1.36	1.35	1.34	1.33	1.32	1.32	1.31	1.31	1.30	1.30	1.30	1.15	1.18	1.20	1.23	1.27	1.35	1.38	1.42	1.45	1.49
Return on Equity	Rs. lakh		20.96	20.96	20.96	20.96	20.96	20.96	20.96	20.96	20.96	20.96	20.96	20.96	20.96	20.96	20.96	20.96	20.96	20.96	20.96	20.96	24.40	24.40	24.40	24.40	24.40
Total fixed Cost	Rs. lakh		79.31	77.75	76.20	74.67	73.15	71.65	70.17	68.71	67.27	65.84	64.44	63.05	61.69	60.35	59.04	47.55	48.24	48.95	49.70	50.47	54.77	55.60	56.46	57.36	58.29
Levellised CoG																											
Per unit CoG	Unit	levellised																									
O&M Expences	Rs/kWh	0.75	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	1.10	1.15	1.19	1.24	1.28	1.33
Depreciation	Rs/kWh	0.95	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	0.45	0.45	0.45	0.45	0.45	0.45	0.45	0.45	0.45	0.45
Interest on Term Loan	Rs/kWh	0.80	1.54	1.43	1.33	1.22	1.12	1.01	0.90	0.80	0.69	0.58	0.48	0.37	0.27	0.16	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	0.07	0.08	0.08	0.08	0.08	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.06	0.06	0.07	0.07	0.07	0.07	0.08	0.08	0.08	0.08
Return on Equity	Rs/kWh	1.17	1.16	1.16	1.16	1.16	1.16	1.16	1.16	1.16	1.16	1.16	1.16	1.16	1.16	1.16	1.16	1.16	1.16	1.16	1.16	1.16	1.35	1.35	1.35	1.35	1.35
Total CoG	Rs/kWh	3.74	4.37	4.2885	4.20	4.12	4.04	3.95	3.87	3.79	3.71	3.63	3.55	3.48	3.40	3.33	3.26	2.62	2.66	2.70	2.74	2.78	3.02	3.07	3.11	3.16	3.22
Discounted factor	%		1	0.92	0.84	0.77	0.70	0.65	0.59	0.54	0.50	0.45	0.42	0.38	0.35	0.32	0.29	0.27	0.25	0.23	0.21	0.19	0.17	0.16	0.15	0.13	0.12
Levellised Tariff	Rs/kWh	3.74	4.37	3.9286	3.53	3.17	2.84	2.55	2.29	2.05	1.84	1.65	1.48	1.33	1.19	1.07	0.95	0.70	0.65	0.61	0.57	0.53	0.52	0.49	0.45	0.42	0.39

Generic Levellised Tariff (without Subsidy) at Capital Cost of Rs 411.86 Lakh/MW = Rs. 3.74/kWh

Indicative Generic Levellised Tariff by considering Subsidy/Incentive/Grant of Rs 10 Lakh/MW = Rs. 3.67/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	%	0.21
			Transmission losses, Auxillary	%	1.45
			Consumption including Transformation Losses		
			Useful Life	Years	25
2	Project Cost	Capital Cost /MW	Project Cost	Lakh Rs./MW	407.78
3	Project Financing	Debt Equity	Tariff Period	Year	25
			Debt	%	70
			Equity	%	30
		Debt Component	Loan Amount	Lakh Rs./MW	285.446
			Moratorium Period	Year	0
			Repayment Period	Year	15
			Interst Rate	%	10.02
		Equity Component	Equity Amount	Lakh Rs./MW	122.334
			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	1.995
			Annual Escalation	%	9.79
7	Working Capital		O&M Charges	Month	3.84
			Maintenance Spares	% of O&M expenses of a Year	1
			Recievables	Months	15
			Interest on Working capital	%	1.5
8	Discount Factor		Discount Rate	%	11.52
					9.16

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		9.79	10.166	10.56	10.96	11.38	11.82	12.27	12.74	13.23	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	23.29	24.18
Depreciation	Rs. lakh		19.04	19.04	19.04	19.04	19.04	19.04	19.04	19.04	19.04	19.04	19.04	19.04	19.04	19.04	19.04	8.14	8.14	8.14	8.14	8.14	8.14	8.14	8.14	8.14	8.14
Interest on Term Loan	Rs. lakh		27.65	25.74	23.83	21.93	20.02	18.11	16.21	14.30	12.39	10.49	8.58	6.67	4.77	2.86	0.95	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		1.40	1.38	1.37	1.36	1.35	1.34	1.33	1.32	1.32	1.31	1.30	1.30	1.30	1.29	1.29	1.14	1.17	1.20	1.23	1.26	1.34	1.38	1.41	1.45	1.48
Return on Equity	Rs. lakh		20.75	20.75	20.75	20.75	20.75	20.75	20.75	20.75	20.75	20.75	20.75	20.75	20.75	20.75	20.75	20.75	20.75	20.75	20.75	20.75	24.16	24.16	24.16	24.16	24.16
Total fixed Cost	Rs. lakh		78.62	77.08	75.55	74.04	72.55	71.07	69.60	68.16	66.74	65.33	63.95	62.58	61.24	59.92	58.63	47.26	47.94	48.66	49.40	50.18	54.44	55.27	56.14	57.03	57.97
Levellised CoG																											
Per unit CoG	Unit	levellised																									
O&M Expences	Rs/kWh	0.75	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	1.10	1.15	1.19	1.24	1.28	1.33
Depreciation	Rs/kWh	0.94	1.05	1.05	1.05	1.05	1.05	1.05	1.05	1.05	1.05	1.05	1.05	1.05	1.05	1.05	1.05	0.45	0.45	0.45	0.45	0.45	0.45	0.45	0.45	0.45	0.45
Interest on Term Loan	Rs/kWh	0.79	1.53	1.42	1.31	1.21	1.10	1.00	0.89	0.79	0.68	0.58	0.47	0.37	0.26	0.16	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	0.07	0.08	0.08	0.08	0.08	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.06	0.06	0.07	0.07	0.07	0.07	0.08	0.08	0.08	0.08
Return on Equity	Rs/kWh	1.16	1.14	1.14	1.14	1.14	1.14	1.14	1.14	1.14	1.14	1.14	1.14	1.14	1.14	1.14	1.14	1.14	1.14	1.14	1.14	1.14	1.33	1.33	1.33	1.33	1.33
Total CoG	Rs/kWh	3.71	4.34	4.2518	4.17	4.08	4.00	3.92	3.84	3.76	3.68	3.60	3.53	3.45	3.38	3.31	3.23	2.61	2.64	2.68	2.73	2.77	3.00	3.05	3.10	3.15	3.20
Discounted factor	%		1	0.92	0.84	0.77	0.70	0.65	0.59	0.54	0.50	0.45	0.42	0.38	0.35	0.32	0.29	0.27	0.25	0.23	0.21	0.19	0.17	0.16	0.15	0.13	0.12
Levellised Tariff	Rs/kWh	3.71	4.34	3.8950	3.50	3.14	2.82	2.53	2.27	2.04	1.83	1.64	1.47	1.32	1.18	1.06	0.95	0.70	0.65	0.60	0.56	0.52	0.52	0.48	0.45	0.42	0.39

Generic Levellised Tariff (without Subsidy) at Capital Cost of Rs 407.78 Lakh/MW = Rs. 3.71 /kWh
Indicative Generic Levellised Tariff by considering Subsidy/Incentive/Grant of Rs 10 Lakh/MW = Rs. 3.64 /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	%	0.21
			Transmission losses, Auxillary	%	1.45
			Consumption including Transformation Losses		
			Useful Life	Years	25
2	Project Cost	Capital Cost /MW	Project Cost	Lakh Rs./MW	419.43
3	Project Financing	Debt Equity	Tariff Period	Year	25
			Debt	%	70
		Debt Component	Equity	%	30
			Loan Amount	Lakh Rs./MW	293.601
			Moratorium Period	Year	0
			Repayment Period	Year	15
			Interst Rate	%	10.02
		Equity Component	Equity Amount	Lakh Rs./MW	125.829
			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	1.995
			Annual Escalation	%	9.79
7	Working Capital		O&M Charges	Month	3.84
			Maintenance Spares	% of O&M expenses of a Year	1
			Recievables	Months	15
			Interest on Working capital	%	1.5
8	Discount Factor		Discount Rate	%	11.52
					9.16

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		9.79	10.166	10.56	10.96	11.38	11.82	12.27	12.74	13.23	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	23.29	24.18
Depreciation	Rs. lakh		19.59	19.59	19.59	19.59	19.59	19.59	19.59	19.59	19.59	19.59	19.59	19.59	19.59	19.59	19.59	8.37	8.37	8.37	8.37	8.37	8.37	8.37	8.37	8.37	8.37
Interest on Term Loan	Rs. lakh		28.44	26.48	24.52	22.55	20.59	18.63	16.67	14.71	12.75	10.79	8.83	6.86	4.90	2.94	0.98	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		1.42	1.41	1.40	1.39	1.38	1.37	1.36	1.35	1.34	1.33	1.32	1.32	1.31	1.31	1.31	1.16	1.18	1.21	1.24	1.27	1.36	1.39	1.42	1.46	1.50
Return on Equity	Rs. lakh		21.34	21.34	21.34	21.34	21.34	21.34	21.34	21.34	21.34	21.34	21.34	21.34	21.34	21.34	21.34	21.34	21.34	21.34	21.34	21.34	24.85	24.85	24.85	24.85	24.85
Total fixed Cost	Rs. lakh		80.58	78.98	77.40	75.83	74.28	72.74	71.23	69.73	68.25	66.79	65.35	63.93	62.53	61.16	59.81	48.09	48.78	49.50	50.24	51.01	55.38	56.21	57.07	57.97	58.90
Levellised CoG																											
Per unit CoG	Unit	levellised																									
O&M Expences	Rs/kWh	0.75	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	1.10	1.15	1.19	1.24	1.28	1.33
Depreciation	Rs/kWh	0.97	1.08	1.08	1.08	1.08	1.08	1.08	1.08	1.08	1.08	1.08	1.08	1.08	1.08	1.08	1.08	0.46	0.46	0.46	0.46	0.46	0.46	0.46	0.46	0.46	0.46
Interest on Term Loan	Rs/kWh	0.81	1.57	1.46	1.35	1.24	1.14	1.03	0.92	0.81	0.70	0.59	0.49	0.38	0.27	0.16	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	0.07	0.08	0.08	0.08	0.08	0.08	0.08	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.06	0.07	0.07	0.07	0.07	0.07	0.08	0.08	0.08	0.08
Return on Equity	Rs/kWh	1.19	1.18	1.18	1.18	1.18	1.18	1.18	1.18	1.18	1.18	1.18	1.18	1.18	1.18	1.18	1.18	1.18	1.18	1.18	1.18	1.18	1.37	1.37	1.37	1.37	1.37
Total CoG	Rs/kWh	3.79	4.44	4.3566	4.27	4.18	4.10	4.01	3.93	3.85	3.76	3.68	3.60	3.53	3.45	3.37	3.30	2.65	2.69	2.73	2.77	2.81	3.05	3.10	3.15	3.20	3.25
Discounted factor	%		1	0.92	0.84	0.77	0.70	0.65	0.59	0.54	0.50	0.45	0.42	0.38	0.35	0.32	0.29	0.27	0.25	0.23	0.21	0.19	0.17	0.16	0.15	0.13	0.12
Levellised Tariff	Rs/kWh	3.79	4.44	3.9910	3.58	3.22	2.89	2.59	2.32	2.08	1.87	1.67	1.50	1.34	1.20	1.08	0.97	0.71	0.66	0.62	0.57	0.53	0.53	0.49	0.46	0.43	0.40

Generic Levellised Tariff (without Subsidy) at Capital Cost of Rs 419.43 Lakh/MW = Rs. 3.79 /kWh
Indicative Generic Levellised Tariff by considering Subsidy/Incentive/Grant of Rs 10 Lakh/MW = Rs. 3.72 /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	%	0.21
			Transmission losses, Auxillary	%	1.45
			Consumption including Transformation Losses		
			Useful Life	Years	25
2	Project Cost	Capital Cost /MW	Project Cost	Lakh Rs./MW	415.28
3	Project Financing	Debt Equity	Tariff Period	Year	25
			Debt	%	70
		Debt Component	Equity	%	30
			Loan Amount	Lakh Rs./MW	290.696
			Moratorium Period	Year	0
			Repayment Period	Year	15
			Interst Rate	%	10.02
		Equity Component	Equity Amount	Lakh Rs./MW	124.584
			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	1.995
			Annual Escalation	%	9.79
7	Working Capital		O&M Charges	Month	3.84
			Maintenance Spares	% of O&M expenses of a Year	1
			Recievables	Months	15
			Interest on Working capital	%	1.5
8	Discount Factor		Discount Rate	%	11.52
					9.16

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

Sheet of Appendix IV

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		9.79	10.166	10.56	10.96	11.38	11.82	12.27	12.74	13.23	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	23.29	24.18
Depreciation	Rs. lakh		19.39	19.39	19.39	19.39	19.39	19.39	19.39	19.39	19.39	19.39	19.39	19.39	19.39	19.39	19.39	8.28	8.28	8.28	8.28	8.28	8.28	8.28	8.28	8.28	8.28
Interest on Term Loan	Rs. lakh		28.16	26.21	24.27	22.33	20.39	18.45	16.51	14.56	12.62	10.68	8.74	6.80	4.85	2.91	0.97	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		1.41	1.40	1.39	1.38	1.37	1.36	1.35	1.34	1.33	1.32	1.32	1.31	1.31	1.30	1.30	1.15	1.18	1.21	1.24	1.27	1.35	1.39	1.42	1.46	1.49
Return on Equity	Rs. lakh		21.13	21.13	21.13	21.13	21.13	21.13	21.13	21.13	21.13	21.13	21.13	21.13	21.13	21.13	21.13	21.13	21.13	21.13	21.13	21.13	24.61	24.61	24.61	24.61	24.61
Total fixed Cost	Rs. lakh		79.88	78.30	76.74	75.19	73.66	72.15	70.65	69.17	67.71	66.27	64.85	63.45	62.07	60.72	59.39	47.79	48.48	49.20	49.94	50.71	55.04	55.87	56.74	57.64	58.57
Levellised CoG																											
Per unit CoG	Unit	levellised																									
O&M Expences	Rs/kWh	0.75	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	1.10	1.15	1.19	1.24	1.28	1.33
Depreciation	Rs/kWh	0.96	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	0.46	0.46	0.46	0.46	0.46	0.46	0.46	0.46	0.46	0.46
Interest on Term Loan	Rs/kWh	0.80	1.55	1.45	1.34	1.23	1.12	1.02	0.91	0.80	0.70	0.59	0.48	0.37	0.27	0.16	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	0.07	0.08	0.08	0.08	0.08	0.08	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.06	0.07	0.07	0.07	0.07	0.07	0.08	0.08	0.08	0.08
Return on Equity	Rs/kWh	1.18	1.17	1.17	1.17	1.17	1.17	1.17	1.17	1.17	1.17	1.17	1.17	1.17	1.17	1.17	1.17	1.17	1.17	1.17	1.17	1.17	1.36	1.36	1.36	1.36	1.36
Total CoG	Rs/kWh	3.76	4.41	4.3192	4.23	4.15	4.06	3.98	3.90	3.82	3.73	3.66	3.58	3.50	3.42	3.35	3.28	2.64	2.67	2.71	2.75	2.80	3.04	3.08	3.13	3.18	3.23
Discounted factor	%		1	0.92	0.84	0.77	0.70	0.65	0.59	0.54	0.50	0.45	0.42	0.38	0.35	0.32	0.29	0.27	0.25	0.23	0.21	0.19	0.17	0.16	0.15	0.13	0.12
Levellised Tariff	Rs/kWh	3.76	4.41	3.9568	3.55	3.19	2.86	2.57	2.30	2.07	1.85	1.66	1.49	1.33	1.20	1.07	0.96	0.71	0.66	0.61	0.57	0.53	0.53	0.49	0.46	0.42	0.39

Generic Levellised Tariff (without Subsidy) at Capital Cost of Rs 415.28 Lakh/MW = Rs. 3.76 /kWh

Indicative Generic Levellised Tariff by considering Subsidy/Incentive/Grant of Rs 10 Lakh/MW = Rs. 3.69 /kWh

Adjustment to be made per 10 Lakh of Subsidy/Incentive/Grant per MW= Rs. 0.07/kWh