THE HIMACHAL PRADESH ELECTRICITY REGULATORY COMMISSION, SHIMLA
IN THE MATTER OF

Determination of generic levellised tariffs for Solar PV Projects under Regulation 17 of the Himachal Pradesh Electricity Regulatory Commission (Promotion of Generation from the Renewable Energy Sources and Terms and Conditions for Tariff Determination) Regulations, 2012.

CORAM
S.K.B.S NEGI
CHAIRMAN

ORDER

1.0 Regulation 17 of the Himachal Pradesh Electricity Regulatory Commission (Promotion of Generation from the Renewable Energy Sources and Terms and Conditions for Tariff Determination) Regulations, 2012, notified by the Commission on 17th December, 2012 in the Rajpatra, Himachal Pradesh (herein after referred to as "RE Tariff Regulations, 2012"), read with 1st amendment dated 19th February, 2015, published in the Rajpatra, Himachal Pradesh, empowers the Commission to categorise the RE Projects (other than SHPs) and to fix the technological specific parameters, other terms and conditions and consequently also to determine separate generic levellised tariffs for renewable energy projects, other than small hydro projects. The regulation 17 of RE Tariff Regulations, provides that :-

"17 (1).....xxxxxxxxxx.....

(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.

.....xxxxxxxxx....

Provided further that the Commission may, by order, categorize the renewable energy projects, other than SHPs, 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, the technological specific parameters, including capital cost, and other terms and conditions, as notified, or may be notified, by the Central

Commission under the Central Electricity Regulatory Commission (Terms and Conditions for Tariff Determination for Renewable Energy Sources) Regulations, 2012, in respect of the relevant financial years of the control period ending on 31st March, 2017, for the relevant renewable energy technology, as may be considered appropriate by it."; and

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, by order generic levellised tariff(s) for any or all categories of such renewable energy technology (ies).
Provided that the Commission may, by order, fix, on annual basis, 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) .....xxxxxxxxxx.....

(5) .....xxxxxxxxxx.....

The Commission came out, vide its proposal dated 29.04.2016, for categorization of solar PV projects as well as for fixing the norms for technological specific parameters, other terms and conditions and determination of generic levellised tariffs for solar PV projects upto 5.00 MW capacity.

2.0 The Commission invited objections/suggestions from public on its aforesaid proposal, by way of insertions in two News Papers i.e. "The Tribune" and "Danik Bhasker" on 1st May, 2016. The text of said proposal was made available on the Commission's website www.hperc.org. The Commission, vide letter dated 02.05.2016, requested the major stakeholders, including Industries Associations, State Government, Directorate of Energy, HIMURJA and HPSEB Limited i.e. Distribution Licensee to send their objections/ suggestions as per the aforesaid public notice.

3.0 Suggestions/Objections of stakeholders, analysis and findings of the Commission on important issues:

The Commission has received comments/suggestions on the aforesaid proposal from the following stakeholders:-

1. Himachal Pradesh Energy Development Agency (HIMURJA), SDA Complex, Kasumpti, Shimla-171009.
2. Shri K.K. Kashyap, Green Solar Energy Producer, VPO Nand, Kasla & Chamba, Teh. Nalagarh, Distt. Solan (HP).
3. M/s Surya Ushma Pvt. Ltd., HR-62A, FF, Pul Pehlad Pur, Badar Pur, New Delhi- 110044.
4. The Directorate of Energy, Shanti Bhawan, Phase-III, Sector-6, New Shimla-171009 (HP).

The Himachal Pradesh Energy Development Agency (HIMURJA) and the Directorate of Energy have submitted that they have no objection on the Commission's proposal dated 29.04.2016.

The Commission now proceeds to discuss and to analyse the relevant issues, arising out of the comments/suggestions received by it from other two stakeholders on norms, tariffs determination and firm up the views on the related issues as under:

3.1 Categorization:

The Commission in its proposal dated 29.04.2016, suggested the categorization of solar PV projects, based on the capacity of such projects.

No comments/suggestions have been received on the proposed categorization, based on project capacities. The Commission accordingly categorizes the solar PV projects as under:-

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

3.2 Technology Specific Parameters:

The Commission, vide its proposal dated 29.04.2016, brought out the technological specific parameters relating to Capital Cost, Operation and Maintenance Expenses (O&M), Capacity Utilization Factor (CUF), other terms and conditions regarding applicability of Tariff as specified

by the Central Commission under the Central Electricity Regulatory Commission (Terms and Conditions for Tariff Determination for Renewable Energy Sources) Regulations, 2012 (hereinafter referred as "CERC RE Tariff Regulations, 2012") and expressed its intention to adopt the same with marginal changes for the solar PV projects, falling under the first two categories as per para 3.1 (i.e. upto 5.00 MW capacity). The comments received from the stakeholders on these parameters have been analysed and findings of the Commission are as under:-

3.2.1 **Capital Cost:**

M/s Green Solar Energy Producer have suggested that normative capital costs should be fixed at levels higher than the proposed levels. The main issues raised by them are as under:-

(i) "The Commission in the draft proposal has considered capital cost higher by 4% and 2.5% as against normative costs fixed by the CERC. But in our case, the single component of entry tax leviable @ 5% on total components of Solar PV projects would calculate over & above CERC rates by atleast by 4 to 4.5%.

(ii) In hilly areas, the terrain being rocky, huge expenditures on civil works for the foundation of mounting material are involved. Drilling and RCC foundation would be required for holding mounting structure, whereas in plains, no such expenditure is required. This component of extra cost would calculate to 2 to 3% above CERC normative capital cost norms.

(iii) Cost of land in our State (Himachal Pradesh) is much higher than the plains, where the waste lands are used for such projects. In our State, even uncultivable lands i.e. Ghasnis are also much more costly than waste lands in plains. Because of this factor, the cost should be higher by 4 to 5% of CERC normative capital cost.

(iv) Transportation of equipment would cost more in our State and road connectivity is also poor in rural areas. Because of this reason, our cost should be 1 to 2% higher than CERC normative capital cost.

(v) Transmission network in our State is very scattered. We have to construct transmission lines upto evacuation point, by putting extra cost and transmission losses would also be more. This will increase cost by 1 to 2% in comparison to CERC normative capital cost.

(vi) The proposed tariff is otherwise also irrational, if we consider the fall in capital cost for 1.00 to 5.00 MW projects, which is about 13% (620 Lakhs to 543 Lakhs per MW), but the reduction in proposed tariff is about 20% (Rs. 7.05 to 5.69). Taking into consideration, all the above factors, you are requested to finalise a reasonable tariff, making the projects financially viable, so that developers take interest in promoting this priority industry in the State. ”

Commission Views:-

As acknowledged by the stakeholders also, the Commission has already proposed marginally higher capital cost as compared to the benchmarked capital cost of FY 2016-17, determined by the Central Electricity Regulatory Commission. The Commission also finds that CERC has, while determining the benchmarked capital cost for solar PV project as per its order dated 23.03.2016, already addressed/ analyzed most of the issues related to Capital Cost, as raised by the stakeholder. As far as, the impact of the conditions peculiar to State of Himachal Pradesh, the cost of transmission line upto evacuation point, is concerned, the same has already been duly considered as per the position brought out in the proposal dated 29.04.2016 and the capital cost has been fixed at a level marginally higher than that fixed by the CERC in its order dated 23.03.2016. However, taking into consideration the further State specific issues raised by the stakeholder, the Commission fixes the normative capital costs inclusive of all components as well as taxes etc. for solar PV projects upto 5.00 MW capacity by increasing the CERC benchmark capital cost of Rs. 530.02 Lakhs per MW by 7.50% upto I.00 MW and 6.00% above I.00 MW and upto 5.00 MW capacity plants for 2016-17, as under:-

Sr. No.	**Capacity of Solar PV Project at one site**	**Normative Capital Cost (Rs. Lakh Per MW)**
1	Upto 1 MW capacity	569.77
2	Above 1 MW to 5 MW capacity	561.82

The normative capital costs of solar PV projects for the financial year 2017-18 may be fixed separately after the normative capital costs for such projects are notified, by the CERC.

3.2.2 **OPERATION AND MAINTENANCE EXPENSES:**

In pursuance to the provisions of CERC RE Tariff Regulations, 2012, the CERC has computed the normative O&M expenses for solar PV projects as Rs. 7.00 Lakhs per MW for the FY 2016-17. These charges are escalated @ 5.72% per annum, over the tariff period. The Commission in its proposal, expressed its intention to follow these norms for both the categories of solar PV plants upto 5.00 MW for the year 2016-17. No comments/suggestions have been received in the Commission on the proposed normative O&M expenses. Accordingly, the Commission fixes the normative O&M expenses for solar PV projects as Rs. 7.00 Lakhs per MW for the FY 2016-17 with escalation @ 5.72% per annum over the tariff period for both the categories i.e. solar PV projects upto 5.00 MW capacity.

3.2.3 **Capacity Utilization Factor (CUF):**

The CERC's RE Tariff Regulations, 2012 specify that the annual normative capacity utilization factor (CUF) of solar PV plant shall be 19%. The Commission in its proposal dated 29.04.2016, expressed its intention to adopt this norm with a slight variation that the annual net saleable energy shall be worked out by considering energy losses @ 0.7% of the generation, on normative basis, to cover the losses on the project line upto the interconnection point and annual CUF of 19%. M/s Green Solar Energy Producer have submitted the following:-

> "The PLF of 19% taken as base for arriving at the tariff, would also be much on the lower side. Presently, in such projects in the nearby States of Punjab and Haryana, it is around 15%. This factor alone would increase the tariff considerably."

Commission Views:-

The Commission does not find any justification to deviate from the norms fixed by the CERC with regard the CUF of solar PV projects except for the energy losses on the Project Line for which provision has already been made. Accordingly, the Commission fixes the annual normative capacity utilization factor (CUF) of solar PV plant upto 5.00 MW capacity as 19.00% for the current financial year and the energy worked out on this basis, shall be considered as available on normative basis, for tariff calculations on the incoming side of the project line after meeting entire consumption/losses upto said point. Energy losses @ 0.7% of the gross generation, based on the normative CUF, shall however be accounted for on normative basis to cover the losses on the project line upto the interconnection point.

3.2.4 **Applicability of Tariffs:**

The CERC determines the generic levellised tariffs for solar PV projects every year. However, such tariffs for a year in case of a solar PV project remain applicable for the project during the immediately succeeding year also if the PPA is signed by the end of the year and capacity covered by the PPA is commissioned by the end of such succeeding year.

The relevant provisions of the CERC RE Tariff Regulations, 2012 are reproduced below:-

" (1) The Commission shall determine the generic tariff on the basis of suo-motu petition at least six months in advance at the beginning of each year of the Control period for renewable energy technologies for which norms have been specified under the Regulations.

(2) Notwithstanding anything contained in these regulations;

a) the generic tariff determined for Solar PV projects, based on the capital cost and other norms applicable for any year of the control period shall also apply for such projects during the next year; and

b) …….xxxxxxxxxxxxxxxxxx……

Provided that:-

(i) the Power Purchase Agreements in respect of the Solar PV projects and Solar thermal projects as mentioned in this clauses are signed on or before last day of the year for which generic tariff is determined and

(ii) the entire capacity covered by the Power Purchase Agreements is commissioned on or before 31st March of the next year in respect of Solar PV projects and…..xxxxxxxxxxxxxxx..".

The Commission felt that in view of the rapid technological advancement in case of solar PV technology, it may be appropriate for this Commission also to review the benchmarked capital cost every year. The Commission accordingly proposed to adopt the provisions of CERC's RE Tariff Regulations, 2012 with regard to applicability in relation to solar PV projects. In the proposal/draft order dated 29.04.2016, it was envisaged that the Commission shall determine the generic levellised tariffs for solar PV projects every year for the control period under RE Tariff Regulations, 2012 and the tariff so determined in respect the current financial year shall apply for the FY 2017-18 also in cases where PPA is signed by 31.03.2017 and the capacity covered by the PPA is commissioned on or before 31.03.2018. The Commission however observed that since there can be situations in which the PPA for a particular capacity is signed by 31.03.2017, but the capacity covered by the PPA may not be commissioned fully or partly on or before 31.03.2018, it may be appropriate to address the matter as a part of conditionalties attached with the tariff. The Commission felt that in case, the PPA rate (tariff) is allowed beyond 31.03.2018 for delay in the Commissioning of the project, it may amount to incentivizing the inefficiencies, keeping in view the fact that the tariff of solar PV projects may witness a downward trend in next few years due to technological advancement. It was proposed that in case such a project is not commissioned by 31.03.2018, the developer shall be allowed the rate, determined for the year, preceding the year in which the commissioning of solar PV project takes place or the tariff given in the PPA, whichever is lower.

M/s Surya Ushma Pvt. Ltd. have suggested as under:-

"Since its only 6 months from the date of LOI of HPSEBL, considering our interest in setting up project, our working & above all, the initiation by the State government for solar project, kindly allow us 3 months time to complete the PPA process on the same tariff fixed by the HPERC for the year FY 2015-16."

Commission Views:-

The para 6 (D) of Commission's Order dated 08.09.2015 provides that:-

> "These tariffs shall be applicable for the solar PV projects where PPAs are signed on or before 31.03.2016, after approval of the Commission and the projects are commissioned on or before 31.03.2017. In case, the PPA for a project has been signed on or before 31.03.2016 with the approval of the Commission but only a part of the project capacity is actually commissioned by 31.03.2017, the tariff applicable for the total project capacity as per PPA shall be applicable for the part capacity so commissioned i.e. for the net saleable energy corresponding to capacity, actually commissioned on or before 31.03.2017."

The Commission is of the view that it may not be appropriate to extend the applicability of tariff for signing the PPA beyond 31.03.2016, as decided vide aforesaid Order dated 08.09.2015 and accordingly Commission decides as:-

(i) The commission, if finds it expedient to do so, may fix the normative capital cost(s) for the respective categories for solar PV projects for financial year 2017-18, after its determination by the CERC as per new Renewable Energy Regulatory regime and upon fixing the same, may also determine the generic levellised tariffs for the respective categories for the said financial year also.

(ii) In cases where PPA for sale/purchase of power from solar PV projects upto 5.00 MW capacity under RE Tariff Regulations, 2012, is signed by the parties on or before 31.03.2017, with the approval of the Commission, the generic levellised tariffs applicable for the relevant category of solar PV projects, based on the total capacity of the project as per this order shall be applicable for the total capacity of the project if the project is commissioned on or before 31.03.2018. However, if only a part

of total capacity is commissioned by 31.03.2018, the generic levellised tariffs determined for solar PV project for the financial year in which the PPA is signed (2016-17), shall be applicable for part capacity so commissioned i.e. for the net saleable energy corresponding to the capacity, actually Commissioned in that year (2016-17) or by the closure of immediate succeeding year (2017-18).

(iii) For the net saleable energy corresponding to the balance capacity (i.e. Commissioned on or after 01.04.2018), the tariffs, as applicable in respect of the total capacity of the project for the respective year(s), preceding the year(s) in which commissioning actually takes place or the tariff for the year in which the PPA is signed, whichever is lower, shall be applicable.

3.2.5 **Norms and tariffs for Category-III Projects (Above 5.00 MW):**

The Commission has not fixed the norms for the Category–III solar PV projects (about 5.00 MW) and it shall take appropriate steps as and when it finds expedient to do so.

4.0 **Determination of Generic Levellised Tariffs:**

After having categorized the solar PV projects, based on the project capacities and also having fixed the technological specific parameters and associated conditions for the solar PV projects upto 5 MW, the Commission now proceeds further to determine the generic levellised tariffs for the first two categories of solar PV projects, based on the technological specific parameters fixed under para 3.2 of this order and other parameters already specified in RE Tariff Regulations, 2012. The comments/suggestions received on the related aspects and views of the Commission as well as main features of tariff determination have been outlined in the preceding paragraphs and further in the following paragraphs:-

4.1 **Tariff Structure:**

Regulation 11 of the RE Tariff Regulations, 2012 specifies that single part levellised tariff structure, comprising of the following normative components shall be followed, in case, where no fuel cost component is involved in power generation:-

(a) Return on equity;

(b) Interest on loan capital;

(c) Depreciation;

(d) Interest on working capital.

Accordingly, single part generic levellised tariffs have been worked out for the respective categories of solar PV projects for FY 2015-16.

4.2 **Technological Specific Parameters:**

The normative parameters for Capital cost, O&M charges, CUF etc. and applicability of tariff as fixed under para 3.2 above have been followed.

4.3 **Useful Life and Tariff Period:**

Regulation 10, read with clause (a) of sub-regulation (1) of Regulation 2 of the RE Tariff Regulations, 2012, 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.

4.4 **DEBT EQUITY RATIO:**

The normative debt equity ratio has been considered as 70:30 in accordance with Regulation 22 of the RE Tariff Regulations, 2012.

4.5 **RETURN ON EQUITY:**

Commission Views:-

The rates for Return on Equity (RoE), as considered in the proposal/ draft order are in conformity with the financial parameters already specified in the Regulation 25 of RE Tariff Regulations, 2012. Accordingly, the Commission decides to account for the normative Return on Equity (RoE) at the rates already specified in the RE Tariff Regulations, 2012 which are as under:-

(a) 19% per annum for the first 10 years.

(b) 22% per annum from the 11th year onwards.

4.6 **Interest on Loan:**

As per the proviso to clause (b) of sub-regulation (2) of Regulation 23 of RE Tariff Regulations, 2012, the interest rate has been taken as 12.76%, based on the weighted average State Bank of India (SBI) Base

Rate, prevalent during the first six months of FY 2015-16. No comment has been received on the rates of interest, proposed by the Commission. In view of this, the Commission fixes the interest rate as 12.76%, based on the weighted average State Bank of India (SBI) Base Rate, prevalent during the first six months of FY 2015-16, which has been worked out to be 9.76%, as shown in the table below:

From	To	Interest Rate
Wednesday, 1st April, 2015	Thursday, 9th April, 2015	10.00%
Friday, 10th April, 2015	Sunday, 7th June, 2015	9.85%
Monday, 8th June, 2015	Wednesday, 30th September, 2015	9.70%

Source: State Bank of India (www.statebankofindia.com).

The computations of normative interest on loan have been carried out in tariffs by treating 70% of the capital cost as the base value of loan.

4.7 Depreciation:

(A) Regulation 24 of the RE Tariff Regulations, 2012 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 the normative capital cost (for generic tariff) or the capital cost of the project as admitted by the Commission (for project specific tariff), as the case may be;*

(b) the salvage value of the asset shall be considered as 10% and depreciation shall be allowed up to maximum of 90% of the capital cost of the asset;

(c) depreciation per annum shall be based on 'Differential Depreciation Approach'. For tariff purposes, the depreciation shall be allowed @ 5.83 % per annum till such time, the requirement for repayment of loan component of the capital cost as per Regulations 20, 22 and 23 after adjusting the amount of subsidy as per Regulation 21, 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;

The Commission has not received any comments on the proposed tariff calculations so far as these relate to depreciation rates. The

Commission accordingly firms up the calculations in this regard. No adjustment has been made on account of subsidy in the tariff calculations and as such the rate of depreciation for the first 12 years has been considered as 5.83% and the rate of depreciation from the 13th 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 12 years (%)	5.83%
Rate of depreciation after first 12 years (%)	1.54%

4.8 **Interest on Working Capital:**

In accordance with sub-regulation (1) of the Regulation 26 of the RE Tariff Regulations, 2012, the working capital requirement of solar PV projects shall comprise of the following:-

"(a) Operation and maintenance expenses for one month;
(b) Receivables equivalent to 2 (two) months 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."

Sub regulation 4 of the said regulation 26 provides as under:-

"(4) Interest on working capital shall be the interest rate equivalent to average of SBI Base Rate (s), prevalent during the period of 6 months, preceding the date of commencement of these Regulations, plus 350 basis points.

Provided that in cases where tariff is to be determined on financial year basis, in the control period, the Average Base Rate(s) of the State Bank of India (SBI), prevalent during the first six months of the previous year plus 350 basis points, shall be considered as the normative interest rate."

In view of the provisions brought out above and also the fact that the Commission has not received any comments or the tariff calculations on this aspect, the interest on working capital has been worked out, on

normative basis as given under:-

Details	Solar PV power plant
(i) O&M expenses (month)	1
(ii) Maintenance spares (%) of O&M expenses	15
(iii) Receivables (months)	2
Interest on working Capital @ 350 basis points above average base rate of 9.76% (see para relating to interest on loan)	**13.26**

4.9 **SUBSIDY OR INCENTIVE OR GRANT/BUDGETARY SUPPORT BY THE CENTRAL/STATE GOVERNMENT:**

The sub-regulation (1) of Regulation 21 of the RE Tariff Regulations, 2012 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 its agencies, including accelerated depreciation benefit under the Income Tax Act:

Provided that for tariff determination, 90% of the capital subsidy available to the project as per applicable scheme of the MNRE/ State Government shall be considered:

Provided further that the Commission may evolve suitable mechanisms for incorporating impact of the subsidy component for determination or adjustment of generic levellised tariffs for various categories of projects.

Provided further that the capital subsidy under the schemes of the Central or State Government or its agencies, shall, unless the circumstances otherwise warrant, be ordinarily adjusted against the principal component of the loan amount as additional reduction apart from the normal payment:

……xxxxxxxx…… ."

In accordance with sub-regulation (3) of Regulation 21 of RE Tariff Regulations, 2012, the amount of subsidy is to be considered for each renewable source as per the applicable policy of the MNRE/State Government.

No capital subsidy or incentive or grant /budgetary support has however been considered in the tariff determination calculations. In case a solar PV project is entitled to any incentive and/or subsidy

and/or any budgetary support/grant/generation based incentive (GBI)/viability gap funding (VGF) etc., under the scheme(s) of the Central or State Government or their agencies, the same shall be adjusted by the distribution licensee, at the time of filing joint petition for approval/signing of the PPA, or at any appropriate stage, based on entitlement of solar PV generator to any such subsidy/grant/ budgetary support etc. as per Regulation 21 of RE tariff Regulations, 2012. However the accelerated depreciation benefit has been taken into consideration in the tariff determination as per **para 4.11.**

4.10 **Discount Factor:**

The Commission, in its proposal dated 29.04.2016, has considered annual discount rate as 10.32% and determined the levellised tariffs on the basis of the same. The CERC in its Renewable Energy Tariff Order dated 29.04.2016 has considered the effect of increased surcharge on Income Tax from 10 to 12 % for the assessment year 2016-17.

As such, in accordance with the sub-Regulation (4) of Regulation 11 of the RE Tariff Regulations, 2012, the discount factor equivalent to the post tax weighted average cost of capital is to be considered for the purpose of levellised tariff computations. The discount factor has been calculated on this basis by following the normative debt: equity ratio (70:30). For this purpose, the interest rate for the loan component (i.e. 70%) of Capital Cost has been considered as 12.76% (as explained in **para 4.6)** which has been adjusted for the corporate tax. For equity component (i.e. 30% of the capital cost), the post tax ROE has been computed as 14.61% by adjusting the normative ROE of 19% per annum for first 10 years with MAT and 22% per annum for the remaining period with corporate tax. The rates for MAT & Corporate tax have been taken as 18.50% and 30% respectively. The surcharge and education cess have also been considered @ 12% and 3% respectively. Based on above, the annual discount rate has been

worked out as 10.22%. This revision (10.32% to 10.22%) of discounting factor has negligible impact on the tariff.

4.11 **ACCELERATED DEPRECIATION BENEFIT:**

The sub-regulations 4 and 5 of Regulation 21 of the RE Tariff Regulations, 2012 provide as under:-

"(4)*The Commission shall determine two generic levellised tariffs or project specific levellised tariffs, as the case may be, one by considering accelerated depreciation and the other without it, and the tariff to any renewable energy generator shall be applicable as provided in succeeding sub-regulation(5):*

Provided that for ascertaining income tax benefits on account of accelerated depreciation for the purpose of tariff determination-

(a) assessment of benefit shall be based on normative capital cost or the cost admitted, as the case may be, accelerated depreciation rate, as per relevant provisions under the Income Tax Act and the Corporate Tax rate;

(b) in case of generic levellised tariff, capitalisation of renewable energy projects shall be considered during second half of the financial year and in case of project specific levellised tariff, the expected date of commencement of operation of the project shall be considered;

(c) per unit benefit shall be derived on levellised basis at the discount factor equivalent to the post tax weighted average cost of capital.

(5) It shall be assumed that the renewable energy generator shall avail the benefit of accelerated depreciation and accordingly the tariff, which accounts for the accelerated depreciation, shall be applicable unless the renewable energy generator establishes, to the satisfaction of the distribution licensee, that he has not availed or is not entitled to such a benefit."

The CERC in its Renewable Energy Tariff Order dated 29.04.2016, on account of restriction on accelerated depreciation benefit limit upto 40% instead of 80%, proposed in the Union Budget for next financial year, observed that the modified scheme of accelerated depreciation has not been notified yet. Once notified, the CERC will suitably factor it in the regulations for the next control period.

The Commission is of the view that if, there shall be any impact on the solar PV tariffs on account of accelerated depreciation, the Commission if finds it appropriate to adjust such impact, the same shall be worked out accordingly.

The CERC in their calculations have compared the depreciation @ 5.28% as per straight line method with depreciation as per Income Tax rate i.e. 80% of the written down value method. Moreover, additional 20% depreciation as extended to new assets acquired by power generation companies vide amendment in section 32, sub-section (1) clause (ii a) of the Income Tax Act, has also been considered in initial two years . The tax benefit on this account has been computed at applicable Income Tax rate @ 34.61 % (30% IT rate +12% surcharge +3% education cess). As the project is considered to be capitalized during the second half of the financial year as per clause (b) of RE Tariff Regulations, 2012, the depreciation for the first year has been calculated at the rate of 50% of the capital cost. Income Tax benefit has been worked out as per normal tax rate on the net depreciation benefit. The Commission in its proposal dated 29.04.2016, followed the methodology and pattern, followed by the CERC.

No comments have been received on the methodology followed by the Commission. The Commission accordingly determines the rates of per unit levellised accelerated depreciation benefit on the same line as discussed above by considering the annual discount factor of 10.22% as per **para 4.10**.

5.0 GENERIC LEVELLISED TARIFFS AND ASSOCIATED TERMS & CONDITIONS:

In light of the discussions made in the preceding paragraphs, the Commission hereby determines the generic levellised tariffs and the associated terms and conditions for Solar PV power plant in respect of FY 2016-17 which are determined as under:-

A. The generic levellised tariffs for Solar PV power plants in respect of FY 2016-17 shall be as under:

Capacity	**Without availing AD benefit (Rs. Per kWh)**	**With AD benefit (Rs. Per kWh)**	**Effect of AD (Rs. Per kWh)**
Upto 1.00 MW	5.93	5.31	0.62
Above to 1.00 MW to 5.00 MW	5.86	5.25	0.61

B. These tariffs shall be subject to the RE Tariff Regulations, 2012 and the orders issued or as may be issued by the Commission thereunder from time to time.

C. These tariffs are applicable to solar photovoltaic (PV) power projects which directly convert Solar Energy into Electricity, using the crystalline silicon or thin film technology or any other technology as approved by the Ministry of New and Renewable Energy and are duly connected to the Grid.

D. These tariffs shall be applicable for the solar PV projects where PPAs are signed on or before 31.03.2017, after approval of the Commission and the projects are commissioned on or before 31.03.2018. In case the PPA for a project has been signed on or before 31.03.2017 with the approval of the Commission but only a part of the project capacity is actually commissioned by 31.03.2018, the tariff applicable for the total project capacity as per PPA shall be applicable for the part capacity so commissioned i.e. for the net saleable energy, corresponding to capacity actually commissioned on or before 31.03.2018.

E. These tariffs 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.

F. These tariffs shall not be applicable in case of the solar PV plants which are installed by the consumers within their premises (rooftop or ground mounted) under net metering scheme.

6.0 The detailed computations for generic levellised tariffs for categories of solar PV power projects for FY 2016-17 as well as illustrations thereof are attached as per Annexures – “A” & “B”.

Sd/-

Shimla: **(S.K.B.S Negi)**
Dated: 06.07.2016 **Chairman**

Annexure - A

Assumption Parameters for Solar PV Power Projects upto 1 MW Capacity

Sr. No	Assumption Head	Sub Head(1)	Sub Head(2)	Unit	Value
1	Power Generation	Capacity	Installed Generation Capacity	KW	1000
			Capacity Utilisation Factor	%	0.19
			Auxiliary Consumption	%	0
			Transmission losses	%	0.7
			Useful Life	%	25
2	Project Cost	Capital Cost /MW	Project Cost	Rs. Lacs/MW	569.77
3	Project Financing	Debt Equity	Tariff Period	Year	25
			Debt	%	70
			Equity	%	30
		Debt Component	Loan Amount	Rs. Lacs/MW	398.84
			Moratorium Period	Year	0
			Repayment Period	Year	12
			Interest Rate	%	12.76
		Equity Component	Equity Amount	Rs. Lacs/MW	170.931
			Return of equity for first 10 Years	%	19
			Return of equity from 11th Year onwards	%	22
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)	%	5.83
			13th year Onward	%	1.54
6	Operation & Maintenance		Total O&M Expenses	Rs. Lacs/MW	7
			Annual Escalation	%	5.72
7	Working Capital		O&M Charges	Months	1
			Maintenance Spares	% of O&M expenses of a Year	15
			Recievables	Months	2
			Interest on Working capital	%	13.26
8	Accelerated Depreciation	Accelerated Depreciation	Book Depreciation	%	5.28
			Tax Depreciation	%	80
			Additional Depreciation	%	20
			Corporate Tax including Surcharge & Cess	%	34.61
9	Discount Factor		Discount Rate	%	10.22

Determination of Tariff for Solar PV Power Projects up to 1 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		1.664	1.66	1.66	1.66	1.66	1.66	1.66	1.66	1.66	1.66	1.66	1.66	1.66	1.66	1.66	1.66	1.66	1.66	1.66	1.66	1.66	1.66	1.66	1.66	1.66
Losses	MU		0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
Net Generation	MU		1.653	1.65	1.65	1.65	1.65	1.65	1.65	1.65	1.65	1.65	1.65	1.65	1.65	1.65	1.65	1.65	1.65	1.65	1.65	1.65	1.65	1.65	1.65	1.65	1.65
Fixed Cost		**year**																									
O&M Expences	₹lacs		7.00	7.400	7.82	8.27	8.74	9.24	9.77	10.33	10.92	11.55	12.21	12.91	13.65	14.43	15.25	16.12	17.05	18.02	19.05	20.14	21.29	22.51	23.80	25.16	26.60
Depreciation	₹lacs		33.22	33.22	33.22	33.22	33.22	33.22	33.22	33.22	33.22	33.22	33.22	33.22	8.77	8.77	8.77	8.77	8.77	8.77	8.77	8.77	8.77	8.77	8.77	8.77	8.77
Interest on Term Loan	₹lacs		48.77	44.53	40.29	36.05	31.81	27.57	23.33	19.08	14.84	10.60	6.36	2.12	0.00	0.00	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	₹lacs		2.97	2.89	2.82	2.75	2.68	2.61	2.54	2.48	2.41	2.35	2.41	2.35	1.79	1.83	1.88	1.92	1.97	2.03	2.08	2.14	2.20	2.27	2.34	2.41	2.49
Return on Equity	₹lacs		32.48	32.48	32.48	32.48	32.48	32.48	32.48	32.48	32.48	32.48	37.60	37.60	37.60	37.60	37.60	37.60	37.60	37.60	37.60	37.60	37.60	37.60	37.60	37.60	37.60
Total fixed Cost	₹lacs		124.43	120.52	116.63	112.76	108.92	105.11	101.34	97.59	93.87	90.20	91.80	88.20	61.81	62.64	63.51	64.43	65.40	66.43	67.51	68.66	69.88	71.16	72.52	73.95	75.47
Levellised CoG																											
Per unit CoG	Unit	**levellised**																									
O&M Expences	₹/kWh	0.68	0.42	0.45	0.47	0.50	0.53	0.56	0.59	0.63	0.66	0.70	0.74	0.78	0.83	0.87	0.92	0.98	1.03	1.09	1.15	1.22	1.29	1.36	1.44	1.52	1.61
Depreciation	₹/kWh	1.65	2.01	2.01	2.01	2.01	2.01	2.01	2.01	2.01	2.01	2.01	2.01	2.01	0.53	0.53	0.53	0.53	0.53	0.53	0.53	0.53	0.53	0.53	0.53	0.53	0.53
Interest on Term Loan	₹/kWh	1.38	2.95	2.69	2.44	2.18	1.92	1.67	1.41	1.15	0.90	0.64	0.38	0.13	0.00	0.00	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	₹/kWh	0.15	0.18	0.18	0.17	0.17	0.16	0.16	0.15	0.15	0.15	0.14	0.15	0.14	0.11	0.11	0.11	0.12	0.12	0.12	0.13	0.13	0.13	0.14	0.14	0.15	0.15
Return on Equity	₹/kWh	2.06	1.97	1.97	1.97	1.97	1.97	1.97	1.97	1.97	1.97	1.97	2.28	2.28	2.28	2.28	2.28	2.28	2.28	2.28	2.28	2.28	2.28	2.28	2.28	2.28	2.28
Total CoG	₹/kWh	5.93	7.53	7.2920	7.06	6.82	6.59	6.36	6.13	5.90	5.68	5.46	5.55	5.34	3.74	3.79	3.84	3.90	3.96	4.02	4.08	4.15	4.23	4.31	4.39	4.47	4.57
Discounted factor	%		1	0.91	0.82	0.75	0.68	0.61	0.56	0.51	0.46	0.42	0.38	0.34	0.31	0.28	0.26	0.23	0.21	0.19	0.17	0.16	0.14	0.13	0.12	0.11	0.10
Levellised Tariff	**₹/kWh**	**5.93**	7.53	6.6158	5.81	5.10	4.47	3.91	3.42	2.99	2.61	2.27	2.10	1.83	1.16	1.07	0.98	0.91	0.83	0.77	0.71	0.65	0.60	0.56	0.52	0.48	0.44

Determination of Accelerated Depreciation Benefit for Solar PV Power Projects upto 1 MW																									
Depreciation Amount	90%																								
Book Depreciation Rate	5.28%																								
Tax Depreciation Rate	80%																								
Additional Depreciation	20%																								
Income Tax (Normal rate)	34.61%																								
Capital cost (₹ Lacs)	569.77																								
Years	**Units**	**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**
Book Depreciation	%	2.64	5.28	5.28	5.28	5.28	5.28	5.28	5.28	5.28	5.28	5.28	5.28	5.28	5.28	5.28	5.28	5.28	2.88	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Book Depreciation	₹ Lacs	15.04	30.08	30.08	30.08	30.08	30.08	30.08	30.08	30.08	30.08	30.08	30.08	30.08	30.08	30.08	30.08	30.08	16.41	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Accelerated Depreciation																										
opening	%	100	50	5.00	1.00	0.20	0.04	0.01	0.00																	
Allowed during the Year	%	50	45	4	0.8	0.16	0.03	0.01																		
Closing	%	50	5	1	0.2	0.04	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Accelerated Depreciation	₹ Lacs	284.89	256.40	22.79	4.56	0.91	0.17	0.06	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Net Depreciation Benefit	₹ Lacs	269.84	226.31	-7.29	-25.53	-29.17	-29.91	-30.03	-30.08	-30.08	-30.08	-30.08	-30.08	-30.08	-30.08	-30.08	-30.08	-30.08	-16.41	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Tax Benefit	₹ Lacs	93.39	78.33	-2.52	-8.83	-10.10	-10.35	-10.39	-10.41	-10.41	-10.41	-10.41	-10.41	-10.41	-10.41	-10.41	-10.41	-10.41	-5.68	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Energy Generation	MU	0.826	1.653	1.653	1.653	1.653	1.653	1.653	1.653	1.653	1.653	1.653	1.653	1.653	1.653	1.653	1.653	1.653	1.653	1.653	1.653	1.653	1.653	1.653	1.653	1.653
Discounting factor		1	0.95	0.87	0.78	0.71	0.65	0.59	0.53	0.48	0.44	0.40	0.36	0.33	0.30	0.27	0.24	0.22	0.20	0.18	0.17	0.15	0.14	0.12	0.11	0.10
Per Unit Energy Generation Benefit		11.30	4.74	-0.15	-0.53	-0.61	-0.63	-0.63	-0.63	-0.63	-0.63	-0.63	-0.63	-0.63	-0.63	-0.63	-0.63	-0.63	-0.34	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Discounted Net Depreciation Benefit	₹ Lacs	269.84	215.82	-6.31	-20.04	-20.78	-19.33	-17.60	-16.00	-14.52	-13.17	-11.95	-10.84	-9.84	-8.92	-8.10	-7.35	-6.67	-3.30	0.00	0.00	0.00	0.00	0.00	0.00	0.00
DiscountedTax Benefit	₹ Lacs	93.39	74.70	-2.18	-6.93	-7.19	-6.69	-6.09	-5.54	-5.02	-4.56	-4.14	-3.75	-3.40	-3.09	-2.80	-2.54	-2.31	-1.14	0.00	0.00	0.00	0.00	0.00	0.00	0.00
DiscountedEnergy Generation	MU	0.826	1.576	1.430	1.297	1.177	1.068	0.969	0.879	0.798	0.724	0.657	0.596	0.540	0.490	0.445	0.404	0.366	0.332	0.301	0.273	0.248	0.225	0.204	0.185	0.168
Discounted Per Unit Energy Generation Benefit		11.30	4.52	-0.13	-0.42	-0.44	-0.40	-0.37	-0.34	-0.30	-0.28	-0.25	-0.23	-0.21	-0.19	-0.17	-0.15	-0.14	-0.07	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Levellised Benefit

Levellised Tax Benefit **9.7867**

Levellised Energy Generation in MU **1.5724**

Levellised Benefit Rs/kWh **0.62**

Annexure -B

Assumption Parameters for Solar PV Power Projects above 1 MW upto 5 MW Capacity

Sr. No	Assumption Head	Sub Head(1)	Sub Head(2)	Unit	Value
1	Power Generation	Capacity	Installed Generation Capacity	KW	1000
			Capacity Utilisation Factor	%	0.19
			Auxiliary Consumption	%	0
			Transmission losses	%	0.7
			Useful Life	%	25
2	Project Cost	Capital Cost /MW	Project Cost	Rs. Lacs/MW	561.82
3	Project Financing	Debt Equity	Tariff Period	Year	25
			Debt	%	70
			Equity	%	30
		Debt Component	Loan Amount	Rs. Lacs/MW	393.274
			Moratorium Period	Year	0
			Repayment Period	Year	12
			Interest Rate	%	12.76
		Equity Component	Equity Amount	Rs. Lacs/MW	168.55
			Return of equity for first 10 Years	%	19
			Return of equity from 11th Year onwards	%	22
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)	%	5.83
			13th year Onward	%	1.54
6	Operation & Maintenance		Total O&M Expenses	Rs. Lacs/MW	7
			Annual Escalation	%	5.72
7	Working Capital		O&M Charges	Months	1
			Maintenance Spares	% of O&M expenses of a Year	15
			Recievables	Months	2
			Interest on Working capital	%	13.26
8	Accelerated Depreciation	Accelerated Depreciation	Book Depreciation	%	5.28
			Tax Depreciation	%	80
			Additional Depreciation	%	20
			Corporate Tax including Surcharge & Cess	%	34.61
9	Discount Factor		Discount Rate	%	10.22

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		1.664	1.66	1.66	1.66	1.66	1.66	1.66	1.66	1.66	1.66	1.66	1.66	1.66	1.66	1.66	1.66	1.66	1.66	1.66	1.66	1.66	1.66	1.66	1.66	1.66
Losses	MU		0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
Net Generation	MU		1.653	1.65	1.65	1.65	1.65	1.65	1.65	1.65	1.65	1.65	1.65	1.65	1.65	1.65	1.65	1.65	1.65	1.65	1.65	1.65	1.65	1.65	1.65	1.65	1.65
Fixed Cost		**year**																									
O&M Expences	₹lacs		7.00	7.400	7.82	8.27	8.74	9.24	9.77	10.33	10.92	11.55	12.21	12.91	13.65	14.43	15.25	16.12	17.05	18.02	19.05	20.14	21.29	22.51	23.80	25.16	26.60
Depreciation	₹lacs		32.75	32.75	32.75	32.75	32.75	32.75	32.75	32.75	32.75	32.75	32.75	32.75	8.65	8.65	8.65	8.65	8.65	8.65	8.65	8.65	8.65	8.65	8.65	8.65	8.65
Interest on Term Loan	₹lacs		48.09	43.91	39.73	35.55	31.36	27.18	23.00	18.82	14.64	10.45	6.27	2.09	0.00	0.00	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	₹lacs		2.93	2.86	2.79	2.72	2.65	2.58	2.51	2.45	2.39	2.33	2.38	2.33	1.77	1.82	1.86	1.91	1.96	2.01	2.07	2.13	2.19	2.25	2.32	2.40	2.48
Return on Equity	₹lacs		32.02	32.02	32.02	32.02	32.02	32.02	32.02	32.02	32.02	32.02	37.08	37.08	37.08	37.08	37.08	37.08	37.08	37.08	37.08	37.08	37.08	37.08	37.08	37.08	37.08
Total fixed Cost	₹lacs		122.80	118.94	115.11	111.31	107.53	103.78	100.06	96.38	92.72	89.11	90.70	87.16	61.15	61.97	62.84	63.76	64.74	65.76	66.85	68.00	69.21	70.50	71.86	73.29	74.81
Levellised CoG																											
Per unit CoG	Unit	**levellised**																									
O&M Expences	₹/kWh	0.68	0.42	0.45	0.47	0.50	0.53	0.56	0.59	0.63	0.66	0.70	0.74	0.78	0.83	0.87	0.92	0.98	1.03	1.09	1.15	1.22	1.29	1.36	1.44	1.52	1.61
Depreciation	₹/kWh	1.62	1.98	1.98	1.98	1.98	1.98	1.98	1.98	1.98	1.98	1.98	1.98	1.98	0.52	0.52	0.52	0.52	0.52	0.52	0.52	0.52	0.52	0.52	0.52	0.52	0.52
Interest on Term Loan	₹/kWh	1.36	2.91	2.66	2.40	2.15	1.90	1.64	1.39	1.14	0.89	0.63	0.38	0.13	0.00	0.00	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	₹/kWh	0.15	0.18	0.17	0.17	0.16	0.16	0.16	0.15	0.15	0.14	0.14	0.14	0.14	0.11	0.11	0.11	0.12	0.12	0.12	0.13	0.13	0.13	0.14	0.14	0.15	0.15
Return on Equity	₹/kWh	2.03	1.94	1.94	1.94	1.94	1.94	1.94	1.94	1.94	1.94	1.94	2.24	2.24	2.24	2.24	2.24	2.24	2.24	2.24	2.24	2.24	2.24	2.24	2.24	2.24	2.24
Total CoG	₹/kWh	5.86	7.43	7.1968	6.97	6.73	6.51	6.28	6.05	5.83	5.61	5.39	5.49	5.27	3.70	3.75	3.80	3.86	3.92	3.98	4.04	4.11	4.19	4.27	4.35	4.43	4.53
Discounted factor	%		1	0.91	0.82	0.75	0.68	0.61	0.56	0.51	0.46	0.42	0.38	0.34	0.31	0.28	0.26	0.23	0.21	0.19	0.17	0.16	0.14	0.13	0.12	0.11	0.10
Levellised Tariff	**₹/kWh**	**5.86**	7.43	6.5295	5.73	5.03	4.41	3.86	3.38	2.95	2.58	2.25	2.07	1.81	1.15	1.06	0.97	0.90	0.83	0.76	0.70	0.65	0.60	0.55	0.51	0.47	0.44

Determination of Accelerated Depreciation Benefit for Solar PV Power Projects above 1 MW upto 5 MW																									
Depreciation Amount	90%																								
Book Depreciation Rate	5.28%																								
Tax Depreciation Rate	80%																								
Additional Depreciation	20%																								
Income Tax (Normal rate)	34.61%																								
Capital cost (₹ Lacs)	561.82																								
Years	**Units**	**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**
Book Depreciation	%	2.64	5.28	5.28	5.28	5.28	5.28	5.28	5.28	5.28	5.28	5.28	5.28	5.28	5.28	5.28	5.28	5.28	2.88	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Book Depreciation	₹ Lacs	14.83	29.66	29.66	29.66	29.66	29.66	29.66	29.66	29.66	29.66	29.66	29.66	29.66	29.66	29.66	29.66	29.66	16.18	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Accelerated Depreciation																										
opening	%	100	50	5.00	1.00	0.20	0.04	0.01	0.00																	
Allowed during the Year	%	50	45	4	0.8	0.16	0.03	0.01																		
Closing	%	50	5	1	0.2	0.04	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Accelerated Depreciation	₹ Lacs	280.91	252.82	22.47	4.49	0.90	0.17	0.06	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Net Depreciation Benefit	₹ Lacs	266.08	223.15	-7.19	-25.17	-28.77	-29.50	-29.61	-29.66	-29.66	-29.66	-29.66	-29.66	-29.66	-29.66	-29.66	-29.66	-29.66	-16.18	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Tax Benefit	₹ Lacs	92.09	77.23	-2.49	-8.71	-9.96	-10.21	-10.25	-10.27	-10.27	-10.27	-10.27	-10.27	-10.27	-10.27	-10.27	-10.27	-10.27	-5.60	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Energy Generation	MU	0.826	1.653	1.653	1.653	1.653	1.653	1.653	1.653	1.653	1.653	1.653	1.653	1.653	1.653	1.653	1.653	1.653	1.653	1.653	1.653	1.653	1.653	1.653	1.653	1.653
Discounting factor from assumption		1	0.91	0.82	0.75	0.68	0.61	0.56	0.51	0.46	0.42	0.38	0.34	0.31	0.28	0.26	0.23	0.21	0.19	0.17	0.16	0.14	0.13	0.12	0.11	0.10
Discounting factor		1	0.95	0.87	0.78	0.71	0.65	0.59	0.53	0.48	0.44	0.40	0.36	0.33	0.30	0.27	0.24	0.22	0.20	0.18	0.17	0.15	0.14	0.12	0.11	0.10
Per Unit Energy Generation Benefit		11.14	4.67	-0.15	-0.53	-0.60	-0.62	-0.62	-0.62	-0.62	-0.62	-0.62	-0.62	-0.62	-0.62	-0.62	-0.62	-0.62	-0.34	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Discounted Net Depreciation Be	₹ Lacs	266.08	212.81	-6.22	-19.76	-20.49	-19.06	-17.36	-15.78	-14.32	-12.99	-11.78	-10.69	-9.70	-8.80	-7.98	-7.24	-6.57	-3.25	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Discounted Tax Benefit	₹ Lacs	92.09	73.65	-2.15	-6.84	-7.09	-6.60	-6.01	-5.46	-4.95	-4.50	-4.08	-3.70	-3.36	-3.05	-2.76	-2.51	-2.27	-1.13	0.00	0.00	0.00	0.00	0.00	0.00	0.00
DiscountedEnergy Generation	MU	0.826	1.576	1.430	1.297	1.177	1.068	0.969	0.879	0.798	0.724	0.657	0.596	0.540	0.490	0.445	0.404	0.366	0.332	0.301	0.273	0.248	0.225	0.204	0.185	0.168
Generation Benefit		11.14	4.46	-0.13	-0.41	-0.43	-0.40	-0.36	-0.33	-0.30	-0.27	-0.25	-0.22	-0.20	-0.18	-0.17	-0.15	-0.14	-0.07	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Levellised Benefit

Levellised Tax Benefit	**9.6502**
Levellised Energy Generation in MU	**1.5724**
Levellised Benefit Rs/kWh	**0.61**