

HIMACHAL PRADESH ELECTRICITY REGULATORY COMMISSION, SHIMLA

Petition No.: 76/2020 (Suo-Motu)

CORAM
Sh. Devendra Kumar Sharma
Chairman
Sh. Bhanu Pratap Singh
Member

Date of Order: 22.12.2020

IN THE MATTER OF

Determination of Generic Levellised Tariffs for Small Hydro Projects for 3rd control period (i.e. 01.04.2020 to 30.09.2023) under Regulation 14 of the Himachal Pradesh Electricity Regulatory Commission (Promotion of Generation from the Renewable Energy Sources and Terms and Conditions for Tariff Determination) Regulations, 2017.

ORDER

1. The Commission notified the Himachal Pradesh Electricity Regulatory Commission (Promotion of Generation from the Renewable Energy Sources and Terms and Conditions for Tariff Determination) Regulations, 2017 in the Rajpatra, Himachal Pradesh on 23rd November, 2017 and has so far amended the same four times. In the 4th amendment of the said Regulations, as carried out on 8th September, 2020 and notified in the Rajpatra, Himachal Pradesh on 15th September, 2020, the financial principles and technology specific parameters for the small hydro projects in respect of the 3rd control period (i.e. 01.04. 2020 to 30.09.2023) have been specified. The said Regulations of 23rd November, 2017, read with subsequent amendments as aforesaid, have hereinafter jointly referred to as “RE Tariff Regulations, 2017”.
2. The Commission, in due discharge of the mandate under regulation 14 RE Tariff Regulations, 2017 has issued the proposal dated 17.10.2020 for determination of Generic Levellised Tariffs, alongwith other associated terms and conditions, for small hydro projects under 3rd control period (i.e. 01.04.2020 to 30.09.2023).
3. The Commission invited suggestions/objections from the public on its aforesaid proposal by way of insertions in the Newspapers i.e. “Hindustan Times” and “Dainik Bhasker” on 21.10.2020. The text of the said proposal was also made available on the Commission’s website: www.hperc.org.
4. The Commission, vide letter dated 22.10.2020, also requested the major stakeholders including the State Government, Directorate of Energy, HIMURJA, HPPCL, the Discom (HPSEB Ltd.), the Consumer representative, the Small Hydro Power Producers Associations and the Industries Associations as electricity consumers to send their suggestions/objections on the aforesaid proposal.

5. The written suggestions/objections were received from the following stakeholders:-

- (i) The Himalaya Power Producers Association, B-7, Sector-I, Phase-I, Main Road, New Shimla-171009(HP).
- (ii) The Bonafide Himachalies Hydro Power Development Association, Sai Bhawan, Sector-IV, Phase-II, New Shimla-171009(HP).
- (iii) The Himachal Pradesh State Electricity Board Ltd (HPSEBL), Vidyut Bhawan, Shimla-171004(HP).
- (iv) M/s IA Hydro Energy Pvt. Ltd., D-17, Sector-1 Lane-1, New Shimla-171009(HP).
- (v) Shri. Ramesh Chauhan, Consumer Representative, Himanshu Cottage, Cemetery Road, Sanjauli, Shimla-171006(HP).

6. A public hearing in the matter was held in online mode on 27th November, 2020. The list of participants is annexed at **Annexure-“A”**. In the said hearing, apart from reiterating the issues raised by the stakeholders in their written submissions, some general comments were also made. The issues raised in the public hearing are briefly outlined as under:-

6.1 The representative of the Himalaya Power Producers Association, Shri S.N. Kapur stated that the Commission has aligned most of the parameter for tariff determination with the parameters adopted by the CERC in its RE Tariff Regulations, 2020. He stated that this will greatly help in the much awaited tariff correction and shall go a long way in boosting the growth of Small Hydro Power Sector in the State. He, however, further suggested that the following points may also be considered by the Commission:-

- (i) The Capacity Utilization Factor (CUF) may be aligned with the CERC norms. He stated that if CUF is taken as 47.85% instead of CERC norm of 45%, it may have a tariff impact of about 18 to 20 paisa per unit;
- (ii) The interconnection point for SHPs should be defined as per the CERC RE Regulations;
- (iii) The provision of pass through of only 13% (12%+1%) free power in the tariff results in supply of additional free power of the order of 10% by the developer throughout the useful life from their pocket and as such this provision needs to be looked into;
- (iv) The model PPA for SHP needs to be amended so that some of the new provisions of RE Tariff Regulations, 2017 are also incorporated in the model PPA; and
- (v) The cost of bays of GIS sub-stations constructed by the HPPTCL (STU) are on higher side which should be rationalized for the viability of the project(s).

6.2 The representative of the Bonafide Himachalies Hydro Power Development Association, Shri Rajesh Kumar Sharma stated during the public hearing that apart from the issues highlighted by Shri S.N. Kapur, there are some

additional issues which need to be addressed by the Commission. He stated that whereas the HPSEBL is charging line losses 3% to 6% for intermediate/interim arrangements, the normative line losses are considered in the tariff calculations as 0.7%. He suggested that the Commission may direct the HPSEBL to consider 0.7% line loss on normative basis upto interconnection point during the period of intermediate/interim arrangements. He further stated that the HPSEBL may charge O&M expenses equivalent to the percentage of O&M charges allowed in the tariff by considering the cost of bay, as per the cost data, applicable for the year of its construction.

6.3 The representative of the Himachal Pradesh State Electricity Board Limited stated that the comments have already been submitted in writing.

6.4 The Chief Executive Officer of M/s IA Hydro Energy Pvt. Ltd., Shri S.K. Goyal stated that they are constructing 36 MW hydro projects in the State and that due to higher cost of power evacuation in the State, the sale of power in open access mode, outside the State, is not financially viable. He stated that the distribution licensee of the State may be allowed to buy power from the hydro projects having capacity above 25 MW and upto 50 MW by providing mandatory purchase provision since such hydro projects have been notified as RE sources by the GoI.

7.0 We now proceed to consider the suggestions made by the stakeholders in their written submissions as well as in the oral submissions made during the public hearing. We observe that most of the written comments/suggestions, including those expressed in the public hearing held on 27th November, 2020, relate to the fixation of the normative parameters, which in fact have already been specified as a part of the regulations and do not form the subject matter of proposal presently under consideration. Similar comments were in fact received and also duly considered at the time of finalisation of the regulations/tariff norms for 3rd control period. The present proposal is limited to the determination of generic levellised tariffs and associated conditions for the small hydro projects under 3rd control period (i.e. 01.04.2020 to 30.09.2023) in pursuance of the provisions of the RE Tariff Regulations, 2017. The written comments received, including the views expressed in the public hearing have been briefly addressed in the following sub-paragraphs:-

7.1 Capital Cost and Operation & Maintenance (O&M) Expenses for SHPs of smaller capacity.-

The Bonafide Himachalies Hydro Power Development Association has submitted that the normative O&M expenses and capital cost for the first category (above 100 kW to 2.00 MW capacity) and the second category (above 2.00MW and below 5.00MW capacity) have been kept at par as a result of which the tariff for the first category is lower by 16 paise per unit as compared to that for the second category of SHPs. Comparison has also been made by the Stakeholder in support of its version. It has been stated that it gives negative

signals to project developers of below 2.00 MW projects. The Association has suggested that to promote lower capacity projects, O&M charges and capital cost of the said category-I SHPs be increased as per the ground realities.

Commission's View:-

The normative capital cost and the O&M expenses have been specified in the RE Tariff Regulations, 2017 and cannot be reviewed at this stage. These norms are in line with the CERC norms. Since CERC covers the hydro projects upto 5.00 MW under a single category, the said norms notified by the CERC for that category have been adopted by the Commission for both these categories (first and second category) of SHPs. We also observe that the Hydro Power Producer Associations had themselves been demanding adoption of CERC parameters in the State. It is also not correct to say that the uniform capital cost and the O&M expenses for these categories of SHPs have resulted in a tariff difference of about 16 paise per unit. In fact, the tariff difference may be due to difference in royalty structures and the per unit revenue for the energy injected at interconnection point may effectively be in the similar range for both these categories.

7.2 Return on Equity (RoE).-

- (i) The Consumer Representative has commented that the RoE for the period beyond first 20 years has been worked out on higher side by considering the higher corporate tax rate and submitted that the current trend shows that the rate of corporate tax is decreasing. It has been suggested that the applicable lower rate of Corporate tax i.e. 25% or the latest available Corporate Tax rates should be considered instead of 30% for the determination of the Generic Levellised Tariff for the SHPs.
- (ii) The HPSEBL has submitted that since the Corporate tax as applicable to Hydro generators is a pass through in the Tariff, the tariffs are on higher side which has an impact on end consumers. It has been suggested that in order to promote hydro generation and to make tariffs competitive with other resources, these rates of corporate tax should be lower and also that instead of corporate tax, flat rate on income may be levied and surcharge @ 12% and cess @ 4% should not be charged.

Commission's View:-

We feel that the suggestion made by the consumer representative pertains to the proposal under consideration within the framework of the RE Tariff Regulations, 2017 and merits consideration. As such, the same shall be discussed in a greater detail in subsequent relevant part of this order. As regards the suggestions of the HPSEBL, the same is not in line with the regulations and cannot be accepted at this stage.

7.3 Net Saleable Energy.-

The Himalaya Power Producers Association has submitted that whereas the CERC has considered the CUF for HP as 45% net of free energy, HPERC has proposed the CUF as 47.85% net of Free energy. It has been stated that the

accountal of additional generation of 2.85% purely on normative basis for calculation of Generic tariff will considerably reduce the tariff payable to the developer. It has also been stated that the CUF in the most of the commissioned Projects is not touching even 45%, which fact can be verified by the Commission from the State Discom. It has been mentioned that the details of the CUF for some of the Govt. projects in Himachal Pradesh have also been furnished to the Commission. It has been suggested that the normative CUF be aligned with the provisions as per the CERC Regulations & their Tariff Order.

Commission's View:-

The aspect on which comments have been made by the stakeholders is not a subject matter of the process under consideration. We however, also observe that similar request was received and also considered by the Commission while finalizing the 3rd & 4th amendments of RE Tariff Regulations, 2017. As such the suggestion made by stakeholder in this regard does not merit consideration in this Order.

7.4 Interconnection point/facilities-location/cost/O&M charges.-

- (i) (a) The Bonafide Himachalies Hydro Power Development Association has submitted that the HPSEBL's demand of O&M charges for bay etc. are increasing exponentially which may result that the developer have to be paid the O&M charges component available in the tariff only towards the O&M charges of bay particularly by first and second category of SHPs. HPSEBL is raising the O&M bills to generators on per Bay basis instead of capacity of projects which is heavily pinching the developers financially. It has also been stated that the yearly escalation claimed by the HPSEBL works out to much more than 3.84% escalation considered in the tariff computation.
- (b) The Association has further submitted that whereas the CERC has defined the interconnection point to be located in the switch yard of the generating station, the HPERC defines the interconnection point to be located in the Grid Sub-station of the Licensee. Thus, HPERC has treated the cost of transmission line and associated facilities as part of the Capital cost of the project which is to be borne by the developer. It has also been stated that the implication of this provision is that since transmission line from Project to Grid Sub-station and also associated facilities are part of the project cost, the O&M cost of the same are also to be borne by the Developer, thus hitting the developer on two counts i.e. reduced project cost and liability of O&M charges. The Association suggested that the interconnection point may be considered as per the CERC norms.
- (c) The representative of the Bonafide Himachalies Hydro Power Development Association suggested during the public hearing that the HPSEBL may charge O&M expenses equivalent to the percentage of O&M charges allowed

in the tariff by considering the cost of bay as per the cost data applicable for the year of its construction.

- (ii) The Himalaya Power Producers Association has submitted that as per the CERC RE Regulations, the interconnection point is to be located in the project switch yard and all expenditure of project line and incoming bays is to be borne by the State Discom. This is based on the fact that the length of evacuation line varies in every project and generic tariff cannot include such variable expenditure. However, as per the HPERC RE Regulations, 2017 and this proposed tariff order, this expenditure has been included in the scope of the project developer. It has been submitted that this provision may be reviewed and either the cost of project be enhanced to cover this expenditure or else it should be in the scope of Discom/Licensee. The representative of the said Association expressed similar view point relating to interconnection point during public hearing also. He also stated in the hearing that the cost of bays of GIS sub-station constructed by the HPPTCL (STU) are on higher side which may also require to be rationalized for the viability of the project(s).

Commission's View:-

The aspects touched by the stakeholders in their submissions do not pertain to the subject matter of the proposal under consideration. In fact, somewhat similar comments were received and also considered by the Commission while finalizing the 3rd & 4th amendments of RE Tariff Regulations, 2017. As such, we feel that these comments do not merit consideration in this order.

7.5 Project Line Losses.-

The representative of the Bonafide Himachalies Hydro Power Development Association stated in the public hearing that whereas the HPSEBL is charging line losses 3% to 6% for intermediate/interim arrangements, the normative line losses are considered in the tariff calculations as 0.7% and suggested that the Commission may direct the HPSEBL to consider 0.7% line losses on normative basis, upto interconnection point, during the period of intermediate/interim arrangements.

Commission's View:-

The comment relates to the losses charged by HPSEBL under intermediate/interim arrangements. We feel that the need for interim arrangements arise only in case of delays on part of one or both the parties in relation of evacuation arrangements. We are of the view that the licensees as well as the generators should not only adhere to the time lines provided for executing their respective works but should also enter into suitable arrangements well in advance. As regards the interim arrangements, the same are decided under the mutual agreements between generator and licensee(s), after taking into account the site specific considerations. The aspect on which the issue has been made is otherwise also not a subject matter of the regulatory process under consideration for determining the Generic Levellised Tariffs.

7.6 Adjustment of free power.-

The Himalaya Power Producers Association has submitted that as per the Regulations 35 and 36 of the RE Tariff Regulations, 2017, the maximum quantum of free energy in any year is to be limited to 13% (12% plus 1%). It has been suggested that since the present policy of the Government of Himachal Pradesh provides for free power quantum to the tune of 18% from 13th to 30th years and 30% from 31st to 40th year, the impact of free power beyond 13% as considered for determination of tariff should be factored in as a pass through in the tariff.

Commission's View:-

The aspect touched by the stakeholder in its suggestion is not a subject matter of the process under consideration. We however, observe that while finalising the 4th amendment of RE Tariff Regulations, 2017, issued on 8th September, 2020, similar suggestion received from the stakeholder(s) was duly considered by the Commission.

7.7 Depreciation.-

The Bonafide Himachalies Hydro Power Development Association and the Himalaya Power Producers Association have submitted that the Generic tariff is being worked out with 90% value of assets considered for depreciation during the life of the project, but as per model PPA approved by the Commission, they have to hand over the project in working condition duly renovated, free of cost, to the Government of Himachal Pradesh on expiry of the term. It has been stated that accordingly 10% scrap value will not be available to the developer on expiry of the term of PPA, which is a direct loss to the developer. It has been suggested that either model PPA be amended directing the Government of Himachal Pradesh to pay the 10% scrap value or assets should be depreciated for full value (100%) while determining the Generic tariff.

Commission's View:-

The issue raised by the stakeholder does not form a part of the subject matter of the proposal under consideration. We however, observe that while finalising the 4th amendment of RE Tariff Regulations, 2017, issued on 8th September, 2020, similar suggestions received from the stakeholder(s) were duly considered by the Commission.

7.8 Amendment of the Model PPA.-

The Himalaya Power Producers Association and the Bonafide Himachalies Hydro Power Development Association have submitted that as per the present practice, the generator and licensee have to file Joint Petition to the Commission for approval of the purchase of power after which HPSEBL signs the Power Purchase Agreement with the Generator. It has been stated that HPSEBL provides the draft PPA based on the model PPA which was approved by the Commission long back and no change is accepted by the HPSEBL in the same. It has been suggested that since a lot of changes such as linkage of the Tariff with COD, payment systems, metering etc have taken place, the model PPA be taken

up for revision in view of latest instructions, rules and regulations after consultation with the active participation of all the stake holders. Similar request was also made during public hearing.

Commission's View:-

The issues relating to model PPA do not form the subject matter of the present proposal relating to determination of tariffs for SHPs. We are otherwise of the view that changes in the model PPA as may be necessitated due to the modification/amendment of the RE Regulations can be considered at the time of modification of the model PPA, which shall be done after following the prior publication/consultation process.

7.9 Switching from the REC mechanism to preferential tariff.-

The Bonafide Himachalies Hydro Power Development Association has submitted that many generators are selling power to the HPSEBL on APPC rate being determined by the Commission every year and the said rate in Himachal Pradesh State is amongst the lowest in the country due to counting of return receipt of banked power from other States at zero cost and non-counting of PGCIL charges. It has been stated that the generators opting for REC mode have suffered as the market is not balanced, supply being more than the demand, and that with the drastic reduction in RECs floor price, those SHPs which have opted for REC mode are likely to become NPAs which will be great loss to Himachal Pradesh. It has been suggested that one time change over to generic tariff regime may be allowed to such projects.

Commission's View:-

The issue raised by the Association is not subject matter of the proposal under consideration. We however, observe that RE Tariff Regulations, 2017 already contains suitable provisions for dealing with such matters.

7.10 Purchase of power from hydro projects above 25 MW and upto 50 MW.-

M/s IA Hydro Energy Pvt. Ltd. have suggested that in view of latest guideline issued by the Ministry of Power for considering Hydro Power plants as renewable energy source irrespective of their capacity, a new category (above 25 MW to 50 MW) may be included as renewable energy resource. They have also suggested that there should be a provision for mandatory purchase of power by the Discom from the projects at least upto 50 MW hydro projects within the State. Similar suggestion was also made in the public hearing by the representative of M/s IA Hydro Energy Pvt. Ltd. when it was also stated by him that due to higher cost of power evacuation in the State, the sale of power in open access mode, outside the State, is not financially viable.

Commission's View:-

The present order deals with the determination of the Generic Levellised Tariffs for the small hydro projects as defined in the RE Tariff Regulations, 2017 i.e. for the hydro power projects with installed capacity of more than 100 kW but upto and including 25 MW only.

8.0 Determination of Generic Levellised Tariffs.-

In light of discussion made in the preceding paragraphs, we now proceed further to determine the generic levellised tariffs and associated terms and conditions for the three categories of SHPs i.e. above 100 kW to 2 MW capacity (category-I), above 2 MW but below 5 MW capacity (category-II) and 5 MW to 25 MW capacity (category-III) of small hydro projects in respect of the 3rd control period (i.e. 1st April, 2020 to 30th September, 2023) under RE Tariff Regulations, 2017.

8.1 Useful Life.-

Clause (ac) of sub-regulation (1) of regulation 2 of the RE Tariff Regulations, 2017 specifies that the 'useful life in relation to SHP shall mean a duration of 40 years from the date of commencement of operation of the project'. The tariffs are therefore being determined for the tariff period of 40 years.

8.2 Control Period or Review Period.-

3rd proviso of sub-regulation (1) of regulation 9 of the RE Tariff Regulations, 2017 provides that the 3rd control period for determination of tariff for SHPs shall start from 1st April, 2020 and shall end on the 30th September, 2023. Moreover, sub-regulation (2) of regulation 9 thereof provides that the tariff(s) determined under these Regulations for the renewable energy generation project(s) or for a category thereof, to which these regulations are applicable, shall, unless amended or revised under regulations 20, continue to be applicable till the expiry of the tariff period as specified in regulation 10. These provisions shall therefore, also be applicable for the tariffs being determined in this Order.

8.3 Tariff Period.-

In terms of regulation 10 of the RE Tariff Regulations, 2017, the tariff period of 40 years has been considered for working out the generic levellised tariffs for various categories of SHPs.

8.4 Tariff Structure.-

Regulation 12 of the RE Tariff Regulation, 2017 specifies that single part levellised tariff structure comprising of the following fixed cost components shall be followed in case of SHPs:

- (a) Return on equity;
- (b) Interest on loan capital;
- (c) Depreciation;
- (d) Interest on working capital; and
- (e) Operation and maintenance expenses.

8.5 Levellised Tariff.-

The generic tariffs have been determined on levellised basis for the tariff period as per sub-regulation (3) of the regulation 12 of the RE Tariff Regulations, 2017.

8.6 **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.

8.7 **Capital Cost.-**

The per MW capital costs for various categories of SHPs exceeding 100 kW have been considered in accordance with regulation 34-B of the RE Tariff Regulations, 2017 which stipulates that, in case of SHPs, the normative capital cost inclusive of all its components as specified in regulation 21-B of the RE Tariff Regulations, 2017, for the 3rd control period shall be as under:-

Sr. No.	Category of small hydro project	Rupees in Lac per MW
(i)	Above 100 kW to 2 MW capacity	1100
(ii)	Above 2 MW but below 5 MW capacity	1100
(iii)	5 MW to 25 MW capacity	1100

8.8 **Value Base.-**

The RE Tariff Regulations, 2017 provide that the value base for the equity, debt component and the depreciation shall be computed in accordance with the provisions of regulation 23-B. In this case, since incentive/subsidy/grant etc. are not being adjusted in the tariff calculations, the value base for equity, depreciation as well as for the debt component has been computed without any adjustment in the normative capital cost.

8.9 **Return on Equity (RoE).-**

The RE Tariff Regulations, 2017 provide that the normative Return on Equity shall be 14% which 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.

In this connection, the consumer representative has suggested that the applicable lower rate of Corporate tax i.e. 25% or the latest available Corporate Tax rates should be considered instead of 30% for the determination of the Generic Levellised Tariff for the SHPs. We observe that the Corporate Tax is levied at varying rates 15%, 22%, 25% & 30% depending upon the fulfillment of the associated conditions. Thus, in some cases the Corporate Tax may be applicable at much lower rates of 15% & 22%. However, all the generators may not qualify for these lower rates. After taking into consideration the overall position, we feel that the rate of 25% shall not only be the most appropriate for normative purposes but, if considered for computation of the Generic Levellised tariffs on normative basis, shall also give a fair and balanced deal to the stakeholders. In this connection, we also observe that as per the RE Tariff Regulations, 2017, the benefit of accelerated depreciation is also not adjusted even though the CERC Regulations provide for reduction in tariff on this account subject to

certain conditions. Moreover, since the rate is to be accounted for computing the RoE beyond the period of 20 years of the useful life, the conditions, if any, attached with this rate may not be of much relevance in the time frame in which it will have impact on the calculations. The surcharge and health & education cess shall however be considered on this basic rate. Accordingly, we decide to consider the Corporate Tax at the rate of 25% for the purpose of computing the rate at which RoE shall be worked out for the period beyond 20 years of useful life of the project and also for computing the discount factor.

8.10 Interest on Loan.-

- (i) 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.”*

- (ii) The interest on debt component has been computed by taking these provisions into account. The interest rate has been worked out as 9.91% per annum by adding 200 basis points above the average of Marginal Cost of Funds based Lending Rate (MCLR) (one year tenor) of State Bank of India (SBI) prevalent during the last available six months preceding the date of commencement of the RE Tariff Regulations, 2017, as shown in the table below:-

Month	Tenor-wise MCLR of SBI (in %)
October, 2019	8.05
November, 2019	8.00
December, 2019	7.90
January, 2020	7.90
February, 2020	7.85
March, 2020	7.75
Avg. for last available 6 months.	7.91

8.11 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.”

(ii) In accordance with the above, the rate of deprecation has been considered as 4.67% per annum for meeting the requirements of loan repayment and balance amount of depreciation has been equally spread over the remaining tariff period. For the year in which the loan gets totally repaid, the depreciation has been provided to cover at least the actual requirement for loan repayment.

8.12 Interest on working capital.-

(i) In accordance with the regulation 27-B of the RE Tariff Regulations, 2017, the working capital requirement of the SHPs 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 11.41% 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.

8.13 Operation and Maintenance Expenses.-

- (i) In accordance with regulation 39-B of RE Tariff Regulations, 2017, the normative annual O&M expenses for the first year of the tariff period have been considered as under:-

Sr. No.	Category of Project	Annual O&M expenses Rupees in Lac per MW
(i)	Above 100 kW to 2 MW capacity	41.78
(ii)	Above 2 MW but below 5 MW capacity	41.78
(iii)	5 MW to 25 MW capacity	31.34

- (ii) These normative O&M expenses have been escalated at the rate of 3.84% per annum over the tariff period in accordance with the regulation 28-B of the RE Tariff Regulations, 2017.

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

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

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

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

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

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

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

- (ii) No adjustment on account of incentive and/or subsidy and/or grant etc. is being made in the value base for the calculations of Generic Levellised Tariffs under this order. However, the rates at which adjustments shall be made in

the Generic Levellised Tariffs on this account have been worked out and mentioned in the attached calculation sheets for each category of the SHPs. The 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 subsidy available under the Ministry of Commerce & Industry, Government of India and/or any other subsidy scheme(s) of Government (Central/State) shall also be made at appropriate stage(s) after taking into account the applicable subsidy(ies) available under such scheme(s). The adjustments on account of incentives and/or subsidies and/or grants etc. are to be made at the rates indicated in the calculation sheets 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 crore 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 crore rupees) so arrived at, shall be multiplied by the rate indicated in the calculation sheet for the relevant category of SHPs.

8.15 Normative Net Saleable Energy.-

The annual normative net saleable energy at the interconnection point has been computed in line with the provisions of regulation 35-B of the RE Tariff Regulations, 2017 which specifies that the normative annual Capacity Utilisation Factor (CUF), net of 13% free power [including 1% contribution towards Local Area Development Fund], shall be 47.85%. The normative auxiliary consumption and transformation losses has been taken @1% of the gross generation as per regulation 37-B and the energy losses in the project line have been taken as 0.7% of the gross generation as per regulation 38-B. The free power structures as discussed in para-8.16(iii) of this order have been taken into account. In order to take into account the effect of leap year, the number of hours in a year has been taken as 8766.

8.16 Free power (Energy) structure and adjustment in tariff for variations.-

- (i) The sub-regulation (1) of regulation 36-B of the RE Tariff Regulations, 2017 stipulates that the Commission shall consider appropriate structure(s) of free power for determination of generic levellised tariffs for various categories of SHPs, duly keeping in view the provisions of the State Hydro Policy for allotment of sites for SHPs, National Hydro Policy, Tariff Policy and the limits specified under sub-regulation (3).
- (ii) In accordance with clause (iii) of sub-regulation (1) of regulation 35-B and sub-regulation (3) of regulation 36-B of the RE Tariff Regulations, 2017, the free energy to be taken into account for any part of the tariff period shall not exceed 13% (free energy), which includes 12% free power to the Home State and 1% additional free power for local area development fund as stipulated in National Hydro Policy/ Tariff Policy.

- (iii) Based on above and the free power structure presently being followed by the State Government, the generic levellised tariffs for various categories of SHPs have been determined by accounting for free energy, as per following structures:-

Sr. No.	Category of small hydro project	Free power structure
(i)	Above 100 kW to 2 MW capacity	3% for first 12 years and 13% for the remaining 28 years.
(ii)	Above 2 MW but below 5 MW capacity	7% for first 12 years and 13% for the remaining 28 years .
(iii)	5 MW to 25 MW capacity	13% for the entire tariff period of 40 years

- (iv) In case where the free power structure applicable for a SHP for which Power Purchase Agreement (PPA) is to be approved by the Commission is different from that considered in the tariff, the generic levellised tariff for such a project shall be computed by adjusting the generic levellised tariff determined by the Commission in this order in inverse proportion to the levellised values of net saleable energy under two structures i.e. by multiplying the generic levellised tariff of that category by the corresponding quantum of levellised net saleable energy (per annum per MW) as per the Sheet-II of the tariff calculations of relevant categories and dividing the same with the levellised net saleable energy (per annum per MW), worked out at annual discount factor of 9.12%, corresponding to the permissible free power structure for which the levellised tariff is to be computed for inclusion in the PPA to be approved by the Commission. It shall be ensured that the free power (energy) to be accounted for in the tariff does not exceed the permissible limits, as specified in the RE Tariff Regulations, 2017 during any part of the tariff period. However, for any variations in the structure of free energy after execution of PPA, the adjustment shall be computed in accordance with other relevant provisions of the RE Tariff Regulations, 2017.

8.17 **Discount Factor.-**

In accordance with sub-regulation (4) of regulation 12 of the RE Tariff Regulations, 2017, the annual discount factor equivalent to the post tax weighted average cost of capital has been considered for the purpose of levellised tariff computation. The annual 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 9.91%. 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 9.12%. The Corporate tax has been taken as 29.12% by considering the basic rate of 25%, surcharge as 12% and Health and Education cess as 4%.

8.18 Rounding.-

- (i) The tariffs worked out for various categories of SHPs have 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.
- (ii) Adjustment for fraction of a MW of the installed capacity:- The installed capacity shall be rounded to one decimal place by ignoring the fraction of less than 0.05 MW and by considering the fraction of 0.05 MW and above as 0.1 MW.

8.19 Generic Levellised Tariffs and Associated Terms and Conditions for 3rd control period (i.e. 01.04.2020 to 30.09.2023).-

In light of the discussion made in the preceding paragraphs, the Generic Levellised Tariffs and the associated terms and conditions for various categories of SHPs in respect of the 3rd control period as specified in the RE Tariff Regulations, 2017 are determined as under:-

- A. The Generic Levellised Tariffs for various categories of SHPs shall be as under:-

Category	Capacity	Generic Levellised Tariff in Rs./kWh of net saleable energy without considering subsidy.
Col. 1	Col. 2	Col.3
(i)	Above 100 kW to 2 MW capacity	4.54
(ii)	Above 2 MW but below 5 MW capacity	4.67
(iii)	5 MW to 25 MW capacity	4.49

- B. The tariff applicable as per item A above shall be subject to adjustment as applicable for relevant category of SHPs in accordance with the following subparagraph (a) to (c):-

(a) Adjustment(s) on account of incentive and/or subsidy and/or grant available:

These tariffs do not take into account any adjustment(s) on account of incentive and/or subsidy and/or grant available. The adjustment on this account shall be made before the adjustment(s) on account of subsidy(ies) available, or as may become available, under various applicable scheme(s) of Government (Central/State) shall be carried out at appropriate stage(s) in accordance with para 8.14(ii) of this order and provisions of applicable regulations.

(b) Variation in free power structure:

The above tariffs account for free energy at the following rates.

Sr. No.	Category of small hydro project	Free power structure
(i)	Above 100 kW to 2 MW capacity	3% for first 12 years and 13% for the remaining 28 years.
(ii)	Above 2 MW but below 5 MW capacity	7% for first 12 years and 13% for the remaining 28 years .
(iii)	5 MW to 25 MW capacity	13% for the entire tariff period of 40 years

In case the structure of free power applicable for a SHP for which the PPA is to be approved by the Commission is different from that considered in the tariff for that category of SHPs, the adjustment shall be carried out in accordance with the para 8.16(iv) of this order. However, it shall be ensured that free power (energy) to be accounted for in the tariff does not exceed the permissible limits, as specified in RE Tariff Regulations, 2017 during any part of the tariff period. The adjustment, if any, on account of royalty structure shall be computed on the rate arrived at after carrying out the adjustment(s) as per the sub-paragraph(a) above. This means that the adjustment of royalty structure as per this sub-paragraph shall have to be computed again if the adjustment as per sub-paragraph(a) is done at a subsequent stage i.e. after approval of the PPA.

- (c) **Rounding:** (i) The tariffs worked out for various categories of SHPs have 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.
- (ii) Adjustment for fraction of a MW of the installed capacity:- The installed capacity shall be rounded to one decimal place by ignoring the fraction of less than 0.05 MW and by considering the fraction of 0.05 MW and above as 0.1 MW.
- (iii) Rounding on the similar lines shall be carried out in the final rate arrived at in each case after carrying out the adjustments as per sub-paragraphs (a) & (b) above.
- C. These tariffs shall be applicable for the entire tariff period in such cases where the Generic Levellised Tariffs in respect of the 3rd control period are applicable as per the provision of RE Tariff Regulations, 2017 or the orders issued thereunder.

The detailed computations for generic levellised tariff without considering subsidy(ies) for the SHPs for 3rd control period under the three categories i.e. above 100 kW to 2 MW capacity, above 2 MW but below 5 MW capacity and 5 MW to 25 MW capacity are enclosed as per Appendices A, B and C respectively.

Sd/-

(Bhanu Pratap Singh)
Member

Sd/-

(Devendra Kumar Sharma)
Chairman

Place: Shimla.

Dated: 22nd December, 2020.

Annexure-A

List of stakeholders/participants attended the Public Hearing held on 27th November, 2020.

Sr. No.	Name
1.	Shri. Kamlesh Saklani, Law Officer, HPSEBL
2.	Shri. S.N Kapur, Sr. Vice President, Himalaya Power Producers Association
3.	Shri Rajesh Kumar Sharma, President, Bonafide Himachalies Hydro Power Development Association
4.	Shri. S.K. Goyal, Chief Executive Officer, IA Hydro Energy Pvt. Ltd.

Tariff for SHP of Capacity above 100kW upto 2MW(Without subsidy)

Appendix-A Sheet-I

Assumptions for Small Hydro Power		
Generating Capacity (MW)	MW	1
Project Cost		
Cost/MW	Rs Lacs/MW	1100.00
Project Cost	Rs Lacs	1100.00
MNES Subsidy	Rs Lacs (at 1MW Capacity)	0
Term	Years	40
Project Financing		
Project Debt	% of project cost	70%
Project Debt	Rs Lacs	770.00
Equity	Rs Lacs	330.00
Term of Debt	Years	15
Moratorium	Years	0
Interest Rate	%	9.91%
Depreciation		
Recovery of Depreciation	%	90%
Rate of Depreciation (First 15 Years)	%	4.67%
Rate of Depreciation (Last 25years)	%	0.80%
Operating Norms		
CUF	%	47.85%
Availability	%	100%
Auxiliary Consumption	%	0.50%
Transformation Losses	%	0.50%
Transmission losses	%	0.70%
O&M Expenses	Rs. In Lacs/ MW	41.78
O&M Expenses w.r.t Capital Cost	%	
Annual Escalation Factor	%	3.84%
Tax		
Tax Rate	%	29.12%
MAT Rate	%	17.47%
Surcharge		12.00%
Cess Rate		4.00%
Effective ROE		16.96%
Effective ROE		19.75%
Working Capital Norms		
Receivables	Months	1.5
Spares	% of O&M Cost	15%
O&M Expenses	Months	1
Interest on Working Capital	%	11.41%
Discount Factor	%	9.12%
Depreciation amount		90.00%
Income Tax (MAT)		17.47%
Income Tax (Normal Rates)		29.12%

GENERIC LEVELLISED TARIFF OF CATEGORY -I (Above 100 KW to 2 MW) without subsidy

DETERMINATION OF TARIFF COMPONENT	UNIT	YEAR→	Y 01	Y 02	Y 03	Y 04	Y 05	Y 06	Y 07	Y 08	Y 09	Y 10	Y 11	Y 12	Y 13	Y 14	Y 15	Y 16	Y 17	Y 18
Net Saleable Energy at the Interconnection point after the adjustment of Free Power, Project Line Losses and Auxiliary Consumption (Levellised/ Annual)	(MU)	4.441	4.60	4.60	4.60	4.60	4.60	4.60	4.60	4.60	4.60	4.60	4.60	4.60	4.12	4.12	4.12	4.12	4.12	4.12
Fixed Cost																				
RoE	Rs Lacs.		55.97	55.97	55.97	55.97	55.97	55.97	55.97	55.97	55.97	55.97	55.97	55.97	55.97	55.97	55.97	55.97	55.97	55.97
Depreciation	Rs Lacs.		51.37	51.37	51.37	51.37	51.37	51.37	51.37	51.37	51.37	51.37	51.37	51.37	51.37	51.37	50.82	8.80	8.80	8.80
O&M	Rs Lacs.		41.78	43.38	45.05	46.78	48.58	50.44	52.38	54.39	56.48	58.65	60.90	63.24	65.67	68.19	70.81	73.53	76.35	79.28
WC Interest	Rs Lacs.		4.31	4.30	4.30	4.30	4.30	4.30	4.31	4.32	4.33	4.35	4.37	4.39	4.42	4.45	4.48	3.96	4.07	4.20
Interest on long Term loans	Rs Lacs.		73.76	68.68	63.59	58.50	53.41	48.33	43.24	38.15	33.07	27.98	22.89	17.80	12.72	7.63	2.54	0.00	0.00	0.00
Advance Against Dep.	Rs Lacs.		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
Total	Rs Lacs.		227.19	223.70	220.27	216.92	213.63	210.41	207.27	204.20	201.22	198.31	195.50	192.78	190.14	187.61	184.62	142.25	145.19	148.24
Fixed Cost Rs Crores)																				
RoE	Rs./ kWh		1.297	1.22	1.12	1.02	0.94	0.86	0.79	0.72	0.66	0.61	0.55	0.51	0.47	0.48	0.44	0.40	0.37	0.34
Depreciation	Rs./ kWh		0.904	1.12	1.02	0.94	0.86	0.79	0.72	0.66	0.61	0.56	0.51	0.47	0.43	0.44	0.40	0.36	0.06	0.05
O&M	Rs./ kWh		1.473	0.91	0.86	0.82	0.78	0.75	0.71	0.67	0.64	0.61	0.58	0.55	0.53	0.56	0.53	0.51	0.48	0.46
WC Interest	Rs./ kWh		0.103	0.09	0.09	0.08	0.07	0.07	0.06	0.06	0.05	0.05	0.04	0.04	0.04	0.04	0.03	0.03	0.03	0.02
Interest on long Term loans	Rs./ kWh		0.758	1.60	1.37	1.16	0.98	0.82	0.68	0.56	0.45	0.36	0.28	0.21	0.15	0.11	0.06	0.02	0.00	0.00
Total Cost of Generation	Rs./ kWh		4.536	4.94	4.46	4.02	3.63	3.28	2.96	2.67	2.41	2.18	1.97	1.78	1.61	1.62	1.46	1.32	0.93	0.87
Disc factor		9.12%		1.00	0.92	0.84	0.77	0.71	0.65	0.59	0.54	0.50	0.46	0.42	0.38	0.35	0.32	0.29	0.27	0.25
Discounted Rate	Rs./ kWh		4.94	4.46	4.02	3.63	3.28	2.96	2.67	2.41	2.18	1.97	1.78	1.61	1.62	1.46	1.32	0.93	0.87	0.82
Generic Levellised Tariff Without Subsidy	Rs./ kWh		4.536																	

Generic Levellised Tariff (without Subsidy) at Capital Cost of Rs 1100 Lac/MW = Rs. 4.54 /kWh

Indicative Generic Levellised Tariff by considering Subsidy/Incentive/Grant etc of Rs 100 Lac/MW = Rs. 4.27/kWh

Reduction in rate for one Crore rupees of Subsidy/Incentive/Grant etc per MW of capacity= Rs. 0.27/kWh [Please refer para 8.14 (ii) of the Order]

Tariff for SHPs 2MW and below 5MW capacity (Without subsidy)		Appendix-B Sheet-I
Assumptions for Small Hydro Power		
Generating Capacity (MW)	MW	1
Project Cost		
Cost/MW	Rs Lacs/MW	1100.00
Project Cost	Rs Lacs	1100.00
MNES Subsidy	Rs Lacs/MW	0
Term	Years	40
Project Financing		
Project Debt	% of project cost	70%
Project Debt	Rs Lacs	770.00
Equity	Rs Lacs	330.00
Term of Debt	Years	15
Moratorium	Years	0
Interest Rate	%	9.91%
Depreciation		
Recovery of Depreciation	%	90%
Rate of Depreciation (First 15 Years)	%	4.67%
Rate of Depreciation (Last 25 years)	%	0.80%
Operating Norms		
CUF	%	47.85%
Availability	%	100%
Auxiliary Consumption	%	0.50%
Transformation Losses	%	0.50%
Transmission losses		0.70%
O&M Expenses	Rs. In Lacs./ MW	41.78
O&M Expenses w.r.t Capital Cost	%	
Annual Escalation Factor	%	3.84%
Tax		
Tax Rate	%	29.12%
MAT Rate	%	17.47%
Surcharge		12.00%
Cess Rate		4.00%
Effective ROE		16.96%
Effective ROE		19.75%
80IA Exemption	Years	0
Working Capital Norms		
Receivables	Months	15
Spares	% of O&M Cost	15%
O&M Expenses	Months	1
Interest on Working Capital	%	11.41%
Discount Factor	%	9.12%
Depreciation amount		90.00%
Income Tax (MAT)		17.47%
Income Tax (Normal Rates)		29.12%

GENERIC LEVELLISED TARIFF OF CATEGORY -II (Above 2MW and below 5 MW) without subsidy

DETERMINATION OF TARIFF COMPONENT	UNIT	YEAR→	Y 01	Y 02	Y 03	Y 04	Y 05	Y 06	Y 07	Y 08	Y 09	Y 10	Y 11	Y 12	Y 13	Y 14	Y 15	Y 16	Y 17	Y 18	
Net Saleable Energy at the Interconnection point after the adjustment of Free Power, Project Line Losses and Auxiliary Consumption (Levelling/ Annual)	(MU)		4.314	4.41	4.41	4.41	4.41	4.41	4.41	4.41	4.41	4.41	4.41	4.41	4.12	4.12	4.12	4.12	4.12	4.12	
Fixed Cost																					
RoE	Rs Lacs.		55.97	55.97	55.97	55.97	55.97	55.97	55.97	55.97	55.97	55.97	55.97	55.97	55.97	55.97	55.97	55.97	55.97	55.97	
Depreciation	Rs Lacs.		51.37	51.37	51.37	51.37	51.37	51.37	51.37	51.37	51.37	51.37	51.37	51.37	51.37	51.37	50.82	8.80	8.80	8.80	
O&M	Rs Lacs.		41.78	43.38	45.05	46.78	48.58	50.44	52.38	54.39	56.48	58.65	60.90	63.24	65.67	68.19	70.81	73.53	76.35	79.28	
WC Interest	Rs Lacs.		4.31	4.30	4.30	4.30	4.30	4.30	4.31	4.32	4.33	4.35	4.37	4.39	4.42	4.45	4.48	3.96	4.07	4.20	
Interest on long Term loans	Rs Lacs.		73.76	68.68	63.59	58.50	53.41	48.33	43.24	38.15	33.07	27.98	22.89	17.80	12.72	7.63	2.54	0.00	0.00	0.00	
Advance Against Dep.	Rs Lacs.		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	
Total	Rs Lacs.		227.19	223.70	220.27	216.92	213.63	210.41	207.27	204.20	201.22	198.31	195.50	192.78	190.14	187.61	184.62	142.25	145.19	148.24	
Fixed Cost Rs Crores)																					
RoE	Rs./ kWh		1.332	1.27	1.16	1.07	0.98	0.90	0.82	0.75	0.69	0.63	0.58	0.53	0.49	0.48	0.44	0.40	0.37	0.34	0.31
Depreciation	Rs./ kWh		0.937	1.17	1.07	0.98	0.90	0.82	0.75	0.69	0.63	0.58	0.53	0.49	0.45	0.44	0.40	0.36	0.06	0.05	0.05
O&M	Rs./ kWh		1.505	0.95	0.90	0.86	0.82	0.78	0.74	0.70	0.67	0.64	0.61	0.58	0.55	0.56	0.53	0.51	0.48	0.46	0.44
WC Interest	Rs./ kWh		0.106	0.10	0.09	0.08	0.08	0.07	0.06	0.06	0.05	0.05	0.04	0.04	0.04	0.04	0.03	0.03	0.03	0.02	0.02
Interest on long Term loans	Rs./ kWh		0.790	1.67	1.43	1.21	1.02	0.85	0.71	0.58	0.47	0.37	0.29	0.22	0.15	0.11	0.06	0.02	0.00	0.00	0.00
Total Cost of Generation	Rs./ kWh		4.669	5.15	4.65	4.20	3.79	3.42	3.09	2.79	2.51	2.27	2.05	1.85	1.67	1.62	1.46	1.32	0.93	0.87	0.82
Disc factor		9.12%		1.00	0.92	0.84	0.77	0.71	0.65	0.59	0.54	0.50	0.46	0.42	0.38	0.35	0.32	0.29	0.27	0.25	0.23
Discounted Rate	Rs./ kWh		4.669	5.15	4.65	4.20	3.79	3.42	3.09	2.79	2.51	2.27	2.05	1.85	1.67	1.62	1.46	1.32	0.93	0.87	0.82
Generic Levellised Tariff without Subsidy	Rs./ kWh			4.67																	

Generic Levellised Tariff (without Subsidy) at Capital Cost of Rs 1100 Lac/MW = Rs. 4.67 /kWh

Indicative Generic Levellised Tariff by considering Subsidy/Incentive/Grant etc of Rs 100 Lac/MW = Rs. 4.39/kWh

Reduction in rate for one Crore rupees of Subsidy/Incentive/Grant etc per MW of capacity= Rs. 0.28/kWh [Please refer para 8.14 (ii) of the Order]

Tariff for SHPs 5MW to 25MW (Without subsidy)		Appendix-C Sheet-I
Assumptions for Small Hydro Power		
Generating Capacity (MW)	MW	1
Project Cost		
Cost/MW	Rs Lacs/MW	1100.00
Project Cost	Rs Lacs/MW	1100.00
MNES Subsidy (For 5MW)	Rs Lacs/MW	0
Term	Years	40
Project Financing		
Project Debt	% of project cost	70%
Project Debt	Rs Lacs	770.00
Equity	Rs Lacs	330.00
Term of Debt	Years	15
Interest Rate	%	9.91%
Depreciation		
Recovery of Depreciation	%	90%
Rate of Depreciation (First 15 Years)	%	4.67%
Rate of Depreciation (Lats 25years)	%	0.80%
Operating Norms		
CUF	%	47.85%
Availability	%	100%
Auxiliary Consumption	%	0.50%
Transformation Losses	%	0.50%
Transmission losses		0.70%
O&M Expenses	Rs. Lacs/ MW	31.34
O&M Expenses w.r.t Capital Cost	%	
Annual Escalation Factor	%	3.84%
Tax		
Tax Rate	%	29.12%
MAT Rate	%	17.47%
Surcharge		12.00%
Cess Rate		4.00%
Effective ROE		16.96%
Effective ROE		19.75%
80IA Exemption	Years	0
Working Capital Norms		
Receivables	Months	1.5
Spares	% of O&M Cost	15%
O&M Expenses	Months	1
Interest on Working Capital	%	11.41%
Discount Factor	%	9.12%
Depreciation amount		90.00%
Income Tax (MAT)		17.47%
Income Tax (Normal Rates)		29.12%

GENERIC LEVELLISED TARIFF OF CATEGORY -III (5 MW to 25 MW) without subsidy

DETERMINATION OF TARIFF COMPONENT	UNIT	YEAR→	Y 01	Y 02	Y 03	Y 04	Y 05	Y 06	Y 07	Y 08	Y 09	Y 10	Y 11	Y 12	Y 13	Y 14	Y 15	Y 16	Y 17	Y 18
Net Saleable Energy at the Interconnection point after the adjustment of Free Power, Project Line Losses and Auxiliary Consumption (Levellised/ Annual)	(MU)	4.124	4.12	4.12	4.12	4.12	4.12	4.12	4.12	4.12	4.12	4.12	4.12	4.12	4.12	4.12	4.12	4.12	4.12	4.12
Fixed Cost																				
RoE	Rs Lacs.		55.97	55.97	55.97	55.97	55.97	55.97	55.97	55.97	55.97	55.97	55.97	55.97	55.97	55.97	55.97	55.97	55.97	55.97
Depreciation	Rs Lacs.		51.37	51.37	51.37	51.37	51.37	51.37	51.37	51.37	51.37	51.37	51.37	51.37	51.37	51.37	50.82	8.80	8.80	8.80
O&M	Rs Lacs.		31.34	32.54	33.79	35.09	36.44	37.84	39.29	40.80	42.37	43.99	45.68	47.44	49.26	51.15	53.11	55.15	57.27	59.47
WC Interest	Rs Lacs.		3.88	3.85	3.83	3.81	3.80	3.78	3.77	3.76	3.75	3.75	3.74	3.74	3.74	3.75	3.75	3.20	3.29	3.38
Interest on long Term loans	Rs Lacs.		73.76	68.68	63.59	58.50	53.41	48.33	43.24	38.15	33.07	27.98	22.89	17.80	12.72	7.63	2.54	0.00	0.00	0.00
Advance Against Dep.	Rs Lacs.		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
Total	Rs Lacs.		216.32	212.41	208.55	204.74	200.99	197.28	193.64	190.05	186.52	183.06	179.65	176.32	173.06	169.87	166.20	123.12	125.33	127.62
Fixed Cost Rs Crores)																				
RoE	Rs./ kWh	1.390	1.36	1.24	1.14	1.04	0.96	0.88	0.80	0.74	0.68	0.62	0.57	0.52	0.48	0.44	0.40	0.37	0.34	0.31
Depreciation	Rs./ kWh	0.990	1.25	1.14	1.05	0.96	0.88	0.81	0.74	0.68	0.62	0.57	0.52	0.48	0.44	0.40	0.36	0.06	0.05	0.05
O&M	Rs./ kWh	1.168	0.76	0.72	0.69	0.65	0.62	0.59	0.56	0.54	0.51	0.49	0.46	0.44	0.42	0.40	0.38	0.36	0.34	0.33
WC Interest	Rs./ kWh	0.094	0.09	0.09	0.08	0.07	0.06	0.06	0.05	0.05	0.05	0.04	0.04	0.03	0.03	0.03	0.03	0.02	0.02	0.02
Interest on long Term loans	Rs./ kWh	0.844	1.79	1.53	1.30	1.09	0.91	0.76	0.62	0.50	0.40	0.31	0.23	0.17	0.11	0.06	0.02	0.00	0.00	0.00
Total Cost of Generation	Rs./ kWh	4.487	5.25	4.72	4.25	3.82	3.44	3.09	2.78	2.50	2.25	2.02	1.82	1.64	1.47	1.32	1.19	0.81	0.75	0.70
Disc factor		9.12%	1.00	0.92	0.84	0.77	0.71	0.65	0.59	0.54	0.50	0.46	0.42	0.38	0.35	0.32	0.29	0.27	0.25	0.23
Discounted Rate	Rs./ kWh		5.25	4.72	4.25	3.82	3.44	3.09	2.78	2.50	2.25	2.02	1.82	1.64	1.47	1.32	1.19	0.81	0.75	0.70
Generic Levellised Tariff without Subsidy	Rs./ kWh	4.487																		

Generic Levellised Tariff (without Subsidy) at Capital Cost of Rs 1100 Lac/MW = Rs. 4.49 /kWh

Indicative Generic Levellised Tariff by considering Subsidy/Incentive/Grant etc of Rs 100 Lac/MW = Rs. 4.19/kWh

Reduction in rate for one Crore rupees of Subsidy/Incentive/Grant etc per MW of capacity= Rs. 0.30/kWh [Please refer para 8.14 (ii) of the Order]

