

Before the
MAHARASHTRA ELECTRICITY REGULATORY COMMISSION
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CASE NO. 22 of 2022

In the matter of
Petition for determination of Project Specific Tariff for 2 MW Jambre Hydro Electric Project located at Jambre Dam near Jambre Village, Tal. Chandgad, Dist. Kolhapur.

M/s Sanjay Babaso Patil... Petitioner

M/s Maharashtra State Distribution company Ltd. ... Respondent

Coram
Sanjay Kumar, Chairperson
I.M. Bohari, Member
Mukesh Khullar, Member

Appearance:

For the Petitioners : Shri. Ghanashyam Thakkar (Rep.)
For the Respondent : Smt Kavita Gharat (Rep)

ORDER

Date: 24 April 2023

1. M/s Sanjay Babaso Patil (SBP), Kolhapur has filed this Petition on 10 January 2022 under Regulation 9.1 and 10.2 of MERC (Terms and Conditions for Determination of Renewable Energy Tariff) Regulations, 2019 (herein referred as RE Tariff Regulations-2019) and Section 62(1)(a) and 86(1)(e) of the Electricity Act, 2003 for determination of Tariff for sale of electricity to MSEDCL from 2 MW Hydro Electric Project to be commissioned at Jambre dam, near Jambre Village, Tal. Chandgad Dist. Kolhapur.
2. The Commission, in exercise of the powers vested in it under Sections 61 and 62 of the Electricity Act, 2003 and all other powers enabling it in this behalf, and after taking into consideration the submissions made by SBP and inputs received in public consultation process, and all other relevant material, has approved Tariff for the power to be generated from the small hydroproject in this Order.

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LIST OF ABBREVIATIONS

COD	Commercial Operation Date
CERC	Central Electricity Regulatory Commission
HPDA	Hydro Power Development Agreement
DPR	Detail Project Report
TEFR	Techno Economic Feasibility Report
EA	Electricity Act, 2003
EPA	Energy Purchase Agreement
EPC	Engineering Procurement Construction
GoI	Government of India
GST	Goods and Service Tax
IDC	Interest During Construction
kVA	Kilo Volt Ampere
kW	Kilo watt
kWh	Kilo watt hour
MEDA	Maharashtra Energy Development Agency
MERC	Maharashtra Electricity Regulatory Commission
MSEDCL	Maharashtra State Electricity Distribution Company Limited
MCLR	Marginal Cost Lending Rates
MOD	Merit Order Dispatch
MYT	Multi-Year Tariff
O&M	Operation and Maintenance
OEM	Original Equipment Manufacturer
RTU	Real Time Unit
p.a	Per Annum
PLF	Plant Load Factor
RE	Renewable Energy
RPO	Renewable Purchase Obligation
SBI	State Bank of India

1 INTRODUCTION

1.1 Background

- 1.1.1 Water Resources Department, Government of Maharashtra (GOMWRD) declared its Policy in 2005 for development of small hydro projects through private sector participation. Accordingly, GOMWRD selected M/s Sanjay Babaso Patil (SBP) for development of Jambre HEP with installed capacity of 2 MW and has awarded the letter of permission dated 9 July 2007.
- 1.1.2 Thereafter, Techno-Economic Feasibility Report (TEFR) of the project was submitted by SBP to GOMWRD for its concurrence. After ascertaining SBP's capability and feasibility criteria, GOMWRD issued letter of Allotment on 6 June 2009 to SBP.
- 1.1.3 SBP signed HydroPower Development Agreement (HPDA) with GOMWRD on 15 May 2012 for a period of 30 years.
- 1.1.4 Jambre Dam project is an irrigation cum power project. As per the GoMWRD policy, generation of power in this project is possible as per the time table of release of water for irrigation purpose and not as per the grid requirements.
- 1.1.5 On the basis of annual inflow, annual utilization and month wise releases etc., the 75% dependable yield at the dam site is 70.19 mcum. However, annual utilisation is 26.92 mcum. The inflow being more than live storage capacity of dam spill water will be available for number of months per year which can be utilised for power generation. The availability of power has been worked out based on the figures of inflow corresponding to 75% dependability. The Power is incidental and dependent on irrigation releases. The 75% dependable working table shows the available power generation ranging from 1305 KW to 2175 KW. An optimum installation of 2000 KW therefore has been proposed. With this installation, the annual energy generation works out to be 4.32 MU. The horizontal Francis turbine is proposed to cover the above range or head variation.
- 1.1.6 Maximum height of Dam is 34.065 m.
- 1.1.7 Based on the application for grid connectivity to MSEDCL, after undertaking feasibility study on dated 9 November 2015 has approved the grid connectivity for the project through 33 kV Single Circuit line at 33/11 kV Chandgad Substation, which is approx. 20 km from the project site.
- 1.1.8 The main prayers of SBP are as follows:

“

- a) *To admit the Petition seeking approval for Project Specific Tariff for Jambre (Jambre) Hydro Electric Project of capacity 2 MW located at Jambre dam, near Jambre Village, Tal. Chandagad, Dist. Kolhapur;*
- b) *To approve Project Specific Tariff of Rs 7.03/kWh for Jambre Hydro Electric Project of capacity 2 MW located at Jambre dam, near Jambre Village, Tal. Chnadagad, Dist. Kolhapur;*
- c) *To allow the recovery of land lease rent, water cess, maintenance charges to be paid to Government of Maharashtra on actual basis during tariff period;*
- d) *To direct MSEDCL to consider metering point at generation end instead of substation end.*
- e) *To invoke its power under Regulation 74- Power to relax and Regulation 77 – Power to remove difficulties in order to allow the deviations from MERC RE Tariff Regulations, 2019, wherever sought in this Petition;”*

1.2 Admission of Petition and Public Consultation Process

- 1.2.1 SBP has filed the Petition on 10 January 2022. Preliminary data gaps were sent to SBP on 13 February 2022 and 25 July 2022, to which SBP has submitted its replies dated 10 May 2022 and 26 July 2022, respectively.
- 1.2.2 Considering replies to the data gaps, the Commission admitted the Petition on 12 September 2022 in accordance with Section 64 (2) of the Electricity Act, 2003, and directed SBP to publish its Petition in an abridged form and manner for public consultations, and to reply expeditiously to all suggestions and objections received from the public on its Petition.
- 1.2.3 SBP published the public Notice in two daily English Newspapers, viz., Indian Express & Business Standard and two daily Marathi Newspapers, viz. Kesari & Navarashtra, inviting suggestions/objections from public and intimating the date of Public Hearing. Copies of the Petition and its Executive Summary were made available at SBP’s offices and on the website of SBP’s website in downloadable format. The Public Notice and Executive Summary of the Petition were also made available on the website of the Commission (www.merc.gov.in) in downloadable format.
- 1.2.4 E-Public Hearing was held in the matter on 14 October 2022 through video conferencing. The list of persons who attended the Public Hearing is at **Appendix-1**.
- 1.2.5 The Commission has ensured that the due process as contemplated under the law to ensure transparency and public participation was followed at every stage and adequate

opportunity was given to all concerned to express their view.

1.3 Organisation of the Order

1.3.1 This Order is organized in the following (5) Sections:

- a) Section 1 provides a brief introduction and sets out the quasi-judicial regulatory process undertaken by the Commission.
- b) Section 2 details the Tariff philosophy underlying the tariff determination.
- c) Section 3 covers objections received during public consultation, summary, and rulings thereon.
- d) Section 4 comprises the submissions with respect to performance and financial parameters, the Commission's analysis, and the methodology adopted to determine the tariff and other parameters.
- e) Section 5 summarizes the directives and rulings of the Commission, and applicability of this Tariff Order.

2 PREMISE FOR DETERMINATION OF PROJECT – SPECIFIC TRIFF

2.1 Provisions of Tariff Policy 2016

2.1.1 The Tariff Policy identifies hydro power development as one of the policy objectives, the relevant extracts are reproduced below:

“

4.0 OBJECTIVES OF THE POLICY

The objectives of this tariff policy are to:

.....

(f) Promote Hydroelectric Power generation including Pumped Storage Projects (PSP) to provide adequate peaking reserves, reliable grid operation and integration of variable renewable energy sources.”

2.2 Regulatory Framework for Tariff Determination

2.2.1 As per Section 62 (1) of the EA-2003 the Appropriate Commission is empowered to determine the Tariff for supply of electricity by a Generating Company to a Distribution Licensee, and for transmission and wheeling of electricity.

2.2.2 As per Section 61 (h), the Commission shall be guided, among others, by the aspect of promotion of electricity generation from renewable source of energy.

“

61. The Appropriate Commission shall, subject to the provisions of this Act, specify the terms and conditions for the determination of tariff and in doing so, shall be guided by the following, namely.....

(h) the promotion of co-generation and generation of electricity from renewable sources of energy.”

2.2.3 Section 86(1)(e) of the EA-2003 stipulates following:

“

(1) The State Commission shall discharge the following functions, namely: -

.....

(1)(e) promote co-generation and generation of electricity from renewable sources of energy by providing suitable measures for connectivity with grid and sale of electricity to any person, and also specify, for purchase of electricity from such sources, a percentage of total consumption of electricity in the area of a distribution licensee.”

2.2.4 The Commission has recognized Mini, Micro and small Hydro Projects as Renewable Energy Sources. As per Regulation 2(dd) of the RE Tariff Regulations-2019.

“
(dd) ‘Renewable Energy sources’ means the renewable sources such as Mini, Micro and Small Hydro, Wind, Solar, Biomass including bagasse, bio-fuel, urban or Municipal Solid Waste and such other sources as are recognized or approved by the MNRE;”

2.2.5 Further, Regulation 2.1 (gg) defines the Small hydro project, which reads as below:

“
(gg) ‘Small Hydro Power Project’ means a Hydro Power Project with a Station capacity of 25 MW or less, but above 1 MW;”

The SBP’s 2 MW HEP qualifies to termed as Small Hydro Power Project in terms of RE Tariff Regulation-2019.

2.2.6 The Central Electricity Regulatory Commission (CERC) also recognizes these Projects in its Regulations as Renewable Energy Sources. The Regulation 2(y) of the Central Electricity Regulatory Commission (Terms and Conditions for Tariff determination from Renewable Energy Sources) Regulations, 2020 (hereinafter referred to as CERC Regulations-2020) state as under.

“
(x) ‘Renewable energy sources’ means renewable source of energy such as water, wind, sunlight, biomass, bagasse, municipal solid waste and other such sources as approved by the MNRE;”

2.2.7 As per Regulation 9.1 of RE Tariff Regulations-2019, a Project-specific tariff shall be determined by the Commission on a case-to case basis for Small Hydro Power Projects.

“9.1 A Project-specific tariff shall be determined by the Commission on a case-to case basis for the following types of RE Projects:

.....
*(c) **Small Hydro Projects**, Mini Hydro Projects and Micro Hydro Projects;”*

2.2.8 Regulation 9.2 of RE Tariff Regulations-2019 provides that the financial norms set out in the Regulations shall be the ceiling norms while determining the Project specific Tariff:

“
9.2 The determination of project-specific tariff for generation of electricity from such RE sources shall be in accordance with the ceiling norms specified in these Regulations for the respective technologies and the terms and conditions as maybe stipulated in the relevant Orders of the Commission:

Provided that the financial norms specified in Chapter 2, shall be the ceiling norms while determining such project-specific tariff”

- 2.2.9 While determining the Project-specific Tariff for this Small Hydro Project, the Commission has considered the relevant principles and methodology adopted in the RE Tariff Regulation-2019 and other regulatory provisions including Maharashtra Electricity Regulatory Commission (Multi Year Tariff) Regulations, 2019 (hereinafter MYT Regulations) so as to ensure consistency and certainty in the regulatory approach.

2.3 Premise for Development of Tariff Structure

- 2.3.1 The Commission has analyzed the HPDA and Techno Economic Feasibility Report (TEFR) in the Petition submitted by SBP. The Commission has also taken into consideration objections/suggestions/ views expressed by stakeholders through public consultation process and submission thereof. The Tariff has been determined as per Regulation 10.2 of the Regulations- 2019 which reads as follows:

“

10.2 A Petition for determination of project-specific tariff shall be filed by the concerned RE Power Project entity, with the concerned Distribution Licensee as a Respondent, accompanied by such fee as may be specified in the applicable Regulations of the Commission, and shall be accompanied by:

(a) Information in Forms 1.1, 1.2, 2.1 and 2.2, as the case may be, appended as Annexure-A to these Regulations;

(b) A detailed project report outlining technical and operational details, site- specific aspects, premise for Capital Cost and financing plan, etc.;

(c) A statement of all applicable terms and conditions and expected expenditure for the period for which tariff is to be determined;

(d) A statement containing details of any grant, subsidy or incentive received, due or assumed to be due from the Central Government and/or State Government, which shall also include the computation of tariff without consideration of such grant, subsidy or incentive;

(e) Details of financial gain through REC or any other mechanism;

(f) Any other information that the Commission may require the Petitioner to submit.”

- 2.3.2 **Levelised Tariff Design:** In accordance with Regulations 12.2 and 12.3 of the RE Tariff

Regulations-2019, the Commission has to determine the levelised tariff for the Project under consideration.

2.3.3 **Tariff Period:** The Commission has considered a Tariff Period of 35 years from the CoD for the Jambre HEP as per provisions of RE Tariff Regulations 2019.

2.3.4 The assumptions and rationale for input values of Project-specific parameters have been elaborated in the subsequent Sections of this Tariff Order.

3 SUGGESTIONS/OBJECTIONS, SBP'S RESPONSE AND COMMISSION'S RULINGS

3.1 MSEDCL's Submission

3.1.1 The project under consideration is yet to be commissioned. The expected date of commercial operation is not confirmed by SBP in its Petition.

3.1.2 The tariff of Rs. 7.03 per unit is on much higher side as compared to the preferential tariff for 2 MW SHP determined by the Commission from 2010 till 2019-20. The preferential tariff is in the range of Rs. 4.26 to Rs. 5.12 per unit without availing accelerated depreciation benefit. Preferential tariff for 2 MW SHP is as follows:

SHP Capacity	FY 2010-11	FY 2011-12	FY 2012-13	FY 2013-14	FY 2014-15	FY 2015-16	FY 2016-17	FY 2017-18	FY 2018-19	FY 2019-20
>1 MW and upto and incl. 5 MW	4.26 (3.70)	4.51 (3.92)	4.76 (4.19)	4.92 (4.34)	5.06 (4.44)	5.12 (4.69)	4.75 (4.26)	4.86 (4.53)	4.64 (4.36)	4.82 (4.50)

3.1.3 From above, it can be considered that the rates for the 2 MW SHP should be at least in the range of Rs. 4.26 to 5.12 per unit.

3.1.4 Neither justification nor documentary evidence is submitted for claim of Preliminary work. Civil works, hard cost & other cost is provided by SBP.

3.1.5 The claim of Rs. 3.11 Crores for evacuation arrangement is on very higher side. SBP has failed to provide any calculations/data/back-ups to establish the figures mentioned.

3.1.6 SBP has executed PPA with MSEDCL on 29 March 2017 for the 2 MW Jambre SHP, however till date the said project is not yet commissioned and no commitment is made regarding commissioning of this project. Further rationale behind delay in commissioning of the project is neither mentioned in the Petition nor by any documentary support. Thus, the claim of IDC is not acceptable to MSEDCL and may not be made applicable as this will increase the tariff and will ultimately burden the common consumers of MSEDCL. MSEDCL has not contributed in any manner to the non-performance of SBP.

3.1.7 The Capital cost for 2 MW project is considered as Rs. 20.22 Crores. As against the Rs. 12.11 Crores considered in the Generic Tariff Order dated 30 April 2019 by the Commission and Rs. 15.6 Crores considered by CERC in RE Tariff Order dated 21 July 2020 for determination of Generic Tariff Order for FY-2020-21. Thus, the tariff comes out after considering the Capital cost of the project as Rs. 12.11 Crores is Rs. 4.36 per

unit.

- 3.1.8 Further, the model of sharing debt/equity ratio of 70% & 30% of capital cost is not maintained by SBP. However, no documentary backup is provided in the Petition.
- 3.1.9 Operation & Maintenance expenses are considered as Rs. 36.39 per MW i.e. 72.78 Lakh with annual escalation. This cost is much on higher side and no supporting document is provided against the claim. Such higher consideration on O & M expenses will result in higher tariff for sale of power and thereby burdening the common consumer.
- 3.1.10 The RE projects to be commissioned under Government of Maharashtra (GoM) RE Policy-2015 dated 20 July 2020 are eligible for two grants from GoM as follows:
- Rs. 1 Crore or Rs.50,000/- per KW whichever is lower as a capital subsidy for SHP.
 - Rs. 1 Crore or actual evacuation cost whichever is lower as a reimbursement from green cess fund.

These two grants of Rs. 2 Crore (maximum) are not considered by SBP. Since the project was not commissioned well in time these benefits could not be available to the Petitioner. Thus, the impact of this Rs. 2.00 Crore may not be considered in the project cost and thus same not to be considered in the project cost while determination of project specific tariff.

- 3.1.11 The EPA was signed by SBP with the generator way long back in 2017 wherein if the plant would have been commissioned in time then the tariff applicable would have been comparatively lower than the tariff proposed. The delay is attributable to the generator cannot be passed on to the common consumers.
- 3.1.12 The Tariff by considering the capital cost as per the Order of the Commission dated 30 April 2019 comes to be Rs. 4.36 per unit. This could be reasonable tariff for the power procurement from this project.
- 3.1.13 The RPO target can be met through actual purchase of RE power or through purchasing of REC. MSEDCL has fulfilled its non-solar RPO target till FY 2017-18. Among the non-solar RE sources the SHP power tariff is much on higher side as compared wind, solar and bagasse based cogeneration which MSEDCL procures through Competitive bidding process.
- 3.1.14 Proposed project will provide infirm power to MSEDCL, as generation from this project will be based on the instruction from GOMWRD for release of water for irrigation purpose and not as per requirement of MSEDCL. Also, the power from this project will be available to MSEDCL in the low demand period and therefore it will not be in the

financial interest of MSEDCL.

- 3.1.15 Currently the power available from non-solar sources with new projects such as wind, bagasse based co-generation projects is very cheap as compared to the Hydro Power. MSEDCL has floated tender and signed EPA with new wind projects for 500 MW at a tariff of Rs. 2.87 per unit. Also, MSEDCL has executed PPA with SECI for procurement of 500 MW power at Rs. 2.59 per unit. Further, MSEDCL contracted around 300 MW power from new bagasse based co-generation projects at a tariff of Rs. 4.97-4.99 per unit.
- 3.1.16 Similarly, the Commission vide its Order dated 09 April 2019 in Case No. 50 of 2019 approved a tariff of Rs. 2.52 per unit for purchase of power from wind plants post expiry of EPA period. MSEDCL is procuring Wind Power at Rs. 2.52 per unit from Post expiry projects. Further, MSEDCL is purchasing power at Rs. 2.62 per unit from wind generators whose long term EPA is expired through long term EPA.
- 3.1.17 MSEDCL may purchase the power from the petitioner's plant at tariff of Rs. 4.36 per unit as worked out by considering Rs. 12.11 Crores as capital cost & with no IDC.

3.2 SBP's Reply

- 3.2.1 SBP has already completed the trial run for the plant and is awaiting the permission for start-up power from MSEDCL to commission the plant.
- 3.2.2 The Tariff being referred to by MSEDCL is Generic Tariff approved by the Commission up to FY 2019-20, whereas the present Petition is for determination of project specific tariff as per provisions of RE Tariff Regulations, 2019. Hence, tariffs are not comparable.
- 3.2.3 SBP submitted that the Petition along with Reply to Data gaps included all the documentary evidence including work orders issued by it.
- 3.2.4 SBP has to create 33 kV line of 19 kms to connect its project with MSEDCL Sub-Station. The actual expenditure is Rs 3.10 Crore (Including GST) as against estimate of Rs. 2.23 Crore (excluding GST) and 2.63 Crore (including GST). The additional expenditure has been incurred due to difference in DSR rates, market rates and taxation of supply & erection of equipment. SBP requested the Commission to consider the said difference and allow the actual cost incurred as per claim/invoices submitted by SBP.
- 3.2.5 The contention of MSEDCL to not include the IDC is completely contrary to the Regulation 14 which includes IDC as part of Capital Cost. Any project will have gestation period to get completed and IDC is incurred by Developer and is necessarily be included as part of Capital Cost.

3.2.6 There has been delay in Commissioning of the Projects for reasons beyond the control of the SBP. The same are elaborated herein below:

- (a) The Project was allotted to SBP in June 2009. HPDA was registered in May 2012. The delay was due to error in computation of Stamp Duty.
- (b) After the HPDA was signed on May 2012, the Financial Closure, which was one of the compliances as per HPDA, was delayed due to delay in completion of work of Jambre Dam. Considering the same, GoMWRD approved the extension of project commissioning date up to 31 December 2016.
- (c) SBP received the work start certificate for the project on 15 November 2016. Also, work on Jambre Dam was only 90% complete. GoMWRD approved the extension of project commissioning date up to 31 March 2018.
- (d) The SBP started the work on project and while execution of the project encountered practical difficulties such as hard rock at shallow depth requiring diamond rock cutting machine as blasting was not permitted thus delaying the work, extended monsoon etc. GoMWRD based on representation by SBP extended the project commissioning date up to 30 June 2019.
- (e) Jambre Dam is located in very heavy rainfall zone. In June 2019, there was record rainfall and therefore work on site was closed for the period from June 2019 to September 2019.
- (f) ROW issues were encountered for laying transmission line due to resistance from local public. Surveyed RoW was passing through farmland wherein work was not allowed to be done during peak agricultural season. If the line would have diverted along the road length, it would have resulted in increase in the line length of transmission line thereby increasing evacuation cost. Accordingly, SBP applied for extension and GoMWRD approved the extension upto 31 June 2021.
- (g) Finally, when the work gathered pace, due to Covid-19 pandemic overall work was slowed down since March 20 due to lockdown and restrictions imposed by the State Government from time to time. Accordingly, SBP applied for extension and GoMWRD extension is under process.

3.2.7 In respect of subsidy, it is submitted that subsidy is payable as per extant policy of GoM. As per GoM policy dated 30 December 2020 prevailing today, SBP is not eligible for any subsidy and hence the same is not considered in tariff computation. The contention of MSEDCL that subsidy should be considered notionally is without any basis.

- 3.2.8 SBP submits that MSEDCL in Case No 49 of 2021 in respect of RPO Compliance for FY 2018-19 and FY 2019-20, has submitted that there is non-Solar RPO shortfall of 1880 MU for FY 2018-19 and 4197 MU for FY 2019-20. Thus, it is clear that MSEDCL requires to tie up non-solar power to meet its Renewable Purchase Obligation.
- 3.2.9 Further, the definition of Scheduled Date of Completion in the EPA clearly states that the date of SCOD will be extended in case extension is granted by GOMWRD for delays occurring beyond the control of the SBP. As submitted herein above, the GOMWRD has granted extension to the project from time to time.
- 3.2.10 Definition of Auxiliary Consumption as per RE Tariff Regulations 2019 which clearly specifies that it will be measured at the generating station. If Metering Point is shifted to substation end, the definition of Auxiliary Consumption will have to be amended and also increase the same to include the losses of evacuation infrastructure. Further, the CUF which is measured ex-bus also needs to be amended (lowered) to be measured at substation end by including losses.

3.3 Commission's view

- 3.3.1 The Commission has noted the submissions of MSEDCL, and the reply submitted by SBP. The Commission has dealt with the issues relating to Capital Cost, Subsidy considerations, financial principles followed in Petition under subsequent paragraphs of Section 4.

4 PARAMETERS OF TARIFF DETERMINATION

4.1 Background

4.1.1 As per Regulation 9.1 of the RE Tariff Regulations-2019, a Project-specific tariff shall be determined by the Commission on a case-to case basis for the following types of RE Projects:

- (a) Waste to Energy Projects based on the technologies approved by MNRE;
- (b) Solar Thermal Power Projects;
- (c) Small Hydro Projects, Mini Hydro Projects and Micro Hydro Projects;
- (d) Re-powering of Wind Energy Power Projects;
- (e) Projects based on any other RE technologies approved by MNRE after notification of these Regulations;
- (f) Any other RE technology, for which either Generic Tariff is being determined or for which the tariff is to be invariably determined through competitive bidding, in respect of which the Project Entities opt for a project-specific tariff.

Further, as per Regulation 9.2 of the RE Tariff Regulations-2019, the determination of project-specific tariff for generation of electricity from such RE sources shall be in accordance with the ceiling norms specified in these Regulations for the respective technologies and the terms and conditions as may be stipulated in the relevant Orders of the Commission.

4.1.2 Regulation 11 of the RE Tariff Regulations-2019, specifies parameters of the Tariff for RE Projects as single-part tariff consisting of following cost components:

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

4.1.3 The technical, project performance and financial parameters are discussed in this Section.

4.2 Project Details

SBP's submission

- 4.2.1 This project is an irrigation cum power project with a power potential of 2 MW and power is proposed to be generated from the releases intended for irrigation, from the reservoir into the river, utilizing the same at variable head. On the basis of annual inflow, annual utilization and month wise releases etc, the 75% dependable yield at the dam site is 70.19 mcum. However, annual utilisation is 26.92 mcum.
- 4.2.2 The Power is incidental and dependent on irrigation releases. The 75% dependable working table shows the available power generation ranging from 1305 KW to 2175 KW. An optimum installation of 2000 KW therefore has been proposed. With this installation, the annual energy generation works out to 4.32 MU.
- 4.2.3 The horizontal Francis turbine is proposed to cover the above range or head variation.
- 4.2.4 Provision for the head regulator for letting out irrigation releases has, already been made in the approved irrigation scheme. The irrigation cum power outlet intake arrangements like trash racks, steel penstock stop log gate etc have been provided. The steel penstock is of 2.80 meter diameter to carry the design discharge of 10.20 cumecs. On the downstream side of the dam of 'Y' piece is provided to this irrigation cum power outlet, along with a diffuser type valve, so that water can be either diverted to the power house or let into the river directly whenever the power house is required to be closed. To utilize the Irrigation, Non-irrigation releases and spills for power generation, there is potential of 1 x 2.0 MW capacity of the plant.
- 4.2.5 The following are the salient features of the projects:

Hydrology and Water Planning:

1.	Catchment area	19.97 Sq.km
2.	Average annual rainfall	4447 mm
3.	75% dependable yield	70.19 Mcum
4.	Gross Annual Utilization	26.92 Mcum (with losses)
5.	Annual evaporation Losses	2.17 Mcum (75 % dep. Year)

Reservoir Storage and its utilization details

1.	Gross Storage	23.230 Mcum
2.	Dead Storage	00.028 Mcum
3.	Live Storage	23.202 Mcum
4.	Type of dam	Earthen Dam
5.	Max. Height of dam from River – bed	34.065 m

Power House

1.	Location and size	Surface and Adjacent to P.H. 25.60 x13.40 m
2.	Design Head	27 m
3.	Design Discharge	8.64 cumecs
4.	Machine hall level	703.60 m
5.	Service bay Level	714.00 m
6.	Generation Voltage	3.3 kV

Turbine:

1.	Head Range	60 % to 125 %
2.	Discharge range	50 % to 110 %
3.	Rated Discharge	8.64 cumecs
4.	Rated Head	27 m
5.	Type of Turbine	Horizontal Francis
6.	No of Unit & its Rating	One; 1 X 2000 KW
7.	Efficiency of Turbine proposed	93.40 %

Generator:

1.	Type of Generator	Horizontal Shaft 3 phase 50 Hz
2.	No of Unit	1 x 2000 kW
3.	Synchronous Speed	750 rpm
4.	Generation voltage	3.3 KV
5.	Power Factor	0.866
6.	Over Load capacity	10% over loading capacity
7.	Estimated efficiency	96%

Commission's Analysis and Ruling

- 4.2.6 The Commission notes that as per Techno Economic Feasibility Report (TEFR) the discharges available for irrigation are planned to be utilized for generation. The generation will take place as per the rotation schedule planned by Dam authorities/ irrigation requirement and part of spill passing over gated spillway.
- 4.2.7 Said report stated that generation days in a year are 294 and 2206 hours. To utilize any further releases (depend upon environmental conditions) to the maximum extent, SBP proposes to install one unit of capacity 2000kW. Further, Annual optimum energy generation is projected as 4.32 MU.
- 4.2.8 Considering technical particulars and selection of generation system components, it is evident that the SBP has undertaken detailed study and factored the technology-based risks of the project. Therefore, the Commission has considered the technology particulars and specifics as proposed by SBP for determining the Project-specific Tariff.

4.3 Present Status of the Plant:

SBP's submission

4.3.1 Jambre Dam: Construction of the Jambre dam is completed in 2017-18.

4.3.2 Jambre HEP:

- (a) Civil Work: - Power House, Penstock, Rising Apron, TRC, OD Switchyard & Superstructure work is completed.
- (b) E&M Work: - All material of E&M including Turbine, generator, panels, allied controlling equipments, ODY equipments of Jambre HEP is installed, and ready to commission.
- (c) 33 KV Line & Bay Work: - All necessary permissions to start work have been received. Entire work related to Line and Bay is completed. Work Completion Report (WCR) work is under progress and likely to be completed shortly.

After submission of WCR and other relevant documents, MSEDCL will give permission to charge the line and bay of Jambre HEP and MSEDCL will permit to synchronized the machine with the grid.

4.3.3 Connectivity and Evacuation Arrangement:

- (a) At the time of preparation of DPR, the evacuation of power has been envisaged by 33 kV line from nearest sub-station, which is about 19 km from the project site.
- (b) MSEDCL vide dated 9 November 2015 has approved the grid connectivity for the Jambre project through 33 kV Single Circuit line at 33/11 kV Chandgad Substation, which is approx. 20 km from the project site.

4.3.4 Power Supply Arrangement for sale of power:

The Power Purchase Agreement (PPA) dated 29 March 2017 for sale of 2 MW power from Jambre HEP is signed with MSEDCL as per tariff determined by the Commission.

Commission's Analysis and Ruling

4.3.5 The Commission in data gaps sought present status of the project. In reply SBP vide its letter dated 26 July 2022 submitted that it has completed the execution of the Project and has applied for startup power and other permissions required to start the project.

4.4 Useful life of Assets:

SBP's submission

- 4.4.1 GOMWRD has signed HPDA with the Petitioner for 30 years only.
- 4.4.2 Capital investment have been made in the project considering the approval of Government and HPDA. Any deficit in the recovery of such investment would affect the interest of Investor in the project and further profitability and cash flow. Hence, for the purpose of tariff computation, the Petitioner proposes the tariff period and useful life of the project as 30 years.
- 4.4.3 Regulations 2 (nn) of RE Tariff Regulations specifies the useful life and tariff period for Mini hydro project as 35 years. However, the Regulations also provides inherent power to the Commission to specify the useful life while determining the project specific tariff:

“

2.

(nn) 'Useful Life', in relation to a Unit of a Generating Station, including the evacuation system, means the following duration from the date of commercial operation ('COD') of such generation facility, namely:

.....

c) Mini/Micro and Small Hydro Power Projects: 35 years

...

Provided further that the Useful Life of other RE Projects shall be as stipulated by the Commission while determining the Project-specific tariff, taking into consideration the norms specified by the Central Commission;”

- 4.4.4 Accordingly, for the purpose of tariff computation, SBP has proposed tariff considering useful life of 35 years. However, in order to have consistency with HPDA, based on the inherent power, SBP requested the Commission to invoke powers under Power to Relax and Power to remove difficulties of RE Tariff Regulations 2019 to consider useful life as 30 years for determination of project specific tariff for Jambre HEP.

Commission's Analysis and Ruling

- 4.4.5 SBP has requested to consider useful life of 30 years based on provisions of HPDA. As per clause 6.1.1 of HPDA, the agreement term is of 30 years from the effective date i.e. the day on which project is commissioned. Further clause 6.1.3 provides for extension of term, which reads as below:

“

6.1.3 The Term of this agreement shall be extended if agreed by GOMWRD for an additional period of 30 (Thirty) years on the terms and conditions as decided by

GOMWRD, subject however that the lease rent (Rent) and Water cess may be revised by GOMWRD at the rates prevailing at that time.

Provided that two (2) years prior to the end of the initial term or subsequent extension period(s) as the case may be, the parties agree in writing to such an extension and further;

Provided that the agreement made between the Generating Company and the Board shall have been extended on the terms and conditions mutually acceptable to the Generating Company and the Board.”

4.4.6 Thus, as per above quoted provisions of HPDA, initial 30 years period of the agreement can be extended for 30 more years. Thus, the Commission finds no reason for deviating from 35 years of useful life and tariff period stipulated in Regulations 2 (nn) of RE Tariff Regulations 2019.

4.4.7 Further consideration of lower useful life of 30 years than 35 years stipulated in the Regulations would lead to increase in tariff which would be unnecessary burden on the end consumers of electricity. Whereas, with provisions of extending period of HPDA, SBP would be in position to recover its cost in 35 years. Hence, the Commission has considered useful life and tariff period as 35 years.

4.5 Capital Cost

SBP's submission

4.5.1 Regulation 14 of RE Tariff Regulations-2019, specifies the Capital cost as under:

“

14. Capital Cost

The norms for Capital Cost as specified in the subsequent RE technology-specific Chapters shall be inclusive of all capital works, including land cost, plant and machinery, civil works, erection and commissioning, financing costs, preliminary and pre-operative expenses, interest during construction, and evacuation infrastructure up to the inter-connection point:

Provided that a Petition for project-specific tariff determination shall provide the break-up of Capital Cost items in the manner specified in Regulation 9.”

4.5.2 Also, Regulation 31 of RE Tariff Regulations-2019 specifies the Capital cost of Small Hydro Project as under:

“

31. Capital Cost

The Capital Cost for Small/Mini/Micro Hydro Power Projects shall include the Turbine Generator including its auxiliaries, land cost, site development charges and other civil works, resettlement and rehabilitation costs, if any, transportation charges, evacuation cost up to inter-connection point, financing charges and Interest during Construction:

Provided that the Commission shall approve the Capital Cost in case of project-specific tariff considering the prevalent market conditions.”

4.5.3 SBP has submitted that it has claimed the capital cost in accordance with the above said provision including the cost towards evacuation infrastructure. The capital cost submitted in the instant Petition is estimated capital cost as on COD of the project. Moreover, the actual capital expenditure incurred till 30 November 2021, duly certified by Auditor has also been submitted in the instant Petition.

4.5.4 The anticipated capital cost of the project as on the date of COD, is shown in the Table below:

Table 1: Capital Cost of the Project (Rs. Lakh), as submitted by SBP.

Sr. No.	Parameters	CAPEX as on 30 November 2021 (Rs. Lakh)	Estimated CAPEX at CoD (Rs. Lakh)
1.	Preliminary Work	206.62	222.04
2.	Civil Works	316.54	432.27
3.	Hard Cost	558.11	569.92
4.	Overhead and Establishment Works	27.08	27.90
5.	Evacuation Works	222.80	310.90
6.	IDC	409.98	458.53
7.	Grand Total	1741.42	2021.55

4.5.5 From the above table it is observed that out of total capital cost, around 29% of the project cost to be incurred towards hard cost. After that, Civil works and Evacuation works contribute 22% and 16% of the cost respectively. In addition to the above, 10% of the cost is related to preliminary work such as Government Fees, Upfront premium etc and around 20% of the cost is due to IDC.

4.5.6 There has been escalation in cost as compared to projection made at the time of preparation of DPR. SBP has submitted the following details of the Capital Cost along with the justification for the increase in Capital Cost for each component.

4.5.7 Land:

- (a) No actual cost has been incurred towards land.
- (b) The provision for payment of land lease rent has been made in HPDA for the period of agreement i.e., 30 years.
- (c) As per HPDA, lease rent for land charged at Rs. 1/kW/year is applicable as per the policy of the State Government for construction of power project facility, which is required to be calculated on the basis of installed capacity of the project from the date of COD and to be escalated by 5% p.a in every subsequent year.

4.5.8 Preliminary work:

The preliminary expenses include the upfront premium of Rs. 30.51 Lacs and threshold premium of Rs. 100 Lacs paid to GoMWRD and other expenses related to government fees paid in relation to stamp duty and registration fee of the project, Grid Connectivity Charges, MEDA clearance, Bank Charges for processing of loan, technical consultancy, etc.

4.5.9 Civil Works:

- (a) Around 22% of the total project cost is incurred for civil work related to M.S. Penstock extension up to power house, power house building & D.T. civil works, power trail race channel, escape structure, etc.
- (b) The work assigned to the agencies was carried out purely on the competitive basis whereby limited enquiry was undertaken and the agency with least cost was selected to undertake the civil work.
- (c) During the execution of the project, due to very hard rock available at shallow depth at location of power house, penstock and raising apron with some part of tail race channel, Rock is cut by using diamond rope cutting machine instead of chiseling.
- (d) As blasting was not permitted, the cutting of rock being a time consuming process, took more than six months to achieve required depth. The cost of excavation chiseling by mechanical equipment is cheaper than special type of diamond rope cutting equipment. The rate of excavation of hard rock by chiseling is Rs 700 per m³ and the rate of excavation of hard rock by diamond rope cutting machine is Rs 1150 per m³. The difference of increase of rate of diamond cutting excavation is 61% than chiseling by mechanical equipment leading to increase in cost.

4.5.10 Cost towards Evacuation Works:

At the time of preparation of estimation, the evacuation of power has been envisaged by 33 kV line emanating from nearest sub-station, which is about 12 km from the project

site.

However, the line length increased to 20 km after the survey resulting in higher cost. Agency appointed by SBP faced ROW issues for laying line due to resistance from local public. As 40% of the line had been passing through farmland, work execution was not allowed during peak agricultural season.

The line had been diverted along the road side and it resulted in increase the line length of the line. All these factors culminated in to increase in evacuation cost.

4.5.11 Overhead and Establishment Charges:

The Overhead and Establishment Charges is hardly 1% of the total project cost which is amounting to Rs. 27.90 Lacs only of the total cost.

As per SBP Rs. 27.08 Lacs has already been incurred and balance Rs. 0.82 Lacs are expected to be incurred prior to commissioning of the power plant.

The Cost includes the amount to be incurred towards audit fees, insurance, fees payable against the Petition filed for determination of tariff along with the associated cost, consultancy fees, electricity charges, staff salary, etc.

4.5.12 Interest During Construction:

SBP has capitalized the Interest during construction (IDC) to calculate the total project cost.

The rate of interest considered for the term loan is 12.50% only for the quantum of loan availed and IDC is not calculated on the balance debt funded by Equity. The IDC claimed in the Petition is in line with the interest paid to the Bank during the stage of construction based on the drawal of the amount to carry out the construction activity.

The IDC claimed till 30 November 2021 is in line with the auditors certificate and additional IDC is claimed for 4 months based on the Interest charged by Bank in the month of November 2021.

There has been delay in commissioning of the project mainly due to following:

- (a) Issue related to hard rock at shallow depth requiring diamond rock cutting machine.
- (b) ROW issues.
- (c) Covid-19 pandemic.

4.5.13 Benchmark of the Capital Cost:

- (a) In the past Orders, it has been observed that approach of benchmarking of capital cost has been adopted by the Commission. The Commission in its

Generic Tariff Order dated 30 April 2019 for FY 2019-20 has approved the capital cost for small hydro projects as Rs. 636.01 Crore per MW for less than 5 MW and more than 1 MW. There is no capital cost approved for mini hydro project. This capital cost approval was based on the norms specified for 2015 and was further derived based on indexation formula. Moreover, the norms for FY 2015-16 are derived based on actual cost data for period between FY 2010-11 to FY 2014-15.

- (b) However, the actual project cost has increased over the years and the same increase is not accounted in the norms. While notifying RE Tariff Regulations-2019, the Commission has taken cognizance of the fact and noted the same in explanatory memorandum and decided to approve the project specific tariff for such projects based on actual capital cost.
- (c) The capital cost of hydro projects is primarily dependent on project location. The project locations are generally found in high hydro region and additional expenditure are required to be incurred because of site specific issues such as change in soil conditions, access to the main road, access to connectivity, etc. Hence, the benchmarking of capital cost with the approved norms specified by CERC or other State Electricity Regulatory Commissions would not be prudent approach. Moreover, SBP has attempted to compare the estimated capital cost with the actual project cost of small hydro/mini hydro projects across the country. Further, it has been observed that, capital cost increases with lower capacity. The capital cost details are generally available for small hydro project (> 1 MW) capacity.
- (d) The CERC recently notified CERC (Terms and Conditions for Tariff determination from Renewable Energy Sources) Regulations, 2020. While framing these Regulations, the CERC has analyzed the actual capital cost details as submitted by Indian Renewable Energy Development Agency (IREDA) for the projects during past three years.
- (e) For recently commissioned small hydro project having capacity less than 5 MW, IREDA submitted the capital cost as Rs. 12.57 Crore per MW for States like HP, Uttarakhand, West Bengal and North Eastern States and Rs. 8.90 Crore per MW Other remaining States.
- (f) The CERC has provided the break-up of the capital cost components as shown in the following Table:

Table 2: Break-up of the capital cost components, as approved by CERC.

Sr.No.	Parameters	Actual Capital Cost given by CERC in EM for Draft Regulations (Rs. Crore/MW) *
1	Land & Site Development	0.28
2	Civil Works and H&M Works	5.79
3	Electo-Mechanical Works and Installation	1.51
4	Evacuation Works	0.89
5	Preliminary works incl. IDC & Contingency	2.71
6	Grand Total	11.18

*Average of capital cost of projects commissioned in past three years

- (g) From the above table, it is observed that, the estimated capital cost of the project is comparable to average actual cost of project. The estimated Plant & Machinery and Civil cost of Jambre HEP in the Petition is Rs. 7.82 Crore per MW, which is comparable to cost given in above Table 2 i.e. Rs. 7.30 (5.79+1.51) Crore per MW. The evacuation cost is Rs. 1.84 Crore per MW as against Rs. 0.89 Crore per MW given in above table.
- (h) It is important to note that MNRE in the year 2015 released the National Mission on Small Hydro. As per the Report, the cost of constructing small hydro projects has been constantly increasing and the Tariffs offered by the States are not sufficient to rationalize fresh investments in the sector.

The per MW cost of small hydro projects in FY 2015, is stagnant at about Rs. 8.50 crore to Rs. 9.50 crore per megawatt (MW). Considering the median of the above the capital cost range, the estimated cost was Rs. 9 Crore per MW envisaged in FY 2015 whereby the actual cost incurred by developers is ~Rs. 10.01 Crs per MW, resulting in an escalation of around 3.15% per year which is more or less similar to the inflation in the country witnessed in last 5 years.

The Commission in its Order dated 26 March 2021 in Case No 208 of 2020 has approved the Capital Cost of Rs.1049.25 Lakh per MW, whereas SBP's claim of Capital Cost is Rs. 1001.78 Lakh per MW, which is lower than approved capital cost.

Commission's Analysis and Ruling

- 4.5.14 The Commission has considered the documents and replies to the data gaps submitted by SBP. The Commission also notes that MSEDCL has objected that capital cost of the project is much more than that was considered by the Commission in its Generic Tariff

Orders issued before notification of RE Tariff Regulations 2019.

- 4.5.15 In this regard, the Commission notes that in earlier Generic Tariff Orders, the Commission had determined tariff for small hydro (>1 MW and upto 25 MW) projects based on benchmark capital cost. It is pertinent to note that in present case, capital cost includes cost towards evacuation infrastructure which was not the case earlier.
- 4.5.16 Further, it is also important to note that benchmark costs of Small Hydro Projects stipulated in Generic Tariff Orders of FY 2019-20 was determined by escalating base capital cost stipulated in RE Tariff Regulations 2015. No fresh determination of capital cost was undertaken in FY 2019-20. Whereas CERC while framing its new RE Tariff Regulations 2020 has undertaken fresh determination of capital cost for small hydro projects and has allowed capital cost of Rs. 8.90 Crore/MW for non-hilly states. Said capitalcost does not include expenses towards evacuation infrastructure. Evacuation cost is part of capital cost as per MERC RE Tariff Regulations 2019. If evacuation expenses of Rs. 3.10 Crore is excluded from capital cost submitted by SBP, then capital cost becomes Rs. 17.10 Crore for 2 MW project i.e. Rs. 8.55 Crore/MW. It is evident that, capital cost proposed by SBP is found to be around the capital cost benchmark stipulated by CERC. Therefore, without restricting its analysis to benchmark cost of small hydro projects considered by it in earlier generic tariff, the Commission is of the opinion that capital cost submitted by SBP for project specific tariff determination process needs to be scrutinized for its prudence.
- 4.5.17 Accordingly, the Commission has evaluated each cost component based on documentary evidence and rationale in subsequent paragraphs:

Preliminary Work

- 4.5.18 SBP in its Petition mentioned that it has incurred Rs. 222.04 Lakhs on account of preliminary work, Government fees, premium and other works. The Commission notes that in reply to data gaps, SBP has provided explicit details of various payment made on preliminary work component and reconciled the amounts.
- 4.5.19 As per SBP Preliminary Work component comprises of following:

Table 3: Preliminary Work Component, as submitted by SBP

Sr. No.	Parameters	Amount (Rs. Lakh)
	Preliminary Work	
1	Threshold and Upfront Premium	130.51
2	Government Fees & Others	18.67
3	Technical Consultation Charges for PMC	33.43
4	Other Consultation charges	6.50

5	Bank Loan & Processing Charges	8.55
	Total	197.65

The Commission sought details regarding Threshold and upfront premium. SBP submitted that the preliminary expenses include the Upfront premium of Rs. 30.51 Lakhs and threshold premium of Rs. 100 Lakhs paid to GoMWRD. As per SBP other expenses related to government fees paid in relation to stamp duty and registration fee of the project, Grid Connectivity Charges, MEDA clearance, Bank Charges for processing of loan, technical consultancy, etc.

4.5.20 The Commission notes that RE Tariff Regulations 2019 do not have any provision dealing with upfront premium paid for winning the bid floated by the Government. However, such provision exists in Regulation 24.1 of MYT Regulations, 2019 which is reproduced below:

“

24.1 ...

Provided also that the following shall be excluded from the capital cost of the existing and new projects:

.....

(c) In case of hydro generating stations, any expenditure incurred or committed to be incurred by a project developer for getting the project site allotted by the State Government by following a transparent process;”

4.5.21 Thus, as per above provision of MYT Regulations 2019, premium amount paid by a developer shall not be included in the capital cost of the hydro project. Above provisions which is applicable to other hydro generating projects needs to be applied to small hydro projects also.

4.5.22 SBP has been selected for project development as per GoM Policy for Development of SHP Projects through Private Sector Participation (GR No. PVT- 1204/(160/2004)/HP dated 15 September, 2005), which stipulates following:

“

A-3 Procedure for selection of Developers:

...

A-3.3 The bidding procedure shall be as under.

*A-3.3.1 Main bidding documents shall be issued only to pre-qualified developers. **The minimum threshold premium shall be mentioned in the bidding document.** The bidders shall quote a premium payable to GoM over and above threshold premium and support his bid by Earnest money Deposit (EMD). Upfront premium will be the primary consideration for allotment of the project. Upfront premium offered by both IPPs/CPPs will be evaluated. The highest bid so evaluated will be the criteria for selection.*

A-3.3.2 In most of the projects GoMWRD has already constructed intake structure hosting trash rack & sluice gates. Reinforced concrete lined penstock is also laid in the

body of the dam. GoMWRD intends to recover its exclusive investment on power component viz. trash rack and steel penstock by fixing the threshold premium for bidding. This threshold premium shall be Rs. 50 lakh/MW in case of SHPs in which GoMWRD has already made investment on trash rack and penstock. In other cases it shall be zero.” (Emphasis Added)

4.5.23 Upfront premium paid out by SBP is its business decision for winning the bid. It would not be prudent to include the said amount in capital cost and make it as pass through in Tariff and burden the consumers for commercial decision of SBP. Accordingly, the Commission is disallowing upfront premium of Rs.30.51 lakh. Further, the Commission has considered the Threshold Premium of Rs. 50 lakh/MW, which was stipulated as part of the SHP policy notified by the GOM towards recovery of investments on trash rack and penstock already made by GOMWRD, as an allowable component of Capital Cost while determining the Tariff for SBP’s said Project.

4.5.24 The Commission notes that SBP has considered stamp duty and registration fees, Grid Connectivity Charges, supervision charges, meter testing fees and MEDA fees under this head. Further, SBP while replying to data gaps in reconciliation statement provided break-up of Rs. 18.67 Lakhs. SBP has considered following costs under this head:

Table 4: Government Fees & Other as submitted by SBP

Sr.No.	Description	Amount (In Rs) including GST
1	Grid connectivity	1,00,000.00
2	HPDA Stamp duty	3,58,848.00
3	Fine	1,43,498.00
4	HPDA registration fee	31,980.00
5	NOC fee	50,100.00
6	Infrastructure clearance fee	2,00,000.00
7	CT-PT testing fee	21,240.00
8	Meter testing fee	70,800.00
9	Supervision charges	2,48,697.00
10	TEFR Vetting fee	5,00,000.00
11	Wye piece vetting fee	1,41,600.00
	Total	18,66,763.00

4.5.25 In order to ascertain the cost incurred, the Commission sought the documentary evidence of such fees paid out. The Commission notes that SBP has paid fine of Rs.1.43 Lakhs to Registrar office. It is not prudent to include the amounts of fine as a part of capital cost and hence disallowed. Considering reconciliation statement and replies to data gaps the Commission considers following cost components:

Table 5: Government Fees & Others, as approved by the Commission

Sr.No.	Description	Amount (In Rs. Lakhs)
1	Grid connectivity	1,00,000.00
2	HPDA registration fee	31,980.00
4	NOC fee	50,100.00
5	Infrastructure clearance fee	2,00,000.00
6	CT-PT testing fee	21,240.00
7	Meter testing fee	70,800.00
8	Supervision charges	2,48,697.00
9	TEFR Vetting fee	5,00,000.00
10	Wye piece vetting fee	1,41,600.00
	Total	17,23,262.00

4.5.26 The Commission notes that SBP has furnished documentary evidence supporting the expenditure incurred towards Technical Consultation Charges for PMC and Other Consultation charges. With regards to Bank Loan & Processing Charges, it is evident that no supporting document for Bank Valuator Charges has been provided and hence not allowed.

4.5.27 Accordingly, the Commission has approved following expenses towards Preliminary Work s:

Table 6: Preliminary Work, as approved by the Commission

Sr. No.	Parameters	Amount claimed by the Petitioner (Rs. Lakh)	Amount Approved by the Commission (Rs. Lakh)
	Preliminary Work		
1	Threshold and Upfront Premium	130.51	100.00
2	Government Fees & others	18.67	17.23
3	Technical Consultation Charges for PMC	33.43	33.43
4	Other Consultation charges	6.50	6.50
5	Bank Loan & Processing Charges	8.55	8.50
	Total	197.65	165.66

Civil Work Cost

4.5.28 SBP has submitted that Civil Work component comprises of following:

Table 7: Civil Work component, as submitted by SBP

Sr. No.	Parameters	Amount claimed by SBP (Rs. Lakh)
	Civil Work	
1	Power House Building, Penstock Extension & D.T. Civil works etc.	380.46
2	Penstock Extension	22.89
3	Invoicing Pending by the Vendor	28.92
	Total	432.27

4.5.29 The Commission notes that SBP in reply to data gaps has submitted that amount shown in the Work Order is based on estimated work. However, actual payout is dependent on actual work done based on site conditions. In view of the same, there would be difference in the amount of Work Order and actual Capital Cost of the project.

4.5.30 SBP awarded the civil work for Jambre Hydro Electric Project to M/s Pushkar Projects. The Commission has scrutinized the bills raised by the M/s Pushkar Projects.

4.5.31 In reply to data gaps, SBP submitted following details with regards to invoicing pending with the Vendor:

Table 8: Details of Pending Invoicing, as submitted by SBP

Sr.No.	Particulars	Amount (Rs. Lakhs)
1	Invoicing Pending for Civil Works	22.20
2	Invoicing Pending related of Fencing of Switch Yard	6.72
	Total	28.92

The above submission is abstract and not substantiated by details of works. Further, no measurement of works has been done. In view of above, the Commission is not inclined to considering Rs.28.92 Lakhs as Civil Cost.

4.5.32 The Commission notes that SBP has provided the complete details to billing made by various vendors carrying out Civil works. Based on documentary evidence, the Commission considered the components for civil costs as follows:

Table 9: Civil Work component, as approved by the Commission

Sr. No.	Parameters	Amount claimed by SBP (Rs. Lakh)	Amount Approved by the Commission (Rs. Lakh)
	Civil Work		
1	M.S. Penstock extension up to Power House	380.46	380.46
2	Power House Building & D.T. Civil works etc.	22.89	22.89
3	Invoicing Pending by the Vendor	28.92	-
	Total	432.27	403.35

Hard Cost- E&M Work Cost -Turbine & Generator with Controlling Equipment

4.5.33 SBP has submitted that Hard Cost component comprises of following:

Table 10: Hard Cost component, as submitted by SBP

Sr. No.	Parameters	Amount claimed by SBP (Rs. Lakh)
	Hard Cost	
1	Turbine & Generator with Controlling Equipment along with insurance	567.22
2	Trivector meter	11.80
	Total	569.92

4.5.34 SBP has awarded the works for design, engineering, manufacturing, supply, installation, and commissioning of electro mechanical equipment through international competitive bidding. From Technical Evaluation Report it is observed that SBP received (4) bidders in response. Bidders were BFL, FLOVEL, M/s Kirloskar Brothers Ltd. and MECAMIDI. It is observed that BFL offered lowest basic price of Rs. 531 Lakhs (excluding taxes) and Rs.571.50 (including taxes and discount).

4.5.35 The invoices raised by the BFL have been scrutinized, which are inclusive of taxes. Following particulars have been noted:

Table 11: Particulars of E&M works, as submitted by SBP

(Amount in Rs. Lakhs)

Sr. No.	Particulars	Date	Invoice Value	GST	Net Value
1	Earthing	29-11-2017	6.50	1.17	7.67
2	EOT Crane	29-12-2017	31.00	5.58	36.58
3	Power Transformer	29-12-2017	30.00	5.40	35.40
4	Cable - HT	22-01-2018	9.00	1.62	10.62
5	Generator	31-01-2018	67.00	12.06	79.06
6	Draft Tube	05-02-2018	11.00	1.98	12.98
7	Isolator	05-02-2018	1.00	0.18	1.18
8	Turbine Inlet Valve	06-02-2018	21.00	3.78	24.78
9	Turbine Oil	06-02-2018	10.00	1.80	11.80
10	Gear Box Accessories	27-02-2018	38.50	10.78	49.28
11	Battery Charges	28-02-2018	6.00	1.08	7.08
12	Control Panels	26-03-2018	60.00	10.80	70.80
13	Cable Trays	31-03-2018	13.70	2.47	16.17
14	Runner Assembly	26-02-2019	25.00	4.50	29.50
15	Guide Bearing,	26-02-2019	18.50	3.33	21.83
16	Spiral Casing with OGA Assembly	30-03-2019	55.00	9.90	64.90
17	C Class Items	31-07-2019	20.80	3.74	24.54
18	Battery	31-07-2019	2.00	0.56	2.56
19	Lightening Arrestor	31-07-2019	0.60	0.11	0.71
20	Hydro Project Equipments	20-03-2020	9.40	1.69	11.09
21	Tools & Plants	07-05-2020	2.69	0.48	3.17
22	D G Set	07-05-2020	7.00	1.26	8.26
23	Cable - LT Power	01-02-2021	5.50	0.99	6.49
24	Control Cables	15-03-2021	1.50	0.27	1.77
	Sub-Total (A)		452.69	85.53	538.22
25	Mechanical & Electrical Erection	21-04-2021	14.31	2.58	16.89
	Sub-Total (B)		467.00	88.11	555.11
26	Panel Trivector meter power house	29-03-2022	10.00	1.80	11.80
	Total (A)+(B)		477.00	89.91	566.91

4.5.36 SBP has claimed insurance charges to the tune of Rs.3.01 Lakhs. For justifying the claim, SBP furnishes the debit notes for the transactions.

4.5.37 Considering above, the Commission notes that cost towards E&M Works is discovered through international competitive bidding. Hence, the Commission is allowing the same. Accordingly, expense components for Hard Cost considered by the Commission is as follows:

Table 12: Hard Cost Component, as approved by the Commission

Sr. No.	Parameters	Amount claimed by SBP (Rs. Lakh)	Amount Approved by Commission (Rs. Lakh)
	Hard Cost		
1	E&M Work Cost -Turbine & Generator with Controlling Equipment	569.92	569.92

Other Works: Plantation, Environment Ecology & Other Associated Expenses

4.5.38 SBP has submitted that Other works comprise of following:

Table 13: Other works, as submitted by SBP

Sr. No.	Parameters	Amount claimed by SBP (Rs. Lakh)
	Other Works	
1	Plantation, Environment Ecology etc.	5.81
2	MERC Petition Fee	1.00
3	Revenue Expenses to be capitalised	16.48
4	Other Work - Travelling, Insurance, Advertisement, Professional Fee, Valuator Fee	4.10
	Total	27.39

4.5.39 For scrutiny of costs and nature of works, data gaps have been raised to ascertain prudence of above-mentioned costs. SBP has provided invoices/quotes in support of the costs incurred.

4.5.40 The above expenditure is verified from the invoices. It is evident that SBP has claimed travelling expenses to the tune of Rs. 2.79 Lakhs. All travel is basically an international travel, and no justification has been provided for such travel and its relationship with present project. Hence the Commission is not inclined to consider the same. Further, it is categorically noted that insurance cost claimed herein is with regards to employee compensation insurance.

4.5.41 Based on the analysis and scrutiny of material placed on record the Commission

considers following expenses under Other Works:

Table 14: Other works, as approved by the Commission

Sr. No.	Parameters	Amount claimed by SBP (Rs. Lakh)	Amount Approved by the Commission (Rs. Lakh)
	Other Works		
1	Plantation, Environment Ecology etc.	5.81	5.81
2	MERC Petition Fee	1.18	1.18
3	Revenue Expenses to be capitalised	16.48	12.98
4	Other Work - Travelling, Insurance, Advertisement, Professional Fee, Valuator Fee	4.10	1.32
	Total	27.39	21.28

Evacuation Works

4.5.42 Regarding consideration of evacuation expenses, Regulation 14 of MERC RE Tariff Regulations, 2019 specifies the Capital Cost to be considered for Tariff determination as below:

“

14. Capital Cost

The norms for Capital Cost as specified in the subsequent RE technology- specific Chapters shall be inclusive of all capital works, including land cost, plant and machinery, civil works, erection and commissioning, financing costs, preliminary and pre-operative expenses, interest during construction, and evacuation infrastructure up to the inter-connection point:

Provided that a Petition for project-specific tariff determination shall provide the break-up of Capital Cost items in the manner specified in Regulation 9.”

4.5.43 Regulation 2 (t) of the MERC RE Tariff Regulations, 2019 defines the inter-connection Point as shown below:

“

(t) ‘Inter-connection Point’ shall be the point where the power from the Project is injected into the nearest transmission/distribution grid sub-station, including the dedicated transmission/distribution line connecting the Projects with such substation;”

4.5.44 Further, Regulation 15 of MERC (RPO, Its Compliance and Implementation of REC Framework) Regulations, 2019 specifies the provision of grid connectivity framework as below:

“

15 Grid Connectivity Framework

Development of evacuation infrastructure shall be responsibility of concerned

Generating Company and it shall be treated as integral part of project for the purpose of tariff determination.”

4.5.45 As per the above proviso of the Regulations, the evacuation (Transmission/Distribution line infrastructure) cost up to the nearest transmission/distribution grid sub-station shall be considered as a part of the Capital Cost.

4.5.46 SBP has submitted that evacuation works component comprises of following:

Table 15: Evacuation Work Component, as submitted by SBP

Sr. No.	Parameters	Amount claimed by SBP (Rs. Lakh)
	Evacuation Works	
1	33kV line	253.75
2	33 kV Bay work	4.84
3	Differential Payments in 33 kV Line and Bay works	40.08
4	Real time Unit	13.04
	Total	311.72

4.5.47 Substantial escalation has been observed in cost attributable to evacuation. In reply to data gaps SBP submitted that the evacuation arrangement has been changed based on the approval of MSEDCL and change in Right of Way (RoW). The Commission notes the difficulties mentioned by SBP in securing ROW. For scrutiny, the Commission has perused all invoices and work estimates which have been sought in data gaps.

33 kV Line & Bay for Evacuation Work:

4.5.48 MSEDCL vide its letter dated 21 December 2021 accorded its revised sanction for evacuation of power on 33 kV voltage level. The approved estimated capital works is of Rs.220.57 Lakhs which includes laying of 33 kV line, 33 kV feeder bay at project site and associated metering. SBP in Petition claim Rs.298.67 Lakhs for 33 kV line and Bay work, which is 35.40% more than MSEDCL estimate.

4.5.49 From invoices, it is evident that SBP’s vendors have made billing excessively. For example, Invoice of M/s. Vijay Deep Engineers and Contractors dated 03 April 2022 claims amount of Rs.6.25 Lakhs for only line labour for carrying out work on 2 km line stretch. This is disproportionate billing. Hence, the Commission decides to allow cost based on MSEDCL’s revised sanctioned estimate which is 220.57 Lakhs. After perusal of MSEDCL’s sanctioned estimate, it is evident that while working out estimate, MSEDCL has not considered GST amount. Being a statutory payment, the Commission is considering sanctioned amount along with 18% GST for tariff determination.

Real Time Unit:

4.5.50 SBP has provided invoices of 13.04 Lakhs for RTU, Programming, Installation and Commissioning works. The above work is essential to ensure visibility of generation at SLDC. Hence the Commission has considered the same as a part of capital cost.

4.5.51 Based on the analysis and scrutiny of material placed on record the Commission considers following evacuation cost:

Table 16: Evacuation Work Component, as approved by the Commission

Sr. No.	Parameters	Amount claimed by SBP (Rs. Lakh)	Amount Approved by the Commission (Rs. Lakh)
	Evacuation Works		
1	33kV line	253.75	220.57 + 39.70 (GST)
2	33 kV Bay work	4.84	
3	Differential Payments in 33 kV Line and Bay works	40.08	
4	Real time Unit	13.04	13.04
	Total	311.72	273.31

Total Overhead & Establishment Expenses:

4.5.52 SBP provided following break up of various heads of the Overhead and Establishment expenses:

Table 17: Overhead and Establishment expenses, as submitted by SBP

Particulars	Rs. Lakhs
Overheads and Establishment Charges/Legal Fees	26.23
Audit Charges	1.30
Total Overhead & Establishment Charges	27.53

4.5.53 The Commission notes that above referred expenses have been incurred towards Site staff Salaries, Mess Expenses and purchase of Diesel, Electricity bills at site connections and expenses of establishment & audit etc.

4.5.54 The Commission verified the submission on record and found these expenses justifiable.

Table 18: Overhead and Establishment expenses, as approved by the Commission

Particulars	Amount claimed by SBP (Rs. Lakh)	Amount Approved by the Commission (Rs. Lakh)
Overhead & Establishment Charges	27.53	27.53

Interest During Construction (IDC)

4.5.55 SBP submitted that the rate of interest considered for the term loan is 12.50% only for the quantum of loan availed and IDC is not calculated on the balance debt funded by Equity.

4.5.56 SBP in its Petition has claimed IDC to the tune of Rs.458.53 Crores.

4.5.57 The Commission notes that the Jambre project has been delayed substantially and the delay has led to increase in IDC component. In view of considerate delay following timeline is worth noting:

Sr. No.	Date	Event
1	09.07.2007	Letter of permission for development of Jambre HEP issued by GoM WRD.
2	16.04.2009	GoM approved techno-economic feasibility report of SBP
3	06.06.2009	Letter of allotment is issued to SBP
4	26.04.2010	GoM Approved leasing of land to SBP
5	15.05.2012	HPDA is signed between SBP and GoM WRD
6	02.09.2015	First extension GOMWRD issued extension to complete project by December-2016
7	09.11.2015	MSEDCL issued Grid connectivity to project.
8	05.04.2017	PPA is signed between SBP and MSEDCL.
9	01.06.2017	Second extension by GOM for work competition till 31.03.2018
10	04.07.2018	Third extension by GOM for work competition till 30.06.2019
11	18.03.2021	Fourth extension by GOM for work competition till 30.06.2021

4.5.58 From the deadline extension letter issued by GoM, it is evident that the said extensions have been sought by SBP. Hence, it is not prudent to pass on all the burden of IDC on common consumers. Accordingly, the Commission deems it fit to pass on only 50% IDC component.

Table 19: IDC expenses, as approved by the Commission

Particulars	Amount claimed by SBP (Rs. Lakh)	Amount Approved by the Commission (Rs. Lakh)
Overhead & Establishment Charges	458.53	229.26

Summary of Capital Cost:

4.5.59 Based on the analysis, the Commission has considered the capital cost of Jambre HEP as follows for determination of the tariff:

Table 20: Capital Cost of Jambre HEP considered by the Commission

Sr. No.	Parameters	Capital Cost as Claimed by SBP in Petition (Rs. Lakh)	Capital Cost reconciliation as submitted by SBP (Rs. Lakhs)	Capital Cost as approved by the Commission (Rs. Lakh)
1	Preliminary Work	200.52	197.65	165.66
2	Civil Works	432.27	432.27	403.35
3	Hard Cost	569.92	569.92	569.92
4	Other Works	21.51	27.39	21.28
5	Overhead and Establishment Works	27.90	27.53	27.53
6	Evacuation Works	310.90	311.72	273.31
7	IDC	458.53	458.53	229.26
	Total	2021.55	2025.01	1690.32

4.5.60 In view of the above, the Commission approves Rs. 1690.32 Lakhs (without subsidy) towards Capital Cost of SBP's Jambre HEP for determination of Tariff as against Rs. 2025.01 Lakhs proposed by SBP.

4.5.61 A comparative table of recently notified (in Regulation) capital costs for Small Hydro projects by various Regulatory Commissions in India is presented in the Table below:

Table 21: Capital cost of Small Hydro Projects

Sr. No	Name of Regulatory Commission	Regulation	Capital Cost (in Rs. Lakh/MW)	
1	CERC (Below 5MW)	2020	Himachal Pradesh, Uttarakhand, West Bengal, Union Territory of Jammu and Kashmir, Union Territory of Ladakh and North Eastern States	1100
			Others States	780
2	Chhattisgarh Electricity Regulatory Commission	2019	880	
3	Haryana Electricity Regulatory Commission	2017	779	
4	Gujrat Electricity Regulatory Commission#	As per Order	820	
5	Arunachal Pradesh Electricity Regulatory Commission	2018	1400	
6	Madhya Pradesh Electricity Regulatory Commission	2017	650	

As per Order in Case No.5 of 2016

4.5.62 The Commission notes that the capital cost estimated by SBP includes the capital expenditure towards 33 kV sub-transmission system as per MERC RE Tariff Regulations, 2019. The Commission is considering the total project cost of Rs. 1650.61 Lakhs. After exclusion of the 33 kV sub-transmission system related capital expenditure, the total Capital cost works out to be Rs. 1417 Lakhs.

4.5.63 The Commission further notes that CERC in its Explanatory Memorandum on Draft CERC (Terms and Conditions for Tariff Determination from Renewable Energy Sources) Regulations, 2020 has noted that the hydro projects below 5 MW will have higher capital cost and higher operating costs due to their small in size, remote locations, grid connectivity issues etc.

4.5.64 Further, Explanatory Memorandum of CERC has referred to following capital cost information submitted by IREDA for small hydro projects:

Table 22: Capital cost information submitted by IREDA for Small Hydro Projects

Capital Cost Component	Cost (Rs. Crore/MW)		
	Minimum	Average	Maximum
Land & Site Development	0.07	0.28	0.71
Civil Works and H&M works including Engineering and Consultancy	3.19	5.79	9.45
Electro-mechanical Works & Installation	0.96	1.51	1.99
Power Evacuation (Transmission Line)	0.22	0.89	2.18
Preliminary & Pre-operative expenses including IDC and contingency	0.74	2.71	4.71
Total Project cost with IDC	6.06	11.20	15.92

4.5.65 Considering above details, the Commission is of the opinion that proposed capital cost of the project i.e.Rs. 1690.32 lakh i.e. Rs. 8.45 Core/MW (including evacuation cost of Rs. 273.31lakh) is within the range of benchmark capital cost approved by the CERC.

4.5.66 Accordingly, the Commission has considered capital cost of Rs. 1690.32 lakh for purpose of tariff determination.

4.6 Eligible Subsidy Component:

SBP's submission

4.6.1 As per prevailing policy framework, capital subsidy is not applicable to Jambre HEP.

4.6.2 SBP submitted that in line with Regulation 25.3 of MERC RE Tariff Regulations, 2019, any subsidy received in future shall be adjusted in subsequent bills raised towards the sale of electricity in suitable installments or within such period as may be stipulated by the Commission in approval of Tariff Order.

Commission's Analysis and Ruling

4.6.3 MSEDCL in its objection referred to GoM's RE Policy-2015 and urged that under said policy projects are eligible for two grants amounting to Rs. 2.00 Crores (maximum). The project is delayed on account reasons attributable to developer and now not eligible for the policy benefits. Hence, impact of Rs.2.00 Crores shall not be considered while determination of Tariff.

4.6.4 The Commission notes that the project is delayed and the said aspect is accepted by

SBP. From documents on record, it is evident that GOMWRD has granted extension of project timelines on (3) occasions. As per revised timeline, deadline for project competition is 30 June 2021.

- 4.6.5 The Commission notes that SBP has paid out infrastructure clearance fee of Rs. 2,00,000/- to MEDA on 09 December 2015 and project got registered in 2015, it is eligible for benefits under GoM's RE Policy-2015. In terms of Policy- 2015, project is eligible for maximum benefit of Rs.2.00 Crores. It is worth noting that RE Policy-2015 does not stipulate any deadline for consideration of evacuation refund and capital subsidy claims.

Subsequently, GOM on 31 December 2020 notified new RE Policy-2020. In 2020 policy document capital subsidy benefit and evacuation cost refund benefits to small hydro projects are withdrawn. But project is registered under 2015 policy.

SBP in its submission has not mentioned about efforts taken by it to avail the subsidies under RE Policy-2015. As GOMWRD has itself extended the project timeline based on its own technical assessment, it is wise to pursue MEDA for subsidy component. Accordingly, the Commission directs SBP to approach MEDA for subsidy claims along with documentary evidence.

- 4.6.6 However, as explained in subsequent part of this Order, non- consideration of possible subsidy amount would end up in determination of tariff providing returns much more than subsidy reimbursement. Hence, the Commission has determined the tariff for both options i.e. Capital cost with and without subsidy amount.

4.7 Debt-Equity Ratio

SBP's submission

- 4.7.1 As regards the financing of the project, SBP has submitted that, out of total project cost of Rs 20.21 Crore, it has availed debt of Rs 9.00 Crore and balance amount is funded through equity. Since the Equity portion is on a higher side, for computation of tariff, the Debt: Equity Ratio considered for funding of the Project is 70:30 as per Regulations 15 of MERC RE Tariff Regulations, 2019.

Commission's Analysis and Ruling

- 4.7.2 Regulation 15 of the MERC RE Tariff Regulations, 2019, specifies as below:

15.1 For determination of generic tariff by the Commission, the debt-equity ratio shall be considered to be 70:30.

15.2 For project-specific tariff determination, if the equity actually deployed is more than 30% of the Capital Cost, the equity in excess of 30% shall be treated

as normative loan:

Provided that, where the equity actually deployed is less than 30% of the Capital Cost, the actual equity shall be considered for determination of tariff:

Provided further that the equity invested in foreign currency shall be denominated or designated in Indian rupees as on the date of each investment.”

4.7.3 Accordingly, Commission has considered the debt-equity ratio of 70:30 for the Capital cost of Rs. 1650.61 Lakh as considered by the Commission.

4.8 Depreciation

SBP's submission

4.8.1 For the purpose of depreciation, SBP has considered the Capital Cost as submitted in the Petition. The salvage value of the assets has been considered as 10% and depreciation has been allowed up to a maximum of 90% of the Capital Cost in accordance with Regulation 17.2 of RE Tariff Regulations-2019.

4.8.2 As per Regulations 17.3 of RE Tariff Regulations-2019, the depreciation rate for the first 12 years of the Tariff Period has been considered as 5.83% per annum. Also, the remaining depreciation has been spread over the remaining useful life of the project, which is considered as 35 years and accordingly, depreciation rate of 0.87% has been considered from the 13th year onwards.

Table 23: Computation of Depreciable amount, as submitted by SBP

Sr. No.	Particulars	Amount in Rs. Lakhs
1	Capital Cost	2021.55
2	Depreciable Amount (90% of Sr.No 1)	1819.395

Commission's Analysis and Ruling

4.8.3 Regulation 17 of the MERC RE Tariff Regulations, 2019, pertaining to depreciation is as follows:

“
17.1 *The value base for the purpose of depreciation shall be the capital cost of the asset as admitted by the Commission.*

17.2 *The salvage value of the asset shall be considered as 10%, and depreciation shall be allowed up to a maximum of 90% of the capital cost of the asset, excluding the cost of freehold land, if any.*

17.3 The depreciation rate for the first 12 years of the Tariff Period shall be 5.83% per annum, and the remaining depreciation shall be spread over the remaining useful life of the project from the 13th year onwards.

17.4 Depreciation shall be chargeable from the first year of commercial operation.”

- 4.8.4 The Commission has considered the depreciation rate of 5.83% for the first 12 years as per the Regulation 17.3 of MERC RE Tariff Regulations, 2019. The remaining depreciation amount (up to 90% of capital cost) spread over the remaining Useful Life of the Project (23 years).

Table 24: Depreciation Rate considered by the Commission

Particulars		As considered by SBP (Rs. Lakh)	As considered by the Commission (Rs. Lakh)
Time Period	a	35 Years	35 Years
Debt	b	70%	70%
Repayment Period	c	12 Years	12 Years
Depreciation for 1 st 12 Years	$d = (b/c)$	5.83%	5.83%
Depreciation for 13 Years onwards	$e = (90\% - (dxc))/(a-c)$	0.87%	0.87%
Depreciation Amount		Rs. 117.92 per Year (till 12 yrs) & after that Rs. 17.58 per Year (till retirement)	Rs. 98.60 per Year (till 12 yrs) & after that Rs. 14.70 per Year (till retirement)

4.9 Operation and Maintenance (O&M) expenses

SBP's submission

- 4.9.1 SBP has submitted that the Plant is yet to achieve CoD and is expected to be put to use in the coming next months, therefore, the normative O&M expenses as specified in Regulations 20 and 34 of Regulations-2019 has been considered for the projection purpose for determination of Tariff.
- 4.9.2 As per Regulations 34, it has considered 3.60% of the capital cost as the O&M expenses for the first year of CoD and same is escalated at the rate specified for Generating Companies in the MYT Regulations, 2019, as amended from time to time, for computation of the levelized tariff which at present is computed as 2.28% p.a after

considering the efficiency factor of 1%.

Table 25: O&M Expenses for Base Year (in Rs. lakhs) and Escalation factor, as submitted by SBP

Particulars	As per SBP
Base Year O&M Expenses (Rs. Lakhs)	72.78
Escalation Factor (%)	2.28

Commission’s Analysis and Ruling

4.9.3 The regulatory framework for determination of O&M expenses is specified in RE Tariff Regulations-2019. Regulation 34 provides for ceiling on the normative O&M Expenses for projects with a capacity Greater than 500 kW and up to and including 1 MW for the base year (FY2020-21), which is 4% of Capital Cost.

4.9.4 Further, escalation rate has been derived as per provisions in MYT Regulation-2019 Regulation 47.1(c) of MYT Regulations, 2019 reads as below:

“

47.1 (c)The Operation and Maintenance expenses for each subsequent year shall be determined by escalating these Base Year expenses of FY 2019-20 by an inflation factor with 50% weightage to the average yearly inflation derived based on the monthly Wholesale Price Index of the past five financial years as per the Office of Economic Advisor of Government of India and 50% weightage to the average yearly inflation derived based on the monthly Consumer Price Index for Industrial Workers (all-India) of the past five financial years as per the Labour Bureau, Government of India, as reduced by an efficiency factor of 1% or as may be stipulated by the Commission from time to time, to arrive at the permissible Operation and Maintenance expenses for each year of the Control Period ”

4.9.5 Accordingly, the Commission has analyzed the last 5 year average WPI and CPI indices from FY 2017-18 to FY 2021-22 (indices for whole year of FY 2022-23 is not available and hence FY 2022-23 is not included in last 5 years) considering 50% weightage to WPI and CPI, which works out to 3.94% per annum after deduction of 1% efficiency factor as shown in below:

Table 26: O&M escalation rate, as considered by the Commission

Particulars	Value
Average WPI rates for FY 2017-18 to FY 2021-22	4.63%
Weightage of WPI	50.00%
Effective Wt. avg. Value of WPI	2.32%

Average CPI rates for FY FY 2017-18 to FY 2021-22	5.24%
Weightage of WPI	50.00%
Effective Wt. avg. Value of WPI	2.62%
WPI (50%) + CPI (50%) for FY 2017-18 to FY 2021-22	4.94%
Less: Efficiency Factor	1.00%
Escalation factor as per MERC MYT Regulations, 2019	3.94%

4.9.6 As per the above Clause, WPI and CPI index of preceding 5 years need to be considered for computation of O&M escalation rate. Accordingly, escalation rate works out to be 3.94% against the claim of SBP of 2.28%.

4.9.7 Accordingly, the Commission has considered Rs. 60.85 Lakhs as against Rs. 72.78 Lakhs towards Operation and Maintenance expenses of the 1st year of the operation.

4.10 Interest on Term Loan

SBP's submission

4.10.1 SBP has considered 70% of the total cost as debt with a loan tenure of 12 years in line with Regulations 16.1 of MERC RE Tariff Regulations, 2019. Accordingly, the total normative loan for the project is Rs 14.15 Crore (i.e. 70% of Rs 20.21 Crore).

4.10.2 SBP submitted that it has availed actual loan of Rs 9.00 Crore from the Warana Co-Op. Bank Ltd and The Kolhapur Urban Co-Op. Bank Ltd. The said loan was sanctioned by the respective bank on 9 November 2016 with approved interest rate of 12.50%. Since the loan has been availed in FY 2016, when the interest rate of co-operative bank were high, therefore, the interest rate is considered at 12.50% to the limit of the sanction approved for determination of tariff.

4.10.3 For the balance debt amount of Rs 5.15 Crore, SBP has considered the normative interest rate equivalent to the average of the one-year Marginal Cost of Funds-based Lending Rate ('MCLR') as declared by the State Bank of India for the previous year plus 200 basis points i.e. 9.07% in line with Regulations 16.2 (c) of MERC RE Tariff Regulations, 2019.

4.10.4 Accordingly, on weighted average basis, 11.25% interest rate on loan has been considered by SBP for determination of Tariff.

Table 27: Weighted Average rate of interest on Debt, as considered by SBP

Particulars	Rs. In Lacs	Interest Rate
Debt tied-up with Kolhapur Urban Co-op. Bank and Wrana Co-op. Bank	900.00	12.50%
Balance Debt serviced by Equity	515.09	9.07%
Total Debt	1415.09	11.25%

Commission’s Analysis and Ruling

- 4.10.5 The Commission notes that the project is funded through Bank loan and equity placement. As per Regulation 15.2 of RE Tariff Regulation-2019 for project-specific tariff determination, if the equity deployed is more than 30% of the Capital Cost, the equity in excess of 30% shall be treated as normative loan.
- 4.10.6 The Commission observes that Regulation 16.2 (c) of RE Tariff Regulations-2019 provides for interest rate to be considered for determination of interest on loan. The relevant extract of the Regulation is reproduced below:

“
*(c) For the purpose of computation of tariff, the average of the one-year Marginal Cost of Funds-based Lending Rate (‘MCLR’) as declared by the State Bank of India for the **previous year** plus 200 basis points, shall be considered as the normative interest rate;”*

Hence, Commission has considered Interest Rate on normative basis.

- 4.10.7 Accordingly, the Commission has determined the Interest on loan considering average of 1-year MCLR of SBI (from April 2021 to March 2022) as shown in the Table below:

Table 28: Monthly 1 Year MCLR, as considered by the Commission

Date of Revision of 1 Year MCLR by SBI	MCLR by SBI
Average 1-year MCLR	7.73%
1-year MCLR+200 base points	7.73%+2.00%=9.73%

- 4.10.8 Hence, the Commission has considered the Interest on term Loan as $7.73\%+2.00\%=9.73\%$ for the purpose of determination of Tariff in this Case.

4.11 Interest on Working Capital

SBP’s submission

- 4.11.1 SBP submitted that it has computed the working capital in accordance with the RE Tariff Regulations, 2019 and has considered the interest rate for working capital as 8.57 % based on average of the one-year Marginal Cost of Funds-based Lending Rate (‘MCLR’) as declared by the State Bank of India for the previous year plus 150 basis points.

4.11.2 Also, in accordance with Regulation 19.1, SBP has considered the following elements for determining the working capital requirement:

- O & M expenses for one month;
- Receivables equivalent to 2 months of Energy Charges for sale of electricity calculated on the normative CUF;
- Maintenance spare @ 15% of O&M expenses.

Commission's Analysis and Ruling

4.11.3 Regulation 19.1 of the Regulations-2019 specifies the components of working capital as follows:

“

The Working Capital requirement in respect of Wind Energy Projects and Small Hydro, Solar PV, Solar Thermal, and Solar Rooftop PV Power Projects, shall consist of:

- a) *O&M expenses for one month;*
- b) *Receivables equivalent to two months of tariff for sale of electricity calculated on the normative CUF;*
- c) *Maintenance spares @ 15% of O&M expenses”*

Based on the above provisions of RE Tariff Regulations, the Commission has derived working capital requirement.

4.11.4 Provision for the interest rate for Working Capital in RE Tariff Regulation-2019 is reproduced below:

“

19.3 Interest on Working Capital shall be the average of the one-year Marginal Cost of Funds-based Lending Rate ('MCLR') as declared by the State Bank of India for the previous year plus 150 basis points.”

4.11.5 Accordingly, the Commission has considered the rate of interest on Working Capital as 9.23% (7.73%+1.50%) for the purpose of determination of Tariff in this Case.

4.12 Return on Equity

SBP's submission

4.12.1 As per Regulation 18.2 of MERC RE Tariff Regulations 2019:

“
18.2 The Return on Equity shall be computed at the base rate of 14%, to be grossed up as per the Minimum Alternate Tax ('MAT') rate applicable as on 1st April of the previous Financial Year.”

However, the aforementioned Regulation was relevant in the context of the tax holiday of 10 years under Section 80-IA of the Income tax Act which was then available to infrastructure projects meeting certain criteria.

- 4.12.2 In such cases, MAT was required to be paid during the years when the tax holiday was availed and then the MAT credit could be claimed in later years when the entity is liable to pay tax. However, the validity of the said provision under Section 80-IA was applicable only for projects commissioned up till 31 March 2017 as stated in second proviso of Section-80- IA(4)(i).

“
Provided further that nothing contained in this section shall apply to any enterprise which starts the development or operation and maintenance of the infrastructure facility on or after the 1st day of April 2017”

- 4.12.3 Moreover, through Finance Act, 2020, dated 27 March 2020, the Government of India has reduced the rates of corporate tax structure for domestic as well as manufacturing companies. This was effected with the introduction of Section 115BAA, which provides for 22% tax rate to be availed by domestic companies meeting certain criteria:

Tax on income of certain domestic companies.

“115BAA. (1) Notwithstanding anything contained in this Act but subject to the provisions of this Chapter, other than those mentioned under section 115BA and section 115BAB, the income-tax payable in respect of the total income of a person, being a domestic company, for any previous year relevant to the assessment year beginning on or after the 1st day of April, 2020, shall, at the option of such person, be computed at the rate of twenty-two per cent, if the conditions contained in sub-section (2) are satisfied.”

- 4.12.4 Also, the domestic companies opting for section 115BAA will not be able to claim MAT credits for taxes paid under MAT during the tax holiday period. The companies would not be able to reduce their tax liabilities under section 115BAA by claiming MAT credits.

Section 115 JD - Tax credit for alternate minimum tax.

Following sub-section (7) shall be inserted after sub-section (6) of section 115JD by the Finance Act, 2020, w.e.f. 1-4-2021:

(7) The provisions of this section shall not apply to a person who has exercised the option referred to in section 115BAC or section 115BAD.

4.12.5 Considering the provision of Section 115BAA read with 7th proviso of Section 115 JD, Minimum Alternate Tax is not applicable when the corporate tax of 22% is availed U/s. 115BAA. Therefore, Petitioner while grossing up the RoE, has considered the Income Tax rate of 22% along with the applicable surcharge of 10% and cess of 4% which results in an effective tax rate of 25.168% as against the MAT rate as specified in the above Regulation. It is further submitted that the Commission in its Order dated 17 August 2021 in Case No 63 of 2021 has allowed effective tax rate of Rs 25.168%.

4.12.6 Accordingly, SBP requested the Commission to approve the tax rate of 25.168% for grossing up the RoE, for determination of project specific tariff for Jambre HEP.

Commission's Analysis and Ruling

4.12.7 The Commission notes that issue of Tax Rate under RE Tariff Regulations 2019 has been decided by the Commission in Order dated 3 July 2021 in Case No. 48 of 2021 as follows:

“

11.5. The Commission notes that the grossing up of RoE with MAT rate is as per the Regulation 18 of the MERC RE Tariff Regulations, 2019. While justifying such provisions, the Commission in its Statement of Reasons has stated as follows:

“4.5.3 Analysis and Commission's Decision

The Commission has already clarified this aspect in the Explanatory Memorandum published along with the Draft MERC RE Tariff Regulations, 2019, as under:

*.....
This rate of return needs to be grossed up with applicable tax rate. Regarding the applicable tax rate, the existing approach provides for consideration of MAT rate for first 10 years and applicable tax rate for remaining period. However, the effective tax rate for remaining period is also coming out close to MAT rate. It is proposed not to consider differential treatment over useful life. Hence, it is proposed to consider MAT rate prevailing as on 1st April of the previous financial year for the entire useful life of the project for grossing up Rate of Return.”*

Hence, no change has been made to the Regulation on this account.”

Thus, commission's decision of applying MAT rate for grossing-up of RoE was based on analysis that not only for first 10 years but most of the years of project life, MAT rate would be applicable if various exemptions in Income Tax Act are considered.

11.6. However, PBESPL has pointed out that 10-year tax holiday granted under Section 80IA of the Income Tax Act, because of which MAT become applicable for these 10 years, was no more applicable. The Commission notes that such exemption was applicable only for the projects to be commissioned till FY 2016-17. Hence, such benefit

would not be applicable to project under consideration and in the absence of such benefit, project would be eligible for payment of Corporate Tax and not MAT. This situation has created difficulty in giving effects to the provisions of the Regulations in its letter and spirit. Hence, the Commission deems it fit to invoke its power under following Regulation 77 of RE Tariff Regulations, 2019 for removing this difficulty:

“

77. Power to remove difficulties If any difficulty arises in giving effect to the provisions of these Regulations, the Commission may, by general or specific Order, make such provisions, not inconsistent with the provisions of the Act, as may appear to be necessary for removing the difficulty.”

11.7. Accordingly, the Commission rules that RoE will be grossed up by applicable Corporate Tax rate. Having ruled as above, the Commission notes that through Finance Act, 2020, the Government of India has introduced Section 115 BAA which ultimately provides options to eligible companies to either opt for lower corporate tax of 22% and forgo all exemptions/deductions available including MAT or continue with regular corporate tax rate of 30% and avail applicable deductions/exemptions whenever become applicable.

11.8. In present submission, PBESPL has stated that MAT would not be applicable to it. Under such circumstance, the Commission decides to consider lower corporate tax rate of 22% (effective tax rate is 25.17% after applying applicable cess) for grossing up of RoE. Same rate will also be used for arriving at WACC.”

4.12.8 Thus, the Commission in above quoted Order has allowed use of Corporate Tax (25.17%) instead of MAT rate for Income Tax computation. Same ruling is equally applicable in present matter.

4.12.9 Accordingly, the Commission notes the submission of the SBP and considers tax rate of 25.17% for grossing up the RoE, for determination of project specific tariff for Jambre HEP. Therefore, in accordance with the MERC RE Tariff Regulations, 2019 the Commission has considered the RoE as 14% and grossed up the same with 25.17% for the purpose of determination of Tariff for this project.

Table 29: Grossed up Return on Equity (%), considered by the Commission

Income Tax (in %)	Base rate of RoE (in %)	Grossed up RoE (Base Rate/1-t) (in %)
25.17%	14%	18.71%

4.13 Discount Rate

SBP’s submission

4.13.1 For computation of levelized tariff, SBP has considered the discounting rate of 10.09% which is equivalent to the normative post-tax weighted average cost of capital as specified in Regulations 12.2 of RE Tariff Regulations-2019.

Commission’s Analysis and Ruling

4.13.2 With regards to determination of levelized Tariff, Regulation 12.2 of RE Tariff Regulation-2019 specifies as below:

“
12.2 For the purpose of computation of levelised tariff, a discount factor equivalent to the normative post-tax weighted average cost of capital shall be considered.”

4.13.3 In accordance with above Regulations, levelised tariff computation, the Commission has taken the discount rate as equivalent to the weighted average cost of capital, which works out to 8.91% considering the interest rate of 9.00% and post-tax RoE of 14% as approved in this Order, the same is depicted in following table:

Table 30: Discount Rate, considered by the Commission

Particulars		As considered by SBP (Rs. Lakh)	As considered by the Commission (Rs. Lakh)
Debt	a	70%	70%
Equity	b	30%	30%
Interest Rate	c	11.25%	9.73%
Return on Equity	d	14%	14%
Applicable corresponding Corporate Tax Rate	e	25.17%	25.17%
Discount rate	= (dxb)/((cxa)(1-e))	10.09%	9.30%

4.14 The summary of various parameters and assumptions

4.14.1 Following table covers capital cost, financial parameters, operating parameters and performance parameters, as considered for the Project-specific Tariff determination in this Order, as summarized below:

Table 31: Summary of Project Specific Parameters

Assumption Head	Sub Head	Sub Head (2)	Unit	SBP (submission)	Approved by Commission
Power Generation	Capacity	Installed Power Generation Capacity	MW	2.00	2.00
		Capacity Utilization Factor	%	30.00%	30.00%

Assumption Head	Sub Head	Sub Head (2)	Unit	SBP (submission)	Approved by Commission	
		Auxiliary Consumption	%	1%	1%	
		Useful Life	Years	35	35	
Project Cost	Capital Cost	Capital Cost	Rs. Lakhs/MW	1010.78	825.31	
		Capital Cost	Rs. Lakhs	2021.55	1690.32	
		Capital Subsidy	Rs. Lakhs	-	200*	
Sources of Fund	Debt / Equity	Tariff Period	Years	35.00	35.00	
		Debt	%	70%	70%	
		Equity	%	30%	30%	
		Total Debt Amount	Rs. Lakhs	1415.09	1183.22	
		Total Equity Amount	Rs. Lakhs	606.47	507.10	
	Debt Component	Loan Amount	Rs. Lakhs	1415.09	1183.22	
		Repayment Period (incl Moratorium)	Years	12.00	12.00	
		Interest Rate	%	11.25%	9.73%	
	Equity Component	Equity Amount	Rs. Lakhs	606.47	507.10	
		Return on Equity (RoE)	% p.a.	14.00%	14.00%	
		RoE Period	Year	35	35	
		Weighted average of RoE	% p.a.	18.71%	18.71%	
		Discount rate	%	10.09%	9.30%	
	Financial Assumptions	Fiscal Assumptions	Income Tax	%	25.17%	25.17%
		Depreciation	Depreciation Rate for first 12 years	%	5.83%	5.83%
Depreciation Rate for 13 year onwards			%	0.87%	0.87%	
Working	O&M expense		Months	1.00	1.00	

Assumption Head	Sub Head	Sub Head (2)	Unit	SBP (submission)	Approved by Commission
Capital	Maintenance Spare	(% of O&M expenses)	%	15%	15%
	Receivables for Debtors		Months	2.00	2.00
	Interest on Working Capital		% p.a.	8.57%	8.50%
Operation & Maintenance	Powe Plant-Base Year		Rs. Lakh/MW	72.78	60.85
	Escalation Factor		%	2.28%	3.94%

#Yet to be received

4.15 Tariff and Other Conditions

4.15.1 Based on the parameters, assumptions and methodology outlined in earlier paragraphs, the Commission has determined the Levelised Tariff of Rs. 5.99/kWh (without subsidy) and Rs.5.28 (with subsidy) which shall be applicable over a period of 35 years from the date of its Commercial Operation or for tenure of HPDA, whichever is earlier. The Commission notes that in reply to data gaps, SBP categorically stated that it is not eligible for any subsidy and but the Commission has computed tariff in both scenario.

The computations are shown in **Annexure-1** of this Order. The directives of the Commission regarding applicability of the Tariff has been dealt under Section 5 of the Order.

4.15.2 Modalities for power procurement:

- (a) The Commission is of the opinion that although Wind and Solar power is available at much lower rate than other RE sources such as Bagasse, Biomass, Municipal Solid Waste and Small/Mini/Micro Hydro projects, but these other sources of RE are also required to be promoted. Government policies also mandate promoting these RE sources.
- (b) At the same time, the Commission has also recognised that it would not be proper to load impact of promoting such RE sources only on one particular Discom just because such RE project is located in its area of supply. Therefore, the Commission in its recent Order dated 22 March 2021 in Case No. 162 of 2019 has ruled as follows:

“

5.22.3 As all Distribution Licensees in the State are not party to present matter, MSEDCL needs to file separate Petition by making all Distribution Licensees as

party/respondent for developing framework for sharing of cost of such projects. MSEDCL may develop detailed framework based on following broad guidelines:

- a. Generator will sign EPA with a Distribution Licensee in whose area of supply such project has been commissioned.*
- b. Such Distribution Licensee shall transfer such energy to other Distribution Licensees in the State in proportionate to average of CPD and NCPD of each Discom approved for Financial Year under consideration.*
- c. Sale of energy from Generator to concerned Distribution Licensee and from concerned Distribution Licensee to other Distribution Licensee shall be at the tariff determined by the Commission under Section 62 of the EA, 2003.*
- d. Concerned Distribution Licensee shall be responsible to make payment to Generator irrespective if payment received from other Distribution Licensees.*
- e. Any delay in payment to Generator by concerned Distribution Licensee and to concerned Distribution Licensee by other Distribution Licensee will be subject to Late Payment Surcharge stipulated in applicable Regulations.*

5.22.3 Although, above quoted provision of Tariff Policy is limited to energy generated from WtE project, in the opinion of the Commission, principle of sharing cost amongst all Distribution Licensees in the State can be further expanded to include bagasse, bio-mass and Small/Mini/Micro Hydro plants having relatively higher tariff rate than other RE technologies.

5.22.4 In view of above, MSEDCL is directed to sign EPA with Petitioner for procurement of 100% power at tariff determined by this Commission and thereafter file a Petition for development regulatory framework for sharing of such expenses amongst all Discoms.”

- (c) In this Case MSEDCL has already signed an EPA with SBP, it is prudent on part of MSEDCL to follow up the mechanism to be developed based on the above mentioned methodology, to share the impact of such power proportionally shared with other Distribution Licensees in the State.

4.16 Other Commercial aspects

Land Lease Rent, Water Cess and Maintenance Charges

SBP's submission

- 4.16.1 Regulation 26 of RE Tariff Regulations-2019 specifies that the tariff determined shall be exclusive of taxes and duties on the generation and sale of electricity from a RE

Project as may be levied by the appropriate Government. Hence, the taxes and duties levied by the appropriate Government on generation, and sale of electricity from such RE Project, such as Electricity Duty and Water Royalty, shall be allowed as a pass-through to the extent actually incurred.

4.16.2 Accordingly, SBP submits that as per HPDA following expenses are payable to the Government, though not considered for the calculation of the levelized tariff will be claimed on the basis of actual cost incurred as specified in the Regulations:

- **Payment of land lease of rent:**

Payment of land lease of rent of Rs. 1/- per kW per annum to be calculated on the basis of installed capacity of the project, approved by GOMWRD in TEFRR for first year. SBP has to make the payment of annual land lease rent in advance upto 30th April every accounting year till the expiry of the term of HPDA.

- **Water Cess:**

SBP shall pay to GOMWRD water cess at rate of 5 paise per unit.

- **Maintenance Charges for Maintenance of intake structure:**

Charges of maintenance of intake structure, penstock, etc. at rate of 5 paise per unit liable for payment from the date of COD of the project till term of HPDA.

4.16.3 The land lease rent, water cess and maintenance charges mentioned above are for the first year and the same shall be increased in every subsequent year by 5% by compounding. SBP submitted that water cess and maintenance charges are linked to energy generation and if these charges are considered for determination of tariff based on normative PLF, then any gain or loss on of these charges will have to be borne by SBP. However, this would not be prudent approach in view of Regulation 26. Hence, SBP requested the Commission to allow these charges to be claimed based on actual payment made during the year and the recovery of these charges to be made on reimbursement basis during tariff period.

Commission's Analysis and Ruling

4.16.4 The Commission notes that as per Regulation 26 the taxes and duties levied by the appropriate Government on generation, and sale of electricity from such RE Project, such as Electricity Duty and Water Royalty, shall be allowed as a pass-through to the extent actually incurred.

4.16.5 As per provision contained in Article IV of HPDA, SBP is liable to pay for land lease rent of Rs.1/- (Rupee one) per kW per annum. Further, SBP is also liable for payment of Water cess at the rate of 5 (Five) paise per kWh and charges for maintenance of intake structure, penstock etc at the rate of 5 (five) paise per kWh. These charges are applicable

till the expiry of HPDA.

- 4.16.6 The above-mentioned rates of land lease rent, Maintenance charges and water cess are for the first year and the same shall be increased in every subsequent year by 5% by compounding. The first year for payment of land lease charges shall be the year in which site is handed over to the SBP for development of the project and first year for payment of water cess and maintenance charges shall be the year in which commercial production of electricity has started.
- 4.16.7 Land lease rent is applicable from the year in which site is handed over to the SBP for development of the project. As project has been delayed substantially, the Commission allows recovery of land lease rent from COD of the project on reimbursement basis.
- 4.16.8 Further, the project under consideration is irrigation-based project and generation is dependent on water released from dam as per decisions of Competent Authorities in irrigation department. Factoring above mentioned charges in tariff model which considers CUF of 30% will not be prudent. Hence, the Commission allows recovery of Maintenance charges and water cess on actual basis. For the said purposes, SBP shall submit documentary evidence to MSEDCL for reimbursement of such expenses after making payment to the concerned Government authorities and MSEDCL shall reimburse the same. Further, Distribution Licensee shall not be liable to reimburse any interest charged payable to GOMWRD on account of default in payment by SBP.

4.17 Issue of metering point

SBP's submission

- 4.16.9 SBP is in receipt of the letter dated 15 November 2021 wherein metering location has been changed from generation end to substation end. The said decision of MSEDCL is completely contrary to the EPA signed between the parties, where in Interconnection Point is defined to be the line isolator on outgoing feeder in HV side of generator transformer.
- 4.16.10 In view of the same, SBP requested the Commission to direct MSEDCL to allow placing the meter at the generation end instead of substation end.

MSEDCL's Reply

- 4.17.1 MSEDCL pointed out that EPA between parties have been executed with SBP on 29 March 2017. The provisions incorporated in EPA were consistent with the MERC RE Tariff Regulations-2015.
- 4.17.2 The Commission on 30 December 2019 notified MERC RE Tariff Regulations-2019. In said Regulations, the definition of 'Interconnection Point' has been revised.

4.17.3 Regulation 2.1 (t) of MERC RE Tariff Regulations-2019 defines Inter-connection Point as below:

“

‘Inter-connection Point’ shall be the point where the power from the Project is injected into the nearest transmission/distribution grid sub-station, including the dedicated transmission/distribution line connecting the Projects with such sub-station;”

4.17.4 As SBP has applied for project specific tariff determination in pursuance of MERC RE Tariff Regulations-2019, the definition of the interconnection point as specified in MERC RE Tariff Regulations-2019 needs to be considered. Therefore, MSEDCL maintains that it was well within its rights to inform SBP about the change in the metering point being fixed at the Substation End instead of the Generation End as per the applicable Regulation.

Commission’s Analysis and Ruling

4.17.5 The Commission notes that EPA has been executed on 29 March 2017. The provisions of EPA are consistent with MERC RE Tariff Regulations-2015. The interconnection point is defined in EPA as below:

“

*Interconnection Point- means interface point of renewable energy generating Project with the transmission system or distribution system, as the case may be. In relation to mini/micro hydro power, **small hydro power, interconnection point shall be the line isolator on outgoing feeder on HV side of generator transformer or shall have the same meaning ascribed thereto under the Electricity Act, Rules & Regulations framed there under or as defined and determined by the Appropriate Commission by its Order in respect thereof.**”*

4.17.6 Regulation 2.1 (r) of MERC RE Tariff Regulations-2015 defines Inter-connection Point as below:

‘Inter-connection Point’ shall mean interface point of renewable energy generating facility with the transmission system or distribution system, as the case may be, and 1. in relation to wind energy projects and Solar Photovoltaic Projects, the inter-connection point shall be the line isolator on outgoing feeder on HV side of the pooling sub-station;

Explanation.- A Pooling Sub-station is a sub-station, consisting of a step-up transformer and associated switchgear, to the LV side of which multiple generating Units (Wind Turbine Generators or Solar PV modules/arrays/inverter units) are connected.

*2. **in relation to** mini/micro hydro power, **small hydro power**, biomass and Biomass gasification, non-fossil fuel-based co-generation power projects, Bio-gas based,*

*Hybrid Renewable Energy, Municipal Solid Waste and Solar Thermal Power Projects, **the inter-connection point shall be the line isolator on outgoing feeder on HV side of generator transformer;**”*

4.17.7 Stipulations with regards to Interconnection Point in RE Tariff Regulations, 2019 are provided in Para (4.17.5) above. Clearly, after notification of MERC RE Tariff Regulations, 2019, considerations applicable to small hydro projects have been changed. The present Petition has been filed under provisions of MERC RE Tariff Regulations, 2019. Hence, it is appropriate to adopt the same. Further, after reading of definition of Interconnection point in EPA, it is evident that it is accommodative and can be harmonized with RE Tariff Regulations, 2019. Accordingly, Interconnection point shall be as per provisions in RE Tariff Regulations, 2019 i.e. .

4.18 Additional Capitalisation

SBP's submission

4.18.1 SBP submitted that HPDA signed with the GoMWRD and EPA signed with MSEDCL will be for the period of 35 years and therefore for such larger period, certain additional capitalisation in relation to overhauling, maintenance of the plant and machinery etc. would be required to be undertaken.

4.18.2 The capital cost for generation of power accounts for the current expenditure only, and not any expense incurred for the enhancement of the life of the Plant, which also needs to be considered by the Commission. However, such amount and the year of capital expenditure cannot be envisaged at present and therefore, SBP requested the Commission to allow it to approach the Commission with proposal of such additional capital expenditure to be incurred and the methodology for recovery of these expenditure during tariff period.

Commission's Analysis and Ruling

4.18.3 The Commission notes that RE Tariff Regulations-2019 do not provide for any additional capitalisation during operating period of the plant. Further, expenditure on account of overhauling and maintenance of the plant gets covered under Operation & Maintenance (O&M) expenses. Hence, directions in this regard are not warranted.

5 SUMMARY OF COMMISSION'S DIRECTIVES AND APPLICABILITY OF ORDER

- 5.1.1** In pursuance of Regulation 9 of RE Tariff Regulations-2019, the Commission hereby determines the project specific levelised Tariff for the Jambre SHP of SBP as Rs. 5.99/ kWh without considering the eligible subsidy component and Rs.5.28/kWh after considering the maximum eligible subsidy component of Rs. 200 Lakhs.
- 5.1.2** The difference between the tariffs of with and without subsidy is Rs. 0.71/kWh. In case Tariff without factoring subsidy component, is considered and allowed to be levied, it will result into excess future cashflows to the tune of Rs.378.97 Lakhs over the project life i.e. 35 Years. In case, in near future project developer secures subsidy component (Rs. 200 Lakh) and passes on it to Distribution Licensees in one go as per provisions of RE Tariff Regulations 2019, then also project developer will still be left with remaining surplus cashflow of Rs.178.97 Lakhs, which is inordinate and cannot be allowed to be retained by SBP. In view of such difficulty, the Commission consider the levelized tariff of Rs. 5.28kWh (including maximum possible subsidy), which shall be applicable over a period of 35 years from the date of its Commercial Operation. This Tariff Order shall be valid subject to fulfilment of Condition Precedent as outlined under HPDA by GOMWRD.
- 5.1.3** If SBP fails to receive the subsidy or receives it partly within 48 months from the date of issuance of this Order after making all efforts, the SBP may file a Petition before the Commission to revise the Tariff without considering the subsidy or part thereof. SBP shall also bring out clearly in that Petition details of the efforts made along with justifications for failure in spite of these efforts in obtaining the eligible subsidy. The Commission shall take appropriate decision after considering the efforts made and scrutinizing the matter. If it is found that the SBP submitted the requisite documents and made all prudent efforts to avail the subsidy, then the Commission may admit the Petition and accordingly may allow levy of Tariff without subsidy or part thereof. In addition, the Commission may also determine the carrying cost on account of the lower Tariff received due to the consideration of subsidy in the capital cost of the project. Such additional impact in Tariff could be directed to be recovered from the Distribution Licensee in subsequent bills to be raised by SBP towards sale of electricity.
- 5.1.4** The Commission rules that, SBP and MEDA shall inform the Commission regarding the grant, subsidy or incentives that are received by SBP.
- 5.1.5** The Commission allows recovery of charges payable to GOMWRD such as

land lease rent, water cess and maintenance charges on reimbursement basis. MSEDCL shall not be liable to reimburse any interest charges payable to GOMWRD on account of default/delay in payment by SBP.

5.1.6 MSEDCL may further file a Petition before the Commission for development of Regulatory Framework for sharing of such expenses with other Distribution Licensees as explained in para 4.15 above. The Commission has the responsibility to promote all type of RE sources and directs the State Distribution Licensees to procure such power to broad base their RE portfolio to reduce carbon emissions and help in achieving the targets given under the Central/State RE policy.


5.1.7 All other conditions including rebate, late payment surcharge etc. as stipulated in MERC (Terms & Condition for determination of Renewable Energy Tariff) Regulations 2019 shall be applicable in the matter.

In view of above, the Petition of M/s Sanjay B. Patil (SBP) in Case No.22 of 2022 stands disposed of accordingly.

**Sd/-
(Mukesh Khullar)
Member**

**Sd/-
(I.M. Bohari)
Member**

**Sd/-
(Sanjay Kumar)
Chairperson**


**(Abhijit Deshpande)
Secretary**



Appendix – 1: List of persons at the Public Hearing held on 14 October 2022

Sr. No.	Name	Organisation
1	Shri. Ghynashyam Thakkar, Consultant (for SBP)	Energy Optimaa
2	Mrs.Kavita Gharat, Chief Engineer (Renewable Energy)	MSEDCL

Annexure I

With Subsidy:

Name of the Project - Jambre Hydro Power Project (1X2 MW), Dist. - Kolhapur - Small Hydro Electric Plant (SHEP)																																						
Units Generation	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	26	27	28	29	30	31	32	33	34	35		
Installed Capacity	MW	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2		
Number of days	Nos.	365	365	365	366	365	365	365	366	365	365	365	366	365	365	365	366	365	365	365	366	365	365	365	366	365	365	365	366	365	365	366	365	366	365	365		
Gross Generation	MU	5.26	5.26	5.26	5.27	5.26	5.26	5.26	5.27	5.26	5.26	5.26	5.27	5.26	5.26	5.26	5.27	5.26	5.26	5.26	5.27	5.26	5.26	5.26	5.27	5.26	5.26	5.26	5.27	5.26	5.26	5.27	5.26	5.26	5.27	5.26	5.26	
Net Generation	MU	5.20	5.20	5.20	5.22	5.20	5.20	5.20	5.22	5.20	5.20	5.20	5.22	5.20	5.20	5.20	5.22	5.20	5.20	5.20	5.22	5.20	5.20	5.20	5.22	5.20	5.20	5.20	5.22	5.20	5.20	5.22	5.20	5.20	5.22	5.20	5.20	
Tariff Components	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	26	27	28	29	30	31	32	33	34	35		
Depreciation	Rs. Lakh	86.94	86.94	86.94	86.94	86.94	86.94	86.94	86.94	86.94	86.94	86.94	86.94	12.96	12.96	12.96	12.96	12.96	12.96	12.96	12.96	12.96	12.96	12.96	12.96	12.96	12.96	12.96	12.96	12.96	12.96	12.96	12.96	12.96	12.96			
Return On Equity	Rs. Lakh	83.65	83.65	83.65	83.65	83.65	83.65	83.65	83.65	83.65	83.65	83.65	83.65	83.65	83.65	83.65	83.65	83.65	83.65	83.65	83.65	83.65	83.65	83.65	83.65	83.65	83.65	83.65	83.65	83.65	83.65	83.65	83.65	83.65	83.65	83.65		
Interest On Capital	Rs. Lakh	97.28	88.82	80.36	71.90	63.44	54.98	46.52	38.06	29.61	21.15	12.69	4.23	0.00	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
Interest On Working Capital	Rs. Lakh	6.20	6.14	6.09	6.05	6.00	5.96	5.93	5.90	5.87	5.84	5.82	5.81	4.71	4.83	4.96	5.10	5.24	5.39	5.54	5.70	5.86	6.03	6.21	6.40	6.59	6.79	7.00	7.21	7.44	7.67	7.92	8.17	8.43	8.70	8.98		
O&M Cost	Rs. Lakh	53.65	55.76	57.96	60.24	62.61	65.08	67.64	70.30	73.07	75.94	78.93	82.04	85.27	88.62	92.11	95.74	99.51	103.42	107.49	111.72	116.12	120.69	125.44	130.38	135.51	140.85	146.39	152.15	158.14	164.37	170.84	177.56	184.55	191.81	199.36		
Total Cost	Rs. Lakh	327.71	321.31	314.99	308.77	302.64	296.60	290.67	284.84	279.12	273.51	268.02	262.66	186.58	190.06	193.68	197.44	201.35	205.41	209.64	214.03	218.59	223.33	228.26	233.38	238.71	244.24	249.99	255.97	262.18	268.64	275.35	282.33	289.58	297.12	304.95		
Per Unit Tariff Components	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	26	27	28	29	30	31	32	33	34	35		
Depreciation	Rs./Unit	1.22	1.67	1.67	1.67	1.67	1.67	1.67	1.67	1.67	1.67	1.67	1.67	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25		
Return On Equity	Rs./Unit	1.61	1.61	1.61	1.61	1.60	1.61	1.61	1.60	1.61	1.61	1.61	1.60	1.61	1.61	1.61	1.60	1.61	1.61	1.61	1.60	1.61	1.61	1.61	1.60	1.61	1.61	1.61	1.60	1.61	1.61	1.60	1.61	1.61	1.61	1.61	1.61	
Interest On Capital	Rs./Unit	0.79	1.87	1.71	1.54	1.38	1.22	1.06	0.89	0.73	0.57	0.41	0.24	0.08	0.00	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
Interest On Working Capital	Rs./Unit	0.11	0.12	0.12	0.12	0.12	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.09	0.09	0.10	0.10	0.10	0.10	0.11	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	0.16	0.16	0.17	0.17	
O&M Cost	Rs./Unit	1.55	1.03	1.07	1.11	1.15	1.20	1.25	1.30	1.35	1.40	1.46	1.52	1.57	1.64	1.70	1.77	1.83	1.91	1.99	2.07	2.14	2.23	2.32	2.41	2.50	2.60	2.71	2.81	2.92	3.04	3.16	3.28	3.40	3.55	3.69	3.83	
Total Cost	Rs./Unit	5.28	6.30	6.17	6.05	5.92	5.82	5.70	5.59	5.46	5.36	5.26	5.15	5.03	3.59	3.65	3.72	3.78	3.87	3.95	4.03	4.10	4.20	4.29	4.39	4.47	4.59	4.69	4.80	4.91	5.04	5.16	5.29	5.41	5.57	5.71	5.86	
Levelling Tariff	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	26	27	28	29	30	31	32	33	34	35		
Discount Factor	9.30%	0.91	0.84	0.77	0.70	0.64	0.59	0.54	0.49	0.45	0.41	0.38	0.34	0.31	0.29	0.26	0.24	0.22	0.20	0.18	0.17	0.15	0.14	0.13	0.12	0.11	0.10	0.09	0.08	0.08	0.07	0.06	0.06	0.05	0.05	0.04		
Levelling Tariff	Rs./Unit	5.28																																				

Without Subsidy:

Name of the Project - Jambre Hydro Power Project (1X2 MW), Dist. - Kolhapur - Small Hydro Electric Plant (SHEP)																																					
Units Generation	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	26	27	28	29	30	31	32	33	34	35	
Installed Capacity	MW	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
Number of days	Nos.	365	365	365	366	365	365	365	366	365	365	365	366	365	365	365	366	365	365	365	366	365	365	365	366	365	365	365	366	365	365	365	366	365	365	365	366
Gross Generation	MU	5.26	5.26	5.26	5.27	5.26	5.26	5.26	5.27	5.26	5.26	5.26	5.27	5.26	5.26	5.26	5.27	5.26	5.26	5.26	5.27	5.26	5.26	5.26	5.27	5.26	5.26	5.26	5.27	5.26	5.26	5.26	5.27	5.26	5.26	5.26	5.27
Net Generation	MU	5.20	5.20	5.20	5.22	5.20	5.20	5.20	5.22	5.20	5.20	5.20	5.22	5.20	5.20	5.20	5.22	5.20	5.20	5.20	5.22	5.20	5.20	5.20	5.22	5.20	5.20	5.20	5.22	5.20	5.20	5.20	5.22	5.20	5.20	5.20	5.22
Tariff Components	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	26	27	28	29	30	31	32	33	34	35	
Depreciation	Rs. Lakh	98.60	98.60	98.60	98.60	98.60	98.60	98.60	98.60	98.60	98.60	98.60	98.60	14.70	14.70	14.70	14.70	14.70	14.70	14.70	14.70	14.70	14.70	14.70	14.70	14.70	14.70	14.70	14.70	14.70	14.70	14.70	14.70	14.70	14.70	14.70	
Return On Equity	Rs. Lakh	94.87	94.87	94.87	94.87	94.87	94.87	94.87	94.87	94.87	94.87	94.87	94.87	94.87	94.87	94.87	94.87	94.87	94.87	94.87	94.87	94.87	94.87	94.87	94.87	94.87	94.87	94.87	94.87	94.87	94.87	94.87	94.87	94.87	94.87	94.87	94.87
Intrest On Capital	Rs. Lakh	110.33	100.74	91.14	81.55	71.95	62.36	52.77	43.17	33.58	23.98	14.39	4.80	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Intrest On Working Capital	Rs. Lakh	7.03	6.97	6.91	6.86	6.81	6.76	6.72	6.69	6.65	6.63	6.60	6.59	5.34	5.48	5.63	5.78	5.94	6.11	6.28	6.46	6.65	6.84	7.05	7.26	7.48	7.70	7.94	8.18	8.44	8.70	8.98	9.26	9.56	9.87	10.19	
O&M Cost	Rs. Lakh	60.85	63.25	65.74	68.32	71.01	73.81	76.71	79.73	82.87	86.13	89.52	93.05	96.71	100.52	104.47	108.58	112.86	117.30	121.92	126.72	131.70	136.89	142.28	147.88	153.70	159.75	166.04	172.57	179.36	186.42	193.76	201.39	209.31	217.55	226.12	
Total Cost	Rs. Lakh	371.68	364.42	357.26	350.20	343.25	336.41	329.68	323.07	316.58	310.22	303.99	297.90	211.62	215.57	219.67	223.94	228.37	232.98	237.77	242.75	247.92	253.30	258.89	264.70	270.74	277.02	283.54	290.32	297.37	304.69	312.31	320.22	328.44	336.99	345.88	
Per Unit Tariff Components	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	26	27	28	29	30	31	32	33	34	35	
Depreciation	Rs./Unit	1.39	1.89	1.89	1.89	1.89	1.89	1.89	1.89	1.89	1.89	1.89	1.89	0.28	0.28	0.28	0.28	0.28	0.28	0.28	0.28	0.28	0.28	0.28	0.28	0.28	0.28	0.28	0.28	0.28	0.28	0.28	0.28	0.28	0.28	0.28	
Return On Equity	Rs./Unit	1.82	1.82	1.82	1.82	1.82	1.82	1.82	1.82	1.82	1.82	1.82	1.82	1.82	1.82	1.82	1.82	1.82	1.82	1.82	1.82	1.82	1.82	1.82	1.82	1.82	1.82	1.82	1.82	1.82	1.82	1.82	1.82	1.82	1.82	1.82	1.82
Intrest On Capital	Rs./Unit	0.89	2.12	1.94	1.75	1.56	1.38	1.20	1.01	0.83	0.65	0.46	0.28	0.09	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Intrest On Working Capital	Rs./Unit	0.13	0.14	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.10	0.11	0.11	0.11	0.11	0.12	0.12	0.12	0.13	0.13	0.14	0.14	0.14	0.15	0.15	0.16	0.16	0.17	0.17	0.18	0.18	0.19	0.20	
O&M Cost	Rs./Unit	1.76	1.17	1.22	1.26	1.31	1.36	1.42	1.47	1.53	1.59	1.66	1.72	1.78	1.86	1.93	2.01	2.08	2.17	2.25	2.34	2.43	2.53	2.63	2.73	2.83	2.95	3.07	3.19	3.31	3.45	3.58	3.72	3.86	4.02	4.18	4.35
Total Cost	Rs./Unit	5.99	7.14	7.00	6.87	6.71	6.60	6.47	6.34	6.19	6.08	5.96	5.84	5.71	4.07	4.14	4.22	4.29	4.39	4.48	4.57	4.65	4.76	4.87	4.98	5.07	5.20	5.32	5.45	5.56	5.71	5.86	6.00	6.14	6.31	6.48	6.65
Levellised Tariff	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	26	27	28	29	30	31	32	33	34	35	
Discount Factor	9.30%	0.91	0.84	0.77	0.70	0.64	0.59	0.54	0.49	0.45	0.41	0.38	0.34	0.31	0.29	0.26	0.24	0.22	0.20	0.18	0.17	0.15	0.14	0.13	0.12	0.11	0.10	0.09	0.08	0.08	0.07	0.06	0.06	0.05	0.05	0.04	
Levellised Tariff	Rs./Unit	5.99																																			