



ASSAM ELECTRICITY REGULATORY COMMISSION

FILE NO. AERC. 829/2022/04

PETITION NO. 08/2022

ORDER SHEET

16/05/2024

Before the Assam Electricity Regulatory Commission
ASEB Campus, Dwarandhar,
G. S. Road, Sixth Mile, Guwahati – 781 022

Petition No. 08/2022

Assam Power Generation Corporation Limited (APGCL)

----- Petitioner

In the matter of

Determination of Levelized Tariff of
Myntriang small Hydro Electric Project
(MSHEP) for the FY 2022-23 to 2056-57

ORDER

1. BACKGROUND:

Assam Power Generation corporation limited (APGCL),(hereinafter referred to as the "petitioner"), filed a tariff petition on 21.06.2022 before the Commission for determination of levelized Tariff of Myntriang Small Hydro Electric Project(MSHEP) for the FY 2022-23 to FY 2056-57 under section 62 of Electricity Act, 2003 and the relevant regulations of AERC (Terms and Conditions for Tariff Determination from Renewable Energy Sources), 2017.

Assam Power Generation Corporation Ltd (APGCL) previously had filed a Petition (registered as Petition No. 38 of 2016) for approval of Tariff for 13.5 MW Myntriang Small Hydro for FY 2017-18 to FY 2029-30.

A Hearing was held on the Petition No. 38 of 2016 on July 31,2017. APGCL further submitted that the project execution work was ongoing for Stage-I and the same was expected to be commissioned by March' 2018.

The Petitioner also submitted that, after commissioning of Stage-I, the cost parameters of the project as a whole may change and APGCL was raising monthly energy bill @80% of the proposed tariff.

The Proposed Tariff Prayed before the Commission was Rs 2.73/Unit.

Therefore, considering the submission, the Commission deemed it fit not to progress with the determination of Tariff for MSHEP at that stage and APGCL was asked to continue with the present arrangement and bill APDCL @80% of the proposed Tariff i.e. Rs 2.18/unit.

The Commission directed the Petitioner that after commissioning of Stage-I, APGCL may approach the Commission along with detail updated project cost duly certified by Auditor for approval of Tariff by filing a fresh petition.

2. CURRENT PETITION:

Assam Power Generation Corporation Ltd (APGCL) had filed a final Petition Levelized Tariff for 13.5 MW of Myntriang Small Hydro Electric Plant for FY 2022-23 to FY 2056-57. The Petition was filed for determination of final Tariff of MSHEP under AERC Renewable Energy Regulations, 2017. Petitioner sought a Levelized Tariff of Rs 4.74/Unit for FY 2022-23 to FY 2056-57.

Meanwhile, after careful examination and consideration of the submissions of the petitioner, the Commission admitted the petition on 11.10.2022 and registered as petition no. 08/2022.

3. PROJECT HIGHLIGHTS:

The Myntriang Hydro Electric project is located near Karbi Langpi Hydro Electric Project at Amtereng having latitude-26° – 1.5' to 26° 1.6' N and Longitude 92° – 26.03' to 92° 28.45' E. This is a two stage development of the river Myntriang. The river is originated at an elevation of 1078 m. The project area is located in the foot-hills of the Karbi Anglong district with moderate steep topography. The river is passing through gorges and rapids but without any major fall.

On 03.03.2014 Commissioning of Stage-II (2 x 1.5 MW = 3 MW) was carried out and on 08.08.2014, the date of Commercial Operation of Stage-II (2 x 1.5 MW = 3 MW) was declared. Commercial date of operation (C.O.D) for the 3rd unit (1.5 MW) of MSHEP Stage-II was declared on 18.05.2018. On 08.02.2021 handing over of unit-III Stage-I MSHEP was completed. Both unit-I & II of Stage-I which started malfunctioning shortly after Inauguration by Hon'ble Chief Minister of Assam on 24.02.2019 and consequently M/s SEPL has carried out the necessary rectification works at site.

During the implementation stage, the APGCL took up further studies of power potential of the project based on the hydrological data collected during the period from 2008-2010. On completion of these studies, the APGCL decided to enhance the installed capacity of the project from 9 MW (Stage-I: 2 x 3.0 MW & Stage-II: 2 x 1.5 MW) to 13.50 MW (Stage-I: 3 x 3.0 MW & Stage-II: 3 x 1.5 MW) after examination of the proposal through independent hydrological experts.

Based on the above, the capacity of MSHEP station has been enhanced from 9 MW (Stage I : 2 x 3 MW & Stage II : 2 x 1.5 MW) to 13.5 MW (Stage I : 3 x 3 MW & Stage II : 3 x 1.5 MW) and additional agreement dated 02.06.2012 amounting Rs. 5.66 Cr and 01.12.2014 amounting Rs. 23.5 Cr was made with M/s SEPL and accordingly contractual date of completion was fixed on 21.03.2016.

4. LEGAL AND REGULATORY FRAMEWORK:

4.1 Section 86(1) (e) of the Electricity Act 2003, mandates the State Electricity Regulatory Commissions to promote co-generation and generation of electricity from renewable sources of energy by providing suitable measures for connectivity with the grid and sale of electricity to any person.

4.2 The Electricity Act, 2003 also requires that the State Electricity Regulatory Commissions (SERCs) shall be guided by the tariff policy in specifying

the terms and conditions for determination of tariff under section 61 of the Act.

4.3 Section 61 of the Act also provides that State Regulatory Commissions shall be guided by the principles and methodologies specified by the Central Commission for determination of tariff applicable to generating companies and transmission licensees.

4.4 The clause 5.12.2 of the National Electricity Policy provides, inter-alia, as under:

"Considering the fact that it will take some time before non-conventional technologies compete, in terms of cost, with conventional sources, the Commission may determine an appropriate differential in prices to promote these technologies".

4.5 Section 6.4 of the National Tariff Policy dealing with renewable energy sources of energy generation including co-generation, inter-alia, provides as under:

"It will take some time before non-conventional technologies can compete with conventional sources in terms of cost of electricity. Therefore, procurement by distribution companies shall be done at preferential tariffs determined by the Appropriate Commission."

4.6 The AERC (Terms and Conditions for Tariff determination from Renewable Energy Sources) Regulations, 2017 was notified on 04.10.2017 which is in line with CERC (Terms and Conditions for tariff determination from Renewable Energy Sources) Regulations, 2017.

5. Hearing on the Petition:

The Petition was filed for determination of final Tariff of MSHEP under AERC Renewable Energy Regulations, 2017. Petitioner sought a Levelized Tariff of Rs 4.74/Unit for FY 2022-23 to FY 2056-57.

Thereafter, the Petition was scrutinized and certain queries were raised by the Commission. APGCL made subsequent submissions in reply to the queries.

The Commission decided to schedule an Admission Hearing on October 11, 2022.

During the Hearing, the Commission directed APGCL to submit a detail break up on the change in Project cost year on year from the commencement of the project. The Commission also directed APGCL to submit the reason for delay of the project.

APGCL was also asked to submit the actual Commissioning dates of both the units of MSHEP unit wise vis-à-vis the proposed Commission dates of the units.

Thereafter, the Commission asked APGCL to publish the abridged form of the Petition in the newspaper seeking comments from the public on November 2, 2022 and upload the same in the official website.

The Petitioner is further directed to submit its replies to all comments received from Stakeholders by November 20, 2022.

The Petition No 08/2022 was admitted subject to subsequent submission of pending information/replies of data queries by the Petitioner.

A public notice was issued by the APGCL inviting objections/suggestions from the stake holders to be submitted on or before 9th November 2022. The notice was published in two (2) leading newspapers of the State as shown in the Table below:

Date	Name of Newspaper	Content Published
02-11-2022	The Assam Tribune	Public Notice in English
02-11-2022	The Assam Tribune	Public Notice in English

On 23.05.2023 certain queries were raised by the Commission. APGCL made subsequent submissions in reply to the queries on 31.05.2023.

APGCL vide letter No APGCL/CGM (G)/2022/Myntriang Tariff/72 dated 31.10.2023 submitted additional information as enquired by the Commission. APGCL submitted that the grant received from GoA for MSHEP is 8012.08 Lakh from the time period 2006-07 to 2019-20.

6. Determination of tariff:

After careful scrutiny and analysis of the technical and financial data and information submitted by the petitioner and the material and information available on record, the Commission decided for determination of project specific tariff for the FY 2022-23 to FY 2056-57 as per the terms and conditions of the AERC (Terms and Conditions for Tariff determination from Renewable Energy Source) Regulations, 2017.

6.1 Tariff structure:

A single part tariff shall be determined as per Regulation 9 of AERC (Terms and Conditions for Tariff Determination from Renewable Energy Sources), 2017.

6.2 Tariff design:

As per Regulations 6,7 and 8.2 of the AERC (Terms and Conditions for Tariff Determination from Renewable Energy Sources), 2017 read with Regulation 10 of the same Regulations, a levelized discounted tariff shall be determined for the tariff period of 35 years from the date of commissioning of the project.

6.3 TECHNICAL AND FINANCIAL NORMS AND PARAMETERS:

6.3.1.1 PROJECTED GENERATION OF MSHEP:

6.3.1.2 Submission of the petitioner:

APGCL submits before this Hon'ble Commission that considering the technical parameters considered above, the following Generation Plan is proposed by APGCL for MSHEP for the FY 2022-23:

MSHEP	Unit	FY 2022-23
Installed Capacity	MW	13.5
CUF	%	45%
Gross Generation	MU	53.22
Auxiliary Consumption	%	1%
Auxiliary Consumption	MU	0.53
Net Generation	MU	52.68

Commission's decision:

The Commission has approved the actual Gross generation as submitted by APGCL. The Net generation has been approved after considering the Auxiliary consumption @1% as per AERC (Terms and Conditions for Tariff Determination from Renewable Energy Sources), 2017.

6.3.1.3 Capital Cost:

Submission of the Petitioner:

The Capital expenditure as on COD (i.e. 04th March 2022) and addition for FY 2022-23 is as shown in the table below.

Particulars	Expenditure as on COD (04th March 2022)	Project Capital Expenditure(FY 2022-23)	Total Project cost at the end of FY 2022-23
Land			
Building	10.36		10.36
Hydraulic works	0.36		0.36
Other civil works	49.98	4.32	54.3
Plant & machinery	63.01		63.01
Lines & cables	1.71		1.71
Vehicle --			
Furniture	0.01		0.01
Other office equipment	0.06		0.06
Roads on land belonging to others			
Capital spares at Generating Stations			
Total	125.48	4.32	129.81

APGCL submits that out of 129.81 Crores, Expenditure of Rs 125.48 crores has already been incurred till COD i.e. 04th March 2022. Balance amount of Rs. 4.32 crores is expected to be incurred during FY 2022-23 which APGCL will claim at the time of truing up at actuals.

APGCL also submits before this Hon'ble Commission that the total expenditure towards Operation & Maintenance for the period FY 2014-15 to COD i.e. 04th March 2022 is as follows:

Particulars	FY 2014-15	FY 2015-16	FY 2016-17	FY 2017-18	FY 2018-19	FY 2019-20	FY 2020-21	FY 2021-22
Employee Cost	0.5	0.37	0.48	0.58	0.63	0.75	0.55	0.06
R&M Expense	0.02	0.04	0.05				0.06	
A&G Expense	0.1	0.07	0.09	0.1	0.12	0.09	0.06	0.15
Total O & M	0.62	0.47	0.62	0.687	0.75	0.84	0.67	0.2

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APGCL submits before this Commission the year-wise Depreciation booked in accounts for the period FY 2014-15 to COD i.e. 04th March 2022 is as follows:

Particulars	FY 2014-15	FY 2015-16	FY 2016-17	FY 2017-18	FY 2018-19	FY 2019-20	FY 2020-21	FY 2021-22
Depreciation	0.6	0.93	0.91	2.78	2.35	4.65	4.66	5.00

APGCL humbly requests the Commission to allow the total expenditure incurred for the period FY 2014-15 to COD i.e., 04th March 2022 as follows:

Particulars	Total Expenditure (FY 2014-15 to COD) i.e 04 th March 2022
Total O & M expenses	4.86
Total Depreciation booked	21.88
Grand Total	26.73

APGCL humbly requests this Hon'ble Commission to consider the Net ARR of APGCL from MSHEP for the period FY 2014-15 to COD (i.e., 04th March 2022) as follows:

Particulars	Total Expenditure (FY 2014-15 to COD) i.e 04 th March 2022
Total expenditure incurred (A)	26.73
Total Revenue Booked in accounts (B)	24.34
Net Expenditure incurred by MSHEP (A-B)	2.39

APGCL humbly requests the Hon'ble Commission to allow APGCL to recover the amount of Rs. 2.39 Crore in twelve equal monthly installments of Rs. 0.20 Crores.

Commission's decision:

The Commission noted that the capital cost is the most critical element in tariff determination. This comprises of cost of land, plant and machinery, Hydraulic Works, civil works, commissioning, cost associated with power evacuation and other related charges.

Based on the careful analysis of the submissions of the petitioner and the respondent and decisions on relevant paras above, the Commission has approved the total project cost for determination of tariff as under:

However, the capital cost is fixed for FY 2017-18, seeing the current trend and increase in cost the Commission has approved the actual capital cost submitted by APGCL which is Rs 125.48 Cr as certified by Auditor.

APGCL in their prayer requested the Commission, to allow the recovery of net expenditure of Rs. 2.39 Cr in 12 equal monthly installments. However, It is observed from the Auditors certificate enclosed at Annexure 3, under "various other expenses" the amount of Rs 2.39 Cr is already considered in the total project cost. Thereby, the Commission has already approved the capital expenditure as submitted by APGCL i.e Rs. 125.48 Cr including the net expenditure claimed of Rs 2.39Cr.

APGCL submitted an additional projected capital expenditure cost of Rs 4.32 Cr to be incurred in FY 2022-23. As the project is already commissioned, the project cost is finalized and the FY 2022-23 is already completed. The additional expenditure of Rs 4.32 Cr is disallowed.

As per the submission of the Petitioner the audited capital cost expenditure on COD is Rs 125.48 Cr. APGCL earned a revenue of Rs 24.34 Cr from FY 2014-15 to the date of COD i.e 4th March 2022. APGCL also incurred an expenditure of Rs 4.86 Cr against O & M expenses. APGCL booked Depreciation of Rs 21.88 Cr till COD, as the Commission allowing depreciation till 35 years of plant life hence the Depreciation prior to COD is disallowed. The Commission after deducting the revenue from infirm power of Rs 24.34 Cr arrives at 101.14 Cr. However, the actual O & M expenses incurred by APGCL till the date of COD is allowed. The total project cost after adjustments for 13.5 MW MSHEP plant is Rs 106.00.Cr.

6.3.1.4 Arbitration:

Submission of the Petitioner:

APGCL in their petition mentioned that the at present, the project cost is Rs 129.81 crores and due to the ongoing arbitration proceedings the same may further increase.

APGCL submits before this Hon'ble Commission that a per Regulation 29.2 (a) of the AERC (Terms and Conditions for determination of Multi Year Tariff) Regulations, 2018, claims arising out of settlement of Arbitration proceedings or any other decree of court may be claimed by APGCL as and when applicable. The same is being reproduced below:

"The capital expenditure incurred or projected to be incurred in respect of the new project on the following counts within the original scope of work after the cut-off date may be admitted by the Commission, subject to prudence check:

a. Liabilities to meet award of arbitration or for compliance of the order or decree of a court;

....."

b) In consideration of the above, APGCL craves leave to approach this Hon'ble Commission to claim any expenditure arising out of the arbitration proceedings as and when the proceedings completely settle before the court of law as per applicable laws.

c) APGCL craves leave to approach this Hon'ble Commission to claim any expenditure arising out of the arbitration proceedings as and when the proceedings completely settle before the court of law as per applicable laws.

Commissions Decision:

MSHEP installed is governed by AERC (Terms and Conditions for Tariff Determination from Renewable Energy Sources), 2017. The norms are fixed for renewable energy projects as per RE Tariff Regulations and the tariff is levelized for 35 years period with no

additional pass through of additional expenditure. No additional claim for arbitration will be passed on to the existing tariff structure.

6.3.1.5 Operation and Maintenance Expenses (O&M Expenses)

Submission of the petitioner:

As per Regulation 19 and Regulation 31 of the AERC (Terms and Conditions for Tariff determination from Renewable Energy Sources) Regulations, 2017, Normative Operation and Maintenance expenses for MSHEP has been claimed (Rs 36 lakhs/MW for capacity below 5 MW and Rs. 27 lakhs/MW for Capacity 5 MW to 25 MW).

Further Normative O&M expenses for FY 2017-18 has been escalated at the rate of 5.72 % on year as provided by this Hon'ble Commission to arrive at normative O&M expenses for FY 2022-23 as shown below:

Unit No	Configuration	Capacity	O&M Norms for FY 2017-18	FY 2017-18	FY 2018-19	FY 2019-20	FY 2020-21	FY 2021-22	FY 2022-23
		(in MW)	(Lakhs/MW)	Base Year	Pojection	Pojection	Pojection	Pojection	Pojection
1	(3x3 MW)+(1.5x3MW)	13.5	27	3.65	3.85	4.07	4.31	4.55	4.81

Operation and Maintenance expenses claimed for FY 2022-23 is Rs 4.81 Crore

APGCL humbly prays before this Hon'ble Commission to approve the Operation & Maintenance Expenses for FY 2022-23 to FY 2056-57 as claimed by APGCL.

Commission's decision:

As per the AERC RE Tariff Regulation Normative O&M expenses for the first year of the Control period (i.e. FY 2017-18) from 5 MW to 25 MW capacity are fixed as Rs. 27 Lakh/MW. These normative O&M charges arrived at Rs 35.66 Lakh/MW. For FY 2022-23 with an escalation @ 5.72%.

6.3.1.6 Depreciation:

Submission of the petitioner:

APGCL humbly submits before this Hon'ble Commission that APGCL has computed the Depreciation as per Regulation 15 of the AERC (Terms and Conditions for Tariff determination from Renewable Energy Sources) Regulations, 2017, considering Capital Cost of the asset with 10% salvage value.

In accordance with Regulation 15 (2) of the AERC (Terms and Conditions for Tariff determination from Renewable Energy Sources) Regulations, 2017, the rate of depreciation of 5.28% has been considered for the computation of Depreciation for the year. The table below summarizes the Depreciation considered for Performance estimate of MSHEP for FY 2022-23.

Sl. No	Particulars	Depreciation
		FY 2022-23
1	Opening GFA	125.48
2	Addition during the year	4.32
3	Closing	129.81
4	Average GFA	127.65
5	Rate of Depreciation	0.05
6	Total Depreciation	6.07
7	Opening Grant	0.00
8	Additions during the year	0.00
9	Closing grant	0.00
10	Average grant	0.00
11	Rate of Depreciation	0.05
12	Depreciation on grants	0.00
13	Net Depreciation	6.07

APGCL humbly prays before this Hon'ble Commission to approve the Depreciation for FY 2022-23 to FY 2056-57 as claimed by APGCL.

Commission's decision:

The Commission has computed depreciation as per rates specified in the Regulation 15 of the AERC (Terms and Conditions for Tarff determination from Renewable Energy Sources) Regulations, 2017. As per Regulation 15 of RE Regulation 2017, The salvage value of the asset shall be considered as 10% and depreciation shall be allowed up to maximum of 90% of the Capital Cost of the asset. Depreciation rate of 5.28% per annum for first 13 years and remaining depreciation to be spread during remaining useful life of the RE projects considering the salvage value of the project as 10% of project cost shall be considered.

The detailed computation is provided in the calculation sheet enclosed as Annexure.

6.3.1.7 Return on Equity:

Submission of the petitioner:

In accordance with Regulation 16 of the AERC (Terms and Conditions for Tarff determination from Renewable Energy Sources) Regulations, 2017, normative Return on Equity i.e., 14% has been grossed up by prevailing Minimum Alternate Tax (MAT) as on 1st April of previous year i.e., 17.30% (considering 12% as surcharge and 3% of education cess) for the entire useful life of the project. Hence the rate of return on equity arrives at 16.93%.

The Petitioner has determined the Return on Equity (RoE) as per the Regulation 16 of the AERC (Terms and Conditions for Tarff determination from Renewable Energy Sources) Regulations, 2017. APGCL prays before this Hon'ble Commission to approve the Return on Equity as claimed by APGCL.

Particulars	FY 2022-23
Opening Equity	37.65
Addition during Year	1.30
Closing Equity	38.94
Rate of Return	0.17
Return on Equity	6.48

APGCL humbly prays before this Hon'ble Commission to approve the Return on Equity for FY 2022-23 to FY 2056-57 as claimed by APGCL

Commission's decision:

The Commission has approved the Return on Equity in accordance with the Regulation 16 of the AERC (Terms and Conditions for Tarff determination from Renewable Energy Sources) Regulations, 2017. The total project cost arrived is Rs 106.00 Crore. The return on Equity considered is 30% of the total project cost i.e Rs.31.80 Crore. Return on Equity shall be 14%, to be grossed up by prevailing Minimum Alternate Tax (MAT) as on 1st April of previous year for the entire useful life of the project i.e 16.93% approved by the Commission for the for the entire useful life of the project.

6.3.1.8 Interest on loan Capital:

Submission of the petitioner:

As per Regulation 14 of the AERC (Terms and Conditions for Tarff determination from Renewable Energy Sources) Regulations, 2017, the Commission will consider the loan tenure of 13 years for the purpose of determination of tariff.

In view of the above, the Petitioner has computed the Interest on Loan on normative basis for FY 2022-23. As per Regulation 14 (2) of the AERC (Terms and Conditions for Tarff determination from Renewable Energy Sources) Regulations, 2017, the normative interest rate of two hundred (200) basis points above the average State Bank of India Marginal Cost of Funds based Lending Rate (MCLR) (one year tenor) prevalent during the last available six months i.e., i.e., (7.05% + 2.0 %)= 9.05% has been considered.

The table below summarizes the interest on loan and finance charges considered for Performance estimate of MSHEP for FY 2022-23.

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Station	Particulars	Interest on loan(FY 2022-23)
MSHEP	Net Normative Opening Loan	87.84
	Addition of normative loan during the year	3.03
	Normative Repayment during the year	6.07
	Net Normative Closing Loan	84.8
	Avg. Normative Loan	86.32
	Interest Rate	9.05%
	Interest on Loan Capital	7.81
	Add: Bank Charges	0
	Net Interest on Loan Capital	7.81

APGCL humbly prays before this Hon'ble Commission to approve the Interest on Loan for FY 2022-23 to FY 2056-57 as claimed by APGCL.

Commission's decision:

As per Regulation 14 of the AERC (Terms and Conditions for Tariff determination from Renewable Energy Sources) Regulations, 2017,

1) Loan Tenure- For the purpose of determination of tariff, loan tenure of 13 years shall be considered.

2) Interest Rate-The loans arrived at in the manner indicated in Regulation 14 shall be considered as gross normative loan for calculation for interest on loan. The normative loan outstanding as on April 1st of every year shall be worked out by deducting the cumulative repayment up to March 31st of previous year from the gross normative loan. For the purpose of computation of tariff, normative interest rate of two hundred (200) basis points above the average State Bank of India Marginal Cost of Funds based Lending Rate (MCLR) (one year tenor) prevalent during the last available six months shall be considered i.e the Commission considers the Interest rate of 9.05% for the Tariff determination and is calculated on straight line method.

3) The total project cost is Rs 106.00 Crore. APGCL received grant of Rs 80.12 Crore. The total debt arrived is Rs 25.88 Crore. The interest on Loan capital is arrived by considering the debt amount of Rs 25.88 Crore.

6.3.1.9 : Interest on Working Capital (IWC):

Submission of the petitioner:

APGCL humbly submits before this Hon'ble Commission that normative interest on working capital has been claimed as per Regulation 17 (1) of the AERC (Terms and Conditions for Tariff determination from Renewable Energy Sources) Regulations, 2017. The rate of interest on working capital computed at interest rate equivalent to the normative interest rate of three hundred (300) basis points above

the average State Bank of India MCLR (One Year Tenor) prevalent during the last available six months, i.e., (7.05% + 3.0 %) = 10.05%. The plant wise interest on working capital considered is shown in the table below:

Station	Particulars	Interest on Working Capital (FY2022-23)
MSHEP	O&M Expenses for one month	0.4
	Maintenance Spares - 15% of O&M	0.72
	Receivables for two months	4.29
	Total Working Capital Requirement	5.41
	Rate of interest	10.05%
	Interest on Working capital	0.54

Commission's decision:

The Commission has computed the loWC in accordance with the Regulation 17 of the AERC RE Tariff Regulations, 2017. For computation of working capital requirement the Commission has considered the normative O & M expenses.

The rate of interest has been considered equal to the rate equivalent to the normative interest rate of three hundred (300) basis points above the average State Bank of India MCLR (One Year Tenor) prevalent during the last available six months for the determination of tariff i.e. 10.05% loWC approved by the Commission for the Tariff determination.

6.3.1.10 Auxiliary Energy Consumption

(AEC); Submission of the petitioner:

The petitioner has pleaded to the commission to allow AEC at 1% as permitted under AERC (Terms and Conditions for Tariff Determination from Renewable Energy Sources), 2017 for the project specific tariff.

Commission's decision:

The Commission approves AEC of 1% as per the Regulation 30 of the AERC (Terms and Conditions for Tariff Determination from Renewable Energy Sources), 2017.

6.3.1.11 Capacity utilization factor (CUF):

Submission of the petitioner:

The petitioner has sought the CUF norms of 45% as specified in the AERC (Terms and Conditions for Tariff Determination from Renewable Energy Sources), 2017.

Commission's decision:

The Commission approved a CUF of 45% as per the Regulation 29 of the AERC (Terms and Conditions for Tariff Determination from Renewable Energy Sources), 2017.

In view of fore-going decisions, the various parameters considered by the Commission for determination of the project Specific Tariff for the 13.5 MW Myntriang small hydro Electric Plant of the petitioner are given in the table below:





A) OPERATIONAL AND FINANCIAL DATA

SL No.	PARTICULARS	UNIT	APGCL	AERC
1	Installed Capacity	MW	13.50	13.50
2	Annual Gross Generation	MU	53.22	53.22
3	Auxiliary Power Consumption(1%)	MU	0.53	0.53
4	Annual Net Generation	MU	52.68	52.68
5	Project Cost (Certified)	Lakh	12548.36	12548.36
6	Less-Infirm Power (Revenue)			2434.00
7	O & M Expenditure (Allowed)			486.00
8	Total Project Cost (After Adjustment)	Lakh		10600.36
Financial details				
8	Debt (70%) Project cost less Grant	Lakh	8783.85	2588.26
9	Grant from GOA(APGCL Submission)	Lakh		8012.10
10	Equity (30% of Audited Project Cost)	Lakh	3764.51	3180.11
11	Discount rate	%	9.44	9.44

B) NORMS

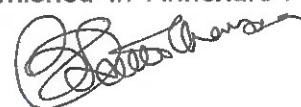
FINANCIAL				
1	O & M	Lakh/MW	35.66	35.66
2	Depreciation Rate	%	5.28%	5.28% for 13 years
				Remaining to be spread to useful life
3	ROE	%	16.93%	16.93%
4	Interest on Term Loan+ 200 BP	%	9.05%	9.05%
5	Interest on working capital	%	10.05%	10.05%
6	O & M Escalation Rate	%	5.72%	5.72%
TECHNICAL				
7	Auxiliary Power Consumption	%	1.00%	1.00%
8	Plant Load Factor (PLF)	%	45.00%	45.00%

C)

A				
	Levellized tariff (Discounted)	Rs./Kwh	4.74	3.86

Considering the above approved parameters, the Commission has determined and approved the levelized discounted tariff of Rs. 3.86/kWh for a period of 35 years from the date of commercial operation. Details of tariff computation are furnished in Annexure-I enclosed.





Other applicable conditions

6.4 Sharing of CDM benefit:

The sharing of Clean Development Mechanism (CDM) benefits shall be as per the provision of AERC (Terms and Conditions for Tariff determination from Renewable Energy Sources) Regulations, 2017 (Regulation 22) which is as under:

The proceeds of carbon credit from approved CDM project shall be shared between generating company and concerned beneficiaries in the following manner, namely

- a) 100% of the gross proceeds on account of CDM benefit to be retained by the project developer in the first year after the date of commercial operation of the generating station ;
- b) In the second year, the share of the beneficiaries shall be 10% which shall be progressively increased by 10% every year till it reaches 50%, where after the proceeds shall be shared in equal proportion, by the generating company and the beneficiaries.

6.5 Scheduling:

The 13.5 MW small hydroelectric plant of the petitioner shall be subjected to the scheduling and dispatched code specified under AERC Grid Code, AERC (Forecasting, Scheduling, Deviation Settlement and Related Matters of Solar and Wind Generation Sources) Regulations, 2018.

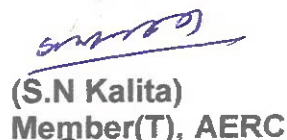
6.6 Taxes and duties:

The tariff determined under this order shall be exclusive of taxes and duties as may be levied by the state/central Govt. and the same shall be passed through on actual incurred basis as specified under Regulation 24 of the AERC (Terms and Conditions for Tariff Determination from Renewable Energy Sources), 2017.

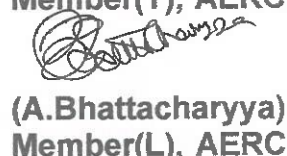
With the above observations and decisions, the tariff petitions (No. 08/2022) stands disposed of.



(K.S.Krishna)
Chairperson, AERC



(S.N Kalita)
Member(T), AERC



(A.Bhattacharyya)
Member(L), AERC

Determination of tariff for Myntiang Small Hydro Plant (MSHEP)

Sl no	Year	1	2	3	4	5	6	7	8	9	10	11	12	13	14	
		2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	
1	Installed Capacity	MW	13.50	13.50	13.50	13.50	13.50	13.50	13.50	13.50	13.50	13.50	13.50	13.50	13.50	
2	Gross Generation @ 45% PLF	MU	53.22	53.22	53.22	53.22	53.22	53.22	53.22	53.22	53.22	53.22	53.22	53.22	53.22	
3	Auxiliary Consumption @ 1%	MU	0.53	0.53	0.53	0.53	0.53	0.53	0.53	0.53	0.53	0.53	0.53	0.53	0.53	
4	Net Generation	MU	52.68	52.68	52.68	52.68	52.68	52.68	52.68	52.68	52.68	52.68	52.68	52.68	52.68	
5	Fixed Cost															
	O & M Expenses	Rs. Lakh	481.37	508.91	538.02	568.79	601.33	635.72	672.09	710.53	751.17	794.14	839.57	887.59	938.36	
	Depreciation	Rs. Lakh	503.73	503.73	503.73	503.73	503.73	503.73	503.73	503.73	503.73	503.73	503.73	503.73	503.73	
	Interest on term loan	Rs. Lakh	225.23	207.21	189.19	171.17	153.16	135.14	117.12	99.10	81.08	63.06	45.05	27.03	9.01	
	Interest on Working Capital	Rs. Lakh	41.27	42.09	42.97	43.92	44.95	46.05	47.23	48.49	49.85	51.30	52.85	54.50	50.40	
	Return On Equity	Rs. Lakh	538.39	538.39	538.39	538.39	538.39	538.39	538.39	538.39	538.39	538.39	538.39	538.39	538.39	
6	Total fixed cost	Rs. Lakh	1790.00	1800.33	1812.30	1826.01	1841.55	1859.03	1878.55	1900.24	1924.22	1950.62	1979.58	2011.24	1695.05	
	Nominal Fixed cost	Rs. /KWH	3.40	3.42	3.44	3.47	3.50	3.53	3.57	3.61	3.65	3.70	3.76	3.82	3.22	
7	Discounted Fixed cost	Rs. /KWH	3.40	3.12	2.87	2.64	2.44	2.25	2.08	1.92	1.77	1.64	1.52	1.42	1.09	
8	Levelised tariff corresponding to useful life	Year	1	2	3	4	5	6	7	8	9	10	11	12	13	14
	O & M expn	Rs. /KWH	0.91	0.97	1.02	1.08	1.14	1.21	1.28	1.35	1.43	1.51	1.59	1.68	1.78	1.88
	Depreciation	Rs. /KWH	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
	Interest on term loan	Rs. /KWH	0.43	0.39	0.36	0.32	0.29	0.26	0.22	0.19	0.15	0.12	0.09	0.05	0.02	0.00
	IWC	Rs. /KWH	0.08	0.08	0.08	0.08	0.09	0.09	0.09	0.09	0.09	0.10	0.10	0.10	0.10	0.10
	ROE	Rs. /KWH	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02
9	Total COG	Rs. /KWH	3.40	3.42	3.44	3.47	3.50	3.53	3.57	3.61	3.65	3.70	3.76	3.82	3.22	3.31
10	Discounted Levelized tariff	Rs. /KWH	3.86													
11	IWC (Interest on Working Capital)															
	O & M Expenses for one month	Rs. Lakh	40.11	42.41	44.83	47.40	50.11	52.98	56.01	59.21	62.60	66.18	69.96	73.97	78.20	82.67
	Receivables equivalent to 2 months of Energy charges	Rs. Lakh	298.33	300.06	302.05	304.34	306.93	309.84	313.09	316.71	320.70	325.10	329.93	335.21	282.51	290.29
	Maintenance spares @ 15% of O & M expenses	Rs. Lakh	72.21	76.34	80.70	85.32	90.20	95.36	100.81	106.58	112.68	119.12	125.93	133.14	140.75	148.81
12	Working Capital	Rs. Lakh	410.65	418.80	427.59	437.05	447.24	458.17	469.91	482.50	495.98	510.40	525.83	542.31	501.46	521.77
	Interest on Working Capital	Rs. Lakh	41.27	42.09	42.97	43.92	44.95	46.05	47.23	48.49	49.85	51.30	52.85	54.50	50.40	52.44
13	Discount Factor (Based on Discount rate @ 9.44%)		1.00	0.91	0.83	0.76	0.70	0.64	0.58	0.53	0.49	0.44	0.41	0.37	0.34	0.31

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15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35
2036	2037	2038	2039	2040	2041	2042	2043	2044	2045	2046	2047	2048	2049	2050	2051	2052	2053	2054	2055	2056
13.50	13.50	13.50	13.50	13.50	13.50	13.50	13.50	13.50	13.50	13.50	13.50	13.50	13.50	13.50	13.50	13.50	13.50	13.50	13.50	13.50
53.22	53.22	53.22	53.22	53.22	53.22	53.22	53.22	53.22	53.22	53.22	53.22	53.22	53.22	53.22	53.22	53.22	53.22	53.22	53.22	53.22
0.53	0.53	0.53	0.53	0.53	0.53	0.53	0.53	0.53	0.53	0.53	0.53	0.53	0.53	0.53	0.53	0.53	0.53	0.53	0.53	0.53
52.68	48.69	48.69	48.69	48.69	48.69	48.69	48.69	48.69	48.69	48.69	48.69	48.69	48.69	48.69	48.69	48.69	48.69	48.69	48.69	48.69

1048.78	1108.77	1172.19	1239.24	1310.12	1385.06	1464.29	1548.04	1636.59	1730.21	1829.17	1933.80	2044.42	2161.36	2284.99	2415.69	2553.87	2699.95	2854.38	3017.65	3190.26
158.89	158.89	158.89	158.89	158.89	158.89	158.89	158.89	158.89	158.89	158.89	158.89	158.89	158.89	158.89	158.89	158.89	158.89	158.89	158.89	158.89
54.76	57.21	59.80	62.54	65.44	68.51	71.75	75.17	78.79	82.62	86.66	90.94	95.46	100.25	105.30	110.64	116.29	122.27	128.58	135.25	142.31
538.39	538.39	538.39	538.39	538.39	538.39	538.39	538.39	538.39	538.39	538.39	538.39	538.39	538.39	538.39	538.39	538.39	538.39	538.39	538.39	538.39
1800.82	1863.26	1929.27	1999.07	2072.85	2150.85	2233.32	2320.50	2412.67	2510.11	2613.12	2722.03	2837.16	2958.88	3087.57	3223.61	3367.44	3519.49	3680.24	3850.19	4029.86
3.42	3.83	3.96	4.11	4.26	4.42	4.59	4.77	4.95	5.15	5.37	5.59	5.83	6.08	6.34	6.62	6.92	7.23	7.56	7.91	8.28
0.97	0.99	0.94	0.89	0.84	0.80	0.76	0.72	0.68	0.65	0.62	0.59	0.56	0.53	0.51	0.48	0.46	0.44	0.42	0.40	0.39

15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35
1.99	2.28	2.41	2.54	2.69	2.84	3.01	3.18	3.36	3.55	3.76	3.97	4.20	4.44	4.69	4.96	5.24	5.54	5.86	6.20	6.55
0.30	0.33	0.33	0.33	0.33	0.33	0.33	0.33	0.33	0.33	0.33	0.33	0.33	0.33	0.33	0.33	0.33	0.33	0.33	0.33	0.33
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.10	0.12	0.12	0.13	0.13	0.14	0.15	0.15	0.16	0.17	0.18	0.19	0.20	0.21	0.22	0.23	0.24	0.25	0.26	0.28	0.29
4.02	4.11	4.11	4.11	4.11	4.11	4.11	4.11	4.11	4.11	4.11	4.11	4.11	4.11	4.11	4.11	4.11	4.11	4.11	4.11	4.11
3.42	3.83	3.96	4.11	4.26	4.42	4.59	4.77	4.95	5.15	5.37	5.59	5.83	6.08	6.34	6.62	6.92	7.23	7.56	7.91	8.28

87.40	92.40	97.68	103.27	109.18	115.42	122.02	129.00	136.38	144.18	152.43	161.15	170.37	180.11	190.42	201.31	212.82	225.00	237.87	251.47	265.86
300.14	310.54	321.55	333.18	345.47	358.48	372.22	386.75	402.11	418.35	435.52	453.67	472.86	493.15	514.59	537.27	561.24	586.58	613.37	641.70	671.64
157.32	166.32	175.83	185.89	196.52	207.76	219.64	232.21	245.49	259.53	274.38	290.07	306.66	324.20	342.75	362.35	383.08	404.99	428.16	452.65	478.54
544.85	569.26	595.06	622.33	651.17	681.66	713.89	747.96	783.98	822.07	862.33	904.89	949.89	997.46	1047.76	1100.93	1157.14	1216.57	1279.40	1345.82	1416.04
54.76	57.21	59.80	62.54	65.44	68.51	71.75	75.17	78.79	82.62	86.66	90.94	95.46	100.25	105.30	110.64	116.29	122.27	128.58	135.25	142.31
0.28	0.26	0.24	0.22	0.20	0.18	0.16	0.15	0.14	0.13	0.11	0.10	0.10	0.09	0.08	0.07	0.07	0.06	0.06	0.05	0.05

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