

EXECUTIVE SUMMARY - CASE NO. 57 OF 2023

1. OVERVIEW

This document intends to give overview of the Petition filed by Shreehari Associates Private Limited (“**Petitioner**” / “**SAPL**”) under the provisions of Electricity Act, 2003 (“**Act**”) and more particularly under sections 61, 62(1)(a) and 86(1)(e) of the Act read with regulation 9.1(c) of the Maharashtra Electricity Regulatory Commission (Terms and Condition for Determination of Renewable Energy Tariff) Regulations, 2019 (“**MERC Regulations, 2019**”) for seeking determination of project specific tariff for supply of power from its Small Hydro Project situated at Village of Igatpuri Taluka in Nashik District with an installed capacity of 1.45 MW (1 x 1.45 MW) (“**Mukane Hydro Electric Project**”) and seeking appropriate directions to Maharashtra State Electricity Distribution Company Limited (“**Respondent No. 1**” / “**MSEDCL**”) for granting permission to commission the Mukane Hydro Electric Project.

The Petitioner is a company incorporated under the Companies Act, 1956 having its registered office at Saisharan, Gut No. 41, Paithan Road, Golwadi, Aurangabad, Maharashtra - 431005, India and is involved in the business of constructing, testing, commissioning and operating the renewable and non-renewable generating stations across the State of Maharashtra.

The Petitioner’s Mukane Hydro Electric Project is an irrigation-cum-power multi-purpose project with a power generation potential of 1.45 MW. Mukane Hydro Electric Project was awarded to Petitioner by the Water Resources Department, Government of Maharashtra (“**Respondent No. 2**” / “**GOMWRD**”) under a Build-Operate-Transfer (“**BOT**”) basis. The power generation by Mukane Hydro Electric Project is dependent on the water released for irrigation requirements and utilises water from the dam to generate electricity.

GOMWRD vide its policy dated September 15, 2005 (“**2005 Policy**”) issued various measures for promotion of private sector participation in establishing and commissioning of Small Hydro Power Projects (“**SHP**”) with an installed capacity up to 25 MW in the State of Maharashtra and the same intended to encourage both captive power producers (“**CPP**”) and independent power producers (“**IPP**”) of hydro power.

The SHP sites are offered for development to CPPs and IPPs through a bidding process and the SHPs proposed for development are installed on a BOT basis. Accordingly, the site of Mukane Hydro Electric Project was offered to be developed by GOMWRD and in pursuance of the same, Petitioner submitted its proposal vide its letter dated January 23, 2008 to GOMWRD for developing the said SHP site in its capacity as an IPP.

GOMWRD after ascertaining that the scheme is capable of harnessing optimally the hydro power potential available at site consistent with scheme, allotted the Mukane Hydro Electric Project to the Petitioner vide the letter of allotment dated August 21, 2009 (“**LOA**”) and gave

permission to develop with the installed capacity of 1.45 MW subject to fulfilment of terms and conditions as stipulated therein.

The Petitioner and GOMWRD entered into a Hydro Power Development Agreement (“**HPDA**”) dated October 11, 2010 to be operative for a period of thirty (30) years from the effective date viz; date of commissioning of project.

On March 15, 2014, the Petitioner sent a proposal to MSEDCL for selling the power generated from Mukane Hydro Electric Project to the tune of 1.45 MW to MSEDCL at an approved tariff rate determined by the Hon’ble Maharashtra Electricity Regulatory Commission (“**Commission**”).

On May 6, 2015, the Petitioner and MSEDCL entered into an Energy Purchase Agreement (“**EPA**”) for selling the energy generated at Mukane Hydro Electric Project to the tune of 1.45 MW at the tariff of Rs. 4.44/Kwh (with accelerated depreciation) and Rs. 5.06/Kwh (without accelerated depreciation) for the entire term of the EPA i.e., thirty-five (35) years.

On April 11, 2018, provisional Permission to Commission (“**PTC**”) was granted to Mukane Hydro Electric Project and MSEDCL duly approved synchronization of new hydro turbines at Mukane Hydro Electric Project site. It is further submitted that the said commissioning approval was granted only for a period of thirty (30) days. In the said PTC, one condition pertaining to providing visibility of real time generation data to State Load Dispatch Centre (“**SLDC**”) through RTU-DC and V-SAT was imposed for the first time, which could not be achieved by the Petitioner despite of numerous efforts in a short span of mere thirty (30) days. Due to the same, said provisional PTC got lapsed.

On May 16, 2018, the Ministry of Industry, Energy and Labour, Government of Maharashtra (“**GoM**”) issued subsequent provisional charging permission with respect to Mukane Hydro Electric Project along with ancillary equipments and provisional charging permission dated May 19, 2018 with respect to the 33KV lines connected to Mukane Hydro Electric Project and 33/11KV sub-station.

On June 2018, 33 KV lines emanating from Mukane Hydro Electric Project were charged in presence of the officers of MSEDCL.

On October 1, 2019, Ministry of Industry, Energy and Labour, GoM granted final charging permission with respect to Mukane Hydro Electric Project with allied equipments.

The Ministry of Industry, Energy and Labour, GoM granted a charging permission dated January 24, 2020 to the Petitioner with respect to 33 KV lines erected at Mukane Hydro Electric Project.

On September 15, 2021, GOMWRD sent a letter thereby intimating to the Petitioner that despite completion of mechanical inspection of Mukane Hydro Electric Project in December, 2016, the same has not been operationalized and in lieu thereof, Accountant General, Mumbai has raised an objection for revenue loss to the GoM. GOMWRD further directed the Petitioner to submit the planned program of project implementation to GOMWRD.

On September 20, 2021, the Petitioner pointed out the entire list of events in order to demonstrate that the delay has occurred not due to the laxity of the Petitioner, on the contrary, the same has occurred due to various administrative reasons and delayed approvals granted by MSEDCL.

On December 28, 2021, the Petitioner herein submitted the implementation report of Mukane Hydro Electric Project before GOMWRD and accordingly, it was acknowledged by GOMWRD that Mukane Hydro Electric Project is at the final stage of commissioning and all required installations and tests have been successfully conducted for pre and final commissioning of the said hydro project.

On January 27, 2022, as per Clause 6 of Schedule IV of the EPA, Petitioner informed MSEDCL that Mukane Hydro Electric Project is at the final stage of commissioning and all the required tests including voltage built up, charging of transformers, charging of all HT 33KV & LT 3.3 KV panels and all control panels are in process. After all the technical aspects were confirmed, Mukane Hydro Electric Project was connected to the grid on February 11, 2022 and the power generation was started and was injected into the grid of MSEDCL till February 16, 2022 i.e., for six (6) days on the trial basis in order to ascertain the position that Mukane Hydro Electric Project is ready to be commissioned and also generate power for the purpose of supplying electricity to MSEDCL.

On February 25, 2022 and March 3, 2022, the Petitioner duly informed Executive Engineer, Nandur Madhmeshwar Project Division, GOMWRD and MSEDCL respectively that Mukane Hydro Electric Project is fully operational and the same may be treated to be commissioned from February 11, 2022. GOMWRD acknowledged and treated Mukane Hydro Electric Project to be commissioned in the year 2022 and reflected the name of Mukane Hydro Electric Project on its official web-site under the category of commissioned projects.

During 2022, Petitioner and MSEDCL had disputes pertaining to the issuance of PTC with respect to Mukane Hydro Electric Project in order to submit the same before the nodal authorities of GOMWRD and for starting the operation of Mukane Hydro Electric Project

On July 3, 2022, the Petitioner then issued a detailed letter to MSEDCL, pointing out that all the work related to pre-commission testing, trial synchronizing and testing after synchronizing by continuously running the hydro power plant for more than one hundred and three (103) hours and generating and supplying 1,07,940 units to MSEDCL from February 11, 2022 till

February 16, 2022. Further Petitioner also suggested to proposed for adoption of Rs. 4.50/- (calculated as per average of last 10 years of MERC preferential tariff for SHPs) as ad hoc tariff for the interregnum period till the tariff is determined by this Hon'ble Commission.

On October 20, 2022, MSEDCL subsequently issued a letter to the Petitioner, wherein, MSEDCL agreed for issuing PTC to Petitioner by waiving all the objections raised by MSEDCL except for the condition of determination of project specific tariff for the Mukane Hydro Electric Project. However, vide said letter MSEDCL also clarified that PTC could be issue to Petitioner only upon furnishing an undertaking of the effect that the power supplied from Mukane Hydro Electric Project to MSEDCL shall be treated as lapsed and Petitioner shall not be entitled for any claim for the said energy until the tariff is determined by Hon'ble MERC.

Lastly, on January 10, 2023, the Petitioner sent a letter to MSEDCL with a prayer of determining ad-hoc tariff until determination of project specific tariff by Hon'ble MERC, however, no heed was paid by MSEDCL to the said request made by Plaintiff. Therefore, the Petitioner filed the present petition before the Hon'ble Commission. A copy of said Petition along with Replies to Data Gaps is available on the website of Hon'ble Commission.

2. PROJECT DETAILS

The GoM through its policy No. PVT-1204/(160/2004)/HP dated September 15, 2005 had announced the policy for hydro power development through private sector participation. GOMWRD through the bidding process vide their letter No. CE(E)/HP/D-2/T-1/Pvt/Mukane/115, dated July 04, 2008 have allotted the Mukane Hydro Electric Project to the Petitioner for development through private investment.

The Mukane Hydro Electric Project is located 20 kms from Nashik at Mukane village in Taluka Igatpuri, District - Nashik in the state of Maharashtra. All weather tar road exists right up to the project site.

Mukane Hydro Electric Project is a Dam foot Hydro-electric project and has been planned by utilizing the discharges of Mukane reservoir in to Darna River through Aundha nalla. It is proposed to generate power from the releases to be made available through head. regulator. The proposed power scheme consists of extending the existing penstock up to the power house butterfly valve, power house, tail race pool, tail race channel and switchyard. The level at the confluence of TRO with irrigation canal is 572.370m and therefore we shall connect the tail water discharge to irrigation canal joining Aundha nalla.

The Mukane dam has been constructed across Aundha nalla which is a tributary of Darna River. The total catchments area of project is 129.60 sq.km. The Mukane dam comprises of earthen dam in the main gorge portion. The length of the dam is 1427m (excluding spillway).

The top width of dam is 6.5m and maximum height of 25.83m. A head regulator is provided @ Ch 1150 for regulating the flows back into the river for feeding the Nandur Madhmeshwar pick up weir. A concrete slipway is provided in the center of the dam. The dam has already been constructed.

The Petitioner's Mukane Hydro Electric Project is an irrigation-cum-power multi-purpose project with a power generation potential of 1.45 MW. Mukane Hydro Electric Project was awarded to Petitioner by the GOMWRD under a BOT basis. The power generation by Mukane Hydro Electric Project is dependent on the water released for irrigation requirements and utilises water from the dam to generate electricity.

3. STATUS OF THE PROJECT

The Project is commissioned on July 12, 2023 pursuant to PTC dated July 4, 2023.

4. INSTALLED CAPACITY & DESIGN GENERATION:

Sr. No.	SHP Name	Project Name	Capacity (MW)	Location	PPA date
1.	Shreehari Associates Pvt. Ltd	Mukane	1.45	Nashik	06.05.2015

Topographic surveys, geological studies, construction material survey, electrical power evacuation study, rate analysis, etc., were carried out covering the entire portion of the project site. Various alternatives from techno-commercial angle were studied before finalizing any particular alternative. Also, adequate data regarding the inflow, rainfall, reservoir levels, irrigation releases, upstream utilization etc. was made available for the study.

The storage of the Mukane dam is planned for 50% dependable yield and the utilization is planned for 75% dependable yield. Thus, carryover of 72.00 Mcum is available for meeting the increased demands in future. There is a phased reservation of Nasik Municipal Corporation for drinking water directly from upstream of dam. The proposed reservation which is as follows:

Year	Proposed Reservation (Mcum)
2011	18.97
2021	28.32
2031	69.10
2041	165.25

From the hydrological studies, future reservation studies and power potential studies a project with installed capacity of 1 x 1450 kW is suggested. While fixing project capacity as 1450 kW, the future water withdrawals directly from the reservoir are kept in view. Considering the head and discharge and other parameters the horizontal Francis machine is selected.

While working energy generation, reservoir with 50% inflow & utilization of 75% yield is considered along with time-to-time drinking water requirements of Nasik Municipal Corporation. Thus, three different working tables for different water reservations are prepared and energy generation is worked out. Accordingly for installed capacity of 1450 kW, the energy generation for year 2011, 2021 & 2031 is 3.55, 3.48 and 2.74 Mus respectively. Thus, an average energy generation for 30 years works out to 3.26 Mus and net saleable energy 3.23 Mus is arrived at with 25.67% Capacity Utilization Factor.

It can be seen from the above table of water reservation that from the year 2041 onwards, almost all the live storage i.e., 165.25 Mcum out of 203.97 Mcum live storage will be lifted by Nasik Municipal Corporation. In addition, there are storage losses of 32.76 Mcum. Therefore, the power plant may not be able to operate from the year 2041 onwards and the dam will function for drinking water requirement only.

In case the water supply to Nasik Municipal Corporation is continued from upstream of reservoir the life of hydro power plant will cease to expire in the year 2041 and therefore, life of plant cannot be extended any further.

Therefore, Nasik Municipal Corporation water requirement should be met after lifting the water downstream of Mukane dam instead of lifting it directly from upstream side so that hydro power project can also be run simultaneously.

5. CAPITAL COST

The Petitioner has claimed actual capital cost of Mukane Hydro Electric Project as Rs. 15,08,15,957.43/- (Rupees Fifteen Crores Eight Lakhs Fifteen Thousand Nine Hundred and Fifty Seven and Forty Three Paise Only). The detailed bifurcation of the same is reproduced as hereunder:

Particulars	Amount (In Rs.)
Preliminary & Preoperative Expenses	11,73,615/-
Building & Civil Work	4,92,16,070.35/-
Electro Mechanical Work	4,15,71,330.45/-

Grid Connectivity and Transmission Line & Electrical Work	1,13,52,586.52/-
Threshold Premium	79,40,753/-
Upfront Premium	24,45,000/-
Interest on Loan and other Bank Charges	3,23,32,294.14/-
Other Expenses	47,84,307.97
Total	15,08,15,957.43/-
(-) Subsidy	--
Net Cost	15,08,15,957.43/-

The Petitioner submits that there has been escalation in cost as compared to projection made at the time of preparation of entering into EPA, the reasons for the same is as highlighted below:

- **Preliminary works**

Expenses include the Upfront premium of Rs. 24.45 Lacs and threshold premium of Rs. 79.4 Lacs paid to GOMWRD.

Other expenses incurred relate to government fees in relation to stamp duty, registration fee, grid connectivity charges, Maharashtra Energy Development Agency clearance, others clearances, etc.

- **Civil works:**

During the execution of the Mukane Hydro Electric Project, due to very hard rock available at shallow depth at location of power house, major part of tail race channel. As blasting was not permitted, the cutting of rock being a time-consuming process, took more than six (6) months to achieve the required depth.

So, the spent on excavation is 60% more than the expected cost which lead to increase in its cost.

- **Cost towards Evacuation Works:**

At the time of preparing the estimate, the evacuation of power had been envisaged by 33 kV line from nearest sub-station, which is about 2.5 km from the project site.

The Petitioner had to face ROW issues for laying transmission line due to resistance from

local public and also 70% of the line was passing through farmland wherein work was not allowed to be done during peak agricultural season. So, the cost increased due to farmer's compensation.

Also, if the line would have been diverted along the road length, it would have resulted in increase of the line length of transmission line thereby increasing the evacuation cost.

- **Interest During Construction (IDC) till commissioned:**

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 till commencement.

- **Administrative Delay:**

Till the year 2015, 90% of the work related to development and commissioning of the evacuation infrastructure of Mukane Hydro Electric Project was completed and as per the terms of HDP, SAPL was under an obligation to start the operation of Mukane Hydro Electric Project within a period of twenty-four (24) months from the date of issuance of letter of authorization by GOMWRD. GOMWRD vide its letter dated January 5, 2016 and letter dated January 16, 2016 granted extension towards commissioning of Mukane Hydro Electric Project till November 2016.

However, thereafter due to delay of MSEDCL and other authorities in granting permissions which were delayed for reasons not attributable to Petitioner, the Project commissioning got delayed. Though the Project was commissioned on February 11, 2022 due to some disputes with MSEDCL the PTC was issued only July 4, 2023 and Project was commissioned on July 12, 2023, pursuant to interim order of the Hon'ble Commission dated May 8, 2023 in Case No. 57 of 2023. i.e., the present petition. The details of the change in costs are given in the Petition along with the Annexures and Reply to the Data Gaps.

6. BENCHMARK OF CAPITAL COST

In the past orders, it has been observed that approach of benchmarking of capital cost has been adopted by the Hon'ble Commission. The available benchmark for SHP are for new projects, the same is outlined as under:

- (a) Hon'ble Commission, in Generic Tariff Order dated 30 April, 2019 has approved the capital cost as Rs. 636.01 Crore per MW for less than 5 MW and more than 1 MW to

be commissioned in FY 2019-20. This capital cost approved was based on the norms specified for 2015 and derived based on indexation formula applied on actual cost data for period between FY 2010-11 to FY 2014-15.

- (b) 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.
- (c) The cost is comparable to the break-up cost component wise provided by Hon'ble CERC in Explanatory Memorandum to draft CERC RE Tariff Regulations, 2020 which is around Rs. 11.18 Crs/MW.
- (d) As per National Mission on Small Hydro issue by MNRE, the cost in FY 2015, per megawatt of small hydro projects is poignant at about Rs. 8.50 crore to Rs. 9.50 crore per megawatt (MW). Considering the median of Rs. 9 Crore per MW envisaged in FY 2015, actual cost incurred by the Petitioner is ~Rs. 10.1 Crs per MW, resulting in an escalation of around 3.15% per year which is comparatively lower than the inflation of the country witnessed in last 5 years.
- (e) The Hon'ble Commission in its Order dated 26 March 2021 in Case No 208 of 2020 has approved the Capital Cost of 1049.25 Lakh per MW.

7. DETERMINATION OF PROJECT SPECIFIC TARIFF

In line with Regulations 9.1 (c) of prevailing MERC RE Tariff Regulations, 2019, this petition has been filed for determination of Project specific tariff and has proposed a single part tariff as per Regulations 11 of prevailing MERC RE Tariff Regulations, 2019. The performance parameters and financial parameters adopted to determine the tariff are highlighted in the following table:

Parameter	Units	Amount	Rationale
Installed Capacity	MW	1.45	Small Hydro Power Projects
Useful Life of Assets	Years	35	<ul style="list-style-type: none"> Proposed 35 years as per MERC RE Tariff Regulations, 2019.
Tariff Period	Years	35	<ul style="list-style-type: none"> GOMWRD has signed HPDA with the Petitioner for 30 years only and hence requested to Hon'ble Commission to consider as 35 years for EPA.
Capacity Utilisation Factor	%	25.67%	As per Regulations 32 of MERC RE Tariff Regulations, 2019
Auxiliary Consumption	%	1%	As per Regulations 33 of MERC RE Tariff Regulations, 2019
Capital Cost	Rs.	15,08,15,957.43/-	Capital Cost

Capital Subsidy	Rs. Lacs	-	Mukane is eligible for subsidy under following policies, however, no subsidy is granted till date: Policy bearing No. 14(03)2014-SHP dated July 02, 2014 issued by MNRE; and GR No. NCE-2015/C.R 49/Energy-7 dated July 20, 2015 passed by Industries, Energy and Labour Department, Government of Maharashtra.
Debt : Equity	%	70:30	<ul style="list-style-type: none"> • Availed debt of Rs 1055.71 lakhs and balance amount is funded through equity. • As per Regulations 15 of MERC RE Tariff Regulations, 2019, to be considered as Rs. 452.45 lakhs.
Loan Tenure	Year	12	As per Regulations 16.1 of MERC RE Tariff Regulations, 2019
Loan Interest	%	9%	
Depreciation	Rs.	4.44/Kwh and 5.06/Kwh	As per Regulations 17.2 and 17.3 of MERC RE Tariff Regulations, 2019. First 12 year – 5.83% and remaining useful life – 0.87%
Return on Equity	Rs. (In lakhs)	80.74	As per Regulation 18.1 of MERC RE Tariff Regulations, 2019. RoE @14% on 30% of the capital cost which is grossed with MAT rate of 21.55%
Operation and Maintenance Exp.	Rs. (in lakhs)	57.59	As per Regulations 34 of MERC RE Tariff Regulations taken as 3.60% of the capital cost.
Escalation on O&M	%	2.63% per year	As per MERC RE Tariff Regulations read with MYT Regulations, 2019
Rate of Interest on Working Capital	%	8.5% p.a.	As per Regulations 19 of MERC RE Tariff Regulations, 2019 8.5% p.a. based on equivalent to SBI 1 year MCLR + 150 basis points
Water Cess and Charges for maintenance of Intake Structure, Penstock etc.		5 paise per unit with escalation of 5%	Part of O&M

Land Lease Rent		Rs. 1/- per kW per annum with escalation of 5%	Part of O&M
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8. PROPOSED TARIFF

The Petitioner has calculated the levelized project specific tariff for Mukane Hydro Electric Project at Rs. 10.33/kWh for the period of 35 years.

In addition, the Petitioner has sought compensation for the power generated from February 11, 2022 to February 16, 2022 during trial.

9. LEGAL AND STATUTORY PROVISIONS

- Sections 61 and 62(1)(a) of the Electricity Act 2003 (hereinafter referred as the “Act”) mandates the Hon’ble Commission to determine the tariff for supply of electricity by a generating company to the distribution licensee.
- Section 86 (1) (e) of the Act mandates Hon’ble Commission to promote the generation of electricity from renewable sources of energy.
- Hon’ble Commission notified Maharashtra Electricity Regulatory Commission (Terms and Conditions for Determination of Renewable Energy Tariff) Regulations, 2019 (“**MERC RE Tariff Regulations, 2019**”)
- As per Regulation 9 of MERC RE Tariff Regulations, 2019, only the project specific tariff shall be determined the Hon’ble Commission on case to case basis for Small Hydro Projects.
- Regulations 47.1(c), 49.1(a) and 49.2 of MERC (Multi Year Tariff) Regulations, 2019 (“**MYT Regulations, 2019**”)
- Accordingly, the instant Petition has been filed for seeking determination of the Project Specific Tariff for supply of power from the small hydro project viz; Mukane Hydro Electric Project with the installed capacity of 1.4 MW, as per Regulation 9.1 (c) of MERC (Terms and condition for Determination of Renewable Energy Tariff) Regulations, 2019, Section 62 (1) and 86(1)(e) of the Act.

10. PRAYERS OF THE PETITION

- Determine the project specific tariff at the rate of Rs. 10.33/kwh considering net levellised tariff of Rs. 7.69/- (Rupees Seven and Paise Sixty Nine Only) for Mukane Hydro Power Project located at Mukane village, Taluka - Igatpuri, District- Nashik to be applicable for the entire tariff period of thirty five (35) years for supply of power by the Petitioner to MSEDCL as per the terms of EPA dated May 06, 2015;
- Direct MSEDCL to issue Permission to Commission for Mukane Hydro Power Project located at Mukane village, Taluka - Igatpuri, District- Nashik with the installed capacity of 1.45 MW with immediate effect;¹
- Direct MSEDCL to purchase power from Mukane Project and adopt ad-hoc tariff of atleast Rs.3.85 Rupees/kWh till disposal of the Petition;
- Direct MSEDCL to pay compensation to the Petitioner for the power to the tune of 1,07,940 units injected in the grid from 11.02.2022 to 16.02.2022 with interest at the rate of 1.25% per month from March 2022 till payment or realization thereof;
- Grant interim and ad-interim reliefs in terms of prayers(b)and (c) above;
- Award costs of these proceedings and impose exemplary costs; and
- Pass such other Orders as this Hon'ble Commission may deem fit, just and proper in terms of law and equity. Pass such other Orders as this Hon'ble Commission may deem fit, just and proper in terms of law and equity.

¹ Granted on July 4, 2023 and Project is commissioned on July 12, 2023