

# **Annexure-1**

## Annual Report on Technical Performance of MB-II HEP

### 1.1 Overview

1.1.1 The petitioner in compliance of the relevant Regulations of UERC (Terms and Conditions for determination of Tariff) Regulations, 2011 & UERC (Terms and Conditions for determination of Multi Year Tariff) Regulations, 2015 is providing information with regard to the operational performance related to technical parameters of MB-II Hydro Power Station.

1.1.2 The operational parameters considered are:

- (a) Gross generation
- (b) AUX (Auxiliary consumption and Transformation losses)
- (c) Plant Availability factor (PAF)

1.1.3 The information provided in this chapter relates to operational performance:

- Actual in FY 2013-14, 2014-15, 2015-16, 2016-17, 2017-18 (upto 30.09.2017)
- Expected in FY 2017-18 & 2018-19.

### 1.2 Power Station Description

1.2.1 Maneri Bhali Hydroelectric Project II with an installed capacity of 304 MW (4X76 MW) envisages the utilization of head available in the river Bhagirathi between the tail waters of Maneri Bhali Stage I and Stage II Projects. In Maneri Bhali Stage II Project, water is diverted through a barrage at Joshiyara situated near the township of Uttarkashi at about 152 Km from Rishikesh, the nearest railhead. The barrage is designed to divert 142 cumecs of water into a head race tunnel of diameter 6.0 m and length 16 km to generate electricity through a Power Station of 4X76 MW constructed at Dharasu.

1.2.2 The Power Station comprises of four hydro power generating units of 76 MW each. The generator is powered by Francis turbines of 78 MW rated capacity. The rated flow through each turbine is 35.5 cumecs and is discharged to a common tail race channel.

1.2.3 Salient features of the Power Station are provided in form F2.3 of this petition.

### 1.3 Energy Generation

1.3.1 Actual/Expected/Projected energy generation in FY 2013-14, FY 2014-15, FY 2015-16, FY 2016-17, FY 2017-18 & FY 2018-19 is given in the table below:

**Table -1: Actual, Expected & Projected Energy**

Particulars	Norms	2013-14	2014-15	2015-16	2016-17	2017-18	2018-19
		(A)	(A)	(A)	(A)	(E)	(P)
Design Energy/ Actual Generation (MU)	1566.10	833.087	888.10	1221.17	1251.95	1245.77	1227.20
Auxiliary Cons. (%)	0.5%	0.86%	0.94%	0.61%	0.68%	0.74%	0.7%
Transformation/ other losses and consumption (%)	0.5 %						
Net Saleable Energy (MU)	1550.44	825.92	880.94	1213.72	1243.41	1236.57	1218.66

1.3.2 From the above table it is evident that gross generation in FY 2016-17 was 1251.95 MUs. In FY 2018-19 the expected generation is 1227.20 MU.

1.3.3 The AUX (auxiliary and transformation losses) in FY 2016-17 was within normative level. The AUX FY 2017-18 & FY 2018-19 is expected to remain within the normative level.

### 1.4 Plant Availability Factor

1.4.1 The recovery of the Annual Fixed Charges is dependent on the Plant Availability achieved by the Power Station. The principle for recovery of fixed charges on the basis of the availability achieved by the plant has been introduced by the Hon'ble Commission by its regulations UERC (Terms and Conditions for Determination of tariff) Regulations, 2011 & 2015. The petitioner has started computing this factor as per the provisions of the above regulations from FY 2013-14.

**Table 2: Plant Availability Factor**

Particulars	Norms	2013-14	2014-15	2015-16 (A)	2016-17 (A)	2017-18 (E)	2018-19 (P)
NAPAF / PAFM (%)	61.51, 82	39.37	40.03	56.33	65.15	65.75	65.75
	82						
Planned Outages (Hrs)	NA	8140	9019	7344	7070	6720	6720
Forced Outages (Hrs)	NA	2251	436	430	1462	1418	1103

**1.4.2 PAFM:**

NAPAF for Maneri Bhali-II HEP is revised by Hon'ble Commission to 82% for FY 2017-18 and FY 2018-19, However petitioner is unable to achieve approved NAPAF due to following reasons:

- Due to excessive silt in River Bhagirathi water under water parts eroded badly which results in extension of maintenance period of each machine as last year.
- Due to excessive PPM in River Bhagirathi water during monsoon period, Machines shaft seal and other parts were damaged many time and results 355 Hrs of forced outage of machines in the month of July, August and Sep 2017.
- Due to stator earth fault in machine number 4, it was under breakdown for 536 Hrs from 23 August to 14 Sep 2017.

**Table 3: Actual & Expected PAFM (%)**

Actual PAF from 2013-14 to Sept. 2016-17 and anticipated from October 2016 to March 2018														
Sl.No.	Year	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Average
1	2013-14	39.55	49.20	32.43	42.26	63.62	61.20	37.89	33.35	32.69	32.44	36.37	11.42	39.37
2	2014-15	0	0	41.89	84.06	85.14	88.45	56.57	45.74	24.87	30.23	23.38	0.00	40.03
3	2015-16	0.00	55.50	91.30	89.04	91.96	89.39	58.74	45.96	46.89	45.61	43.37	18.17	56.33
4	2016-17	40.04	76.05	99.24	85.50	94.65	93.93	66.94	64.74	48.18	33.98	36.00	42.58	65.15
5	2017-18	51.66	76.10	92.47	86.68	83.11	76.57	69.08	69.08	46.05	46.05	46.05	46.05	65.75
6	2018-19	51.66	76.10	92.47	86.68	83.11	76.57	69.08	69.08	46.05	46.05	46.05	46.05	65.75

  
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The PAFM for 2017-18 is expected to be 65.75% with best possible operation & maintenance efforts. However, till September 2017 Power Station achieved 77.77% PAFM due to better utilization of capacity and availability of water.

**In light of the above, petitioner therefore requests Hon'ble Commission that actual PAFM may be allowed for the FY 2017-18 and FY 2018-19.**

**1.5 Planned Outages:** Planned outages in FY 2018-19 are given below. The Petitioner shall continue to lay emphasis on preventive and planned maintenance of machines for better availability of power station for the year 2017-18 and onwards too.

FY 2018-19				
Unit 1	05-10-2018	13-12-2018	70	AM
Unit 2	25-10-2018	02-01-2019	70	AM
Unit 3	20-12-2018	27-02-2019	70	AM
Unit 4	02-02-2019	12-04-2019	70	AM

  
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