

Annexure-1

Annual Report on Technical Performance of Dhalipur 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, 2015 & UERC (Terms and Conditions for determination of Multi Year Tariff) Regulations, 2018 is providing information with regard to the operational performance related to technical parameters of Dhalipur Hydro Power Station.

The operational parameters considered are:

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

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

- Actual in FY 2016-17, 2017-18, 2018-19 (up to 30.09.2018)
- Expected in FY 2018-19 & projected for the control period 2019-20 to 2021-22.

1.2 Power Station Description

1.2.1 The Dhalipur Power Station of 51 MW (3X17 MW) is a surface type power station and is located on the downstream of the Dhakrani Power Station at a distance of 5 km from Dhakrani Power Station on the power channel which takes off from the Dakpathar Barrage. The Power Station was commissioned during December 1965 to March, 1970. The 5 km long power channel ends at 42.5 m wide and 8.8 m deep Fore bay. From fore bay three steel lined 53 m long and 5 m dia. penstocks are laid to feed water to each of the 3 units installed in the Power Station Water from the tail race flows into Asan River. Design head of the Power Station is 30.48 m. The Dhalipur Power Station is a low head scheme located on power channel with a design discharge of 199.2 cumec.

1.2.2 There are three generating units having vertical Francis turbine directly coupled with synchronous generator. The turbine output is 24,000 HP for a rated net

head of 30.48 m. The generators are designed for a nominal output of 19 MVA with lagging power factor of 0.9 and class “B” insulation

1.2.3 This Power Station was commissioned in the year Dec 1965 to March 1970. Due to continuous operations of machines for past 48-53 years, efficiency of machines has substantially decreased and availability of machines has been adversely affected in spite of best possible efforts and timely maintenance.

1.2.4 Salient features of the Power Station are provided in form F 2.3 of this petition.

1.3 Energy Generation

1.3.1 Actual/Expected/Projected energy generation in FY 2016-17, FY 2017-18, FY 2018-19 & for the control period from FY 2019-20 to FY 2021-22 is given in the table below:

Table 1: Actual, Expected & Projected Energy

Particulars	Norms	2016-17 (A)	2017-18 (A)	2018-19 (E)	2019-20 (P)	2020-21 (P)	2021-22 (P)
Design Energy/ Actual Generation (MU)	192.00	180.40	186.79	202.00	180.00	180.00	180.00
Auxiliary Cons. (%)	0.20%						
Transformation/ other losses and consumption (%)	0.50%	0.81%	0.90%	0.61%	0.85%	0.85%	0.90%
Net Saleable Energy (MU)	190.06	178.93	185.11	201.24	179.87	179.87	179.76

1.3.2 From the above table it is evident that gross generation was less than the design energy of the plant in FY 2017-18 and same is expected during the control period from 2019-20 to 2021-22.

1.3.3 The AUX (auxiliary consumption and transformation losses) has remained on slightly higher side than the normative in FY 2017-18.

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, 2015 & 2018. The petitioner has started computing this factor as per the provisions of the above regulations.

Table 2: Plant Availability Factor

Particulars	Norms	2016-17 (A)	2017-18 (A)	2018-19 (E)	2019-20 (P)	2020-21 (P)	2021-22 (P)
NAPAF/PAFM (%)	61.07%	55.02%	59.64%	60.42%	40.00%	40.00%	50.00%
	58.62%						
Planned Outages (Hrs.)	NA	4,991	4,730	4,584	6,120	6,096	4,224
Forced Outages (Hrs.)	NA	493	222	358	290	324	307

1.4.2 **PAFM:** The Dhalipur Power Station is very old HEP & requires more maintenance hence, has to be shut down for longer periods to carry out maintenance. Further, RMU works has also been planned during the control period for Dhalipur HEP. In view of the above, the Petitioner requests the Hon'ble Commission to kindly consider and approve the NAPAF of Dhalipur HEP for the third control period i.e. from FY 2019-20 to FY 2021-22 as tabulated here above.

Table3: Average PAFM (%)

Sl. No.	Year	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Average
1	2013-14	58.84	69.30	82.01	83.51	63.82	90.90	88.22	63.06	50.51	50.51	56.63	61.28	68.22
2	2014-15	61.02	73.12	83.46	88.54	88.86	82.44	63.06	49.37	46.24	46.37	47.25	58.41	65.68
3	2015-16	63.38	70.83	68.39	88.73	88.60	80.76	44.78	44.43	38.92	41.91	35.20	27.77	57.81
4	2016-17	45.88	50.38	67.07	83.51	86.18	84.45	61.02	45.48	38.66	30.64	44.08	22.87	55.02
5	2017-18	6.21	54.52	59.02	74.51	87.03	90.59	85.33	76.93	61.04	42.25	37.18	41.05	59.64
6	2018-19	48.82	54.59	60.52	80.90	90.45	89.68	68.48	55.85	47.07	42.34	44.07	42.28	60.42

1.4.3 **Planned Outages:** Planned outages on account of annual/capital maintenance in the control period FY 2019-20 to FY 2021-22 are given below. The Petitioner shall continue to lay emphasis on preventive and planned maintenance of machines for better power station availability for the year 2018-19 and onwards too for better power station availability.


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Table 4: Planned Outages

FY	Unit No.	Date of Start	Date of Completion	No of Days	Remarks
2019-20	Unit 1	09-12-2019	31-03-2020	113	RMU
	Unit 2	01-04-2019	08-07-2019	98	RMU
	Unit 3	01-01-2020	14-02-2020	44	AM
2020-21	Unit 1	01-04-2020	08-07-2020	98	RMU
	Unit 2	01-01-2021	14-02-2021	44	AM
	Unit 3	09-12-2020	31-03-2021	112	RMU
2021-22	Unit 1	01-01-2022	14-02-2022	44	AM
	Unit 2	15-02-2022	21-03-2022	34	AM
	Unit 3	01-04-2021	08-07-2021	98	RMU

AM: Annual Maintenance CM: Capital Maintenance RMU: Renovation, Modernisation and Up-gradation


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