

# **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, 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 Dhalipur 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 (up to 30.09.2017)
- Expected in FY 2017-18 & 2018-19.

### 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 45-50 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 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 (A)	2014-15 (A)	2015-16 (A)	2016-17 (A)	2017-18 (E)	2017-18 (P)
Design Energy/ Actual Generation (MU)	192.00	255.165	231.221	202.24	180.49	196.53	182.00
Auxiliary Cons. (%)	0.2%	1.03%	1.04%	0.90%	0.81%	0.68%	0.81%
Transformation/ other losses and consumption (%)	0.5 %						
Net Saleable Energy (MU)	190.66	252.61	228.82	200.42	179.02	195.20	180.53

From the above table it is evident that gross generation in each of the years under consideration is expected to be more than the approved design energy of the Power Station.

**1.3.2** The AUX (auxiliary and transformation losses) in FY 2016-17 has been remained on slightly higher side than the Normative. For FY 2017-18 & FY 2018-19 these are expected 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 with effect from the FY 2013-14. 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	2016-17	2017-18	2018-19
				(A)	(A)	(E)	(P)
NAPAF / PAFM (%)	57.26,	68.22	65.68	57.81	55.02	55.35	59.61
	61.07						
	58.62						
Planned Outages (Hrs)	NA	2450	3968	3887	4991	3336	4320
Forced Outages (Hrs)	NA	908	60	465	493	208	389

1.4.2 **PAFM:** The Dhalipur Hydro Power Station has exceeded the normative plant availability factor determined by the Hon'ble Commission for the FY 2015-16 & is likely to achieve the normative plant availability factor in FY 2018-19. A closure of power station was taken on account of DRIP works at Dakpathar barrage and the power channel from 16.03.17 to 30.04.17 which affects the generation and PAFM in FY 2016-17 & 2017-18. Therefore it is requested that actual PAFM achieved may be allowed during the period from 16.03.17 to 30.04.17 to petitioner for recovery of capacity.

The Petitioner does not seek any deviation in NAPAF from the norms as determined by Hon'ble Commission in its order for FY 2018-19.

**Table3: Actual & Expected PAFM (%)**

Actual PAF from 2013-14 to Sept. 2017-18 and anticipated from October 2017 to March 2018														
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	64.27	50.58	43.58	42.36	45.79	45.79	55.35
6	2018-19	57.28	54.52	59.02	74.51	87.03	90.59	64.27	50.58	43.58	42.36	45.79	45.79	59.61

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

**Table 4: Planned Outages**

FY	Unit	From	To	No. Of Day	Outage Type
2018-19	Unit 1	01-01-2019	14-02-2019	35	AM
	Unit 2	01-11-2018	31-03-2019	151	RMU
	Unit 3	15-02-2019	21-03-2019	35	AM

**AM: Annual Maintenance, CM: Capital Maintenance**

**RMU: Renovation, Modernisation and Up-gradation**

  
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