Annexure-1

Annual Report on Technical Performance of Dhakrani 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 Dhakrani 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 & FY2018-19.

1.2 Power Station Description

1.2.1 Dhakrani Power Station (3X11.25 MW) is located downstream of the Dakpathar Barrage at a distance of 8 km on the power channel which takes off from the Dakpathar Barrage constructed on river Yamuna at Dakpathar. River Tons is a major tributary of Yamuna and meets just before the location of Barrage. Tail water of Khodri Power Station also falls in Yamuna just upstream of the Barrage. The Tail water of Dhakrani Power Station feeds the downstream Dhalipur Power Station on the same power channel.

1.2.2 There are three generating units having vertical Kaplan turbine directly coupled with synchronous generator. The turbine output is 14300 HP for a rated net head of 19.8 m. The generators are designed for a nominal output of 11.25 MW with lagging power factor of 0.9 and class "B" insulation.

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57

1.2.3 This Power Station was commissioned in the year 1965 to 1970. Due to continuous operation of machines for the past 45-50 years, efficiency of machines has substantially decreased and availability of machines has been adversely affected in spite of best efforts, regular 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 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)	2018-19 (P)
Design Energy/ Actual Generation (MU)	156.88	170.64	149.51	137.38	120.20	134.87	143.00
Auxiliary Cons. (%)	0.2%	1.99%	1.63%	1.90%	0.66%	0.79%	0.56%
Transformation/ losses (%)	0.5 % (Tr. losses)						
Net Saleable Energy (MU)	155.78	167.22	147.08	134.77	119.40	133.81	142.20

1.3.2 From the above table it is evident that gross generation in FY 2016-17 remained less than the design energy. Same is expected in FY 2017-18 & FY 2018-19. A closure of power station was taken on account of DRIP works at Dakpathar barrage and the power channel which affect the generation in FY 2016-17 & 2017-18.

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1.3.1 The AUX (auxiliary consumption and transformation losses) has been lower than the normative in FY 2016-17 and expected to be slightly more than the normative level in current year.

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 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 (A)	2016-17 (A)	2017-18 (E)	2018-19 (P)
NAPAF / PAFM (%)	61.04, 66.17 60.94	70.30	64.00	59.06	54.88	54.32	58.88
Planned Outages (Hrs)	NA	3453	4272	3910	3754	640	2520
Forced Outages (Hrs)	NA	884	658	21	12	157	63

1.4.2 **PAFM:** The Dhakrani 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 affected the generation and PAFM in FY 2016-17 & 2017-18. **Therefore it is requested that actual PAFM achieved may be allowed to petitioner during 16.03.17 to 30.04.17 for recovery of capacity charges.**

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.

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59

Table3: Actual & Expected PAFM (%)

Sl.No.	Year	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Average
1	2013-14	59.48	67.86	73.80	90.96	84.70	92.40	87.11	65.64	52.75	51.59	54.99	62.37	70.30
2	2014-15	62.26	66.03	82.95	90.57	91.06	69.03	60.35	46.85	45.43	45.34	47.53	60.64	64.00
3	2015-16	62.96	79.02	76.68	88.84	88.75	81.06	44.85	45.45	41.58	41.00	32.51	25.99	59.06
4	2016-17	43.76	52.55	64.95	83.93	87.69	84.44	59.87	46.25	38.69	30.13	45.72	20.60	54.88
5	2017-18	8.40	52.47	70.02	88.12	88.12	88.89	59.87	46.25	38.69	30.13	45.72	41.20	54.82
6	2018-19	57.12	52.47	70.02	88.12	88.12	88.89	59.87	46.25	38.69	30.13	45.72	41.20	58.88

1.4.3 Planned Outages: Planned outages in FY 2018-19 as 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.

Table 4: Planned Outages

FY	Unit	From	To	No. Of Day	Outage Type
2018-19	Unit 1	15-11-2018	19-12-2018	35	AM
	Unit 2	23-12-2018	27-01-2019	35	AM
	Unit 3	30-01-2019	05-03-2019	35	AM

AM- Annual Maintenance, CM-Capital Maintenance

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60