

Annexure-1

Annual Report on Technical Performance of Ramganga 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 Ramganga 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 Ramganga Power Station has an Installed capacity of 198 MW (3X66 MW). Ramganga Power Station is a Reservoir based scheme on river Ramganga located near the famous Jim Corbett Park in district Pauri Garwhal. Ramganga Power station is a multipurpose project and it serves the purpose of power generation and irrigation in the command area of the canal. It utilizes water stored for irrigation purpose. The water release from Ramganga Dam is regulated by the UP Irrigation Department. The generation is dependent on the rain in the catchment area and on the drawl of water for irrigation purpose in the command area of the canal in the state of Uttar Pradesh.

1.2.2 The surface Power Station is located at the toe of the dam and houses 3 units of 66 MW each with vertical Francis turbines. The Ramganga Power Station is a medium head scheme with a design head of 84.4 m and a design discharge of 285 cum.

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1.2.3 The project has unique challenges in operation due to restriction imposed on the release of water in the water conductor system by the UP irrigation Department which is dependent on the demand of water in the command area of the canal in Uttar Pradesh based on the irrigation requirement.

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) | 2018-19 (P) |
|--|--------|----------------|----------------|----------------|----------------|----------------|----------------|
| Design Energy/ Actual Generation (MU) | 311.00 | 233.4 9 | 265.67 | 503.32 | 181.25 | 234.42 | 216.26 |
| Auxiliary Cons. (%) | 0.2% | 1.53% | 0.38% | 0.24% | 1.05% | 0.45% | 0.88% |
| Transformation/ other losses and consumption (%) | 0.5 % | | | | | | |
| Net Saleable Energy (MU) | 308.82 | 230.0 | 264.65 | 502.11 | 179.35 | 233.37 | 214.36 |

1.3.2 From the above table it is evident that gross generation has been less than the design energy in FY 2016-17 and the energy generation in FY 2017-18 and FY 2018-19 is expected to be less than the design energy. Ramganga Power Station was closed on 21.05.17 and remained closed in June, July, Aug & Sept as Ramganga Dam is regulated by UPID as per irrigation requirement. There is no generation loss at Ramganga Power Station.

1.3.3 The AUX (auxiliary and transformation losses) in FY 2016-17 was slightly higher than normative level. In FY 2017-18 & FY 2018-19, the Auxiliary consumption is expected to be within normative level.

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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 | 2016-17 | 2017-18 | 2018-19 |
|-----------------------|-------|---------|---------|---------|---------|---------|---------|
| NAPAF / PAFM (%) | 19 | 14.71 | 16.7 | 30.07 | 10.81 | 13.20 | 13.20 |
| Planned Outages (Hrs) | NA | 1966 | 1912 | 2104 | 2808 | 10373 | 1488 |
| Forced Outages (Hrs) | NA | 33 | 13 | 40 | 885 | 120 | 348 |

Water release from Ramganga Dam is purely irrigation based and control of which rests with Uttar Pradesh Irrigation Department. Based on water released from the dam during 2016-17 PAFM 10.81% could not be achieved similarly during FY 2017-18 & 2018-19, PAFM of 13.20% is expected to achieve with best efforts of UJVN Ltd. **The petitioner therefore requests before the Hon'ble Commission to revise the NAPAF of Ramganga Power Station on the basis of PAFM achieved.**

Table 3: Actual & Expected PAFM (%)

| Actual PAF from 2013-14 to Sept. 2017-18 and anticipated from October 2017 to March 2019 | | | | | | | | | | | | | | |
|--|---------|-------|-------|-------|-------|-------|-------|-------|------|-------|-------|-------|-------|---------|
| Sl.No. | Year | Apr | May | Jun | Jul | Aug | Sep | Oct | Nov | Dec | Jan | Feb | Mar | Average |
| 1 | 2013-14 | 13.24 | 17.75 | 7.48 | 0.00 | 50.73 | 7.21 | 0.00 | 4.27 | 42.20 | 12.34 | 11.73 | 9.58 | 14.71 |
| 2 | 2014-15 | 0 | 47.42 | 19.48 | 28.61 | 0 | 0.00 | 3.26 | 4.83 | 11.94 | 34.54 | 42.78 | 7.60 | 16.70 |
| 3 | 2015-16 | 0.00 | 6.22 | 16.55 | 43.13 | 65.05 | 35.31 | 39.70 | 1.39 | 16.41 | 51.27 | 49.55 | 36.24 | 30.07 |
| 4 | 2016-17 | 4.41 | 12.24 | 0.00 | 0.00 | 0.00 | 0.00 | 1.97 | 0.00 | 23.90 | 43.61 | 25.07 | 18.57 | 10.81 |
| 5 | 2017-18 | 23.58 | 11.58 | 0.00 | 0.00 | 0.00 | 0.00 | 11.23 | 2.62 | 23.61 | 35.44 | 32.28 | 18.00 | 13.20 |
| 6 | 2018-19 | 23.58 | 11.58 | 0.00 | 0.00 | 0.00 | 0.00 | 11.23 | 2.62 | 23.61 | 35.44 | 32.28 | 18.00 | 13.20 |

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1.5 Planned Outages: Planned outages in FY 2018-19 as given below are purposed. 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 | | | | | |
|--------------------|--------|------------|------------|----|----|
| Ramganga (3x66) | Unit 1 | 15-06-2018 | 15-07-2018 | 31 | AM |
| | Unit 2 | 15-06-2018 | 30-06-2018 | 16 | AM |
| | Unit 3 | 01-07-2018 | 15-07-2018 | 15 | AM |

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