

# ONGC Tripura Power Company Limited

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Ref. No: OTPC/COMML/2024-25/023

29<sup>th</sup> November 2024

**The Secretary,**  
**Central Electricity Regulatory Commission,**  
6th, 7th & 8th Floors, Tower B, World Trade Centre,  
Nauroji Nagar, New Delhi- 110029

**Sub: OTPC Palatana Project – Submission of Multi Year Tariff Petition for FY 24-29**

Dear Sir,

As per Central Electricity Regulatory Commission (Terms and Conditions of Tariff) Regulations 2024, OTPC is submitting the MYT petition for determination of tariff for its Palatana project for control period FY 24-29.

We are serving a copy of the petition to the beneficiaries and shall be publishing an advertisement for the petition in one English and seven vernacular languages of the beneficiary states. The proof of service to beneficiaries and the details of advertisement shall be submitted to Hon'ble Commission soon.

We are submitting 3+1 hard copies of the petition and have also uploaded the submission on e-portal of CERC apart from emailing the details at [registry@cercind.gov.in](mailto:registry@cercind.gov.in)

Thanking you,

Yours faithfully,

**for ONGC TRIPURA POWER COMPANY LIMITED**

  
**Amit Dabas**  
**Head Commercial**



**ONGC Tripura Power Company Limited**  
**726.6 MW (2 X 363.3 MW)**  
**Combined Cycle Gas Turbine (CCGT) Power Plant**  
**Palatana, Tripura**  
**Tariff Determination**  
**for the control period**  
**01.04.2024 to 31.03.2029**



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*[Handwritten Signature]*  
New Delhi  
INDIA



MYT Petition for Determination of Generation Tariff of 726.6 MW Gas Based Generating Station  
for the Control Period 2024-29

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Conditions of Tariff) Regulations, 2024 for approval of Multi-Year Tariff of 726.6 (2 x 363.3) MW Combined Cycle Gas Based Power Palatana Project of ONGC Tripura Power Company Limited for the control period 01.04.2024 to 31.03.2029

AND

IN THE MATTER OF

Petitioner : ONGC Tripura Power Company Limited (OTPC)

**Delhi Office:** 10th Floor, Core- 4 & Central, Scope Minar, Laxmi Nagar, New Delhi-110092

**Registered Office:** ONGC TRIPURA POWER COMPANY LIMITED UDAIPUR-KAKRABAN ROAD, PALATANA P.O, DISTRICT GOMATI, UDAIPUR, South Tripura, TRIPURA-799105 INDIA

Respondents : 1. Assam Power Distribution Company Ltd (APDCL), Government of Assam

2. Department of Power,

Government of Arunachal Pradesh

3. Department of Power,

Government of Nagaland



4. Manipur State Power Distribution Company Ltd  
(MSPDCL), Government of Manipur
5. Power and Electricity Department,  
Government of Mizoram
6. Meghalaya Energy Corporation Ltd (MeECL),  
Government of Meghalaya
7. Tripura State Electricity Corporation Ltd  
(TSECL), Government of Tripura

**AFFIDAVIT**

**MYT Petition (2024-29) for 726.6 MW Palatana Project**

I, Amit Dabas, son of Late Shri Baljit Singh Dabas, aged 44 years and resident of 3<sup>rd</sup> Floor, Plot No-100, Sai Enclave, Sector-23, Dwarka, Delhi-110077 working as Head (Commercial) with ONGC Tripura Power Company Ltd. (the Petitioner), having its registered office at ONGC TRIPURA POWER COMPANY LIMITED UDAIPUR-KAKRABAN ROAD, PALATANA P.O, DISTRICT GOMATI, UDAIPUR, South Tripura, TRIPURA-799105 INDIA, do herein solemnly affirm and state on oath as under:

1. That I am working as Head (Commercial) with ONGC Tripura Power Company Limited (OTPC), the Petitioner, in the above matter and am duly authorized to make this affidavit.



2. That the statement made in the accompanying Petition for approval of tariff of 726.6 (2 x 363.3) MW Combined Cycle Gas Based Power Palatana Project of ONGC Tripura Power Company Limited for the control period 01.04.2024 to 31.03.2029 are based on the official records maintained in the ordinary course of business and they are true and correct to my knowledge, information and belief.
3. OTPC has already submitted a copy of this MYT Petition for the Control Period 2024-29 to the respondents and the proof of service to respondents shall also be furnished to Hon'ble Commission. A copy of this MYT Petition has also been mailed to CERC at the email registry@cercind.gov.in. The requisite tariff determination fee for FY 24-25 has already been deposited by the petitioner.

Place: New Delhi

Date: 29<sup>th</sup> November, 2024

  
Deponent



**VERIFICATION**

Solemnly affirm at New Delhi on the 29th Day of November, 2024 that the contents of the above affidavit are true to my knowledge, no part of it is false and nothing material has been concealed there from.

Date: 29<sup>th</sup> November, 2024

Place: New Delhi

  
Deponent



**BEFORE THE CENTRAL ELECTRICITY REGULATORY COMMISSION, NEW  
DELHI**

**SUB: OTPC PALATANA PROJECT - MYT PETITION FOR THE CONTROL  
PERIOD 2024-29**

IN THE MATTER OF : Approval under Regulation-86 of CERC (Conduct of  
Business) Regulations, 1999 and CERC (Terms and  
Conditions of Tariff) Regulations, 2024 for approval of  
Determination of Tariff of 726.6 (2 x 363.3) MW Combined  
Cycle Gas Based Power Palatana Project of ONGC Tripura  
Power Company Limited for the control period 01.04.2024  
to 31.03.2029.

AND

IN THE MATTER OF

Petitioner

: ONGC Tripura Power Company Limited (OTPC)

**Delhi Office:** ONGC Tripura Power Company Limited,  
10th Floor, Core-4 & Central, Scope Minar, Laxmi Nagar,  
New Delhi- 110092

**Registered Office:** ONGC Tripura Power Company  
Limited, Udaipur-Kakraban Road, Palatana P.O, District  
Gomati, Udaipur, South Tripura, Tripura -799105 India

Respondents

- : 1. Assam Power Distribution Company Ltd (APDCL),  
Government of Assam
2. Department of Power,  
Government of Arunachal Pradesh
3. Department of Power,  
Government of Nagaland
4. Manipur State Power Distribution Company Ltd  
(MSPDCL), Government of Manipur



5. Power and Electricity Department,  
Government of Mizoram
6. Meghalaya Energy Corporation Ltd (MeECL),  
Government of Meghalaya
7. Tripura State Electricity Corporation Ltd (TSECL),  
Government of Tripura



To  
The Hon'ble Chairman and  
His Companion Members of the Hon'ble CERC  
The Humble application filed by the Petitioner

**The Petitioner humbly states that:**

**The Petitioner is filing the present Petition ("Petition") for: -**

1. Determination of Generation Tariff period commencing from FY 2024-25 to FY 2028-29 in terms of Regulation 9(2) of CERC (Terms and Conditions of Tariff) Regulations, 2024 read with Regulation 86 of CERC (Conduct of Business) Regulations, 1999 and Section 79 of the Electricity Act, 2003 for the 726.6 MW Generating Station of the Petitioner at Tripura.
2. Filled Tariff Formats as prescribed by Hon'ble Commission for Control Period 2024-29 is annexed hereto and marked as **Annexure-A1**.

## **1 BACKGROUND**

- 1.1 The Petitioner herein, ONGC Tripura Power Company Limited ("Petitioner"/ "OTPC"), is a company incorporated under the provisions of the erstwhile Companies Act, 1956 (now replaced with Companies Act, 2013), having its registered office at 'ONGC Tripura Asset, Badarghat Complex, Agartala, Tripura-799 014' and head office at at 'ONGC Tripura Power Company, 10<sup>th</sup> Floor, Core-4 & Central, Scope Minar, Laxmi Nagar, New Delhi- 110092'. Further, it is a 'Generating Company' as defined under Section 2 (28) of the Electricity Act, 2003.
- 1.2 The Petitioner is a joint venture of ONGC, GAIL and Government of Tripura. The Petitioner, ONGC Tripura Power Company Ltd (OTPC) had successfully commissioned a 726.6 (2 x 363.3) MW Combined Cycle Gas Turbine (CCGT) Project at Palatana, Tripura.
- 1.3 Ministry of Power, Government of India, had allocated a capacity of 628 MW (86.5%) from the Project to Northeastern States and the balance capacity of 98 MW (13.5%) is towards merchant sale. Subsequently, vide supplementary PPA dated 15.2.2022 the capacity allocation has modified, the percentage share of Northeastern States has increased to 683.59 MW (94.08%) from the Project and the balance capacity of 43.01



MW (5.92%) is towards merchant sale. The documentary evidence regarding the allocation of power is attached as **Annexures A2(a) & A2(b)**.

- 1.4 Section 62 of Electricity Act, 2003 provides for determination of tariff by the Appropriate Commission for supply of electricity by a generating company. The Hon'ble Commission under Section 79(1) (b) of Electricity Act, 2003 is vested with Jurisdiction to regulate the tariff of the interstate generating stations. The pertinent information and computation of tariff for the Project have been provided in **Annexure - A1** in Tariff Forms, as specified under CERC (Terms and Conditions of Tariff) Regulations, 2024.
- 1.5 The Petitioner submits that Block-1/Unit-I (363.3 MW) of the Palatana Project was declared under commercial operation w.e.f. 00:00 Hours of 04.01.2014. The Petitioner had submitted the Petition No. 199/GT /2013 for determination of the generation tariff of the Block-1 (Unit-I) of the 363.3 MW Combined Cycle Gas Based Palatana Power Project for the period from the COD of Block-1 (Unit-I), i.e. from 04.01.2014 to 31.03.2014. The Hon'ble Commission had issued final tariff order on August 31, 2015, for the same.
- 1.6 **The Petitioner further submits that Block-2/Unit-II (363.3 MW) of the Project was declared under commercial operation w.e.f. 00:00 Hours of 24.03.2015. The Petitioner has submitted the Petition No. 129/GT/2015 for approval of capital cost of the entire Project after the COD of Block-2 (Unit-II) of the Project and for the determination of MYT for the period from 01.04.2014 to 31.03.2019. Accordingly, the Hon'ble Commission had issued final tariff order on March 30, 2017, and Corrigendum on May 3<sup>rd</sup>, 2017 in Petition no. 129/GT/2015.**
  - 1.1. Subsequently, the Petitioner had submitted the Petition No. 108/GT/2020 for True-up of tariff for the period 2014-19 on 31.10.2019, for which the Hon'ble Commission has issued final tariff order on 18.12.2021 and Corrigendum 20.12.2022.
  - 1.2. The Petitioner had submitted the Petition No. 109/GT/2020 for determination of tariff for the period 2019-24 on 31.10.2019, for which the Hon'ble Commission has issued final tariff order on 11.1.2022.
- 1.7 Further, in compliance to the Hon'ble Commission's directions in 109/GT/2020, the Petitioner has filed Petition No. 163/MP/2023 dated 9.5.2023 which is pending before the Hon'ble Commission for disposal.



- 1.8 Further, in compliance to the Hon'ble Commission's directions in 109/GT/2020, the Petitioner has filed Petition No. 163/MP/2023 dated 09.05.2023 which is pending before the Hon'ble Commission for disposal.
- 1.9 The Petitioner has also filled Petition before the Hon'ble Commission for True up of tariff for period 2019-24.

## 2 PRESENT SUBMISSION

- 2.1 The Hon'ble Commission has notified the Central Electricity Regulatory Commission (Terms and Conditions of Tariff) Regulations, 2024 (hereinafter "Tariff Regulation 2024) which have come into force from 1.4.2024 and specify the terms and conditions and methodology of tariff determination under section 62 & 79 of Electricity Act, 2003.
- 2.2 In accordance with Tariff Regulations 2024, the Petitioner is filling this Tariff Determination Petition based on Capital cost submitted for True-up of tariff for 2019-24 period and projected additional capital expenditure proposed to be incurred during 2024-29 period.
- 2.3 The present Petition is being filed as per the Central Electricity Regulatory Commission (Terms and Conditions of Tariff) Regulations, 2024 along with the tariff forms as prescribed in said regulations for the gas based thermal generating stations. These relevant tariff forms are enclosed as **Annexure-A1**.

## 3 CAPITAL COST OF THE PROJECT

- 3.1 The Petitioner has submitted the instant the Petition for approval of tariff for the 2024-29 control period. The Petitioner has considered the closing capital cost as on 31.3.2024 as arrived in the True-up Petition for 2019-24 period, as opening capital cost as on 1.4.2024 in the instant petition. The Petitioner has claimed following capital cost in True up Petition:

**Table 1: Details of Capital cost**

*(Rs. Lakh)*

	2019-20	2020-21	2021-22	2022-23	2023-24
Opening Capital Cost	3,33,337.85	3,62,128.95	3,62,491.07	3,64,918.27	3,67,755.82
Add: Addition during the year/period	11,327.19	480.22	4,423.46	2,620.59	2,179.04
Less: De-capitalisation during the year/period	135.98	264.44	2,043.04	1,230.48	1,167.50

	2019-20	2020-21	2021-22	2022-23	2023-24
Less: Reversal during the year / period	-	-	-	-	-
Add: Discharges during the year/ period	6,899.89	146.34	46.78	1,447.44	-
Add: Deemed Discharges during the year/ period	10,700.00	-	-	-	-
<b>Closing Gross Block</b>	<b>3,62,128.95</b>	<b>3,62,491.07</b>	<b>3,64,918.27</b>	<b>3,67,755.82</b>	<b>3,68,767.37</b>

#### 4 Additional Capital Expenditure during the control period

a) During the 2024-29 control period, the Petitioner is proposing the following additional capital expenditure towards system strengthening and system optimisation. The details of such expenditure are presented in Form 9 and the same are reproduced below for ease of reference:

**Table 2: List of projected Additional Capital Expenditure under Normal RoE**

*(Rs. Lakh)*

Sr No.	Additional Capital expenditure	2024-25	2025-26	2026-27	2027-28	2028-29
1	Replacement of Gear Set Assembly in Hydraulic Coupling	0.00	200.00	0.00	0.00	0.00
2	Replacement of Fill Sheets and Spray Nozzles	0.00	0.00	0.00	650.00	0.00
3	Blades of LP Turbines	0.00	0.00	0.00	1634.00	1732.00
4	Battery Bank Replacement	473.00	390.00	250.00	0.00	0.00
5	Switchyard Breaker	0.00	0.00	0.00	150.00	0.00
6	GE Multilin Relay Replacement	0.00	60.00	0.00	0.00	0.00
7	Flow Restrictor and Bus Bar Replacement	200.00	250.00	0.00	0.00	0.00
8	H2 Plant Cell Skid Replacement	55.00	56.00	0.00	0.00	0.00
9	150 A UPS 1&2 Upgradation	0.00	40.00	0.00	0.00	0.00
10	100KVA 240VAC UPS-1&2 with Battery Bank for MaxDNA Control System and CCR HMI	0.00	200.00	200.00	0.00	0.00
11	Retrofitting of Existing ACBs	0.00	22.00	0.00	0.00	0.00
12	Bearing Pedestal for STG-I	0.00	80.00	0.00	0.00	0.00
13	Max DNA(DCS) Software/firmware Upgradation	0.00	0.00	50.00	50.00	0.00
<b>Total</b>		<b>728.00</b>	<b>1298.00</b>	<b>500.00</b>	<b>2484.00</b>	<b>1732.00</b>

**Table 3: List of projected Additional Capital expenditure beyond Original Scope of Work**

*(Rs. Lakh)*

Sr No.	Additional Capital expenditure	2024-25	2025-26	2026-27	2027-28	2028-29
1	TG Hall EOT Crane	250.00	0.00	0.00	0.00	0.00
2	Ventilation System in Switchgear Room	115.00	0.00	0.00	0.00	0.00
3	Spray Water Networks	120.00	0.00	0.00	0.00	0.00
4	Upgradation Cooling Tower for HVAC	0.00	30.00	0.00	0.00	0.00

Sr No.	Additional Capital expenditure	2024-25	2025-26	2026-27	2027-28	2028-29
5	Air Receivers	25.00	0.00	0.00	0.00	0.00
6	FRP HCl Tank	0.00	20.00	0.00	0.00	0.00
7	Power Optimization of GBC by installation of VFD	0.00	0.00	2000.00	0.00	0.00
8	Generator Health Monitoring System	0.00	0.00	150.00	0.00	0.00
9	Generator Flux Monitoring System	0.00	0.00	150.00	0.00	0.00
10	Station Bus Fast Bus Transfer System	0.00	60.00	0.00	0.00	0.00
11	Energy management System	38.00	0.00	0.00	0.00	0.00
12	Solar Based Street Light	15.00	15.00	15.00	15.00	0.00
13	GBC PMCC Modification	0.00	50.00	0.00	0.00	0.00
14	Online Moisture Removal System	0.00	0.00	25.00	25.00	0.00
15	VFD Installation	10.00	10.00	75.00	75.00	0.00
16	Online Flux Monitoring System for Gas Turbine generators	0.00	0.00	0.00	195.00	0.00
17	GBC Master Auto Control Logic Implementation	0.00	110.00	0.00	0.00	0.00
18	Hazardous Gas Detection System for GBC	40.00	0.00	0.00	0.00	0.00
19	FGMO Implementation for Both Gas Turbine	0.00	450.00	450.00	0.00	0.00
20	Procurement of Gas Mass Flow Meters	0.00	50.00	50.00	50.00	0.00
21	UPS for HMIs	0.00	20.00	0.00	0.00	0.00
22	Smoke Detectors for MCC rooms of BOP Area	0.00	40.00	0.00	0.00	0.00
23	CCTV Surveillance for Plant Area	0.00	170.00	0.00	0.00	0.00
24	Purchase of Performance & Analytics Software	420.00	0.00	0.00	0.00	0.00
25	Side Stream Filter for Cooling Tower	0.00	1350.00	0.00	0.00	0.00
26	Installation of Zero Liquid Discharge	0.00	0.00	500.00	0.00	0.00
27	Construction of H2 Cylinder Storage Building	20.00	80.00	0.00	0.00	0.00
28	Construction of Well Type Pump House (River Water Pump House)	0.00	90.00	100.00	150.00	100.00
29	Construction of Watch Tower	0.00	150.00	120.00	120.00	180.00
30	Procurement of Fire Tender	0.00	80.00	0.00	100.00	0.00
31	Scarp yard Fencing	0.00	20.00	0.00	0.00	0.00
32	Construction of Labour rest Room	0.00	50.00	0.00	0.00	0.00
33	Extension of Existing Meeting Room	0.00	5.00	50.00	0.00	0.00
34	Covering of Open yard of Store	0.00	10.00	10.00	0.00	0.00
35	Plant Area Fencing	0.00	25.00	25.00	0.00	0.00
36	Development of Store	0.00	30.00	0.00	0.00	0.00
	<b>Total</b>	<b>1053.00</b>	<b>2915.00</b>	<b>3720.00</b>	<b>730.00</b>	<b>280.00</b>

The detailed rationale for the projected capital expenditure is submitted below:

**5 Additional Capital Expenditure under Normal RoE:**

**5.1 Replacement of gear Set Assembly in Hydraulic Coupling**

The Petitioner humbly submits that an expenditure of Rs. 200 Lakh is proposed towards replacement of gear Set Assembly in Hydraulic Coupling in the year 2025-26 under Regulation 25(2)(a) of the Tariff Regulations 2024.



The Petitioner respectfully submits that four hydraulic couplings manufactured by M/s Voith (2 working and 2 standby) are currently in service to maintain feed water flow in the High-Pressure (HP) and Intermediate-Pressure (IP) drums. These hydraulic couplings have been in operation since 2012-2013. Over the years, wear and tear of the internal components have been observed, necessitating the replacement of certain parts. In this regard, M/s Voith has shared an email recommending that the procurement of gear stage be done to avoid operational issues such as noise, vibrations, etc. The email Communication has been attached as **Annexure-A3** for reference. These couplings are critical elements of the feed water supply system, which is essential for the power generation process in power blocks. Any extended downtime of a hydraulic coupling would render the feed water system unavailable, leading to prolonged unavailability of standby equipment and compromising the reliability of power generation at the station. Furthermore, the production lead time for these gear sets is significantly lengthy. Therefore, to ensure minimal downtime in the event of part failure, it is imperative to procure one complete gear set. This will enable prompt attention to any breakdowns, thereby minimizing downtime and ensuring continuous and reliable operation of the feed water system.

In view of the above, the Petitioner humbly requests the Hon'ble Commission to allow the additional capital expenditure proposed by the Petitioner of Rs. 200 Lakh in FY 2025-26 under Regulation 25(2)(a) of the Tariff Regulations 2024.

## 5.2 Replacement of Fill Sheets and Spray Nozzles

The Petitioner humbly submits that an expenditure of Rs. 650 Lakh is proposed towards Replacement of Fill Sheets and Spray Nozzles in the year 2027-28 under Regulation 25(2)(a) of the Tariff Regulations 2024.

It is submitted that 16 nos. of Cooling Tower cells are installed at OTPC. These Cooling Tower are used for cooling of circulating water through the condenser. All the dirt/chemical sludge of the Circulating water get deposited in the Fill packs installed in each cell of Cooling Tower. This eventually reduces the efficiency of cooling of the circulating water leading to poor vacuum in the condenser. This causes reduction in power generation from Steam Turbine. Therefore, it is required to replace these Fill packs periodically (~5 years) to maintain efficiency of Cooling Tower. Further, the OEM

has also recommended periodic replacement of Cooling Tower Cells and their letter of recommendation has been attached as **Annexure-A4**.

In view of the above, the Petitioner humbly requests the Hon'ble Commission to allow the additional capital expenditure proposed by the Petitioner of Rs. 650 Lakh in FY 2025-26 under Regulation 25(2)(a) of the Tariff Regulations 2024.

### 5.3 Blades of Low-Pressure Turbine

The Petitioner humbly submits that an expenditure of Rs. 3,366 Lakh (Rs. 1,634 Lakh in the FY 2027-28 and Rs. 1732 Lakh in FY 2028-29) is proposed towards Blades of Low-Pressure Turbine under Regulation 25(2)(a) of the Tariff Regulations 2024. It is submitted that major overhauling of steam turbines -I will be carried out in 2027 based on running hours of 100000 EOH as per OEM schedule. During this overhauls, the last two stages (7th & 8th) blades of LP turbines at both ends will be replaced to improve the reliability and efficiency of steam turbines-I for next 12 years tentatively. In this regard, it is submitted that based on Technical System Audit conducted by Black & Veatch, it is recommended that Blades of Low-pressure Turbine maybe improved by improving blade design, etc to reduce Heat rate by 10-30 kCal/kWh. The same System Audit report has been attached as **Annexure-A5**. In view of the above, the Petitioner humbly requests the Hon'ble Commission to allow the additional capital expenditure proposed by the Petitioner of Rs. 3,366 Lakh (Rs. 1,634 Lakh in the FY 2027-28 and Rs. 1732 Lakh in FY 2028-29) , under Regulation 25(2)(a) of the Tariff Regulations 2024.

### 5.4 Replacement of Battery Bank

The Petitioner humbly submits that an expenditure of Rs. 1,113 Lakh (Rs. 473 Lakh in FY 2024-25, Rs. 390 Lakh in FY 2025-26 and Rs. 250 Lakh in FY 2026-27 Lakh) is proposed towards the replacement of Bank Battery under Regulation 25(2)(a) of the Tariff Regulations 2024. It is submitted that the complete existing Battery Bank set at 2 plant locations be replaced:

- a. Block-I GT 125V Main Battery Bank-169Nos 1.2V KPH 630P Ni Cd Batteries.



b. Block-1 GT 125V Auxiliary Battery Bank- 98Nos 1.2V KPH 353P Ni Cd Batteries.

It is submitted that the above-mentioned battery banks are operational for approximately last 12 years. In recent times we have identified an increase in battery issues like overheating, reduced discharge strength, electrolyte dryness. We had conducted discharge test on both the Battery Banks during Block-1 Annual shutdown in 2021. It was identified that the discharge capacity of these batteries has reduced by 15%. During the test we applied load of 90Amps and found that within a span of 20 mins the battery capacity reduced by 15% and nominal voltage reduced to 1.1 to 1.05Volt which is unacceptable in normal working conditions. This has led us to carry out Discharge-Charge cycle twice to achieve full battery cell operable parameters. Further, Nickel quoted inter cell connecting leads were witnessed with heavy sulfurization.

Both Main and Auxiliary battery banks supply DC emergency power to GT Emergency Drives like DC Lube Oil Pump, DC Jacking Oil Pump, DC Seal Oil Pump, DC supply to Mark Vi e etc. Considering the strategic importance of these Battery Banks from operational point of view and during emergency situation it was decided to replace these batteries with new banks to improve the reliability and security of the plant generation. The details of cells and battery banks has been attached as **Annexure-A6**.

In view of the above, the Petitioner humbly requests the Hon'ble Commission to allow the additional capital expenditure proposed by the Petitioner of Rs. 1,113 Lakh (Rs. 473 Lakh in FY 2024-25, Rs. 390 Lakh in FY 2025-26 and Rs. 250 Lakh in FY 2026-27 Lakh) under Regulation 25(2)(a) of the Tariff Regulations 2024.

#### 5.5 Switchyard Circuit Breaker

The Petitioner humbly submits that an expenditure of Rs.150 Lakh is proposed towards Switchyard Circuit Breaker in the year 2027-28 under Regulation 25(2)(a) of the Tariff Regulations 2024.

It is submitted that this switchyard was commissioned more than 10 years back and the circuit breaker have undergone many cycles of operation due to various faults in the system. These CBs require major replacement of parts for continued successful operations.



In view of the above, the Petitioner humbly requests the Hon'ble Commission to allow the additional capital expenditure proposed by the Petitioner of Rs. 150 Lakh in FY 2027-28 under Regulation 25(2)(a) of the Tariff Regulations 2024.

#### 5.6 GE Multilin Relay Replacement

The Petitioner humbly submits that an expenditure of Rs. 60 Lakh is proposed towards GE Multilin Relay Replacement in the year 2025-26 under Regulation 25(2)(c) of the Tariff Regulations 2024.

The Petitioner humbly submits that this capital expenditure is carry over scheme of "Change in Obsolete relays at OTPC" which was claimed in 2019-24 tariff period. It is submitted that the Commission vide order in 109/GT/2020, had approved the expenditure of Rs. 30 Lakh for "Change in Obsolete Relays at OTPC" whereas, in 2019-24 period, actual expenditure incurred by the Petitioner was Rs. 14.13 Lakhs only. To complete the remaining work, the Petitioner is further proposing to incur another Rs. 60 lakhs. The email communication from OEM, M/s GE has been attached as **Annexures A7(a) & A7(b)**, declaring the earlier relays as obsolete and recommending their replacement.

In view of the above, the Petitioner humbly requests the Hon'ble Commission to allow the additional capital expenditure proposed by the Petitioner of Rs. 60 Lakh in the year 2025-26 under Regulation 25(2)(c) of the Tariff Regulations 2024.

#### 5.7 Flow Restrictor and Bus Bar Replacement

The Petitioner humbly submits that an expenditure of Rs. 450 Lakh (Rs. 200 Lakh in FY 2024-25 and Rs. 250 Lakh in FY 2025-26) is proposed towards Flow Restrictor and Bus Bar Replacement under Regulation 25(2)(c) of the Tariff Regulations 2024.

It is submitted that this proposal is raised to comply with GE TIL 1755-R3, stating for all LCIs with more than 8years of service life without flow restrictor following measures needs to be taken to maximise the life of LCI:-

- a. Flow Restrictor to be installed.
- b. Both Source and Load Bridge Water Cooled Bus Bars to be replaced if presently installed Bus Bar elbow metal thickness are <0.17inch. This to be checked by performing Ultrasonic Test.



OTPC performed Ultrasonic Test on bus bar elbows on 21.07.2023. In both LCI-1 and 2 thickness found marginally less than 0.17inch at many bus bar bends. (result attached for reference). Source Side Bridge has 12 water cooled bus bar and load bridge have 6 water cooled bus bars. Since all these 18 Bus Bars at source and load side have different GE part number, OTPC has to procure all of them individually. In LCI with more than 8 years of service life and no Flow restrictor, leakage of water-cooled bus bar has been detected a few sites due to erosion of copper tubes resulting loss of coolant. This may also cause arcing fault within the LCI enclosure. Flow restrictors reduce internal erosion of copper bus bar extending service life of LCI.

Once Flow Restrictor and bus bars are installed Ultrasonic Testing is not required to be performed in future. OTPC shall comply to this Technical Information Letter only when both Flow Restrictors are installed, and Bus Bars are replaced.

This Technical Information Letter shared by the OEM, M/s GE, informing about leakage in water-cooled bus has been attached as **Annexures A8(a) & A8(b)**.

In view of the above, the Petitioner humbly requests the Hon'ble Commission to allow the additional capital expenditure proposed by the Petitioner of Rs. 450 Lakh (Rs. 200 Lakh and Rs. 250 Lakh in the years 2024-25 and 2025-26 respectively) under Regulation 25(2)(c) of the Tariff Regulations 2024.

#### **5.8 H2 Plant Cell Skid-2 Replacement**

The Petitioner humbly submits that an expenditure of Rs. 111 Lakh (Rs. 55 in FY 2025-26 & Rs.56 Lakh in FY 2026-27) is proposed towards H2 Plant Cell Skid-2 Replacement under Regulation 25(2)(c) of the Tariff Regulations 2024.

It is submitted that during corrective maintenance of cell skid by Service engineer in September 2023, he observed some corrossions & pin holes in Cell skid A. OTPC have received recommendation from Service engineer, Gibbs Energy Pvt Ltd. that since both cell skids are in operation for more than 10 years which is beyond their self-life, replacing a cell skid will provide optimum performance of H2 plant generation and reduce any breakdown in future. The work report submitted by Gibbs Energy has been attached as **Annexure-A9**. Accordingly, OTPC intends to replace cell skid A & B with new one for reliability of system and increase service life of H2 Plant cell skid-1 & 2



In view of the above, the Petitioner humbly requests the Hon'ble Commission to allow the additional capital expenditure proposed by the Petitioner of Rs. 111 Lakh (Rs.55 lakh & Rs.56 Lakh in the years 2025-26 and 2026-27 respectively) under Regulation 25(2)(c) of the Tariff Regulations 2024.

#### **5.9 Upgradation of 150 A UPS**

The Petitioner humbly submits that an expenditure of Rs.40 Lakh is proposed towards Upgradation of 150 A UPS in the year 2025-26 under Regulation 25(2)(c) of the Tariff Regulations 2024.

It is submitted that on 25th July 2024, Unit-2 UPS failed which resulted in complete failure of control power supply to Gas turbine mark VI, Max DNA system and other critical system resulting tripping of U-2. This resulted in complete control black out of control system. Unit-2 Safe SD was restored locally as Control room engineers were not able to see and control the unit-2 system.

The OEM was referred for Root cause analysis and as per OEM, the failure of UPS-1 & UPS-2 was due to failure of important control cards and SMPS card.

During restoration of UPS-1 & UPS-2 by OEM service engineer, OTPC was informed that "Existing system is obsolete and requires upgradation" and 150 A UPS-1&2 for Unit 1 & 2 need to be replaced due to system obsolesce and to ensure system reliability. The email communication with OEM, M/s Hitachi Hi-Rel Power Electronics Pvt Ltd has been attached as **Annexure-A10**.

In view of the above, the Petitioner humbly requests the Hon'ble Commission to allow the additional capital expenditure proposed by the Petitioner of Rs.40 lakh in the year 2025-26 under Regulation 25(2)(c) of the Tariff Regulations 2024.

#### **5.10 100 kVA UPS with battery Bank for MaxDNA Control System**

The Petitioner humbly submits that an expenditure of Rs. 400 Lakh (Rs. 200 Lakh in FY 2025-26 and Rs. 200 Lakh in FY 2026-27) is proposed towards Upgradation of 100 kVA UPS with Battery Bank for MaxDNA Control System in a phased manner under Regulation 25(2)(c) of the Tariff Regulations 2024. It is submitted that Steam Turbine Control System MaxDNA and CCR Desktops are supplied from a dedicated UPS power supply. This is to improve reliability, ensuring safe operation of ST and STG in case of



existing 150 kVA UPS Failure. In view of the above, the Petitioner humbly requests the Hon'ble Commission to allow the additional capital expenditure proposed by the Petitioner of Rs. 400 Lakh (Rs. 200 Lakh in FY 2025-26 and Rs. 200 Lakh in FY 2026-27) under Regulation 25(2)(c) of the Tariff Regulations 2024.

#### 5.11 Retrofitting of Existing GE ACBs

The Petitioner humbly submits that an expenditure of Rs.22 Lakh is proposed towards Retrofitting of Existing ACBs in the year 2025-26 under Regulation 25(2)(c) of the Tariff Regulations 2024. The new Air Circuit Breaker (ACB) will replace existing GE ACBs along with retrofitting service. GE ACBs are installed in all PMCC feeders except GT PMCC, GBC PMCC & Switchyard PMCC. As GE ACBs are now obsolete & spare parts are not available in market (because GE does not manufacture breaker spares anymore), it becomes difficult to ensure reliability of GE ACBs installed in site. This will ensure availability of spare parts & reliability of equipment which will directly reduce forced shutdown of equipment & Unit. It is planned to replace 2 nos. of breakers in CT PMCC 1 & 2 respectively. Further, the Root Cause analysis report submitted by O&M Solutions Private Limited, also indicates that the ACBs need to be retrofitted. The Root Cause Analysis report has been attached as **Annexure A11**. In view of the above, the Petitioner humbly requests the Hon'ble Commission to allow the additional capital expenditure proposed by the Petitioner of Rs. 22 lakh in the year 2025-26 under Regulation 26(1)(i) of the Tariff Regulations 2024.

#### 5.12 Bearing Pedestal for STG-1

The Petitioner humbly submits that an expenditure of Rs.80 Lakh is proposed towards Replacement of Bearing Pedestal for STG-1 in the year 2025-26 under Regulation 25(2)(a) of the Tariff Regulations 2024. It is respectfully submitted that in July 2024, the Original Equipment Manufacturer (OEM) BHEL conducted an Intermediate Inspection of STG 1. During this inspection, it was discovered that the bottom part of the insulation liner in bearing pedestal 4 (turbine side) of STG 1 was damaged (scooped out) due to bearing pitting(OEM Report has been attached as **Annexure-A12(a)**). Additionally, the journal was partially pitted. This issue cannot be resolved in-house and requires the pedestal to be sent to BHEL Hyderabad for repair. OTPC communicated



with BHEL regarding a resolution, and BHEL recommended replacing the existing pedestal with a new design pedestal, which does not have an insulation liner in the top and bottom parts. This new design pedestal had already been supplied for STG 2 Bearing 4. Based on recommendation of BHEL, it is recommended to replace existing pedestal of STG-1. The email communication BHEL has been attached as **Annexure-A12(b)**.

In view of the above, the Petitioner humbly requests the Hon'ble Commission to allow the additional capital expenditure proposed by the Petitioner of Rs. 80 lakh in the year 2025-26 under Regulation 25(2)(a) of the Tariff Regulations 2024.

### **5.13 Max DNA (DCS) software /firmware version upgradation of both units**

The Petitioner humbly submits that an expenditure of Rs.100 Lakh (Rs. 50 lakh in FY 2026-27 and FY 2027-28) is proposed towards Max DNA (DCS) software /firmware version upgradation of both units under Regulation 25(2)(c) of the Tariff Regulations 2024.

The Petitioner humbly submits that the control system is essential for the operation of a power plant. Without an operational control system, the plant cannot function. Currently, the control system (MaxDNA) for the Steam Turbine Generator (STG) and Balance of Plant (BOP) operates on firmware version series 4, which has now become obsolete. The latest version available is the MaxDNA firmware series 6. The outdated series 4 firmware poses a risk of communication loss, which could result in the unavailability of the control system. Therefore, to ensure the continuous availability and reliability of the control system, it is imperative to upgrade the firmware to the latest series 6 version. In view of the above, the Petitioner humbly requests the Hon'ble Commission to allow the additional capital expenditure proposed by the Petitioner of Rs.100 Lakh (Rs. 50 lakh in FY 2026-27 and FY 2027-28) under Regulation 25(2)(c) of the Tariff Regulations 2024.

## **6 Additional Capital Expenditure beyond Original Scope:**

### **6.1 TG Hall Crane**

The Petitioner humbly submits that an expenditure of Rs. 250 Lakh towards TG Hall Crane is proposed in the year 2024-25 under Regulation 26(1)(i) of the Tariff Regulations 2024. It is submitted that there is only one double girder EOT crane of capacity 95/25 MT installed in TG hall. This crane is the stand-alone crane for all heavy

maintenance jobs in all four turbines, i.e. Gas Turbine-1, Steam Turbine-1 of Block-1 and Gas Turbine-2, Steam Turbine-2 of Block-2. Normally, separate shutdown will not be taken for Gas Turbine and Steam Turbine of same block as far as possible to ensure maximum availability, other than any unforeseen misfortunate event. Existing EOT crane is being shared by multiple agencies in gas turbine, steam turbine, CEP, lube oil pumps, bypass valves etc. thereby prolonging the overall shutdown down period. It is also recommended by the OEM GE to have an additional 25 MT crane; the OEM recommendation has been attached as **Annexure-A13**. Hence, it is proposed to install another EOT crane of smaller capacity of approx. 30MT on the same existing structure so that parallel and unhindered maintenance of both the turbines and above-mentioned auxiliaries of a particular block can be executed smoothly so to minimize the outage duration. In view of the above, the Petitioner humbly requests the Hon'ble Commission to allow the additional capital expenditure proposed by the Petitioner of Rs. 250 Lakh in FY 2024-25 under Regulation 26(1)(i) of the Tariff Regulations 2024 read with Regulation 102 and Regulation 103 of the Tariff Regulations 2024.

#### 6.2 Ventilation System in Switchgear rooms

The Petitioner humbly submits that an expenditure of Rs.115 Lakh towards Ventilation System is proposed in Switchgear rooms in the year 2024-25 under Regulation 26(1)(i) read with Regulation 102 and Regulation 103 of the Tariff Regulations 2024. The Petitioner humbly submits that there is currently no ventilation systems installed in the 6.6 kV switchgear rooms, cable vaults, and similar areas in Block 1 and Block 2. Consequently, it is recommended by the OEM to install new ventilation systems in these rooms to ensure adequate air exchange and to prevent dust deposition. The OEM recommendation has been attached as **Annexure-A14**. This would involve the installation of air supply and exhaust equipment. This recommendation has also been endorsed by B&V following their technical review at the OTPC Plant. In view of the above, the Petitioner humbly requests the Hon'ble Commission to allow the additional capital expenditure proposed by the Petitioner of Rs. 115 Lakh in FY 2024-25 under Regulation 26(1)(i).

#### 6.3 Spray water network



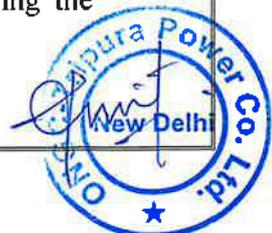
The Petitioner humbly submits that an expenditure of Rs.120 Lakh is proposed towards Spray water networks in the year 2024-25 under Regulation 26(1)(i) read with Regulation 102 and Regulation 103 of the Tariff Regulations 2024.

The Petitioner humbly submits that a spray water network is necessary for Unit-1 and Unit-2 GTG Seal Oil Skid, Unit-1 and Unit-2 Lubrication Oil Cooler and Filler, Bearings 4 and 5, and GBC-1, 2, and 3 Lube Oil Tanks. These areas contain substantial volumes of lubrication oil and are highly flammable. Currently, no spray water system is installed in these locations. Therefore, to enhance operational safety, it is essential to install a new spray water system in these areas. The same has been recommended in the Marsh Operational Risk Survey Report and the report has been attached as **Annexure-A15**. This installation will involve the implementation of a new piping network, deluge valves, spray nozzles, and quartz bulbs (QBD).

In view of the above, the Petitioner humbly requests the Hon'ble Commission to allow the additional capital expenditure proposed by the Petitioner of Rs. 120 Lakh in FY 2024-25 under Regulation 26(1)(i) read with Regulation 102 and Regulation 103 of the Tariff Regulations 2024.

#### 6.4 New Upgraded Cooling Tower for HVAC

The Petitioner humbly submits that an expenditure of Rs. 30 Lakh towards New Upgraded Cooling Tower is proposed in the year 2025-26 under Regulation 26(1)(i) of the Tariff Regulations 2024. The Petitioner humbly submits that two nos. of cross flow Cooling Towers are installed presently in 150 TR HVAC circuit installed at 23 m rooftop of Control & Facility Building. This HVAC is responsible for maintaining adequate temperature for Control Facility Building 0.0 m, 4.5 m, 11.5 m Central Control Room (CCR), U1 & U2 Generator Relay Panel (GRP) room. In case of non-functioning of the HVAC system, various systems may fail leading to availability loss of the units. The existing cooling towers are in continuously operation for the last 12 years, the condition of the Cooling Towers have heavily deteriorated. Over the years, Cooling Tower front Hood, Cold Water Basin, Fill sheets, Fan shaft, QD bushings, V belts, Bearings, etc. had been replaced. In fact, the FRP body has also lost its sectional rigidity. The OEM, VOLTAS, has highlighted in their report that Unit-1 is not going to 100% full load because of the defective cooling tower and its repair and maintenance is of utmost importance. The same has been attached as **Annexure-A16**. Now considering the



condition of the Cooling Tower and its importance for reliable operation of the Plant, it is required to install one new Cooling Tower for HVAC system. In view of the above, the Petitioner humbly requests the Hon'ble Commission to allow the additional capital expenditure proposed by the Petitioner of Rs. 30 Lakh in FY 2025-26 under Regulation 26(1)(i) of the Tariff Regulations 2024.

#### 6.5 Air Receivers

The Petitioner humbly submits that an expenditure of Rs. 25 Lakh towards Air Receivers is proposed in the year 2024-25 under Regulation 26(1)(i) of the Tariff Regulations 2024 read with Regulation 102 and Regulation 103 of the Tariff Regulations 2024.

The Petitioner humbly submits that two nos. of air compressors along with two nos. of air receivers of capacity of 10m<sup>3</sup> each are installed and are functional to meet plant instrument air requirement. These two air compressors are running continuously in lead & lag mode based on changeover schedule to cater the air requirements for operation of various pneumatic actuators of control valves, gas valves, process isolation valves etc. Now installation of additional two nos. of new air receivers of capacity of 10M<sup>3</sup> is required to increase the existing buffer stock of air as well as improve the reliability of instrument air system in order to sustain the generation of the power blocks for 10 minutes approx. in case of tripping of running air compressors, as well as huge energy saving & reduction in servicing cost by running one compressor instead of running of two air compressors simultaneously. M/s Steag in their safety audit report has also advised to keep one air compressor in service and another in standby mode to reduce auxiliary power consumption by 27kW, their recommendation report has been attached as **Annexure-A17**.

In view of the above, the Petitioner humbly requests the Hon'ble Commission to allow the additional capital expenditure proposed by the Petitioner of Rs. 25 Lakh in FY 2024-25 under Regulation 26(1)(i) of the Tariff Regulations 2024 read with Regulation 102 and Regulation 103 of the Tariff Regulations 2024.

#### 6.6 FRP HCL Tank

The Petitioner humbly submits that an expenditure of Rs.20 Lakh is proposed towards FRP HCL in the year 2025-26 under Regulation 26(1)(i) of the Tariff Regulations 2024.

It is respectfully submitted that currently, there is a single 15-kiloliter (KL) tank in use for the storage of hydrochloric acid (HCL) at the Demineralization (DM) plant. To enhance the operational reliability and efficiency of the DM plant, it is necessary to install an additional 15 KL tank. This additional tank will increase the total storage capacity of HCL, thereby ensuring a more dependable supply for the regeneration of resin in the DM plant. The reliable regeneration of resin is crucial for maintaining the continuous and efficient production of demineralized water, which is essential for the smooth operation of the plant. By expanding the storage capacity, we can mitigate the risks associated with supply interruptions and ensure that there is always an adequate amount of HCL available for resin regeneration. This, in turn, will contribute to the overall reliability and efficiency of the DM water production process. Therefore, the installation of an additional 15 KL HCL storage tank is a necessary investment to support the sustained and reliable operation of the DM plant. In this regard, it is also submitted that Prosafe Process Engineering Pvt. Ltd had conducted a safety audit in January 2023, and in their Safety Audit Report had recommended that adequate storage facility for HCl drums and acid proof tiles are required for safe storage of HCl. The same has been attached as **Annexure-A18**.

In view of the above, the Petitioner humbly requests the Hon'ble Commission to allow the additional capital expenditure proposed by the Petitioner of Rs. 20 Lakh in FY 2025-26 under Regulation 26(1)(i) of the Tariff Regulations 2024.

#### **6.7 Power Optimization of GBC by installation of VFD**

The Petitioner humbly submits that an expenditure of Rs. 2,000 Lakh is proposed towards Power Optimization of GBC by installation of VFD in the year 2026-27 under Regulation 26(1)(i) of the Tariff Regulations 2024.

The Petitioner humbly submits that OTPC operates three Gas Booster Compressors (GBCs) (3X50%, Model: BCL-406, manufactured by BHEL-Hyderabad). These compressors are motor-driven and equipped with intermediate gearboxes from Triveni. The GBCs are utilized to compress natural gas from 12 ksc to 34.55 ksc for subsequent supply to the gas turbines (Fr 9Fa). The rated motor power consumption of these GBCs is 3.84 MW.

We propose to revamp GBC-1 along with the installation of a Variable Frequency Drive (VFD) to optimize the power consumption of the drive motor in instances where the

gas supply from ONGC is lower than the design specification. This initiative aims to reduce auxiliary power consumption. In this regard, it is submitted that the OEM had studied the Technical Adequacy for the compressor and has suggested its revamping. The Technical Adequacy report and the mail communication has been attached as **Annexure-A19**.

In view of the above, the Petitioner humbly requests the Hon'ble Commission to allow the additional capital expenditure proposed by the Petitioner of Rs. 2,000 Lakh in FY 2026-27 under Regulation 26(1)(i) of the Tariff Regulations 2024.

#### **6.8 Generator Health Monitoring System**

The Petitioner humbly submits that an expenditure of Rs.150 Lakh is proposed towards Generator Health Monitoring System in the year 2026-27 under Regulation 26(1)(i) of the Tariff Regulations 2024.

It is submitted that at the time of installation of these generators advanced monitoring systems were not implemented/available due to high cost/unavailability of technology. Since the machines are now more than 10 years in operations, it is essential to have continuous online health monitoring of the generator to have early warning of impending failures, so that primitive action can be taken for ensuring the health and availability of the generators.

In view of the above, the Petitioner humbly requests the Hon'ble Commission to allow the additional capital expenditure proposed by the Petitioner of Rs. 150 Lakh in the year 2026-27 under Regulation 26(1)(i) of the Tariff Regulations 2024.

#### **6.9 Generator Rotor Flux System**

The Petitioner humbly submits that an expenditure of Rs.150 Lakh towards is proposed Generator Rotor Flux System in the year 2026-27 under Regulation 26(1)(i) of the Tariff Regulations 2024.

It is submitted that at the time of installation of these generators rotor flux monitoring systems were not implemented/available due to high cost/unavailability of technology. Since the machines are now more than 10 years in operations, it is essential to have continuous online health monitoring of the generator rotor to have early warning of

impending failures, so that primitive action can be taken for ensuring the health and availability of the generators.

In view of the above, the Petitioner humbly requests the Hon'ble Commission to allow the additional capital expenditure proposed by the Petitioner of Rs. 150 Lakh in in the year 2026-27 under Regulation 26(1)(i) of the Tariff Regulations 2024.

#### **6.10 Station Bus Fast Bus Transfer System**

The Petitioner humbly submits that an expenditure of Rs.60 Lakh is proposed towards Station Bus Fast Bus Transfer System in the year 2025-26 under Regulation 26(1)(i) of the Tariff Regulations 2024.

It is submitted that the 6.6KV 3000Amp Station Switchgear OCA section has two incomers and one bus coupler. As per present scheme of operation, during tripping of any one of the incoming the bus coupler does not come in auto resulting in complete isolation of one section of the station board. In many times OTPC plant have seen that because of these isolations or black out of one section, the units have tripped due to non-availability of GBC. For safeguarding the loads / unit, the entire process of load transfer must happen in Fast Bus Transfer Mode i.e. tripping of any one incomer must close the Bus Coupler in FBT mode. At present we do not have FBT system in 6.6 KV station switchgear. Hence in order to increase plant reliability.

In view of the above, the Petitioner humbly requests the Hon'ble Commission to allow the additional capital expenditure proposed by the Petitioner of Rs. 60 Lakh in FY 2025-26 under Regulation 26(1)(i) of the Tariff Regulations 2024.

#### **6.11 Energy Management System**

The Petitioner humbly submits that an expenditure of Rs.38 Lakh is proposed towards Energy Management System in the year 2024-25 under Regulation 26(1)(i) of the Tariff Regulations 2024.

It is submitted that at present OTPC has no means to monitor energy consumption of electrical drives at plant level. This leads to difficult in monitoring energy consumption of a particular drive or area or process. This also puts restriction on OTPC to analyse energy consumption pattern of a particular system as historical energy data is also not available. Energy data which are either available at the IED (only provides real time

data) or DCS (does not provide accurate data as sample ratio is low) does not help us in any study.

For acquiring and monitoring Energy Data on real time basis of critical drives above 50 kW Rating at 6.6 kV Level and store them in historian we propose to implement Energy Management System. Energy data of the selected drives will be communicated to the EMS Software from Multi-Function Meters (MFM) installed at individual feeders (motors, transformers and line/tie incomers). EMS Software will be installed in Server Grade PC installed at Control Room. We have at present 65 nos of feeders above 50 kW Rating and are considered for integrating with proposed EMS Software. Upon implementation of project EMS will help the operators to monitor energy data of all 65 nos significant auxiliary loads at one single point.

Also, 23 nos of feeders are not equipped with MFM meters since beginning, there along with installation of new MFM meters, CT/PT cable, communication Cable laying and termination is also to be done. Moreover, at 22 nos feeders MFM is defective hence require replacement. Hence in total, out of 65 nos feeders considered we will install 45 nos of new MFM, and remaining 5 mfm will be kept as spare for future use.

In view of the above, the Petitioner humbly requests the Hon'ble Commission to allow the additional capital expenditure proposed by the Petitioner of Rs. 38 Lakh in FY 2024-25 under Regulation 26(1)(i) of the Tariff Regulations 2024.

#### 6.12 Solar Street Light

The Petitioner humbly submits that an expenditure of Rs. 60 Lakh (Rs. 15 Lakh in FY 2024-25, Rs. 15 Lakh in FY 2025-26, Rs. 15 Lakh in FY2026-27 and Rs. 15 Lakh in FY 2027-28) is proposed towards Solar Street Light in a phased manner in the period 2024-29 under Regulation 26(1)(i) of the Tariff Regulations 2024.

It is submitted that the requirement for Solar Street light project scope includes supply of 12 W LED Solar street light with all accessories (Light, Solar Panel, GI Pole, Li-Fe Battery), its installations, transportation & Handover. The quantity of Solar Street light required is 63 nos..

The scope includes execution of the work on complete turnkey basis i.e. it includes supply of required nos. of 12 W LED solar light system, mobilisation of manpower, T&P, transportation, installation and handover.



This is pertinent to mention here that the propose solar streetlights will be installed in plant boundary area and River water pump house. The solar based streetlight will help us to ensure security, availability of streetlight in critical area during non-availability of regular streetlights of critical area.

In view of the above, the Petitioner humbly requests the Hon'ble Commission to allow the additional capital expenditure proposed by the Petitioner of Rs. 60 Lakh (Rs. 15 Lakh in FY 2024-25, Rs. 15 Lakh in FY 2025-26, Rs. 15 Lakh in FY2026-27 and Rs. 15 Lakh in FY 2027-28) in the period 2024-29 under Regulation 26(1)(i) of the Tariff Regulations 2024.

### 6.13 GBC PMCC Modification

The Petitioner humbly submits that an expenditure of Rs.50 Lakh is proposed towards GBC PMCC Modification in the year 2025-26 under Regulation 26(1)(d) read with Regulation 102 and Regulation 103 of the Tariff Regulations 2024.

It is submitted that at present feeders of GBC PMCC (OEM C&S), are not able to rack in/rack out properly. In the past, during rack-in flash over incident had occurred couple of times due to misalignment of male and female contacts in breaker & sliding contacts of feeder modules. Hence when PMCC is in charged condition, in case any breaker rack-in is done chances of arc flash is presumably very high. In order to avoid such condition, none of the feeders are allowed to rack out during PMCC charged condition.

Moreover, even during preventive maintenance of a particular motor or power feeder, the feeder side remains untouched.

Maintenance is carried out of only on the load side. During long planned outages only section wise shutdown is availed of PMCC and then the maintenance is carried out on the feeders of that section. But many times, due to operational constraint to ensure availability of GBCs section wise shutdown is not provided to maintenance team, leading to non-maintenance of these feeders. It is also to be noted that this condition has prevailed in GBC PMCC since last 5 years.

In this regard, it is submitted that as per Root Cause Analysis report submitted by O&M Solutions Private Limited on 13/12/2021, it was identified that GBC PMCC has tripped and is required to be upgraded. Th same has been attached as **Annexure-A20**.

In view of the above, the Petitioner humbly requests the Hon'ble Commission to allow the additional capital expenditure proposed by the Petitioner of Rs.50 lakh in the year

2025-26 under Regulation 26(1)(d) read with Regulation 102 and Regulation 103 of the Tariff Regulations 2024.

#### 6.14 Online Moisture Removal System

The Petitioner humbly submits that an expenditure of Rs. 50 Lakh (Rs. 25 Lakh in FY 2026-27 and Rs. 25 Lakh FY 2027-28) is proposed towards Online Moisture Removal System respectively under Regulation 26(1)(i) of the Tariff Regulations 2024.

It is submitted that there are 11 power transformers at the OTPC plant. Out of these 11 transformers, 4 of Generator transformers are experiencing extreme load variation (active and reactive) due to line fault surges. The core of these transformer is experiencing constant loading and unloading which releases trapped moisture and carboxylic acids in transformer core during cellulose decomposition. For these 4 generator transformers we have already procured online transformer condition monitoring which monitors the condition. Further, this moisture removal system not only monitors the moisture, but also removes them in online condition. Online moisture removal kit is very essential as it removes the moisture trapped in core which traditional oil filtration kit cannot do. The performance of these kits was tested in Switchyard transformers.

Also due to the easy installation, we can even switch the kits to different transformers as per requirement. The system works on moisture absorption by ceramic cylo beads when oil passed through it. Along with moisture, carboxylic acid also gets absorbed. The 4 nos. of units will be installed for GTGT-1&2 and STGT-1&2.

The Petitioner has claimed total expenditure of Rs. 70.94 Lakh in the period 2019-24 and 2024-29 towards implementation of Online Moisture Removal System. Out of which, the Petitioner has discharged Rs. 20.94 Lakh in the 2019-24 period and proposes to execute the remaining works related to the scheme in the year 2026-27 and 2027-28 and discharge the balance Rs. 50 Lakh equally in each year

In view of the above, the Petitioner humbly requests the Hon'ble Commission to allow the additional capital expenditure proposed by the Petitioner of Rs. 50 lakhs (Rs. 25 lakh each in the years 2026-27 and 2027-28) under Regulation 26(1)(i) of the Tariff Regulations 2024.

#### 6.15 VFD Installation



The Petitioner humbly submits that an expenditure of Rs.170 Lakh (Rs. 10 Lakh in FY 2024-25, Rs. 10 Lakh in FY 2025-26, Rs. 75 Lakh in FY 2026-27 and Rs. 75 Lakh in FY 2027-28) is proposed towards VFD for AHU and CEP in a phased manner 2024-28 under Regulation 26(1)(i) of the Tariff Regulations 2024.

VFD system is proposed for integration in our AHU & CEP systems for automation purpose and to reduce energy consumption at Control and Facility Building OTPC Plant, Palatana. At present, the AHUs and CEP are operated in full rated load condition at rated speed that too manually without any temperature feedback system. Automatic Temperature Control of the designated areas is not present at moment. AHU operation like ON/OFF/Temperature Rise/Temperature Down etc. are done manually. To avoid manual intervention and reduce energy consumption of the AHU system operational at Control and Facility Building of OTPC Plant we propose to install Closed Loop PLC Based VFD system with Temperature RTD Sensor at AHU system operational area.

With RTD Sensor and PLC System the complete AHU and CEP system will be automated with provision for manual operations also. Sensing temperature from RTD Sensor and using PID controlled PLC, VFD will change the speed of the AHU fan by changing (increase/decrease) output voltage of the drive. As energy consumption is directly proportional to voltage, reduction of AHU and CEP speed will reduce voltage and eventually reducing the energy consumption of AHU and CEP drives. This will help in reducing auxiliary consumption. This has been recommended by Black & Veatch, which had conducted Technical System Audit and recommended retrofitting of VFD in CEP and AHU. The same have been attached as **Annexures-A21(a) & A21(b)**.

In view of the above, the Petitioner humbly requests the Hon'ble Commission to allow the additional capital expenditure proposed by the Petitioner of Rs.170 Lakh (Rs. 10 Lakh in FY 2024-25, Rs. 10 Lakh in FY 2025-26, Rs. 75 Lakh in FY 2026-27 and Rs. 75 Lakh in FY 2027-28) under Regulation 26(1)(i) of the Tariff Regulations 2024.

#### **6.16 Online Flux Monitoring System for GTG**

The Petitioner humbly submits that an expenditure of Rs.195 Lakh is proposed towards Online Flux Monitoring System in the year 2027-28 under Regulation 26(1)(i) of the Tariff Regulations 2024. As per OTPC experience of rotor failure in unit-1 Gas Turbine generator in 2019, it was felt that two additional feature of generator health monitoring can be introduced for better monitoring of the rotor. They are rotor flux monitoring and

shaft monitoring systems. These two features will help us to monitor the rotor specifically.

Rotor Flux Monitoring requirement

The rotor insulation system is designed to withstand electrical, mechanical, thermal, and environmental stresses. Shorted turns are the result of failed insulation between rotor turns, which is a common occurrence in large turbine generators. Major causes of shorted turns in rotor windings are

- 1) Contamination with conductive debris;
- 2) Relative movement of the turns during turning gear operation leading to copper dusting;
- 3) axial thermal expansion during load cycling that can abrade the turn and slot insulations, or cause migration of the turn insulation strips in the end winding area, leading to shorts.
- 4) long-term thermal aging of the insulation.

Puncture of the turn insulation does not result in the failure of the generator, and in fact it is sometimes possible for rotors to continue to operate with a few shorted turns. Different factors will affect how serious the problem caused by rotor winding shorted turns will be. In many cases, the rotor will still run without significant consequences, as long as the excitation system can compensate for lower number of active turns in the rotor winding. However, the most noticeable effect can be increased rotor vibration. Since the resistance of coils with shorted turns is lower, they are likely to operate at lower temperatures compared to coils without shorted turns. This temperature difference will cause uneven heating of the rotor forging and can cause the rotor to bow. The bowing will increase with increasing load due to higher temperatures resulting from higher excitation current and may cause rotor vibrations. Therefore, this situation is frequently described as thermally sensitive vibration. Two pole rotors are much more sensitive to thermal vibrations than four-pole rotors. The condition of the rotor winding turn insulation is difficult to assess during a shutdown due to limited access and the frequently intermittent nature of faults at operational speed, and at standstill. As a result, online testing is a more effective way to detect shorted turns. Magnetic flux monitoring are used to find rotor winding shorted turns when the rotor is spinning.

Shaft Monitoring requirement:



During the normal operation of electrical machines, AC voltages can be induced in the shaft, or created by the rotating elements of the turbine, connected to the same shaft. If voltages are high enough, shaft currents can reach levels capable of causing bearing failures. The main sources of shaft voltages are:

1. Potential applied to the shaft as result of rotor winding ground fault or spikes caused by excitation system (spikes up to 200 V)
2. Asymmetry of magnetic fields caused by design or manufacturing details or by large stator core faults (can induce up to 150 V AC)
3. Flux generated by axially magnetized turbine and generator parts (up to 5 V DC)
4. Shaft movement off magnetic center
5. Electrostatic effects caused by charged steam or lubricants

Voltages of up to 150 Vp-p can be created on the shaft and as a result of potential difference between shaft and other, grounded parts of the machine, damage to bearing surfaces and oil seals can occur. In addition to pitting (mechanical damage resulting from arcing between shaft and bearing) shaft currents may also alter chemical properties of lubrication oil. Without effective shaft grounding, bearings and oil films are the only insulation between shaft and grounded parts and shaft currents are not confined and cannot be controlled.

To control and keep shaft voltages low, one or both of generator shaft bearings are insulated and shaft is grounded using one or two closely spaced grounding devices, usually carbon, silver or copper brush, or copper braid. The principal function of shaft monitoring instrument is to warn user about following situations:

1. Poor performance of grounding brush
2. Presence of additional grounds on the shaft
3. Presence of high voltage on the shaft

The Petitioner has claimed total expenditure of Rs. 258.84 Lakh in the period 2019-24 and 2024-29 towards implementation of Online Moisture Removal System. Out of which, the Petitioner has discharged Rs. 63.84 Lakh in the 2019-24 period and proposes to execute the remaining works related to the scheme in the year 2027-28 and discharge the balance Rs. 195 Lakh.

In view of the above, the Petitioner humbly requests the Hon'ble Commission to allow the additional capital expenditure proposed by the Petitioner of Rs.195 lakh in the year 2027-28 under Regulation 26(1)(i) of the Tariff Regulations 2024.

#### 6.17 GBC Master Auto Control Logic Implementation

The Petitioner humbly submits that an expenditure of Rs. 110 Lakh is proposed towards GBC Master Auto Control Logic Implementation in the year 2025-26 under Regulation 26(1)(i) of the Tariff Regulations 2024.

The Petitioner humbly submits that Natural Gas is a highly flammable substance, and any leakage could potentially result in a fire incident. Currently, there is no Gas Leak Detection system in place within the Gas Boosting Compressor (GBC) area. Therefore, it is recommended to install permanent Hazardous Gas Leak Detectors in various locations throughout the three GBC units and the GBC Motor Control Center (MCC) room. This system will promptly alert personnel to any gas leaks, allowing for immediate corrective action.

The GBC area comprises three Gas Boosting Compressors and an MCC room. Specific areas within the GBC have been identified as potential sites for gas leaks. It is proposed to install Gas Leak Detectors at these locations to detect and notify of any leaks. The identified locations include the Compressor Suction valve flange, Compressor suction flow element, Compressor inlet flange, Compressor outlet flange, Compressor anti-surge valve flange, and Compressor anti-surge valve cooler inlet. Additionally, gas leak detectors should also be installed in the GBC MCC room.

The detectors are equipped with built-in hooters and flashlights. In the event of a gas leak, the detectors will emit a sound, and a red light will flash like a siren, alerting nearby personnel. This will enable operators to be promptly notified of the exact location of the gas leak. The detectors will continuously display the percentage of Lower Explosive Limit (LEL) at specific locations. If the value exceeds the alarm threshold, the system will trigger an alarm through the hooter and flashing red light. The operator will then take necessary action based on the alarm and will inform the Central Control Room (CCR).

In view of the above, the Petitioner humbly requests the Hon'ble Commission to allow the additional capital expenditure proposed by the Petitioner of Rs.110 lakh in the year 2025-26 under Regulation 26(1)(i) of the Tariff Regulations 2024.

### 6.18 Hazardous Gas Detection System for GBC

The Petitioner humbly submits that an expenditure of Rs. 40 Lakh is proposed towards Hazardous Gas Detection System for GBC in the year 2024-25 under Regulation 26(1)(d) and Regulation 102 and Regulation 103 of the Tariff Regulations 2024.

It is submitted that Natural Gas is highly flammable gas. Any leakage of Natural Gas could potentially lead to a fire incident. Currently, there is no Gas Leak Detection system available in GBC area. Hence it is recommended to install permanent Hazardous Gas Leak Detectors in the various area of the 3 nos of GBC and GBC MCC room. This setup will promptly alert personnel in case of any leaks, enabling necessary corrective action to be taken promptly.

GBC area consists of three Gas Boosting Compressors and an MCC room. Some areas within the GBC are identified as potential locations for gas leaks and it is proposed to install Gas Leak Detectors in these areas to detect and notify of any leaks. These areas include Compressor Suction valve flange, Compressor suction flow element, Compressor inlet flange, Compressor outlet flange, Compressor anti-surge valve flange and Compressor anti-surge valve cooler inlet. Additionally, gas leak detectors are to be installed in GBC MCC room also.

The hooter and flashlight are built in along with the detector. When gas leak is detected, the detectors will sound and a red light will flash like a siren, alerting people nearby. This will allow operators to be promptly alerted to the specific location of gas leak. The detectors will continuously show % LEL of the specific locations. If value exceeds the alarm limit, it triggers an alarm in the form of a hooter and a red light will flash. The operator will then take action based on the alarm and will intimate CCR.

In view of the above, the Petitioner humbly requests the Hon'ble Commission to allow the additional capital expenditure proposed by the Petitioner of Rs. 40 lakh in the year 2024-25 under Regulation 26(1)(d) and Regulation 102 and Regulation 103 of the Tariff Regulations 2024.

### 6.19 FGMO Implementation

The Petitioner humbly submits that an expenditure of Rs. 900 Lakh (Rs. 450 lakh in FY 2025-26 and Rs. 450 Lakh in FY 2026-27) is proposed towards FGMO Implementation

under Regulation 25(1)(b) of the Tariff Regulations 2024.

The Petitioner respectfully submits that the proposed implementation is necessary to comply with Regulation 30(10)(d) of the Indian Electricity Grid Code (IEGC) Regulations, 2023, requirements. The synchronization and connection of the grid and generator depend on maintaining key power parameters, with frequency being a primary parameter for ensuring the generator operates in response to grid demands. The generator's capability and output are regulated by the turbine governing system, which must respond to grid requirements to maintain stability and frequency. For instance, in the event of increased grid demand (resulting in a frequency drop), the generator must increase its output to support this demand, and conversely, decrease output when demand falls.

Generally, primary frequency control is integrated with the turbine governing system and operates automatically to mitigate grid frequency variations by adjusting generator output according to its droop characteristics. However, this control is instantaneous and reverts to the secondary control loop. While primary frequency control exists, it is insufficient for sustaining frequency restoration towards the nominal value of 50 Hz. Therefore, it is essential to define the frequency response range, the dead band where no response is required, the time frame for holding the response, and the fast ramp rate for loading and unloading.

The timeframe for primary governor control action is designed to ensure that secondary control can take over, allowing primary reserves to be restored. According to the Central Electricity Regulatory Commission (CERC) guidelines of 2023, compliance with primary frequency response as per the latest IEGC 2023 mandates the free governing mode of operation (FGMO). Currently, our gas turbines are equipped with FGMO; however, their response is inadequate. Hence, modification of FGMO is required to align with IEGC standards, and primary frequency response testing will be conducted by a third party appointed by the grid authority. The IEGC guidelines and minutes of Meeting of have been attached as **Annexure A22**.

In view of the above, the Petitioner humbly requests the Hon'ble Commission to allow the additional capital expenditure proposed by the Petitioner of Rs. 900 Lakh (Rs. 450 Lakh in FY 2025-26 and Rs. 450 Lakh in FY 2026-27) under Regulation 25(1)(b) of the Tariff Regulations 2024.

#### 6.20 Procurement of Gas Mass Flow meters

The Petitioner humbly submits that a total expenditure of Rs. 150 Lakh (Rs. 50 Lakh in FY 2025-26, Rs. 50 Lakh in FY 2026-27 and Rs. 50 Lakh in FY 2027-28) is proposed towards Procurement of Gas Mass Flow meters under Regulation 26(1)(i) of the Tariff Regulations 2024.

The existing three mass flow meters, which have been in use for several years, have become obsolete, necessitating their replacement with upgraded models in a phased manner. Gas Mass Flow Meters are crucial for accurately measuring the flow rate of gas in the power generation process, optimizing combustion, and ensuring regulatory compliance. The current meters, due to their outdated technology, are prone to inaccuracies, frequent maintenance issues, and potential failures, leading to inefficiencies and increased operational costs. Moreover, the obsolescence of these meters makes it difficult to find replacement parts and technical support. Upgrading to modern Gas Mass Flow Meters will provide improved accuracy, enhanced durability, and better integration with digital control systems. These new meters will offer more precise data, enabling better control of the combustion process, reducing fuel consumption, and minimizing emissions. Additionally, they come with advanced diagnostic features that facilitate proactive maintenance, thus reducing downtime and enhancing operational efficiency. The phased implementation plan allows for systematic replacement without disrupting ongoing operations, ensuring a smooth transition with ample time for calibration, testing, and integration, which align with the schedule of ongoing overhauling activity at the plant. In this regard, the OEM, M/s Steag, has also identified that the flow meters are defective and has recommended that they should be replaced. The same has been attached as **Annexure-A23**.

In view of the above, the Petitioner humbly requests the Hon'ble Commission to allow the additional capital expenditure proposed by the Petitioner of Rs. 150 Lakh (Rs. 50 Lakh in FY 2025-26, Rs. 50 Lakh in FY 2026-27 and Rs. 50 Lakh in FY 2027-28) under Regulation 26(1)(i) of the Tariff Regulations 2024.

#### 6.21 UPS for HMI



The Petitioner humbly submits that an expenditure of Rs. 20 Lakh is proposed towards UPS for HMIs in the year 2025-26 under Regulation 26(1)(i) of the Tariff Regulations 2024.

Presently, the Control system (MaxDNA) of STG & BOP and Mark VI control system and all HMIs of gas turbine run on plant UPS power supply. These HMIs are very important for operator for plant running and emergency handling of plant. Availability of all HMIs are very critical in case of plant black out and power failure for plant emergency handling. But in case of UPS power failure, these HMI's power supply loss will lead to HMI black out and no screen is available for operator and control will result in complete black out. So the OEM, M/S Steag, recommended to install an additional new small UPS for each HMI so that in case of power blackout or main UPS power failure HMI should not get black out. The same has been attached in **Annexure-A24**. In view of the above, the Petitioner humbly requests the Hon'ble Commission to allow the additional capital expenditure proposed by the Petitioner of Rs.20 lakh in the year 2025-26 under Regulation 26(1)(i) of the Tariff Regulations 2024.

#### 6.22 New Smoke Detectors for MCC Rooms

The Petitioner humbly submits that an expenditure of Rs.40 Lakh is proposed towards New Smoke Detectors for MCC Rooms in the year 2025-26 under Regulation 26(1)(d) read with Regulation 102 and Regulation 103 of the Tariff Regulations 2024.

In light of the critical role of MCC rooms, the inherent fire risks, and the importance of early fire detection, the Petitioner emphasizes that the installation of smoke detectors is a necessary safety investment. This measure not only protects vital electrical equipment but also ensures the safety of plant personnel and the continuity of operations. In this regard, it is submitted that Bureau Veritas Industrial Services India Pvt. Ltd. conducted Technical cum Electrical System Safety Audit of Plant LT System (AC/DC System) On 14.9.2024 and has recommended that new smoke detectors may be installed in the MCC Rooms. The same has been attached as **Annexure-A25**.

The Petitioner respectfully requests the Hon'ble Commission to approve the expenditure for installing smoke detectors in MCC rooms, recognizing their essential role in enhancing the plant's fire safety and operational integrity.

In view of the above, the Petitioner humbly requests the Hon'ble Commission to allow the additional capital expenditure proposed by the Petitioner of Rs. 40 lakh in the year

2025-26 under Regulation 26(1)(d) read with Regulation 102 and Regulation 103 of the Tariff Regulations 2024.

### 6.23 CCTV surveillance for plant area

The Petitioner humbly submits that an expenditure of Rs.170 Lakh is proposed towards CCTV surveillance for plant area in the year 2025-26 under Regulation 26(1)(d) of the Tariff Regulations 2024.

The Petitioner humbly submits that CCTV Cameras are installed in the various locations of our plant for security surveillance and surveillance of operational areas. The healthiness of these CCTV cameras is important for plant security and safety. But the existing CCTV system is working on a decade old analogue technology where images are not clear and appear grainy or blurry and one also cannot be digitally zoom due to its limitation in technology. This CCTV system has also become obsolete, and no spare & support service is available as a result faulty & failed cameras are not repairable. Hence the existing CCTV cameras are not fulfilling required purposes.

There are multiple times audit observations and recommendations "Camera technology shall require to be replaced with advance technology" with Risk level High. So as per security requirement and compliance of audit recommendation, there is a need for upgrading the existing CCTV surveillance system with latest technology. The recommendations for the same has been attached as **Annexure-A26**. With recent technological advancements, newer security cameras with advance surveillance analytics and CCTV systems have many more advanced capabilities that will improve and support our Plant security system.

So, as per the security requirements, plant operational requirements and compliances of audit recommendations, there is an urgent need for upgrading the existing CCTV surveillance system with latest technology. With new technology CCTV system, the requirement of availability of CCTV camera, backup compliance, plant operational requirement and plant security will be fulfilled and complied.

In view of the above, the Petitioner humbly requests the Hon'ble Commission to allow the additional capital expenditure proposed by the Petitioner of Rs.170 lakh in the year 2025-26 under Regulation 26(1)(d) read with Regulation 102 and Regulation 103 of the Tariff Regulations 2024.



#### 6.24 Purchase of Performance & Analytics Software

The Petitioner humbly submits that an expenditure of Rs. 420 Lakh is proposed towards purchase of Performance & Analytics Software in the year 2024-25 under Regulation 26(1)(d) of the Tariff Regulations 2024.

The Petitioner humbly submits that Machine learning-based predictive maintenance plan detects any failure event significantly quicker, compared to the traditional approaches.

This strategy utilizes the following sequential steps:

- Real-time data fetching, organizing, stacking, and classifying.
- Process data may be temperature, current, flow, pressure, vibration, level or calculated variables.
- Using engineering knowledge and the machine learning approach, develop a predictive model of the variable and save as the operating baseline
- Detect process anomalies and diagnose / mitigate the issue before its occurrence

The predictive maintenance will help in ensuring that unplanned outages are reduced. In this regard, it is submitted that based on Technical System Audit conducted by Black & Veatch, it is recommended that Performance Monitoring and Predictive Analytics Approach to reduce Heat Rate by 10-15 kCal/kWh. The same System Audit report has been attached as **Annexure-A27**. In view of the above, the Petitioner humbly requests the Hon'ble Commission to allow the additional capital expenditure proposed by the Petitioner of Rs.420 lakh in the year 2024-25 under Regulation 26(1)(d) of the Tariff Regulations 2024.

#### 6.25 Side Stream Filter for Cooling Tower

The Petitioner humbly submits that an expenditure of Rs.1,350 Lakh is proposed towards Side Stream Filter for Cooling Tower in the year 2025-26 under Regulation 26(1)(i) of the Tariff Regulations 2024.

It is an essential system for plant operations as the side stream filtration systems continuously filter a portion of the cooling water to remove debris and particles and return filtered water to the cooling tower. These systems continuously remove suspended solids, organics, and silt particles for a portion of the water system, reducing the likelihood of fouling and bio growth, which helps to control other issues in the system such as scaling and corrosion. This improves system efficiency and often reduces the

amount of water that is rejected from the system, called blow down. Since, cooling towers operate outside they are susceptible to dirt and debris carried by the wind. Birds and insects like to live in and around cooling towers due to the warm, wet environment. The combination of process and environmental factors can contribute to four primary treatment concerns encountered in most open-recirculating cooling systems corrosion, scaling, fouling, and microbiological activity, these treatment concerns are inter-related such that reducing one can have an impact on the severity of the other three. Considering reduction in Fouling, scaling and microbiological growth after installation of SSF, it is expected that the useful life of Cooling Tower fills will increase by 20 to 25%. With SSF the CT fills change frequency is expected by 10 years. The Tentative cost of 16 CT cells Fill Pack is approximately 5 crores considering useful life 6 year without SSF and 10-year useful life with SSF. By using SSF we may be able to run on higher COC (present COC 6.0 to 7.0) with has the potential to reduce blowdown water by 10 % with increment of 1 point of COC. Though our water cost is less but water scarcity is high during dry season.

Further, in this regard, it is submitted that a Chemistry Review was conducted in OTPC in September 2023. In the report submitted on the basis of Chemistry review, it is recommended that the Side stream Filtration may may be installed to reduce slit burden of CW water. The same has been attached as **Annexure-A28**.

In view of the above, the Petitioner humbly requests the Hon'ble Commission to allow the additional capital expenditure proposed by the Petitioner of Rs.1,350 lakh in the year 2025-26 under Regulation 26(1)(i) of the Tariff Regulations 2024.

#### **6.26 Installation of Zero Liquid Discharge**

The Petitioner humbly submits that an expenditure of Rs.500 Lakh is proposed towards Side Stream Filter for Cooling Tower in the year 2026-27 under Regulation 26(1)(i) of the Tariff Regulations 2024. Zero liquid discharge (ZLD) is a wastewater Management strategy that eliminates liquid waste and maximizes water usage efficiency. Water scarcity one of the most critical challenges in OTPC, mostly in summer season. OTPC is using large amounts of water to run the plant and generate high quantum of wastewater, approximately 1500 M3 effluent discharging into the Gomati River per day. The concerns over the environmental impact of water pollution are increasing day by day. In the current situation, it is required to recycle the wastewater generated from our

plant. On the other hand, environmental authorities are directing industrial units to establish "Zero Liquid Discharge (ZLD) plants" in all industrial sectors. Hence, for waste minimization, resource recovery, wastewater treatment and mitigation of potential impacts on water quality of receiving streams, ZLD (Zero-Liquid Discharge) is being thought of an evolving technology. Application of ZLD is limited due to increased energy consumption and their cost even though their capability for minimising water pollution and maximising water resources. The Tripura State Pollution Control Board has issued a Certificate for Consent to Operate and the same has been attached as **Annexure-A29**. In view of the above, the Petitioner humbly requests the Hon'ble Commission to allow the additional capital expenditure proposed by the Petitioner of Rs.500 lakh in the year 2026-27 under Regulation 26(1)(i) of the Tariff Regulations 2024.

#### **6.27 Construction of H2 Cylinder Storage Building**

The Petitioner humbly submits that an expenditure of Rs. 100 lakh (Rs. 20 Lakh and Rs. 80 Lakh in FY 2024-25 and FY 2025-26 respectively) is proposed towards Construction of H2 Cylinder Storage Building under Regulation 26(1)(i) of the Tariff Regulations 2024.

It is submitted that due to the remote location of the plant, hydrogen cylinders are not readily available, and uninterrupted access to these cylinders is essential for continuous operations. It is observed in case of any breakdown of H2 plant no cylinders are available in the Northern region and it is not possible to run the plant with cylinder source from outside suppliers. Considering the above situation the storage and bottling capacity of the hydrogen plant needs to be enhanced for uninterrupted generation of the power plant. In view of the above, the Petitioner humbly requests the Hon'ble Commission to allow the additional capital expenditure proposed by the Petitioner of Rs. 100 lakh (Rs. 20 Lakh and Rs. 80 Lakh in the FY 2024-25 and FY 2025-26 respectively) under Regulation 26(1)(i) of the Tariff Regulations 2024.

#### **6.28 Construction of Well Type Pump House (River Water Pumpouse)**

The Petitioner humbly submits that an expenditure of Rs. 440 lakh (Rs. 90 Lakh in FY 2025-26, Rs. 100 Lakh in FY 2026-27, Rs. 150 Lakh in FY 2027-28 and Rs. 100 Lakh

in FY 2028-29) is proposed towards Construction of Well Type Pump House under Regulation 26(1)(i) of the Tariff Regulations 2024.

Our plant (OTPC) depends heavily on a consistent and sufficient water supply from the river for its operational activities. However, during the lean period, we face significant water scarcity, which impacts our plant's performance and operational efficiency. To address this challenge, we have identified a potential location adjacent to our current river water intake system where we propose to establish additional infrastructure (Well type Pump House) to better manage and augment our water supply to plant. In this regard, the Petitioner has taken permission from Government of Tripura to draw water from Gomati River for operation of its plant. The communication with Government of Tripura has been attached as **Annexure-A30**.

In view of the above, the Petitioner humbly requests the Hon'ble Commission to allow the additional capital expenditure proposed by the Petitioner of Rs. Rs. 440 lakh (Rs. 90 Lakh in FY 2025-26, Rs. 100 Lakh in FY 2026-27, Rs. 150 Lakh in FY 2027-28 and Rs. 100 Lakh in FY 2028-29) under Regulation 26(1)(i) of the Tariff Regulations 2024.

#### 6.29 Construction of Watch Towers

The Petitioner humbly submits that an expenditure of Rs. 570 lakh is proposed towards Construction of Watch Tower (Rs. 150 Lakh, Rs. 120 Lakh, Rs. 120 Lakh and Rs. 180 Lakh in the years 2025-26, 2026-27, 2027-28 and 2028-29 respectively) under Regulation 26(1)(d) of the Tariff Regulations 2024.

Current watch towers are basically constructed with metal structural and are nearly 10 years old. These watch towers have been damaged due to corrosive and humid environment at the OTPC Plant site and need to be rebuilt. Since these watch towers are vital for maintaining security surveillance round the clock and considering the present conditions of watch towers, these are to be replaced by concrete watch tower in a phase wise manner.

In view of the above, the Petitioner humbly requests the Hon'ble Commission to allow the additional capital expenditure proposed by the Petitioner of Rs. 570 lakh (Rs. 150 Lakh, Rs. 120 Lakh, Rs. 120 Lakh and Rs. 180 Lakh in the years 2025-26, 2026-27, 2027-28 and 2028-29 respectively) under Regulation 26(1)(d) of the Tariff Regulations 2024.



### 6.30 Procurement of Fire Tender

The Petitioner humbly submits that an expenditure of Rs. 180 lakh is proposed towards Procurement of Fire Tender (Rs. 80 Lakh and Rs. 100 lakh in the years 2025-26 and 2027-28 respectively) under Regulation 26(1)(d) of the Tariff Regulations 2024.

It is submitted that OTPC plant has a well-mannered fire protection and fire prevention systems throughout the plant, and at present we have two A-type fire tenders with a water capacity of 3000 litres each, which is very less in capacity and water is only suitable for solid-based fire. As OTPC is a gas-based power plant where hazardous gases like hydrogen, natural gas and hazardous and flammable chemicals like chlorine, transformer oil, etc. are used and the plant also has high-rise buildings and switchyards within the plant area. Keeping the same in mind, OTPC proposes to purchase one B-type multipurpose fire tender that will consist of Water, Foam, CO<sub>2</sub>, and DCP. This proposed fire tender will be helpful for fire fighters to mitigate the fire with great flexibility and reliability.

In view of the above, the Petitioner humbly requests the Hon'ble Commission to allow the additional capital expenditure proposed by the Petitioner of Rs. 180 lakh (Rs. 80 Lakh and Rs. 100 lakhs in the years 2025-26 and 2027-28 respectively) under Regulation 26(1)(d) of the Tariff Regulations 2024.

### 6.31 Scrapyard Fencing

The Petitioner humbly submits that an expenditure of Rs. 20 Lakh is proposed towards Scrapyard Fencing in the year 2025-26 under Regulation 26(1)(d) of the Tariff Regulations 2024.

It is submitted that the audit report has identified the lack of proper fencing and demarcation for the scrap yard as a key concern, emphasizing the need for a designated, secure space for scrap material storage. Storing scrap materials in an unorganized manner poses risks, including safety hazards, environmental contamination, and unauthorized access. Proper fencing and designated area demarcation will improve site organization, reduce the risk of accidents, and ensure better management of scrap materials, in line with industry best practices. The same has been identified in the Internal Audit Report which has been attached as **Annexure-A31**.



In view of the above, the Petitioner humbly requests the Hon'ble Commission to allow the additional capital expenditure proposed by the Petitioner of Rs. 20 lakhs in the year 2025-26 under Regulation 26(1)(d) of the Tariff Regulations 2024.

### 6.32 Construction of Labour Rest Room

The Petitioner humbly submits that an expenditure of Rs. 50 Lakh is proposed towards Construction of Labour Rest Room in the year 2025-26 under Regulation 26(1)(i) of the Tariff Regulations 2024. It is submitted that it is required to construct a dedicated labour rest room within the plant area, providing a safe and comfortable space for workers to rest, take shelter during adverse weather conditions, and have their meals. The absence of a proper rest room currently forces workers to sit in unsafe, informal locations, which may lead to safety risks, especially during extreme weather conditions. There is currently no designated rest room for laborers within the plant premises, forcing them to take breaks in unsuitable areas for rest, meals, or shelter from heat, rain, or other weather conditions. To improve worker welfare, health, and safety, the provision of a designated labour rest room is essential. As per Section 47 of the Factories Act, 1948 (attached as **Annexure-A32**), Shelters, Rest Rooms and Lunchrooms should be there in the factory which is not currently available in our company In view of the above, the Petitioner humbly requests the Hon'ble Commission to allow the additional capital expenditure proposed by the Petitioner of Rs. 50 lakhs in the year 2025-26 under Regulation 26(1)(i) of the Tariff Regulations 2024.

### 6.33 Extension of Existing Meeting Room

The Petitioner humbly submits that an expenditure of Rs. 55 Lakh (Rs. 5 Lakh in FY 2025-26 and Rs. 50 lakh FY 2026-27) is proposed towards extension of Existing Meeting Room under Regulation 26(1)(i) of the Tariff Regulations 2024.

It is submitted that to extend the existing meeting room to better accommodate delegates and VVIPs during conferences, refreshment breaks, and lunch/dinner events. The current room is too small to meet the requirements for these events, and the extension will provide the necessary space for hosting various meetings & conferences comfortably. The existing meeting room lacks sufficient space to accommodate the large number of delegates and VVIPs for attending conferences and related events.



An extension of the room will ensure that the space can cater to larger groups and facilitate smooth operations during events. A designated area for serving refreshments, lunch, and dinner, separate from the main conference space, allowing seamless service and convenience for the guests.

In view of the above, the Petitioner humbly requests the Hon'ble Commission to allow the additional capital expenditure proposed by the Petitioner of Rs. 55 Lakh (Rs. 5 Lakh in FY 2025-26 and Rs. 50 lakh FY 2026-27) is proposed towards extension of Existing Meeting Room under Regulation 26(1)(i) of the Tariff Regulations 2024.

#### 6.34 Covering of Open Yard of Store

The Petitioner humbly submits that an expenditure of Rs. 20 Lakh (Rs. 10 lakh each in the years 2025-26 and 2026-27 respectively) is proposed towards covering of Open yard of Store under Regulation 26(1)(i) of the Tariff Regulations 2024.

It is submitted that to cover the open yard of the store to protect materials from weather-related damage, deterioration, and decay covering of open store yard is required. The open storage area currently exposes materials to environmental conditions, which can lead to degradation and potential destruction of stock. The materials stored in the open yard are susceptible to damage from various weather conditions, such as rain, heat, humidity, and dust, which can cause decay, corrosion, or other forms of deterioration. Covering the open yard of the store will significantly reduce the risk of weather-related damage, decay, and destruction of materials. This initiative will not only protect inventory but also improve operational efficiency, reduce losses, and increase the lifespan of stored goods. The proposal aims to create a safer and more reliable storage environment, ensuring that materials remain in good condition for longer periods. To ensure the protection of materials and improve the longevity and quality of stock, it is essential to cover the open yard and create a more secure and weather-resistant storage environment.

In view of the above, the Petitioner humbly requests the Hon'ble Commission to allow the additional capital expenditure proposed by the Petitioner of Rs. 20 lakh (Rs. 10 lakh each in the years 2025-26 and 2026-27 respectively) under Regulation 26(1)(i) of the Tariff Regulations 2024.

#### 6.35 Plant Area Fencing



The Petitioner humbly submits that an expenditure of Rs. 50 Lakh (Rs. 25 Lakh each in the years 2025-26 and 2026-27 respectively) is proposed towards Plant Area Fencing under Regulation 26(1)(i) of the Tariff Regulations 2024.

It is submitted that construction of plant area fencing at OTPC Palatana, based on the recommendations and requirements outlined in the letter and security inspection report received from the Intelligence Bureau (IB). The inspection team, comprising Govt. security officials, CSO, Plant management, and OTPC Civil team, conducted a joint site visit to validate the necessity of the proposed fencing. During the site visit, the authenticity of the need for enhanced security measures in the vital installation plant area was visibly evident. OTPC comes under the vital installations and close to international border required to isolate the plant area from rest of the plant premises to strengthen security of the plant.

In view of the above, the Petitioner humbly requests the Hon'ble Commission to allow the additional capital expenditure proposed by the Petitioner of Rs. 50 Lakh (Rs. 25 Lakh each in the years 2025-26 and 2026-27 respectively) under Regulation 26(1)(i) of the Tariff Regulations 2024.

#### **6.36 Development of Store**

The Petitioner humbly submits that an expenditure of Rs. 30 Lakh is proposed towards development of Store in the year 2025-26 under Regulation 26(1)(i) of the Tariff Regulations 2024.

It is submitted that the Petitioner currently has 4 projects stores apart from the Main store and the Open store. All these stores are filled with various operation related materials. As the project stores are old now, they require regular maintenance. To ensure that the project stores are functional and well-maintained, a comprehensive maintenance and modification plan has been developed. With a structured plan in place, the project stores will be restored and maintained to ensure they remain functional for future operations.

In view of the above, the Petitioner humbly requests the Hon'ble Commission to allow the additional capital expenditure proposed by the Petitioner of Rs. 30 lakh in the year 2025-26 under Regulation 26(1)(i) of the Tariff Regulations 2024.

#### **7 Decapitalization**



7.1 The Regulation 26(3) of the Tariff Regulations 2024 states as follows:

*“(3) In case of de-capitalisation of assets of a generating company or the transmission licensee, as the case may be, the original cost of such asset as on the date of de-capitalisation shall be deducted from the value of gross fixed asset and corresponding loan as well as equity shall be deducted from outstanding loan and the equity respectively in the year such de-capitalisation takes place with corresponding adjustments in cumulative depreciation and cumulative repayment of loan, duly taking into consideration the year in which it was capitalized*

*Provided that in cases where an asset forming part of a scheme is de-capitalised and wherein the historical value of such asset is not available, the value of de-capitalisation shall be computed by de-escalating the value of the new asset by 5% per year until the year of capitalisation of the old asset subject to a minimum of 10% of the replacement cost of the asset.”*

7.2 It is submitted that the actual value of decapitalization in case of assets decapitalised during 2024-29 period shall be submitted at the time of truing up.

8 Capital cost claimed for 2024-29

8.1 As already stated, the Petitioner has considered closing capital cost as on 31.3.2024 as arrived in the True Petition as opening capital cost as on 1.4.2024. The following table summarizes capital cost considered as on 1.4.2024, Additional Capital Expenditure, decapitalization considered, and discharges made during the respective years:

**Table 4: Capital Cost for Tariff Period 2024-29**

Particulars	(Rs. Lakh)				
	2024-25	2025-26	2026-27	2027-28	2028-29
Opening Capital Cost	3,68,767.37	3,70,548.37	3,74,761.37	3,78,981.37	3,82,195.37
Add: Addition during the year / period	1,781.00	4,213.00	4,220.00	3,214.00	2,012.00
Less: De-capitalisation during the year / period	-	-	-	-	-
Less: Reversal during the year / period	-	-	-	-	-
Add: Discharges during the year / period	-	-	-	-	-
<b>Closing Capital Cost</b>	<b>3,70,548.37</b>	<b>3,74,761.37</b>	<b>3,78,981.37</b>	<b>3,82,195.37</b>	<b>3,84,207.37</b>
Average Capital Cost	3,69,657.87	3,72,654.87	3,76,871.37	3,80,588.37	3,83,201.37

9 FINANCING OF ADDITIONAL CAPITAL EXPENDITURE

9.1 The Petitioner humbly submits that the additional capital expenditure proposed to be incurred during the 2024-29 period has been funded through internal accruals and debt in the in the ratio of 70:30.



## 10 RETURN ON EQUITY

### 10.1 Regulation 30 of the CERC Tariff Regulations, 2024 stipulates the following norms for Return on Equity.

*“30. Return on Equity: (1) Return on equity shall be computed in rupee terms, on the equity base determined in accordance with Regulation 18 of these regulations.*

*(2) Return on equity shall be computed at the base rate of 15.50% for thermal generating station, transmission system including communication system and run-of river hydro generating station, and at the base rate of 16.50% for the storage type hydro generating stations including pumped storage hydro generating stations and run-of river generating station with pondage:*

*(3) Return on equity for new project achieving COD on or after 01.04.2024 shall be computed at the base rate of 15.00% for the transmission system, including the communication system, at the base rate of 15.50% for Thermal generating station and run-of-river hydro generating station and at the base rate of 17.00% for storage type hydro generating stations, pumped storage hydro generating stations and run-of-river generating station with pondage; Provided that return on equity in respect of additional capitalization beyond the original scope, including additional capitalization on account of the emission control system, Change in Law, and Force Majeure shall be computed at the base rate of one-year marginal cost of lending rate (MCLR) of the State Bank of India plus 350 basis points as on 1st April of the year, subject to a ceiling of 14%; Provided further that:*

*i. In case of a new project, the rate of return on equity shall be reduced by 1.00% for such period as may be decided by the Commission if the generating station or transmission system is found to be declared under commercial operation without commissioning of any of the Free Governor Mode Operation (FGMO), data telemetry, communication system up to load dispatch centre or protection system based on the report submitted by the respective RLDC;*

*ii. in case of an existing generating station, as and when any of the requirements under (i) above of this Regulation are found lacking based on the report submitted by the concerned RLDC, the rate of return on equity shall be reduced by 1.00% for the period for which the deficiency continues;*

*iii. in the case of a thermal generating station:*

*a) rate of return on equity shall be reduced by 0.25% in case of failure to achieve the ramp rate as specified under Regulation 45(9) of IEGC Regulations, 2023.*

*b) an additional rate of return on equity of 0.125% shall be allowed for every incremental ramp rate of 0.50% per minute achieved over and above the ramp rate specified by Central Electricity Authority, subject to the ceiling of additional rate of return on equity of 1.00%*

*31. Tax on Return on Equity. (1) The rate of return on equity as allowed by the Commission under Regulation 30 of these regulations shall be grossed up with the effective tax rate of the respective financial year. The effective tax rate shall*



*be calculated at the beginning of every financial year based on the estimated profit and tax to be paid estimated in line with the provisions of the relevant Finance Act applicable for that financial year to the concerned generating company or the transmission licensee by excluding the income of non-generation or non-transmission business, as the case may be, and the corresponding tax thereon.*

*Provided that in case a generating company or transmission licensee is paying Minimum Alternate Tax (MAT) under Section 115JB of the Income Tax Act, 1961, the effective tax rate shall be the MAT rate, including surcharge and cess; Provided further that in case a generating company or transmission licensee has opted for Section 115BAA, the effective tax rate shall be tax rate including surcharge and cess as specified under Section 115BAA of the Income Tax Act, 1961.*

*(2) The rate of return on equity shall be rounded off to three decimal places and shall be computed as per the formula given below:*

*Rate of pre-tax return on equity = Base rate / (1-t)*

*(3) The generating company or the transmission licensee, as the case may be, shall true up the effective tax rate for every financial year based on actual tax paid together with any additional tax demand, including interest thereon, duly adjusted for any refund of tax including interest received from the income tax authorities pertaining to the tariff period 2024-29 on actual gross income of any financial year. Further, any penalty arising on account of delay in deposit or short deposit of tax amount shall not be considered while computing the actual tax paid for the generating company or the transmission licensee, as the case may be.*

*Provided that in case a generating company or transmission licensee is paying Minimum Alternate Tax (MAT) under Section 115JB, the generating company or the transmission licensee, as the case may be, shall true up the grossed up rate of return on equity at the end of every financial year with the applicable MAT rate including surcharge and cess.*

*Provided that in case a generating company or transmission licensee is paying tax under Section 115BAA, the generating company or the transmission licensee, as the case may be, shall true up the grossed up rate of return on equity at the end of every financial year with the tax rate including surcharge and cess as specified under Section 115BAA.*

*Provided that any under-recovery or over recovery of grossed up rate on return on equity after truing up, shall be recovered or refunded to beneficiaries or the long term customers, as the case may be, on a year to year basis."*

- 10.2** Based on the above quoted Regulations, the opening equity base for the period 2024-29 for the Petitioner's Generating Station has been determined based on the closing equity as of 31.03.2024, along with equity additions during 2024-29. It is humbly submitted that the Petitioner shall be paying MAT for 2024-29 tariff period and the same has been considered as effective Tax Rate for the purpose of Grossing-up of the Rate of Return. Further, in accordance with the Regulation 30 for the purpose of computation of the



Return on Equity, the grossing up of the base rate has been done with respect of tax rate applicable to the Petitioner for the purpose of 2024-29 year wise.

**Table 5: RoE during FY 2024-29 – Assets capitalized under Original Scope of Work**

*(Rs. Lakh)*

Particulars	2024-25	2025-26	2026-27	2027-28	2028-29
Normative Equity-Opening	94,799.95	95,018.35	95,407.75	95,557.75	96,302.95
Addition of Equity due to additional capital expenditure	218.40	389.40	150.00	745.20	519.60
Normative Equity-Closing	95,018.35	95,407.75	95,557.75	96,302.95	96,822.55
Average Normative Equity	94,909.15	95,213.05	95,482.75	95,930.35	96,562.75
Return on Equity (Base Rate)	15.50%	15.50%	15.50%	15.50%	15.50%
Effective Tax Rate	17.47%	17.47%	17.47%	17.47%	17.47%
Rate of Return on Equity (Pre-Tax)	18.80%	18.80%	18.80%	18.80%	18.80%
<b>Return on Equity (Pre-Tax) annualised</b>	<b>17,842.92</b>	<b>17,900.05</b>	<b>17,950.76</b>	<b>18,034.91</b>	<b>18,153.80</b>

**Table 6: RoE during FY 2024-29 – additional capitalization beyond the original scope, including additional capitalization on account of the emission control system, Change in Law, and Force Majeure**

*(Rs. Lakh)*

Particulars	2024-25	2025-26	2026-27	2027-28	2028-29
Normative Equity - Opening	1,630.07	1,945.97	2,820.47	3,936.47	4,155.47
Addition of Equity due to additional capital expenditure	315.90	874.50	1,116.00	219.00	84.00
Normative Equity-Closing	1,945.97	2,820.47	3,936.47	4,155.47	4,239.47
Average Normative Equity	1,788.02	2,383.22	3,378.47	4,045.97	4,197.47
ROE - (1 Yr MCLR SBI + 350 BP) as on 1 April of the year	12.15%	12.15%	12.15%	12.15%	12.15%
MAT Rate	17.47%	17.47%	17.47%	17.47%	17.47%
Rate of ROE (%)	14.70%	14.70%	14.70%	14.70%	14.70%
<b>Return on Equity (Pre Tax) - Annualised</b>	<b>262.84</b>	<b>350.33</b>	<b>496.63</b>	<b>594.76</b>	<b>617.03</b>

**10.3** The Petitioner, therefore, humbly requests the Hon'ble Commission to allow the Return on Equity (Pre-Tax) on Original and Beyond the Original Scope of work (including additional capitalization on account of the emission control system, Change in Law, and Force Majeure) as claimed in the above table for the FY 2024-29 tariff period.



## 11 INTEREST ON LOAN

11.1 Regulation 32 of the CERC Tariff Regulations, 2024 stipulates the following norms for Interest on Loan:

*"32. Interest on loan capital:*

*(1) The loans arrived at in the manner indicated in Regulation 18 of these regulations shall be considered gross normative loans for the calculation of interest on loans.*

*(2) The normative loan outstanding as on 1.4.2024 shall be worked out by deducting the cumulative repayment as admitted by the Commission up to 31.3.2024 from the gross normative loan.*

*(3) The repayment for each of the years of the tariff period 2024-29 shall be deemed to be equal to the depreciation allowed for the corresponding year or period. In case of de-capitalization of assets, the repayment shall be adjusted by taking into account cumulative repayment on a pro rata basis, and the adjustment should not exceed cumulative depreciation recovered up to the date of de-capitalisation of such asset.*

*(4) Notwithstanding any moratorium period availed of by the generating company or the transmission licensee, as the case may be, the repayment of the loan shall be considered from the first year of commercial operation of the project and shall be equal to the depreciation allowed for the year or part of the year.*

*(5) The rate of interest shall be the weighted average rate of interest calculated on the basis of the actual loan portfolio or allocated loan portfolio;*

*Provided that if there is no actual loan outstanding for a particular year but the normative loan is still outstanding, the last available weighted average rate of interest of the loan portfolio for the project shall be considered;*

*Provided further that if the generating station or the transmission system, as the case may be, does not have any actual loan, then the weighted average rate of interest of the loan portfolio of the generating company or the transmission licensee as a whole shall be considered.*

*Provided that the rate of interest on the loan for the installation of the emission control system commissioned subsequent to date of commercial operation of the generating station or unit thereof, shall be the weighted average rate of interest of the actual loan portfolio of the emission control system, and in the absence of the actual loan portfolio, the weighted average rate of interest of the generating company as a whole shall be considered, subject to a ceiling of 14%; Provided further that if the generating company or the transmission licensee, as the case may be, does not have any actual loan, then the rate of interest for a loan shall be considered as 1-year MCLR of the State Bank of India as applicable as on April 01, of the relevant financial year.*

*(6) The interest on the loan shall be calculated on the normative average loan of the year by applying the weighted average rate of interest.*

*(7) The changes to the terms and conditions of the loans shall be reflected from the date of such re-financing."*



11.2 For computation of Interest on Loan, the actual weighted average rate of interest at the beginning of the year for the period of 2024-29 has been applied as submitted in the enclosed Form-N.

**Table 7: Interest on Loan During 2024-29**

	(Rs. Lakh)				
	2024-25	2025-26	2026-27	2027-28	2028-29
Gross opening loan	2,58,869.04	2,60,115.74	2,63,064.84	2,66,018.84	2,68,268.64
Cumulative repayment of loan upto previous year	1,65,223.73	1,83,924.86	2,02,777.61	2,21,843.67	2,31,556.45
<b>Net Loan Opening (C) = (A) - (B)</b>	<b>93,645.30</b>	<b>76,190.87</b>	<b>60,287.23</b>	<b>44,175.17</b>	<b>36,712.18</b>
Addition due to additional capital expenditure	1,246.70	2,949.10	2,954.00	2,249.80	1,408.40
Repayment of Loan during the period	18,701.13	18,852.75	19,066.06	9,712.78	9,919.62
Less: Repayment adjustment on a/c of Decap	-	-	-	-	-
Net Repayment of Loan during the period	18,701.13	18,852.75	19,066.06	9,712.78	9,919.62
Net Loan Closing	76,190.87	60,287.23	44,175.17	36,712.18	28,200.97
Average Loan	84,918.09	68,239.05	52,231.20	40,443.68	32,456.58
Weighted Average Rate of Interest of loan	8.330%	8.330%	8.330%	8.330%	8.330%
<b>Interest on Loan</b>	<b>7,073.68</b>	<b>5,684.31</b>	<b>4,350.86</b>	<b>3,368.96</b>	<b>2,703.63</b>

## 12 DEPRECIATION

12.1 Regulation 33 of the CERC Tariff Regulations, 2024 stipulates the following norms for Depreciation:

*“33. Depreciation: (1) Depreciation shall be computed from the date of commercial operation of a generating station or unit thereof or a transmission system or element thereof including communication system. In the case of the tariff of all the units of a generating station or all elements of a transmission system including the communication system for which a single tariff needs to be determined, the depreciation shall be computed from the effective date of commercial operation of the generating station or the transmission system taking into consideration the depreciation of individual units:*

*Provided that the effective date of commercial operation shall be worked out by considering the actual date of commercial operation and installed capacity of all the units of the generating station or capital cost of all elements of the transmission system, for which a single tariff needs to be determined.*

*(2) The value base for the purpose of depreciation shall be the capital cost of the asset admitted by the Commission. In case of multiple units of a generating station or multiple elements of a transmission system, the weighted average life for the generating station or the transmission system shall be applied. Depreciation shall be chargeable from the first year of commercial operation.*



*In the case of commercial operation of the asset for a part of the year, depreciation shall be charged on a pro rata basis.*

*(3) The salvage value of the asset shall be considered as 10%, and depreciation shall be allowed up to the maximum of 90% of the capital cost of the asset:*

*Provided that the salvage value for IT equipment and software shall be considered as NIL and 100% value of the assets shall be considered depreciable;*

*Provided further that in the case of hydro generating stations, the salvage value shall be as provided in the agreement, if any, signed by the developers with the State Government for the development of the generating station:*

*Provided also that the capital cost of the assets of the hydro generating station for the purpose of computation of depreciated value shall correspond to the percentage of the sale of electricity under long-term power purchase agreement at regulated tariff:*

*Provided also that any depreciation disallowed on account of lower availability of the generating station or unit or transmission system, as the case may be, shall not be allowed to be recovered at a later stage during the useful life or the extended life.*

*(4) Land other than the land held under lease and the land for a reservoir in case of a hydro generating station shall not be a depreciable asset and its cost shall be excluded from the capital cost while computing the depreciable value of the asset.*

*(5) Depreciation for Existing Projects shall be calculated annually based on the Straight Line Method and at rates specified in Appendix-I to these regulations for the assets of the generating station and transmission system:*

*Provided that the remaining depreciable value as on 31st March of the year closing after a period of 12 years from the effective date of commercial operation of the generating station or transmission system, as the case may be, shall be spread over the balance useful life of the assets.*

*Provided further that in the case of an existing hydro generating station, the generating company, with the consent of the beneficiaries, may charge depreciation at a rate lower than that specified in Appendix I and Appendix II to these Regulations to reduce front loading of tariff.*

*(6) Depreciation for New Projects shall be calculated annually based on the Straight Line Method and at rates specified in Appendix-II to these regulations for the assets of the generating station and transmission system:*

*Provided that the remaining depreciable value as on 31st March of the year closing after a period of 15 years from the effective date of commercial operation of the generating station or the transmission system, as the case may be, shall be spread over the balance useful life of the assets.*

*Provided further that in the case of a new hydro generating stations, the generating company, with the consent of the beneficiaries, may charge depreciation at a rate lower than that specified in Appendix II to these Regulations to reduce front loading of tariff.*

*(7) In the case of the existing projects, the balance depreciable value as on 1.4.2024 shall be worked out by deducting the cumulative depreciation as admitted to by the Commission up to 31.3.2024 from the gross depreciable value of the assets.*

*(8) The generating company or the transmission licensee, as the case may be,*



*shall submit the details of capital expenditure proposed to be incurred during five years before the completion of useful life along with proper justification and proposed life extension. The Commission, based on prudence check of such submissions, shall approve the depreciation by equally spreading the depreciable value over the balance Operational Life of the generating station or unit thereof or fifteen years, whichever is lower, and in case of the transmission system shall equally spread the depreciable value over the balance useful life of the Asset or 10 years whichever is higher.*

*(9) In case of de-capitalization of assets in respect of generating station or unit thereof or transmission system or element thereof, the cumulative depreciation shall be adjusted by taking into account the depreciation recovered in tariff by the de-capitalised asset during its useful service."*

12.2 The Plant will complete 12 years after COD during FY 2026-27, therefore, to compute depreciation for FY 2027-28 onwards, the remaining depreciable value has been spread across the balance useful life in accordance with Regulation 33(5) of the Tariff Regulations 2024. The Weighted Average Rate of Depreciation is multiplied by Average Gross Block for the year adjusted with Average Gross Block of free hold land to arrive at the allowable depreciation for the year. The computation of depreciation is provided in the Table below:

**Table 8: Depreciation for Control Period 2024-29**

(Rs. Lakh)

	2024-25	2025-26	2026-27	2027-28	2028-29
Average Capital Cost	3,69,657.87	3,72,654.87	3,76,871.37	3,80,588.37	3,83,201.37
Value of freehold land included above	969.21	969.21	969.21	969.21	969.21
Value of software and IT equipment included in average capital cost	3,335.63	3,335.63	3,335.63	3,335.63	3,335.63
Average Capital cost, net of freehold land and IT equipment	3,32,153.35	3,34,850.65	3,38,645.50	3,41,990.80	3,44,342.50
Aggregated Depreciable Value	2,98,938.02	3,01,365.59	3,04,780.95	3,07,791.72	3,09,908.25
Remaining aggregate depreciable value at the beginning of the year	1,66,929.62	1,50,925.79	1,35,867.89	1,20,147.13	1,12,786.05
No. of completed years at the beginning of the year	9.63	10.63	11.63	12.63	13.63
Balance useful life at the beginning of the year	15.37	14.37	13.37	12.37	11.37
Weighted Average Rate of Depreciation (WAROD)	5.06%	5.06%	5.06%	8.08%	8.80%
Combined Depreciation during the year/ period (Prorated)	18,701.13	18,852.75	19,066.06	9,712.78	9,919.62
<b>Combined Depreciation during the year/ period (Annualized)</b>	<b>18,701.13</b>	<b>18,852.75</b>	<b>19,066.06</b>	<b>9,712.78</b>	<b>9,919.62</b>



	2024-25	2025-26	2026-27	2027-28	2028-29
Cumulative depreciation at the end of the year (before adjustment for de-capitalisation)	1,83,924.87	2,02,777.61	2,21,843.67	2,31,556.46	2,41,476.07
Less: Depreciation adjustment on account of de-capitalisation	-	-	-	-	-
Cumulative depreciation at the end of the year	1,83,924.87	2,02,777.61	2,21,843.67	2,31,556.46	2,41,476.07

12.3 The Petitioner humbly requests the Hon'ble Commission to allow the Depreciation as claimed in the above table for the 2024-29 tariff period.

### 13 OPERATIONAL NORMS

13.1 The Tariff Regulations 2024 stipulate various Operational Norms for generating units of different capacities, and the recovery of Capacity Charges & Energy Charges are subject to successful achievement of these Norms. The Petitioner has claimed Operational Parameters as defined in the Tariff Regulations 2024.

13.2 The following Sub-Section details the Operational Performance of the Generating Station during the Control Period 2024-29.

#### A. PLANT AVAILABILITY

13.3 Regulation 70 (A) of CERC Tariff Regulations 2024 specifies the Normative Plant Availability as:

*"Norms of operation for thermal generating station*

*70. The norms of operation as given hereunder shall apply to thermal generating stations:*

*(A) Normative Annual Plant Availability Factor (NAPAF)*

*(a) 85% for all thermal generating stations, except those covered under clauses*

*(b), (c), (d), & (e);"*

13.4 The Petitioner for the purpose of instant Petition has computed Gross Generation for the Control Period of 2024-29 at Normative Availability of 85% in line with the Normative norms.

#### B. Normative Annual Plant Availability Factor

13.5 The computation of Gross Generation is based on the Availability, i.e., it is assumed that all the Capacity that is available in a particular time block would be dispatched. In short, the Plant Load Factor (PLF) would be equal to the Normative Annual Plant Availability



Factor (NAPAF) and the computation of Gross Generation is based on such PLF. Accordingly, the PLF has been considered equivalent to NAPAF of 85%.

**C. Auxiliary Power Consumption**

13.6 Norms for Auxiliary Power Consumption for thermal generating station as stipulated in the Tariff Regulations 2024:

*“70. The norms of operation as given hereunder shall apply to thermal generating stations:*

*(E) Auxiliary Energy Consumption:*

*(c) For Gas Turbine /Combined Cycle generating stations:*

*(i) Combined Cycle : 2.75%*

*(ii) Open Cycle : 1.00%*

*Provided that where the gas based generating station is using electric motor driven Gas Booster Compressor, the Auxiliary Energy Consumption in case of Combined Cycle mode shall be 3.30% (including the impact of air-cooled condensers for Steam Turbine Generators):*

*Provided further that an additional Auxiliary Energy Consumption of 0.35% shall be allowed for Combined Cycle Generating Stations having direct cooling air cooled condensers with mechanical draft fans:*

*(iii) Tripura CCPP: 3.50%*

*(iv) OTPC Palatana CCPP: 3.50%”*

13.7 It is submitted that the OTPC in its True up Petition has requested the Hon’ble Commission to allow actual AEC for the generating station.

13.8 The CEA has recommended normative AEC of 3.5% for the Petitioner’s project along with Admissible % of additional AEC w.r.t PLF band. The details are shown as below:

**Table 9: CEA Recommendation on AEC**

PLF band (%)	90-100	80-89.99	70-79.99	60-69.99	50-59.99
Admissible % of additional AEC w.r.t PLF as per CEA recommendations	Nil	0.25	0.50	0.80	1.20
AEC (%) for Petitioner project as per CEA recommendations	3.50	3.50	3.50	3.50	3.50
<b>Normative AEC (%) w.r.t PLF band</b>	<b>3.50</b>	<b>3.75</b>	<b>4.00</b>	<b>4.30</b>	<b>4.70</b>

13.9 Further, the details of actual AEC for the generating station for 2014-19 and 2019-24 Tariff period is as follows:

**Table 10: Actual Auxiliary Energy Consumption from FY 2014-15 to FY 2018-19**



2014-15	2015-16	2016-17	2017-18	2018-19
3.85%	4.13%	4.23%	4.51%	4.1%

**Table 11: Actual Auxiliary Energy Consumption from FY 2019-20 to FY 2023-24**

2019-20	2020-21	2021-22	2022-23	2023-24
3.9%	3.9%	4.2%	3.9%	4.2%

13.10 It is submitted that the Hon'ble Commission, based on the actual AEC during the 2019-24 tariff period, has recognized this issue in the CERC Tariff Regulation for 2024-29 tariff period and has specifically defined the normative AEC for OTPC Palatana project as 3.50%. However, the actual AEC consumption for the generating station since commissioning is in the range of 3.75% to 4.50%. It is submitted that:

- **Financial Loss:** The plant has experienced a significant financial loss of nearly Rs 190 crores due to higher-than-expected Station Heat Rate (SHR) and Auxiliary Consumption (AUX) since its Commercial Operation Date (COD).
- **Single Plant Concern:** This loss is particularly impactful because Palatana is a single plant company, making it more vulnerable to such financial setbacks.
- **Performance and Challenges:** Palatana has been performing well in terms of Plant Load Factor (PLF) compared to other gas-based stations. However, it has been facing challenges due to dwindling gas supplies, leading to poor PLF over the last year.
- **Rising Gas Prices:** The new policy from the Ministry of Petroleum and Natural Gas (MoPNG) is causing gas prices to rise, which complicates the ability to provide power at reasonable prices.
- **Request for Support:** The plant is seeking support from the Hon'ble Commission and its beneficiaries to sustain its operations.

13.11 In view of the above, the Petitioner humbly requests the Hon'ble Commission to consider actual average AEC for the generating station during 2019-24 and allow AEC of 3.99% and accordingly allow relaxation in AEC for 2024-29 tariff period in terms of Regulation 102 and 103.

**D. Gross Station Heat Rate**



13.12 Regulation 70(c) of the Tariff Regulations 2024 provides the station Heat Rate for the thermal generating station having COD on or after 1.4.2009 as under:

"70 ...

(c) Thermal Generating Stations achieving COD on or after 1.4.2009:

For Natural Gas and RLNG= 1.050 X Design Heat Rate of the unit/block (kCal/kWh)

For Liquid Fuel=1.071 X Design Heat Rate of the unit/block for Liquid Fuel (kCal/kWh)

Where the Design Heat Rate of a unit shall mean the guaranteed heat rate for a unit at 100% MCR and at site ambient conditions, and the Design Heat Rate of a block shall mean the guaranteed heat rate for a block at 100% MCR, site ambient conditions, zero per cent make up, design cooling water temperature/back pressure."

13.13 It is submitted that Regulation 70(C) of the Tariff Regulations 2024 allows Station Heat Rate for Gas-based/ Liquid-based Thermal Generating Unit(s)/ Block(s) having COD on or after 1.4.2009 as 1.050 X Design Heat Rate of the unit/block (kCal/kWh).

13.14 The Central Electricity Authority (CEA) at the time of finalisation of CERC (Terms and Conditions of Tariff) Regulations, 2019 has recommended the following towards SHR w.r.t PLF band which is being replicated as below:

**Table 12: CEA Recommendation on SHR**

PLF band (%)	90-100	80-89.99	70-79.99	60-69.99	50-59.99
Admissible % of additional SHR w.r.t PLF as per CEA recommendations [A]	Nil	2.5	5	8	12
Approved SHR (Kcal/KWh) by CERC [B]	1,754.24	1,754.24	1,754.24	1,754.24	1,754.24
Normative SHR as per CEA recommendations [A/B+B]	1,754.24	1,798.096	1,841.952	1,894.579	1,964.749

13.15 Further, the details of actual SHR for the generating station for 2014-19 and 2019-24 Tariff period is as follows:

**Table 13: Actual Auxiliary Energy Consumption from FY 2014-15 to FY 2018-19**

2014-15	2015-16	2016-17	2017-18	2018-19
1,833.00	1,825.00	1,805.00	1,833.00	1,791.00

**Table 14: Actual Auxiliary Energy Consumption from FY 2019-20 to FY 2023-24**

2019-20	2020-21	2021-22	2022-23	2023-24
1,757.00	1,764.00	1,801.00	1,798.00	1,831.09



13.16 It is further submitted that in the EPC contract signed with OTPC, BHEL has guaranteed the Weighted Average Gross Heat Rate at weighted average of various loads and not at 100% MCLR. The same has been clearly mentioned in the relevant extract of the EPC contract which is attached as Annexures A25(a) & A25(b) of current petition.

13.17 Upon request BHEL has also submitted the Gross Heat Rate values at Gross Calorific Value (GCV) basis. The calculation methodology applied for the conversion of heat rate from NCV basis to GCV basis, as submitted by BHEL, is as produced below:

$$\begin{aligned} \text{Weighted Average GSHR at GCV} &= [(0.4 \times 1670.7) + (0.4 \times 1735.4) + (0.2 \times 1872)] / (0.4+0.4+0.2) \\ &= 1736.84 \text{ kCal / kWh} \end{aligned}$$

Therefore, SHR may be considered as  $1.05 \times 1736.84 = 1823.682$  kCal/kWh.

13.18 On the basis of above guaranteed Gross Heat Rate was calculated as 1736.84 kCal/kWh. With an additional 5% provision allowed as per CERC Tariff regulations Gross Station Heat Rate was submitted as 1823.682 kCal/kWh.

13.19 In view of the above, the Petitioner humbly requests the Hon'ble Commission to allow SHR of 1823.682 kCal/kWh and accordingly allow relaxation in SHR for 2024-29 tariff period in terms of Regulation 102 and 103.

#### E. Summary of Operational Parameters

13.20 The summary of the Operational Performance of the generating station for the 2024-29 tariff period considering for the tariff purpose is as follows:

**Table 15: Summary of Operational Parameters for Control Period 2024-29**

*(Rs. Lakh)*

Particulars	UoM	2024-25	2025-26	2026-27	2027-28	2028-29
No. of Days of the Year		365.00	365.00	365.00	366.00	365.00
Unit Capacity	MW	726.60	726.60	726.60	726.60	726.60
NAPAF	%	85.00%	85.00%	85.00%	85.00%	85.00%
SHR	Kcal/kWh	1,823.68	1,823.68	1,823.68	1,823.68	1,823.68
Auxiliary Power Consumption	%	3.99%	3.99%	3.99%	3.99%	3.99%



**F. Fuel Parameters for 2024-29 tariff period**

13.21 This Section explains the components of Fuel Parameters considered for arriving at the Base Values of GCV of Gas and Base Price of Gas as per the Tariff Regulations 2024. Regulation 34 of the CERC Tariff Regulations, 2024 reproduced below specifies the guidelines for arriving at the initial Landed Prices (of Gas) and initial Projection of Gross Calorific Value (“GCV”) of Gas:

*“(2) The cost of fuel in cases covered under sub-clauses (a) and (c) of clause (1) of this Regulation shall be based on the landed fuel cost (taking into account normative transit and handling losses in terms of Regulation 59 of these regulations) by the generating station and gross calorific value of the fuel as per actual weighted average for the preceding financial year in case of each financial year for which tariff is to be determined.”*

13.22 Accordingly, the Base Landed Price of Gas has been computed based on the Weighted Average Landed Price of Gas received during FY 2023-24. Similarly, the Gross calorific value of Gas has been computed based on the Weighted Average GCV of Gas received during FY 2023-24.

13.23 In view of the above, the Base Landed Price of Gas and Base GCV of Gas are presented in the following Table.

**Table 16: Summary of Fuel Parameters for Control Period 2024-29**

		2024-25	2025-26	2026-27	2027-28	2028-29
Weighted Average Price of Gas	Rs. /MT	10,278.78	10,278.78	10,278.78	10,278.78	10,278.78
Weighted Average GCV of Gas as received	kCal/Kg	9,230.35	9,230.35	9,230.35	9,230.35	9,230.35

13.24 The Petitioner humbly requests the Hon’ble Commission to allow the above-mentioned Fuel Parameters for the purpose of computation of tariff for the FY 2024-29 tariff period.

**14 O&M EXPENSES**

14.1 6.5.1 Regulation 36 of CERC Tariff Regulations 2024 stipulates the Normative O&M Expenses:

**“36. Operation and Maintenance Expenses:**

....



(3) Open Cycle Gas Turbine/Combined Cycle generating stations:

(in Rs. Lakh/MW)

Year	Gas Turbine/ Combined Cycle generating stations other than small gas turbine power generating stations	Small gas turbine power generating stations	Agartala GPS	Advance F Class Machines
FY 2024-25	18.18	56.48	47.86	32.08
FY 2025-26	19.14	59.44	50.37	33.77
FY 2026-27	20.14	62.57	53.02	35.54
FY 2027-28	21.20	65.85	55.80	37.40
FY 2028-29	22.32	69.31	58.73	39.37

..”

“ 36

(6) The Water Charges, Security Expenses, Ash Transportation Expenses and Capital Spares for thermal generating stations shall be allowed separately after prudence check:

Provided that water charges shall be allowed based on water consumption depending upon type of plant and type of cooling water system or water agreement with state govt./utilities, and the norms specified by the Ministry of Environment, Forest and Climate Change subject to prudence check. The details regarding the same shall be furnished along with the petition;

Provided further that the generating station shall submit the assessment of the security requirement and estimated expenses along with the petition seeking the determination of tariff;

Provided also that the generating station shall submit the details of year-wise actual capital spares consumed individually costing above Rs. 10 Lakh at the time of truing up with appropriate justification for incurring the same and substantiating that the same is not funded through compensatory allowance as per Regulation 17 of Central Electricity Regulatory Commission (Terms and Conditions of Tariff) Regulations, 2014 or Special Allowance or claimed as a part of additional capitalisation or consumption of stores and spares and renovation and modernization.

**A. Normative O&M Expenses**

14.2 In line with the above quoted Regulation, the normative O&M expenses claimed for 2024-29 tariff period by the Petitioner is as follows:

**Table 17: Normative O&M Expenses**

(Rs. Lakh)

2024-25	2025-26	2026-27	2027-28	2028-29
23,309.33	24,537.28	25,823.36	27,174.84	28,606.24



**B. Raw Water Charges, Security Expenses**

14.3 The Regulation 36(6) of the Tariff Regulations 2024 stipulates that the Water Charges shall be allowed separately after prudence check based on water consumption depending upon type of plant and type of cooling water system. The Petitioner has projected the water charges for 2024-29 tariff period considering 5% escalation year on year basis over the actual water charges incurred by the Petitioner in 2023-24 as follows:

**Table 18: Water Charges**

<i>(Rs. Lakh)</i>				
2024-25	2025-26	2026-27	2027-28	2028-29
5.40	5.67	5.95	6.25	6.56

14.4 The actual water charges shall be submitted at the time of Truing up.

**C. Security Expenses**

14.5 The Regulation 36(6) of the Tariff Regulations 2024 stipulates that the Security expenses shall be allowed separately, and the generating station shall submit the assessment of the security requirement. The Petitioner has projected the security expenses for 2024-29 tariff period considering 5% escalation year on year basis over the actual security expenses incurred by the Petitioner in 2023-24 as follows.

**Table 19: Security Expenses for FY 2024-29**

<i>(Rs. Lakh)</i>				
2024-25	2025-26	2026-27	2027-28	2028-29
1,213.99	1,274.69	1,338.42	1,405.34	1,475.61

14.6 The actual water charges shall be submitted at the time of Truing up.

**D. Capital Spares**

14.7 As stipulated in Regulation 36(6) of the Tariff Regulations 2024 the actual Capital Spares consumed during a year can be claimed separately provided the same is not funded through compensatory allowance or Special Allowance or claimed as a part of additional capitalisation or consumption of stores and spares and renovation and modernization. The Petitioner humbly submits that OTPC has proposed Purchase of one number of new spare rotor of GT 9 FA as per OEM recommendation. As of 31.8.2023, the two 9FA.03



Gas Turbine Rotors have completed 74,750 FFH for Unit-1 GT and 65,080 FFH for Unit-2 GT, whereas the design life of the rotor is 144,000 FFH. Considering this, M/s GE has recommended that a standby rotor may be procured for use while the existing rotor may be repaired to extend its life by another 100,000 FFH. The delivery lead time of new rotor is more than 36 months and thus, OTPC is proactively planning to order the same in 2028-29 to prevent any unplanned outages. The email communication of M/S GE with OTPC has been attached as **Annexure-A33(a)**, indicative Proposal of M/S GE for spare new Rotor is attached as **Annexure-A33(b)**, Presentation for Rotor planning Strategy by M/S GE is attached as **Annexure-A33(c)** and M/S GE report on heavy Duty Gas Turbine Operating and maintenance considerations is attached as **Annexure-A33(d)**.

- 14.8 Thus, the Petitioner seeks liberty to claim the actual capital spares claimed during 2024-29 tariff period at the time of truing up.
- 14.9 Pursuant to aforesaid Regulations and following the approach of the Hon'ble Commission, the O&M expenses claimed for each year of the 2024-29 Control Period is as follows:

**Table 20: O&M Expenses for FY 2024-29**

	<i>(Rs. Lakh)</i>				
	2024-25	2025-26	2026-27	2027-28	2028-29
Installed Capacity (MW)	726.60	726.60	726.60	726.60	726.60
O&M Expenses as per Reg. (Rs lakh / MW)	32.08	33.77	35.54	37.40	39.37
Total O&M Expenses (in Rs lakh)	23,309.33	24,537.28	25,823.36	27,174.84	28,606.24
Water Charges	5.40	5.67	5.95	6.25	6.56
Security Expenses (in Rs lakh)	1,213.99	1,274.69	1,338.42	1,405.34	1,475.61
Capital Spares	-	-	-	-	30,000.00
<b>Total O&amp;M Expenses as allowed (including Water Charges and Capital Spares Consumed)</b>	<b>24,528.71</b>	<b>25,817.64</b>	<b>27,167.74</b>	<b>28,586.43</b>	<b>60,088.41</b>

## 15 INTEREST ON WORKING CAPITAL

15.1 Regulation 34 of CERC Tariff Regulations 2024 provides as under:

*“34. Interest on Working Capital:  
(1) The working capital shall cover:*

*.....*

*(c) For Open-cycle Gas Turbine/Combined Cycle thermal generating stations:  
(i) Fuel cost for 15 days corresponding to the normative annual plant availability factor, duly taking into account the mode of operation of the generating station on gas fuel and liquid fuel;*



(ii) Liquid fuel stock for 15 days corresponding to the normative annual plant availability factor, and in case of use of more than one liquid fuel, cost of main liquid fuel duly taking into account mode of operation of the generating stations of gas fuel and liquid fuel; Provided that the above shall only be allowed to generating stations that have facilities to store liquid fuel.

(iii) Maintenance spares @ 30% of operation and maintenance expenses, including water charges and security expenses;

(iv) Receivables equivalent to 45 days of capacity charge and energy charge for the sale of electricity calculated on the normative plant availability factor, duly taking into account the mode of operation of the generating station on gas fuel and liquid fuel;

(v) Operation and maintenance expenses, including water charges and security expenses, for one month.

(2) The cost of fuel in cases covered under sub-clauses (a) and (c) of clause (1) of this Regulation shall be based on the landed fuel cost (taking into account normative transit and handling losses in terms of Regulation 59 of these regulations) by the generating station and gross calorific value of the fuel as per actual weighted average for the preceding financial year in case of each financial year for which tariff is to be determined:

Provided that in the case of a new generating station, the cost of fuel for the first financial year shall be considered based on landed fuel cost (taking into account normative transit and handling losses in terms of Regulation 59 of these regulations) and gross calorific value of the fuel as per actual weighted average for three months, as used for infirm power, preceding date of commercial operation for which tariff is to be determined.

(3) Rate of interest on working capital shall be on a normative basis and shall be considered at the Reference Rate of Interest as on 1.4.2024 or as on 1st April of the year during the tariff period 2024- 29 in which the generating station or a unit thereof or the transmission system including communication system or element thereof, as the case may be, is declared under commercial operation, whichever is later:

Provided that in case of truing-up, the rate of interest on working capital shall be considered at Reference Rate of Interest as on 1st April of each of the financial year during the tariff period 2024-29.

(4) Interest on working capital shall be payable on a normative basis, notwithstanding that the generating company or the transmission licensee has not taken a loan for working capital from any outside agency."

**15.2** The Interest on Working Capital for Control Period 2024-29 for the purpose of determination is shown in the Table below.

**Table 21: Interest on Working Capital of Generating Station during Control Period 2024-29**

	(Rs. Lakh)				
	2024-25	2025-26	2026-27	2027-28	2028-29
Fuel Cost for 15 Days	4,515.33	4,515.33	4,515.33	4,515.33	4,515.33



	2024-25	2025-26	2026-27	2027-28	2028-29
O & M expenses - 1 month	2,044.06	2,151.47	2,263.98	2,382.20	2,507.37
Maintenance Spares - 30% of O&M	7,358.61	7,745.29	8,150.32	8,575.93	9,026.52
Receivables - 45 Days	22,514.54	22,546.39	22,607.52	21,500.65	25,433.27
<b>Total Working Capital</b>	<b>36,432.54</b>	<b>36,958.49</b>	<b>37,537.15</b>	<b>36,974.11</b>	<b>41,482.49</b>
Rate of Interest	11.90%	11.90%	11.90%	11.90%	11.90%
<b>Total Interest on Working capital</b>	<b>4,335.47</b>	<b>4,398.06</b>	<b>4,466.92</b>	<b>4,399.92</b>	<b>4,936.42</b>

15.3 The Petitioner humbly requests the Hon'ble Commission to allow the interest on working capital for the 2024-29 tariff period as shown in the above table.

## 16 Details of Annual Fixed Charges

16.1 Based on the above submissions the Petitioner has computed the annual fixed charges.

The Hon'ble Commission is requested to allow the same shown as below:

**Table 22: Annual Fixed Charges for 2024-29**

	2024-25	2025-26	2026-27	2027-28	2028-29
Depreciation	18,701.13	18,852.75	19,066.06	9,712.78	9,919.62
Interest on Loan	7,073.68	5,684.31	4,350.86	3,368.96	2,703.63
Return on Equity	18,105.76	18,250.39	18,447.39	18,629.66	18,770.82
Interest on Working Capital	4,335.47	4,398.06	4,466.92	4,399.92	4,936.42
O&M Expenses	24,528.71	25,817.64	27,167.74	28,586.43	60,088.41
<b>Total</b>	<b>72,744.75</b>	<b>73,003.14</b>	<b>73,498.97</b>	<b>64,697.76</b>	<b>96,418.90</b>

(Rs. Lakh)

## 17 Additional Charges for the Control Period 2024-29

17.1 The Annual Fixed Charges for the Control Period 2024-29 shall comprise of the components discussed above and also the additional charges as mentioned below:

(a) Tariff Application Fees & Publication Expenses

(b) Fees & Charges for Load Dispatch Centre

### a. Tariff Application Fees & Publication Expenses

17.2 Regulation 3 of CERC (Payment of Fees) Regulations 2012 stipulates the Tariff Application Fees as follows.

*"3. Fee for Application for Determination of Tariff..."*



*(1) An application for determination of tariff of a generating station or a unit thereof, shall be accompanied by a fee payable at the rate of Rs 4000/MW/annum and Rs 4400/MW/annum for the years 2012-13 and 2013-14, respectively corresponding to the installed capacity of such generating station or unit thereof:*

*Provided that the fee specified in this regulation shall be paid for the first year, corresponding to the installed capacity of the generating station or a unit thereof, while making the application for determination of tariff and thereafter annually at the specified rates by 30th April of each year:*

*Provided further that where the fee for the tariff period 2009-14 in respect of the generating station or unit thereof has already been paid in accordance with the Central Electricity Regulatory Commission (Payment of Fees) Regulations, 2008, the generating company shall pay the balance fee as per the rate specified in this regulation.”*

**b. Fees & Charges for Regional Load Despatch Centre**

17.3 Regulation 94(3) of CERC Tariff Regulations 2024 allows recovery of Fees and Charges of Regional Load Despatch Centre (“RLDC”) directly from the Beneficiaries as specified above. However, the recovery of the actual Fees and Charges for the period during the Control period 2024-29 shall be based upon the Annual Charges determined by the Hon’ble Commission for each RLDC. Such Annual Charges are recovered by the concerned RLDC through the System Operation Charges applicable for the Inter-state Transmission Licensees as stipulated in CERC (Fees and Charges of Regional Load Despatch Centre and other related matters) Regulations, 2009. Since such Annual Charges of the RLDCs are yet to be finalized by the Hon’ble Commission, the Petitioner is unable to include such charges in the projected Annual Fixed Charges for Control Period 2024-29 for the Generating Station and, therefore, proposes to recover the same from the Beneficiaries at actual being billed by the concerned RLDC for the period 2024-29.



**PRAYERS**

In view of the above submission, the Petitioner respectfully prays that the Hon'ble Commission may kindly be pleased to:

- a) Approve the Determination of Tariff for the 2024-29 control period for 726.6 MW Palatana Project covering Block-1 (Unit-I) and Block-2 (Unit-II) of 363.3 MW each;
- b) Allow recovering the Petitioner's claim against additional capitalisation as elaborated in the Petition;
- c) Allow procurement of Gas Turbine Rotor.
- d) Allow any other relief and/or pass any other order as Hon'ble Commission may deem fit and appropriate under the circumstances of the case and allow additions/alterations/changes/modification to the Petition at a future date;
- e) Condone any inadvertent omissions, errors, short comings and permit the Petitioner to add/ change/ modify/ alter this filing and make further submissions as may be required at a future date; and
- f) Pass such other and further orders as deemed fit and proper in the facts and circumstances of the case.

Date:

29<sup>th</sup> Nov '24

Place: New Delhi

ONGC Tripura Power Company Limited

