ONGC Tripura Power Company Limited

10th Floor, Core 4 and Central, SCOPE Minar, Laxmi Nagar, Delhi-110092, Phone : +91-11-22404700, Fax : +91-11-22017731, 22018831

Ref. No: OTPC/COMML/2024-25/024

29th 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 True-Up Petition for FY 19-24

Dear Sir,

As per Central Electricity Regulatory Commission (Terms and Conditions of Tariff) Regulations 2019, OTPC is submitting the True-Up petition for tariff for its Palatana project for control period FY 19-24.

We are serving a copy of the petition to the beneficiaries and the proof of service to beneficiaries 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. Due to large scale of documents we have submitted the annexures only via CERC e-portal.

Thanking you,

Yours faithfully,

for ONGC TRIPURA POWER COMPANY LIMITED

ONGC-Tripura Power Co. Ltd. New Delhi

Amit Dabas
Head Commercial

Regd. Office: Udaipur-Kakraban Road, Palatana P.O., District Gomati, Tripura-799 105, EPABX: 0381-2363714, Fax: 0381-2363716
CIN: U40101TR2004PLC007544, Website: www.otpcindia.in

ONGC Tripura Power Company Limited

726.6 MW (2 X 363.3 MW)

Combined Cycle Gas Turbine (CCGT) Power Plant

Palatana, Tripura

Petition for

True-Up 01.04.2019 to 31.03.2024

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Tripura Power Co. Ltd. New Delhi

ONGC-Tripura Power Co. Ltd. New Delhi

INDIA NON JUDICIAL

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Government of National Capital Territory of Delhi

e-Stamp

Certificate No.	:	IN-DL92201588884034W
Certificate Issued Date	:	26-Nov-2024 03:18 PM
Account Reference	:	IMPACC (IV)/ dl964803/ DELHI/ DL-DLH
Unique Doc. Reference	:	SUBIN-DLDL96480332153150186267W
Purchased by	:	ONGC TRIPURA POWER COMPANY LTD
Description of Document	:	Article 5 General Agreement
Property Description	:	Not Applicable
Consideration Price (Rs.)	:	0 (Zero)
First Party	:	ONGC TRIPURA POWER COMPANY LTD
Second Party	:	CERC
Stamp Duty Paid By	:	ONGC TRIPURA POWER COMPANY LTD
Stamp Duty Amount(Rs.)	:	100 (One Hundred only)

BEFORE THE CENTRAL ELECTRICITY REGULATORY COMMISSION, NEW DELHI

SUB: OTPC PALATANA PROJECT – True-Up PETITION FOR THE CONTROL PERIOD FY 2019-24

IN THE MATTER OF : Approval under Regulation-86 of CERC (Conduct of Business) Regulations, 1999 and CERC (Terms and

ONGC-Tripura Power Co. Ltd. New Delhi

Conditions of Tariff) Regulations, 2019 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 01.04.2019 to 31.03.2024

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

ONGC Tripura Power Co. Ltd. New Delhi

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

True-Up Petition (2019-24) for 726.6 MW Palatana Project

I, Amit Dabas, son of Late Shri Baljit Singh Dabas, aged 44 years and resident of 3rd 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.

ONGC-Tripura Power Co. Ltd. New Delhi

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 01.04.2019 to 31.03.2024 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 True-Up Petition for the Control Period 2019-24 to the respondents and the proof of service to respondents shall also be furnished to Hon'ble Commission. A copy of this petition has also been mailed to CERC at the email registry@cercind.gov.in and has been uploaded on the CERC e-portal.

Deponent

Place: New Delhi

Date: 29th November, 2024

ONGC-Tripura Power Co. Ltd. New Delhi

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.

Deponent

Date: 29th November, 2024

Place: New Delhi

ONGC-Tripura Power Co. Ltd. New Delhi

BEFORE THE CENTRAL ELECTRICITY REGULATORY COMMISSION, NEW DELHI

SUB: OTPC PALATANA PROJECT – TRUE UP PETITION FOR THE CONTROL PERIOD 2019-24

IN THE MATTER OF	:	Approval under Regulation-86 of CERC (Conduct of Business) Regulations, 1999 and CERC (Terms and Conditions of Tariff) Regulations, 2019 for approval of True-up 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 01.04.2019 to 31.03.2024
AND		
IN THE MATTER OF		
Petitioner	:	ONGC Tripura Power Company Limited (OTPC) **Delhi Office:** ONGC Tripura Power Company, 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 – 799 105 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

ONGC Tripura Power Co. Ltd. New Delhi

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

ONGC-Tripura Power Co. Ltd. New Delhi

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 following:

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

1. Truing-up of Generation Tariff including Annual Fixed Charges ("AFC") for the Control Period 2019-24 based on the approved Capital Cost of the Project till 31.03.2019 and actual Additional Capitalization in the Control Period 2019-24 under the CERC (Terms & Conditions of Tariff) Regulations, 2019 ("CERC Tariff Regulations 2014") for the 726.6MW Generating Station of the Petitioner at Tripura.
2. Filled Tariff Formats as prescribed by Hon'ble Commission for Control Period 2019-24 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 'ONGC Tripura Power Company, 10th 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 **Annexure-A2(a) & Annexure-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, 2019.

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 4.1.2014. 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 4.1.2014 to 31.3.2014. The Hon'ble Commission had issued final tariff order on 31.8.2015, 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 had 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 30.3.2017, and Corrigendum on 3.5.2017 in Petition No. 129/GT/2015.

1.7. 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.

1.8. 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.

1.9. Further, in compliance to the Hon'ble Commission's directions in 109/GT/2020 regarding approval of additional capital expenditure towards replacement of Compressor

Enhancement Package, the Petitioner has filed Petition No. 163/MP/2023 dated 9.5.2023, which is pending before the Hon'ble Commission for disposal.

2. PRESENT SUBMISSION

2.1. The Hon'ble Commission has notified the Central Electricity Regulatory Commission (Terms and Conditions of Tariff) Regulations, 2019 (hereinafter "Tariff Regulation 2019") which have come into force from 1.4.2019 and specify the terms and conditions and methodology of tariff determination under sections 62 & 79 of the Electricity Act, 2003.

2.2. In accordance with Tariff Regulations 2019 the Petitioner is filling this True-up Petition based on Capital cost allowed by the Hon'ble Commission in Order dated 18.12.2021 and Corrigendum dated 11.1.2022 and actual additional capital expenditure incurred during 2019-24 Control Period, 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 had filed Petition No. 108/GT/2020 for Truing-up of ARR for the Control Period 2014-19, on which, the Hon'ble Commission issued its Order dated 18.12.2021. The Hon'ble Commission, through the Order, allowed the Capital Cost for the Generating Station at Rs. 333337.85 Lakh as on 31.3.2019 as follows:

Table 1: Capital Cost Approved by the Hon'ble Commission in 2014-19 Period

(Rs. Lakh)

Particulars	2014-15		2015-16	2016-17	2017-18	2018-19
	1.4.2014 to 23.3.2015	24.3.2015 to 31.3.2015				
Opening Capital Cost	1,72,470.03	3,06,881.06	3,06,881.06	3,25,735.84	3,28,485.68	3,33,178.83
Add: Net Additional capitalisation	0.00	0.00	4,203.80	1,819.92	3,385.50	77.27
Less: De-capitalization during the year/period	0.00	0.00	0.00	0.00	0.00	73.73
Less: Reversals during the year/period	0.00	0.00	0.00	0.00	0.00	0.00
Add: Discharges during the year/period	0.00	0.00	14,650.98	929.92	1,307.65	155.48

Particulars	2014-15		2015-16	2016-17	2017-18	2018-19
	1.4.2014 to 23.3.2015	24.3.2015 to 31.3.2015				
Closing Gross Block	**1,72,470.03**	**3,06,881.06**	**3,25,735.84**	**3,28,485.68**	**3,33,178.83**	**3,33,337.85**
Average Gross Block	**1,72,470.03**	**3,06,881.06**	**3,16,308.45**	**3,27,110.76**	**3,30,832.26**	**3,33,258.34**

3.2. The Hon'ble Commission in Order dated 11.1.2022 in Petition No. 109/GT/2020 for determination of Tariff for 2019-24 Control Period, approved the capital cost as below:

Table 2: Capital Cost Approved by Commission vide Order in Petition No. 109/GT/2020

(Rs. Lakh)

Particulars	2019-20	2020-21	2021-22	2022-23	2023-24
Opening Capital Cost	3,33,337.85	3,38,616.29	3,38,624.96	3,38,824.96	3,38,824.96
Add: Admitted Additional capital expenditure	5,278.43	8.68	200.00	0.00	0.00
Closing Gross Block	**3,38,616.29**	**3,38,624.96**	**3,38,824.96**	**3,38,824.96**	**3,38,824.96**
Average Gross Block	**3,35,977.07**	**3,38,620.62**	**3,38,724.96**	**3,38,824.96**	**3,38,824.96**

3.3. The Petitioner has submitted the instant the Petition for approval of True-up for the 2019-24 control period. The Petitioner has considered the closing capital cost of Rs. 3,33,337.85 Lakh as on 31.3.2019 as allowed by the Hon'ble Commission vide order dated 18.12.2021 as the opening capital cost as on 1.4.2019.

4. Additional Capital Expenditure during the control period

4.1. During the 2019-24 control period, the Petitioner has executed the following additional capital expenditure within Original Scope of Work, and thus, eligible for normal rate of RoE.

Table 3: Additional Capital Expenditure incurred for Items under Original Scope, Change in Law, etc.

(Rs. Lakh)

Sl. No	Head of Work /Equipment	2019-20	2020-21	2021-22	2022-23	2023-24	Total	Regulation
1	Palatana Township Civil Works	10,905.32	-	-	96.90	-	11,002.22	25(1)(d) and 76
2	Change of Obsolete Relays at Plant OTPC Switchyard	-	-	14.13	-	-	14.13	25(2)(c)
3	Replacement of Sodium Lights with LED Lights at Palatana Premises	52.89	5.27	22.52	-	21.68	102.35	25(2)(c)

6	Upgradation of DCS MARK-6 Software	-	-	1,079.22	-	-	1,079.22	25(2)(c)
7	Rainwater Harvesting System	307.54	-	-	-	-	307.54	25(1)(d)
8	Refresh of Data Centre and Its Infrastructure	-	84.39	-	-	1,616.45	1,700.85	25(2)(c) with 76 and 77
9	CKA-Upgradation Maxstation from XP To Window	-	-	955.80	-	-	955.80	25(2)(c) with 76 and 77
10	Design, Engineering & Implementation of RGMO	-	-	-	-	183.25	183.25	26(1)(b)
11	DAVR PC for Excitation System	-	-	-	59.71	-	59.71	25(2)(c) with 76 and 77
12	Upgradation PLC HMI SCADA	-	-	-	-	27.05	27.05	25(2)(c) with 76 and 77
13	Chlorination System Panel Upgradation	-	-	-	-	12.91	12.91	25(2)(c)
14	60kW Draw Out Module	-	-	9.52	-	-	9.52	25(2)(c) with 76 and 77
16	H2 Plant Rectifier	-	-	-	-	7.90	7.90	25(2)(c)
17	IT System	4.17	63.57	13.00	31.78	1.11	113.62	25(2)(a) with 76 and 77
18	Lab Equipment	11.07	2.80	-	4.75	2.28	20.90	25(2)(a) with 76 and 77
	Sub Total (A)	**11,280.98**	**156.03**	**2,094.19**	**193.13**	**1,872.63**	**15,596.95**	

4.2. During the 2019-24 control period, the Petitioner has executed the following additional capital expenditure beyond Original Scope of Work, and thus, eligible for rate of RoE at weighted average rate of interest (WAROI).

Table 4: Additional Capital Expenditure for works beyond Original scope of work

(Rs. Lakh)

Sl. No.	Head of Work /Equipment	2019-20	2020-21	2021-22	2022-23	2023-24	Total	Regulation
1	Vibration Monitoring System for Unit 1 and 2 CT Fan	7.88	-	-	-	-	7.88	26(1)(d) with 76 and 77
2	VFD Panel for 30kW LPBFP	5.43	-	-	-	-	5.43	26(1)(d) with 76 and 77
3	Online Moisture Removal System	-	20.94	-	-	-	20.94	26(1)(d) with 76 and 77
4	Generator Flux Monitoring	-	-	-	63.84	-	63.84	26(1)(d) with 76 and 77
5	Self Propelled Diesel Articulated Boom Lift	-	-	-	0.63	72.57	73.20	26(1)(d) with 76 and 77

Sl. No.	Head of Work /Equipment	2019-20	2020-21	2021-22	2022-23	2023-24	Total	Regulation
6	Horizontal Pump Set - RWIS Pump House	-	-	-	-	5.47	5.47	26(1)(d) with 76 and 77
7	Action Tracking Software	-	-	-	13.95	-	13.95	26(1)(d)
8	Billing Software	-	-	-	38.79	-	38.79	26(1)(d)
9	NAS Storage System	13.57	-	-	-	-	13.57	26(1)(d) with 76 and 77
10	Furniture and Other Office Equipment	-	286.42	2.05	16.93	-	305.39	26(1)(d) with 76 and 77
11	Security Related Expense	7.25	-	5.36	10.53	17.67	40.80	26(1)(d) with 76 and 77
12	Township and Common Area Development	7.53	-	23.54	12.75	13.39	57.21	26(1)(d)
13	Self-Contained Breathing Apparatus (SCBA)	4.55	-	-	-	-	4.55	26(1)(d)
14	Roof shade over CO2 tanks	-	4.19	-	-	-	4.19	26(1)(d)
15	Equipment for Ambient Air Quality Monitoring	-	8.37	-	-	-	8.37	26(1)(d)
16	SGA-Over ground ERW piping for spray & hydrant-	-	4.28	-	-	-	4.28	26(1)(d)
17	Construction of Chlorine Neutralization Pit	-	-	11.42	-	-	11.42	26(1)(d)
18	Compressor Enhancement Package	-	-	2,142.33	2,270.04	-	4,412.37	26(1)(d) with 111, 112 and 113 with CERC Conduct of Business
19	Online Condition Monitoring System	-	-	144.58	-	197.31	341.89	26(1)(d) with 76 and 77
	Sub-Total (B)	**46.22**	**324.20**	**2,329.27**	**2,427.46**	**306.41**	**5,433.55**	
Total Add. Cap. Claimed (A+B)		**11,327.19**	**480.22**	**4,423.46**	**2,620.59**	**2,179.04**	**21,030.50**	

4.3. The details of Additional Capital Expenditure incurred within the Original Scope of Work and the Additional Capital Expenditure beyond the Original Scope of Work including justifications to incur the same are explained in the following paragraphs:

5. Schemes Approved in the Order 109/GT/2020

5.1. Palatana Township Civil Works

The Petitioner humbly submits that the Hon'ble Commission vide Order dated 11.1.2022 in Petition No.109/GT/2020, had approved an additional capital expenditure of Rs.10999.20 Lakh

towards Palatana Township Civil Works in 2019-20 under Regulation 25(1)(d) read with Regulation 76 of the Tariff Regulations 2019. It is submitted that initially, the Hon'ble Commission had approved additional capital expenditure of Rs.11902.87 lakh, but through strategic planning and efficient resource utilization, the actual expenditure incurred was only Rs. 10999.20 Lakh resulting in a commendable saving of Rs. 900.65 lakh. This cost-saving accomplishment can be attributed to meticulous budgeting, prudent financial management followed by the Petitioner along with the effective negotiation with suppliers to secure better deals without compromising on quality. Regular monitoring and adjustments to the budget also played a crucial role in ensuring that expenditures were kept in check. This exemplary cost management not only demonstrates the Petitioner's financial acumen but also showcases the importance of strategic planning and resourcefulness in achieving financial efficiency. The Petitioner, in support of its justification for the delay in construction of Palatana Township Civil Works, had furnished copy of emails dated 3.9.2017 exchanged between the contactors) and the Petitioner regarding the completion of work, the pile installation status report and copy of MOMs dated 19.4.2017, 14.6.2017, 28.6.2017 and 13.7.2017, 1.6.2018, 22.6.2018, 29.11.2018, 30.11.2018 between the Petitioner and EPIL officers, copy of emails/ letters dated 9.5.2017, 12.5.2017, 26.5.2017, 29.5.2017, 2.6.2017, 12.9.2017, 15.6.2018 and 27.6.2018 exchanged between the Petitioner and EPIL regarding payment and completion of the said work, MOM of the review meeting dated 30.5.2017, 2.5.2019 and 3.5.2019 between the Petitioner and EPIL regarding construction of the township, rainfall data from April 2016 and October 2017 and climate report prepared by Meteorological Centre, Agartala (Indian Meteorological Department) in petition 109/GT/2020 and the same have been attached as **Annexure A3** for the Commission's reference. It is submitted that an expenditure of Rs. 10905.32 Lakh is incurred towards the said work during FY 2019-20 and Rs. 96.90 lakhs are incurred in FY 2022-23. The total expenditure incurred by the Petitioner is Rs. 11002.22 Lakh against Rs. 11902.87 Lakh approved by the Hon'ble Commission. The Petitioner humbly request the Hon'ble Commission to allow the actual additional capital expenditure incurred by the Petitioner under Regulation 25(1)(d) read with Regulation 76 (Power to Relax) of the Tariff Regulations 2019.

5.2. Change of Obsolete Relays at OTPC Plant Switchyard

The Petitioner humbly submits that the Hon'ble Commission vide order dated 11.1.2022 in Petition No.109/GT/2020, had approved additional capital expenditure of Rs. 30.00 Lakh under

Regulation 25(2)(c) of the Tariff Regulations 2019. It is submitted that 30 series relays were replaced by 40 series relays at the switchyard of the OTPC Plant.

It is submitted that 30 series relays were an old and obsolete model, and the OEM stopped support towards its service. Further, 30 series relays didn't have PSL facility and there was communication issue in all the installed 04 Nos. relays. Hence the 30 series relays face both O&M issues and defectivity issues. Thus, the 30 series relays were replaced by 40 series relays which have excellent fault detection. The email communication with OEM has been attached as **Annexure-A4(a)** and the Purchase Order has been attached as **Annexure-A4(b)** for reference. It is submitted that the replacement of the 30 series relays by the 40 series relays shall substantially improve the reliability and efficiency of the OTPC Plant and also prevent any breakdowns which is likely on account of the obsolete equipment in the switchyard. It is submitted that an expenditure of Rs. 14.13 Lakh is incurred towards the said work during FY 2021-22 against the additional capital expenditure of Rs. 30.00 Lakh approved by the Hon'ble Commission. The Petitioner humbly request the Hon'ble Commission to allow the actual additional capital expenditure incurred by the Petitioner under Regulation 25(2)(c) of the Tariff Regulations, 2019.

5.3. Rainwater Harvesting System

The Petitioner humbly submits that the Hon'ble Commission vide order dated 11.1.2022 in Petition No.109/GT/2020, had approved an additional capital expenditure of Rs. 307.54 Lakh towards Rainwater Harvesting System (RWHS) in FY 2019-20 under Regulation 25(1)(d) of the Tariff Regulations 2019. It is submitted that the Petitioner has executed a Rainwater Harvesting System (RWHS) at Palatana plant premises comprising of 4 numbers of RWHS pits and 6 number of Tubewell Pump Houses and the total cost of the system to be capitalized was nearly Rs. 307.54 Lakh. It is submitted that majority of the works relating to the RWHS were completed within the Cut-off date of the project i.e. 31.3.2018. However, the civil works related with Pit-1 and Tubewell Pump House-1 and 3, amounting to Rs. 307.54 Lakh are capitalized in FY 2019-20, in line additional capital expenditure claimed in Petition No. 109/GT/2020 and the allowance made by the Hon'ble Commission in the consequent order. The Petitioner humbly request the Hon'ble Commission to allow the actual additional capital expenditure incurred by the Petitioner under Regulation 25(1)(d) of the Tariff Regulations 2019.

5.4. Online Condition Monitoring Transformers/Reactors

The Petitioner humbly submits that the Hon'ble Commission vide order dated 11.1.2022 in Petition No.109/GT/2020, had approved additional capital expenditure of Rs. 200.00 Lakh towards Online Condition Monitoring of Transformers/ Reactors in 2021-22 under Regulation 26(1)(d) of the Tariff Regulations 2019 read with Regulation 76 (Power to Relax) of the Tariff Regulations 2019. It is submitted that ICT's (interconnecting Transformers) are critical parts of the plant switchyard as part of power evacuation system. Immediate crucial repairs are difficult in remote sites like OTPC due to lack of infrastructure and machinery. Proper monitoring of these electrical equipment is required for detecting incipient faults and act as an early warning system beforehand so that we can get time for corrective action. The major advantage of online monitors, as compared to laboratory analysis, is the capability to detect abnormal gas formation and faults occurring in real time. For regular maintenance with laboratory analysis, manual samplings are typically performed every year. With online gas monitors, gas analysis is performed in real time thus providing a powerful early detection system and continuous observation of gas levels and trends. The Transformers should be provided with a comprehensive real time monitoring system to measure key parameters like Key Temperatures (Top Oil, Bottom Oil & Ambient Temperature), Partial Discharge (PD) in the transformer main tank and bushings, relative variations of capacitance and power factor of each bushing, gas contents (key gases like H2(Hydrogen), CH4(Methane), C2H4 (Ethane), C2H4 (ethylene), C2H2 (Acetylene), CO (Carbon monoxide), CO2(Carbon Dioxide) and Moisture content in Oil (H2O) in PPM) in the insulating oils in the transformer main tank. Hence considering the importance, it is suggested to procure Condition Monitoring Solution for ICT-1 as it running for almost 9 years and is very critical as compared to ICT-2 which is only 4 years old. It is submitted that the critical operational parameters monitored by the total Transformer online condition monitoring system are as below:

a. Dissolved Gas Analysis for 09 gasses (DGA Report),
b. Breakdown Voltage (BDV) of insulating Oil,
c. Top/Partial Discharge of HV Bushing and Main Tank,
d. Bottom Tank and OLTC Oil Temperature,
e. Winding and Bushing Tan Delta and Capacitance value, and
f. Oil Moisture (ppm) Content value.

It is submitted that in the event any fault is detected in the Transformer, the online condition monitoring system will give early warnings for undertaking corrective actions on the same and can save the transformer from any potential breakdown. It is submitted that an expenditure of

Rs. 144.58 Lakh and Rs. 197.31 Lakh is incurred towards the said work during FY 2021-22 and FY 2023-24 (Work Orders are Attached as **Annexures A5(a), A5(b), A5(c) & A5(d)**). It is submitted that the additional capital expenditure approved by the Hon'ble Commission was Rs. 200.00 Lakh whereas the actual additional capital expenditure incurred by the Petitioner is Rs. 341.89 Lakh. It is submitted that the amount claimed by the Petitioner was on estimation basis and the reason for variation is attributed to several factors, including inflationary pressures, changes in specifications, or the need for higher-quality materials and advanced technologies to meet project requirements. Further, initially the additional capital expenditure was executed for 4 ICTs but based on requirement the expenditure has been executed for 8 ICTs. The requirement of gas detection system has also been highlighted in the Marsh safety audit report based on the Safety Audit conducted by the Marsh team and the consequent report shared by them in March 2019. The same has been attached as **Annexure-A5(e)**. The Petitioner humbly request the Hon'ble Commission to allow the actual additional capital expenditure of Rs. 341.89 Lakh incurred by the Petitioner under Regulation 26(1)(d) of the Tariff Regulations 2019 read with Regulation 76 (Power to Relax) and Regulation 77 (Power to Remove Difficulty) of the Tariff Regulations 2019.

5.5. Replacement of Sodium Lights with LED Lights at Palatana Premises

The Petitioner humbly submits that they had claimed additional capital expenditure of Rs.30.00 Lakh towards Palatana Township Civil Works in 2020-21 under Regulation 25(1)(d) read with Regulation 76 of the Tariff Regulations 2019.

It is submitted that the Petitioner has completed replacement of all the sodium lights at the OTPC Plant premises to LED lights. This decision is in line with the energy efficiency and energy saving measures being promoted by the Government of India. The Energy Conservation Guidelines of Bureau of Energy Efficiency (BEE) states that lighting systems shall be periodically maintained and inspected according to the instructions concerning maintenance and replacement of lights and fixtures may be done to improve Energy Management. Further, the Designated Consumer shall replace inefficient lighting with energy-efficient lighting facilities, such as LEDs, induction lamps, etc., to maintain standard illumination.

It is further submitted that this initiative of replacement of old lights to energy efficient LED lights has been undertaken by the Tripura Government in the entire State of Tripura including Udaipur district where the OTPC Plant is situated. In view of the initiatives taken by the Central Government and the Tripura Government towards initiatives for energy efficiency it is also the

responsibility of the Petitioner to actively participate in such energy efficiency initiatives. The Energy Conservation Guidelines of BEE, Ministry of Power is annexed hereto and marked as **Annexure-A6.** It is submitted that the Petitioner has actually incurred an expense of Rs. 102.35 Lakh (Rs. 52.89 Lakh in 2019-20, Rs. 5.27 Lakh in 2020-21, Rs. 22.52 Lakh in 2021-22 and Rs. 21.68 Lakh in 2023-24). It is humbly requested that the expense is aimed at improving the energy efficiency and energy saving measures at the plant and therefore may be kindly allowed by the Hon'ble Commission under regulation 25(2)(c) Tariff Regulations, 2019.

5.6. Compressor Enhancement Package

The Petitioner humbly submits that the Petitioner in 109/GT/2020 had claimed Rs. 4380.64 Lakh towards Compressor Enhancement Package (CEP). However, the Hon'ble Commission vide Order dated 11.1.2022 had disallowed additional capital expenditure, while granting the Petitioner liberty to file a separate Petition for the said item. It is submitted that the Petitioner has filed separate Miscellaneous Petition 163/MP/2023 vide affidavit dated 9.5.2023 to claim additional capital expenditure incurred towards CEP. The Order in Petition No. 163/MP/2023 was reserved vide RoP dated 27.9.2024 and is awaited for issuance by the Hon'ble Commission. It is submitted that the Petitioner had installed 9FA machines at the OTPC Plant. There are several instances of precedence of issues in the 9FA machines pertaining to the R0 blades, compressor stall, shim migration for stator vanes/blades and corrosion pitting and failure of other downstream blades. Such failures have been observed in Dabhol project (now RGPPL operated by NTPC, "Dabhol Plant") wherein three gas turbines had catastrophic failure due to failure of compressor blades and in Pragati Power Plant at Bawana ("Bawana Plant") wherein there had been a major failure in one of the gas turbines. It is submitted that on account of the problems arising in the 9FA machines, generating stations have accordingly adopted mitigation measures to avoid the same. For instance, in 2017 Bawana Gas Power Plant installed compressor enhancement packages in two of its gas turbines to avoid such failures. Such packages have also been installed as default factory equipment in the latest machines supplied to Lanco Kondaplli project, GMR Vemagiri project and Reliance Samalkot Project. It is submitted that as per the Petitioner's assessment of its compressor at OTPC Plant, there are dents on several blades of three rows which were observed in Borescope inspection. Furthermore, some deposits have been observed on various downstream blades of the rotor & stator. This is likely to lead to collateral damages to other compressor blades, turbines buckets / nozzles etc. The Petitioner has currently grinded the blades to minimize damages since rotor

repair at site is not feasible. However, the operations cannot be sustained for a longer period and is likely to result in a major outage of the OTPC Plant. Further, Marsh conducted a safety audit and in its Safety Audit Report, they have recommended the implementation of Compressor Enhancement Package. The same has been attached as **Annexure A7**.

Therefore, in view of importance of reliability in operations for this station and geographical constraints which leads to delay in rectification work, the Petitioner plans to install the Compressor Enhancement Package to avoid such failures in future. The overall expenditure incurred on the installation of the Compressor Enhancement Package is Rs. 2142.33 Lakh in the year 2021-22 and Rs. 2270.04 Lakh in the year 2022-23.

The Petitioner submits that the implementation of package is likely to provide the following benefits:

- Improved damage tolerance, robustness, durability and longevity.
- Reduced degradation effects and stresses.
- Move natural frequencies for vibratory margins.
- Improve loading and durability on the forward stage stator rings and aft stage stator vanes.
- Reduced inspection requirements (R0 erosion checks, stator vanes inspections etc.)
- Increased reliability and availability.
- Early warning of problem / failure with installation of Blade Health Monitoring System – catastrophic failures may be avoided.

It is submitted that given the fact that the additional capital expenditure incurred is for safe and reliable operations of the generating units, it is the humbly requested to the Hon'ble Commission to exercise its powers under Regulations 76 & 77 of the Tariff Regulations, 2019 and allow the expenditure of Rs. 4,412.37 Lakh (Rs. 2,142.33 Lakh in 2021-22 and Rs. 2,270.04 Lakh in 2022-23) under Regulation 26(1)(d) of the Tariff Regulations 2019 and Regulations 111, 112 and 113 of the CERC (Conduct of Business) Regulations 1999. Decap of Rs. 896.24 Lakh and Rs. 1029.39 Lakh has been deducted as per books of account.

5.7. Up-gradation of DCS and MACH-6 software

The Petitioner humbly submits that the Petitioner in Petition No. 109/GT/2020 had claimed additional capital expenditure of Rs.2562.00 Lakh towards up-gradation of DCS and MACH-6 software in 2021-22 under Regulation 25(2)(c) of the Tariff Regulations 2019. However, the

Hon'ble Commission had disallowed the said additional capital expenditure stating the Petitioner has not furnished any justification as regards the claim for obsolesce of overall DCS system and MACH-VI Software from their respective OEM(s). It is submitted that for efficient operation of the plant, there is continuous communication signal between the Gas Turbines (GT) and the Steam Turbines (ST) by use of automated control software and hardware. The operation in a plant like OTPC Palatana is automated through the use of specialized control system software and hardware which are provided by the OEMs. This specialized software for the GT and ST is called the Distributed Control System (DCS) and the specialized hardware (similar to desktops) is called Human Machine Interface (HMI). These HMI are placed in the control room for efficient plant operation in real-time basis. At Palatana, the OEM for gas turbines is GE and the OEM for steam turbines is BHEL. GE has provided DCS of Gas Turbines and it is a software called Mark-6. BHEL has provides the DCS of the Steam Turbines and it is a software called Max-DNA. The HMI use a software Microsoft-XP which is provided by Microsoft. So, the control systems of GT (Mark-6) and ST (Max-DNA) run on HMIs. There is continuous communication between the Mark-6 and Max-DNA for smooth plant operations. This communication occurs through network switches, hardwired communication and feedback signals. It is inevitable that at any time there should be smooth communication between the control systems (Mark-6/Max-DNA) and the operating system Microsoft-XP for reliable and efficient plant operation.

After 12 years of the product (Microsoft-XP) being in usage Microsoft had ended support for Microsoft-XP in 2014. This had created a system reliability issue at Palatana as there would have been no system support in case of an exigency in plant control system.

Palatana had been facing issues with the operational of the control system as below:

1. The HMIs were being operated without any anti-virus as no antivirus was compatible with obsolete windows-XP.
2. HMIs were getting hanged frequently leading to obstruction in plant operations.
3. Individual HMIs were getting restarted automatically
4. Blank screen had been observed on the HMIs simultaneously creating loss of control system

In view of above situation, a committee was constituted in 2019 to prepare a report on the reliability of existing control system and Operating System (OS), Vendor support (control system and OS) and issues with existing control and OS system. The Committee observed that present control system was almost 5 (Five) years old since COD of first unit in 2014 but OEM

support for this control system is still available. Mark-6 control system works on Microsoft XP operating system and obsolescence of Microsoft-XP was a matter of concern as OEM support was not available. Input and Output data of the machine is transmitted to the Control cards of the machine through Ethernet and display is monitored in eight parallel HMI (Human Machine Interface). There were sufficient number of control cards for both units to operate the machine in days to come. Further, no major shutdown happened in the past due to control system related issues. However, Control system plays a critical role in power plant operations. Operating the power plant on an obsolete software with no system support makes the plant vulnerable to potential operational issues and cyber threats. Obsolescence of Microsoft-XP posed an operational risk, and it had to be addressed.

In view of above facts, the Committee recommended as below:

a) HMIs and Operating System of the control system should be revamped at the time of next MI (Major Inspection) of either of the equipment,

b) M/s GE should be asked about future support of Mark-6 control system including spares, service engineers etc.

c) Based on the future support and availability of spare parts of Mark-6 control system, plan should be made to upgrade control system of the gas turbines during major overhaul period.

In 2020, another Committee was constituted to study the issue and recommend further action. The Committee studied the entire system namely, HMIs, Network and the Control System. The Committee also discussed with the OEM various options available to resolve the issue. Three options were explored to address the problem. The scenarios and the options available are as shown below:

S.No.	Option	Comments of OEM
1	Only upgrading HMIs without replacing network switches and Mark-6 control system	Upgradation of HMI with latest windows-10 OS is technically possible but compatibility of this upgrade with old control system Mark-6 has not yet been demonstrated anywhere in the world. Hence, behavior and performance of this type of upgrade is not known to GE.
2	Complete Upgradation from Mark-6 to Mark-6e (full panel upgradation) along with HMI and Network Switches	This was best option to resolve all the existing issues, but this option would have more financial cost without perceivable additional benefits
3	Migration of Platform from Mark-6 to Mark-6e along with HMIS and network switches	This migration option had been implemented in plants worldwide and their performance was satisfactory and there

S.No.	Option	Comments of OEM
		had been no reliability issue post migration. OEM also provided details of plants with such migration.

Apart from OEM's confirmation, the Petitioner also communicated with M/s Santee Copper Rainey where such system had been implemented and confirmed about the efficacy of the upgrade. **In view of the above, Committee recommended "Migration of Platform from Mark-6 to Mark-6e along with HMIS and network switches except Mark-6 I/O cards" as this option resolved the existing security and operation issues. OEM had also given assurance for support and service for Mark-6 I/O cards next 10 years. It would be a hybrid system where existing inventory of I/O cards can also be utilized.**

In addition to the above facts, the Ministry of Power, GOI had issued Guidelines dated 9.10.2018 for power sector entities to take preventive measures and upgrade the obsolete systems for mitigation of risks arising out of Cyber Security Threats. Under clause 2(v), the guidelines states that All Operating System, Applications and Firmware should updated as a basic cyber hygiene practice. The same has been attached as **Annexure A8.**

It is hence submitted that the decision to change the software of the operating system from Windows XP to Windows-10 and the related hardware required to upgrade for compatibility with windows-10 for DCS and MARK-6 system was not a sudden or overnight decision. It was a measured decision after MoP's recommendations and after discussions with GE/BHEL and OTPC's management as detailed below:

a. Ministry of Power (GOI) had issued Guidelines in 2017 and 2018 of which the guidelines dated 9.10.2018 for power sector entities asked all entities to take preventive measures for Mitigation of risks arising out of Cyber Security Threats. The guideline clause 2(v) had clear instructions to update all operating systems, applications and firmware as basic cyber hygiene practice. The guidelines also advised to deploy only those critical software applications whose technical support and version control are verifiable publicly.
b. In the internal audit reports of the Petitioner too, the auditor had stressed on the upgradation of the operating system.
c. The Petitioner had also been engaging in regular discussion with GE (the OEM for various equipment) and BHEL (the EPC contractor) regarding the operating software.

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Both GE and BHEL too had recommend the Petitioner to update the operating system and related hardware and same is evident by emails of BHEL and GE.

d. The Petitioner had also formed an expert Committee twice to study the suggestions of GE/BHEL regarding updating of operating software and other issue. The Committees had also submitted the same suggestions that the operating system and the associated hardware should be revamped/upgraded.

e. The Petitioner had also submitted the proof of obsolescence of the operating system i.e. Microsoft Windows XP directly from the Microsoft website. The proof clearly state that the extended support for Windows XP ended in April 2014 and Microsoft shall no longer provide updates or technical support for Windows XP and users should migrate to Windows-10.

f. It is hence submitted that the Operating system (OS) of both the control systems (Mark-6 and DCS system) was windows XP, which was declared obsolete by OEM (Microsoft) and all supports were stopped. The communication from OEM regarding obsolescence have been attached in **Annexures A9(a), A9(b) & A9(c)**. So due to software obsolescence and due to unavailability of support services, the Petitioner decided to upgrade the Operating system (OS) from windows XP to latest version (Windows 10) with related hardware required for compatibility of windows 10 for both control systems (Mark-VI and DCS).

The software technology is proprietary item and was the available technology at the time of award of contract for works. The extended support for the software was till April 2014 and same has been submitted in the Petition. Also, with support from OEM the Petitioner had been managing the works with existing software technology effectively. However, it is upon recommendation of Government of India guidelines, discussion with OEM, EPC contractor and internal committee reports that the Petitioner has decided to replace the obsolete software and related hardware. The recommendation of OEM has been attached as **Annexures A9(a), A9(b) & A9(c)**. Further, it is submitted that the Hon'ble Commission has been allowing additional capital expenditure on the account of upgradation/replacement of assets on the basis of obsolescence of operating software i.e. Windows XP/Windows 7 etc.

For instance, the Hon'ble Commission in Order dated 3.7.2023 in Petition No. 573/GT/2020 had allowed HMI Max DNA Upgradation Computers on account of obsolescence of Windows XP. The relevant extract of the order is quoted as below:

"179. In line with the above principles, the following additional capital expenditure has been allowed, on projection basis, for the purpose of determination of tariff for the period 2019-24:

2020-21

Sl. No.	***Name of the asset/works***	***Regulation***	***Amount***	***Remarks***
70.	*HMI Max DNA Upgradation Computers*	*25 (1) 76 & 77*	*585.04*	*Replacement of asset under original scope due to obsolescence is allowed under Regulation 25(2)(c) of 2019 Tariff Regulations, subject to submission of OEM certificate for obsolescence by the Petitioner at the time of truing up. Further, it is also observed that the Petitioner has not provided any decapitalisation of the existing item. Accordingly, assumed deletion has been considered for the same and the gross value of the old asset has been assumed as Rs. 395.28 Lakh (refer Assumed deletion).*

Similarly, the Hon'ble Commission in Order dated 17.8.2023 in Petition No. 643/GT/2020 had allowed Replacement of Windows XP Based SCADA Workstations/
Servers of powerhouse on account of obsolescence of Windows XP. The relevant extract of the order is quoted as below:

"71. In view of the above, the total additional capital expenditure allowed under original scope, change in law and other than original scope of work is Rs. 247.00 lakh, Rs 0.00 Lakh and Rs.0.00, respectively:

2023-24

Sl. No.	***Name of the asset/works***	***Amount claimed***	***Justification submitted by the Petitioner***	***Remarks on admissibility***	***Amount Allowed***
1.	*Replacement of Windows XP Based SCADA Workstations/ Servers of powerhouse*	*180.00*	*Sewa-II Power Station is a SCADA Based Power Plant, commissioned in 2010. Then, BHEL had supplied Windows XP Based SCADA*	*Considering the fact that the expenditure claimed is on account of replacement of asset /work due to obsolescence of technology, the claim of the Petitioner is allowed under*	*180.00*

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Sl. No.	Name of the asset/works	Amount claimed	Justification submitted by the Petitioner	Remarks on admissibility	Amount Allowed
			Workstations / Servers (16 Nos.). Due to round the clock running in last 10 years, these Workstations / Servers have completed their life and need replacement in phased manner for smooth running of the Power Plant. Further, since Windows XP has become obsolete, so the replacement is to be done by Windows 10 or latest available OS based SCADA Workstations/ Servers. 3 nos. workstation were already claimed during 2017-18, the expenditure is not related previous purchase. SCADA System of Powerhouse consisting of 16 workstations are installed. Out of 16, 3 nos were already replaced during 2017-18.	*Regulation 25(2)(c) of the 2019 Tariff Regulations. The decapitalization of old asset/work has been considered under 'Decapitalization'. However, the Petitioner is directed to furnish the (i) insurance adjustment made under insurance claim for the damaged caused on account of rocksslope-failure & heavy landslides if any and (ii) the consolidate scheme, at the time of truing up of tariff.*	

Sl. No.	*Name of the asset/works*	*Amount claimed*	*Justification submitted by the Petitioner*	*Remarks on admissibility*	*Amount Allowed*
			Remaining 13 workstations are planned to purchase in phase manner. 2nos in 5 nos in 2020-21, 2 nos in 2022-23 and remaining 6 no's in 2023-24. The assumed decapitalised value has been shown at Sl No. 1 in form 9(B)(i) during 2023-24. Claimed under Regulation 25(2)(c) of 2019 Tariff Regulations		

In view of the above, it is requested to the Hon'ble Commission to allow additional capital expenditure towards the assets requires upgradation on the basis of obsolescence of Windows XP as allowed for other generating stations. Accordingly, the Petitioner request the Hon'ble Commission to allow such additional capital expenditure of Rs. 1079.22 Lakh incurred in year 2021-22 under Regulation 25(2)(c) of the Tariff Regulations 2019. A decap of Rs. 669.19 Lakh is deducted in Form 9Bi.

6. New Schemes executed in 2019-24 Period

6.1. Refresh of Data Center and its Infrastructure

The Petitioner humbly submits that they have incurred Rs. 84.39 Lakh and Rs. 1616.45 Lakh towards Refresh of Data Center and its Infrastructure in the year 2020-21 and 2023-24 respectively. The Data Centre & IT infrastructure ("DCITI") at Delhi Office and Palatana Plant was setup in-house to implement SAP ERP System and other business applications considering following important factors for uninterrupted services on 24×7×365 basis:

(a) uptime,

(b) availability,

(c) adequate redundancy and

(d) high level security of ERP and IT Infrastructure.

It is submitted that the Tech refresh is the cycle of regularly updating key elements of IT infrastructure to maximize system performance. Instead of using systems until they can no longer function, it is prudent to upgrade or replace IT infrastructure on a regular schedule. IT infrastructure is a critical component for OTPC business. An up-to-date and high-quality IT infrastructure is an asset that enables to do business without falling prey to cyber threats and helps in achieving business goals and objectives.

In 2015, OTPC successfully implemented on-premises Data Center at its Delhi Office and Palatana Plant, Tripura. This initiative enabled OTPC to support critical business functions and ensure availability, integrity, confidentiality and compliance with data governance.

Basis on the reasons mentioned below the Tech refresh was taken into considerations:

a) **Technological Obsolescence:** DCITI is at higher risk of becoming technologically obsolete and thus is more likely to encounter various problems like non-availability of spares, software compatibility, performance limitation, security vulnerabilities, vendor support, integration challenges and scalability issues etc. List of IT Hardware along with the details of End of Life enclosed.

b) **Increased Failures and Downtime:** As the IT systems has become outdated, Data Centre IT Team started facing increased failure rates and increase in downtime which is evident from the details enclosed.

c) **Security Risk Due to non-receiving of Updates and Patches:** Unpatched systems are prone to malware, ransomware, and other cyberattacks. Vulnerabilities in the systems can be exploited to disrupt services, causing system downtime. This can affect business operations and lead to loss of productivity and business loss.

d) **Hardware Lifespan:** It was certain that the lifecycle of an IT System depends upon warranty maturity date, technology advancement and availability of spares. It is prudent to refresh DCITI every five to seven years, which is in recommendation of NTPC, EY and also mentioned as Depreciation Schedule in APPENDIX-I of CERC Tariff Regulations, 2019

e) **Increase in Cost of Warranty and Support:** The IT hardware, having been in service for more than 8 years, has reached a point where the cost of warranty extensions and support agreements from the OEMs has escalated considerably. These increased costs

are often a reflection of the higher risk and resource intensity associated with maintaining aging equipment. Details of warranty and support renewals along with amount spent has been enclosed. (**Annexure –A10(a)**)

f) **Changes in Security Standards:** Older hardware doesn't support the latest security system patches and updates which makes it vulnerable to threats. From phishing and DDOS attacks, to ransomware and data breaches, cyber criminals are constantly evolving the ways in which they can exploit vulnerabilities within IT infrastructure. Therefore, there was need to keep up with the latest security requirements. As per latest CERT-In data, there is an overall increase of 53% in ransomware incidents reported in 2022-H1 compared to previous years. The report has also highlighted that Ransomware groups targeted critical infrastructure in H1 2022 including Oil & Gas, Transport and Power. (India Ransomware Report published by CERT-In enclosed **Annexure-A10(b)**)

g) **Upgradation of SAP ERP:** At OTPC, SAP ECC 6.0 ERP application was implemented. SAP announced providing mainstream maintenance for existing deployments of core applications of SAP Business Suite 7 software (SAP ECC 6.0 ERP) until the end of 2027, followed by optional extended maintenance until the end of 2030. However, OTPC faced challenges in deploying the latest software updates and patches released by SAP due to limitations in the Operating System i.e. SUSE SLES, which has reached its end of life from the OEM. (**Annexure – A10(c)**)

h) **Compliances:** To ensure that OTPC's IT Infrastructure is compliant as per recommendations and guidelines of CERT-In / MoP / MeitY / CEA. Data Centre & IT Infrastructure implemented at OTPC had completed more than 8 year. To ensure smooth Operation & Maintenance and maintain availability of 99.5% for Data Centre & IT Infrastructure.

In view of the condition of Data Center and IT Infrastructure, warranty extension, CERT-In recommendations, which have been attached as **Annexure A10(b)** need for DCITI refresh and need for SAP upgrade, M/s Ernst & Young (E&Y) was hired to provide consultancy services for following scope of work:

a) Data Centre & IT Infrastructure upgrades and SAP ERP System migration to new IT Infrastructure.

b) Budgeting and planning for Data Centre & IT Infrastructure upgrade and SAP ERP System migration to new IT Infrastructure.

E&Y evaluated various options for refresh of DCITI at Delhi Office and Palatana Plant with 5 years' warranty & support and after thorough analysis, they recommended to refresh DCITI on on-premises model. Recommendations of E&Y have been attached as **Annexure A10(d)**.

In parallel to Consultant's Evaluation, a committee comprising of Head - Corp. C&M, Head - Corp. F&A (Finance & Budgeting) and Head - Corp. IT & CISO was constituted by MD-OTPC vide note dated 27th June 2022, to visit and understand IT facility of similar setup as of OTPC and to plan strategy for Data Centre & IT Infrastructure refresh of OTPC setup.

Committee visited DCITI from varied sectors, from private and as well as public sector undertakings having medium and large installations. Following Data Centre & IT Infrastructure (DCITI) visited by the committee:

a) Indraprastha Gas Limited, New Delhi on 10th August 2022
b) Pragati Power Corporation Limited, New Delhi on 25th August 2022
c) Lanco Anpara Power Limited, Gurugram on 9th September 2022
d) NTPC Limited, NOIDA on 27th September 2022

Consolidated site visit report is attached as **Annexure – A10(e).** Following is the summary of site visits:

a) **Type of Installation:** Data centre and IT infrastructure high level architecture was discussed. The aforementioned organisations praised OTPC's current IT and network setup and believed that its architecture adhered to industry standards.
b) **Proposed BoQ:** In general, organisations expressed satisfaction with the OTPC's BoQ proposal for refresh because to its ideal design, completeness in terms of required systems, and respect to security standards. The fact that the electricity sector is extremely crucial was also mentioned, and OTPC should take compliance with CERT-In guidelines into consideration to further strengthen OTPC's cyber security posture.
c) **Type of Installation (To-Be):** The aforementioned organisations stated that they would prefer an in-house Data Centre model due to concerns about security issues in cloud-based implementations cannot be completely eliminated and unanticipated difficulties when switching cloud service providers at the end of a contract or upon contract termination. It was suggested that it would be prudent for OTPC to continue in-house IT Infrastructure setup considering that OTPC's Data Centre sizing has not grown exponentially since its 7+ years of operations on 24x7 basis. Hence, there could be hardly any cost benefit in setting-up cloud-based IT setup for small/mid-size

companies. Further, above organizations have in-house IT setup and so far they have not evaluated other model for IT implementation.

NTPC (CERT-Thermal coordinator appointed by Govt. of India) was requested their guidance on the following to ascertain industry practices:

a) Useful life of Data Centre & IT Infrastructure implemented at NTPC,
b) Refresh time cycle in NTPC for Data Centre & IT Infrastructure on completion of useful life, and
c) Last refresh of Data Centre & IT Infrastructure undertaken in NTPC.

NTPC informed following practice being followed at NTPC:

a) 7 Years of useful life of IT Infrastructure and 10 years for Data Centre equipment like UPS, PAC etc,
b) 7 Years of refresh time cycle in NTPC for IT Infrastructure and 10 years refresh cycle for Data Centre equipment, and
c) Last refresh of Data Centre & IT Infrastructure was undertaken in 2016 in NTPC.

Consideration the requirement approval was taken from the board regarding CAPEX budget for refresh of Data Centre & IT Infrastructure with 5 years OEM warranty as per estimates submitted by M/s E&Y attached as **Annexure A10(d)**

In line with approvals from the Board and Procurement Committee, an open tender for Data Centre & IT Infrastructure refresh including supply, installation, OEM warranty for 5 years, O&M of DCITI at Delhi and Palatana plant for a period of 5 years was published through Central Procurement Portal (CPP) of OTPC on 6.11.2023.

Basis on Technical and Commercial evaluation of bids, it was recommended to award the "Contract for Refresh / Upgrade of Data Centre & IT Infrastructure at Delhi Office and Palatana Plant of OTPC to M/s ORBIT TECHSOL INDIA PRIVATE LIMITED.

All IT Hardware as per contract was supplied by the contractor as per timelines, and installation and commissioning of the Data Center was completed on 30.3.2024.

In view of the above, the Petitioner requests the Hon'ble Commission to allow the additional capital expenditure incurred by the Petitioner of Rs. 1700.85 Lakh (Rs. 84.39 Lakh in FY 2020-21 and Rs. 1616.45 Lakh in FY 2023-24) towards Refresh of Data Center and its Infrastructure under Regulation 25(2)(c) read with Regulation 76 (Power to Relax) and Regulation 77 (Power to Remove Difficulty) of the Tariff Regulations 2019. A decap of Rs. 51.6 Lakh in 2020-21 and Rs. 1,041.98 Lakh is considered in 2023-24.

6.2. CKA- Upgradation Max station from XP to Windows

The Petitioner humbly submits that it has incurred Rs. 955.80 Lakh towards CKA- Upgradation Max station from XP to Windows in the year 2021-22. It is submitted that the control system plays a critical role in running the power plant and is essential for its proper functioning. Control system software runs on windows-based operating system (OS). Presently, Control System (MaxDNA) of STG & BOP runs on windows XP Operating System. Window XP OS was declared obsolete in 2009, and the extended support from Microsoft ended in 2014. Thus, there is no support available for OS Windows XP from Microsoft. As there is no support available for OS windows XP and any failure of OS may lead to long time control system unavailability and consequently generation loss. Till date not a single hour forced outage happened due to control system non-availability. Though OS windows XP has become obsolete, but we have taken all preventive measures to avoid any kind of failure and as a result of proactive & prevention measures lead to maintaining the full availability of the control system till now. OTPC is one of the few plants in India which does not have any downtime due to control system unavailability since inception. To maintain the full availability of control system as it has been till now and in future too, it is highly recommended to upgrade the OS from windows XP to latest available OS windows 10 and upgradation of associated control hardwires/equipment's also to continue the full availability of control system.

There is also Ministry of Power (MoP) notification dated 9.10.2018 for power generation plant to upgrade the OS to latest one as windows XP are vulnerable to cyber threats. The same has been attached as **Annexure A8.** Although we are taking enough preventive measures to avoid cyber threats but also it is recommended to upgrade for better security and support. So, the composite order for supplying of material including supervision, installation and commissioning of these upgradation has been placed as per **Annexure-A11** to M/s BHEL, EDN, authorized supplier of said items on single vendor (PSU) nomination basis. The scopes of activities are attached in **Annexure-A11** for reference and further process. Further, it is submitted that the Hon'ble Commission has been allowing additional capital expenditure on the account of upgradation/replacement of assets on the basis of obsolescence of operating software i.e. Windows XP/Windows 7, etc. in case of other generating stations also. For instance, the Hon'ble Commission in Order dated 3.7.2023 in Petition No. 573/GT/2020 had allowed HMI Max DNA Upgradation Computers on account of obsolescence of Windows XP. The relevant extract of the order is quoted as below:

> "*179. In line with the above principles, the following additional capital expenditure has been allowed, on projection basis, for the purpose of determination of tariff for the period 2019-24:*

2020-21

Sl. No.	*Name of the asset/works*	*Regulation*	*Amount*	*Remarks*
70.	*HMI Max DNA Upgradation Computers*	*25 (1) 76 & 77*	*585.04*	*Replacement of asset under original scope due to obsolescence is allowed under Regulation 25(2)(c) of 2019 Tariff Regulations, subject to submission of OEM certificate for obsolescence by the Petitioner at the time of truing up. Further, it is also observed that the Petitioner has not provided any decapitalisation of the existing item. Accordingly, assumed deletion has been considered for the same and the gross value of the old asset has been assumed as Rs. 395.28 Lakh (refer Assumed deletion).*

Similarly, the Hon'ble Commission in Order dated 17.8.2023 in Petition No. 643/GT/2020 had allowed Replacement of Windows XP Based SCADA Workstations/ Servers of powerhouse on account of obsolescence of Windows XP. The relevant extract of the order is quoted as below:

"*71. In view of the above, the total additional capital expenditure allowed under original scope, change in law and other than original scope of work is Rs. 247.00 lakh, Rs 0.00 Lakh and Rs.0.00, respectively:*

2023-24

Sl. No.	*Name of the asset/works*	*Amount claimed*	*Justification submitted by the Petitioner*	*Remarks on admissibility*	*Amount Allowed*
1.	*Replacement of Windows XP Based SCADA Workstations/ Servers of powerhouse*	*180.00*	*Sewa-II Power Station is a SCADA Based Power Plant, commissioned in 2010. Then, BHEL had supplied Windows XP Based SCADA Workstations / Servers (16 Nos.). Due to round the clock running in last 10 years, these Workstations / Servers have completed their life and need*	*Considering the fact that the expenditure claimed is on account of replacement of asset /work due to obsolescence of technology, the claim of the Petitioner is allowed under*	*180.00*

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Sl. No.	Name of the asset/works	Amount claimed	Justification submitted by the Petitioner	Remarks on admissibility	Amount Allowed
			replacement in phased manner for smooth running of the Power Plant. Further, since Windows XP has become obsolete, so the replacement is to be done by Windows 10 or latest available OS based SCADA Workstations/ Servers. 3 nos. workstation were already claimed during 2017-18, the expenditure is not related previous purchase. SCADA System of Powerhouse consisting of 16 workstations are installed. Out of 16, 3 nos were already replaced during 2017-18. Remaining 13 workstations are planned to purchase in phase manner. 2nos in 5 nos in 2020-21, 2 nos in 2022-23 and remaining 6 no's in 2023-24. The assumed decapitalized value has been shown at Sl No. 1 in form 9(B)(i) during 2023-24. Claimed under Regulation 25(2)(c) of 2019 Tariff Regulations	*Regulation 25(2)(c) of the 2019 Tariff Regulations. The decapitalization of old asset/work has been considered under 'Decapitalization'. However, the Petitioner is directed to furnish the (i) insurance adjustment made under insurance claim for the damaged caused on account of rocksslope-failure & heavy landslides if any and (ii) the consolidate scheme, at the time of truing up of tariff.*	

In view of the above, it is requested to the Hon'ble Commission to allow additional capital expenditure towards the assets requires upgradation on the basis of obsolescence of Windows

XP as allowed by the Hon'ble Commission in case of other generating stations also. Accordingly, the Petitioner requests the Hon'ble Commission to allow the additional capital expenditure incurred by the Petitioner of Rs. 955.80 Lakh in FY 2021-22 under Regulation 25(2)(c) read with Regulation 76 (Power to Relax) and Regulation 77 (Power to Remove Difficulty) of the Tariff Regulations 2019. Decap of Rs. 457 Lakh has been deducted fin Form 9Bi.

6.3. Design, Engineering & Implementation of RGMO

The Petitioner humbly submits that it has incurred Rs. 183.25 Lakh towards Design, Engineering & Implementation of RGMO in the year 2023-24. It is submitted that Power generator is generating power which is getting dispatched to grid. Grid and generator are connected/synchronized by maintaining basic power parameters and frequency is one of the main parameters for working generator in response to grid requirement. Generator capability/output is controlled by turbine governing system. So governing system should work in response of grid requirement to maintain the grid stability and frequency i.e. in case of increase of demand in grid (frequency fall) generator to increase to output to support the demand and vice versa. Generally, primary frequency control is interlocked with turbine governing system & automatic, and it aims to arrest the grid frequency variations by automatically varying generator output as per its droop characteristics. But this control is instantaneous and turbine back to secondary control loop. So, there is primary frequency response/control but not sustainable to restoration of frequency towards the nominal i.e. 50 Hz. So, the requirement is the band of frequency ranges to response, dead band of frequency not to response, and time defined time band to hold/response and fast ramp rate of loading /unloading etc. Time frame for primary governor control action is of the order of a time frame to enable secondary control to take over which will allow the primary reserves to be restored.

CERC guidelines require primary frequency response compliance as per clause 5.2 (f)(ii)(c) of IEGC guidelines published in 2010 which require the implementation of RGMO. The same was communicated with the Petitioner vide email dated 20 December 2022 by the NERLDC Control Room (Email attached as **Annexure-A12**.

Our primary frequency response testing will be done by a third party nominated by the Hon'ble Commission and this testing approval is already in process with our management for due approval. So, our view was to implement the RGMO as per IEGC guidelines and the communication by NERLDC before actual third-party testing at OTPC.

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In view of requirement, we have implemented the RGMO in both the gas turbine on limited tendering basis by EPC or OEM.

The scope of works is mentioned below:

1. Design, Engineering & Implementation of RGMO logics as per latest CERC / IEGC Guidelines. The gas turbine should be capable to operate at 102.5% of base load in case of fall in frequency.
2. Testing, commissioning & demonstration of implemented schemes while the units on load / off load / stable condition.
3. Presence, support & demonstrate to third party at the time of third-party testing.
4. Compliance and implementation of observation, non-compliances & recommendation by third party after actual test.

Further, it is submitted that the Hon'ble Commission in Order dated 29.8.2022 in Petition No. 279/GT/2020 had allowed additional capital expenditure towards Implementation of the RGMO control for Gas Turbine. The relevant extract of the order is quoted as below:

> "*18. The Petitioner has claimed additional capital expenditure of Rs. 100.00 Lakh towards implementation of RGMO control for Gas Turbine, in 2020-21, under Regulation 26(1)(b) of the 2019 Tariff Regulations. In justification of the same, the Petitioner has submitted that as per IEGC, RGMO is mandatory for Gas Based Thermal unit having capacity of 50MW and above. It has stated that the rated capacity of Gas Turbine at the generating station is 65.42 MW and the existing control system at the generating station is Mark-Vie, where RGMO is not available. Thus, due to the change in the Regulation, the Petitioner has proposed to incorporate the RGMO control at its generating station. The matter has been considered. It is observed that as per IEGC, RGMO is mandatory for all generating units in view of grid reliability requirements. In view of this, the additional capital expenditure of Rs 100.00 Lakh claimed for implementation of the RGMO control of the Gas Turbine is allowed to the generating station under Regulation 26(1)(b) of the 2019 Tariff Regulations.*"

As per Regulation 5.2(f)(ii)(c) of IEGC Regulations, 2010 and Regulation____ of the IEGC Regulations, 2023, RGMO is mandatory for Gas Based Thermal unit having capacity of 50 MW and above. Being a statutory requirement, the Petitioner requests the Hon'ble Commission to allow the actual additional capital expenditure incurred by the Petitioner of Rs. 183.25 Lakh in FY 2023-24 under Regulation 26(1)(b) of the CERC Tariff Regulations 2019.

6.4. DAVR PC for Excitation System

The Petitioner humbly submits that it has incurred Rs. 59.71 Lakh towards DAVR PC for Excitation System in the year 2022-23, It is submitted that the DAVR PCs of the excitation system for both the Gas Turbine and Steam Turbine generators are outdated, as they are still operating on Windows XP. These panel-mounted PCs have a high failure rate. Based on OTPC's experience, desktop PCs have proven to be significantly more reliable. Presently, Control System (MaxDNA) of STG & BOP runs on windows XP Operating System. Window XP OS declared obsolete in 2009, and the extended support from Microsoft ended in 2014. Thus, there is no support available for OS Windows XP. As there is no support available for OS windows XP and any failure of OS may lead to long time control system unavailability and consequently generation loss. Till date not a single hour forced outage happened due to control system non-availability. Though OS windows XP has become obsolete, but we have taken all preventive measures to avoid any kind of failure and as a result of proactive & prevention measures lead to maintaining the full availability of the control system till now. OTPC is one of the few plants in India which does not have any downtime due to control system unavailability since inception. To maintain the full availability of control system as it has been till now and in future too, it is highly recommended to upgrade the OS from windows XP to latest available OS windows 10 and upgradation of associated control hardwires/equipment's also to continue the full availability of control system. Therefore, it was decided to replace the obsolete system with two new PCs equipped with the latest Max DNA software for the Gas Turbine excitation system. Since only the control components were updated, the PCs with the latest Max DNA software were procured exclusively from the OEM, M/S BHEL EDN. There is also GOI notification for power generation plant to upgrade the OS to latest one as windows XP are vulnerable to cyber threats. Although we are taking enough preventive measures to avoid cyber threats but also it is recommended to upgrade for better security and support. So, the composite order for supplying of material including supervision, installation and commissioning of these upgradation has been placed. The communication from BHEL regarding windows upgradation has been attached as **Annexure-A13** for reference. In view of the above, the Petitioner requests the Hon'ble Commission to allow the additional capital expenditure incurred by the Petitioner of Rs. 59.71 Lakh in FY 2022-23 under Regulation 25(2)(c) read with Regulation 76 (Power to Relax) and Regulation 77 (Power to Remove Difficulty) of the Tariff Regulations 2019.

6.5. Upgradation PLC HMI SCADA

The Petitioner humbly submits that it has incurred Rs. 27.05 Lakh towards Upgradation PLC HMI SCADA in the year 2023-24. It is submitted that PLC HMI's Operating system (OS) was upgraded from windows 7 to windows 10 as windows 7 was declared obsolete and no support service was available. The Communication from OEM (GE and BHEL) declaring obsolescence has been attached as **Annexures-A14(a), A14(b) & A14(c)** for reference. It is submitted that DM plant, Hydrogen plant and HVAC system is run by using GE Fanuc PLC system. There are two HMIs on each plant where software for performing operation and maintenance of the plant is installed. At present these HMIs are running on Windows 7 OS which has become obsolete, and Microsoft stopped supporting Windows 7 from 14.1.2020 onwards. As Windows 7 OS which has become obsolete and Microsoft stopped all supports for windows 7, Hence we are having following risks/problems:

- No support from Microsoft for security patches. This could affect our ability to comply with Data Protection and Privacy Standards.
- A major cause of downtime is the lack of appropriate computer hardware components.
- The majority of industrial applications lack updates and security patches – increasing their vulnerability to cyber-attacks and failures.
- The current Cimplicity SCADA software versions v8.1 and v8.2 are not compatible with latest PC hardware & Operating System
- The current PME (Logic Developer) software versions v6.5 is not compatible with latest PC hardware & Operating System
- These HMIs are running without any antivirus software as compatible antivirus software is not available in the market for windows 7 OS.

The above said risks may trigger the system crash and it may not be recovered. This will cause non availability of PLC system and may lead long downtime of the plant. The Petitioner is already facing following issues in existing running HMIs,

- HMI getting hanged leading to obstruction in running of plant.
- HMI getting restart automatically.

So, in order to prevent any unwanted incident and to improve reliability, it is proposed to upgrade our system to latest windows 10 OS which would give us solutions of all above said risks and following benefits:

- Upgrade of existing version to latest version v11.1 Cimplicity SCADA software
- Upgrade of existing version to latest version v9.8 PME (Logic Developer) software

- Latest PC Hardware with Windows 10 Operating System
- Latest Antivirus software

Also, for plant availability and reliability, the Petitioner has already upgraded OS of gas turbine control system (MARK VI) and DCS system (MAX DNA) with latest version of OS windows 10 as preventive measure since then plant control system working satisfactorily.

Further, it is submitted that the Hon'ble Commission has been allowing additional capital expenditure on the account of upgradation/replacement of assets on the basis of obsolescence of operating software i.e. Windows XP/Windows 7 etc.

For instance, the Hon'ble Commission in Order dated 3.7.2023 in Petition No. 573/GT/2020 had allowed HMI Max DNA Upgradation Computers on account of obsolescence of Windows XP. The relevant extract of the order is quoted as below:

"*179. In line with the above principles, the following additional capital expenditure has been allowed, on projection basis, for the purpose of determination of tariff for the period 2019-24: 2020-21*

Sl. No.	***Name of the asset/works***	***Regulation***	***Amount***	***Remarks***
70.	*HMI Max DNA Upgradation Computers*	*25 (1) 76 & 77*	*585.04*	*Replacement of asset under original scope due to obsolescence is allowed under Regulation 25(2)(c) of 2019 Tariff Regulations, subject to submission of OEM certificate for obsolescence by the Petitioner at the time of truing up. Further, it is also observed that the Petitioner has not provided any decapitalisation of the existing item. Accordingly, assumed deletion has been considered for the same and the gross value of the old asset has been assumed as Rs. 395.28 Lakh (refer Assumed deletion).*

Similarly, the Hon'ble Commission in Order dated 17.8.2023 in Petition No. 643/GT/2020 had allowed Replacement of Windows XP Based SCADA Workstations/

Servers of powerhouse on account of obsolescence of Windows XP. The relevant extract of the order is quoted as below:

"*71. In view of the above, the total additional capital expenditure allowed under original scope, change in law and other than original scope of work is Rs. 247.00 lakh, Rs 0.00 Lakh and Rs.0.00, respectively:*

2023-24

Sl. No.	Name of the asset/works	Amount claimed	Justification submitted by the Petitioner	Remarks on admissibility	Amount Allowed
1.	Replacement of Windows XP Based SCADA Workstations/ Servers of powerhouse	180.00	Sewa-II Power Station is a SCADA Based Power Plant, commissioned in 2010. Then, BHEL had supplied Windows XP Based SCADA Workstations / Servers (16 Nos.). Due to round the clock running in last 10 years, these Workstations / Servers have completed their life and need replacement in phased manner for smooth running of the Power Plant. Further, since Windows XP has become obsolete, so the replacement is to be done by Windows 10 or latest available OS based SCADA Workstations/ Servers. 3 nos. workstation were already claimed during 2017-18, the expenditure is not related previous purchase. SCADA System of	Considering the fact that the expenditure claimed is on account of replacement of asset /work due to obsolescence of technology, the claim of the Petitioner is allowed under Regulation 25(2)(c) of the 2019 Tariff Regulations. The decapitalization of old asset/work has been considered under 'Decapitalization'. However, the Petitioner is directed to furnish the (i) insurance adjustment made under insurance claim for the damaged caused on account of rocksslope-failure & heavy landslides if any and (ii) the consolidate scheme, at the time of truing up of tariff.	180.00

Sl. No.	*Name of the asset/works*	*Amount claimed*	*Justification submitted by the Petitioner*	*Remarks on admissibility*	*Amount Allowed*
			Powerhouse consisting of 16 workstations are installed. Out of 16, 3 nos were already replaced during 2017-18.Remaining 13 workstations are planned to purchase in phase manner. 2nos in 5 nos in 2020-21, 2 nos in 2022-23 and remaining 6 no's in 2023-24. The assumed decapitalised value has been shown at Sl No. 1 in form 9(B)(i) during 2023-24. Claimed under Regulation 25(2)(c) of 2019 Tariff Regulations		

In view of the above, it is requested to the Hon'ble Commission to allow additional capital expenditure towards the assets requires upgradation on the basis of obsolescence of Windows XP as allowed for other generating stations. Accordingly, the Petitioner requests the Hon'ble Commission to allow the additional capital expenditure incurred by the Petitioner of Rs. 27.05 Lakh in FY 2023-24 under Regulation 25(2)(c) read with Regulation 76 (Power to Relax) and Regulation 77 (Power to Remove Difficulty) of the Tariff Regulations.

6.6. Chlorination system panel upgradation

The Petitioner humbly submits that it has incurred Rs. 12.91 Lakh towards Chlorination system panel upgradation in the year 2023-24. It is submitted that a RW Chlorination System has been installed at the OTPC Palatana Plant. The 2×115 KPH CW and 2×6 KPH RW Chlorination System have experienced several chlorine leakage incidents in the recent past. Consequently, a feasibility study was conducted to explore options for upgrading the systems to enhance process safety. A Purchase Order (1700002397) was issued to hire experts from the OEM of

the CW and RW Chlorination System, M/s PerfectChloro. Based on the recommendation report submitted by the OEM expert following a site visit, it was advised to install new Auto Shut Off Valves (ASV) along with Vacuum Switches in the system. The recommendation report from OEM has been attached as **Annexure-A15** for reference. These ASVs is controlled via a Local Control Panel, which is powered by the Plant UPS System ACDB, ensuring continued operation even during power outages. This upgrade is implemented individually in both the CW and RW Chlorination Systems. In accordance with the recommendation report, M/s PerfectChloro was approached for a budgetary price offer for the supply, installation, and commissioning of the new system, as well as the integration of the newly installed ASVs with the existing Local Control Panel. Given that additional equipment is commissioned for the CW and RW systems. In view of the above, the Petitioner requests the Hon'ble Commission to allow the additional capital expenditure incurred by the Petitioner of Rs. 12.91 Lakh in FY 2023-24 under Regulation 25(2)(c) of the Tariff Regulations 2019.

6.7. 60kW Draw Out Module

The Petitioner humbly submits that it has incurred Rs. 9.52 Lakh towards 60 kW Draw Out Module in the year 2021-22. It is submitted that OTPC's Gas Turbines (GTs) are equipped with BT fans (GT compartment cooling fans), which are essential for cooling the GT compartment. Each unit operates with one fan running and one standby, and the GT cannot be started in the absence of these fans. OTPC has two BT motors in each unit, which are designed for 45 kW modules. However, the BT motors themselves are rated at 55 kW each. This specification mismatch has led to several problems, including:

a) Flashing in bus bar droppers
b) Melting of female contacts
c) Flashovers in contactors
d) Internal wiring burns

OTPC approach the Original Equipment Manufacturer (OEM) - M/s L&T, and upon discussion, it was determined that the issues were arising due to the mismatch between the module and motor specifications. It was suggested to upgrade to 60 kW modules, allowing for a 5 kW margin due to the high starting current of the BT motors.

The same has been attached as **Annexure-A16** for reference. A total of five modules are procured, including one spare. In view of the above, the Petitioner requests the Hon'ble Commission to allow the additional capital expenditure incurred by the Petitioner of Rs. 9.52

Lakh in FY 2021-22 under Regulation 25(2)(c) read with Regulation 76 (Power to Relax) and Regulation 77 (Power to Remove Difficulty) of the Tariff Regulations 2019.

6.8. Replacement of H2 Plant Analog Rectifier with Digital Rectifier

The Petitioner humbly submits that it has incurred Rs. 7.90 Lakh towards H2 Plant Rectifier in the year 2023-24. The OTPC Palatana plant relies on H2 gas for cooling the Gas Turbine Generator, which is critical for its optimal operation. The plant generates its own H2 gas in-house, utilizing analog rectifiers as a key component of the hydrogen generation system. Currently, the plant operates with two analog rectifiers. However, the spare parts for these analog rectifiers have become obsolete, and OEM support for analog cards was no longer available. The communication from OEM regarding obsolescence has been attached as **Annexure-A17**. Any malfunction in the rectifier cards could lead to a complete shutdown of the H2 plant. Therefore, it was imperative to upgrade to digital rectifiers, which incorporate the latest technology. The Petitioner has procured digital rectifier. In view of the above, the Petitioner requests the Hon'ble Commission to allow the additional capital expenditure incurred by the Petitioner of Rs. 7.90 Lakh in FY 2023-24 under Regulation 25(2)(c) of the Tariff Regulations 2019.

6.9. IT Infrastructure

The Petitioner humbly submits that it has incurred Rs. 113.62 Lakh (Rs. 4.17 Lakh in 2019-20, Rs. 63.57 Lakh in 2020-21, Rs. 13.00 Lakh in 2021-22 and Rs. 31.78 Lakh in 2022-23 and Rs. 1.11 Lakh in 2023-24) towards IT Infrastructure in the 2019-24 control period. The Petitioner submits that the rapid technological advancement in the present era of digitalization has compelled the Petitioner to update the Hardware and Software continuously which is further in consonance with the Petitioner's IT Policy under the Laptop Allocation Policy, the eligibility for new laptops arises after 4 years of their asset life so as to keep the software and hardware updated to prevent any cyber security breach. The Additional Capitalization Expenditure under consideration includes the procurement of new laptops, desktops, printers, and other essential office equipment. These items are selected based on the specific technical requirements of various departments, ensuring that each unit has the appropriate tools to perform its functions effectively. With the rapid pace of technological change, older hardware and software quickly become obsolete, which can lead to vulnerabilities and inefficiencies. By adhering to a structured update cycle, the Petitioner ensures that its IT infrastructure is robust, secure, and

capable of supporting modern applications and processes. In view of the above, the Petitioner requests the Hon'ble Commission to allow the additional capital expenditure incurred by the Petitioner of Rs. 113.62 Lakh in 2019-24 period under Regulation 25(2)(a) read with Regulation 76 and 77 of the Tariff Regulations 2019 as it is an essential requirement for smooth operation of the plant commercial works.

6.10. Lab equipment

The Petitioner humbly submits that it has incurred Rs. 20.90 Lakh (Rs. 11.07 Lakh in FY 2019-20, Rs. 2.80 Lakh in FY 2020-21, Rs. 4.75 Lakh in FY 2022-23 and Rs. 2.28 Lakh in FY 2023-24) towards Lab Equipment in the period 2019-24. The Petitioner humbly submits that over the past decade, these instruments have been subjected to continuous and rigorous usage, leading to significant wear and tear. The prolonged use of these instruments has rendered them increasingly prone to measurement errors and inaccuracies, which poses a substantial risk to the plant's operations. Accurate measurements are imperative not only for maintaining operational efficiency but also for ensuring safety standards, as inaccuracies can result in chemical hazards that jeopardize both personnel and plant infrastructure. Furthermore, the current state of the laboratory instruments highlights the challenges associated with aging equipment. Many of the instruments have reached a point where they are beyond economical repair. Given these circumstances, the procurement of new laboratory instruments is necessary to sustain the plant's operational integrity. Modern instruments will enhance measurement accuracy, ensure compliance with safety regulations, and support the continuous improvement of plant processes. The investment in new equipment will also mitigate the risks associated with chemical hazards, thereby safeguarding the well-being of plant personnel and the surrounding environment. In view of the above, the Petitioner requests the Hon'ble Commission to allow the additional capital expenditure incurred by the Petitioner of Rs. 20.90 Lakh in period 2019-24 under Regulation 25(2)(a) read with Regulation 76 and 77 of the Tariff Regulations 2019.

6.11. Vibration Monitoring System for Unit 1 and Unit 2 Cooling Tower (CT) Fan

The Petitioner humbly submits that it has incurred Rs. 7.88 Lakh towards Vibration Monitoring System for Unit 1 and Unit 2 CT Fan in the year 2019-20. It is submitted that after root cause analysis (RCA), many fans bearing failure in past were observed and it was found that this failure was due to high vibrations. In view of observation of OTPC O&M team, Management recommended to measure the of vibration of CT Fan Gear Boxes. It is submitted that vibration

monitoring system is instrumental in reducing vibrations specifically in cooling tower fans, thereby enhancing their performance and reliability. This system continuously tracks the vibration levels of the fan's components, such as the blades, motor, and bearings, providing real-time data on their operational state. By identifying unusual vibration patterns early, the system can alert maintenance teams to potential issues like imbalance, misalignment, or bearing failures. Immediate attention to these alerts allows for prompt corrective actions, such as rebalancing the fan blades or realigning components, which helps in mitigating excessive vibrations.

Considering the same new vibration system was installed in both cooling tower (CT) fans to improve the availability and reliability of CT fans and improve the performance and efficiency of fans and plant. Total 16 nos. cooling fans are installed in two nos. cooling towers (CT) for condenser water cooling purpose in closed loop. CT fan system is equipped with motor bearing and CT fan bearing. Motor gear box is equipped with vibration sensing switch with protection, but fan bearing is not given with any vibration monitoring system. This Vibration Monitoring System (VMS) is an automated system with incorporation in DCS with standard monitor & protection logic, hence reducing the human error. So as per recommendation, initially Vibration Monitoring System (VMS) was installed in 4 Nos. (2 Nos. in Unit#1 & 2 Nos. in Unit#2) in trial basis. After successfully trial run of system and satisfactory performances, it was further recommended to implement all the remaining fans in Unit#1 & Unit#2. So, considering the importance and criticality of the system, the vibration sensors along with accessories were procured and same were hooked up with DCS for monitoring, capturing and storing the data for future analysis and reference. The importance of vibration monitoring system has also been highlighted in the Marsh safety audit report based on the Safety Audit conducted by the Marsh team and the consequent report shared by them in March 2019. The same has been attached as **Annexure-A18**. Moreover, the vibration monitoring system ensures that the fan operates within optimal vibration limits, which not only reduces mechanical stress and wear but also enhances energy efficiency. This proactive approach to maintenance minimizes unexpected breakdowns, extends the lifespan of the fan, and results in lower maintenance costs ultimately leading to more reliable and uninterrupted power to the beneficiaries. The same has been recommended in the Professional Technical Review Report-2017 on Plant Operations, Processes and related Reliability, Safety and Efficiency of OTPC Power Plant conducted by Chartered Engineer on 27.6.20217. It has been attached as **Annexure-A28**.

The Petitioner humbly request the Hon'ble Commission to allow the actual additional capital expenditure incurred by the Petitioner amounting to Rs. 7.88 Lakh under Regulation 26(1)(d) of the Tariff Regulations 2019 read with Regulation 76 (Power to Relax) and Regulation 77 (Power to Remove Difficulty) of the Tariff Regulations 2019.

6.12. VFD Panel for 30kW Low Pressure Boiler Feed Pump

The Petitioner humbly submits that it has incurred Rs. 5.43 Lakh towards VFD Panel for 30 kW Low Pressure Boiler Feed Pump in the year 2019-20. It is humbly submitted that Low Pressure Boiler Feed Pump (LP BFP) is running with constant speed motor and output needs to be throttled in Low Pressure Feed Control stations as and when required basis. By reducing the speed of Low-Pressure Boiler Feed Pump, we can control the desired output and throttling is not required. Reduced speed means reduction of auxiliary power consumption of Low-Pressure Boiler Feed Pump Motors. VFD's can be used to reduce speed as per our requirement and control output. Hence it was decided to install VFD for Low Pressure Boiler Feed Pump as our units run in part load to save energy. As such a study was conducted for feasibility in our system. Complete study of pump and motor pump motor was analysed as how the output will be varied. The study documents are attached as **Annexure-A19.** Finally, it was concluded that VFD can be installed for LP BFP. Energy Calculation was done, and savings were calculated. Payback period calculated was 3.36 Years. Installation of VFD was also recommended in Energy Report for Low Pressure Boiler Feed Pump motor to reduce auxiliary consumption. Management of Change (MoC) was moved on 25.4.2018 and after detailed deliberation, Management of Change was approved on 11.08.2018. The same has been recommended in the Professional Technical Review Report-2017 on Plant Operations, Processes and related Reliability, Safety and Efficiency of OTPC Power Plant conducted by Chartered Engineer on 27.6.20217. It has been attached as **Annexure-A28**.

In view of the above, the Petitioner humbly requests the Hon'ble Commission to allow the actual additional capital expenditure incurred by the Petitioner of Rs. 5.43 Lakh in FY 2019-20 towards the said work under Regulation 26(1)(d) read with Regulation 76 (Power to Relax) and Regulation 77 (Power to Remove Difficulty) of the Tariff Regulations 2019.

6.13. Online Moisture Removal System

The Petitioner humbly submits that it has incurred Rs. 20.94 Lakh towards Online Moisture Removal System in the year 2020-21. The OTPC Palatana Plant has 11 power transformers, with 4 experiencing extreme load variations due to line fault surges. This leads to the release

of moisture and carboxylic acids during cellulose decomposition. OTPC has installed online transformer condition monitoring for 4 generator transformers but lacked monitoring devices for ICT-1, ICT-2, Line Reactor-1, and Line Reactor-2 switchyard transformers. To address this, 4 online moisture removal systems have been procured and installed for these transformers. These systems monitor and remove moisture, which traditional oil filtration cannot do, enhancing the reliability of the transformers and associated systems. The same has been recommended in the Professional Technical Review Report-2017 on Plant Operations, Processes and related Reliability, Safety and Efficiency of OTPC Power Plant conducted by Chartered Engineer on 27.6.20217. It has been attached as **Annexure-A28**.

In view of the above, the Petitioner humbly requests the Hon'ble Commission to allow the actual additional capital expenditure incurred by the Petitioner of Rs. 20.94 Lakh in FY 2020-21 towards the said work under Regulation 26(1)(d) read with Regulation 76 (Power to Relax) and Regulation 77 (Power to Remove Difficulty) of the Tariff Regulations 2019.

6.14. Generator Flux Monitoring

The Petitioner humbly submits that it has incurred Rs. 63.84 Lakh towards Generator Flux Monitoring in the year 2022-23, it is submitted that based on OTPC's experience with rotor failure in Unit-1's Gas Turbine generator, it has been determined that additional generator health monitoring features—specifically rotor flux monitoring and shaft monitoring systems—should be introduced for improved rotor oversight. These features enable more precise monitoring of the rotor. With a major overhaul scheduled for January 2021, it was decided to install these monitoring systems for the Unit-2 Gas Turbine generator. The installation of rotor flux monitoring requires rotor thread-out, which will be addressed during the overhaul. During normal operation, electrical machines can induce AC voltages in the shaft, or these voltages can be created by the rotating elements of the turbine connected to the same shaft. High enough voltages can lead to shaft currents capable of causing bearing failures. The main sources of shaft voltages include:

a) Potential applied to the shaft due to rotor winding ground faults or spikes from the excitation system (up to 200 V spikes).
b) Asymmetry in magnetic fields caused by design or manufacturing details or by significant stator core faults (up to 150 V AC).
c) Flux generated by axially magnetized turbine and generator parts (up to 5 V DC).
d) Shaft movement off the magnetic center.

e) Electrostatic effects from charged steam or lubricants.

Voltages up to 150 Vp-p can develop on the shaft, and the potential difference between the shaft and grounded machine parts can damage bearing surfaces and oil seals. Additionally, shaft currents may alter the chemical properties of lubrication oil. Without effective shaft grounding, bearings and oil films serve as the only insulation between the shaft and grounded parts, making shaft currents uncontrolled.

To manage and minimize shaft voltages, one or both generator shaft bearings are insulated, and the shaft is grounded using one or two closely spaced grounding devices, typically carbon, silver, or copper brushes, or copper braid. The primary functions of the shaft monitoring instrument are to alert the user to:

- Poor performance of the grounding brush.
- Presence of additional grounds on the shaft.
- Presence of high voltage on the shaft.

The same has been recommended in the Professional Technical Review Report-2017 on Plant Operations, Processes and related Reliability, Safety and Efficiency of OTPC Power Plant conducted by Chartered Engineer on 27.6.20217. It 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 incurred by the Petitioner of Rs. 63.84 Lakh in FY 2022-23 under Regulation 26(1)(d) read with Regulation 76 (Power to Relax) and Regulation 77 (Power to Remove Difficulty) of the Tariff Regulations 2019.

6.15. Self-Propelled Diesel Articulated Boom Lift

The Petitioner humbly submits that it has incurred Rs. 0.63 Lakh in the FY 2022-23 and Rs. 72.57 Lakh in FY 2023-24 towards procurement and installation of Self-Propelled Diesel Articulated Boom Lift. The Petitioner humbly submits that the OTPC Plant operates 400 kV and 132 kV switchyards, with equipment heights ranging from 7 to 16 meters. During maintenance, technicians must climb the equipment directly using porcelain bushings and safety belts, which has proven to be unsafe. Additionally, maintaining streetlights at approximately 15.5 meters poses challenges. Despite all safety precautions, there was a persistent risk of falls due to the lack of proper platforms for workers at such heights. To enhance safety for personnel working at heights, it was decided to procure a Self-Propelled Diesel Articulated Boom Lift (Man Lifter). This equipment mitigated the risk of falls and ensure safer operations and used for various tasks, including:

a) Height-related work in the switchyard,
b) Street light maintenance,
c) Outdoor building light maintenance,
d) Painting or any height-related tasks by the Civil Department.

In conclusion, acquiring a Man Lifter has significantly improved maintenance efficiency and ensure human safety. The same has been recommended in the Professional Technical Review Report-2017 on Plant Operations, Processes and related Reliability, Safety and Efficiency of OTPC Power Plant conducted by Chartered Engineer on 27.6.20217. It 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 incurred by the Petitioner of Rs. 73.20 Lakh (Rs. 0.63 Lakh in FY 2022-23 and Rs. 72.57 Lakh in FY 2023-24) under Regulation 26(1)(d) read with Regulation 76 (Power to Relax) and Regulation 77 (Power to Remove Difficulty) of the Tariff Regulations 2019.

6.16. Horizontal Pump Set – RWIS *P*ump House

The Petitioner humbly submits that it has incurred Rs. 5.47 Lakh towards Horizontal Pump Set – RWIS Pump House in the year 2023-24. The Petitioner humbly submits that currently, four vertical pumps with a capacity of 1100 m^3/hr each are installed in the RWIS pump house to meet the plant's water requirements by pumping river water from the Gomati River. In recent years, particularly during winter and dry seasons, the Gomati River's water level has fallen below the forebay level of the RWIS pump house, resulting in no water availability at the pumps' suction pits. To address this issue, three new KBL pump and motor sets, model KS-1012+/10HP with a discharge capacity of 50L/sec at 11.5m head, have been procured. These pumps will ensure the continuous operation of at least one RWIS pump at 1100 m^3/hr during the dry season by drawing water from the Gomati River and delivering it to the forebay. The accumulated water can then be easily pumped by the main River Water vertical pumps to the Plant Raw Water reservoir. In view of the above, the Petitioner humbly requests the Hon'ble Commission to allow the additional capital expenditure incurred by the Petitioner of Rs. 5.47 Lakh in FY 2023-24 under Regulation 26(1)(d) read with Regulation 76 (Power to Relax) and Regulation 77 (Power to Remove Difficulty) of the Tariff Regulations 2019.

6.17. Action Tracking Software

The Petitioner humbly submits that it has incurred Rs. 13.95 Lakh towards Action Tracking Software in the year 2022-23. It is submitted that at OTPC, internal audit queries and their tracking were previously managed manually using MS office basic programmes - Excel sheets and Word documents. This manual approach presented significant challenges due to the lack of a centralized application and database for raising, tracking, closing, and maintaining audit queries. Ensuring the organization and accuracy of data via Excel and Word was difficult, as individuals maintained their own sets of data, which were not always accessible when needed. Additionally, the Finance team faced difficulties in generating various reports essential for decision-making and departmental follow-ups. To address these issues, OTPC management established a committee to implement an audit/action tracker system. After thorough deliberation, the committee determined that an independent audit/action tracker system with customized logic, database, and reporting capabilities was necessary to meet the requirements of the Finance department. The committee evaluated vendors experienced in developing customized software systems with the following scope:

The contractor shall provide all services required for the successful implementation and uninterrupted operation, maintenance, repair, updating, and upgrading of the Action Tracking System during the maintenance phase, in accordance with the contract and applicable laws.

Specifically, the contractor shall:

a. Install, implement, configure, test, and commission the Action Tracking System on servers; identify, review, and finalize business processes to be included in the system; design, develop, implement, test, and commission the complete system; and hand over the operational system to the owner.
b. Provide maintenance support to ensure the successful and uninterrupted operation of the Audit/Action Tracker System for a period of sixty (60) months.
c. Maintenance Procedures for the system, database, and software.

Prepare, discuss, and finalize various documents, including the Administration Manual, User Manuals, Operation and Maintenance Manual, Standard Operating Procedures, and Standard This new system has streamlined the process, ensuring that audit queries are managed efficiently and accurately, ultimately aiding in better decision-making and follow-up within the Finance department.

In view of the above, the Petitioner humbly requests the Hon'ble Commission to allow the additional capital expenditure incurred by the Petitioner of Rs. 13.95 Lakh in FY 2022-23 under

Regulation 26(1)(d) of the CERC Tariff Regulations, 2019 as it is essential for the efficient management of plant audits and reporting tasks.

6.18. Billing Software

The Petitioner humbly submits that it had not availed the Billing and sales module while implementing SAP for the plant operations. This was because the cost of Billing and Sales module of the SAP was quite high and during the initial phases of the operation of the plant it was decided to maintain issuance of energy bills through excel sheets. With plant operations the number of energy bills and their record keeping started becoming troublesome and it was decided that a billing software was needed for issuance of energy bills and maintaining of data. As such the billing software was procured for smooth plant operations. We submit that we have incurred Rs. 38.79 Lakh towards Billing Software in the year 2022-23. At OTPC, monthly energy billing for all beneficiaries under long-term Power Purchase Agreements (PPA) and Merchant Power, as well as weekly billing for merchant power and power exchange, were performed manually using Excel sheets since the Commercial Operation Date (COD) of the first unit in 2014. This manual billing system presented several challenges due to the absence of a centralized application and database for raising invoices and maintaining data. Over time, managing billing records and reports became increasingly burdensome.

Organizing and maintaining accurate data through Excel sheets was difficult, and generating the various reports required for decision-making and follow-ups with beneficiaries for receivables was challenging. To address these issues, OTPC management formed a committee comprising members from the Commercial, Finance, and IT departments to implement integrated billing software.

After thorough internal discussions, the committee concluded that independent billing software with customized logic, database, and reporting capabilities was necessary to meet the billing department's needs. The committee evaluated vendors based on their experience in billing systems within the power sector and conducted presentation-cum-online meetings to assess their technical capabilities, experience in supply, implementation, and operation and maintenance (O&M) of commercial billing systems.

It was determined that a web-based billing system with customized backend logic as per Tariff Regulations by the Hon'ble Commission, merchant PPA, and various reporting tools was required. The software needed to be modular and designed to accommodate future changes. The committee recommended shortlisting vendors based on their experience and technical

capabilities for the supply, implementation, and O&M of the billing system through a tendering process.

The commercial billing system, being a complex and customized system with various modules such as billing for different types of bills, reconciliation statements, billing reports, client management, user management, and records management, requires expertise in complex system development and integration. To ensure software quality and a professional approach, it is essential to select vendors with the capacity and experience to provide end-to-end software solutions, including development, maintenance, performance/security testing, content management, and technical support. Based on inputs from various market players, including power traders, power generators, and references from the Northeastern Regional Load Despatch Centre (NERLDC), the following four vendors were approached for the design, development, implementation, and maintenance of the Commercial Billing System:

S.No.	Developer	Experience	Remark
01	Kalki Technologies	NERLDC	Completed DSM Project for NERLDC
02	Deep Raj Technologies	PTC India Tata Power Trading	Completed billing software project for PTC & TPTCL and SECI
03	Kreate Technologies	NERLDC HP SLDC	Completed billing software project for THDC & SAMAST for HP SLDC
04	PwC	NERPC NTPC	Completed billing software Project for BRBCL (Nabi Nagar)

Based on tendering process successful bidder was selected for the successful implementation of Commercial Billing System and services required for successful and uninterrupted operation, maintenance, update, modification and upgrade of Commercial Billing System at OTPC. The scope included:

a) install, implement, configure, test and commission Commercial Billing System on servers, identify, review, discuss with Owner and finalize business processes to be included in Commercial Billing System, design, develop, implement, test, commission, integrate with SAP ERP System, put the complete Commercial Billing System into successful operation and handover Billing System to the Owner;

b) provide maintenance support for successful and uninterrupted operation of Commercial Billing System for a period of sixty (60) months;

c) preparing, discussing and finalizing various documents including Administration Manual, User Manuals, Operation and Maintenance Manual, Standard Operation Procedure, Standard Maintenance Procedure, etc. for Commercial Billing System, Database and Software;

In view of the above, the Petitioner requests the Hon'ble Commission to allow the additional capital expenditure incurred by the Petitioner of Rs. 38.79 Lakh in FY 2022-23 under Regulation 26(1)(d) of the Tariff Regulations 2019.

6.19. Network Attached Storage (NAS) with Endpoint Backup Application

The Petitioner humbly submits that it has incurred Rs. 13.57 Lakh towards Network Attached Storage (NAS) with Endpoint Backup Application in the year 2019-20. It is submitted that an internal audit was conducted in December 2017, during which the Internal Auditor, M/s K.G. Somani & Co., highlighted significant concerns regarding the backup of files and data stored on the internal hard drives of systems issued to OTPC employees. The audit revealed that the company does not maintain backups of these internal drives, posing a risk of losing important data stored on the laptops, desktops, and tablets used by employees. M/s K.G. Somani & Co. recommended that the company should implement a system to maintain backups of the internal drives of all issued devices to prevent data loss. The complete Internal Audit Report has been attached as **Annexure-A20**. The loss of any user's data can lead to substantial expenses and serious damage to the organization's credibility, significantly affecting the productivity of individual employees and work groups. Additionally, unsecured backup drives, such as USBs and external HDDs, pose additional risks if they are lost, stolen, or corrupted. Laptops, desktops, and tablets are particularly vulnerable to cyber-attacks since they are often connected to various internet networks. Therefore, data backup of endpoint systems is an essential IT function. OTPC requires a highly reliable and secure backup solution that can regularly back up all important data files and folders of end users. This solution must also have the capability to recover data without any loss whenever required. Endpoint Data backup solution shall mitigate the data loss in case:

- Laptop/desktop of an employee crashed, or the hard disk of the system is unrecoverable.
- The entire data of a user is encrypted or inaccessible due to ransomware, virus or any malware attack.
- Any user lost his/her computer and does not have a backup of his official data.

- User mistakenly replaced his/her data and need to recover the file to its previous version.
- It helps in migrating the user data from old system to the new system.
- For regulatory requirement to keep a record of all ex-employee's important data.

In view of the above, the Petitioner requests the Hon'ble Commission to allow the actual additional capital expenditure incurred by the Petitioner of Rs. 13.57 Lakh in FY 2019-20 towards NAS with endpoint backup application under Regulation 26(1)(d) read with Regulation 76 (Power to Relax) and Regulation 77 (Power to Remove Difficulty) of the Tariff Regulations 2019.

6.20. Furniture and Other Office Equipment

The Petitioner humbly submits that it has incurred Rs. 305.39 Lakh (Rs. 286.42 Lakh in FY 2020-21, Rs. 2.05 Lakh in FY 2021-22 and Rs. 16.93 Lakh in FY2022-23) towards Furniture and Other Office Equipment in the 2019-24 control period. The Petitioner respectfully submits that the works related to furniture and office equipment have been executed because these items provide necessary infrastructure for both administrative and operational tasks, directly impacting productivity and safety. Adequate storage solutions and office equipment like computers and printers are crucial for organization and seamless administrative functions. This also ensures compliance with safety standards by minimizing risks associated with clutter and ergonomic issues. Similar claims have been approved in tariff orders across various states, recognizing these expenses as necessary for maintaining an efficient and safe working environment. Thus, the procurement of furniture and office equipment is a critical investment. This approval is vital for maintaining operational efficiency and safety, ensuring the plant meets its performance and regulatory standards. In view of the above, the Petitioner requests the Hon'ble Commission to allow the additional capital expenditure incurred by the Petitioner of Rs. 305.39 Lakh in 2019-24 control period under Regulation 26(1)(d) read with Regulations 76 and 77 of the Tariff Regulations 2019.

6.21. Internal Security Risk Management

The Petitioner humbly submits that it has incurred Rs. 40.80 Lakh (Rs. 7.25 Lakh in 2019-20, Rs. 5.36 Lakh in 2021-22, Rs. 10.53 Lakh in 2022-23 and Rs. 17.67 Lakh in 2023-24) towards Internal Security Risk management in the year 2019-24 period. The Petitioner respectfully submits that Internal security Risk Management for the gas-based plant in Northeast India are essential for ensuring safety and uninterrupted operation. The region's challenging geography,

including dense forests and remote areas, combined with socio-political unrest significantly heightens the plant's vulnerability to threats like unauthorized access. Power plants face general security issues, including physical threats like unauthorized access, theft, and vandalism, as well as risks of terrorism and sabotage targeting critical infrastructure. Additionally, the increasing reliance on digital systems raises the risk of cyber-attacks that can compromise control systems and safety. Given these geographical and socio-political challenges, robust Internal Security Risk Management is crucial. To address these risks, necessary security measures include installing Equipment such as wireless communication devices, physical barriers and surveillance systems, implementing advanced access control systems, and investing in state-of-the-art cybersecurity solutions. Comprehensive emergency response planning is also vital. These security measures are crucial for protecting the plant's operations, personnel, and assets. The unique conditions of Northeast India, combined with general security risks, necessitate these expenses. Therefore, the Petitioner requests the honorable Commission to approve these security expenses to ensure the plant's safe and uninterrupted operation, thereby contributing to regional energy security and stability. In view of the above, the Petitioner requests the Hon'ble Commission to allow the additional capital expenditure incurred by the Petitioner of Rs. 40.80 Lakh in 2019-24 period under Regulation 26(1)(d) read with Regulation 76 and 77 of the Tariff Regulations 2019.

6.22. Township and Common Area Development

The Petitioner humbly submits that it has incurred Rs. 57.21 Lakh (Rs. 7.53 Lakh in 2019-20, Rs. 23.54 Lakh in 2021-22, Rs. 12.75 Lakh in 2022-23 and Rs. 13.39 Lakh in 2023-24) towards Township and Common Area Development in the 2019-24 period. The Petitioner respectfully submits that the expenditure on Township and common area development is essential for the well-being, safety, and overall quality of life for employees and their families residing in the Township. This investment significantly enhances living conditions, contributing to the productivity and morale of the workforce. Developed facilities at the Township encourages employees and their families to maintain their health and preventing lifestyle-related illnesses which is essential for the workforce working at a power plant in remote area with very limited access to basic amenities. By providing access to fitness facilities, the Petitioner ensures that employees can maintain their physical health, leading to higher productivity. Additionally, the installation of a comprehensive firefighting system, including fire extinguishers, is critical for ensuring the safety of the Township. Fire safety measures are essential to protect residents,

property, and assets from fire-related incidents. This proactive safety approach minimizes the risk of fire damage, safeguarding lives and infrastructure. In view of the above, the Petitioner requests the Hon'ble Commission to allow the additional capital expenditure incurred by the Petitioner of Rs. 57.21 Lakh in 2019-24 period under Regulation 26(1)(d) of the Tariff Regulations 2019.

6.23. Self-Contained Breathing Apparatus (SCBA)

The Petitioner humbly submits that it has incurred Rs. 4.55 Lakh towards SCBA in the year 2019-20. The Petitioner humbly submits that procurement of Self Contained Breathing Apparatus (SCBA) for the Plant was essential given the inherent risks associated with gas-based power generation. SCBAs are critical safety devices designed to provide breathable air in hazardous environments, protecting workers from inhaling toxic gases or insufficiently oxygenated air that may occur during gas leaks, fires, or other emergency situations. OTPC's reliance on natural gas amplifies the need for SCBA sets, as gas leaks, combustion by-products, or accidental discharges can rapidly create life-threatening conditions due to the presence of carbon monoxide, sulfur compounds, and other noxious gases. SCBAs ensure that operators and emergency response teams can safely navigate and control these hazardous situations, enhancing the safety of personnel and minimizing the risk of accidents escalating into catastrophic events. From a regulatory standpoint, various legal frameworks mandate the provision of SCBAs in industrial environments like power plants. The Factories Act of 1948 clause 36(2)(b) requires that employers maintain adequate safety equipment, including breathing apparatus, in workplaces with hazardous processes or dangerous gases. Additionally, the National Fire Protection Association (NFPA) standards, particularly NFPA 1500 and NFPA 1981, which focus on respiratory protection for fire and emergency situations, underscore the necessity of SCBA units for industries handling combustible and toxic gases. Compliance with these standards not only fulfils legal obligations but also aligns with best practices in industrial safety. Thus, equipping OTPC with SCBA sets is both a proactive and legally compliant measure to protect employees' health and safety, prevent incidents, and foster a responsible operational environment.

The same has been recommended in the Professional Technical Review Report-2017 on Plant Operations, Processes and related Reliability, Safety and Efficiency of OTPC Power Plant conducted by Chartered Engineer on 27.6.20217. It has been attached as **Annexure-A28**.

In view of the above, the Petitioner requests the Hon'ble Commission to allow the additional capital expenditure incurred by the Petitioner of Rs. 4.55 Lakh in FY 2019-20 under Regulation 26(1)(d) of the Tariff Regulations 2019.

6.24. Roof Shade over CO2 tanks

The Petitioner humbly submits that it has incurred Rs. 4.19 Lakh towards Roof Shade over CO2 tanks in the year 2020-21. The Petitioner humbly submits that due to absence of shed over CO2 tank areas of in both Unit I and Unit II, the instruments were gradually getting damaged due to exposure to environment. Considering the same, a shed has been constructed over CO2 tank to save the instruments from exposure to environment. The same has been recommended in the Professional Technical Review Report-2017 on Plant Operations, Processes and related Reliability, Safety and Efficiency of OTPC Power Plant conducted by Chartered Engineer on 27.6.20217. It has been attached as **Annexure-A28**.

In view of the above, the Petitioner requests the Hon'ble Commission to allow the additional capital expenditure incurred by the Petitioner of Rs. 4.19 Lakh in FY 2020-21 under Regulation 26(1)(d) of the Tariff Regulations 2019.

6.25. Equipment for Ambient Air Quality Monitoring (AAQM):

The Petitioner humbly submits that it has incurred Rs. 8.37 Lakh towards Ambient Air Quality Monitoring in the year 2020-21. The purchase of "Equipment for Ambient Air Quality Monitoring" was essential for maintaining compliance with environmental standards and ensuring the sustainability of operations at the gas-based power plant. As a responsible energy producer, OTPC was required to prioritize environmental stewardship and closely monitor the air quality surrounding its facility. The equipment has enabled to measure and report various air pollutants, thereby ensuring that emissions from the plant do not exceed regulatory limits and that the environment is safeguarded from potential harm.

Furthermore, the installation of these monitoring systems has aligned the Plant with the recommendations made by the Ministry of Environment, Forest and Climate Change (MoEF) during their site visit. The MoEF advised OTPC to enhance its air quality monitoring capabilities to ensure continued adherence to environmental regulations (attached as **Annexure-A21(a)).** As part of this directive, OTPC was also instructed to submit a monthly report on air quality data to the Tripura State Pollution Control Board (TSPCB), which is crucial for transparency and ongoing compliance with state and national environmental standards (attached as **Annexure-A21(b)**. In addition to fulfilling MoEF's recommendation,

this purchase will help OTPC meet statutory mandate under the Air (Prevention and Control of Pollution) Act, 1981, and the Environment Protection Act, 1986.

The same has been recommended in the Professional Technical Review Report-2017 on Plant Operations, Processes and related Reliability, Safety and Efficiency of OTPC Power Plant conducted by Chartered Engineer on 27.6.20217. It has been attached as **Annexure-A28**.

The purchase of this equipment is, therefore, a critical step in maintaining operational excellence and statutory compliance, reinforcing OTPC's commitment to both environmental sustainability and public health. In view of the above, the Petitioner requests the Hon'ble Commission to allow the additional capital expenditure incurred by the Petitioner of Rs. 8.37 Lakh in FY 2020-21 under Regulation 26(1)(d) of the Tariff Regulations 2019.

6.26. SGA-Over ground ERW piping for spray & hydrant

The Petitioner humbly submits that it has incurred Rs. 4.28 Lakh towards SGA-Over ground ERW piping for spray & hydrant in the year 2020-21. The Petitioner humbly submits that buried hydrant & spray water piping had been erected and was in service inside the 400KV switchyard. These fire water pipes were in use to detect and protect the ICT-1, line reactor, bus reactor, switch yard control room, inside bay of switchyard etc. Repeated leakages were detected in the weld joints and pipe body of these buried piping due to corrosion of welding joints, parent material of the pipeline at multiple locations. These leakages had been attended several times by local excavation by taking outage of entire fire water network. But sometimes the duration of outage was too long as the leakage location was found below of the cable trenches, surface drains etc. for which slanting excavation needs to be done, which is a high-risk activity, to repair the leakages below finished ground level. Further, since it was buried piping, it was also not possible to pressure test to identify the leakages in a single phase by isolating fire water network in order to minimize the outage duration by attending all the leaks at a time. The same has been recommended in the Professional Technical Review Report-2017 on Plant Operations, Processes and related Reliability, Safety and Efficiency of OTPC Power Plant conducted by Chartered Engineer on 27.6.20217. It has been attached as **Annexure-A28**. Hence, hydrant and spray system of switchyard was kept isolated after observation of a particular leak until its repair. Hence over-ground piping was erected and put in service because

1) to minimize outage duration as any leak of over ground piping will take less time to repair,

2) to eliminate risk of fire hazards during repair of frequent leakages from buried piping,
3) to ensure safe conditions for all electrical equipment by uninterrupted availability of fire water at inside 400kv switchyard.

In view of the above, the Petitioner requests the Hon'ble Commission to allow the additional capital expenditure incurred by the Petitioner of Rs. 4.28 Lakh in FY 2020-21 under Regulation 26(1)(d) of the Tariff Regulations 2019.

6.27. Construction of Chlorine Neutralization Pit

The Petitioner humbly submits that it has incurred Rs. 11.42 Lakh towards Construction of Chlorine Neutralization Pit in the FY 2021-22. Due to enhanced plant operations, additional chlorine neutralization pit was required at the plant site apart from the existing facility developed during the construction of the plant. In addition to the existing control system, this facility was installed to mitigate emergency incidents which may arise in the event of leakage in Chlorine tonner. A neutralization pit with adequate arrangement for neutralization of toxic gas is constructed in case of leakage of Chlorine tonners. The work for neutralization includes construction of acid proof tiles for pit 7 and the cost of labor.

The same has been recommended in the Professional Technical Review Report-2017 on Plant Operations, Processes and related Reliability, Safety and Efficiency of OTPC Power Plant conducted by Chartered Engineer on 27.6.20217. It has been attached as **Annexure-A28**.

In view of the above, the Petitioner requests the Hon'ble Commission to allow the additional capital expenditure incurred by the Petitioner of Rs. 11.42 Lakh in FY 2021-22 under Regulation 26(1)(d) of the Tariff Regulations 2019.

7. Decapitalization

7.1. The Regulation 26(2) of the CERC Tariff Regulations, 2019 states as follows:

> *"(2) 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 decapitalisation 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 capitalised."*

7.2. It is submitted that the Petitioner during the 2019-24 Control Period has executed many schemes of Additional Capitalization including procurement of Capital Spares. Out of these, some are totally New Schemes or Upgradations without removal of any existing

asset and, hence, they do not require any Decapitalization. On the other hand, some schemes require replacement/ removal of existing assets which may or may not entail Decapitalization. The Decapitalization is necessary only in case the asset is scrapped on its disposal or when there is no future economic benefit expected from its use. The detail of decapitalisation is submitted in Form 9Bi.

7.3. Following the methodology as stated above, the decapitalization in addition to books for 2019-24 works out as follows:

Table 5: Summary of Actual Decapitalization in Addition to Books for FY 2019-24

(Rs. Lakh)

Particulars	2019-20	2020-21	2021-22	2022-23	2023-24
Assumed Deletion	-	-	16.81	40.41	1,072.83
Decapitalisation	135.98	264.44	2,026.23	1,190.06	94.67
Grand Total	**135.98**	**264.44**	**2,043.04**	**1,230.48**	**1,167.50**

8. Exclusion

8.1. The Petitioner humbly submits the following summary of exclusions from the books of accounts claimed under different heads vide Form-9D as under:

Table 6: Exclusions for the Period FY 2019-24

(Rs. Lakh)

	2019-20	2020-21	2021-22	2022-23	2023-24
Decapitalisation of Spares (Not part of capital cost)	295.48	1,740.07	571.12	317.80	1,588.63
Overhauling	1,996.18		3,056.14	2,822.06	-
Right of Use of Asset-Car	21.30		27.22		
Right of Use of Asset- Office Premises	-	590.50			700.96
Loan ERV	197.84				
Decap of MBOA (Not part of Capital Cost)	-	-	40.67	6.32	-
Total	2,510.79	2,330.57	3,695.15	3,146.18	2,289.59

8.2. **Overhauling:** This Capitalisation is on account of Change in Accounting Practice. Therefore, kept under exclusions. The Hon'ble Commission may be pleased to allow the same under exclusion.

8.3. **Loan ERV/ FERV:** As per Regulation 69 of CERC Tariff Regulations 2019, OTPC can directly claim ERV on Foreign Currency Loans from beneficiaries. Therefore, FERV

has been kept under exclusion. The Petitioner humbly request the Commission to allow the recovery of FERV directly from the beneficiaries.

8.4. **Right of Use of Asset-Car:** Activities does not pertain to plant and accordingly not claimed. Therefore, has been kept under exclusion.

8.5. **Right of Use of Asset- Office Premises:** Activities does not pertain to plant and accordingly not claimed. Therefore, has been kept under exclusion.

8.6. **Decap of MBOA:** MBOAs capitalized during 2019-24 period are not allowed after cut-off date as per CERC Tariff Regulations 2019. Therefore, the same is kept under exclusion.

9. Liability Discharges

9.1. The Petitioner has discharged liabilities of Rs. 8,540.45 Lakh. The asset-wise details of liability discharges are submitted in Form-S.

Table 7: Discharges for the Period FY 2019-24

(Rs. Lakh)

Particulars	2019-20	2020-21	2021-22	2022-23	2023-24
Discharges	6,899.89	146.34	46.78	1,447.44	-

10. Liquidated Damages with BHEL

10.1. In regard to the settlement of Liquidated Damages with BHEL (EPC Contractor), it is submitted that Petitioner in Petition No. 108/GT/2020 had initially claimed Liquidated Damages (LD) settlement amount from BHEL of Rs. 20,185.03 lakh. However, M/s BHEL, in a letter dated 27.5.2020, agreed to a final LD settlement amount of Rs. 10,700.00 Lakh only (BHEL Communication is attached as **Annexures A22(a) & A22(b)).** The Petitioner vide affidavit dated 5.10.2020 revised its submission regarding LD from Rs. 20,185.03 Lakh to Rs. 10,700.00 lakh. However, in its order dated 18.12.2021, related to Petition No. 108/GT/2020, the Hon'ble Commission decided that the discharge of liability amounting to Rs. 10,700.00 lakh, which was initially claimed in 2014-15, would be recognized in the year of settlement, i.e., 2019-20. The relevant excerpt from the order is as follows:

> *"34. The submissions of the parties have been considered. It is observed that the Commission in its order dated 30.3.2017 in Petition No. 129/GT/2015 had not adjusted LD, in view of the pending recoveries of LD under various packages.*

The Commission directed the Petitioner to place on record the details of settlement of LD with contractors at the time of truing up. Thus, the Petitioner in its revised tariff petition dated 6.10.2020 has claimed and requested the Commission to allow the full LD of Rs. 10,700.00 Lakh from 2014-15 as deemed discharge of liability. In this regard, we are of the view that since the matter of LD has been settled with M/s BHEL in 2019-20, the treatment of claim with respect to deemed discharge of Rs. 10,700.00 Lakh shall be carried out in the year of settlement i.e., 2019-20..."

10.2. Further, in its order dated 11.1.2022, in Petition No. 109/GT/2020, the Hon'ble Commission decided that the Liquidated Damages (LD) recovered, corresponding to the allowed time overrun, amounting to Rs. 5,696.26 Lakh (calculated as 584 days out of a total of 1,097 days, or (584/1097) x 10,700.00), should be deducted from the capital cost in the financial year 2019-20. The remaining recovered LD of Rs. 5,003.74 lakh, corresponding to the disallowed time overrun of 513 days, may be retained by the Petitioner. The relevant excerpt from the order is as follows:

"53. It is observed that out of total time-over run of 1097 days, the Commission in its order dated 30.3.2017 in Petition No. 129/GT/2015 had allowed the time over-run of 584 days and disallowed time over-run of 513 days and, accordingly, allowed IEDC and IDC for the portion of time over-run which had been condoned. It is observed that the IDC corresponding to time over-run was already allowed to the Petitioner. Therefore, the LD recovered corresponding to time over-run allowed, which works out to Rs.5696.26 Lakh [(584/1097) x 10700.00] is to be deducted from the capital cost, in 2019-20. The balance recovered LD of Rs.5003.74 Lakh corresponding to the portion of time over-run of 513 days which had not been condoned, may be retained by the Petitioner. It is observed that the Petitioner has not furnished details as regards liabilities claimed to have been set off against BHEL towards the LD amount received, which the Petitioner has claimed as 'deemed discharge' of liabilities."

10.3. In this regard, it is submitted that the Hon'ble Commission in the above order had erroneously deducted LD settlement amount of Rs. 10700.00 Lakh on pro-rated basis considering the LD settlement amount was against the total time overrun of 1097 days, whereas the LD settlement was against the time overrun not condoned by the Hon'ble Commission. It may be noted that the Hon'ble Commission in its Order dated 18.12.2021 in Petition No. 108/GT/2020 and 11.1.2022 in Petition No. 109/GT/2020 had allowed the Petitioner to retain the LD amount recovered against the time overrun not condoned.

10.4. It is submitted the time overrun allowed and disallowed by the Hon'ble Commission for Unit-1 and Unit-2 is as below:

Table 8: Time-overrun Allowed/ Disallowed for Unit-1 & Unit-2

From	To	Delay	Time overrun condoned and Reasons attributable to		Time Over-run not condoned and reasons Attributable to		
		No. of Days	No. of Days	Attributable to	No. of Days	Attributable to	CERC Order
Unit#1							
Scheduled COD 22/12/2011	Actual COD 04/01/2014	744	675	Logistic Delay etc. beyond the control of Petitioner	69	BHEL (EPC Contractor)	LD /Insurance proceeds recovered for the time overrun not condoned shall be retained by the petitioner
	744	**744**	**675**		**69**		
Unit#2							
Scheduled COD 22/03/2012	COD of Unit#1 04/01/2014	653	584	Logistic Delay etc. beyond the control of Petitioner	69	BHEL (EPC Contractor)	LD /Insurance proceeds recovered for the time overrun not condoned shall be retained by the petitioner
COD of Unit#1 04/01/2014	Date upto which Gas is not available 10/10/2014	279	0		279	Fuel Supplier	
Date upto which Gas is not available 11/10/2014	COD of Unit#2 24/03/2015	165	0		165	BHEL (EPC Contractor)	
	1097	**1097**	**584**		**513**		

10.5. It may be noted from above that the Hon'ble Commission had condoned the delay of 675 days for Unit-1 and 584 days for Unit-2 towards the reasons beyond the control of the Petitioner. However, the Hon'ble Commission had not condoned the delay of 69 days for Unit 1 and 513 days for Unit-2, out of which 303 days were attributable to EPC Contractor (BHEL). Further, the Hon'ble Commission had allowed the Petitioner to retain the LD amount recovered against the time overrun not condoned.

10.6. It is pertinent to mention that EPC Contractor (BHEL) had agreed for LD recovery of Rs. 107 Crore only to compensate the Petitioner for the loss on account of delays not condoned by the Hon'ble Commission.

10.7. Accordingly, the OTPC has levied an LD of 107 Crore on BHEL, which is settled in the FY 2019-20. It is submitted that the LD amount recovered from the BHEL is against the time overrun not condoned by the Hon'ble Commission for various teething problems attributable to EPC contracts and not against the total time overrun of 1097 days as considered by the Commission in its Order dated 22.1.2022 in Petition No. 109/GT/2020.

10.8. Th Petitioner humbly submits that Hon'ble Commission in order dated 30.3.2017 in Petition No. 199/GT/2013 had directed as follows:

> *"28. From the issues identified as above, it is evident that the insulation failure of cladding sheets in the inlet duct of HRSG was due to poor workmanship on the part of EPC contractor / sub-contractor. In our view, the delay on this count is not beyond the control of the petitioner and the consequential impact on IDC, IEDC etc. are attributable to the petitioner. According to us, the beneficiaries of the petitioner cannot be burdened on account of the impact of the delay caused under this head. Accordingly, the total delay of 69 days is attributable to the petitioner and is therefore covered by the principle in [(situation (i)] of the judgment of the Tribunal dated 27.4.2011. Based on this, the entire cost for time overrun is required to be borne by the petitioner. However, the LD /Insurance proceeds recovered in such cases may be retained by the petitioner."*

10.9. The Petitioner humbly submits that Hon'ble Commission in order dated 30.3.2017 in Petition No. 129/GT/2015 had directed as follows:

> *"33. Out of the total time overrun of 653 days in the commissioning of Block-II / Unit-II, the time overrun of 69 days has not been condoned (as disallowed in case of Block-I/Unit-I by order dated 31.8.2015) since the petitioner has submitted that defects in HRSG in Unit-II was also observed in Unit- II and were rectified in both the units simultaneously. However, the LD /Insurance proceeds recovered for the period of time overrun disallowed shall be retained by the petitioner. As the reasons for time overrun are common upto the COD of Block-I/ Unit-I (4.1.2014), the time overrun of 584 days has been allowed. However, the LD recovered from the contractor and the insurance claim proceeds, if any, shall be considered for reduction in the capital cost of the generating station."*

10.10. Further, the Hon'ble Commission in the same order had directed as follows:

Tripura Power

"(C) Teething problems from 11.10.2014 to 24.3.2015 (165 days)

38. The petitioner, in response to the directions of the Commission vide ROP of the hearing dated 16.2.2016, has furnished the major teething problems faced by the petitioner during the commissioning of the activities of Block-II/ Unit-II of the project (as stated in para 21 above). It is noticed that these problems are common in nature for any gas based power project and the OEM contractor is under an obligation to rectify such problems within a shorter duration. In case the OEM has taken an unduly long time for rectifying such teething problems, the petitioner is entitled to be compensated by recovery of L.D amount as per terms of the contract. Further, as gas was available for Unit-I, the petitioner should have undertaken trial run at an early stage in order that the teething problems, if any, associated with the project would have surfaced earlier and rectification could have been done accordingly in time. ***Based on the above discussions, we are not inclined to condone the time overrun of 165 days for the period from 11.10.2014 (Date of availability of gas) to 24.3.2015(COD of Unit-II/station) on account of major teething problems****. In these circumstances, we hold that the delay of 165 days is not beyond the control of the petitioner and the same is attributable to the petitioner.* ***Accordingly, in terms of the principles laid down by the Tribunal in the judgment dated 27.4.2011 [(situation (i)], the delay of 165 days cannot be said to be beyond the control of petitioner and hence not condoned.*** *Therefore, the increase in cost on account of the said delay has to be borne by the petitioner.* ***However, the Liquidated Damages (LD) and Insurance proceeds if any, received by the generating company, on account of the said delay, could be retained by the generating company****."*

10.11. Accordingly, the LD amount recovered should be allowed to be retained by the Petitioner in total and not in proportion to the allowed and disallowed time overrun, as has been approved by the Hon'ble Commission in its Order dated 11.1.2022 in Petition No. 109/GT/2020. Further, the LD settlement amount of Rs. 10700.00 Lakh can also be verified from Note 5.4 of audited books of FY 2019-20 attached as **Annexure-A22(c)** to the Petition. The Petitioner had submitted the detailed communication documents with BHEL in Petition No. 108/GT/2020, Petition No. 109/GT/2020 and same are being reproduced in this Petition for the reference of the Hon'ble Commission. Accordingly, the Petitioner humbly request the Hon'ble Commission to allow deemed discharges of Rs. 10700.00 Lakh which is against the LD settlement with BHEL against the time overrun condoned by the Hon'ble Commission.

11. Capital cost claimed for 2019-24

11.1. As already stated, the Petitioner has considered closing capital cost of Rs. 333337.85 Lakh as on 31.3.2019 as approved by the Hon'ble Commission vide order dated 18.12.2021 in Petition No. 108/GT/2020 as opening capital cost as on 1.4.2019. The following table summarizes capital cost considered as on 1.4.2019, Additional Capital Expenditure, decapitalisation considered, and discharges made during the respective years.

Table 9: Capital Cost for the Period 2019-24

(Rs. Lakh)

Particulars	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
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	-	-	-	-
Closing Gross Block	**3,62,128.95**	**3,62,491.07**	**3,64,918.27**	**3,67,755.82**	**3,68,767.37**

12. Financing Of Additional Capital Expenditure

12.1. The Petitioner humbly submits that the additional capital expenditure incurred during the 2019-24 period has been funded through internal accruals and debt in the ratio of 70:30.

13. Return on Equity

13.1. Regulation 30 of **the CERC Tariff Regulations, 2019 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:*
> *Provided that return on equity in respect of additional capitalization after cut-off date beyond the original scope excluding additional capitalization due to Change in Law, shall be computed at the weighted average rate of interest on*

actual loan portfolio of the generating station or the transmission system;
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 Restricted Governor Mode Operation (RGMO) or Free Governor Mode Operation (FGMO), data telemetry, communication system up to load dispatch center or protection system based on the report submitted by the respective RLDC;
ii. in case of 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, rate of return on equity shall be reduced by 1.00% for the period for which the deficiency continues;
iii. in case of a thermal generating station, with effect from 1.4.2020:
a) rate of return on equity shall be reduced by 0.25% in case of failure to achieve the ramp rate of 1% per minute;
b) an additional rate of return on equity of 0.25% shall be allowed for every incremental ramp rate of 1% per minute achieved over and above the ramp rate of 1% per minute, subject to ceiling of additional rate of return on equity of 1.00%:
Provided that the detailed guidelines in this regard shall be issued by National Load Dispatch Centre by 30.6.2019.

31. Tax on Return on Equity. *(1) The base 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. For this purpose, the effective tax rate shall be considered on the basis of actual tax paid in respect of the financial year in line with the provisions of the relevant Finance Acts by the concerned generating company or the transmission licensee, as the case may be. The actual tax paid on income from other businesses including deferred tax liability (i.e. income from business other than business of generation or transmission, as the case may be) shall be excluded for the calculation of effective tax rate.*
(2) 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)
Where "t" is the effective tax rate in accordance with clause (□) of this Regulation and 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 company on pro-rata basis by excluding the income of non-generation or non-transmission business, as the case may be, and the corresponding tax thereon. In case of generating company or transmission licensee paying Minimum Alternate Tax (MAT), "t" shall be considered as MAT rate including surcharge and cess.
Illustration-
(i) In case of a generating company or a transmission licensee paying Minimum Alternate Tax (MAT) @ 21.55% including surcharge and cess:
Rate of return on equity = 15.50/(1-0.2155) = 19.758%

(ii) In case of a generating company or a transmission licensee paying normal corporate tax including surcharge and cess:
(a) Estimated Gross Income from generation or transmission business for FY 2019-20 is Rs 1,000 Crore;
(b) Estimated Advance Tax for the year on above is Rs 240 Crore;
(c) Effective Tax Rate for the year 2019-20 = Rs 240 Crore/Rs 1000 Crore = 24%;
(d) Rate of return on equity = 15.50/ (1-0.24) = 20.395%.
(3) 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 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 2019-24 on actual gross income of any financial year. However, penalty, if any, arising on account of delay in deposit or short deposit of tax amount shall not be claimed by the generating company or the transmission licensee, as the case may be. 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 year to year basis."

13.2. Based on the above quoted Regulations, the opening Equity base for the FY 2019-24 tariff period pertaining to the Petitioner's Generating Station has been arrived at corresponding to the closing Equity as on 31.3.2019 along with equity additions during FY 2019-24 and RoE has been computed accordingly.

13.3. It is humbly submitted that the Petitioner is currently paying MAT and the same has been considered as effective Tax Rate for the purpose of Grossing-up of the Rate of Return. Further, based on the Additional Capitalization during FY 2019-24, as discussed in the above sub-sections, computation of actual RoE (Pre-Tax) for Assets under Original Scope of Work and Assets beyond the Original Scope of Work for Control Period 2019-24 pertaining to the Petitioner Generating Station has been tabulated as follows: -

Table 10: Actual RoE during FY 2019-24 – Assets capitalized under Original Scope of Work

(Rs. Lakh)

Particulars	2019-20	2020-21	2021-22	2022-23	2023-24
Normative Equity-Opening	85,801.16	94,424.63	94,436.00	94,465.38	94,588.41
Addition of Equity due to additional capital expenditure	8,623.47	11.38	29.38	123.03	211.54
Normative Equity-Closing	94,424.63	94,436.00	94,465.38	94,588.41	94,799.95
Average Normative Equity	90,112.89	94,430.31	94,450.69	94,526.90	94,694.18

Particulars	2019-20	2020-21	2021-22	2022-23	2023-24
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%
Return on Equity (Pre Tax) annualised	**16,941.22**	**17,752.90**	**17,756.73**	**17,771.06**	**17,802.51**

Table 11: Actual RoE during FY 2019-24 – Assets capitalised beyond the Original Scope of Work (excluding additional capital expenditure due to change in law)

(Rs. Lakh)

Particulars	2019-20	2020-21	2021-22	2022-23	2023-24
Normative Equity - Opening	-	13.86	111.12	809.91	1,538.14
Addition of Equity due to additional capital expenditure	13.86	97.26	698.78	728.24	91.92
Normative Equity-Closing	13.86	111.12	809.91	1,538.14	1,630.07
Average Normative Equity	6.93	62.49	460.51	1,174.02	1,584.10
Weighted average rate of interest on actual loan portfolio (E)	8.550%	7.670%	6.940%	7.500%	8.330%
Effective Tax Rate (F)	17.470%	17.470%	17.470%	17.470%	17.470%
Rate of Return on Equity (Pre Tax) (G) = (E)/(1-F)	10.400%	9.300%	8.400%	9.100%	10.100%
Return on Equity (Pre Tax) -Annualised (E) = (D) x (E)	**0.72**	**5.81**	**38.68**	**106.84**	**159.99**

13.4. The Petitioner, therefore, humbly requests the Hon'ble Commission to allow the actual Return on Equity (Pre-Tax) on Original and Beyond the Original Scope of work (excluding additional capital expenditure due to change in law) as claimed in the above table for the FY 2019-24 tariff period.

14. Interest on Loan

14.1. Regulation 32 of the CERC Tariff Regulations, 2019 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 as gross normative loan for calculation of interest on loan.*
> *(2) The normative loan outstanding as on 1.4.2019 shall be worked out by deducting the cumulative repayment as admitted by the Commission up to 31.3.2019 from the gross normative loan.*
> *(3) The repayment for each of the year of the tariff period 2019-24 shall be deemed to be equal to the depreciation allowed for the corresponding year/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 upto the date of de-capitalisation of such asset.

(4) Notwithstanding any moratorium period availed by the generating company or the transmission licensee, as the case may be, the repayment of 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 after providing appropriate accounting adjustment for interest capitalized:

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

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

(6) The interest on 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.

14.2. The Petitioner has claimed the Weighted Average Rate of Interest for computation of Interest on Loan on the basis of Loan Portfolio during the year and the applicable interest rate. The interest rate that would have been applicable on Original Loan with consortium of banks with SBI as the lead Banker on the date of reset i.e., 3rd March of the year is taken based on data received from the official web page of State Bank of India ("SBI"). The detailed computation of Weighted Average Rate of Interest on Loan has been furnished in Tariff Application Form 13. The interest rate document is attached as **Annexures A23(a), A23(b),A23(c) & A23(d)**. Accordingly, the following table shows the computation of actual Interest on Loan for the period FY 2019-24. Interest on Loan has been computed by applying Rate of Interest on Average Loan for the year which has been arrived at after considering Opening Balance for the year, Debt component of Additional Capitalization, Deemed Repayment of Loan (Annual Depreciation) and Closing Balance derived therefrom.

Table 12: Interest on Loan During 2019-24

(Rs. Lakh)

Particulars	2019-20	2020-21	2021-22	2022-23	2023-24
Gross opening loan	2,47,536.69	2,55,370.54	2,55,521.58	2,57,187.88	2,58,160.95
Cumulative repayment of loan upto previous year	75,960.15	93,418.91	1,11,520.74	1,29,147.67	1,47,120.47

Particulars	2019-20	2020-21	2021-22	2022-23	2023-24
Net Loan Opening	**1,71,576.54**	**1,61,951.62**	**1,44,000.85**	**1,28,040.21**	**1,11,040.48**
Addition due to additional capital expenditure	20,153.77	253.48	1,699.04	1,986.29	708.08
Repayment of Loan during the period	17,458.77	18,170.05	18,344.74	18,460.28	18,630.49
Less: Repayment adjustment on a/c of Decap	-	68.23	717.81	487.48	527.23
Net Repayment of Loan during the period	17,458.77	18,101.82	17,626.93	17,972.81	18,103.26
Net Loan Closing	**1,74,271.55**	**1,43,966.83**	**1,26,637.33**	**1,11,078.73**	**92,590.85**
Average Loan	1,72,924.04	1,52,959.23	1,35,319.09	1,19,559.47	1,01,815.66
Weighted Average Rate of Interest of loan	8.6%	7.7%	6.9%	7.5%	8.3%
Interest on Loan	**14,785.01**	**11,731.97**	**9,391.14**	**8,966.96**	**8,481.24**

14.3. The Petitioner, therefore, humbly requests the Hon'ble Commission to allow the Interest on Loan as claimed in the above table for the FY 2019-24 tariff period.

15. Refinancing Of Loan

15.1. Regulation 61 of the CERC Tariff Regulations, 2019 stipulates the following norms for Refinancing of Loans:

> ***61. Sharing of saving in interest due to re-financing or restructuring of loan****:(1) If refinancing or restructuring of loan by the generating company or the transmission licensee, as the case may be, results in net savings on interest after accounting for cost associated with such refinancing or restructuring, the same shall be shared between the beneficiaries and the generating company or the transmission licensee, as the case may be, in the ratio of 50:50. (2) In case of dispute, any of the parties may make an application in accordance with the Central Electricity Regulatory Commission (Conduct of Business) Regulations, 1999 for settlement of the dispute: Provided that the beneficiaries or the long term customers shall not withhold any payment on account of the interest claimed by the generating company or the transmission licensee during the pendency of any dispute arising out of re-financing of loan.*

15.2. The Petitioner at the time of approval of capital cost of the project had shared the details of refinancing of its loan through State Bank of India in Jan, 2014. Accordingly, the lower rate of interest has been considered for the purpose of working out the weighted average rate of interest for calculation of interest expenses. The Petitioner humbly, request the Hon'ble Commission to allow recovery of benefit on account of refinancing directly from the beneficiary, in accordance with Regulation 61 of the CERC 2019 Tariff Regulations.

16. Depreciation

16.1. Regulation 33 of the CERC Tariff Regulations, 2019 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 case of the Tariff of all the units of a generating station or all elements of a transmission system including 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 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 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, weighted average life for the generating station of the transmission system shall be applied. Depreciation shall be chargeable from the first year of commercial operation. In case of commercial operation of the asset for part of the year, depreciation shall be charged on pro rata basis.*
> *(3) The salvage value of the asset shall be considered as 10% and depreciation shall be allowed up to 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 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 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 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 reservoir in case of hydro generating station shall not be a depreciable asset and its cost shall be excluded from the Capital Cost while computing depreciable value of the asset.*
> *(5) Depreciation shall be calculated annually based on 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 station shall be spread over the balance useful life of the assets.*

(6) In case of the existing Projects, the balance depreciable value as on 1.4.2019 shall be worked out by deducting the cumulative depreciation as admitted by the Commission upto 31.3.2019 from the gross depreciable value of the assets.
(7) The generating company or the transmission licensee, as the case may be, shall submit the details of proposed capital expenditure five years before the completion of useful life of the Project along with justification and proposed life extension. The Commission based on prudence check of such submissions shall approve the depreciation on capital expenditure.
(8) 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 decapitalized asset during its useful services."

16.2. The Weighted Average Rate of Depreciation has been computed in accordance with 'Form 11' by considering the actual depreciation provided in Books and the same has been considered for the purpose of computation of Depreciation for the period 2019-24 as shown in table below. Certificate from Statutory Auditors regarding Weighted Average Rate of Depreciation based on the average Gross Block of the Assets and actual depreciation charged by the Company for financial years of the Control Period 2019-24 is enclosed. Thereafter, 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 13: Depreciation for Control Period 2019-24

(Rs. Lakh)

Particulars	2019-20	2020-21	2021-22	2022-23	2023-24
Average Capital Cost	3,47,733.40	3,62,310.01	3,63,704.67	3,66,337.05	3,68,261.59
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	1,742.71	1,750.49	1,756.45	1,805.63	3,335.63
Average Capital cost, net of freehold land and IT equipment	3,12,262.04	3,25,381.77	3,26,637.56	3,29,011.62	3,30,896.71
Aggregated Depreciable Value	2,81,035.84	2,92,843.59	2,93,973.80	2,96,110.45	2,97,807.04
Remaining aggregate depreciable value at the beginning of the year	2,05,075.69	1,99,424.68	1,82,453.06	1,66,962.78	1,50,686.56
No. of completed years at the beginning of the year	4.63	5.63	6.63	7.63	8.63
Balance useful life at the beginning of the year	20.37	19.37	18.37	17.37	16.37
Weighted Average Rate of Depreciation (WAROD)	5.02%	5.02%	5.04%	5.04%	5.06%
Combined Depreciation during the year/ period (Prorated)	17,458.77	18,170.05	18,344.74	18,460.28	18,630.49

Particulars	2019-20	2020-21	2021-22	2022-23	2023-24
Combined Depreciation during the year/ period (Annualized)	17,458.77	18,170.05	18,344.74	18,460.28	18,630.49
Cumulative depreciation at the end of the year (before adjustment for de-capitalisation)	**93,418.92**	**1,11,588.97**	**1,29,865.48**	**1,47,607.96**	**1,65,750.97**
Less: Depreciation adjustment on account of de-capitalisation	-	**68.23**	**717.81**	**487.48**	**527.23**
Cumulative depreciation at the end of the year	**93,418.92**	**1,11,520.74**	**1,29,147.67**	**1,47,120.48**	**1,65,223.74**

16.3. The Petitioner humbly requests the Hon'ble Commission to allow the Depreciation as claimed in the above table for the FY 2019-24 tariff period.

17. OPERATIONAL NORMS

17.1. The CERC Tariff Regulations, 2019 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 CERC Tariff Regulations, 2019.

17.2. The following Sub-Section details the Operational Performance of the Generating Station during the Control Period 2019-24.

A. PLANT AVAILABILITY

17.3. Regulation 49 (A) of the CERC Tariff Regulations, 2019 specifies the Normative Plant Availability as:

> *"Norms of operation for thermal generating station*
> *49. The norms of operation as given hereunder shall apply to thermal generating stations:*
> *(A) Normative Annual Plant Availability Factor (NAPAF)*
> *(a) All thermal generating stations, except those covered under clauses (b), (c), (d), & (e) – 85%"*

17.4. The Petitioner for the purpose of tariff has computed Gross Generation for the FY 2019-24 tariff period at Normative Availability of 85% in line with the Normative norms.

B. Normative Annual Plant Availability Factor

17.5. 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

17.6. Norms for Auxiliary Power Consumption for thermal generating station as stipulated in the CERC Tariff Regulations, 2019:

> *"49. 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 Combine Cycle mode shall be 3.30% (including impact of air-cooled condensers for Steam Turbine Generators):*
>
> *Provided further that an additional Auxiliary Energy Consumption of 0.35% shall be allowed for Combine Cycle Generating Stations having direct cooling air cooled condensers with mechanical draft fans:"*

17.7. It is submitted that the OTPC in Petition No. 109/GT/2020 had prayed to consider Auxiliary energy consumption as per CEA recommendations. It is again submitted that the Central Electricity Authority (CEA) at the time of finalisation of CERC (Terms and Conditions of Tariff) Regulations, 2019 has recommended the following towards AEC and a copy of such recommendations is attached as **Annexure-A24**

17.8. 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 14: 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
Normative AEC (%) w.r.t PLF band	**3.50**	**3.75**	**4.00**	**4.30**	**4.70**

17.9. It is submitted that the Hon'ble Commission vide Order dated 30.3.2017 in Petition No.129/GT/2015 had granted relaxation in AEC and decided as under:

"102. We have examined the actual energy consumption during the period from April, 2015 to February, 2016. The reasons for variation in auxiliary energy consumption for this generating station (Block-I & Block-II) from 3.55% to 4.90 % during the period from April, 2015 to February, 2016 is due to different PLF and may be due to difference in the quality of gas. However, the fact appears to be clear that the AEC could be more than2.5% (which is specified norm) even at 85% or higher PLF, due to operation of electric driven Gas Booster Compressors (GBCs) which is a special feature in this Project and consumes significant energy, averaging 1.42% during the period from April, 2015 to February, 2016. The EPC contractor, M/s BHEL has also furnished guaranteed APC of 3.41% at 100% base load which is close to 3.50% as was claimed by the petitioner. Accordingly, the AEC of 3.50 % has been allowed in exercise of the Power to Relax under Regulation 54 of the 2014 Tariff Regulations."

17.10. Further, in Petition No. 108/GT/2020, the Petitioner prayed for approval of actual AEC for 2014-19 Tariff Period as mentioned below:

Table 15: 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%

17.11. The Hon'ble Commission vide order dated in 18.12.2021 stated as follows:

"102. The matter has been considered. It is observed that in order dated 30.3.2017 in Petition No.129/GT/2015 additional AEC of 3.50% was approved for the 2014-19 tariff period, considering the fact that AEC could be more than 2.5% (which is specified norm) even at 85% or higher PLF, due to operation of electric driven Gas Booster Compressors (GBCs) which is a special feature in the generating station and consumes significant energy. As per the Detailed Operating Procedure dated 5.5.2017 under the Grid Code, related to compensation mechanism for ISGS (inter-State generating station), on account of degradation of SHR and increase in AEC due to part loading, a separate compensation is payable by the beneficiaries. Further, from the data furnished by the Petitioner, it is observed that increased AEC could also be due to lower loading factors in that period. Hence, the Petitioner's claim for additional AEC above 3.50% is not acceptable only on account of utilisation of Gas Booster Compressors. The detailed calculation of AEC, after compensation has not been submitted by the Petitioner. As one-time relaxation towards AEC was already granted to the generating station of the Petitioner by order dated 30.3.2017 in Petition No. 129/GT/2015, the prayer of the Petitioner to further relax AEC under Regulation 54 power of the 2014 Tariff Regulations is not acceptable. In view of this, AEC of 3.50%, as approved by order dated 30.3.2017 in Petition No. 129/GT/2015 has been considered for the 2014-19 tariff period."

17.12. Subsequently, the Hon'ble Commission vide Order dated 11.1.2022 in Petition No.109/GT/2020 had stated that the relaxation in AEC shall be subjected to True up:

"93. The matter has been considered. It is observed that the Petitioner in the petition has claimed APC of 3.50% based upon the CEA recommendations, subject to truing up. Regulation 49(E)(c)(i) of the 2019 Tariff Regulations provides for APC of 3.30% for the generating station, where the gas based generating station use electric motor driven Gas Booster Compressor, in case of combine cycle mode. In our view, once the provisions of the 2019 Tariff Regulations provides for APC of 3.3%, any reliance by the Petitioner on recommendations of CEA cannot be considered for allowing APC of 3.5%."

17.13. It is humbly submitted that it is not possible for the generating station to achieve AEC of 3.30%. The details of the actual AEC for the generating station during 2019-24 tariff period is as follows:

Table 16: 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%

17.14. It can be seen from the above table that the generating station has never achieved an AEC of even 3.50% as claimed in 109/GT/2020. 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.

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17.15. Further, 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%.

17.16. In view of the above, the Petitioner humbly requests the Hon'ble Commission to consider actual AEC for the generating station and accordingly allow relaxation in AEC for 2019-24 tariff period in terms of Regulation 76 and 77.

D. Gross Station Heat Rate

17.17. Regulation 49(C)(b) of the CERC Tariff Regulations, 2019 provides Station Heat Rate for the thermal generating station having CoD on or after 1.4.2009 till 31.3.2014 as under:

> *"49 ...*
> *(b) Thermal Generating Stations achieving COD on or after 1.4.2009:*
> *(i) For Coal-based and lignite-fired Thermal Generating Stations:*
> *1.05 X Design Heat Rate (kCal/kWh)*
> *Where the Design Heat Rate of a generating unit means the unit heat rate guaranteed by the supplier at conditions of 100% MCR, zero percent make up, design coal and design cooling water temperature/back pressure."*

17.18. It is submitted that the Petitioner in 108/GT/2020 has requested the Hon'ble Commission to allow the year wise actual SHR of the project during 2014-19 and has provided the reasonable explanations for such relaxation. However, the Hon'ble Commission approved the SHR of 1754.24 kCal/kWh as approved in Order dated 30.3.2017 in Petition No. 129/GT/2015.

17.19. Similarly, in Petition No. 109/GT/2020, the Petitioner requested the Hon'ble Commission to consider the below mentioned recommendations given by CEA towards SHR for the period of 2019-24. 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 17: 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

PLF band (%)	90-100	80-89.99	70-79.99	60-69.99	50-59.99
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**

17.20. It is submitted he Central Electricity Regulatory Commission (CERC) Tariff Regulations for 209-24 emphasize using the guaranteed heat rate for calculating the design heat rate. If a unit heat rate is not guaranteed, it should be derived using guaranteed turbine cycle heat rate and boiler efficiency.

> *"49(C)(b)*
> ...
> *Provided also that where unit heat rate has not been guaranteed but turbine cycle heat rate and boiler efficiency are guaranteed separately by the same supplier or different suppliers, the unit design heat rate shall be arrived at by using guaranteed turbine cycle heat rate and boiler efficiency:"*

17.21. 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)** for ready reference.

17.22. 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:

> **Weighted Average GSHR at GCV = [(0.4 X 1670.7) + (0.4 X 1735.4) + (0.2 X 1872)] / (0.4+0.4+0.2)**
>
> **= 1736.84 kCal / kWh**
>
> **Therefore, SHR may be considered as 1.05 X 1736.84 = 1823.682 kCal/kWh.**

17.23. 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. However, Hon'ble Commission only considered the figure of 1670.7 kCal/kwh at base load on basis of BHEL letter and allowed an SHR of 1754.23 kCal/kwh to Palatana.

17.24. It is submitted that the Petitioner is highly obliged that taking note of its submission, the Hon'ble Commission had allowed OTPC a heat rate of 1823.682 kCal/kWh in the Final

Tariff Order for Unit-I of project dated 31.8.2015 as well as in the Interim Tariff Order for the project dated 17.6.2015.

17.25. In the Petitioner's multiyear tariff petition for the complete project, we have prayed to the Hon'ble Commission to kindly allow us the same heat rate of 1823.682 kCal/kWh for the project in line with its earlier orders for the project.

17.26. It is submitted that the actual SHR of the generating station during 2019-24 is as follows:

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

17.27. The Hon'ble Commission may also like to look at the Heat Rate of similar advanced class machines submitted by various generating stations across the country as produced below for kind reference.

17.28. Kind attention is also invited to the fact that Palatana Project has the least Gross Heat Rate for similar projects using advanced class machines as shown below. The relevant documents supporting the same have also been annexed for kind reference:

Table 18: Gross Heat Rate for various Similar Projects

(in kCal/kWh)

Palatana	Sugen Torrent	Pragati-III	GSEG Hazira	DGEN Torrent	UnoSugen (Sugen-40)
1823.682	1850 (Sugen petition based on guaranteed heat rate duly adjusted for inlet air cooling)	1845.14 (Guaranteed Net Heat Rate adjusting for auxiliary energy from Tariff petition)	1850 (From registered CDM document of GSEG Hazira)	1831.63 (1.05*1744.41) (from Tariff petition of DGEN)	1853.88 (1.05*1765.60) (from Tariff petition of SUGEN-40)

17.29. The Combined Cycle Heat Rate correction curves for degradation provided by the EPC contractor has been enclosed with the instant petition (attached as **Annexure-A26**) wherein it can be seen that the heat rate of such advanced class machines deteriorates very quickly.

17.30. In view of the above, the Petitioner humbly request the Hon'ble Commission to approve the Actual Station Heat Rate for the generating station for the Tariff Period 2019-24.

E. <u>Summary of Operational Parameters</u>

17.31. The summary of the Operational Performance of the generating station for the FY 2019-24 tariff period considering for the tariff purpose is as follows:

Table 19: Summary of Operational Parameters for Control Period 2019-24

Particulars	UoM	2019-20	2020-21	2021-22	2022-23	2023-24
No. of Days of the Year	Days	366.00	365.00	365.00	365.00	366.00
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	1,757.00	1,764.00	1,801.00	1,798.00	1,831.09
Auxiliary Power Consumption	%	3.87%	3.86%	4.20%	3.85%	4.18%

F. Fuel Parameters for FY 2019-24 tariff period

17.32. 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 CERC Tariff Regulations, 2019. Regulation 34 of the CERC Tariff Regulations, 2019 reproduced below specifies the guidelines for arriving at the initial Landed Prices (of Gas) and initial Projection of Gross Calorific Value ("GCV") of Gas:

> *"34.*
>
> *...*
>
> *(2) The cost of fuel in cases covered under sub-clauses (a) and (b) 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 39 of these regulations) by the generating station and gross calorific value of the fuel as per actual weighted average for the third quarter of preceding financial year in case of each financial year for which Tariff is to be determined:*
> *Provided that in case of 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 39 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."*

17.33. Accordingly, the Base Landed Price of Gas has been computed based on the Weighted Average Landed Price of Gas for the third quarter i.e. October to December of each year during FY 2019-24. Similarly, the Gross calorific value of Gas has been computed based on the Weighted Average GCV of Gas for the third quarter i.e. October to December of each year during FY 2019-24.

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

Table 20: Summary of Fuel Parameters for Control Period 2019-24

Particulars	UoM	2019-20	2020-21	2021-22	2022-23	2023-24
Weighted Average Price of Gas	Rs. /MT	7,235.25	8,503.24	9,148.57	9,519.63	9,929.86
Weighted Average GCV of Gas as received	kCal/Kg	9,227.16	9,215.35	9,216.47	9,225.76	9,233.55

17.35. 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 2019-24 tariff period.

18. O&M EXPENSES

18.1. Regulation 35 of the CERC Tariff Regulations, 2019 stipulates the Normative O&M Expenses as follows:

*"**35. Operation and Maintenance Expenses:***
"(3) Open Cycle Gas Turbine/Combined Cycle generating stations:

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 2019-20	*17.58*	*36.21*	*42.85*	*26.34*
FY 2020-21	*18.20*	*37.48*	*44.35*	*27.27*
FY 2021-22	*18.84*	*38.80*	*45.91*	*28.23*
FY 2022-23	*19.50*	*40.16*	*47.52*	*29.22*
FY 2023-24	*20.19*	*41.57*	*49.19*	*30.24*

Provided that where the date of commercial operation of any additional unit(s) of a generating station after first four units occurs on or after 1.4.2019, the O&M expenses of such additional unit(s) shall be admissible at 90% of the operation and maintenance expenses as specified above;"

" 35

...

(6) The Water Charges, Security 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, 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;
Provided also that the generating station shall submit the details of year-wise actual capital spares consumed 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 capitalization or consumption of stores and spares and renovation and modernization.

A. Normative O&M Expenses

18.2. In line with the above quoted Regulation, the normative O&M expenses claimed by the Petitioner is as follows:

Table 21: Normative O&M Expenses

(Rs. Lakh)

2019-20	2020-21	2021-22	2022-23	2023-24
19138.64	19,814.38	20,511.92	21,231.25	21,972.38

B. Raw Water Charges, Security Expenses

18.3. The Regulation 35(6) of the CERC Tariff Regulations, 2019 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 actual water charges incurred by the Petitioner is as follows:

Table 22: Water Charges

(Rs. Lakh)

2019-20	2020-21	2021-22	2022-23	2023-24
3.96	-1.06	10.04	3.71	5.14

18.4. The auditor certificate for water charges is attached as **Annexure-A27**. The Petitioner humbly requests the Hon'ble Commission to allow the actual Raw Water Charges for the FY 2019-24 tariff period.

C. Security Expenses

18.5. The Regulation 35(6) of the CERC Tariff Regulations, 2019 stipulates that the Security expenses shall be allowed separately, and the generating station shall submit the assessment of the security requirement.

18.6. The following table shows actual Security Expenses for the generating station incurred for the period FY 2019-20 to FY 2023-24.

Table 23: Actual Security Expenses for FY 2019-24

(Rs. Lakh)

2019-20	2020-21	2021-22	2022-23	2023-24
760.40	741.83	857.10	987.31	1156.18

18.7. The auditor certificate for actual security expenses incurred is attached as **Annexure-A27**. The Petitioner humbly requests the Hon'ble Commission to allow the actual Raw Water Charges for the FY 2019-24 tariff period.

D. Capital Spares

18.8. As stipulated in Regulation 35(6) of the CERC Tariff Regulations, 2019 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 required several Capital Spares for the critical equipment during the above Tariff Period in Order to ensure the reliability and the availability of the main equipment. Further, these Capital Spares have not been included in the Additional Capitalization nor funded through compensatory allowance or Special Allowance.

18.9. It is submitted that the hon'ble Commission in its Order dated 11.1.2022 in regard to GTG Rotor has decided that the actual capital spares consumed by the Petitioner, shall be dealt with in accordance with the proviso to Regulation 35(1)(6) of the Tariff Regulations 2019. The Petitioner humbly submits that at OTPC Palatana Plant, the Block 1 Gas Turbine Generator tripped on Rotor Earth Fault on 07.10.2019, at 15:55 hrs. This protection (64R) activated Class – A protection which tripped Generator Circuit Breaker & Gas turbine simultaneously. Initial test results indicate that there was a break in the positive side of the GT Generator rotor winding. The rotor failure occurred due to manufacturing defect. This incident led to generation outage of block-1 for more than 6 months incurring huge financial loss to OTPC. To avoid any such incident for block-2, it was decided to procure one new gtg rotor and send the existing rotor for refurbishment. This type of spare is not readily available, either new rotor may be ordered from the manufacturer or existing rotor will be repaired. In both cases OTPC will suffer huge financial loss and will not be able to serve to customers. Considering the geographical location of OTPC plant having logistic challenge, it was decided that to keep one capital spare of GTG rotor at site, and to utilize the same when the need arises to minimize the

unit outage and to ensure the plant availability for NE region. It is humbly requested that the expense is aimed at improving the reliability of at the plant and therefore may be kindly allowed by the Hon'ble Commission under Regulation 35(1)(6) Tariff Regulations 2019 as capital spare.

18.10. Auditor's Certificate regarding O&M Expenses is attached as **Annexure-27**. Pursuant to aforesaid Regulations, actual expenses and following the approach of the Hon'ble Commission, the O&M expenses claimed for Truing-up for each year of the Control Period is as follows:

Table 24: Actual O&M Expenses for FY 2019-24

(Rs. Lakh)

Particulars	2019-20	2020-21	2021-22	2022-23	2023-24
O&M expenses under Reg.35(1) (Rs. Lakhs/ MW)	726.60	726.60	726.60	726.60	726.60
Normative	26.34	27.27	28.23	29.22	30.24
O&M expenses under Reg.35(6)	19,138.64	19,814.38	20,511.92	21,231.25	21,972.38
Water Charges	3.96	-1.06	10.04	3.71	5.14
Security expenses	760.40	741.83	857.10	987.31	1,156.18
Capital Spares	295.48	1,740.07	571.12	317.80	1,588.63
Total O&M Expenses	**20,198.48**	**22,295.22**	**21,950.18**	**22,540.08**	**24,722.34**

19. INTEREST ON WORKING CAPITAL

I.1 Regulation 34 of the Tariff Regulations 2019 provides as under:

"34. Interest on Working Capital:
(1) The working capital shall cover:
.....
(b) For Open-cycle Gas Turbine/Combined Cycle thermal generating stations:
(i) Fuel cost for 30 days corresponding to the normative annual plant availability factor, duly taking into account 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;
(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 sale of electricity calculated on normative plant availability factor, duly taking into account mode of operation of the generating station on gas fuel and liquid fuel; and
(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 (b) 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 39 of these regulations) by the generating station and gross calorific value of the fuel as per actual weighted average for the third quarter of preceding financial year in case of each financial year for which Tariff is to be determined:

Provided that in case of 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 39 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 normative basis and shall be considered as the bank rate as on 1.4.2019 or as on 1st April of the year during the Tariff period 2019-24 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 bank rate as on 1st April of each of the financial year during the Tariff period 2019-24.

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

19.1. Due to revision in the various components of Annual Fixed Charges, as discussed above, the interest on working capital is revised. The revised Interest on Working Capital for the FY 2019-24 tariff period for the purpose of Truing-up is shown in the Table below.

Table 25: Interest on Working Capital of the Generating Station during Control Period 2019-24

(Rs. Lakh)

Particulars	2019-20	2020-21	2021-22	2022-23	2023-24
Fuel cost for 30 days	6,126.38	7,237.99	7,949.67	8,250.00	8,756.50
O&M expenses - 1 month	1,658.58	1,712.93	1,781.59	1,851.86	1,927.81
Maintenance Spares - 30% of O&M	5,970.90	6,166.55	6,413.72	6,666.68	6,940.11
Receivables	18,193.76	19,968.33	20,721.40	21,231.41	22,305.40
Total Working Capital	**31,949.62**	**35,085.80**	**36,866.37**	**37,999.95**	**39,929.81**
Rate of Interest	12.05%	11.25%	10.50%	10.50%	12.00%
Interest on Working Capital	**3,849.93**	**3,947.15**	**3,870.97**	**3,989.99**	**4,791.58**

19.2. The Petitioner humbly requests the Hon'ble Commission to allow the interest on working capital for the FY 2019-24 tariff period as shown in the above table.

20. DETAILS OF Annual Fixed Charges

20.1. 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 26: Details of Annual Fixed Charges

(Rs. Lakh)

Particulars	2019-20	2020-21	2021-22	2022-23	2023-24
Depreciation	17,458.77	18,170.05	18,344.74	18,460.28	18,630.49
Interest on Loan	14,785.01	11,731.97	9,391.14	8,966.96	8,481.24
Return on Equity	16,941.94	17,758.71	17,795.41	17,877.89	17,962.50
Interest on Working Capital	3,849.93	3,947.15	3,870.97	3,989.99	4,791.58
O&M Expenses	20,198.48	22,295.22	21,950.18	22,540.08	24,722.34
Total AFC	**73,234.13**	**73,903.11**	**71,352.45**	**71,835.21**	**74,588.15**

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PRAYERS

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

a) Approve the True-up Tariff for the 2019-24 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 actual auxiliary energy consumption and station heat rate for the period;

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: 29th Nov'24

Place: New Delhi

ONGC Tripura Power Company Limited

ONGC Tripura Power Co. Ltd. New Delhi