

**CENTRAL ELECTRICITY REGULATORY COMMISSION
NEW DELHI**

Petition No. 276/TT/2023

Coram:

**Shri Jishnu Barua, Chairperson
Shri Arun Goyal, Member**

Date of Order: 02.08.2024

In the Matter of:

Approval under Regulation 86 of the Central Electricity Regulatory Commission (Conduct of Business) Regulations, 1999 and the Central Electricity Regulatory Commission (Terms and Conditions of Tariff) Regulations, 2014, and the Central Electricity Regulatory Commission (Terms and Conditions of Tariff) Regulations, 2019 for truing up of transmission tariff of the 2014-19 period and determination of transmission tariff of the 2019-24 tariff for 400 kV Kahalgaon Transmission System in the Eastern Region.

And in the Matter of:

Power Grid Corporation of India Limited,
"Saudamini", Plot No-2, Sector-29,
Gurgaon-122001(Haryana).

...Petitioner

Vs.

1. Bihar State Power (Holding) Company Limited,
Vidyut Bhavan, Bailey Road,
Patna-800001.
2. West Bengal State Electricity Distribution Company Limited,
Bidyut Bhawan, Bidhan Nagar,
Block DJ, Sector-II, Salt Lake City,
Calcutta-700091.
3. Grid Corporation of Orissa Limited,
Shahid Nagar,
Bhubaneswar-751007.
4. Damodar Valley Corporation,
DVC Tower, Maniktala, Civic Centre,
VIP Road, Calcutta-700054.
5. Power Department,
Government of Sikkim,
Gangtok-737101.



6. Jharkhand Bijli Vitran Nigam Limited,
Engineering Building, H.E.C., Dhurva
Ranchi-834004.

7. NTPC Limited,
NTPC Bhawan, Core-7, Scope Complex,
7, Institutional Area, Lodhi Road,
New Delhi-110003.

...Respondent(s)

For Petitioner : Shri Vivek Kumar Singh, PGCIL
Shri Amit Yadav, PGCIL
Ms. Akshita Chauhan, PGCIL

For Respondents : None

ORDER

The instant petition has been filed by Power Grid Corporation of India Limited for truing up of transmission tariff of the 2014-19 tariff period under the Central Electricity Regulatory Commission (Terms and Conditions of Tariff) Regulations, 2014 (hereinafter referred to as “the 2014 Tariff Regulations”) and the determination of the transmission tariff under the Central Electricity Regulatory Commission (Terms and Conditions of Tariff) Regulations, 2019 (hereinafter referred to as “the 2019 Tariff Regulations”) for the 2019-24 tariff period in respect of the 400 kV Kahalgaon Transmission System (hereinafter referred to as the “transmission asset”) in the Eastern Region.

2. The Petitioner has made the following prayers in this petition:

“1) Approve the trued-up Transmission Tariff for 2014-19 block and transmission tariff for 2019-24 block for the assets covered under this petition.

2) Allow the capital cost including the additional capitalization/ decapitalization proposed to be incurred during 2019-24 period as claimed by petitioner.

3) (a) Allow the petitioner to recover the shortfall or refund the excess Annual Fixed Charges, on account of Return on Equity due to change in applicable Minimum Alternate/Corporate Income Tax rate as per the Income Tax Act, 1961 (as amended from time to time) of the respective financial year directly without making any application before the Commission as provided in Tariff Regulation 2014 and Tariff regulations 2019 as per para 9 and 10 above for respective block.

(b) It is further submitted that deferred tax liability before 01.04.2009 shall be



recoverable from the beneficiaries or long-term transmission customers /DICs as the case may be, as and when materialized as per regulation 49 of 2014 and regulation 67 of 2019 tariff regulation. The petitioner may be allowed to recover the deferred tax liability materialized directly without making any application before the commission as provided in the regulation.

4) Approve the reimbursement of expenditure by the beneficiaries towards petition filing fee, and expenditure on publishing of notices in newspapers in terms of Regulation 70 (1) Central Electricity Regulatory Commission (Terms and Conditions of Tariff) Regulations, 2019, and other expenditure (if any) in relation to the filing of petition.

5) Allow the petitioner to bill and recover Licensee fee and RLDC fees and charges, separately from the respondents in terms of Regulation 70 (3) and (4) Central Electricity Regulatory Commission (Terms and Conditions of Tariff) Regulations, 2019.

6) Allow the petitioner to bill and adjust impact on Interest on Loan due to change in Interest rate on account of floating rate of interest applicable during 2019-24 period, if any, from the respondents.

7) Allow the petitioner to file a separate petition before Commission for claiming the overall security expenses and consequential IOWC on that security expenses as mentioned at para 10.5 above.

8) Allow the petitioner to claim the capital spares at the end of tariff block as per actual.

9) Allow the Petitioner to bill and recover GST on Transmission Charges separately from the respondents, if GST on transmission is levied at any rate in future. Further, any taxes including GST and duties including cess etc. imposed by any statutory/Govt./municipal authorities shall be allowed to be recovered from the beneficiaries.

and pass such other relief as Commission deems fit and appropriate under the circumstances of the case and in the interest of justice.”

Backdrop of the case

3. The brief facts of the case are as follows:

(a) The Petitioner had earlier filed Petition No. 733/TT/2020 for truing up the transmission tariff for the 2014-19 period and the determination of the transmission tariff for the 2019-24 period in respect of the transmission asset. The Commission, vide its order dated 20.5.2022 in Petition No. 733/TT/2020, restricted some Additional Capital Expenditure (ACE) and granted liberty to the Petitioner to file a fresh petition. Accordingly, the present petition has been filed by the Petitioner in terms of the directions given in paragraph nos. 57 and 58

of the said order dated 20.5.2022.

(b) Approval for the Revised Cost Estimates (RCE) of ₹22375.00 lakh was accorded by the Ministry of Power (MoP) vide its letters dated 1.6.1992 and 7.9.1992 and the same is recorded in the Commission's order dated 14.12.2005 in Petition No. 127/2004.

(c) The scope of the project as per the Investment Approval (IA) is as follows:

Transmission Lines:

- i. 400 kV Kahalgaon-Maithon Double Circuit Line
- ii. 400 kV Maithon-Jamshedpur Double Circuit Line
- iii. 400 kV Jamshedpur-Rourkela Single Circuit Line

Sub-stations:

400 kV Line Bays: 15

(d) The entire scope of the transmission project is covered in the present petition.

(e) The transmission asset/elements of the transmission asset covered under the transmission system were put into commercial operation from 1.3.1993 to 1.10.1994.

(f) Annual transmission charges for the transmission asset up to 31.3.2009 were approved vide order dated 14.12.2005 in Petition No. 127/2004, which were subsequently revised vide order dated 7.2.2008.

(g) The transmission tariff for the transmission asset for the 2009-14 tariff period was determined vide order dated 2.5.2011 in Petition No. 254/2010. Further, the transmission tariff of the 2009-14 tariff period was trued-up, and the transmission tariff for the 2014-19 period was determined with respect to the transmission asset vide order dated 30.12.2015 in Petition No. 535/TT/2014.

(h) The transmission tariff for the 2014-19 tariff period was trued-up, and

the transmission tariff for the 2019-24 period was determined in respect of the transmission asset vide order dated 20.5.2022 in Petition No. 733/TT/2020. In the said order, the Petitioner was granted the liberty to file a fresh petition for approval of ACE during the 2019-24 period as sought by it in Petition No. 733/TT/2020.

(i) The loans deployed for the transmission asset under the transmission system had already been repaid in the year 2001-02. Hence, there is no impact of Interest on Loan (IoL).

4. The Respondents are distribution licensees, power departments, and transmission licensees procuring transmission services from the Petitioner, mainly beneficiaries of the Eastern Region.

5. The Petitioner has served a copy of the petition on the Respondents and notice regarding the filing of this petition has also been published in the newspapers in accordance with Section 64 of the Electricity Act, 2003 (in short, 'the Act'). No comments or suggestions have been received from the general public in response to the aforesaid notice published in the newspapers by the Petitioner. No reply has been filed by any of the Respondents.

6. The matter was heard on 27.2.2024 and after hearing the representative of the Petitioner, an order in the matter was reserved.

7. We have heard the Petitioner's representatives and perused the material available on record. Accordingly, we proceed to dispose of the petition.

8. This order is issued considering the submissions made by the Petitioner in the Petition, vide affidavit dated 12.4.2023 and additional affidavit dated 25.1.2024.



TRUING UP OF ANNUAL FIXED CHARGES FOR THE 2014-19 TARIFF PERIOD

9. The details of the trued-up transmission charges claimed by the Petitioner in respect of the transmission asset are as follows:

(₹ in lakh)					
Particulars	2014-15	2015-16	2016-17	2017-18	2018-19
Depreciation	374.32	382.65	396.07	401.03	404.06
Interest on Loan	0.00	0.00	0.00	0.00	0.00
Return on equity	1932.74	1948.12	1948.82	1949.72	1956.46
Interest on Working Capital	119.65	122.42	125.02	127.51	130.17
O&M Expenses	1204.57	1244.81	1286.09	1328.75	1372.81
Total	3631.28	3698.00	3756.00	3807.01	3863.50

10. The details of the trued-up Interest on Working Capital (IWC) claimed by the Petitioner in respect of the transmission asset are as follows:

(₹ in lakh)					
Particulars	2014-15	2015-16	2016-17	2017-18	2018-19
O&M Expenses	100.38	103.73	107.17	110.73	114.40
Maintenance Spares	180.69	186.72	192.91	199.31	205.92
Receivables	605.21	616.33	626.00	634.50	643.92
Total	886.28	906.78	926.08	944.54	964.24
Rate of Interest (in %)	13.50	13.50	13.50	13.50	13.50
Interest on Working Capital	119.65	122.42	125.02	127.51	130.17

Capital Cost as on 1.4.2014

11. The capital cost of the transmission asset has been calculated in accordance with Regulations 9(3) and 9(6) of the 2014 Tariff Regulations.

12. The Commission, vide order dated 20.5.2022 in Petition No. 733/TT/2020 trued-up the transmission tariff for the 2014-19 tariff period based on the admitted capital cost of ₹20014.61 lakh as on 1.4.2014 and ACE of ₹261.40 lakh as under:

(₹ in lakh)

Actual cost as on 31.3.2014		Actual ACE /De-Capitalization during 2014-19 period					Actual cost as on 31.3.2019
		2014-15	2015-16	2016-17	2017-18	2018-19	
20014.61	ACE	183.09	20.64	3.77	27.65	26.25	20276.01
	De-Capitalization	0.00	0.00	0.00	0.00	0.00	

Additional Capital Expenditure (“ACE”)

13. The Commission, vide order dated 20.5.2022 in Petition No. 733/TT/2020, had observed as follows:

“16. We have considered the submissions of Petitioner and BSPHCL. The Petitioner in the instant true-up petition has claimed actual ACE of ₹432.17 lakh and decapitalization of ₹103.00 lakh i.e. a net ACE of ₹329.17 lakh towards tower strengthening works and replacement of CBs at Jamshedpur Sub-station.

17. The Commission vide order dated 30.12.2015 in Petition No.535/TT/2014 has already allowed ACE towards tower strengthening work of 400 kV D/C Kahalgaon-Maithon and 400 kV S/C Jamshedpur-Rourkela-I in accordance with sub clause (ix) of clause (3) of the Regulations 14 of the 2014 Tariff Regulations. The Petitioner in the instant petition has claimed actual ACE of ₹261.40 lakh towards tower strengthening work of 400 kV D/C Kahalgaon-Maithon and 400 kV S/C Jamshedpur-Rourkela-I and the same has been allowed under sub clause (ix) of clause (3) of the Regulations 14 of the 2014 Tariff Regulations.

18. The Petitioner has replaced CBs at Jamshedpur Sub-station and claimed net ACE of ₹67.77 lakh towards replacement of CBs. The Petitioner on its own has replaced CBs at Jamshedpur Sub-station. Therefore, we are not inclined to allow ACE towards replacement of CBs at Jamshedpur Sub-station. However, the Petitioner may claim the same with detailed clarifications and reasons for replacing CBs at the time of filing fresh Petition for the proposed ACE for 2019-24 period as mentioned at paragraph 57.”

14. The Petitioner, in the instant true-up petition, has claimed ACE during the 2014-19 tariff period as per Regulations 14(3)(vii) and 14(3)(ix) of the 2014 Tariff Regulations. ACE claimed by the Petitioner in respect of the transmission asset is as follows:

(₹ in lakh)

Actual cost as on 31.3.2014		Actual ACE /De-Capitalization during the 2014-19 period					Actual cost as on 31.3.2019
		2014-15	2015-16	2016-17	2017-18	2018-19	
20014.61	ACE	183.09	20.64	174.54	27.65	26.25	20343.78
	De-Capitalization	0.00	0.00	(103.00)	0.00	0.00	



15. The Petitioner has submitted that ACE for the 2014-19 tariff period has been approved by the Commission in its order dated 20.5.2022 in Petition No. 733/TT/2020, except for the cost of Circuit Breakers (CB) in Jamshedpur. The details of ACE claimed, allowed, and disallowed in respect of the transmission asset in Petition No. 733/TT/2020 are as follows:

(₹ in lakh)

ACE Claimed by the Petitioner in Petition No. 733/TT/2020					
	2014-15	2015-16	2016-17	2017-18	2018-19
ACE	183.09	20.64	174.54	27.65	26.25
De-Capitalization	0.00	0.00	(103.00)	0.00	0.00
ACE allowed by the Commission in Petition No. 733/TT/2020					
	2014-15	2015-16	2016-17	2017-18	2018-19
ACE	183.09	20.64	3.77	27.65	26.25
De-Capitalization	0.00	0.00	0.00	0.00	0.00
ACE disallowed by the Commission in Petition No. 733/TT/2020					
	2014-15	2015-16	2016-17	2017-18	2018-19
ACE	0.00	0.00	170.77	0.00	0.00
De-Capitalization	0.00	0.00	(103.00)	0.00	0.00

16. The Commission, in its order dated 20.5.2022 in Petition No. 733/TT/2020, did not allow the net claim of ₹67.77 lakh towards replacement of CBs. However, a liberty has been granted to claim the same with detailed clarifications and reasons for replacing CBs for the proposed ACE for the 2019-24 tariff period. With regard to the replacement of 400 kV Bharat Heavy Electricals Limited (BHEL)-make Circuit Breakers at Jamshedpur Sub-station, the Petitioner has submitted that BHEL-make (Hydraulic type) CBs supplied under Khalgaon Transmission Station were causing frequent maintenance problems such as hydraulic drive/magnetic ventil failures, air leakages from various parts of the mechanisms, and SF6 gas leakages, etc., leading to prolonged outages causing unstable grid operation. Mismatch in timing results and violations of DCRM signature were also observed in many cases. This could cause the failure of CBs in service. Frequent adjustment of auxiliary contact is also required due to the aging of mechanisms. Further, manufacturers also stopped manufacturing



the aforesaid model of CBs. For quite some time, the spares and service support from the OEM have been very poor, and the cost of spares is exorbitantly high and time-consuming. OEM also stopped its service support. During the year 2014, BHEL intimated that the timeline for servicing/ overhauling of the said CBs would be two years. Due to various operational issues and long service time being taken by BHEL, it was decided to replace the five most problematic CBs at Jamshedpur during the year 2016-17 on an urgent basis to avoid any unwanted outages. Accordingly, the Petitioner has requested approval of the ACE for the replacement of the five CBs at the Jamshedpur Sub-station.

17. We have considered the submissions of the Petitioner. The Petitioner has claimed an actual ACE of ₹432.17 lakh and de-capitalization of ₹103.00 lakh, i.e., a net ACE of ₹329.17 lakh towards tower strengthening works and replacement of CBs at Jamshedpur Sub-station. The Commission, vide order dated 20.5.2022 in Petition No. 733/TT/2020, has already allowed ACE towards tower strengthening work of 400 kV D/C Kahalgaon-Maithon and 400 kV S/C Jamshedpur-Rourkela-I in accordance with Regulations 14(3)(ix) of the 2014 Tariff Regulations. However, the Petitioner has on its own replaced CBs at Jamshedpur Sub-station and claimed a net ACE of ₹67.77 lakh towards a replacement of the CBs at Jamshedpur Sub-station. The Commission, in its order dated 20.5.2022 in Petition No. 733/TT/2020, had granted the liberty to the Petitioner to claim the same with detailed clarifications and reasons for replacing CBs during the 2019-24 tariff period and accordingly, the same has been dealt with in the instant order. As no liberty was given for the 2014-19 tariff period in the order dated 20.5.2022 in Petition No. 733/TT/2020, the ACE towards replacement of CBs at Jamshedpur was not allowed for the 2014-19 tariff period as the same has been tried up vide order dated 20.5.2022 in Petition No. 733/TT/2020.

Approved Annual Fixed Charges for the 2014-19 Tariff Period

18. Accordingly, the trued up Annual fixed Charges (AFC) in respect of the transmission asset for the 2014-19 tariff period are as follows:

Particulars	(₹ in lakh)				
	2014-15	2015-16	2016-17	2017-18	2018-19
Depreciation	374.32	382.65	383.75	385.32	388.35
Interest on Loan	0.00	0.00	0.00	0.00	0.00
Return on Equity	1932.64	1948.03	1948.75	1949.68	1956.52
O&M Expenses	1204.57	1244.81	1286.09	1328.75	1372.81
Interest on Working Capital	119.65	122.41	124.74	127.15	129.81
Total	3631.18	3697.90	3743.33	3790.90	3847.49

DETERMINATION OF ANNUAL FIXED CHARGES FOR THE 2019-24 TARIFF PERIOD

19. The Petitioner has claimed the following transmission charges in respect of the transmission asset for the 2019-24 tariff period:

Particulars	(₹ in lakh)				
	2019-20	2020-21	2021-22	2022-23	2023-24
Depreciation	405.75	405.75	444.69	658.67	883.55
Interest on Loan	-	-	-	1.72	1.72
Return on equity	1860.56	1860.56	1872.75	1891.72	1915.34
Interest on Working Capital	100.88	103.42	106.62	112.72	118.80
O&M Expenses	1532.72	1587.44	1643.10	1701.74	1759.59
Total	3899.91	3957.17	4067.16	4366.57	4679.00

20. The details of the IWC claimed by the Petitioner in respect of the transmission asset for 2019-24 are as follows:

Particulars	(₹ in lakh)				
	2019-20	2020-21	2021-22	2022-23	2023-24
O&M Expenses	127.73	132.29	136.93	141.81	146.63
Maintenance Spares	229.91	238.12	246.47	255.26	263.94
Receivables	479.50	487.87	501.43	538.34	575.29
Total	837.14	858.28	884.83	935.41	985.86
Rate of Interest (in %)	12.05%	12.05%	12.05%	12.05%	12.05%
Interest	100.88	103.42	106.62	112.72	118.80

Capital Cost

21. Regulation 19 of the 2019 Tariff Regulations provides as follows:

“19. Capital Cost: (1) The Capital cost of the generating station or the transmission system, as the case may be, as determined by the Commission after prudence check in accordance with these regulations shall form the basis for determination of tariff for existing and new projects.

(2) *The Capital Cost of a new project shall include the following:*

- (a) The expenditure incurred or projected to be incurred up to the date of commercial operation of the project;*
- (b) Interest during construction and financing charges, on the loans (i) being equal to 70% of the funds deployed, in the event of the actual equity in excess of 30% of the funds deployed, by treating the excess equity as normative loan, or (ii) being equal to the actual amount of loan in the event of the actual equity less than 30% of the funds deployed;*
- (c) Any gain or loss on account of foreign exchange risk variation pertaining to the loan amount availed during the construction period;*
- (d) Interest during construction and incidental expenditure during construction as computed in accordance with these regulations;*
- (e) Capitalised initial spares subject to the ceiling rates in accordance with these regulations;*
- (f) Expenditure on account of additional capitalization and de-capitalisation determined in accordance with these regulations;*
- (g) Adjustment of revenue due to sale of infirm power in excess of fuel cost prior to the date of commercial operation as specified under Regulation 7 of these regulations;*
- (h) Adjustment of revenue earned by the transmission licensee by using the asset before the date of commercial operation;*
- (i) Capital expenditure on account of ash disposal and utilization including handling and transportation facility;*
- (j) Capital expenditure incurred towards railway infrastructure and its augmentation for transportation of coal up to the receiving end of the generating station but does not include the transportation cost and any other appurtenant cost paid to the railway;*
- (k) Capital expenditure on account of biomass handling equipment and facilities, for co-firing;*
- (l) Capital expenditure on account of emission control system necessary to meet the revised emission standards and sewage treatment plant;*
- (m) Expenditure on account of fulfilment of any conditions for obtaining environment clearance for the project;*
- (n) Expenditure on account of change in law and force majeure events; and*
- (o) Capital cost incurred or projected to be incurred by a thermal generating station, on account of implementation of the norms under Perform, Achieve and Trade (PAT) scheme of Government of India shall be considered by the Commission subject to sharing of benefits accrued under the PAT scheme with the beneficiaries.*

(3) *The Capital cost of an existing project shall include the following:*

- (a) Capital cost admitted by the Commission prior to 1.4.2019 duly tried up by excluding liability, if any, as on 1.4.2019;*
- (b) Additional capitalization and de-capitalization for the respective year of tariff as determined in accordance with these regulations;*
- (c) Capital expenditure on account of ash disposal and utilization including handling and transportation facility;*
- (d) Capital expenditure on account of ash disposal and utilization including handling and transportation facility;*
- (e) Capital expenditure incurred towards railway infrastructure and its augmentation for transportation of coal up to the receiving end of generating station but does not include the transportation cost and any other appurtenant cost paid to the railway; and*
- (f) Capital cost incurred or projected to be incurred by a thermal generating station, on account of implementation of the norms under Perform, Achieve and Trade (PAT) scheme of Government of India shall be considered by the Commission subject to sharing of benefits accrued under the PAT scheme with the beneficiaries.*

(4) The capital cost in case of existing or new hydro generating station shall also include:

(a) cost of approved rehabilitation and resettlement (R&R) plan of the project in conformity with National R&R Policy and R&R package as approved; and

(b) cost of the developer's 10% contribution towards Rajiv Gandhi Grameen Vidyutikaran Yojana (RGGVY) and Deendayal Upadhyaya Gram Jyoti Yojana (DDUGJY) project in the affected area.

(5) The following shall be excluded from the capital cost of the existing and new projects:

(a) The asset forming part of the project, but not in use, as declared in the tariff petition;

(b) De-capitalised Asset after the date of commercial operation on account of replacement or removal on account of obsolescence or shifting from one project to another project:

Provided that in case replacement of transmission asset is recommended by Regional Power Committee, such asset shall be decapitalised only after its redeployment;

Provided further that unless shifting of an asset from one project to another is of permanent nature, there shall be no de-capitalization of the concerned asset.

(c) In case of hydro generating stations, any expenditure incurred or committed to be incurred by a project developer for getting the project site allotted by the State Government by following a transparent process;

(d) Proportionate cost of land of the existing project which is being used for generating power from generating station based on renewable energy; and Any grant received from the Central or State Government or any statutory body or authority for the execution of the project which does not carry any liability of repayment.”

22. The Petitioner has claimed a capital cost of ₹20343.78 lakh for the transmission asset as on 31.3.2019. The Commission has allowed the capital cost of the transmission asset as on 31.3.2019 to ₹20276.01 lakh. Accordingly, the capital cost of ₹20276.01 lakh for the transmission asset has been considered as on 1.4.2019 for the determination of tariff in accordance with Regulation 19 of the 2019 Tariff Regulations.

Additional Capital Expenditure (“ACE”) & De-capitalization

23. Regulation 24 and Regulation 25 of the 2019 Tariff Regulations provide as follows:

“24. Additional Capitalization within the original scope and up to the cut-off date



(1) *The additional capital expenditure in respect of a new project or an existing project incurred or projected to be incurred, on the following counts within the original scope of work, after the date of commercial operation and up to the cut-off date may be admitted by the Commission, subject to prudence check:*

- (a) *Undischarged liabilities recognized to be payable at a future date;*
- (b) *Works deferred for execution;*
- (c) *Procurement of initial capital spares within the original scope of work, in accordance with the provisions of Regulation 23 of these regulations;*
- (d) *Liabilities to meet award of arbitration or for compliance of the directions or order of any statutory authority or order or decree of any court of law;*
- (e) *Change in law or compliance of any existing law; and*
- (f) *Force Majeure events:*

Provided that in case of any replacement of the assets, the additional capitalization shall be worked out after adjusting the gross fixed assets and cumulative depreciation of the assets replaced on account of de-capitalization.

(2) *The generating company or the transmission licensee, as the case may be shall submit the details of works asset wise/work wise included in the original scope of work along with estimates of expenditure, liabilities recognized to be payable at a future date and the works deferred for execution.”*

25. Additional Capitalization within the original scope and after the cut-off date:

(1) *The ACE incurred or projected to be incurred in respect of an existing project or a new project on the following counts within the original scope of work and after the cutoff date may be admitted by the Commission, subject to prudence check:*

- (a) *Liabilities to meet award of arbitration or for compliance of the directions or order of any statutory authority, or order or decree of any court of law;*
- (b) *Change in law or compliance of any existing law;*
- (c) *Deferred works relating to ash pond or ash handling system in the original scope of work;*
- (d) *Liability for works executed prior to the cut-off date;*
- (e) *Force Majeure events;*
- (f) *Liability for works admitted by the Commission after the cut-off date to the extent of discharge of such liabilities by actual payments; and*
- (g) *Raising of ash dyke as a part of ash disposal system*

(2) *In case of replacement of assets deployed under the original scope of the existing project after cut-off date, the additional capitalization may be admitted by the Commission, after making necessary adjustments in the gross fixed assets and the cumulative depreciation, subject to prudence check on the following grounds:*

- (a) *The useful life of the assets is not commensurate with the useful life of the project and such assets have been fully depreciated in accordance with the provisions of these regulations;*
- (b) *The replacement of the asset or equipment is necessary on account of change in law or Force Majeure conditions;*
- (c) *The replacement of such asset or equipment is necessary on account of obsolescence of technology; and*
- (d) *The replacement of such asset or equipment has otherwise been allowed by the Commission.”*



24. The Commission, in its order dated 20.5.2022 in Petition No. 733/TT/2020, observed as follows:

“55. We have considered the submissions of the Petitioner and BSPHCL. The details of ACE allowed/not allowed are given in the following paragraphs.

Replacement of sub-station equipment

.....

57. It is observed that the Petitioner has not submitted the item wise break-up and cost of the equipment proposed to be replaced. Due to non- submission of item wise details and cost the individual cost of the equipment proposed to be replaced, we are not in a position to analyse the ACE claimed in 2019-24 tariff period and therefore we are not allowing the proposed ACE at this stage. However, the Petitioner is granted liberty to file fresh petition for approval of ACE during 2019-24 period as sought in this petition with all the relevant details like abstract cost estimate of the proposed items.

Replacement of Reactors

58. The 50 MVAR line Reactor installed at Maithon substation and 50 MVAR Bus Reactor installed at Jamshedpur sub-station have also completed more than 25 years of useful life. The Petitioner has proposed replacement of 50 MVAR, 400 kV line reactor of 400 kV Maithon- Kahalgaon Line 1 at Maithon Sub-station, 50 MVAR, 400 kV line reactor of 400 kV Maithon- Mejia Line 1 at Maithon Sub-station and 50 MVAR, 400 kV Bus reactor-II at Jamshedpur Sub-station. The Commission is of the view that a detailed study need to be carried out about the requirement of Reactors (line Reactor/Bus Reactor) at these Substations in the changed scenario of increased Short circuit MVA levels and the same needs to be vetted by the CTU. Accordingly, the projected ACE towards replacement of 50 MVAR Reactors at Maithon and Jamshedpur sub-stations is not allowed at this stage. The Petitioner is directed to file fresh petition alongwith the report of the study duly vetted by CTU.

Building and Civil Works

59. It is observed that the petitioner has also projected ACE towards buildings and civil structures which are more than 30 years old. The Petitioner has proposed to demolish these structures which it has claimed as become dilapidated and unsafe and construct new buildings and structures during the 2019-24 tariff period. As directed by the Commission in various orders regarding replacements of buildings and civil structures, the Petitioner may discuss the proposal for construction of buildings and civil structures in the RPC and only thereafter approach the Commission with a fresh petition.”

25. The Petitioner, in the instant Petition, has projected a net ACE of ₹1666.55 lakh after adjustment of de-capitalization during the 2019-24 tariff period for the transmission asset under Regulation 25(2)(c) of the 2019 Tariff Regulations. The Petitioner has claimed the following ACE for the transmission asset during the 2019-24 tariff period:



(₹ in lakh)

Sl. No.	Work Description	UOM	Qty.	COD	ACE Values (as per the Auditor's Certificate)				
					2020-21	2021-22	2022-23	2023-24	Total ACE Values
Eastern Region-II (West Bengal)									
1	Replacement of reactor & line control and protection panel of 400 kV Maithon-Kahalgoan Line# 1 at Maithon Sub-station.								
a	50 MVAR, 400 kV Reactor, Insulating Oil for ICT, ODS, DGA & Fire Fighting	Set	1	1994	0.00	0.00	0.00	0.00	0.00
b	Reactor Protection Panel	Set	1	1994	0.00	0.00	12.04	0.00	12.04
	De-capitalization				0.00	0.00	3.27	0.00	3.27
c	CB Panel with A/R for line main bay	Set	1	1994	0.00	0.00	3.80	0.00	3.80
	De-capitalization				0.00	0.00	1.03	0.00	1.03
d	CB Panel without A/R for switchable reactor bay	Set	1	1994	0.00	0.00	3.57	0.00	3.57
	De-capitalization				0.00	0.00	0.97	0.00	0.97
e	Line Protection Panel	Set	1	1994	0.00	0.00	10.06	0.00	10.06
	De-capitalization				0.00	0.00	2.73	0.00	2.73
f	Control & Power Cable	Set	1	1994	0.00	0.00	26.40	0.00	26.40
	De-capitalization				0.00	0.00	7.18	0.00	7.18
2	Replacement of reactor & line control and protection panel of 400 kV Maithon-Meija Line# 1 at Maithon Sub-station.								
a	50 MVA 400 kV Reactor, Insulating Oil for ICT, ODS, DGA & Fire Fighting	Set	1	1993	0.00	0.00	0.00	0.00	0.00
b	Reactor Protection Panel	Set	1	1993	0.00	0.00	12.04	0.00	12.04
	De-capitalization				0.00	0.00	4.21	0.00	4.21
c	CB Panel with A/R for line main bay	Set	1	1993	0.00	0.00	3.80	0.00	3.80
	De-capitalization				0.00	0.00	1.33	0.00	1.33
d	CB Panel without A/R for switchable reactor bay	Set	1	1993	0.00	0.00	3.57	0.00	3.57
	De-capitalization				0.00	0.00	1.25	0.00	1.25
e	Line Protection Panel		1	1993	0.00	0.00	10.06	0.00	10.06
	De-capitalization				0.00	0.00	3.52	0.00	3.52
f	Control & Power Cable	Set	1	1993	0.00	0.00	24.40	2.00	26.40
	De-capitalization				0.00	0.00	9.23	0.00	9.23
3	Replacement of Old and Obsolete 400 kV BHEL Make CB at Maithon Sub-station								
a	420 kV, 2000 A, 50 kA CB without closing resistor but with support structure (3 Phase)	Set	7	1991/ 1993/ 1994	0.00	141.30	196.00	0.00	337.30



Sl. No.	Work Description	UOM	Qty.	COD	ACE Values (as per the Auditor's Certificate)				
					2020-21	2021-22	2022-23	2023-24	Total ACE Values
	De-capitalization				0.00	0.00	58.98	0.00	58.98
4	Replacement of Old and Obsolete 400 kV Isolators at Maithon Sub-station								
a	400 kV, 2000 Amp DB ISO with one E/S (3Ph)	Set	20	1991/1993/1994	0.00	0.00	335.75	0.00	335.75
	De-capitalization				0.00	0.00	0.00	12.90	12.90
	<i>Total estimated amount of KTPS Project in Eastern Region-II</i>				0.00	141.30	641.49	2.00	784.79
	De-capitalization						93.69	12.90	106.59
Odisha									
5	Rourkela Sub-station								
	Retrofitting of Electromagnetic Bus bar Relays in 400 kV System	LS	1	1993	0.00	0.00	76.03	8.45	84.48
	De-capitalization				0.00	0.00	0.00	3.49	3.49
	Renovation of Central AC Plant for Control Room	LS	1	1993	0.00	0.00	63.41	0.00	63.41
	De-capitalization				0.00	0.00	41.18	0.00	41.18
	Replacement of BHEL make 400 kV CBs installed in ICT-I Main Bay (424)	Nos.	1	1993	0.00	0.00	25.62	6.41	32.03
	De-capitalization				0.00	0.00	0.00	25.24	25.24
	Total Rourkela Sub-station				0.00	0.00	165.06	14.85	179.91
	De-capitalization				0.00	0.00	41.18	28.73	69.90
6	Building at Rourkela								
	Demolition of residential quarters	Nos.	44	1993	0.00	0.00	0.00	55.90	55.90
	De-capitalization				0.00	0.00	0.00	91.06	91.06
	Re-construction of Residential quarters	Nos.	25	1993	0.00	0.00	0.00	745.97	745.97
	De-capitalization				0.00	0.00	0.00	0.00	0.00
	Total Building				0.00	0.00	0.00	801.87	801.87
	De-capitalization				0.00	0.00	0.00	91.06	91.06
	<i>Total estimated amount of KTPS Project in Odisha</i>				0.00	0.00	165.06	816.73	981.79
					0.00	0.00	41.18	119.78	160.96
Eastern Region-I (Bihar)									
	400 kV CB at Jamshedpur & Biharsharif (2 each)	Nos.	4	1992-93	0.00	189.74	0.00	0.00	189.74
	De-capitalization				0.00	0.00	325.89	0.00	325.89



Sl. No.	Work Description	UOM	Qty.	COD	ACE Values (as per the Auditor's Certificate)				
					2020-21	2021-22	2022-23	2023-24	Total ACE Values
	400 kV Isolator at Jamshedpur & Biharsharif (19 & 5)	Nos.	24	1992-94	0.00	101.68	201.98	0.00	303.66
	De-capitalization				0.00	0.00	0.00	0.00	0.00
	<i>Total estimated amount of KTPS Project in Eastern Region-I</i>				0.00	291.42	201.98	0.00	493.40
	De-capitalization				0.00	0.00	325.89	0.00	325.89
	Total Kahalgaon Transmission Station ACE				0.00	432.72	1008.54	818.73	2259.99
	Total Kahalgaon Transmission Station De-capitalization				0.00	0.00	460.76	132.68	593.44

26. The Petitioner has submitted that ACE and de-capitalization to be incurred during the 2019-24 tariff period are on account of the expenditure towards the replacement of sub-station items such as CBs, isolators, air conditioning systems, fire-fighting systems, and various types of old/ obsolete electromechanical relay, etc.

The details of the same are as follows:

(a) Replacement of 400 kV "ABB" and "BHEL" make CBs at Maithon, Rourkela, Jamshedpur, and Biharsharif Sub-stations:

The circuit breakers supplied under the KSTTPS system are of ABB (pneumatic type) and BHEL (Hydraulic type) make. CBs are giving frequent maintenance problems such as pneumatic drive/ magnetic ventil failures, air leakages from the various parts of the mechanisms, and SF6 gas leakages, etc., leading to prolonged outages causing unstable grid operation. Mismatch in timing results and violations of DCRM signature were also observed in certain cases. This could lead to the failure of CBs in service. Frequent adjustment of auxiliary contact was also required due to the ageing of mechanisms. Further, manufacturers also stopped manufacturing the said model of CBs. The spares and service support from the OEM have been very poor for quite some time,



Besides, the cost of spares was exorbitantly high.. OEM also its stopped service support. ABB and BHEL already intimated that these CBs are obsolete and cannot be supplied. In view of the above, the Petitioner proposed to replace 4 sets of ABB make and 8 sets of BHEL make CBs at Maithon (7 numbers), Rourkela (1 number), Jamshedpur (2 numbers) and Biharshariff (2 numbers) Sub-stations respectively.

(b) Replacement of 400 kV “Minel”, “S&S” and “Hivelm” make Isolators at Maithon, Jamshedpur, and Biharshariff Sub-station:

The proposed Isolators are of Minel, S&S, and Hivelm make and have completed 25 years of useful life. These isolators are mainly of Horizontal Centre Break (HCB) type, and frequent problems of misalignment are being faced. Current transfer assembly on isolator top and other major spares are now no longer available in most cases due to the old/ obsolete design of isolators thus creating problems in maintaining these old isolators. Due to improper health of isolators, especially interlock mechanisms, drive mechanisms, etc., the isolators are unable to maintain a stable condition sometimes during storms and high wind conditions and get opened in on load condition, which is dangerous for the system as well as to the operating personnel. Due to rusting, many MOM boxes were damaged, leading to problems in the components of MOM boxes and motorised operation of isolators is not possible. This led to a problem of improper indication, control, interlock, and remote operation of isolators, which is not safe. Due to ageing, the TBs inside the MOM boxes have become brittle, and many a time terminals come in contact with boxes and create DC earth fault, which is detrimental to the control and protection system. Due to age and wear-tear, many times, even local operations also become difficult. Further, timely support is not available from OEM due to the old design. Existing spares have

already been exhausted. Failure of any component may lead to improper and unreliable operation of isolator/ earth switches and risk to the system and safety of O&M staff. The letter/ communication of OEM (S&S, Raychem, the then “Hivelm”) received for non-availability of service support. Isolators of Minel make are imported, and manufacturing of isolators has been stopped by the OEM. In view of the same, the Petitioner has proposed to replace 44 sets of Isolators at Maithon (20 Numbers), Jamshedpur (19 Numbers), and Biharshariff (5 Numbers) Sub-stations, respectively.

(c) Replacement of old and obsolete static /electro-mechanical type protection relay panel at Maithon and relays Rourkela

The differential, REF/ direction over-current cum earth fault/ bus bar relay /auto reclosure/ master trip relays installed are more than 25 years old and of static/ electro-mechanical type. Due to ageing, the contacts of these relays have become sluggish and may cause problems in the equipment/ system.

Hence, in case of any failures, the relays are to be kept out of service to avoid mal-operation, and the only option available is replacement. Further, these relays possess the following drawbacks:

- Lack of self-diagnostic features
- No disturbance recording/ event logging features.
- Not possible for remote monitoring /remote accessing.
- Lack of time synchronization facility.

Hence, a detailed trip analysis is not possible in case of tripping. The cable, wiring, and terminal blocks (TB) inside both control and protection panels have become brittle leading to Direct Current (DC) leakages and other circuit failures. TBs of suitable sizes are also not available in the market for replacement and it is not feasible to replace the TBs and wiring inside these old and damaged panels.

In view of the above, the old and obsolete static /electro-mechanical type protection relays are proposed to be replaced with numerical type relays that support the IEC61850 communication protocol, along with panels at Maithon and old relays at Rourkela.

(d) Replacement of Control and Power cable at Maithon

The control cable proposed for replacement at Maithon is more than 25 years old. Due to climatic conditions, a large number of cables in the cable trenches have been damaged over a period of time. In many places, the outer sheath /armour of the cables gets damaged. Since an unhealthy cable, in addition to being a source of DC earth fault, can also lead to mal-operation/ spurious signaling, etc., which is not desirable in a healthy power system. Cable is also required during retrofitting of isolators and CT to be carried out under ACE for the 2019-24 tariff period. Therefore, the Petitioner has proposed to replace the inter-pole power and control cable for retrofitting equipment and damaged cables in cable trenches at Maithon.

(e) Replacement of Air Conditioning system at Rourkela Sub-station

The existing centralized air conditioning system is of Voltas make and water-cooled type. It has stopped functioning due to a problem with the reciprocating type old model compressor system and water-cooling system. The issue of scaling in cooling pipes is frequently observed, leading to ineffective cooling. Due to the ageing and problems in multiple sub-systems like air handling unit, condenser water pumps, cooling towers, etc., the breakdown time of air conditioning systems has gone up. The air conditioning system is important for maintaining the healthiness of the control and protection system of the station, and accordingly, it is proposed to replace the existing centralized air conditioning system at Rourkela.

Further, the buildings and other civil structures like overhead tanks, etc., which have been constructed in the sub-stations have completed a useful life of 30 years in accordance with Schedule –II, Company Act, 2013 Part-C (1b). These buildings and civil structures were constructed in 1987-88 and are now in service for more than 30 years, and they do not comply with the earthquake resistant provisions of the latest IS codes. It is mandatory for all Government-owned buildings and structures to be Seismic Resistant (Clause 3.2.6.1 of the National Disaster Management Authority). Some of these buildings and civil structures are in dilapidated and unsafe conditions and need urgent re-construction to avoid any damage/ threat to man or property. However, the healthiness of these civil structures shall be checked before demolishing them. Accordingly, the Petitioner has proposed to demolish these dilapidated and unsafe buildings and structures and construct new buildings and structures in their place during the 2019-24 tariff period. Thus, the de-capitalization/ACE proposed under the head of building and civil structures corresponds to the demolition of such old buildings and the construction of new buildings and civil structures. The test reports with respect to the healthiness of buildings and civil structures will be submitted shortly.

27. The Petitioner has also submitted the following documents, which recommend seismic retrofitting, demolishing, and re-construction:

- a) Note on Appendix I, page 135 of the 2019 Tariff Regulations
- b) Schedule –II, Company Act, 2013 Part-C-I (b)
- c) Clause 3.2.6.1 and Table 5 of National Disaster Management Guideline for Seismic Retrofitting of Deficient Buildings and Structures
- d) Clause 13.1.4 of National Building Code 2016 Volume-II Part 7
- e) Clause 13.1.5.1 of National Building Code 2016 Volume-II Part 7
- f) Clause 7.4 of National Building Code 2016 Volume I Part 0
- g) Clause 1.2.2 and 1.2.4 of National Disaster Management Guidelines for



Seismic Retrofitting of Deficient Buildings and Structures.

- h) Clause 4.5.1, 4.5.2, A 7.1 of IS 13935:2009: Seismic Evaluation, Repair and Strengthening of Masonry buildings

28. The Commission, in its order dated 20.5.2022 in Petition No. 733/TT/2020, observed as follows:

“59. It is observed that the petitioner has also projected ACE towards buildings and civil structures which are more than 30 years old. The Petitioner has proposed to demolish these structures which it has claimed as become dilapidated and unsafe and construct new buildings and structures during the 2019-24 tariff period. As directed by the Commission in various orders regarding replacements of buildings and civil structures, the Petitioner may discuss the proposal for construction of buildings and civil structures in the RPC and only thereafter approach the Commission with a fresh petition.”

29. The Petitioner has submitted that in view of the above, it has approached the Regional Power Committees (RPC) and later filed Petition No. 276/MP/2022 along with the minutes of meeting of RPC for the grant of in-principle approval for incurring the ACE during the 2019-24 tariff period towards the re-construction of residential/ non-residential buildings under Regulation 25(2)(a) of the 2019 Tariff Regulations.

30. The Petitioner, vide its affidavit dated 25.1.2024, has furnished the item-wise break-up of the equipment intended to be replaced.

31. We have considered the submissions of the Petitioner and have gone through the documents available on record. The details of ACE allowed/ disallowed have been discussed in the subsequent paragraphs.

(a) Replacement of Sub-station equipment

- (i) The Petitioner has submitted that the sub-station has already completed more than 25 years of useful life, and the majority of the sub-station equipment needs to be replaced. The proposed ACE is towards the replacement of CBs at Rourkela, Jamshedpur, and Biharshariff Sub-stations, isolators at Maithon, Jamshedpur, and Biharshariff Sub-stations, old/ obsolete electro-mechanical

relay at Maithon and Rourkela Sub-stations, control and power cables at Maithon Sub-station. The details of the types of equipments proposed to be replaced during the 2019-24 tariff period are as follows:

Equipment	Total population (As per original scope)	Replaced under ACE prior to 2014-19 tariff period	Proposed for replacement under ACE for the 2019-24 tariff period
Circuit Breaker	28	5	12
Isolators	76	0	44
Bus bar protection panels	Installed at Maithon and Rourkela	0	1

(ii) The proposed ACE claimed by the Petitioner for the periods 2020-21, 2021-22, and 2023-24 are towards the replacement of isolators, CBs, and bus bar protection panels due to the obsolescence of technology. These items are of critical nature, and their failure may affect the stability and reliability of the grid. Keeping in view the justifications given by the Petitioner on the affidavit, the replacement of these equipments and consequential ACE is approved under Regulation 25(2)(c) of the 2019 Tariff Regulations, subject to true-up on an actual basis.

(b) Replacement of Reactors

(i) The Commission, vide order dated 20.5.2022 in Petition No. 733/TT/2020 directed the Petitioner to file a fresh petition along with the report duly vetted by CTUIL. It is observed that CTUIL, in its '8th Consultation Meeting for Evolving Transmission Scheme in Eastern Region (CMETS-ER)' dated 30.6.2022, has agreed the following:

SI No.	Reactors	Feeder	Discussion during 8 th CMETS-ER
1	50 MVAR LR	400 kV Kahalgaon-I at Maithon	Installation of 63 MVAR in place of 50 MVAR LR will be taken up under ERSS-XXXI. 50 MVAR LR to be de-commissioned after replacement work.
2	50 MVAR LR	400 kV Mejia-I at Maithon	To be operated as long as it is serviceable, and thereafter it may be de-commissioned.



3	50 MVAR BR	400 kV Bus Reactor-II at Jamshedpur	Need to be de-commissioned.
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(ii) It is observed that as per the above CMETS-ER meeting dated 30.6.2022, ACE proposed with regard to the replacement of the reactor, line control, and protection panel of the 400 kV Maithon-Kahalgaon-I at Maithon Sub-station and replacement of reactor, line control and protection panel of 400 kV Maithon-Mejia-I at Maithon Sub-station was to be taken up under ERES-XXXI (Eastern Region Expansion Scheme -XXXI). Accordingly, the same is not allowed in the instant petition.

(c) Building and Civil Works

It is observed that the Petitioner has also projected ACE towards buildings and civil structures that are more than 30 years old. The Petitioner has proposed to demolish these structures as these buildings and civil structures have become dilapidated and unsafe. The Petitioner intends to construct new buildings and structures during the 2019-24 tariff period in place of old ones. The Petitioner has submitted that it has approached RPCs and has also filed Petition No. 276/MP/2022 for the grant of in-principle approval for incurring ACE during the 2019-24 tariff period towards re-construction of the residential/non-residential buildings under Regulation 25(2)(a) of the 2019 Tariff Regulations. It is observed that the Petitioner has claimed ₹735 lakh as estimated expenditure towards demolition and re-construction of the building in Rourkela. The Commission vide its order dated 28.4.2023 in Petition No. 276/MP/2022 has granted in-principle approval to the Petitioner for incurring ACE during the 2019-24 tariff period under Regulation 25(2)(a) of the 2019 Tariff Regulations for re-construction of residential/non-residential buildings.

32. It is observed that the Petitioner has claimed ₹802 lakhs as ACE towards the construction of new buildings and civil structures and has claimed ₹91 lakhs towards de-capitalization for the de-construction of old buildings in Rourkela. As net ACE is lower than the in-principle approval granted by the Commission in its order dated 28.4.2023 in Petition No. 276/MP/2022, the ACE is allowed towards the reconstruction of the building in Rourkela. The Petitioner is directed to approach the Commission with third-party inspection reports at the time of truing up along with actual ACE and the same shall be considered upon prudence check.

33. Accordingly, the net ACE allowed in respect of the transmission asset for the 2019-24 tariff period is as follows:

(₹ in lakh)					
Particulars	2019-20	2020-21	2021-22	2022-23	2023-24
ACE	-	-	432.72	898.79	816.73
De-capitalization	-	-	-	426.05	132.69
Net ACE	-	-	432.72	472.74	684.04

34. Hence, capital cost of the transmission asset as on 31.3.2024 is approved as follows:

Capital cost as on 1.4.2019	Approved Net ACE					Capital cost as on 31.3.2024
	2019-20	2020-21	2021-22	2022-23	2023-24	
20276.01	0.00	0.00	432.72	472.74	684.04	21865.51

Debt-Equity Ratio

35. Regulation 18 of the 2019 Tariff Regulations provides as follows:

“18. Debt-Equity Ratio: (1) For new projects, the debt: equity ratio of 70:30 as on date of commercial operation shall be considered. If the equity actually deployed is more than 30% of the capital cost, equity in excess of 30% shall be treated as normative loan:

Provided that:

- i. where equity actually deployed is less than 30% of the capital cost, actual equity shall be considered for determination of tariff:
- ii. the equity invested in foreign currency shall be designated in Indian rupees on the date of each investment:



- iii. any grant obtained for the execution of the project shall not be considered as a part of capital structure for the purpose of debt: equity ratio.

Explanation-The premium, if any, raised by the generating company or the transmission licensee, as the case may be, while issuing share capital and investment of internal resources created out of its free reserve, for the funding of the project, shall be reckoned as paid up capital for the purpose of computing return on equity, only if such premium amount and internal resources are actually utilised for meeting the capital expenditure of the generating station or the transmission system.

(2) The generating company or the transmission licensee, as the case may be, shall submit the resolution of the Board of the company or approval of the competent authority in other cases regarding infusion of funds from internal resources in support of the utilization made or proposed to be made to meet the capital expenditure of the generating station or the transmission system including communication system, as the case may be.

(3) In case of the generating station and the transmission system including communication system declared under commercial operation prior to 1.4.2019, debt: equity ratio allowed by the Commission for determination of tariff for the period ending 31.3.2019 shall be considered:

Provided that in case of a generating station or a transmission system including communication system which has completed its useful life as on or after 1.4.2019, if the equity actually deployed as on 1.4.2019 is more than 30% of the capital cost, equity in excess of 30% shall not be taken into account for tariff computation;

Provided further that in case of projects owned by Damodar Valley Corporation, the debt: equity ratio shall be governed as per sub-clause (ii) of clause (2) of Regulation 72 of these regulations.

(4) In case of the generating station and the transmission system including communication system declared under commercial operation prior to 1.4.2019, but where debt: equity ratio has not been determined by the Commission for determination of tariff for the period ending 31.3.2019, the Commission shall approve the debt: equity ratio in accordance with clause (1) of this Regulation.

(5) Any expenditure incurred or projected to be incurred on or after 1.4.2019 as may be admitted by the Commission as additional capital expenditure for determination of tariff, and renovation and modernisation expenditure for life extension shall be serviced in the manner specified in clause (1) of this Regulation.

(6) Any expenditure incurred for the emission control system during the tariff period as may be admitted by the Commission as additional capital expenditure for determination of supplementary tariff, shall be serviced in the manner specified in clause (1) of this Regulation.

36. The debt-equity ratio for the 2019-24 period is allowed as per Regulation 18(3) of the 2019 Tariff Regulations. The details of the debt-equity ratio considered for the purpose of the tariff of the transmission asset for the 2019-24 tariff period are as

follows:

Particulars	Capital cost as on 1.4.2019 (₹ in lakh)	(in %)	ACE during 2019-24 (₹ in lakh)	(in %)	De-capitalizati on 2019-24 (₹ in lakh)	(in %)	Capital cost as on 31.3.2024 (₹ in lakh)	(in%)
Debt	10369.67	51.14	1503.77	70.00	279.37	50.00	11594.07	53.02
Equity	9906.34	48.86	644.47	30.00	279.37	50.00	10271.44	46.98
Total	20276.01	100.00	2148.24	100.00	558.74	100.00	21865.51	100.00

Depreciation

37. Regulation 33 of the 2019 Tariff Regulations provides as follows:

"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 asset 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 asset 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 asset 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 asset.

(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 up to 31.3.2019 from the gross depreciable value of the asset.

(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 asset in respect of generating station or unit thereof or transmission system or element thereof, the cumulative depreciation shall be adjusted by taking into account the depreciation recovered in tariff by the de-capitalized asset during its useful services.

(9) Where the emission control system is implemented within the original scope of the generating station and the date of commercial operation of the generating station or unit thereof and the date of operation of the emission control system are the same, depreciation of the generating station or unit thereof including the emission control system shall be computed in accordance with Clauses (1) to (8) of this Regulation.

(10) Depreciation of the emission control system of an existing or a new generating station or unit thereof where the date of operation of the emission control system is subsequent to the date of commercial operation of the generating station or unit thereof, shall be computed annually from the date of operation of such emission control system based on straight line method, with salvage value of 10%, over a period of-

a) twenty five years, in case the generating station or unit thereof is in operation for fifteen years or less as on the date of operation of the emission control system; or

b) balance useful life of the generating station or unit thereof plus fifteen years, in case the generating station or unit thereof is in operation for more than fifteen years as on the date of operation of the emission control system; or

c) ten years or a period mutually agreed by the generating company and the beneficiaries, whichever is higher, in case the generating station or unit thereof has completed its useful life.”



38. The depreciation has been worked out considering the admitted capital cost as on 1.4.2019 and accumulated depreciation up to 31.3.2019. As the transmission project has already completed 12 years of useful life, depreciation has been calculated based on the remaining depreciable value to be recovered over the balance of useful life.

39. The Petitioner has de-capitalized ₹426.05 lakhs and ₹132.69 lakh during the financial years 2022-23 and 2023-24 respectively. However, the Petitioner has not submitted the amount of depreciation recovered against the decapitalized asset. Further, it is observed that the assets de-capitalized by the Petitioner in the instant Petition have already completed their useful life of 25 years as mentioned above in this order. Accordingly, the allowable depreciation of 90% of the de-capitalized value has been adjusted in the cumulative depreciation during the financial years 2022-23 and 2023-24 amounting to ₹383.45 lakh and ₹119.42 lakh respectively.

40. As discussed above, the Petitioner has proposed Asset Capital Expenditure (ACE) for the replacement of sub-station equipment and for building and civil works at the end of the asset's life without mentioning life extension. Hence, depreciation corresponding to this ACE (considered as new additions due to the end of asset life) claimed for 2021-22 onwards is allowed at the normative rate of depreciation as specified in the 2019 Tariff Regulations. The depreciation allowed for the transmission asset for the 2019-24 tariff period is as follows::

(₹ in lakh)						
	Existing Assets	2019-20	2020-21	2021-22	2022-23	2023-24
A	Opening Gross Block	20276.01	20276.01	20276.01	20708.73	21181.47
B	Addition during the year 2019-24 due to projected ACE	0.00	0.00	0.00	0.00	0.00
C	De-capitalization during the year	0.00	0.00	0.00	426.05	132.69
D	Closing Gross Block (A+B-C)	20276.01	20276.01	20276.01	19849.96	19717.27
E	Average Gross Block [(A+C)/2]	20276.01	20276.01	20276.01	20062.99	19783.62



	Existing Assets	2019-20	2020-21	2021-22	2022-23	2023-24
F	Average Gross Block (90% depreciable assets)[Excluding Freehold land]	20026.99	20026.99	20026.99	19813.97	19534.60
G	Average Gross Block (100% depreciable assets)	0.00	0.00	0.00	0.00	0.00
H	Depreciable value (excluding IT equipment and software) (E*90%)	18024.29	18024.29	18024.29	17832.57	17581.14
I	Depreciable value of IT equipment and software	0.00	0.00	0.00	0.00	0.00
J	Total Depreciable Value (H+I)	18024.29	18024.29	18024.29	17832.57	17581.14
K	Rate of Depreciation (in %)	1.924	1.924	1.924	1.705	1.952
L	Lapsed useful life at the beginning of the year (Year)	25	26	27	28	29
M	Balance useful life at the beginning of the year (Year)	7	6	5	4	3
N	Depreciation during the year(E*K)	390.04	390.04	390.04	342.11	386.12
O	Cumulative Depreciation towards De-capitalized Assets	-	-	-	383.45	119.42
P	Aggregate Cumulative Depreciation at the end of the year	15684.04	16074.08	16464.12	16422.79	16689.48
Q	Remaining Aggregate Depreciable Value at the end of the year(J-P)	2340.25	1950.21	1560.17	1409.78	891.65

(₹ in lakh)						
	New Additions	2019-20	2020-21	2021-22	2022-23	2023-24
A	Opening Gross Block	0.00	0.00	0.00	432.72	1331.51
B	Addition during the year 2019-24 due to projected ACE	0.00	0.00	432.72	898.79	816.73
C	Closing Gross Block (A+B)	0.00	0.00	432.72	1331.51	2148.24
D	Average Gross Block [(A+C)/2]	0.00	0.00	216.36	882.12	1739.88
E	Weightage Average Rate of Depreciation (WAROD) (in %)	0.00	0.00	5.28%	5.28%	4.83%
F	Depreciable Value (D*90%)	0.00	0.00	194.72	793.90	1565.89
G	Cumulative Depreciation at the beginning of the year	0.00	0.00	0.00	11.42	46.58



	New Additions	2019-20	2020-21	2021-22	2022-23	2023-24
H	Depreciation during the year	0.00	0.00	11.42	46.58	84.09
I	Cumulative Depreciation at the end of the year	0.00	0.00	11.42	58.00	142.09
J	Remaining depreciable value at the end of the year(F-I)	0.00	0.00	183.30	735.90	1423.80

Interest on Loan (“IoL”)

41. Regulation 32 of the 2019 Tariff Regulations provides as follows:

“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 asset, the repayment shall be adjusted by taking into account cumulative repayment on a pro rata basis and the adjustment should not exceed cumulative depreciation recovered up to the date of de-capitalization 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.

(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.

(5a) The rate of interest on loan for installation of emission control system shall be the weighted average rate of interest of actual loan portfolio of the emission control system or in the absence of actual loan portfolio, the weighted average rate of interest of the generating company 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”.

42. The Petitioner has claimed IoL of ₹1.72 lakh each for the financial years 2022-23 and 2023-24. It has been observed that the opening loan(net) as on 1.4.2019 is ‘NIL’ and therefore IoL on existing assets is considered as ‘NIL’. However, the interest claimed on ACE has been considered in next paragraph.

43. The Petitioner has claimed ACE for replacing sub-station equipment and for building and civil works during 2021-24. The Commission has considered a normative loan at 70% of the allowed ACE for the new additions. The weighted average rate of interest has been based on the rate as of April 1, 2021, submitted in form 9C. The Petitioner has requested that any change in the floating interest rate during the 2019-24 tariff period be adjusted. Therefore, the any change in floating interest rate, will be considered at the time of true-up. The interest on loan (IoL) has been allowed according to Regulation 32 of the 2019 Tariff Regulations for the transmission assets, as follows:

	(₹ in lakh)				
New Additions	2019-20	2020-21	2021-22	2022-23	2023-24
Gross Normative Loan	0.00	0.00	0.00	302.90	932.06
Cumulative Repayments up to Previous Years	0.00	0.00	0.00	11.42	58.00
Net Loan-Opening	0.00	0.00	0.00	291.48	874.06
Additions due to ACE	0.00	0.00	302.90	629.15	571.71
Repayment during the year	0.00	0.00	11.42	46.58	84.09
Net Loan-Closing	0.00	0.00	291.48	874.06	1361.68



Average Loan	0.00	0.00	145.74	582.77	1117.87
Weighted Average Rate of Interest on Loan (%)	0.00	0.00	7.631	7.278	7.278
Interest on Loan	0.00	0.00	11.12	42.41	81.35

Return on Equity (“RoE”)

44. Regulations 30 and 31 of the 2019 Tariff Regulations provides as follows:

“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 on account of emission control system, shall be computed at the weighted average rate of interest on actual loan portfolio of the generating station or the transmission system transmission system, the weighted average rate of interest of the generating company or the transmission licensee, as the case may be, as a whole shall be considered, subject to ceiling of 14%;

Provided further that:

i. In case of a new project, the rate of return on equity shall be reduced by 1.00% for such period as may be decided by the Commission, if the generating station or transmission system is found to be declared under commercial operation without commissioning of any of the 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.

(3) The return on equity in respect of additional capitalization on account of emission control system shall be computed at the base rate of one-year marginal cost of



lending rate (MCLR) of the State Bank of India as on 1st April of the year in which the date of operation (COD) occurs plus 350 basis point, subject to ceiling of 14%;

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 follows:

$$\text{Rate of pre-tax return on equity} = \text{Base rate} / (1-t)$$

Where “t” is the effective tax rate in accordance with clause (1) 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
:

$$\text{Rate of return on equity} = 15.50 / (1-0.2155) = 19.758\%$$

(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.”

45. The Petitioner has submitted that MAT rate is applicable to it. We have considered the submissions of the Petitioner. Accordingly, the MAT rate applicable in the 2019-24 tariff period has been considered for the purpose of RoE which shall be trued up in accordance with Regulation 31(3) of the 2019 Tariff Regulations. Further, the Petitioner has de-capitalized the assets amounting to ₹426.05 lakhs and ₹132.09 lakhs during the financial years 2022-23 and 2023-24, respectively. The Commission, while approving the tariff for the period 2001-04 for the 400 kV Kahalgaon Transmission System in the Eastern Region, vide order dated 17.2.2004 in Petition No. 25/2002 had approved the debt-equity ratio as 50:50. Accordingly, a reduction in equity amounting to ₹213.03 lakh and ₹66.35 during the financial years 2022-23 and 2023-24 respectively, being 50% of the de-capitalized amount has been carried out. The RoE allowed in respect of the transmission asset in terms of Regulation 30 of the 2019 Tariff Regulations is as follows:

Particulars	(₹ in lakh)				
	2019-20	2020-21	2021-22	2022-23	2023-24
Opening Equity	9906.34	9906.34	9906.34	10036.16	10092.77
Addition due to ACE	0.00	0.00	129.82	269.64	245.02
Decrease due to De-capitalisation	0.00	0.00	0.00	213.03	66.35
Closing Equity	9906.34	9906.34	10036.16	10092.77	10271.44
Average Equity	9906.34	9906.34	9971.25	10064.46	10182.11
Return on Equity (Base Rate) (in %)	15.500	15.500	15.500	15.500	15.500
MAT Rate for respective year (in %)	17.472	17.472	17.472	17.472	17.472
Rate of Return on Equity (%)	18.782	18.782	18.782	18.782	18.782
Return on Equity	1860.61	1860.61	1872.80	1890.31	1912.40

Operation & Maintenance Expenses (“O&M Expenses”)

46. The O&M Expenses claimed by the Petitioner for the transmission asset for the 2019-24 tariff period are as follows:

(₹ in lakh)

Combined Asset					
Transmission lines					
Sr. No.	Name of Line	Single Circuit (S/C)/ Double Circuit (D/C)	Number of Sub- conductors	Line length (km)	
1	400 kV Kahalgaon-Maithon (Twin Conductor) D/C Transmission Line	D/C	2	172	
2	400 kV Maithon – Jamshedpur (Twin Conductor) D/C Transmission Line	D/C	2	153	
3	400 kV Jamshedpur- Rourkela (Twin Conductor) S/C Transmission Line	S/C	2	174	
Sr. No.	400 kV Sub-station bay				
1	Maithon:Maithon-Kahalgaon-I				
2	Maithon:Maithon-Kahalgaon-II				
3	Maithon: Bus Reactor				
4	Maithon:Maithon-Jamshedpur-I				
5	Maithon: ICT I				
6	Maithon: ICT II				
7	Rourkela:ICT-II				
8	Jamshedpur: Bus Reactor-II				
9	Jamshedpur: ICT I				
10	Jamshedpur: Jamshedpur-Maithon				
11	Jamshedpur: Jamshedpur-Maithon				
12	Rourkela: Rourkela- Jamshedpur				
13	Jamshedpur: Jamshedpur- Rourkela				
14	Biharsharif:ICT-II				
15	Rourkela:ICT-I				
Sr. No.	400 kV ICT				
1	6X315 MVA 400 kV Sub-station ICT				
O&M Expenses					
	2019-20	2020-21	2021-22	2022-23	2023-24
Sub-station					
400 kV					
Number of bays	15	15	15	15	15
Transmission lines					
S/C Twin/Triple Conductor (km)	0.50	0.52	0.54	0.56	0.58
D/C Twin/Triple Conductor (km)	0.88	0.91	0.94	0.98	1.01
Transformer					
400 kV	0.36	0.37	0.38	0.40	0.41
Total O&M Expenses (₹ in lakh)	1532.72	1587.44	1643.10	1701.74	1759.59



47. Regulation 35(3)(a) of the 2019 Tariff Regulations specifies the norms for O&M

Expenses for the transmission system and the same is as follows:

“(3) Transmission system: (a) The following normative operation and maintenance expenses shall be admissible for the transmission system:

Particulars	2019-20	2020-21	2021-22	2022-23	2023-24
Norms for sub-station Bays (₹ Lakh per bay)					
765 kV	45.01	46.60	48.23	49.93	51.68
400 kV	32.15	33.28	34.45	35.66	36.91
220 kV	22.51	23.30	24.12	24.96	25.84
132 kV and below	16.08	16.64	17.23	17.83	18.46
Norms for Transformers (₹ Lakh per MVA)					
765 kV	0.491	0.508	0.526	0.545	0.564
400 kV	0.358	0.371	0.384	0.398	0.411
220 kV	0.245	0.254	0.263	0.272	0.282
132 kV and below	0.245	0.254	0.263	0.272	0.282
Norms for AC and HVDC lines (₹ lakh per km)					
Single Circuit (Bundled Conductor with six or more sub-conductors)	0.881	0.912	0.944	0.977	1.011
Single Circuit (Bundled conductor with four sub-conductors)	0.755	0.781	0.809	0.837	0.867
Single Circuit (Twin & Triple Conductor)	0.503	0.521	0.539	0.558	0.578
Single Circuit (Single Conductor)	0.252	0.260	0.270	0.279	0.289
Double Circuit (Bundled conductor with four or more sub-	1.322	1.368	1.416	1.466	1.517
Double Circuit (Twin & Triple Conductor)	0.881	0.912	0.944	0.977	1.011
Double Circuit (Single Conductor)	0.377	0.391	0.404	0.419	0.433
Multi Circuit (Bundled Conductor with four or more sub-conductor)	2.319	2.401	2.485	2.572	2.662
Multi Circuit (Twin & Triple Conductor)	1.544	1.598	1.654	1.713	1.773
Norms for HVDC stations					
HVDC Back-to-Back stations (Rs Lakh per 500 MW) (Except Gazuwaka BTB)	834	864	894	925	958
Gazuwaka HVDC Back-to-Back station (₹ Lakh per 500 MW)	1,666	1,725	1,785	1,848	1,913
500 kV Rihand-Dadri HVDC bipole scheme (Rs Lakh) (1500 MW)	2,252	2,331	2,413	2,498	2,586
±500 kV Talcher- Kolar HVDC bipole scheme (Rs Lakh) (2000 MW)	2,468	2,555	2,645	2,738	2,834
±500 kV Bhiwadi-Balia HVDC bipole scheme (Rs Lakh) (2500 MW)	1,696	1,756	1,817	1,881	1,947

± 800 kV, Bishwanath-Agra HVDC bipole scheme (Rs Lakh) (3000 MW)	2,563	2,653	2,746	2,842	2,942
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Provided that the O&M expenses for the GIS bays shall be allowed as worked out by multiplying 0.70 of the O&M expenses of the normative O&M expenses for bays;

Provided further that:

- i. the operation and maintenance expenses for new HVDC bi-pole schemes commissioned after 1.4.2019 for a particular year shall be allowed pro-rata on the basis of normative rate of operation and maintenance expenses of similar HVDC bi-pole scheme for the corresponding year of the tariff period;*
- ii. the O&M expenses norms for HVDC bi-pole line shall be considered as Double Circuit quad AC line;*
- iii. the O&M expenses of ± 500 kV Mundra-Mohindergarh HVDC bipole scheme (2000 MW) shall be allowed as worked out by multiplying 0.80 of the normative O&M expenses for ± 500 kV Talchar-Kolar HVDC bi-pole scheme (2000 MW);*
- iv. the O&M expenses of ± 800 kV Champa-Kurukshetra HVDC bi-pole scheme (3000 MW) shall be on the basis of the normative O&M expenses for ± 800 kV, Bishwanath-Agra HVDC bi-pole scheme;*
- v. the O&M expenses of ± 800 kV, Alipurduar-Agra HVDC bi-pole scheme (3000 MW) shall be allowed as worked out by multiplying 0.80 of the normative O&M expenses for ± 800 kV, Bishwanath-Agra HVDC bi-pole scheme; and*
- vi. the O&M expenses of Static Synchronous Compensator and Static Var Compensator shall be worked at 1.5% of original project cost as on commercial operation which shall be escalated at the rate of 3.51% to work out the O&M expenses during the tariff period. The O&M expenses of Static Synchronous Compensator and Static Var Compensator, if required, may be reviewed after three years.*

(b) The total allowable operation and maintenance expenses for the transmission system shall be calculated by multiplying the number of sub-station bays, transformer capacity of the transformer (in MVA) and km of line length with the applicable norms for the operation and maintenance expenses per bay, per MVA and per km respectively.

(c) The Security Expenses and Capital Spares for transmission system shall be allowed separately after prudence check:

Provided that the transmission licensee shall submit the assessment of the security requirement and estimated security expenses, the details of year-wise actual capital spares consumed at the time of truing up with appropriate justification."

48. We have considered the submissions of the Petitioner. The O&M Expenses approved in respect of the transmission asset for the 2019- 24 tariff period are as follows:



Particulars	(₹ in lakh)				
	2019-20	2020-21	2021-22	2022-23	2023-24
15 Numbers 400 kV Sub-station bays	482.25	499.20	516.75	534.90	553.65
(6x315 MVA) 1890 MVA of 400 kV Transformer	676.62	701.19	725.76	752.22	776.79
174 km S/C Single Conductor	87.52	90.65	93.79	97.09	100.57
325 km D/C Twin/Triple Conductor	286.33	296.40	306.80	317.53	328.58
Total	1532.72	1587.44	1643.10	1701.74	1759.59

Interest on Working Capital (“IWC”)

49. Regulations 34(1)(c), 34(3), 34(4) and 3(7) of the 2019 Tariff Regulations provide as follows:

“34. Interest on Working Capital

(1)...

(c) For Hydro Generating Station (including Pumped Storage Hydro Generating Station) and Transmission System:

- i. Receivables equivalent to 45 days of fixed cost;
- ii. Maintenance spares @ 15% of operation and maintenance expenses including security expenses; and
- iii. Operation and maintenance expenses, including security expenses for one month”

“(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.”

“3. Definitions ...

(7) ‘Bank Rate’ means the one-year marginal cost of lending rate (MCLR) of the State Bank of India issued from time to time plus 350 basis points;”

50. According to the Petitioner, it has computed IWC for the 2019-24 tariff period considering the SBI Base Rate plus 350 basis points as on 1.4.2019. It is noted that the Petitioner has considered the rate of interest on working capital as 12.05% and IWC has been worked out in accordance with Regulation 34 of the 2019 Tariff Regulations. Rate of Interest (RoI) on working capital considered by the Petitioner is 12.05% (SBI 1-year MCLR applicable as on 1.4.2019 of 8.55% plus 350 basis points) for the year 2019-20, 11.25% (SBI 1 year MCLR applicable as on 1.4.2020 of 7.75% plus 350 basis points) for the year 2020-21, 10.50% (SBI 1-year MCLR applicable as on 1.4.2021 of 7.00% plus 350 basis points) for the year 2021-22, 10.50% (SBI 1-year MCLR applicable as on 1.4.2022 of 7.00% plus 350 basis points) for the year 2022-23 and 12.00% (SBI 1-year MCLR applicable as on 1.4.2023 of 8.50% plus 350 basis points) for the year 2023-24.

51. The components of the working capital and interest allowed thereon in respect of the transmission asset for the 2019-24 tariff period are as follows:

Particulars	(₹ in lakh)				
	2019-20	2020-21	2021-22	2022-23	2023-24
Working Capital for O&M Expenses (O&M Expenses for one Month)	127.73	132.29	136.92	141.81	146.63
Working Capital for Maintenance Spares (15% of O&M Expenses)	229.91	238.12	246.46	255.26	263.94
Working Capital for Receivables (Equivalent to 45 days of annual transmission charges)	477.54	485.05	495.71	507.72	533.21
Total Working Capital	835.17	855.46	879.10	904.79	943.78
Rate of Interest (in %)	12.05	11.25	10.50	10.50	12.00
Interest of Working Capital	100.64	96.24	92.31	95.00	113.25

Annual Fixed Charges for the 2019-24 Tariff Period

52. The transmission charges allowed in respect of the transmission asset for the 2019-24 tariff period are as follows:

(₹ in lakh)

Particulars	2019-20	2020-21	2021-22	2022-23	2023-24
Depreciation	390.04	390.04	401.46	388.69	470.21
Interest on Loan	0.00	0.00	11.12	42.41	81.35
Return on Equity	1860.61	1860.61	1872.80	1890.31	1912.40
O&M Expenses	1532.72	1587.44	1643.10	1701.74	1759.59
Interest on Working Capital	100.64	96.24	92.31	95.00	113.25
Total	3884.01	3934.33	4020.79	4118.15	4336.80

Filing Fee and Publication Expenses

53. The Petitioner has sought reimbursement of the fee paid by it for filing the petition and publication expenses. The Petitioner shall be entitled to the reimbursement of the filing fees and publication expenses in connection with the present petition directly from the beneficiaries on a *pro-rata* basis in accordance with Regulation 70(1) of the 2019 Tariff Regulations.

Licence Fee and RLDC Fees and Charges

54. The Petitioner has sought reimbursement of the licence fee in accordance with Regulation 70(4) of the 2019 Tariff Regulations for the 2019-24 tariff period. The Petitioner has also sought reimbursement of RLDC fees and charges in accordance with Regulation 70(3) of the 2019 Tariff Regulations for the 2019-24 tariff period. The Petitioner shall be entitled to the licence Fee and RLDC Fees and Charges in terms of the 2019 Tariff Regulations.

Goods and Services Tax

55. The Petitioner has submitted that if GST is levied at any rate and at any point of time in the future on charges of transmission of electricity, the same shall be borne and additionally paid by the Respondent(s) to the Petitioner and the same shall be charged and billed separately by the Petitioner. Further additional taxes, if any, paid by the Petitioner on account of the demand from Government/ Statutory authorities may be allowed to be recovered from the beneficiaries.



56. We have considered the submissions of the Petitioner. Since GST is not levied on transmission service at present, we are of the view that Petitioner's prayer is premature.

Security Expenses

57. The Petitioner has submitted that security expenses in respect of the transmission asset are not claimed in the instant Petition, and it would file a separate Petition to claim the overall security expenses and the consequential IWC.

58. We have considered the submissions of the Petitioner. The Petitioner has claimed consolidated security expenses on a projected basis for the 2019-24 tariff period on the basis of actual security expenses incurred in the year 2018-19 in Petition No. 260/MP/2020. The Commission vide order dated 3.8.2021 in Petition No. 260/MP/2020 approved the security expenses from 1.4.2019 to 31.3.2024. Therefore, security expenses will be shared in terms of the order dated 3.8.2021 in Petition No. 260/MP/2020. Accordingly, the Petitioner's prayer in the instant Petition for allowing it to file a separate petition for claiming the overall security expenses and consequential IWC has become infructuous.

Capital Spares

59. The Petitioner has sought reimbursement of capital spares at the end of the tariff period. The Petitioner's claim, if any, shall be dealt with in accordance with the provisions of the 2019 Tariff Regulations.

Sharing of Transmission Charges

60. With effect from 1.7.2011, the sharing of transmission charges for inter-State transmission systems was governed by the 2010 Sharing Regulations and with effect from 1.11.2020 (after the repeal of the 2010 Sharing Regulations), the sharing of

transmission charges is governed by the 2020 Sharing Regulations. Accordingly, the billing, collection, and disbursement of the transmission charges shall be governed by the provisions of the applicable Sharing Regulations as provided in Regulation 43(2) of the 2014 Tariff Regulations and Regulation 57(2) of the 2019 Tariff Regulations, respectively.

61. To summarize:

- a. The trued-up AFC allowed in respect of the transmission asset for the 2014-19 tariff period are as follows:

(₹ in lakh)					
AFC	2014-15	2015-16	2016-17	2017-18	2018-19
	3631.18	3697.90	3743.33	3790.90	3847.49

- b. The AFC allowed in respect of the transmission asset for the 2019-24 tariff period in this order are as follows:

(₹ in lakh)					
AFC	2019-20	2020-21	2021-22	2022-23	2023-24
	3884.01	3934.33	4020.79	4118.15	4336.80

62. This order disposes of Petition No. 276/TT/2023 in terms of the above discussions and findings.

sd/-
(Arun Goyal)
Member

sd/-
(Jishnu Barua)
Chairperson

