

**CENTRAL ELECTRICITY REGULATORY COMMISSION
NEW DELHI**

Petition No. 209/TT/2020

Coram:

**Shri P. K. Pujari, Chairperson
Shri I. S. Jha, Member
Shri Arun Goyal, Member
Shri P. K. Singh, Member**

Date of Order: 07.02.2022

In the matter of:

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

And in the matter of:

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

.....Petitioner

Versus

1. Rajasthan Rajya Vidyut Prasaran Nigam Limited,
Vidyut Bhawan, Vidyut Marg,
Jaipur-302005.
2. Ajmer Vidyut Vitran Nigam Limited,
132 kV, GSS RVPNL Sub-station Building,
Caligiri Road, Malviya Nagar,
Jaipur-302017 (Rajasthan).
3. Jaipur Vidyut Vitran Nigam Limited,
132 kV, GSS RVPNL Sub-station Building,
Caligiri Road, Malviya Nagar,
Jaipur-302017 (Rajasthan).
4. Jodhpur Vidyut Vitran Nigam Limited,
132 kV, GSS RVPNL Sub-station Building,
Caligiri Road, Malviya Nagar,
Jaipur-302017 (Rajasthan).



5. Himachal Pradesh State Electricity Board,
Vidyut Bhawan, Kumar House Complex Building II,
Shimla-171004.
6. Punjab State Electricity Board,
The Mall, Near 22 Phatak,
Patiala-147001.
7. Haryana Power Purchase Centre,
Shakti Bhawan, Sector-6,
Panchkula-134109 (Haryana).
8. Power Development Department,
Government of Jammu & Kashmir,
Mini Secretariat,
Jammu.
9. Uttar Pradesh Power Corporation Limited,
(Formerly Uttar Pradesh State Electricity Board),
Shakti Bhawan, 14, Ashok Marg,
Lucknow-226001.
10. Delhi Transco Limited,
Shakti Sadan, Kotla Road,
New Delhi-110002.
11. BSES Yamuna Power Limited,
BSES Bhawan, Nehru Place,
New Delhi.
12. BSES Rajdhani Power Limited,
BSES Bhawan, Nehru Place,
New Delhi.
13. Tata Power Delhi Distribution Limited,
33 kV Sub-station Building, Hudson Lane,
Kingsway Camp,
North Delhi-110009.
14. Chandigarh Administration,
Sector-9,
Chandigarh.
15. Uttarakhand Power Corporation Limited,
Urja Bhawan, Kanwali Road,
Dehradun.
16. North Central Railway,
Allahabad.



17. New Delhi Municipal Council,
Palika Kendra, Sansad Marg,
New Delhi-110002.

.....Respondent(s)

For Petitioner : Shri S. S. Raju, PGCIL
Shri D. K. Biswal, PGCIL
Shri A. K. Verma, PGCIL
Shri Ved Prakash Rastogi, PGCIL

For Respondents : None

ORDER

The Petitioner, Power Grid Corporation of India Limited, has filed the instant petition 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 for determination of transmission tariff for the period from 1.4.2019 to 31.3.2024 under the Central Electricity Regulatory Commission (Terms and Conditions of Tariff) Regulations, 2019 (hereinafter referred to as “the 2019 Tariff Regulations”) in respect of Singrauli Transmission System in Northern Region (hereinafter referred to as “the transmission system”).

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, as per para 7 and 8 above.
- 2) Allow add-cap claimed during 2014-19 & 2019-24 already approved vide order dated 20.09.2016 and also fresh add- cap projected during 2019-24.
- 3) 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 regulations 2014 and tariff regulation’19 as per para 7 & 8 above for respective block.

Further it is submitted that deferred tax liability before 01.04.2009 shall be recoverable from the beneficiaries or long term customers / DIC as the case may



be, as and when the same is materialized as per regulation 49 of 2014 and regulation 67 of 2019 tariff regulation. The petitioner may be allow to recover the deferred tax liability materialised 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 recover FERV on the foreign loans deployed as provided under clause 68 of the Tariff Regulations, 2019.
- 8) Allow the Petitioner to file a separate petition before the Hon'ble Commission for claiming the overall security expenses and consequential IOWC on that security expenses as mentioned at para 8.5 & 8.6 above.
- 9) Allow the Petitioner to claim the capital spares at the end of tariff block as per actual.
- 10) Allow the Petitioner to bill and recover GST on Transmission Charges separately from the respondents, if GST on transmission is withdrawn from negative list at any time 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 Hon'ble Commission deems fit and appropriate under the circumstances of the case and in the interest of justice”

3. **Backdrop of the case**

a) The transmission system associated with Singrauli Super Thermal Power Station was approved by the Central Government in two stages. In the first stage, it was approved by Ministry of Power (MoP) vide letter dated 20.1.1978 at a cost of ₹3164.00 lakh followed by a revised capital investment approval for the first stage by MoP vide letter dated 18.11.1982 at a cost of ₹3764.00 lakh. In the second stage, it was approved by MoP vide letter dated 24.1.1981 for capital investment of ₹16541.00 lakh.



b) Subsequently, the entire transmission system was accorded approval by MoP vide letter dated 8.1.1987 at a total cost of ₹25605.00 lakh. The scope of work covered under the transmission system and COD of different lines of the transmission system were as follows:

Sl. No.	Name of Transmission Line	COD
1.	400 kV Singrauli-Obra line	1.2.1982
2.	400 kV Singrauli-Kanpur line	1.6.1983
3.	400 kV Singrauli-Lucknow line	1.6.1986
4.	400 kV Lucknow-Moradabad line	1.6.1986
5.	400 kV Moradabad-Muradnagar line	1.6.1986
6.	400 kV Muradnagar-Panipat line	1.6.1986
7.	400 kV Singrauli-Kanpur line	14.3.1987
8.	400 kV Kanpur-Agra line	14.3.1987
9.	400 kV Agra-Jaipur line	14.3.1987

c) The tariff for the transmission system was notified by MoP vide notification dated 16.11.1998 at an admitted capital cost of ₹22807.00 lakh which was further revised by notification dated 14.5.1999 after taking into account the Additional Capital Expenditure (ACE) of ₹789.00 lakh. The said tariff was valid up to 31.3.2002 and the admitted capital cost considered by MoP for the purpose of tariff calculation was ₹23596.16 lakh. However, as the terms and conditions for determination of tariff notified by the Commission came into effect on 1.4.2001, the transmission charges approved by MoP were rendered valid up to 31.3.2001.

d) The transmission charges of the transmission system for the period from 1.4.2001 to 31.3.2004 was approved by the Commission vide order dated 31.7.2003 in Petition No. 13/2002.

e) The Petitioner had filed Petition No. 102/2004 for approval of transmission charges of the transmission system for the period from 1.4.2004 to 31.3.2009. It was noted by the Commission that there were certain discrepancies as regards the scope of the transmission system and COD of some of the elements thereof as given in Petition No. 13/2002 and in Petition No. 102/2004, although the total line length and number of bays remain unchanged. The said discrepancies were as follows:

- i. Kanpur-Panki transmission lines I and II were not included in the scope of work in Petition No. 13/2002, but were indicated in Petition No. 102/2004.



- ii. In Petition No. 102/2004, the Petitioner has shown transmission lines from Muradnagar to Dadri and from Dadri to Panipat with COD as 16.10.1984 whereas in Petition No. 13/2002 the line was shown from Murannagar to Panipat, with COD as 1.6.1986.
- iii. In Petition No. 102/2004, Singrauli-Anpara transmission line was shown under commercial operation since 5.4.1982, whereas in Petition No. 13/2002 the transmission line was shown from Singrauli to Obra with COD as 1.2.1982.
- iv. COD of Kanpur-Agra line was indicated as 26.11.1986 in Petition No. 102/2004 whereas the same was indicated as 14.3.1987 in Petition No 13/2002.
- v. In Petition No. 102/2004, one transmission line was indicated as Agra-Bassi with COD of 30.11.1986 whereas in Petition No. 13/2002, the transmission line was shown as Agra-Jaipur line with COD as 14.3.1987.
- f) Further, the Petitioner was directed to furnish the details of the original assets created under the transmission system with modifications (such as LILO of lines) in chronological order, along with name of the project and Petition No. through which the approval for tariff for the assets, if not claimed in Petition No. 102/2004 was sought and, accordingly, vide order dated 29.8.2005 and 1.9.2005 in Petition No. 102/2004, the tariff was reserved.
- g) In view of the above, the transmission tariff of the transmission system for the 2004-09 tariff period was approved vide order dated 30.11.2005 in Petition No. 102/2004. The scope of work as enshrined in the said order was as follows:

Sl. No.	Name of Transmission Line	COD	Actual line length (Ckt-km) for O&M
1.	400 kV S/C Singrauli-Anpara-Obra transmission line	05.04.1982	25.06
2.	400 kV S/C Singrauli-Kanpur-I transmission line	27.05.1983	447.00
3.	400 kV S/C Kanpur-Panki-I transmission line	27.05.1983	5.62
4.	400 kV S/C Singrauli-Kanpur-II transmission line	14.03.1987	424.15
5.	400 kV S/C Kanpur-Panki-II transmission line	14.03.1987	5.70
6.	400 kV S/C Singrauli-Lucknow transmission line	01.06.1986	408.60
7.	400 kV S/C Lucknow-Moradabad transmission line	01.06.1986	331.17
8.	400 kV S/C Moradabad-Muradnagar transmission line	01.06.1986	133.00



9.	400 kV S/C Muradnagar-Dadri transmission line	16.10.1984	33.10
10.	400 kV S/C Dadri-Panipat transmission line	16.10.1984	112.32
11.	400 kV S/C Kanpur-Agra transmission line	26.11.1986	240.00
12.	400 kV S/C Agra-Bassi-Hirapura transmission line	30.11.1986	211.43
	Total		2377.15

h) In the process of implementation of the judgment of the Appellate Tribunal for Electricity (APTEL) dated 16.5.2007 in Appeal No. 121 of 2005, the transmission tariff of the 2004-09 period was revised vide order dated 22.1.2008 in Petition No. 102/2004 which was revised again vide order dated 27.9.2010 in Petition No. 149/2010 on account of de-capitalization during 2008-09.

i) The transmission tariff of the transmission system for the 2009-14 tariff period was approved vide order dated 13.8.2012 in Petition No. 316/2010. The scope of work* as enshrined in the said order was as follows:

Sl. No.	Transmission Line	COD	Length (in km)
1	400 kV S/C twin conductor Singrauli-Anpara-II T/L	05.04.1982	25.057
2	400 kV S/C twin conductor Singrauli-Kanpur-I T/L	27.05.1983	447.000
3	400 kV S/C twin conductor Singrauli-Kanpur-II T/L	14.03.1987	424.150
4	400 kV S/C twin conductor Singrauli-Lucknow T/L	01.06.1986	408.600
5	400 kV S/C twin conductor Lucknow-Moradabad T/L	01.06.1986	331.177
6	400 kV S/C twin conductor Moradabad-Muradnagar T/L	01.06.1986	133.000
7	400 kV S/C twin conductor Moradabad-Dadri T/L	16.10.1984	33.098
8	400 kV S/C twin conductor Dadri-Panipat T/L	16.10.1984	112.322
9	400 kV S/C twin conductor Kanpur-Agra T/L	26.11.1986	238.805
10	400 kV S/C twin conductor Agra-Bassi T/L	30.11.1986	210.331
11	400 kV S/C twin conductor Kanpur-Panki-I, T/L	27.05.1983	5.622
12	400 kV S/C twin conductor Kanpur-Panki-II, T/L	27.05.1983	5.700
	Sub-Station		Number of bays
	400 kV Agra Sub-station:		
1	400 kV Kanpur bay	14.03.1987	1
2	400 kV Bassi bay	14.03.1987	1
	400 kV Lucknow Sub-station:		
1	400 kV Singrauli bay	01.10.2010	1
2	400 kV Moradabad bay	01.10.2010	1
	400 kV Moradabad Sub-station:		
1	400 kV Lucknow bay	01.06.1986	1
2	400 kV Muradnagar bay	01.06.1986	1
	400 kV Muradnagar Sub-station:		
1	400 kV Moradabad bay	01.06.1986	1



2	400 kV Dadri bay	01.11.1984	1
3	400 kV DadBus Reactor bay	01.06.1986	1
400 kV Kanpur Sub-station:			
1	400 kV Singrauli-I bay	01.06.1983	1
2	400 kV Singrauli-II bay	14.03.1987	1
3	400 kV Panki-I bay	01.06.1983	1
4	400 kV Panki-II bay	14.03.1987	1
5	400 kV Agra bay	14.03.1987	1
400 kV Anpara Sub-station:			
1	400 kV Singrauli bay	01.02.1982	1
400 kV Panki Sub-station:			
1	400 kV Kanpur-I bay	01.06.1983	1
2	400 kV Kanpur-II bay	01.06.1983	1
400 kV Bassi Sub-station:			
1	400 kV Agra bay	28.07.1990	1
2	400 kV Bus Reactor bay	28.07.1990	1

(* The Petitioner vide affidavit dated 16.6.2021 has submitted the same scope of work)

j) The transmission tariff for the 2009-14 tariff period was trued-up and tariff for the 2014-19 tariff period was approved vide order dated 31.12.2015 in Petition No. 513/TT/2014.

k) The entire scope of work is complete and is covered in this petition.

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

5. The Petitioner has served the petition on the Respondents and notice regarding filing of this petition has been published in the newspapers in accordance with Section 64 of the Electricity Act, 2003. No comments or objections have been received from the general public in response to the aforesaid notices published in the newspapers. None of the respondents have filed any reply in this matter.

6. This order is issued considering the submissions made by the Petitioner in the petition vide affidavit dated 14.1.2020, additional information along with response to technical validation letter filed vide affidavit dated 24.9.2020, additional information filed by the Petitioner vide affidavit dated 16.6.2021 and reply to Record of



Proceedings dated 22.6.2021 and 17.8.2021 filed vide affidavit dated 9.8.2021 and 1.9.2021 respectively.

7. The hearing in this matter was held on 22.6.2021 and 17.8.2021 through video conference and the order was reserved. Having heard the representatives of the Petitioner and after perusal of the materials on record, we proceed to dispose of the petition.

REVISION OF TRANSMISSION CHARGES FOR 2001-04, 2004-09 AND 2009-14 TARIFF PERIODS

8. The Petitioner has submitted that the revised transmission tariff for the 2001-04 and 2004-09 tariff periods on account of change in Interest on Loan (IoL) and Interest on Working Capital (IWC) to the extent of revision in IoL and in Maintenance Spares (APTEL judgment dated 22.1.2007 and 13.6.2007 in Appeal No. 81/2005 and Appeal No. 139/2006 respectively) and consequent revised transmission tariff for the 2009-14 tariff period have not been claimed in this petition as there is no ACE during the 2001-04 and 2004-09 tariff periods on account of works and, thus, no impact on maintenance spares was there. Further, normative loan repayment have been considered as per the Commission's order dated 31.7.2003 in Petition No. 13/2002 for the 2001-04 tariff period and hence there is no impact on IoL and also entire loan has been repaid during 2001-02.

9. We have considered the submissions of the Petitioner and observe that although the transmission assets covered under the transmission system were commissioned during the period from 1982 to 1986, there has been no impact of the APTEL judgments dated 22.1.2007 and 13.6.2007 in Petition No. 81/2005 and Petition No. 139/2006 respectively on the tariff as already allowed by the Commission for the 2001-04, 2004-09 and 2009-14 tariff periods. Consequently, no revision/ consequential revision in tariffs have been claimed by the Petitioner in this



petition, and, accordingly, we have not revised the tariff for the 2001-04, 2004-09 and 2009-14 tariff periods already granted.

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

10. The details of the trued-up transmission charges as claimed by the Petitioner for the transmission system for the 2014-19 tariff period are as follows:

Particulars	(₹ in lakh)				
	2014-15	2015-16	2016-17	2017-18	2018-19
Depreciation	412.15	473.34	523.10	572.01	721.87
Interest on Loan	0.00	0.00	0.00	0.00	0.00
Return on Equity	2339.15	2366.79	2376.65	2384.64	2406.51
Interest on Working Capital	179.62	185.60	190.98	196.38	204.61
O&M Expenses	2105.14	2176.37	2248.96	2322.89	2400.29
Total	5036.06	5202.10	5339.69	5475.92	5733.28

11. The details of the trued-up IWC as claimed by the Petitioner for the transmission system for the 2014-19 tariff period are as follows:

Particulars	(₹ in lakh)				
	2014-15	2015-16	2016-17	2017-18	2018-19
O&M Expenses	175.43	181.36	187.41	193.57	200.02
Maintenance Spares	315.77	326.46	337.34	348.43	360.04
Receivables	839.34	867.02	889.95	912.65	955.55
Total Working Capital	1330.54	1374.84	1414.70	1454.65	1515.61
Rate of Interest (in%)	13.50	13.50	13.50	13.50	13.50
Interest on Working Capital	179.62	185.60	190.98	196.38	204.61

Capital Cost as on 1.4.2014

12. The capital cost of the transmission system has been calculated in accordance with Regulations 9(3) and 9(6) of the 2014 Tariff Regulations. The details of the capital cost as on 31.3.2014, projected additional net capitalization (after deducting de-capitalization) during the 2014-19 tariff period and estimated completion cost as admitted by the Commission vide order dated 31.12.2015 in Petition No. 513/TT/2014 as follows:



(₹ in lakh)

Capital Cost admitted (as on 31.3.2014)	Additional Capital Expenditure (after deducting de-capitalization)						Capital Cost admitted (as on 31.3.2019)
	2014-15	2015-16	2016-17	2017-18	2018-19	Total ACE	
23829.60	588.04	671.28	292.54	121.82	0.00	1673.68	25503.28

13. Based on the Auditor's Certificate dated 11.12.2019, the Petitioner has claimed ₹23829.60 lakh as the capital cost as on 1.4.2014.

14. We have considered the submissions of the Petitioner. The admitted capital cost of ₹23829.60 lakh as on 31.3.2014 for the transmission system has been considered for working out the true up tariff for the 2014-19 tariff period.

Additional Capital Expenditure and De-capitalization

15. The Petitioner has submitted the details of actual ACE and de-capitalization in this petition as follows:

(₹ in lakh)

Capital Cost admitted (as on 31.3.2014)	ACE					De-capitalization					Net ACE	Total Cost (as on 31.3.2019)
	2014-15	2015-16	2016-17	2017-18	2018-19	2014-15	2015-16	2016-17	2017-18	2018-19		
23829.60	413.09	280.70	172.83	155.25	476.90	43.38	29.48	18.15	16.30	50.08	1341.38	25170.98

16. The Petitioner has submitted that the Commission vide order dated 31.12.2015 in Petition No. 513/TT/2014 had allowed ACE of ₹1848.59 lakh during the 2014-19 tariff period for replacement of problematic equipment due to ageing. ACE allowed during the 2014-19 period has spilled over to the 2019-24 period, which has been claimed in the 2019-24 period.

17. The Petitioner vide affidavit dated 24.9.2020 has submitted that the Commission had approved ACE of ₹1848.59 lakh during the 2014-19 period for replacement/ retrofitting of equipment, out of which expenditure of ₹1498.77 lakh has been incurred during the 2014-19 period and there has been spill-over of ACE of ₹249.69 lakh to 2019-20, totaling to ₹1748.46 lakh against the approved ACE of



₹1848.59 lakh. The spill-over is on account of unavailability of shut-down and delay in type test of certain type of isolator. Also, equipment wise break-up of ACE/ de-capitalization of actual expenditure during the 2014-19 period has been submitted and quantity and type of equipment approved under ACE have been submitted as follows:

Equipment	Quantity Approved			Quantity replaced under ACE
	2014-15	2016-19	Total	
Retro fitment of Isolator	19	25	44	44
Retro fitment of CB	4	12	16	16
PLCC retro fitment	16	14	30	30
Replacement of WSI CTs	3	49	52	52
Replacement of WSI CVTs	0	40	40	39
LA	24	0	24	24
C&R panels	9	0	9	9
Total	75	100	215	213

18. The Petitioner vide affidavit dated 24.9.2020 has submitted year-wise details of ACE/ de-capitalization for the 2014-19 period and Form-10B with the year of de-capitalization. There is no shifting and assembly of the de-commissioned elements/ equipment and only de-commissioning and transportation cost has been claimed. The same being of small value, is included with the erection cost of new equipment. Further, no previously un-discharged liabilities are pending and ACE claimed is on account of replacement/ retrofitting of equipment.

19. The Petitioner vide affidavit dated 24.9.2020 has submitted that ACE during the 2014-19 period has been claimed based on ACE admitted by the Commission vide order dated 31.12.2015 in Petition No. 513/TT/2014 under Regulation 14(3)(ix) of the 2014 Tariff Regulations. The Petitioner has also submitted that the Commission in various orders has approved ACE without prior consent of RPC/ OCC.

20. The Petitioner vide affidavit dated 24.9.2020 has submitted that it has long experience in operation and maintenance of EHV Transmission System and follows the best in class practices. The decision on replacement of equipment is taken keeping in view the reliability of the system and based on difficulties being faced by it



during maintenance. Replacement of any equipment is proposed only when it is felt essential and becomes difficult to operate the system without replacement.

21. We have considered the submissions of the Petitioner and note that ACE claimed by the Petitioner during the 2014-19 period is towards retrofitting of Isolator, CB, PLCC and replacement of WSI CTs and CVTs, LA, C&R Panels which have already been approved by the Commission while determining the tariff for the 2014-19 tariff period, and, accordingly, the same is allowed under Regulations 14(3)(vii) and 14(3)(ix) of the 2014 Tariff Regulations.

22. In view of the above, the details of the capital cost (along with ACE and de-capitalization during the 2014-19 tariff period) considered for the true up of tariff for the 2014-19 tariff period are as follows:

Capital Cost (as on 1.4.2014)	ACE approved					De-capitalization approved					Capital Cost (as on 31.3.2019)
	2014-15	2015-16	2016-17	2017-18	2018-19	2014-15	2015-16	2016-17	2017-18	2018-19	
23829.60	413.09	280.70	172.83	155.25	476.90	43.38	29.48	18.15	16.30	50.08	25170.98

Debt-Equity Ratio

23. As per Regulation 19(3) of the 2014 Tariff Regulations, the debt-equity ratio allowed by the Commission for determination of tariff for the period ending on 31.3.2014 shall be considered. Accordingly, the details of the debt-equity ratio as on 1.4.2014 and 31.3.2019 considering (ACE/ de-capitalization during the 2014-19 period) for the transmission system are as follows:

Debt-Equity for Capital Cost as on 1.4.2014

Funding	Capital Cost (as on 1.4.2014) (₹ in lakh) (A)	(in %)
Debt	11961.48	50.20
Equity	11868.12	49.80
Total	23829.60	100.00



Debt-Equity for ACE and de-capitalisation during the 2014-19 period

(₹ in lakh)

Funding	ACE (B)		De-capitalization (C)		ACE (D)		De-capitalization (E)		ACE (F)		De-capitalization (G)	
	2014-15	(in %)	2014-15	(in %)	2015-16	(in %)	2015-16	(in %)	2016-17	(in %)	2016-17	(in %)
Debt	289.16	70.00	21.65	49.90	196.49	70.00	14.71	49.90	120.98	70.00	9.06	49.90
Equity	123.93	30.00	21.73	50.10	84.21	30.00	14.77	50.10	51.85	30.00	9.09	50.10
Total	413.09	100.00	43.38	100.00	280.70	100.00	29.48	100.00	172.83	100.00	18.15	100.00

(₹ in lakh)

Funding	ACE (H)		De-capitalization (I)		ACE (J)		De-capitalization (K)	
	2017-18	(in %)	2017-18	(in %)	2018-19	(in %)	2018-19	(in %)
Debt	108.68	70.00	8.13	49.90	333.83	70.00	24.99	49.90
Equity	46.58	30.00	8.17	50.10	143.07	30.00	25.09	50.10
Total	155.25	100.00	16.30	100.00	476.90	100.00	50.08	100.00

Debt-Equity for Capital Cost as on 31.3.2019

Funding	Capital Cost (₹ in lakh) (as on 31.3.2019) (L)= (A+B-C+D-E+F-G+H-I+J-K)	(in %)
Debt	12932.08	51.38
Equity	12238.90	48.62
Total	25170.98	100.00

Depreciation

24. The petitioner in the instant petition has claimed the following depreciation:

(₹ in lakh)

Particulars	2014-15	2015-16	2016-17	2017-18	2018-19
Claimed by Petitioner in the instant petition	412.15	473.34	523.10	572.01	721.87

25. The transmission system has already completed more than 12 years before 1.4.2014. Accordingly, depreciation has been calculated based on the remaining depreciable value to be recovered over the balance useful life. The Gross Block during the 2014-19 tariff period has been depreciated at weighted average rate of depreciation (WAROD) and working of WAROD is at Annexure-1. Thus, the trued-up depreciation allowed during the 2014-19 period is as follows:



(₹ in lakh)

	Particulars	2014-15	2015-16	2016-17	2017-18	2018-19
A	Opening Gross Block	23829.60	24199.31	24450.53	24605.21	24744.16
B	ACE	413.09	280.70	172.83	155.25	476.90
C	De-capitalisation	43.38	29.48	18.15	16.30	50.08
D	Closing Gross Block (A+B-C)	24199.31	24450.53	24605.21	24744.16	25170.98
E	Average Gross Block $[(A+D)/2]$	24014.46	24324.92	24527.87	24674.69	24957.57
F	Weighted Average Rate of Depreciation (WAROD) in % $[(K / E) \times 100]$	1.69	1.93	2.13	2.31	2.83
G	Balance useful life of the asset (Year)	6	5	4	3	2
H	Elapsed Life of the asset (Year)	28	29	30	31	32
I	Depreciable Value	21530.21	21809.63	21992.28	22124.42	22379.01
J	Remaining Depreciable Value at the beginning	2433.86	2346.67	2086.52	1713.37	1411.51
K	Combined Depreciation during the year (J/G)	405.64	469.33	521.63	571.12	705.76
L	Cumulative Depreciation at the end of the year	19462.95	19905.76	20411.05	20967.50	21628.19
M	Remaining Depreciable Value at the end of the year (I - L)	2067.26	1903.87	1581.23	1156.91	750.83

26. Depreciation for the transmission system as allowed vide order dated 31.12.2015 in Petition No. 513/TT/2014, claimed by the Petitioner in the instant petition and trued-up in the instant order is as follows:

(₹ in lakh)

Particulars	2014-15	2015-16	2016-17	2017-18	2018-19
Allowed vide order dated 31.12.2015 in Petition No. 513/TT/2014	422.02	535.36	643.79	705.94	733.35
Claimed by Petitioner in the instant petition	412.15	473.34	523.10	572.01	721.87
Approved after true-up in this order	405.64	469.33	521.63	571.12	705.76

Interest on Loan

27. The Petitioner has not claimed any IoL during the 2014-19 tariff period as the entire loan has been repaid, and, accordingly no IoL has been considered in this order.



Return on Equity (RoE)

28. The Petitioner has claimed RoE for the transmission system in terms of Regulations 24 and 25 of the 2014 Tariff Regulations. The Petitioner has submitted that it is liable to pay income tax at Minimum Alternate Tax (MAT) rates and has claimed the effective tax rates for the 2014-19 tariff period as follows:

Year	Claimed effective tax rate (in %)	Grossed up RoE (in %) [(Base Rate)/(1-t)]
2014-15	21.02	19.625
2015-16	21.38	19.715
2016-17	21.34	19.705
2017-18	21.34	19.705
2018-19	21.55	19.758

29. The Commission in order dated 27.4.2020 in Petition No. 274/TT/2019 had arrived at the effective tax rate for the Petitioner based on the notified MAT rates and the same is as follows:

Year	Notified MAT rates (in %) (inclusive of surcharge & cess)	Effective tax (in %)
2014-15	20.961	20.961
2015-16	21.342	21.342
2016-17	21.342	21.342
2017-18	21.342	21.342
2018-19	21.549	21.549

30. MAT rates as allowed vide order dated 27.4.2020 in Petition No. 274/TT/2019 for the purpose of grossing up of rate of RoE for truing up of the tariff of the 2014-19 period, in terms of the provisions of the 2014 Tariff Regulations, are considered in the instant case which is as follows:

Year	Notified MAT rates (in %) (inclusive of surcharge & cess)	Base rate of RoE (in %)	Grossed-up RoE (in %) [(Base Rate)/(1-t)]
2014-15	20.961	15.50	19.610
2015-16	21.342	15.50	19.705
2016-17	21.342	15.50	19.705
2017-18	21.342	15.50	19.705
2018-19	21.549	15.50	19.758



31. The Petitioner has claimed RoE for the 2014-19 period after grossing up the RoE @15.50% with Effective Tax rates (based on MAT rates) each year. RoE is trued-up on the basis of MAT rates applicable in the respective years and is approved for the transmission system for the 2014-19 tariff period as follows:

		(₹ in lakh)				
	Particulars	2014-15	2015-16	2016-17	2017-18	2018-19
A	Opening Equity	11868.12	11970.31	12039.75	12082.51	12120.92
B	Additions	123.93	84.21	51.85	46.58	143.07
C	De-capitalization	21.73	14.77	9.09	8.17	25.09
D	Closing Equity (A+B-C)	11970.31	12039.75	12082.51	12120.92	12238.90
E	Average Equity [(A+D)/2]	11919.22	12005.03	12061.13	12101.71	12179.91
F	Return on Equity-Base Rate in %	15.500	15.500	15.500	15.500	15.500
G	MAT Rate for respective year in %	20.961	21.342	21.342	21.342	21.549
H	Rate of Return on Equity in %	19.610	19.705	19.705	19.705	19.758
I	Return on Equity (E x H)	2337.41	2365.65	2376.70	2384.70	2406.45

32. RoE for the transmission system as allowed vide order dated 31.12.2015 in Petition No. 513/TT/2014, claimed by the Petitioner in the instant petition and trued-up in the instant order are as follows:

		(₹ in lakh)				
	Particulars	2014-15	2015-16	2016-17	2017-18	2018-19
	Allowed vide order dated 31.12.2015 in Petition No. 513/TT/2014	2344.63	2381.68	2410.03	2422.22	2425.80
	Claimed by Petitioner in the instant petition	2339.15	2366.79	2376.65	2384.64	2406.51
	Approved after true-up in this order	2337.41	2365.65	2376.70	2384.70	2406.45

Operation & Maintenance Expenses (O&M Expenses)

33. O&M Expenses claimed by the Petitioner in respect of elements covered under the transmission system in this petition are as follows:

		(₹ in lakh)				
	Particulars	2014-15	2015-16	2016-17	2017-18	2018-19
	2374.862 km 400 kV S/C Transmission Line (Twin Conductor) 19 Numbers 400 kV Bays					
	Total O&M Expenses Claimed	2105.14	2176.37	2248.96	2322.89	2400.29

34. O&M Expenses specified for the elements covered under the transmission system in Regulation 29(3) of the 2014 Tariff Regulations are as follows:



Element	Norms for 2014-15	Norms for 2015-16	Norms for 2016-17	Norms for 2017-18	Norms for 2018-19
Single Circuit Twin /Triple Conductor	₹0.404 lakh/km	₹0.418 lakh/km	₹0.432 lakh/km	₹0.446 lakh/ km	₹0.461 lakh/ km
400 kV Sub-station	₹60.30lakh/bay	₹62.30 lakh/bay	₹64.37 lakh/ bay	₹66.51 lakh/ bay	₹68.71 lakh/bay

35. We have considered the submissions of the Petitioner. The O&M Expenses approved for the transmission system under Regulation 29 of the 2014 Tariff Regulations are as follows:

(₹ in lakh)					
Particulars	2014-15	2015-16	2016-17	2017-18	2018-19
A. 2374.862 km Single Circuit Twin Conductor					
Norms (₹ lakh/km)	0.404	0.418	0.432	0.446	0.461
Total A	959.44	992.69	1025.94	1059.19	1094.81
B. 19 numbers 400 kV bay					
Norms (₹ lakh/km)	60.30	62.30	64.37	66.51	68.71
Total B	1145.70	1183.70	1223.03	1263.69	1305.49
Total O&M Expenses allowed (₹ in lakh) (A+B)	2105.14	2176.39	2248.97	2322.88	2400.30

36. O&M Expenses for the transmission system as allowed vide order dated 31.12.2015 in Petition No. 513/TT/2014, claimed by the Petitioner in the instant petition and trued-up in the instant order are as follows:

(₹ in lakh)					
Particulars	2014-15	2015-16	2016-17	2017-18	2018-19
Allowed vide order dated 31.12.2015 in Petition No. 513/TT/2014	2105.14	2176.39	2248.97	2322.88	2400.30
Claimed by Petitioner in the instant petition	2105.14	2176.37	2248.96	2322.89	2400.29
Approved after true-up in this order	2105.14	2176.39	2248.97	2322.88	2400.30

Interest on Working Capital

37. IWC has been worked out as per the methodology provided in Regulation 28 of the 2014 Tariff Regulations and the trued-up IWC allowed for the transmission system are as follows:



(₹ in lakh)

	Particulars	2014-15	2015-16	2016-17	2017-18	2018-19
A	Working Capital for O&M Expenses (1 month of O&M Expenses)	175.43	181.37	187.41	193.57	200.03
B	Working Capital for Maintenance Spares (15% of O&M Expenses)	315.77	326.46	337.35	348.43	360.05
C	Working Capital for Receivables (Equivalent to 2 months of annual fixed cost)	837.94	866.14	889.71	912.51	952.79
D	Total Working Capital (A+B+C)	1329.14	1373.97	1414.47	1454.51	1512.86
E	Rate of Interest (in %)	13.50	13.50	13.50	13.50	13.50
F	Interest on Working Capital (D x E)	179.43	185.49	190.95	196.36	204.24

38. IWC for the transmission system as allowed vide order dated 31.12.2015 in Petition No. 513/TT/2014, claimed by the Petitioner in the instant petition and trued-up in the instant order is as follows:

(₹ in lakh)

Particulars	2014-15	2015-16	2016-17	2017-18	2018-19
Allowed vide order dated 31.12.2015 in Petition No. 513/TT/2014	179.98	187.37	194.53	200.33	205.32
Claimed by Petitioner in the instant petition	179.62	185.60	190.98	196.38	204.61
Approved after true-up in this order	179.43	185.49	190.95	196.36	204.24

Approved Annual Fixed Charges for the 2014-19 Tariff Period

39. The trued-up Annual Fixed Charges (AFC) approved for the transmission system for the 2014-19 tariff period are as follows:

(₹ in lakh)

Particulars	2014-15	2015-16	2016-17	2017-18	2018-19
Depreciation	405.64	469.33	521.63	571.12	705.76
Interest on Loan	0.00	0.00	0.00	0.00	0.00
Return on Equity	2337.41	2365.65	2376.70	2384.70	2406.45
O&M Expenses	2105.14	2176.39	2248.97	2322.88	2400.30
Interest on Working Capital	179.43	185.49	190.95	196.36	204.24
Total	5027.63	5196.86	5338.26	5475.06	5716.74

40. Accordingly, the Annual Transmission Charges as allowed vide order dated 31.12.2015 in Petition No. 513/TT/2014, claimed by the Petitioner in the instant petition and trued-up in the instant order are as follows:



(₹ in lakh)

Particulars	2014-15	2015-16	2016-17	2017-18	2018-19
Allowed vide order dated 31.12.2015 in Petition No. 513/TT/2014	5051.77	5280.80	5497.32	5651.36	5764.77
Claimed by Petitioner in the instant petition	5036.06	5202.10	5339.69	5475.92	5733.28
Approved after true-up in this order	5027.63	5196.86	5338.26	5475.06	5716.74

DETERMINATION OF ANNUAL FIXED CHARGES FOR 2019-24 TARIFF PERIOD

41. The details of the transmission charges for the transmission system for the 2019-24 tariff period as claimed by the Petitioner in this petition are as follows:

(₹ in lakh)

Particulars	2019-20	2020-21	2021-22	2022-23	2023-24
Depreciation	1020.58	20.29	53.04	228.06	531.52
Interest on Loan	0.00	0.00	5.88	26.66	33.33
Return on Equity	2,304.54	2,310.33	2,318.11	2,348.82	2,382.47
Interest on Working Capital	128.68	116.70	120.23	126.62	134.70
O&M Expenses	1805.42	1869.61	1934.61	2002.72	2073.95
Total	5259.22	4316.93	4431.87	4732.88	5155.97

42. The details of IWC for the transmission system for the 2019-24 tariff period as claimed by the Petitioner in this petition are as follows:

(₹ in lakh)

Particulars	2019-20	2020-21	2021-22	2022-23	2023-24
O&M Expenses	150.45	155.80	161.22	166.89	172.83
Maintenance Spares	270.81	280.44	290.19	300.41	311.09
Receivables	646.63	532.22	546.39	583.51	633.93
Total Working Capital	1067.89	968.46	997.80	1050.81	1117.85
Rate of Interest (in %)	12.05	12.05	12.05	12.05	12.05
Interest on Working Capital	128.68	116.70	120.23	126.62	134.70

Capital Cost

43. 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 assets 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 upto 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 trued 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 renovation and modernisation as admitted by this Commission in accordance with these regulations;*
 - (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 upto 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 assets forming part of the project, but not in use, as declared in the tariff petition;*
- (b) *De-capitalised Assets 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 de-capitalised 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 assets.

- (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*
- (e) *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."*

44. Based on the Auditor's Certificate dated 11.12.2019, the Petitioner has claimed ₹25170.98 lakh as the capital cost as on 1.4.2019 for the transmission system.

45. We have considered the Petitioner's claim and note that the capital cost of ₹25170.98 lakh has been admitted by the Commission as on 31.3.2019 in this order and, accordingly, the same has been considered as the opening capital cost as on 1.4.2019 for determination of tariff in accordance with Regulation 19 of the 2019 Tariff Regulations.

Additional Capital Expenditure and De-capitalization

46. Regulation 25 of the 2019 Tariff Regulations provides as follows:



“25. Additional Capitalisation within the original scope and after the cut-off date

(1) *The additional capital expenditure 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 cut-off 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;*
- (g) *Raising of ash dyke as a part of ash disposal system.*

.....”

47. Based on the Auditor’s Certificate dated 11.12.2019, the Petitioner has submitted the details of capital cost as on 31.3.2019, ACE incurred/ projected to be incurred (along with de-capitalization) during the 2019-24 tariff period and estimated capital cost as on 31.3.2024 as follows:

(₹ in lakh)	
Particulars	ACE incurred/ projected to be incurred along with estimated de-capitalization
Capital Cost as on 31.3.2019	25170.98
Estimated ACE in 2019-20*	249.69
Estimated ACE in 2020-21	91.10
Estimated ACE in 2021-22	1015.41
Estimated ACE in 2023-24	467.52
Estimated De-capitalization in 2019-20	(17.52)
Estimated De-capitalization in 2020-21	(2.79)
De-capitalization in 2021-22	(27.72)
De-capitalization in 2023-24	(50.83)
Estimated Capital Cost as on 31.3.2024	26895.84

* ₹249.69 lakh in 2019-20 is for spill over from the 2014-19 period and is on account of Operation and Maintenance expenditure already admitted by the Commission vide order dated 31.12.2015 in Petition No. 513/TT/2014 and is covered under Regulation 25(2) of the 2019 Tariff Regulations.

48. The Petitioner has submitted that ACE in 2020-21, 2021-22 and 2023-24 is proposed for replacement of some of the component/ equipment in the transmission system which is deteriorated due to ageing and may affect the stability and reliability of the Grid in case of sudden failure and is covered under Regulation 25(2) of the



2019 Tariff Regulations. Also, the detailed justification of equipment being replaced has been submitted as follows:

- i. **Circuit Breakers (CBs):** These are having Air and SF6 gas leakage problem and some CBs are having minor Dynamic Contact Resistance Measurement (DCRM) problem and frequent mechanism problem.
- ii. **Isolators:** In all Isolators Horizontal Centre Break (HCB), due to ageing, there is problem of frequent misalignment, jamming, improper closing/ opening, over travel, sluggishness in operating mechanism and hot spots. Many times even local operation also becomes difficult. Further, as these isolators have become obsolete, neither timely support from OEM nor their spares are available.
- iii. **Current Transformers (CTs):** In all CTs, oil seepage for tank has been observed. In some cases, repairs from manufacturers is either not possible due to obsolescence (transferred to live tank from dead tank) or techno-economically not beneficial. Moreover, there is no Tan Delta point in these types of CTs. In view of this, their monitoring is not possible.
- iv. **Surge Arresters (SAs):** All installed SAs are old and their Third Harmonic Resistive Component (THRC) value is deteriorating and may fail at any time. Also, old LAs are of lower energy capability (8 KJ/kV compared to present 10 KJ/kV). For healthy operation of the transmission system, SAs are required to be replaced.
- v. **Auto-Reclose Relays:** All these relays are of electro-mechanical type and are obsolete and they need to be retro-fitted with numerical type relays which may support IEC61850 Communication Protocol and DR Channel Naming.
- vi. **DG Set:** It has completed 25 years of useful life. Due to wear and tear with time, the DG set is giving frequent problems and it plays a vital role for running of the station. In view of this, it needs to be replaced.
- vii. **Battery Chargers:** Battery Chargers are giving frequent problems. Battery system plays a vital role for functioning of Control and Protection System.
- viii. **Line Reactors:** They have completed 25 years of their useful life and due to wear and tear with time, they are needed to be replaced for proper operation of the transmission system.
- ix. **PLCCs Retro-fitment:** These PLCCs are old and have completed their useful life. Timely Spares and services support is not available.



49. The Petitioner vide affidavit dated 24.9.2020 has submitted revised Auditor's Certificate dated 1.7.2020 along with revised tariff forms. Also, the Auditor's Certificate dated 11.12.2019 filed with this petition is revised incorporating the cost of reactor at Bareilly which is also proposed to be replaced during 2022-23 along with other equipment proposed to be replaced as given in this petition. Further, only the estimated ACE/ de-capitalization in 2022-23 is changed and other estimated ACE/ de-capitalization during the 2019-24 period as submitted in the petition remains unchanged and the estimated completion cost as on 31.3.2024 is also changed ₹27351.43 lakh.

50. The Petitioner vide affidavit dated 24.9.2020 has submitted equipment-wise break-up of fresh ACE/ de-capitalization proposed during the 2019-24 period and justification for replacement of equipment proposed is submitted as follows:

i. 420 kV Circuit Breakers (6 sets):

- These CBs have already completed or going to complete 25 years of service life in the 2019-24 tariff and now these models are obsolete. They are of pneumatic/ hydraulic type and due to ageing SF6 leakages from various joints have been observed, which is becoming difficult to attend during maintenance. Multiple air leakages have also been observed from pipes of pneumatic operating systems.
- Mismatch in timing results and violation of DCRM Signature has been observed in many cases which may cause failure of CBs in service. Also, manufacturers have stopped manufacturing said models of CBs, due to which they are not able to provide spares and timely service support. A frequent adjustment of auxiliary contact is also required due to ageing of mechanisms.
- Accordingly, replacement of 2 sets of 420 kV CB at Heerapura and 4 sets at Bassi has been proposed.



ii. Isolators (18 sets):

- These Isolators are of RK and Hapam make and were installed during 1987 to 1990. They have already completed 25 years of service. Isolators were supplied from off-shore and services and spares are no more available from their OEMs. These isolators are mainly of horizontal centre break type and frequent problem of misalignment is being faced.
- Current Transfer Assembly on isolator top and other spares is now no more available in most of the cases due to old make of isolators which is creating problems in maintaining these old isolators. Due to these constraints in maintaining isolators, sometimes the isolators are getting opened in live line condition which is dangerous to the transmission system as well as to the operating personnel.
- Due to rusting, many Motor Operating Mechanism (MOM) boxes got damaged and operation of motors is not possible and due to ageing, TBs inside MOM boxes has become brittle and many times DC cables comes in contact with boxes and creates DC earth fault, which is detrimental to the transmission system. Many times even local operation also becomes difficult. As these isolators have become obsolete, neither timely support from OEM nor their spares are available.
- Accordingly, replacement of 9 sets of 420 kV Isolators at Bassi, 6 sets at Kanpur and 3 sets at Agra has been proposed.

iii. Current Transformers (24 numbers):

- These CTs are of BHEL/ WSI/ TELK make and have completed or going to complete 25 years of service life in current tariff period. Due to ageing, leakage from multiple points has been observed. In some cases the oil seepage from bottom of tank has also been observed. As there is leakage, in long run it may lead to moisture ingress and subsequent failure. These are hermetically sealed equipment and their repairs at site are not feasible.
- As there is ingress of moisture, complete replacement of winding is required at manufacturer works, which will not be techno-economically viable. The manufacturers have already stopped manufacturing these products. M/s GE have communicated that they have discontinued manufacturing these type of WSI make CTs.



- Therefore, replacement of 6 numbers of 420 kV CT at Heerapura, 3 numbers at Moradabad, 3 numbers at Kanpur and 12 numbers at Bassi has been proposed.

iv. Surge Arresters (24 numbers):

- All installed Surge Arresters (SAs) are old and completing 25 years of useful life in the 2019-24 period and their THRC value SAs is deteriorating and may fail at any time. For healthy operation of the transmission system, they are required to be replaced.
- SAs play important role in protecting the sub-station equipment from high voltage lightning/ switching surge. It is dangerous to keep them in further service since their damage while in service may cause consequential damage to other equipment in vicinity and long forced outages of the transmission system.
- Therefore, replacement of 18 numbers of 390 kV SAs at Kanpur and 6 numbers at Agra with latest specifications.

v. Auto-Reclose Relays (8 numbers):

- All these relays are of electromechanical type and obsolete (VARM-English Electric make, now GE) and already completed 25 years of service. The OEMs have phased out these models of relays and there is no OEM support. These need to be retro-fitted with numerical type relays which may comply with IEC61850 Communication Protocol and DR Channel Naming. OEM recommendations in this regard have been submitted.
- Therefore, replacement of 8 numbers Auto-Reclose Relays at Kanpur Sub-station has been proposed.

vi. DG set (2 sets):

- They have completed 25 years of their useful life. Due to wear and tear with time, the DG sets are giving frequent problems. DG sets play a vital role for running of the auxiliary system at sub-station. Frequent breakdown, maintenance and inefficient operation has made existing DG set running financially unviable and poses risks at time of auxiliary failures.
- Accordingly, replacement of both DG sets at Kanpur has been proposed.



vii. Battery Chargers (2 sets 220 V and 2 sets 50 V):

- All four of Battery Chargers (2 sets of 220 V and 2 sets of 50 V) are going to complete 15 years of service in the 2019-24 tariff period. Due to ageing, they are giving frequent problems. Battery System plays a vital role for functioning of Control and Protection System and needs to be replaced so that proper battery charging could be ensured at all time with full capacity. Improper charging is leading to under-charging of Battery Banks and affecting their life.
- Therefore, replacement of all four Battery Chargers at Kanpur has been proposed.

viii. PLCCs (Agra-Kanpur line):

- These PLCCs are old and no timely spares and service support is available. They are of ETL-21 Model and have become obsolete. Frequent problems are observed in these Panels and no spares and service support is available. ETL-21 Model was made obsolete in 2012 after transition to ETL4X by ABB and now even ETL4X is obsolete. End of Life Letter from ABB has been submitted.
- Accordingly, replacement of PLCC panels of Agra-Kanpur line has been proposed.

ix. 50 MVAR Agra L/R at Kanpur, Year of manufacturing: 1981 (38 years old):

- Condition based monitoring/ maintenance of transformers/ reactors like DGA, Tan Delta Measurement of bushings and windings, oil parameters, Furan Analysis, FDS, IR of core insulation etc. have been carried out to know the healthiness. From the test results of the said equipment, it has been observed that there was increasing trend in CO₂ (high rate of rise) and CO indicating degradation of paper insulation.
- Furan content also increased rapidly which also indicate deterioration of paper insulation. Reactor is also having history of high water content and high concentration of H₂. The unit is very old and no spare bushings and other spare parts are available. M/s CPRI (Third party) was approached to analyze the test results and to know the condition of the equipment.



- The said results were analysed, based on which, replacement of the said unit has been recommended by CPRI (its letter has been submitted).
- Further, the availability of line reactor is much required for keeping the line in service/ at the time of taking line into service and it has already completed more than 25 years of its useful service life and due to ageing chances of its failure is always high which will cause long outage of reactor, which consequently may result in forced outage of line due to rise in voltage.
- Accordingly, replacement of 50 MVAR Agra Line Reactor at Kanpur has been proposed.

x. 80 MVAR Singrauli L/R at Kanpur, Year of manufacturing: 1986 (33 years old):

- Condition based monitoring/ maintenance of transformers/ reactors like DGA, Tan Delta measurement of bushings and windings, oil parameters, Furan Analysis, FDS, IR of core insulation etc. have been carried out. From the test results, it has been observed that there was increasing trend in CO₂ (high rate of rise) and CO indicating degradation of paper insulation. The unit is very old and no spare bushings and other spare parts are available.
- CPRI was approached to analyze the test results and to know the condition of the equipment. The test results were analyzed by CPRI, based on which, replacement of the said unit has been recommended by CPRI (its letter has been submitted).
- Further, the availability of line reactor is required for keeping the line in service/ at the time of taking line into service and it has already completed more than 25 years of useful service life and due to ageing chances of its failure is always high which will cause long outage of reactor, which consequently may result in forced outage of line due to rise in voltage.
- Therefore, replacement of 80 MVAR Singrauli line reactor at Kanpur has been proposed.

xi. 50 MVAR Lucknow L/R at Bareilly, Year of manufacturing: 1985 (35 Years old):

- Condition based monitoring/ maintenance of transformers/ reactors like DGA, Tan Delta measurement of bushings and windings, oil parameters,



Furan Analysis, FDS, IR of core insulation etc. have been carried out to know the healthiness. From the test results, it was observed that Furan content was very high and ratio of CO₂/CO was more than 10 which indicate degradation of solid insulation. Core IR values are very low indicating inadvertent core grounding.

- M/s CPRI was approached to analyze the test results and to know the condition of the equipment. The test results were analyzed by CPRI, based on which, replacement of the said unit has been recommended by CPRI (its letter has been submitted).
- Further, the availability of line reactor is required for keeping the line in service/ at the time of taking line into service and it has already completed more than 25 years of useful service life and due to ageing chances of its failure is always high which will cause long outage of reactor, which consequently may result in forced outage of line due to rise in voltage.
- Accordingly, replacement of 50 MVAR Lucknow line reactor at Bareilly has been proposed.

51. The Petitioner vide affidavit dated 24.9.2020 has submitted year-wise details of ACE/ de-capitalization during the 2020-24 period along with Form-10B. With respect to break down of costs related to de-capitalization, the Petitioner has submitted that there is no shifting and assembly of the decommissioned elements/ equipment and cost towards only de-commissioning and transportation cost has been claimed. However, the same being of small value is included with the erection cost of new equipment.

52. The Petitioner vide affidavit dated 9.8.2021 has submitted that a meeting was held on 3.8.2021 through video conferencing under the Chairmanship of Chief Engineer (PSPA-1) CEA with CTUIL, NLDC, NRLDC, the Petitioner and UPPTCL as participants in order to discuss requirement of 80 MVAr line reactor installed at Kanpur end of 400 kV Kanpur-Fatehpur line (earlier Kanpur-Singrauli line). The gist of the minutes of the said meeting as submitted by the Petitioner is that to control fault



current at Kanpur, Kanpur-Fatehpur 400 kV 2xS/C line and Kanpur-Panki 400 kV D/C line will be disconnected at Kanpur and connected directly to form Fatehpur-Panki D/C line. This scheme is currently under implementation and was expected to be commissioned by October/ November 2021 and after its implementation, 80 MVAR line reactor would become redundant and would no longer be required.

53. In view of the above, the Petitioner has submitted that the proposal for replacement of 80 MVAR line reactor (ACE of ₹450.28 lakh and de-capitalization of ₹13.86 lakh during 2021-22) may not be considered and, consequently, the revised ACE projected for 2021-22 is ₹565.13 lakh and de-capitalization is ₹13.86 lakh instead of ₹1015.41 lakhs and ₹27.72 lakh respectively. The Petitioner vide affidavit dated 1.9.2021 has submitted the revised Auditor's Certificate dated 27.8.2021 with audited cost up to 31.3.2021. The estimated completion cost as on 31.3.2024 as submitted by the Petitioner is as follows:

Particulars	Spill over of 2014-19	Fresh ACE proposed	(₹ in lakh)
			Total
Capital Cost as on 31.03.2019			25170.98
ACE during 2019-20	225.80	-	225.8
De-capitalization during 2019-20	(11.23)	-	(11.23)
ACE during 2020-21	6.11	-	6.11
De-capitalization during 2020-21	(4.72)	-	(4.72)
Estimated ACE during 2021-22	17.78	267.64	285.42
Estimated De-capitalization during 2021-22	(1.57)	(2.79)	(4.36)
Estimated ACE during 2022-23	-	858.04	858.04
Estimated De-capitalization during 2022-23	-	(27.72)	(27.72)
Estimated ACE during 2023-24	-	467.52	467.52
Estimated De-capitalization during 2023-24	-	(50.83)	(50.83)
Estimated capital cost as on 31.3.2024			26915.01

54. The Petitioner vide affidavit dated 1.9.2021 has submitted that equipment wise break-up of ACE/ de-capitalization during the 2014-19 period and spill over to the 2019-24 period was submitted vide affidavit dated 24.9.2020. However, the revised



details as per the Auditor's Certificate dated 27.8.2021 have been submitted. Further, ACE of ₹1593.20 lakh in 2022-24 is fresh ACE proposed for replacement of some of the component/ equipment in the transmission system which have deteriorated due to ageing and may affect the stability and reliability of the Grid in case of sudden failure and is covered under Regulation 25(2) of the 2019 Tariff Regulations.

55. The Petitioner vide affidavit dated 1.9.2021 has submitted the revised tariff forms for the 2019-24 tariff period and has further submitted that the actual date of removal of 80 MVAR line reactor installed at Kanpur end will be submitted at the time of truing-up of the 2019-24 period.

56. We have considered the submissions of the Petitioner and note that the Petitioner has proposed ACE at the fag end of the useful life of the transmission system and has proposed five years extension of life for the transmission system.

57. We note that the proposed ACE is towards replacement of isolators (9 sets at Bassi, 6 sets at Kanpur and 3 sets at Agra Sub-stations), CTs (3 numbers at Moradabad, 3 numbers at Kanpur, 12 numbers at Bassi, 6 numbers at Heerapura Sub-stations), CBs (2 sets at Heerapura and 4 sets at Bassi Sub-stations), SAs (18 numbers at Kanpur and 6 numbers Agra Sub-stations), Auto-Reclose Relays (8 numbers at Kanpur Sub-station), 2 numbers of DG sets at Kanpur, Battery Chargers (4 numbers at Kanpur) and retrofitting of PLCC Panels at Agra-Kanpur line due to obsolescence of technology.

58. We observe from the submissions of the Petitioner that the replacement of sub-station equipment are of critical nature and their failure may affect the stability and reliability of the Grid, and, accordingly, ACE incurred/ projected to be incurred during the 2019-24 tariff period is allowed under Regulation 25(2)(c) of the 2019 Tariff



Regulations. However, the Petitioner is directed to submit the details of actual cost of the replaced equipment sub-station wise at the time of truing up.

59. We note that the Petitioner has proposed to replace 50 MVAR Agra Line Reactor at Kanpur and 80 MVAR Singrauli Line Reactor at Kanpur and has claimed related ACE of ₹858.04 lakh during 2022-23. The Petitioner has neither submitted the consent of beneficiaries/ Respondents nor placed any material on record to show that the proposed ACE has the consent of beneficiaries/ Respondents. We are of the considered view that the said Line Reactors are major elements of the transmission system and are critical and high value elements, and, accordingly, if they are proposed to be replaced, their replacement is prudent to be discussed in RPCs and with the concerned beneficiaries.

60. In view of the foregoing, the projected ACE towards the said Line Reactors is not allowed at this stage and the Petitioner is directed to seek approval from RPC for the said proposed replacements and file a separate petition for ACE towards Line Reactors for consideration by the Commission.

61. We note that the proposal to replace the 80 MVAR line reactor installed at Kanpur end of 400 kV Kanpur-Fatehpur line (earlier Kanpur-Singrauli line) has been withdrawn, and, accordingly, the Petitioner has reduced the cost of the line reactor from the proposed ACE of the 2019-24 period. However, we also note that the Petitioner has submitted that the Kanpur-Fatehpur 400 kV 2xS/C line and Kanpur-Panki 400 kV D/C line will be disconnected at Kanpur and connected directly to form Fatehpur-Panki D/C line and after its implementation, the said 80 MVAR line reactor would become redundant and would no longer be required. We therefore direct the Petitioner to de-capitalise the 80 MVAR line reactor installed at Kanpur end as and



when the Kanpur-Panki 400 kV D/C line is commissioned and incorporate the same in the petition for truing up of tariff for the 2019-24 tariff period.

62. In view of the above, ACE and de-capitalization allowed with respect to the transmission system for the 2019-24 tariff period are as follows:

(₹ in lakh)

	Particulars	2019-20	2020-21	2021-22	2022-23	2023-24	Total
A	ACE	225.8	6.11	285.42	0.00	467.52	984.85
B	Decapitali	11.23	4.72	4.36	0.00	50.83	71.14
C	Net ACE (A-B)	214.57	1.39	281.06	0.00	416.69	913.71

63. Accordingly, capital cost of the transmission system as on 31.3.2024 is approved as follows:

(₹ in lakh)

Capital Cost (as on 1.4.2019)	ACE (net of de-capitalization)					Capital Cost (as on 31.3.2024)
	2019-20	2020-21	2021-22	2022-23	2023-24	
25170.98	214.57	1.39	281.06	0.00	416.69	26084.69

Adjustments to Equity

64. Regulation 18(3) of the 2019 Tariff Regulations provides as follows:

“18. Debt-Equity Ratio:

(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, the equity in excess of 30% shall not be taken into account for tariff computation;.....”

65. Weighted Average Life for the transmission system was determined as 34 years and it has completed its useful life on 31.3.2020. First Proviso to Regulation 18(3) of the 2019 Tariff Regulations provides that in case of a transmission system including communication system which has completed its useful life on or after 1.4.2019, and if the actual equity deployed is more than 30% of the capital cost, then the equity shall be restricted to 30% of the total equity deployed.



66. The debt-equity ratio as on 31.3.2019 is 51.38:48.62 i.e. the equity deployed is more than 30%. Therefore, as per the first proviso to Regulation 18(3) of the 2019 Tariff Regulations, equity from 1.4.2020 onwards has been restricted to 30%. Accordingly, the capital cost for the 2019-24 tariff period is allowed as follows:

		(₹ in lakh)
	Particulars	Amount
A	Closing equity as on 31.3.2019*	12238.90
B	Closing equity as on 31.3.2020**	12301.01
C	Equity in excess of 30%	4685.61
D	Equity admissible as on 1.4.2020*** (B-C)	7615.67

*Represents 48.62% of Gross Block of ₹25170.98 lakh

**Represents 48.45% of Gross Block of ₹25385.55 lakh

***Represents 30% of Gross Block of ₹25385.55 lakh

Debt-Equity Ratio

67. 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.”

68. The transmission system has completed its useful life in 2019-20 (on 31.3.2020) and de-capitalization of elements of the transmission system is proposed after the completion of useful life. In accordance with Regulation 18 of the 2019 Tariff Regulations, ACE for the 2019-24 period is allowed in the ratio of 70:30. As decided above, the equity from 2020-21 onwards is restricted to 30%. The details of the debt-equity considered for the purpose of computation of tariff for the 2019-24 tariff period is as follows:

Debt-Equity for Capital Cost as on 1.4.2019

Funding	Capital Cost (₹ in lakh) (as on 1.4.2019)	(in %)
Debt	12932.08*	51.38
Equity	12238.90	48.62
Total	25170.98	100.00

* Repaid prior to 1.4.2019



Debt-Equity for ACE and De-capitalisation during 2019-24

(₹ in lakh)

Funding	ACE		De-capitalisation		ACE		De-capitalisation		ACE		De-capitalisation	
	2019-20	(in %)	2019-20	(in %)	2020-21	(in %)	2020-21	(in %)	2021-22	(in %)	2021-22	(in %)
Debt	158.06	70.00	5.60	49.90	4.28	70.00	3.30	70.00	199.79	70.00	3.05	70.00
Equity	67.74	30.00	5.63	50.10	1.83	30.00	1.42	30.00	85.63	30.00	1.31	30.00
Total	225.80	100.00	11.23	100.00	6.11	100.00	4.72	100.00	285.42	100.00	4.36	100.00

(₹ in lakh)

Funding	ACE		De-capitalisation	
	2023-24	(in %)	2023-24	(in %)
Debt	327.26	70.00	35.58	70.00
Equity	140.26	30.00	15.25	30.00
Total	467.52	100.00	50.83	100.00

Debt-Equity for Capital Cost as on 31.3.2024

69. The transmission asset has completed its useful life in 2019-20. Equity from 2020-21 onwards has been restricted to 30% as per proviso to Regulation 18(3) of the 2019 Tariff Regulations. Accordingly, Debt-Equity as on 31.3.2024 will be as follows:

Funding	Capital Cost as on 1.4.2019		ACE/ De-Capitalisation during 2019-20				Capital Cost as on 1.4.2020	
			ACE		De-Capitalisation			
	₹ in lakh	in %	₹ in lakh	in %	₹ in lakh	in %	₹ in lakh	in %
Debt	12932.08	51.38	158.06	70.00	5.60	49.90	13084.54	51.54
Equity	12238.90	48.62	67.74	30.00	5.63	50.10	12301.01	48.46
Total	25170.98	100.00	225.8	100.00	11.23	100.00	25385.55	100.00
Funding	Capital Cost as on 1.4.2020 after Equity restriction		ACE/ De-Capitalisation during 2020-21				Capital Cost as on 1.4.2021 after Equity restriction	
			ACE		De-Capitalisation			
	₹ in lakh	in %	₹ in lakh	in %	₹ in lakh	in %	₹ in lakh	in %
Debt	13084.54	51.54	4.28	70.00	3.30	70.00	13085.51	51.54
Restricted Equity@30%	7615.67	30.00	1.83	30.00	1.42	30.00	7616.08	30.00
Excess Equity	4685.35	-	-	-	-	-	4685.35	-
Total	25385.55	81.54	6.11	100.00	4.72	100.00	25386.94	81.54

Funding	ACE/ De-Capitalisation during 2021-22				Capital Cost as on 1.4.2022 after Equity restriction		Capital Cost as on 1.4.2023 after Equity restriction	
	ACE		De-Capitalisation					
	₹ in lakh	in %	₹ in lakh	in %	₹ in lakh	in %	₹ in lakh	in %
Debt	199.79	70.00	3.05	70.00	13282.25	51.75	13282.25	51.75
Restricted Equity@30%	85.63	30.00	1.31	30.00	7700.40	30.00	7700.40	30.00
Excess Equity	-	-	-	-	4685.35	-	4685.35	-
Total	285.42	100.00	4.36	100.00	25668.00	81.75	25668.00	81.75

Note: No ACE / De-Capitalisation during 2022-23



Funding	ACE/ De-Capitalisation during 2023-24				Capital Cost as on 31.3.2024 after Equity restriction	
	ACE		De-Capitalisation		₹ in lakh	in %
	₹ in lakh	in %	₹ in lakh	in %		
Debt	327.26	70.00	35.58	70.00	13573.94	52.04
Restricted Equity@30%	140.26	30.00	15.25	30.00	7825.41*	30.00
Excess Equity	-	-	-	-	4685.35	-
Total	467.52	100.00	50.83	100.00	26084.69	82.04

*Equity to be serviced as on 31.3.2024 is ₹7825.41 lakh (Equity in excess of 30% reduced as discussed above)

Depreciation

70. 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 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 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.”

71. The transmission system has already completed more than 12 years before 1.4.2019. Accordingly, depreciation has been calculated based on the remaining



depreciable value (up to 90% of existing gross block of the transmission system) to be recovered over the balance useful life up to 31.3.2020 and thereafter no depreciation is allowed with respect to the transmission system. The Petitioner has proposed life extension of the transmission system by five years and has claimed depreciation for the new ACE over a period of five years. We are of the view that the replaced equipment are likely to provide service much beyond five years and, therefore, these assets need to be depreciated on normative basis. Hence, depreciation for ACE (new additions) is allowed at normative rate of depreciation as specified in the 2019 Tariff Regulations. The working of WAROD is at Annexure-II (A) (Existing Assets) and Annexure-II (B) (New Assets).

72. Depreciation allowed for the transmission system for the 2019-24 tariff period is as follows:

		(₹ in lakh)				
	A. Existing Assets	2019-20	2020-21	2021-22	2022-23	2023-24
A	Opening Gross Block	25170.98	25159.75	25155.03	25150.67	25150.67
B	ACE	0.00	0.00	0.00	0.00	0.00
C	De-capitalisation	11.23	4.72	4.36	0.00	50.83
D	Closing Gross Block (A+B-C)	25159.75	25155.03	25150.67	25150.67	25099.84
E	Average Gross Block [(A+D)/2]	25165.37	25157.39	25152.85	25150.67	25125.26
F	Freehold Land	92.00	92.00	92.00	92.00	92.00
G	Weighted average rate of Depreciation (WAROD) in % [(O/E)x100]	3.75	0.00	0.00	0.00	0.00
H	Depreciable Value	22560.98	22556.73	22552.80	22552.80	22507.06
I	Cumulative Depreciation at the beginning of the year	21628.19	22560.98	22556.73	22552.80	22552.80
J	Depreciation adjustment on account of de-capitalization	10.11	4.25	3.92	0.00	45.75
K	Net Cumulative Depreciation after adjustment for de-capitalization	21618.08	22556.73	22552.80	22552.80	22507.06
L	Remaining Depreciation Value at the beginning of the year (G)	942.89	0.00	0.00	0.00	0.00
M	Balance useful life of the asset (Year) (H)	1	0	-	-	-
N	Elapsed life (Year)	33	34	-	-	-
O	Depreciation (L/M)	942.89	0.00	0.00	0.00	0.00
P	Remaining Depreciation Value at the end of the year	0.00	0.00	0.00	0.00	0.00



(₹ in lakh)

	B. New Assets	2019-20	2020-21	2021-22	2022-23	2023-24
A	Opening Gross Block	0.00	225.80	231.91	517.33	517.33
B	Additional Capitalisation	225.80	6.11	285.42	0	467.52
C	Closing Gross Block (A+B)	225.80	231.91	517.33	517.33	984.85
D	Average Gross Block [(A+C)/2]	112.90	228.86	374.62	517.33	751.09
E	Weighted average rate of Depreciation (WAROD) (in %)	5.28	5.28	5.28	5.28	5.28
F	Depreciable Value	101.61	205.97	337.16	465.60	675.98
G	Cumulative Depreciation at the beginning of the year	0.00	5.96	18.04	37.82	65.14
H	Depreciation (D*E)	5.96	12.08	19.78	27.32	39.66
I	Cumulative Depreciation at the end of the year	5.96	18.04	37.82	65.14	104.80
J	Remaining Depreciation recoverable at the end of the year	95.65	187.92	299.33	400.46	571.18

(₹ in lakh)

	Total Depreciation	2019-20	2020-21	2021-22	2022-23	2023-24
A	Existing Assets	942.89	0.00	0.00	0.00	0.00
B	New Assets	5.96	12.08	19.78	27.32	39.66
C	Total Depreciation (A + B)	948.86	12.08	19.78	27.32	39.66

Interest on Loan

73. 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 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.

(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.”

74. Gross normative loan has already been repaid prior to 1.4.2019 and, therefore, IoL has been considered on ACE (new additions). The Weighted Average Rate of Interest on loan has been considered on the basis of rate prevailing as on 1.4.2019. The Petitioner has prayed that the change in interest rate due to floating rate of interest applicable, if any, during the 2019-24 tariff period may be adjusted. Accordingly, the floating rate of interest, if any, shall be considered at the time of truing up.

75. The Petitioner has not claimed IoL for 2019-20 & 2020-21, however has claimed IOL for 2021-22, 2022-23 and 2023-24 in the 2019-24 tariff period. Therefore, IoL has been allowed in accordance with Regulation 32 of the 2019 Tariff Regulations. IoL allowed for the transmission system is as follows:

		(₹ in lakh)				
	Particulars	2019-20	2020-21	2021-22	2022-23	2023-24
A	Gross Normative Loan	12932.08	13084.54	13085.51	13282.25	13282.25
B	Cumulative Repayments up to Previous Year	12932.08	12932.44	12941.22	12957.95	12985.26
C	Net Loan-Opening (A-B)	0.00	152.10	144.29	324.31	296.99
D	Additions	158.06	4.28	199.79	0.00	327.26
E	De-capitalisation	5.60	3.30	3.05	-	35.58
F	Repayment during the year	5.96	12.08	19.78	27.32	39.66
G	Adjustment of cumulative	5.60	3.30	3.05	-	35.58



	repayment pertaining to the de-capitalised asset					
H	Net Loan-Closing (C+D+E-F-G)	152.10	144.29	324.31	296.99	584.60
I	Average Loan [(C+H)/2]	76.05	148.20	234.30	310.65	440.79
J	Weighted Average Rate of Interest on Loan (in %)	8.0786	8.0330	8.0173	8.0049	7.9902
K	Interest on Loan (I x J)	6.14	11.90	18.78	24.87	35.22

Return on Equity

76. Regulations 30 and 31 of the 2019 Tariff Regulations provide 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 or in the absence of actual loan portfolio of the generating station or the 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 centre 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) 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 below:

Rate of pre-tax return on equity = 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:

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.”

77. The Petitioner has submitted that it is liable to pay Income Tax at MAT rate prescribed under the Taxation laws (Amendment) Ordinance 2019. Further, RoE has been calculated @18.782% after grossing up the RoE with MAT rate of 17.472% (Base Rate 15% + Surcharge 12% + Cess 4%) based on the formula given in Regulation 31(2) of the 2019 Tariff Regulations for the 2019-24 tariff period. As per Regulation 31(3) of the 2019 Tariff Regulations, the grossed-up rate of RoE at the end of every financial year shall be trued up 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 IT authorities pertaining to the 2019-24 tariff period on actual gross income. However, any penalty arising on account of delay in deposit or short deposit of tax amount shall not be claimed by it. Any under-recovery or over-recovery of grossed up rate on RoE after truing up shall be recovered or refunded to beneficiaries or the long term customers on yearly basis. The Petitioner has further submitted that any adjustment due to additional tax demand including interest duly adjusted for any refund of tax including interest received from IT authorities shall be recoverable/ adjustable during the 2019-24 tariff period on yearly basis on receipt of Income Tax assessment order.

78. We have considered the submissions of the Petitioner. As observed above, equity from 2022-23 onwards has been restricted to 30% as per proviso to Regulation 18(3) of the 2019 Tariff Regulations, accordingly, MAT rate applicable in 2019-20 has been considered for the purpose of RoE, which will be trued-up with actual tax rate in accordance with Regulation 31(3) of the 2019 Tariff Regulations. RoE allowed for the transmission system for the 2019-24 tariff period is as follows:



(₹ in lakh)

	Particulars	2019-20	2020-21	2021-22	2022-23	2023-24
A	Net Opening Capital	12238.90	7615.67*	7616.08	7700.40	7700.40
B	Additions	67.74	1.83	85.63	-	140.26
C	De-capitalisation	5.63	1.42	1.31	-	15.25
D	Closing Equity (A+B-C)	12301.01	7616.08	7700.40	7700.40	7825.41
E	Average Equity [(A+D)/2]	12269.96	7615.87	7658.24	7700.40	7762.90
F	Return on Equity (Base Rate) (in %)	15.500	15.500	15.500	15.500	15.500
G	MAT Rate for respective year (in %)	17.472	17.472	17.472	17.472	17.472
H	Rate of Return on Equity (in %)	18.782	18.782	18.782	18.782	18.782
I	Return on Equity (ExH)	2304.54	1430.41	1438.37	1446.29	1458.03

*Equity in excess of 30% removed as explained in Para 69

Operation & Maintenance Expenses

79. Regulation 35(3)(a) of the 2019 Tariff Regulations provides as follows:

“35. Operation and Maintenance Expenses:

”

(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 (Rs. 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 (Rs. 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 (Rs. 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-conductors)	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 (Rs. 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

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 (2500 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.”

80. O&M Expenses in respect of the elements covered under the transmission system as claimed by the Petitioner for the 2019-24 period are as follows:

Particulars	(₹ in lakh)				
	2019-20	2020-21	2021-22	2022-23	2023-24
2374.862 km Single Circuit (Twin Conductor)	1194.57	1237.29	1280.06	1325.18	1372.66
(19 numbers) 400 kV bay	610.85	632.32	654.55	677.54	701.29
Total O&M Expenses	1805.42	1869.61	1934.61	2002.72	2073.95

81. Further, the Petitioner during the course of hearing dated 26.10.2021 in Petition No. 644/TT/2020 has submitted as follows:

“k. O&M Expenses have been claimed for single circuit line of 214.851 km consisting of 154.529 km single circuit new line and 60.322 km of existing Singrauli-Kanpur line earlier covered in Singrauli TPS in Petition No. 209/TT/2020. The Petitioner has prayed that O&M Expenses from 26.10.2019 for single circuit line which was claimed in Singrauli TPS covered in Petition No. 209/TT/2020 for 60.322 km may be stopped and adjustment of the same may be done in the tariff of the instant petition and in Petition No. 209/TT/2020 wherein order has already been reserved.”

82. We have considered the submissions of the Petitioner. The O&M Expenses towards 400 kV Singrauli-Kanpur single circuit line of 60.322 km is not allowed from 26.10.2019 and, accordingly, the O&M Expenses have been worked out as per the norms specified in the 2019 Tariff Regulations and the same are as follows:



(₹ in lakh)

Particulars	2019-20	2020-21	2021-22	2022-23	2023-24
A. 2314.540 km Single Circuit Twin Conductor					
Norms (₹ lakh/km)	0.503	0.521	0.539	0.558	0.578
Total A	1181.50	1205.88	1247.54	1291.51	1337.80
B. 19 numbers 400 kV bay					
Norms (₹ lakh/km)	32.15	33.28	34.45	35.66	36.91
Total B	610.85	632.32	654.55	677.54	701.29
Total O&M Expenses allowed (₹ in lakh) (A+B)	1792.35	1838.20	1902.09	1969.05	2039.09

Interest on Working Capital

83. 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) The working capital shall cover:

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

- (i) Receivables equivalent to 45 days of annual 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.”

“(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.”

“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;”

84. The Petitioner has submitted that it has computed IWC for the 2019-24 period considering the SBI Base Rate plus 350 basis points as on 1.4.2019. The Petitioner has considered the rate of IWC as 12.05%. IWC is worked out in accordance with Regulation 34 of the 2019 Tariff Regulations. The Rate of Interest considered is 12.05% (SBI 1 year MCLR applicable as on 1.4.2019 of 8.55% plus 350 basis points) for 2019-20, 11.25% (SBI 1 year MCLR applicable as on 1.4.2020 of 7.75% plus 350 basis points) for 2020-21 and from 2021-22 onwards has been considered as 10.50% (SBI 1 year MCLR applicable as on 1.4.2021 of 7.00 % plus 350 basis points).

85. We have considered the submissions of the Petitioner, and accordingly, IWC is worked out in accordance with Regulation 34 of the 2019 Tariff Regulations and the components of the working capital and interest allowed thereon for the transmission system for the 2019-24 tariff period are as follows:

		(₹ in lakh)				
	Particulars	2019-20	2020-21	2021-22	2022-23	2023-24
A	Working Capital for O&M Expenses (1 month of O&M Expenses)	149.36	153.18	158.51	164.09	169.92
B	Maintenance Spares (15% of O&M Expenses)	268.85	275.73	285.31	295.36	305.86
C	Working Capital for Receivables (Equivalent to 45 days of annual transmission charges)	636.77	417.68	427.88	439.14	451.15
D	Total Working Capital (A+B+C)	1054.98	846.59	871.70	898.58	926.94
E	Rate of Interest (in %)	12.05	11.25	10.50	10.50	10.50
F	Interest on Working Capital (DxE)	127.13	95.24	91.53	94.35	97.33

Annual Fixed Charges of the 2019-24 Tariff Period

86. The transmission charges of the transmission system allowed for the 2019-24 tariff period are as follows:



(₹ in lakh)

Particulars	2019-20	2020-21	2021-22	2022-23	2023-24
Depreciation	948.86	12.08	19.78	27.32	39.66
Interest on Loan	6.14	11.90	18.78	24.87	35.22
Return on Equity	2304.54	1430.41	1438.37	1446.29	1458.03
O&M Expenses	1792.35	1838.20	1902.09	1969.05	2039.09
Interest on Working Capital	127.13	95.24	91.53	94.35	97.33
Total	5179.02	3387.84	3470.55	3561.88	3669.33

Filing Fee and Publication Expenses

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

Licence Fee & RLDC Fees and Charges

88. The Petitioner shall be entitled for reimbursement of licence fee in accordance with Regulation 70(4) of the 2019 Tariff Regulations for 2019-24 tariff period. The Petitioner shall also be entitled for recovery of RLDC fee and charges in accordance with Regulation 70(3) of the 2019 Tariff Regulations for the 2019-24 tariff period.

Goods and Services Tax

89. The Petitioner has submitted that, if GST is levied at any rate and at any point of time in 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, are to be paid by the Petitioner on account of demand from Government/ Statutory authorities, the same may be allowed to be recovered from the beneficiaries. The Petitioner has prayed to bill and recover GST on transmission charges separately from the beneficiaries, if at any time GST on transmission is withdrawn from negative list at any time in future.



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

Security Expenses

91. The Petitioner has submitted that security expenses for the transmission system are not claimed in the instant petition and it would file a separate petition for claiming the overall security expenses and the consequential IWC.

92. We have considered the submissions of the Petitioner. The Petitioner has claimed consolidated security expenses for all the transmission asset owned by it on projected basis for the 2019-24 tariff period on the basis of actual security expenses incurred in 2018-19 in Petition No. 260/MP/2020. The Commission vide order dated 3.8.2021 in Petition No. 260/MP/2020 approved 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

93. The Petitioner has sought reimbursement of capital spares at the end of 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

94. With effect from 1.7.2011, sharing of transmission charges for inter-State transmission systems was governed by the provisions of the 2010 Sharing Regulations and with effect from 1.11.2020 (after repeal of the 2010 Sharing Regulations), sharing of transmission charges is governed by the 2020 Sharing



Regulations. Accordingly, the liabilities of DICs for arrears of the transmission charges determined through this order shall be computed DIC-wise in accordance with the provisions of respective Tariff Regulations and Sharing Regulations and shall be recovered from the concerned DICs through Bills under Regulation 15(2)(b) of the 2020 Sharing Regulations. Billing, collection and disbursement of the transmission charges for subsequent period shall be governed in terms of provisions of the 2020 Sharing Regulations as provided in Regulation 57 of the 2019 Tariff Regulations.

95. To summarise:

a) The trued-up AFC approved for the transmission system for the 2014-19 tariff period are as follows:

(₹ in lakh)				
2014-15	2015-16	2016-17	2017-18	2018-19
5027.63	5196.86	5338.26	5475.06	5716.74

b) AFC allowed for the transmission system for the 2019-24 tariff period in this order are as follows:

(₹ in lakh)				
2019-20	2020-21	2021-22	2022-23	2023-24
5179.02	3387.84	3470.55	3561.88	3669.33

96. Annexure-I, Annexure-II(A) and Annexure-II(B) given hereinafter form part of the order.

97. This order disposes of Petition No.209/TT/2020 in terms of above discussions and findings.

sd/-	sd/-	sd/-	sd/-
(P. K. Singh) Member	(Arun Goyal) Member	(I. S. Jha) Member	(P. K. Pujari) Chairperson



Annexure-I

2014-19 Capital Expenditure	Combined Admitted Capital Cost as on COD (₹ in lakh)	ACE (₹ in lakh)						De-Capitalisation (₹ in lakh)					Admitted Capital Cost as on 31.3.2019 (₹ in lakh)	Rate of Depreciation as per Regulations	Annual Depreciation as per Regulations (Post Completion of 12 years of Useful Life) (₹ in lakh)					
									2015-16	2016-17	2017-18	2018-19			Allowed	2014-15	2015-16	2016-17	2017-18	2018-19
Land - Freehold	92.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	92.00	-	Spreading				
Building Civil Works & Colony	479.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	479.00	3.34					
Transmission Line	19675.47	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	19675.47	5.28					
Sub Station	3517.13	413.09	280.70	172.83	155.25	476.90	1498.77	43.38	29.48	18.15	16.30	50.08	157.39	4858.51	5.28					
PLCC	66.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	66.00	6.33					
Total	23829.60	413.09	280.70	172.83	155.25	476.90	1498.77	43.38	29.48	18.15	16.30	50.08	157.39	25170.98	Total					
Average Gross Block (₹ in lakh) (A)															24014.46	24324.92	24527.87	24674.69	24957.57	
Remaining Depreciable Value (₹ in lakh) (B)															2433.86	2346.67	2086.52	1713.37	1411.51	
Balance Life (in years) (C)															6.00	5.00	4.00	3.00	2.00	
Depreciation (D)=[(B)/(C)]															405.64	469.33	521.63	571.12	705.76	
Weighted Average Rate of Depreciation (E)=[(D)/(A)]															1.69%	1.93%	2.13%	2.31%	2.83%	



Annexure-II (A) (Existing Assets)

2019-24 Capital Expenditure	Admitted Capital Cost as on 1.4.2019 (₹ in lakh)	Projected De-Capitalisation (₹ in lakh)					Admitted Capital Cost as on 31.3.2024 (₹ in lakh)	Rate of Depreciation as per Regulations	Annual Depreciation as per Regulations (Post Completion of 12 years of Useful Life) (₹ in lakh)					
		2019-20	2020-21	2021-22	2022-23	2023-24			2019-20	2020-21	2021-22	2022-23	2023-24	
Land – Freehold	92.00	-	-	-	-	-	92.00	-	Spreading	Full Depreciation recovered				
Building Civil Works & Colony	479.00	-	-	-	-	-	479.00	3.34%						
Transmission Line	19675.47	-	-	-	-	-	19675.47	5.28%						
Sub Station	4858.51	11.23	4.72	4.36	-	50.83	4787.37	5.28%						
PLCC	66.00	-	-	-	-	-	66.00	6.33%						
Total	25170.98	11.23	4.72	4.36	-	50.83	25099.84							
							Average Gross Block (₹ in lakh) (A)		25165.37	25157.39	25152.85	25150.67	25125.26	
							Remaining Depreciable Value (₹ in lakh) (B)		942.89	0.00	0.00	0.00	0.00	
							Balance useful life (in years) (C)		1.00	0.00	0.00	0.00	0.00	
							Depreciation (D)=[(B)/(C)]		942.89	0.00	0.00	0.00	0.00	
							Weighted Average Rate of Depreciation (E)=[(D)/(A)]		3.75%	0.00%	0.00%	0.00%	0.00%	

Annexure-II (B) (New Assets)

2019-24 Capital Expenditure	Admitted Capital Cost as on 1.4.2019 (₹ in lakh)	Projected ACE (₹ in lakh)						Admitted Capital Cost as on 31.3.2024 (₹ in lakh)	Rate of Depreciation as per Regulations	Annual Depreciation as per Regulations (₹ in lakh)				
		2019-20	2020-21	2021-22	2022-23	2023-24	Total			2019-20	2020-21	2021-22	2022-23	2023-24
Sub Station	-	225.80	6.11	285.42	-	467.52	984.85	984.85	5.28%	5.96	12.08	19.78	27.32	39.66
Total	-	225.80	6.11	285.42	-	467.52	984.85	984.85		5.96	12.08	19.78	27.32	39.66
							Average Gross Block (₹ in lakh)		112.90	228.86	374.62	517.33	751.09	
							Weighted Average Rate of Depreciation		5.28%	5.28%	5.28%	5.28%	5.28%	

