

**CENTRAL ELECTRICITY REGULATORY COMMISSION  
NEW DELHI**

**Petition No. 321/TT/2020**

**Coram:**

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

**Date of Order: 22.11.2021**

**In the matter of:**

Approval under Regulation 86 of the Central Electricity Regulatory Commission (Conduct of Business) Regulations, 1999 and revision of transmission tariff of the 2001-04, 2004-09 and 2009-14 tariff periods and truing up of transmission tariff of the 2014-19 tariff period under the Central Electricity Regulatory Commission (Terms and Conditions of Tariff) Regulations, 2014 and determination of transmission tariff of the 2019-24 tariff period under the Central Electricity Regulatory Commission (Terms and Conditions of Tariff) Regulations, 2019 of **Combined Asset** comprising of **Asset-I:** 400 kV Vindhyachal-Korba S/C Transmission Line, **Asset-II:** 400 kV Itarsi-Indore S/C Transmission Line-1, **Asset-III:** 400 kV Vindhyachal-Jabalpur D/C Transmission Line-1, **Asset-IV:** 400 kV Jabalpur-Itarsi D/C Transmission Line-1 and **Asset-V:** 400 kV Indore-Asoj S/C Transmission Line-2 under Vindhyachal Super Thermal Power Station Stage-I Transmission System in Western Region.

**And in the matter of:**

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

**.....Petitioner**

**Versus**

1. Madhya Pradesh Power Management Company Limited,  
Shakti Bhawan, Rampur,  
Jabalpur-482008.
2. Madhya Pradesh Power Transmission Company Limited,  
Shakti Bhawan, Rampur,  
Jabalpur-482008.
3. Madhya Pradesh Audyogik Kendra Vikas Nigam (Indore) Limited,  
3/54, Press Complex, Agra-Bombay Road,  
Indore-452008.
4. Maharashtra State Electricity Distribution Company Limited,



Hongkong Bank Building, 3<sup>rd</sup> Floor, M.G. Road, Fort,  
Mumbai-400001.

5. Maharashtra State Electricity Transmission Company Limited,  
Prakashganga, 6<sup>th</sup> Floor, Plot No. C-19, E-Block,  
Bandra Kurla Complex, Bandra (East)  
Mumbai-400051.
  6. Gujarat Urja Vikas Nigam Limited,  
Sardar Patel Vidyut Bhawan, Race Course Road,  
Vadodara-390007.
  7. Electricity Department,  
Government of Goa, Vidyut Bhawan, Panaji, Near Mandvi Hotel,  
Goa-403001.
  8. Electricity Department,  
Administration of Daman & Diu,  
Daman-396210.
  9. Electricity Department,  
Administration of Dadra Nagar Haveli,  
U.T., Silvassa-396230.
  10. Chhattisgarh State Power Transmission Company Limited,  
State Load Despatch Building, Dangania,  
Raipur-492013.
  11. Chhattisgarh State Power Distribution Company Limited,  
P.O. Sunder Nagar, Dangania,  
Raipur, Chhattisgarh-492013.
- .....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** : Shri Anindya Khare, MPPMCL

### **ORDER**

The Petitioner, Power Grid Corporation of India Limited, has filed the instant petition for revision of transmission tariff of the 2001-04, 2004-09 and 2009-14 tariff periods; 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 under the Central Electricity Regulatory Commission (Terms and Conditions of Tariff) Regulations, 2019 (hereinafter referred to as “the 2019 Tariff Regulations”) for the period from 1.4.2019 to 31.3.2024 in respect of the following transmission assets forming part of **Combined Asset** under “Vindhyachal Super Thermal Power Station Stage-I Transmission System” in Western Region (hereinafter referred to as “the transmission system”):

**Asset-I:** 400 kV Vindhyachal-Korba S/C Transmission Line;

**Asset-II:** 400 kV Itarsi-Indore S/C Transmission Line-1;

**Asset-III:** 400 kV Vindhyachal-Jabalpur D/C Transmission Line-1;

**Asset-IV:** 400 kV Jabalpur-Itarsi D/C Transmission Line-1; and

**Asset-V:** 400 kV Indore-Asoj S/C Transmission Line-2.

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

- “1) Approve the revised Transmission Tariff for 2001-04 block as per para 8 above.
- 2) 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 9 and 10 above.
- 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 Regulation 2014 and Tariff regulations 2019 as per para 9 and 10 above for respective block.

*B. 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 adjust the cumulative depreciation by taking into account the depreciation recovered in tariff by the decapitalized asset during its useful life and to recover the unrecovered depreciation in case of Asset-I separately on account of de-capitalization.*
- 7) *Allow the petitioner to file a separate petition before Hon'ble Commission for claiming the overall security expenses and consequential IOWC on that security expenses as mentioned at para 10.5 above.*
- 8) *Allow the petitioner to claim the capital spares at the end of tariff block as per actual.*
- 9) *Allow the Petitioner to bill and recover GST on Transmission Charges separately from the respondents, if GST on transmission is levied at any rate in future. Further, any taxes including GST and duties including cess etc. imposed by any statutory/Govt./municipal authorities shall be allowed to be recovered from the beneficiaries.*

*and pass such other relief as 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 approval for implementation of the transmission system was approved by the Central Government in Ministry of Power. The transmission system was initially implemented by NTPC Limited but it was subsequently transferred to the Petitioner. The scope of work included in the said approval along with Date of Commercial Operation (COD) and length of the respective lines were as follows:

<b>Name of Transmission Line</b>	<b>Line Length (in km)</b>	<b>COD</b>
400 kV Vindhyachal-Korba S/C Transmission Line (Asset-I)	215	24.7.1988
400 kV Itarsi-Indore S/C Transmission Line-1 (Asset-II)	207	3.12.1989
400 kV Vindhyachal-Jabalpur DC Transmission Line-1 (Asset-III)	720	7.11.1989
400 kV Jabalpur-Itarsi SC Transmission Line-1 (Asset-IV)	464	8.8.1990
400 KV Indore-Asoj S/C Transmission Line-1 (Assert-V)	273	14.3.1989

b) The transmission tariff of the transmission assets for the period up to 31.3.2001 was approved by the Central Government under notification dated 20.7.1998 which was revised vide notification dated 14.5.1999 at a cost of ₹26988.25 lakh.



c) Based on the terms and conditions of tariff contained in the Commission's notification dated 26.3.2001, the transmission tariff including the Foreign Exchange Rate Variation (FERV) with respect to the transmission assets for the period from 1.4.2001 to 31.3.2004 was allowed by the Commission vide order dated 18.7.2003 in Petition No. 47/2002.

d) The Appellate Tribunal for Electricity (APTEL) vide judgment dated 4.10.2006 in Appeal No. 135/2005 (against the Commission's order dated 30.6.2006 in Petition No. 40/2002) and other related appeals, *inter-alia*, held that addition of notional equity on account of FERV is not to be considered for computation of Return on Equity (RoE) and as a consequence, the entire amount of FERV shall form part of loan. The said decision was reiterated by the APTEL vide judgment dated 22.12.2006 in Appeal No. 161/2006 (M.P. State Electricity Board vs. Power Grid Corporation of India Limited & Ors.).

e) The APTEL vide judgment dated 31.10.2007 in Appeal No. 159/2005, *inter-alia*, held that Interest on Loan (IoL) capital should be determined based on normative debt repayment formula.

f) The above rulings of the APTEL, on the question of apportionment of FERV and computation of IoL have been considered to be judgments *in rem* and, therefore, based on the implementation of the above-mentioned judgments in the instant case, the revised transmission tariff of the transmission assets for the 2001-04 tariff period was allowed vide order dated 17.1.2008 in Petition No. 47/2002.

g) The transmission tariff of the transmission assets for the period from 1.4.2004 to 31.3.2009 was allowed (after considering additional FERV as on 1.4.2004) vide order dated 14.12.2005 in Petition No. 111/2004. Further, based on the APTEL's judgments dated 4.10.2006 and 16.5.2007 in Appeal No. 135/2005 and Appeal No. 121/2005 respectively, the transmission tariff of the transmission assets for the period from 1.4.2004 to 31.3.2009 was revised vide order dated 14.2.2008 in Petition No. 111/2004.



h) The transmission tariff of the transmission assets for the period from 1.4.2009 to 31.3.2014 was allowed vide order dated 1.8.2011 in Petition No. 275/2010 which was subsequently trued-up with determination of tariff of Combined Asset for the 2014-19 tariff period vide order dated 29.1.2016 in Petition No. 481/TT/2014.

i) The Petitioner vide affidavit dated 11.6.2021 has submitted the additional information with the list of the transmission lines, sub-stations, bus reactor and ICTs, forming part of the transmission system as follows:

**Transmission Line**

- 400 kV Itarsi-Indore Ckt. I;
- 400 kV Indore- Asoj- Ckt. II;
- 400 kV Vindhyachal-Jabalpur Ckt. I and II;
- 400 kV Jabalpur-Itarsi Ckt. I and II; and
- 400 kV Vindhyachal-Korba Ckt. I.

**Sub-station**

- 400 kV Indore Sub-station;
- 400 kV Asoj Sub-station;
- 400 kV Itarsi Sub-station;
- 400 kV Jabalpur Substation.

**400 kV Bus Reactor at Itarsi Sub-station**

**400/220 kV ICT-I and ICT-II at Jabalpur Sub-station**

j) The complete scope of work covered under the transmission system is complete and is covered in the instant petition.

4. The Respondents are distribution licensees, power departments and transmission licensees which are procuring transmission services from the Petitioner, mainly beneficiaries of Western 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. Madhya Pradesh Power Management Company Limited (MPPMCL), Respondent No. 1, has filed its reply vide affidavit dated 27.5.2020 and has raised the issues of Income Tax rate of grossing up of Return on Equity (RoE) during the 2014-19 period, Additional Capital Expenditure (ACE) and de-capitalisation during the 2014-19 and 2019-24 tariff periods. The Petitioner vide affidavit dated 8.6.2021 has filed rejoinder to the reply of MPPMCL.

6. It has been placed before us that MPPMCL has been raising the same issue(s) in other petitions as well despite clear findings of the Commission rejecting the contentions of MPPMCL. The contentions of MPPMCL have been rejected by the Commission in other petitions including Petition No. 704/TT/2020. As MPPMCL has not challenged the findings, the same have attained finality. In view of these, the plea(s) raised by MPPMCL are rejected. The issues which are specific to the instant petition and not dealt by the Commission earlier are considered in the relevant paragraphs of this order.

7. This order is issued considering the submissions made by the Petitioner in the petition vide affidavit dated 21.1.2020, MPPMCL's reply filed vide affidavit dated 27.5.2020, the Petitioner's affidavit dated 5.2.2021 and 11.6.2021 filing the additional information, the Petitioner's rejoinder to MPPMCL's reply filed vide affidavit dated 8.6.2021 and the Petitioner's affidavit dated 13.4.2021 filed in response to technical validation letter dated 28.3.2021.

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



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

9. We observe from the submissions of the Petitioner made in this petition that although the transmission assets covered under the transmission system were commissioned during the period from 1988 to 1989, 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 as already allowed by the Commission vide afore-mentioned orders has been claimed by the Petitioner in this petition. Therefore, we have not revised the tariff for the 2001-04, 2004-09 and 2009-14 tariff periods already granted.

10. In furtherance to the above observations, the submissions of the Petitioner with respect to the revision/ consequential revision in tariff (as mentioned in this petition) have not been considered relevant in this order and accordingly the Commission's findings on the aspect of revision/ consequential revision in tariff on the basis of afore-mentioned judgments of the APTEL have not been mentioned and dealt for the sake of brevity.

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

11. The details of the trued-up transmission charges as claimed by the Petitioner in respect of Combined Asset for the 2014-19 tariff period are as follows:

Particulars	(₹ in lakh)				
	2014-15	2015-16	2016-17	2017-18	2018-19
Depreciation	411.51	411.67	416.30	484.23	538.85
Interest on Loan	0.00	0.00	0.00	0.00	0.00
Return on equity	2653.68	2666.63	2665.52	2663.95	2669.32
Interest on Working Capital	152.49	155.55	158.44	162.86	167.25
O&M Expenses	1483.22	1533.16	1584.01	1636.36	1690.78
<b>Total</b>	<b>4700.90</b>	<b>4767.01</b>	<b>4824.27</b>	<b>4947.40</b>	<b>5066.20</b>





12. The details of the trued-up IWC as claimed by the Petitioner in respect of Combined Asset for the 2014-19 tariff period are as follows:

(₹ in lakh)					
Particulars	2014-15	2015-16	2016-17	2017-18	2018-19
O&M expenses	123.60	127.26	132.00	136.36	140.90
Maintenance Spares	222.48	229.97	237.60	245.45	253.62
Receivables	783.48	794.50	804.05	824.57	844.37
<b>Total</b>	<b>1129.56</b>	<b>1152.23</b>	<b>1173.65</b>	<b>1206.38</b>	<b>1238.89</b>
Rate of Interest (In %)	13.50	13.50	13.50	13.50	13.50
<b>Interest on Working Capital</b>	<b>152.49</b>	<b>155.55</b>	<b>158.44</b>	<b>162.86</b>	<b>167.25</b>

### **Capital Cost as on 1.4.2014**

13. The capital cost of Combined Asset has been calculated in accordance with Regulations 9(3) and 9(6) of the 2014 Tariff Regulations.

14. The Commission vide order dated 29.1.2016 in Petition No. 481/TT/2014 had allowed the capital cost as on 31.3.2014 of ₹27159.33 lakh; projected ACE of ₹240.00 lakh and ₹120.00 lakh during 2015-16 and 2017-18 respectively; and de-capitalisation of ₹66.72 lakh and ₹12.90 lakh during 2015-16 and 2017-18 respectively. Accordingly, the details of total capital cost as on 31.3.2019 (admitted vide the said order) is as follows:

(₹ in lakh)				
Capital Cost admitted (as on 31.3.2004)	ACE (2014-19)			Total Capital Cost (as on 31.3.2019)
	ACE/ De-capitalisation	2015-16	2017-18	
27159.33	ACE	240.00	120.00	27439.71
	De-capitalisation	66.72	12.90	
	Net ACE	173.28	107.10	

### **Additional Capital Expenditure**

15. The details of actual ACE (including de-capitalisation) during the 2014-19 period as submitted by the Petitioner in this petition are as follows:



Total Capital Cost (as on 31.3.2004)	ACE during 2014-19				Total Capital Cost (as on 31.3.2019)	
	ACE/ De-capitalisation	2015-16	2016-17	2017-18		2018-19
27159.33	ACE	3.16	34.23	662.5	277.83	27494.37
	De-capitalisation	0.00	44.93	404.99	192.76	
	Net ACE	3.16	-10.7	257.51	85.07	

16. The Petitioner has submitted that ACE during the 2014-19 period is claimed in line with Regulation 14(3)(vii) and 14(3)(ix) of the 2014 Tariff Regulations and is towards replacement of problematic/ defective equipment that are going to complete 25 years and replacement of sub-station equipment i.e. Current Transformers (CTs), Circuit Breakers (CBs), Wave Traps (WTs), Control and Protection Panels, Power and Control Cables, etc.

17. MPPMCL has submitted that as per the Petitioner's submissions, since the equipment were commissioned way back (nearly more than 20 years ago), some of the equipment have worn out leading to frequent faults and repairs and that, therefore, the Petitioner has felt it necessary to replace them in progressive manner to facilitate smooth functioning of the transmission system. MPPMCL has submitted that the Petitioner has claimed actual ACE/ de-capitalization during the 2014-19 tariff period on the basis of Auditor's Certificate but the Petitioner has not submitted any document showing that transparency has been adopted while disposing of the worn-out instruments and valuation related thereto. Also, the Petitioner has not submitted the criteria and reason(s) on the basis of which it has finalized the equipment requiring immediate replacement.

18. In response, the Petitioner vide affidavits dated 13.4.2021 and 8.6.2021 has submitted a detailed equipment list to be replaced under the proposed ACE/ de-capitalisation during the 2014-19 tariff period which is as follows:



(₹ in lakh)

Sl. No.	Equipment to be replaced/ refurbished	Unit	Qty.	ACE claimed during 2014-19					De-capitalisation				
				2014-15	2015-16	2016-17	2017-18	2018-19	2014-15	2015-16	2016-17	2017-18	2018-19
<b>1</b>	<b>Jabalpur Sub-station</b>												
a	Repairing of Drainage	Lot	1	0.00	0.00	0.00	10.69	11.07	0.00	0.00	0.00	0.00	0.00
b	Cover Slab Replacement	Lot	1	0.00	3.16	3.33	2.32	12.43	0.00	0.00	0.00	0.00	0.00
c	Retrofitting of old Bus bars Protection	Set	1	0.00	0.00	0.00	0.00	45.29	0.00	0.00	0.00	0.00	0.00
d	Circuit Breaker	Number	10	0.00	0.00	0.00	256.75	85.50	0.00	0.00	0.00	188.44	99.25
	<b>Itarsi Sub-station</b>			0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
e	Repairing of Drainage	Lot	1	0.00	0.00	0.00	36.09	0.00	0.00	0.00	0.00	0.00	0.00
f	Cover Slab Replacement	Lot	1	0.00	0.00	10.92	47.59	12.11	0.00	0.00	0.00	0.00	0.00
g	PLCC	Set	1	0.00	0.00	19.98	0.00	0.00	0.00	0.00	44.93	0.00	0.00
h	Retrofitting of old Bus bars Protection	Set	1	0.00	0.00	0.00	0.00	45.29	0.00	0.00	0.00	0.00	0.00
i	Circuit Breaker	Number	9	0.00	0.00	0.00	231.08	66.15	0.00	0.00	0.00	165.42	93.50
j	Isolator	Number	10	0.00	0.00	0.00	78.07	0.00	0.00	0.00	0.00	51.13	0.00
	<b>Total for the 2014-19 period</b>			<b>0.00</b>	<b>3.16</b>	<b>34.23</b>	<b>662.58</b>	<b>277.83</b>	<b>0.00</b>	<b>0.00</b>	<b>44.93</b>	<b>405.00</b>	<b>192.75</b>

19. The Petitioner vide affidavits dated 13.4.2021 and 8.6.2021 has also submitted necessary justification pertaining to said ACE during the 2014-19 period as follows:

**a) Replacement of additional BHEL make CBs at Jabalpur Sub-station (08 Numbers) and at Itarsi Sub-station (07 Numbers)**

i. Replacement of 04 numbers BHEL make CBs (02 each at Jabalpur and Itarsi sub-stations) was approved under ACE by the Commission vide order dated 29.1.2016 in Petition No. 481/TT/2014 and balance BHEL make CBs were not proposed for replacement as no major problem was envisaged. However, now these balance CBs have completed their useful lives and are obsolete. The problems observed by the Petitioner in relation to the balance CBs are as follows:

- Frequent Oil leakages/ failures of hydraulic mechanism;
- Frequent leakages of nitrogen;
- Wear and tear of Inter-pole cables;
- Improper operation of contactors and auxiliary contacts; and



- Delay in support from OEM due to obsolescence of technology.
- ii. Further, as these 15 CBs are of the same lot as the 4 CBs approved by the Commission for replacement under ACE, replacement of balance CBs had also been taken up in view of reliability of the transmission system.

**b) Replacement of obsolete Bus-Bar Protection System at Jabalpur and Itarsi**

- i. The service/ spares support is not available from OEM on account of obsolescence with respect to the ABB make high impedance static type based bus-bar protection under the earlier bus-bar scheme which was implemented at Jabalpur and Itarsi sub-stations without individual bay monitoring option. The said relay does not have facility for communication, self-diagnostic features, alarm reporting, time synchronization, disturbance recording and event logging features due to which detailed analysis and correlation during bus-bar tripping is becoming difficult.
- ii. Further, WRPC in its 129<sup>th</sup> PCM held on 29.6.2017 has requested all utilities to replace bus-bar protection relays with numerical relays.
- iii. In view of above, replacement of bus-bar relays was taken up at Jabalpur and Itarsi.

20. The details of capital cost as on 31.3.2019 (including ACE/ de-capitalisation during the 2014-19 period) as submitted by the Petitioner vide Auditor's Certificate dated 4.7.2020 are as follows:

Capital Cost admitted (as on 31.3.2004)	ACE and De-capitalization (as per Auditor's Certificate)										Total Capital Cost (as on 31.3.2019)
	2014-15		2015-16		2016-17		2017-18		2017-18		
	ACE							De-Cap	ACE	De-Cap	
27159.33	0.00	0.00	3.16	0.00	34.23	44.93	662.50	404.99	277.83	192.76	27494.37

21. We have considered the submissions of the Petitioner and MPPMCL. ACE claimed during the 2014-19 tariff period is allowed under Regulation 14(3)(vii) and 14(3)(ix) of the 2014 Tariff Regulations towards replacement of problematic/ defective equipment that are going to complete 25 years and replacement of sub-



station equipment i.e. CTs, CBs, WTs, Control and Protection Panels, Power and Control Cables etc.

22. Accordingly, the details of the capital cost (along with ACE/ de-capitalisation during the 2014-19 period) considered for the true up of tariff for the 2014-19 tariff period are as follows:

Capital Cost as admitted (as on 31.3.2004)	ACE/ De-capitalisation allowed during 2014-19 period (as per Auditor's Certificate)										Total Capital Cost (as on 31.3.2019)
	2014-15		2015-16		2016-17		2017-18		2018-19		
	ACE	De-cap	ACE	De-cap	ACE	De-cap	ACE	De-cap	ACE	De-cap	
27159.33	0.00	0.00	3.16	0.00	34.23	44.93	662.50	404.99	277.83	192.76	27494.37

### **Debt-Equity Ratio**

23. The debt-equity ratio has been considered in accordance with Regulation 19(3) of the 2014 Tariff Regulations. 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 31.3.2014 and 31.3.2019 considering (ACE/ de-capitalization during the 2014-19 period) for Combined Asset are as follows:

### ***Debt-Equity for Capital Cost as on 31.3.2014***

Funding	As on 1.4.2014	
	2014-15	(in %)
Debt	13627.74	50.18
Equity	13531.59	49.82
<b>Total</b>	<b>27159.33</b>	<b>100.00</b>

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

Funding	ACE		De-capitalisation	
	2014-15	(in %)	2014-15	(in %)
Debt	0.00	70.00	0.00	50.00
Equity	0.00	30.00	0.00	50.00
<b>Total</b>	<b>0.00</b>	<b>100.00</b>	<b>0.00</b>	<b>100.00</b>
Funding	ACE		De-capitalisation	
	2015-16	(in %)	2015-16	(in %)
Debt	2.21	70.00	0.00	50.00



Equity	0.95	30.00	0.00	50.00
<b>Total</b>	<b>3.16</b>	<b>100.00</b>	<b>0.00</b>	<b>100.00</b>
<b>Funding</b>	<b>ACE</b>		<b>De-capitalisation</b>	
	<b>2016-17</b>	<b>(in %)</b>	<b>2016-17</b>	<b>(in %)</b>
Debt	23.96	70.00	22.47	50.00
Equity	10.27	30.00	22.47	50.00
<b>Total</b>	<b>34.23</b>	<b>100.00</b>	<b>44.93</b>	<b>100.00</b>
<b>Funding</b>	<b>ACE</b>		<b>De-capitalisation</b>	
	<b>2017-18</b>	<b>(in %)</b>	<b>2017-18</b>	<b>(in %)</b>
Debt	463.75	70.00	202.50	50.00
Equity	198.75	30.00	202.50	50.00
<b>Total</b>	<b>662.50</b>	<b>100.00</b>	<b>404.99</b>	<b>100.00</b>
<b>Funding</b>	<b>ACE</b>		<b>De-capitalisation</b>	
	<b>2018-19</b>	<b>(in %)</b>	<b>2018-19</b>	<b>(in %)</b>
Debt	194.48	70.00	96.38	50.00
Equity	83.35	30.00	96.38	50.00
<b>Total</b>	<b>277.83</b>	<b>100.00</b>	<b>192.76</b>	<b>100.00</b>

#### **Debt- Equity for Capital Cost as on 31.3.2019**

(₹ in lakh)

<b>Funding</b>	<b>As on 31.3.2019</b>	
	<b>2018-19</b>	<b>(in %)</b>
Debt	13990.80	50.89
Equity	13503.57	49.11
<b>Total</b>	<b>27494.37</b>	<b>100.00</b>

#### **Depreciation**

24. The transmission system has already completed 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. Thus, the trued-up depreciation allowed during the 2014-19 tariff period is as follows:

(₹ in lakh)

<b>Particulars</b>	<b>2014-15</b>	<b>2015-16</b>	<b>2016-17</b>	<b>2017-18</b>	<b>2018-19</b>
Opening Gross Block	27159.33	27159.33	27162.49	27151.79	27409.30
Net ACE	0.00	3.16	-10.70	257.51	85.07
Closing Gross Block	27159.33	27162.49	27151.79	27409.30	27494.37
Average Gross Block	27159.33	27160.91	27157.14	27280.55	27451.84
Rate of Depreciation (in %)	1.51	1.51	1.51	1.59	1.89
Balance useful life (at the beginning of the year) Year	10.00	9.00	8.00	7.00	6.00
Aggregate Depreciable Value	24236.37	24237.79	24234.40	24345.46	24499.62
<b>Depreciation during the year</b>	<b>411.32</b>	<b>411.48</b>	<b>411.05</b>	<b>432.70</b>	<b>519.14</b>



Cumulative Aggregate Depreciation	20534.49	20945.97	21316.58	21384.79	21730.45
Remaining Aggregate Depreciable Value	3701.88	3291.82	2877.38	2596.18	2595.70

25. Depreciation in respect of Combined Asset as allowed vide order dated 29.1.2016 in Petition No. 481/TT/2014, claimed by the Petitioner in the instant petition and true-up in the instant order is as follows:

Particulars	(₹ in lakh)				
	2014-15	2015-16	2016-17	2017-18	2018-19
Allowed vide order dated 29.1.2016 in Petition No. 481/TT/2014	411.32	419.98	429.73	436.61	444.65
As claimed by the Petitioner in the instant petition	411.51	411.67	416.30	484.23	538.85
Approved after true-up in this order	411.32	411.48	411.05	432.70	519.14

26. The Petitioner has prayed that unrecovered depreciation in respect of Combined Asset amounting to ₹4.58 lakh may be allowed on account of de-capitalisation.

27. We have considered the submissions of the Petitioner. We observe that no specific provision pertaining to the recovery of unrecovered depreciation on account of de-capitalisation exists in the 2014 Tariff Regulations. Therefore, we are not inclined to allow the ₹4.58 lakh claimed by the Petitioner towards unrecovered depreciation separately.

### **Interest on Loan**

28. The Petitioner has not claimed any IoL and, hence, no IoL has been considered in this order.

### **Return on Equity**

29. The Petitioner has claimed RoE for Combined Asset 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	21.018	19.624
2015-16	21.382	19.716
2016-17	21.338	19.705
2017-18	21.337	19.704
2018-19	21.549	19.758

30. In response to the contentions of MPPMCL regarding Income Tax rate for grossing up of RoE, as raised in various other petitions, where the Commission has already given its findings, the Petitioner has submitted the same reply (as submitted vide rejoinder in Petition No. 704/TT/2020, already disposed by the Commission vide order dated 24.10.2021) which has been considered in this petition as well.

31. We have considered the submissions of the Petitioner and repeated contentions of MPPMCL in this context. The Commission vide order dated 2.2.2021 in Petition No. 312/TT/2020 has already dealt with MPPMCL's contentions of Income Tax rate for grossing up of RoE observing that the Petitioner has submitted assessment orders issued by the Income Tax Department for the years 2014-15, 2015-16 and 2016-17 and Income Tax returns have been filed by the Petitioner for the years 2017-18 and 2018-19. The Commission in the said order further observed that the Petitioner has submitted the documents as pointed out by MPPMCL. In view of our finding in the order dated 2.2.2021 in Petition No. 312/TT/2020, no fresh consideration on the issue is required. Accordingly, the contentions of MPPMCL are rejected.

32. The Commission vide order dated 27.4.2020 in Petition No. 274/TT/2019 had arrived at the effective tax rate based on the notified MAT rates for the Petitioner which are 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

33. MAT rates considered in order dated 27.4.2020 for the purpose of grossing up of rate of RoE for truing up of the tariff of the 2014-19 tariff period, in terms of the provisions of the 2014 Tariff Regulations, is considered in the instant case which are 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

34. The Petitioner has claimed RoE for the 2014-19 tariff period after grossing up the RoE @15.50% with Effective Tax rates (based on MAT rates) each year as per Regulation 25(3) of the 2014 Tariff Regulations. RoE is trued-up on the basis of MAT rates applicable in the respective years and is allowed for Combined Asset for the 2014-19 tariff period as follows:

Particulars	(₹ in lakh)				
	2014-15	2015-16	2016-17	2017-18	2018-19
Opening Equity	13531.59	13531.59	13532.54	13520.34	13516.60
Addition due to Net ACE	0.00	0.95	-12.20	-3.75	-13.03
Closing Equity	13531.59	13532.54	13520.34	13516.60	13503.57
Average Equity	13531.59	13532.06	13526.44	13518.47	13510.08
Return on Equity (Base Rate) (in %)	15.500	15.500	15.500	15.500	15.500
Tax Rate applicable (in %)	20.961	21.342	21.342	21.342	21.549
Applicable ROE Rate (in %)	19.610	19.705	19.705	19.705	19.758
<b>Return on Equity for the year</b>	<b>2653.54</b>	<b>2666.49</b>	<b>2665.39</b>	<b>2663.81</b>	<b>2669.32</b>



35. RoE in respect of Combined Asset as allowed vide order dated 29.1.2016 in Petition No. 481/TT/2014, claimed by the Petitioner in the instant petition and true-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 29.1.2016 in Petition No. 481/TT/2014	2653.54	2658.64	2663.74	2666.89	2670.04
As claimed by the Petitioner in the instant petition	2653.68	2666.63	2665.52	2663.95	2669.32
Approved after true-up in this order	2653.54	2666.49	2665.39	2663.81	2669.32

### Operation & Maintenance Expenses (O&M Expenses)

36. The O&M Expenses as claimed by the Petitioner in respect of the various elements covered under Combined Asset are in line with the norms specified under the 2014 Tariff Regulations and are allowed as follows:

	(₹ in lakh)				
Particulars	2014-15	2015-16	2016-17	2017-18	2018-19
<b>Transmission Lines</b>					
400 kV S/C Itarsi Indore Circuit I (KM)	207.00	207.00	207.00	207.00	207.00
400 kV S/C Indore- Asoj Circuit II	273.00	273.00	273.00	273.00	273.00
400 kV D/C Vindhyachal-Jabalpur Circuit I and Circuit II	360.00	360.00	360.00	360.00	360.00
400 kV D/C Jabalpur-Itarsi Circuit I and Circuit II	232.00	232.00	232.00	232.00	232.00
400 kV S/C Vindhyachal- Korba Circuit I	215.00	215.00	215.00	215.00	215.00
<b>Norms (₹ lakh/km)</b>					
S/C (Twin/Triple Conductor)	0.40	0.42	0.43	0.45	0.46
D/C (Twin/Triple Conductor)	0.71	0.73	0.76	0.78	0.81
<b>O&amp;M Expenses Transmission Lines</b>	<b>699.32</b>	<b>723.26</b>	<b>747.20</b>	<b>771.73</b>	<b>797.55</b>
<b>Sub-station bays</b>					
Indore: ITRASI I	1	1	1	1	1
Indore: ASOJ II	1	1	1	1	1
Asoj: INDORE II	1	1	1	1	1
Jabalpur: VINDHYACHAL-I	1	1	1	1	1
Jabalpur: VINDHYACHAL-II	1	1	1	1	1
Jabalpur:ITRASI-I	1	1	1	1	1
Jabalpur:ITRASI-II	1	1	1	1	1
Jabalpur:ICT-I	1	1	1	1	1
Jabalpur:ICT II	1	1	1	1	1
Itarsi:INDORE I	1	1	1	1	1



Itarsi:JABALPUR I	1	1	1	1	1
Itarsi:JABALPUR II	1	1	1	1	1
:BUS REACTOR I	1	1	1	1	1
Norms (₹ lakh/Bay)					
400 kV	60.30	62.30	64.37	66.51	68.71
<b>O&amp;M Expenses Sub-station</b>	<b>783.90</b>	<b>809.90</b>	<b>836.81</b>	<b>864.63</b>	<b>893.23</b>
<b>Total O&amp;M Expenses (₹ in lakh)</b>	<b>1483.22</b>	<b>1533.16</b>	<b>1584.01</b>	<b>1636.36</b>	<b>1690.78</b>

37. O&M Expenses in respect of Combined Asset as allowed vide order dated 29.1.2016 in Petition No. 481/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 29.1.2016 in Petition No. 481/TT/2014	1483.22	1533.16	1584.01	1636.36	1690.78
As claimed by the Petitioner in the instant petition	1483.22	1533.16	1584.01	1636.36	1690.78
Approved after true up in this order	1483.22	1533.16	1584.01	1636.36	1690.78

### **Interest on Working Capital**

38. IWC has been worked out as per the methodology provided in Regulation 28 of the 2014 Tariff Regulations and the trued-up IWC allowed in respect of Combined Asset for the 2014-19 tariff period is as follows:

(₹ in lakh)					
Particulars	2014-15	2015-16	2016-17	2017-18	2018-19
WC for O&M Expenses (O&M Expenses for one month)	123.60	127.76	132.00	136.36	140.90
WC for Maintenance Spares (15% of O&M)	222.48	229.97	237.60	245.45	253.62
WC for Receivables (Equivalent to two months of annual transmission charges)	783.43	794.45	803.13	815.76	841.01
<b>Total</b>	<b>1129.51</b>	<b>1152.18</b>	<b>1172.73</b>	<b>1197.57</b>	<b>1235.52</b>
Rate of Interest on Working Capital (in %)	13.50	13.50	13.50	13.50	13.50
<b>Interest of Working Capital</b>	<b>152.48</b>	<b>155.54</b>	<b>158.32</b>	<b>161.67</b>	<b>166.80</b>

39. IWC in respect of Combined Asset as allowed vide order dated 29.1.2016 in Petition No. 481/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 29.1.2016 in Petition No. 481/TT/2014	152.48	155.56	158.71	161.83	165.10
As claimed by the Petitioner in the instant petition	152.49	155.55	158.44	162.86	167.25
Approved after true-up in this order	152.48	155.54	158.32	161.67	166.80

#### **Approved Annual Fixed Charges for the 2014-19 Tariff Period**

40. The trued-up Annual Fixed Charges (AFC) in respect of Combined Asset for the 2014-19 tariff period are as follows:

(₹ in lakh)					
Particulars	2014-15	2015-16	2016-17	2017-18	2018-19
Depreciation	411.32	411.48	411.05	432.70	519.14
Interest on Loan	0.00	0.00	0.00	0.00	0.00
Return on Equity	2653.54	2666.49	2665.39	2663.81	2669.32
O&M Expenses	1483.22	1533.16	1584.01	1636.36	1690.78
Interest on Working Capital	152.48	155.54	158.32	161.67	166.80
<b>Total</b>	<b>4700.57</b>	<b>4766.68</b>	<b>4818.77</b>	<b>4894.54</b>	<b>5046.03</b>

41. Accordingly, AFC in respect of Combined Asset as allowed vide order dated 29.1.2016 in Petition No. 481/TT/2014, claimed by the Petitioner in the instant petition and approved after truing 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 29.1.2016 in Petition No. 481/TT/2014	4700.56	4767.34	4836.19	4901.69	4970.57
As claimed by the Petitioner in the instant petition	4700.90	4767.01	4824.27	4947.40	5066.20
Approved after true-up in this order	4700.57	4766.68	4818.77	4894.54	5046.03

#### **Determination of Annual Fixed Charges of the 2019-24 Tariff Period**

42. The Petitioner has claimed the transmission charges in respect of Combined Asset for the 2019-24 tariff period as follows:

(₹ in lakh)					
Particulars	2019-20	2020-21	2021-22	2022-23	2023-24
Depreciation	273.25	409.01	590.91	859.77	1075.14
Interest on Loan	0.00	37.47	91.30	135.52	151.48
Return on Equity	2536.24	2566.31	2620.97	2675.94	2725.79



Interest on Working Capital	108.30	113.83	120.66	128.71	135.26
O&M Expenses	1515.70	1569.45	1624.30	1681.58	1740.06
<b>Total</b>	<b>4433.49</b>	<b>4696.07</b>	<b>5048.14</b>	<b>5481.52</b>	<b>5827.73</b>

43. The Petitioner has claimed IWC in respect of Combined Asset for the 2019-24 period as follows:

(₹ in lakh)					
Particulars	2019-20	2020-21	2021-22	2022-23	2023-24
O&M Expenses	126.31	130.79	135.36	140.13	145.01
Maintenance Spares	227.36	235.42	243.65	252.24	261.01
Receivables	545.10	578.40	622.35	675.78	716.50
<b>Total</b>	<b>898.77</b>	<b>944.61</b>	<b>1001.36</b>	<b>1068.15</b>	<b>1122.52</b>
Rate of Interest (in %)	12.05	12.05	12.05	12.05	12.05
<b>Interest on Working Capital</b>	<b>108.30</b>	<b>113.83</b>	<b>120.66</b>	<b>128.71</b>	<b>135.26</b>

### Capital Cost

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

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

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

(a) *The expenditure incurred or projected to be incurred up to the date of commercial operation of the project;*

(b) *Interest during construction and financing charges, on the loans (i) being equal to 70% of the funds deployed, in the event of the actual equity in excess of 30% of the funds deployed, by treating the excess equity as normative loan, or (ii) being equal to the actual amount of loan in the event of the actual equity less than 30% of the funds deployed;*

(c) *Any gain or loss on account of foreign exchange risk variation pertaining to the loan amount availed during the construction period;*

(d) *Interest during construction and incidental expenditure during construction as computed in accordance with these regulations;*

(e) *Capitalised initial spares subject to the ceiling rates in accordance with these regulations;*

(f) *Expenditure on account of additional capitalization and de-capitalisation determined in accordance with these regulations;*

(g) *Adjustment of revenue due to sale of infirm power in excess of fuel cost prior to the date of commercial operation as specified under Regulation 7 of these regulations;*

(h) *Adjustment of revenue earned by the transmission licensee by using the asset before the date of commercial operation;*

(i) *Capital expenditure on account of ash disposal and utilization including handling and transportation facility;*

(j) *Capital expenditure incurred towards railway infrastructure and its augmentation for transportation of coal up to the receiving end of the generating station but does not include the transportation cost and any other appurtenant cost paid to the railway;*



- (k) Capital expenditure on account of biomass handling equipment and facilities, for co-firing;
- (l) Capital expenditure on account of emission control system necessary to meet the revised emission standards and sewage treatment plant;
- (m) Expenditure on account of fulfilment of any conditions for obtaining environment clearance for the project;
- (n) Expenditure on account of change in law and force majeure events; and
- (o) Capital cost incurred or projected to be incurred by a thermal generating station, on account of implementation of the norms under Perform, Achieve and Trade (PAT) scheme of Government of India shall be considered by the Commission subject to sharing of benefits accrued under the PAT scheme with the beneficiaries.

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

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

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

- (a) cost of approved rehabilitation and resettlement (R&R) plan of the project in conformity with National R&R Policy and R&R package as approved; and
- (b) cost of the developer's 10% contribution towards Rajiv Gandhi Grameen Vidyutikaran Yojana (RGGVY) and Deendayal Upadhyaya Gram Jyoti Yojana (DDUGJY) project in the affected area.

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

- (a) The asset forming part of the project, but not in use, as declared in the tariff petition;
- (b) De-capitalised Asset after the date of commercial operation on account of replacement or removal on account of obsolescence or shifting from one project to another project:

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

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





- (c) In case of hydro generating stations, any expenditure incurred or committed to be incurred by a project developer for getting the project site allotted by the State Government by following a transparent process;
- (d) Proportionate cost of land of the existing project which is being used for generating power from generating station based on renewable energy; and
- (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.”

45. The Petitioner has claimed capital cost as on 31.3.2019 of ₹27494.37 lakh for Combined Asset. The same has been worked out in preceding paragraphs and 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**

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; and*
- (g) *Raising of ash dyke as a part of ash disposal system*

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

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



47. The Petitioner has projected net ACE of ₹4994.23 lakh (after adjusting de-capitalisation during the 2019-24 tariff period) for Combined Asset under Regulation 25(2)(c) of the 2019 Tariff Regulations. The details of estimated completion cost as on 31.03.2024 (including estimated ACE/ de-capitalization) as claimed by the Petitioner are as follows:

	(₹ in lakh)
Capital Cost as on 31.3.2019	27494.37
Estimated de-capitalisation during 2020-21	587.46
Estimated ACE during 2020-21	2046.53
Estimated de-capitalisation during 2021-22	367.57
Estimated ACE during 2021-22	1485.33
Estimated de-capitalisation during 2022-23	744.87
Estimated ACE during 2022-23	2320.12
Estimated de-capitalisation during 2023-24	227.28
Estimated ACE during 2023-24	1069.43
Estimated capital cost as on 31.3.2024	32488.60

48. The Petitioner has submitted that ACE during 2019-24 period is projected towards replacement of problematic/ defective equipment that are going to complete 25 years and is towards deconstruction of old and dilapidated buildings that have completed 30 years of useful life.

49. The Petitioner has further detailed the said projected ACE to be incurred during the 2019-24 period in this petition as follows:

**a) Replacement of sub-station equipment**

i.CTs, CBs, WTs, Control and Protection Panels, Power and Control Cables of the transmission system were commissioned during 1992-93 and some of these equipment's have worn out, leading to frequent faults, burn out and repairs. CTs and Capacitive Voltage Transformers (CVTs) have completed more than 25 years of service and because of their ageing, frequent oil leakages and hot spots have been observed. These CTs and CVTs have become obsolete because of which neither timely support from OEM nor related spares are available. Outage hours have increased due to the above issues.





- ii. WTs installed have also completed more than 25 years of service. As a result, failure of terminal connectors occurs frequently and also there have been incidences of burning of WTs and unwinding of WTs' coils because of deterioration of insulation between turns of coil. Hence, dismantling of complete WTs is also required.
- iii. Most of the relays installed are of static type. Hence, problem of mal-operation/ non-operation occurs frequently because of sticking up of relay contacts as coils of auxiliary relays have weakened due to ageing. Also, operation of switchyard equipment from Control Panel is difficult due to ageing of switches. Power and Control Cables, Wiring and Terminal Blocks inside both Control and Protection panels and Equipment MBs have become brittle leading to DC leakages and other frequent failures. These issues result in spurious/ non-desirable tripping of elements.
- iv. All HT and LT Cables installed at both Jabalpur and Itarsi sub-stations have already completed 25 years of service which is affecting the operation of EHV switchgear due to aging and deterioration of insulation.
- v. In transmission lines, the insulators are old and need to be replaced with polymer insulators. The tower legs are rusted/ corroded and need to be rectified as life extension measure and to prevent any damage to the towers. Additional earthing is to be done for the towers as the provided earthing has worn out due to ageing effects.
- vi. In view of above, it has become necessary to replace above-mentioned sub-station and Transmission Lines equipment in a progressive manner so that the system is not affected and also for the smooth functioning of the system.

***b) Deconstruction of old and dilapidated buildings***

- i. Buildings and other civil structures like overhead tanks etc. which have been constructed in the sub-stations have completed useful life of 30 years in accordance with the Companies Act, 2013. These buildings and civil structures have been constructed in 1987-88 and are in service for more than 30 years and do not comply the earthquake resistant provisions of latest IS codes. It is mandatory for all Government-owned buildings and structures to be Seismic Resistant (Clause 3.2.6.1 National Disaster Management Authority).
- ii. Some of these buildings and civil structures are in dilapidated and unsafe condition and need urgent reconstruction to avoid any damage/ threat to human



life and property. However, the healthiness of these civil structures and shall be checked before demolishing the same.

iii. In view of above, the Petitioner has proposed to demolish these dilapidated and unsafe buildings and structures and construct new during the 2019-24 tariff period. Therefore, ACE/ de-capitalisation proposed corresponds to deconstruction of such old buildings and construction of new buildings and civil structures. The Petitioner has submitted that test reports in respect of healthiness of buildings and civil structures will be submitted shortly.

iv. The relevant provisions of authenticated documents which recommend for Seismic retrofitting and demolishing and reconstruction have been listed by the Petitioner in this petition for reference.

50. MPPMCL has submitted that the Petitioner has proposed cost towards ACE and de-capitalisation during the 2019-24 period on the plea that the equipment have been installed long back and some of them have completed their useful/ service life and it has become necessary to replace these in a progressive manner so that the transmission system is not affected and continue to function smoothly. But the Petitioner has not submitted any study to arrive at the conclusion and reason(s) on the basis of which equipment requiring immediate replacement on priority basis are to be determined.

51. MPPMCL has requested that the Petitioner's claim may be admitted only after prudence check of the pre-study/ survey of the problem as mentioned by the Petitioner.

52. In response, the Petitioner vide affidavits dated 13.4.2021 and 8.6.2021 has submitted a detailed equipment list proposed to be replaced under the proposed ACE/ de-capitalisation during the 2019-24 tariff period which is as follows:



(₹ in lakh)

Sl. No.	Equipment to be replaced/ refurbished	Unit	Qty.	Proposed ACE during 2019-24				De-capitalization			
				2020-21	2021-22	2022-23	2023-24	2020-21	2021-22	2022-23	2023-24
a	Replacement of HT Cables	km	12	0.00	0.00	72.62		0.00	0.00	58.11	
b	Replacement of Protection Panels	set	12	0.00	0.00	0.00	0.95	0.00	0.00	0.00	18.83
c	Replacement of Power & Control Cables	set	15	0.00	0.00	130.00	0.00	0.00	0.00	72.51	0.00
d	Replacement of CTs	Number	62	0.00	0.00	434.38	0.00	0.00	0.00	187.29	0.00
e	Replacement of CVTs	Number	26	0.00	0.00	102.76	0.00	0.00	0.00	96.28	0.00
f	Replacement of WTs	Number	2	0.00	0.00	21.06	0.00	0.00	0.00		0.00
g	Replacement of Isolator	Set	79	0.00	0.00	572.49	345.85	0.00	0.00	255.10	132.87
h	Replacement of Isolators	LS	1	434.49	0.00	0.00	0.00	84.89	0.00	0.00	0.00
i	Rectification of rusted/ corroded legs	LS	1	86.09	0.00	0.00	0.00	0.00	0.00	0.00	0.00
j	Additional earthing in the line	LS	1	71.38	0.00	0.00	0.00	0.00	0.00	0.00	0.00
k	ICT at Jabalpur	LS	1	1454.54	0.00	0.00	0.00	502.57	0.00	0.00	0.00
l	Reactor at Jabalpur	Number	1	0.00	398.10	0.00	0.00	0.00	114.28	0.00	0.00
m	Reactor at Itarsi	Number	1		398.10				177.72		
n	Civil work	Lot	1		689.13	986.82	628.23		75.57	75.57	75.57
				2046.49	1485.33	2320.12	975.04	587.46	367.58	744.87	227.28

53. The Petitioner vide affidavits dated 13.4.2021 and 8.6.2021 has also submitted necessary justification pertaining to said ACE during the 2019-24 period as follows:

**a) HT & LT Power Cables**

Due to ageing, problems of embrittlement, cracking of insulation etc. are being experienced and in some cases cable jointing kits had to be used to restore fault in the power cable. Due to these issues such auxiliary power cables are at high risk of failure which may affect the reliability of auxiliary supply of the sub-station and the said situation may also be dangerous to the connected equipment, panels, adjoining cables and human safety. Hence, 33 kV and 1.1 kV cable used for main source to LT supply at Itarsi and Jabalpur has been proposed to be replaced.



**b) Capacitive Voltage Transformers (26)**

CVTs are used for safety and metering purposes and 26 numbers of CVTs manufactured by BHEL/ WSI have completed 30 years of life and due to ageing, leakage/seepage has been observed. Due to internal failure of capacitor elements on account of ageing drift in secondary voltage has been observed, which may result into inaccurate metering and erroneous operation of protection relays of transmission elements. As the CVTs are hermetically sealed equipment, repairing is not recommended at the site level. Therefore, the CVTs in this state are not reliable and may result in forced outage of the critically loaded feeders. Repairing these may result in changing majority parts of the CVT. Further, repairing of CVTs is not techno economically viable after 25 years of service due to change in design by the manufacturer and manufacture and repairing of these CVTs has been stopped by BHEL/ WSI. Hence, replacement has been proposed, for which communications with the OEMs have been submitted by the Petitioner.

**c) CB Relay Panels (03), Control panels (03), Line protection panel (03) and Reactor protection panel (03)**

These electromechanical/ static type relays were installed during 1989-90 and have completed 30 years of service. OEMs have phased out the specific model of relays and spare and service support is no longer available, hence replacement is the only viable option, as due to ageing mal-operation/ non-operation has been experienced. This may result in system fault, failure of costly equipment such as transformers/ reactors and may even result in grid disturbance. As the relays are not mechanical type and does not comply with IEC 61850, these do not have DR and time synchronisation facility, hence do not help in fault analysis through stored tripping and even data. Cable, wiring and terminal blocks inside both control and protections panels have become brittle leading to DC leakages and other circuit failures and hence it is not feasible to replace the TBs and wiring inside these old and damaged panels.

**d) Current Transformers (62)**

CTs are of BHEL/ WSI make and have completed 30 years of life and are experiencing oil leakages from different points such as dead tank joint gasket portion, secondary terminals, primary terminals, domes, oil sight glass etc. In long run the same may result in low oil level, moisture ingress and failure. To



prevent the ingress of moisture, replacement of active insulation part is required at manufacturer works, which is not techno-economically viable. Further, as the transformers are hermetically sealed, major repair is not recommended at the site. M/s Alstom (erstwhile WSI) has confirmed the CTs are irreparable.

**e) Isolators (79)**

Isolators are of horizontal central break or pantograph type manufactured by S&S/ Siemens and have completed 30 years of service and hence are obsolete. Problem of misalignment is being faced frequently. Major spares are no more available in most cases due to obsolete design, hence, maintenance is not possible or viable. Due to improper health of isolators, the isolators are unable to maintain a stable condition during storms and high wind conditions and getting opened in on load condition, which is quite dangerous to the system as well as the operator. Rusting has also been observed leading to damage to MOM boxes and resultantly problem in components of MOM boxes and impossibility of motorised operation of the isolators. Due to ageing, MOM boxes are creating DC earth fault which is detrimental to the control and protection system. Several time, local operation also becomes difficult. Further, the OEM is unable to provide timely support and spares due to obsolete nature of the isolators.

**f) Switchyard BBCC/ PCC and gravel filling in switchyard**

Gravel in switchyard of bays at Itarsi, Jabalpur, Indore and Asoj has faded, mixed with soil and slit and converted into small pieces. BBCC/PCC were not provided in these old stations, whereas, bays of MPPTCL/ GETCO have PCC. On account of these wild vegetation and grasses etc. are growing making it breeding ground for reptiles and other animals and there is also the fear of Step and Touch potential due to bad quality of gravels which is dangerous to the system and humans. During inspection at Itarsi Sub-station by CEA on 1.8.2019, carrying out of PCC and replacement of degraded gravels has been recommended.

**g) Power and Control Cables**

These are in service for more than 30 years and as a result are showing signs of surface damages/ cracks, causing earth faults and DC earth leakages and resulting in mal-operation of control and protection system. It is difficult to re-



use inter-pole cables after replacement of equipment, hence the replacement of the inter-pole cables specifically between poles of isolators, CT, CVT and between C&R panels is required.

***h) Wave Trap***

These wave traps of hanging type have completed 30 years of service and due to ageing, instances of uncoiling of waves has been observed. Inter turn insulation between coils of WT has also deteriorated. WT plays an important role in PLCC system and failure of the same may result in mal-operation/ non-operation of PLCC based protection system.

***i) Replacement of Insulators, Rectification of rusted corroded legs and additional earthing in transmission lines***

Asset-I has completed more than 30 years of service and instances of frequent tripping due to insulator failures have been observed. The pollution level over the years has resulted in frequent failure of porcelain insulators, hence polymer insulators are being used in the new lines. Further, due to ageing some leg members have rusted and the same may become critical if not attended to and if these leg members are properly replace/ rectified, the life of transmission lines will automatically increase. Further, due to ageing earthing of transmission lines has been damaged or decomposed. Various incidents of tripping due to weak earthing have been observed. This earthing plays a major role during lightening and improper earthing may result in back flash over in the insulator causing outages of lines and failure of insulators. Hence, the porcelain insulators are required to be replaced with polymer ones along with replacement of corroded leg members and provisions for additional earthings with respect to Asset-I have been proposed.

***j) 315 MVA ICT at Jabalpur***

The ICT is 32 years old. From condition based monitoring/ maintenance of transformers/ reactors conducted by the Petitioner to know the healthiness, it has been observed that Core IR is zero indicating inadvertent core grounding, continuous increasing trend in fault gases indicating thermal fault/ arcing. While internal inspection was carried out by OEM, the problem is far from resolved. Based on analysis of test results, M/s CPRI (third party) has recommended replacement of the said unit and the risk of failure is ever high



and in case of sudden failure it will be difficult to meet the load of Jabalpur. Hence, replacement is being sought.

**k) 63 MVAR VSTPP-2 Line Reactor at Jabalpur (year of manufacturing 1966)**

As a result of condition-based monitoring/ maintenance of transformers/ reactors, it was observed that Furan content was high demonstrating deterioration of solid insulation. M/s CPRI (third party) has recommended replacement of the said unit and the risk of failure is ever high due to completion of 25 years of service life. The availability of the reactor is most important for keeping the line in service, as any failure will cause long outage of reactor which will in turn result in force outage of line due to rise in voltage.

**l) 50 MVAR Jabalpur-1 Line Reactor at Itarsi (year of manufacturing 1990)**

As a result of condition-based monitoring/ maintenance of transformers/ reactors, it was observed that Furan content was high demonstrating deterioration of solid insulation. M/s CPRI (third party) has recommended replacement of the said unit and the risk of failure is ever high due to completion of 25 years of service life. The availability of the reactor is most important for keeping the line in service, as any failure will cause long outage of reactor which will in turn result in force outage of line due to rise in voltage. Hence, the replacement of 50 MVAR Jabalpur Line-1 line reactor at Itarsi is proposed to be replaced.

54. The details of capital cost as on 31.3.2024 (including ACE/ de-capitalisation during 2019-24 tariff period) as submitted by the Petitioner vide Auditor's Certificate dated 4.7.2020 are as follows:

Particulars	(₹ in lakh)					Amount
	Land	Building & Civil Works	Transmission Line	Sub-station	PLCC	
<b>Total Capital Cost as on 1.4.2019</b>	<b>230.03</b>	<b>701.92</b>	<b>21497.52</b>	<b>5011.64</b>	<b>53.26</b>	<b>27494.37</b>
ACE in 2019-20	0.00	0.00	0.00	0.00	0.00	0.00
ACE in 2020-21	0.00	0.00	592.00	1454.53	0.00	2046.53
ACE in 2021-22	0.00	689.13	0.00	796.20	0.00	1485.33
ACE in 2022-23	0.00	628.23	0.00	1691.89	0.00	2320.12
ACE in 2023-24	0.00	628.23	0.00	441.20	0.00	1069.43
De-Capitalization in 2019-20	0.00	0.00	0.00	0.00	0.00	0.00



De-Capitalization in 2020-21	0.00	(0.00)	(84.89)	(502.57)	0.00	(587.46)
De-Capitalization in 2021-22	0.00	(75.57)	0.00	(292.00)	0.00	(367.57)
De-Capitalization in 2022-23	0.00	(75.57)	0.00	(669.30)	0.00	(744.87)
De-Capitalization in 2023-24	0.00	(75.57)	0.00	(151.71)	0.00	(227.28)
<b>Total Capital Cost as on 31.3.2024</b>	<b>230.03</b>	<b>2420.8</b>	<b>22004.63</b>	<b>7779.88</b>	<b>53.26</b>	<b>32488.60</b>

55. The Petitioner vide affidavit dated 13.4.2021 has submitted that ACE during 2019-24 period is towards problematic equipment like 01 number ICT, 02 Numbers Reactors, CBs, CTs, CVTs, Isolators, Insulators, Control and Protection panels, WTs, HT cables etc. which are proposed to be replaced to ensure system reliability. In addition to the said proposed replacement, earthing system, cable trenches, tower and gantry structures, cables, which play a very important role in operation of any sub-station are also proposed to be replaced. The Petitioner has submitted that it is very difficult to assess the life of the complete project as the equipment are replaced based on condition monitoring. However, balance of the system still remains under service for which replacement may be required in near future. The Petitioner has submitted that only some of the equipment are proposed to be replaced and majority of items are old and they may need replacement in future considering the fact that life of the present transmission project completes in 31.3.2024.

56. We have considered the submissions of the Petitioner and MPPMCL. The Petitioner has proposed ACE at the fag end of the useful life of Combined Asset and has proposed five years extension of life for Combined Asset. The Petitioner has neither submitted the consent of beneficiaries/ Respondents nor placed any material on record to show that the proposed ACE towards “building and civil works” had the consent of beneficiaries/ Respondents. The “building and civil works” are non-critical works in nature. In view of this, we are not inclined to allow ACE claimed by the





Petitioner towards “building and civil works” under Regulation 25(2)(c) of the 2019 Tariff Regulations. However, the Petitioner may obtain approval of RPC and file a separate petition for ACE towards “building and civil works” for consideration by the Commission.

57. It is also directed that in future, all the cases where substantial ACE is proposed at the fag end of useful life of any transmission asset, the Petitioner shall submit the consent of beneficiaries/ Respondents.

58. The remaining proposed ACE is towards replacement of isolators, CTs, CVTs, Control and Relay panels, CB and power and control cables due to obsolescence of technology. In our view, these items are of critical nature and their failure may affect the stability and reliability of the grid. As such, the replacement of these equipment and consequential ACE is approved, subject to true-up on actual basis.

59. The Petitioner is also directed to submit the details of abstract cost estimate and details of the actual cost of the replaced equipment sub-station wise at the time of truing up.

60. The Petitioner has also proposed to replace 315 MVA ICT-II at Jabalpur with a net ACE of ₹951.96 lakh in 2020-21, 63 MVAR Line Reactor at Jabalpur with a net ACE of ₹ 283.82 lakh in 2021-22 and 50 MVAR Jabalpur Line Reactor at Itarsi Sub-station with a net ACE of ₹ 220.38 lakh in 2021-22. We observe that these ICTs and Reactors are major elements of the transmission system which are critical and high value elements. So, we are of the view that if such items are to be replaced, it is prudent to discuss with RPC and the concerned beneficiaries. Accordingly, the projected ACE towards ICT and 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 “ICTs and Reactors” for consideration by the Commission.

61. In view of the above, the details of ACE and de-capitalisation allowed for the 2019-24 tariff period is as follows:

(in ₹ lakh)						
Particulars	Land	Building & Civil Works	Transmission Line	Sub-station	PLCC	Amount
<b>Total Capital Cost as on 1.4.2019</b>	<b>230.03</b>	<b>701.92</b>	<b>21497.52</b>	<b>5011.64</b>	<b>53.26</b>	<b>27494.37</b>
ACE in 2019-20	0.00	0.00	0.00	0.00	0.00	0.00
ACE in 2020-21	0.00	0.00	592.00	0.00	0.00	592.00
ACE in 2021-22	0.00	0.00	0.00	0.00	0.00	0.00
ACE in 2022-23	0.00	0.00	0.00	1691.89	0.00	1691.89
ACE in 2023-24	0.00	0.00	0.00	441.20	0.00	441.20
De-capitalisation in 2019-20	0.00	0.00	0.00	0.00	0.00	0.00
De-capitalisation in 2020-21	0.00	0.00	(84.89)	0.00	0.00	(84.89)
De-capitalisation in 2021-22	0.00	0.00	0.00	0.00	0.00	0.00
De-capitalisation in 2022-23	0.00	0.00	0.00	(669.30)	0.00	(669.30)
De-capitalisation in 2023-24	0.00	0.00	0.00	(151.71)	0.00	(151.71)
<b>Total Capital Cost as on 31.3.2024</b>	<b>230.03</b>	<b>701.92</b>	<b>22004.63</b>	<b>6323.72</b>	<b>53.26</b>	<b>29313.56</b>

62. Therefore, the summarized ACE and de-capitalisation allowed for the 2019-24 tariff period is as follows:

(₹ in lakh)							
Sl. No.	Particulars	2019-20	2020-21	2021-22	2022-23	2023-24	Total
1	ACE	0.00	592.00	0.00	1691.89	441.20	2725.09
2	De-capitalisation	0.00	84.89	0.00	669.30	151.71	905.90
3	Net ACE (3=1-2)	0.00	507.11	0.00	1022.59	289.49	1819.19

63. Accordingly, the capital cost of Combined Asset as on 31.3.2024 is allowed as follows:

(₹ in lakh)



Capital Cost (as on 1.4.2019)	Allowed ACE					Capital Cost (as on 31.3.2024)
	2019-20	2020-21	2021-22	2022-23	2023-24	
27494.37	0.00	507.11	0.00	1022.59	289.49	29313.56

### **Debt-Equity Ratio**

64. 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.

(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.”



65. The details of the debt-equity considered for the purpose of computation of tariff for 2019-24 tariff period is as follows:

**Debt-Equity for Gross Capital Cost as on 1.4.2019**

Funding	Amount (₹ in lakh)	(in %)
Debt	13990.80	50.89
Equity	13503.57	49.11
<b>Total</b>	<b>27494.37</b>	<b>100.00</b>

**Debt-Equity for ACE and De-capitalisation during the 2019-24 period**

(₹ in lakh)

Funding	ACE		De-capitalisation	
	2019-20	(in %)	2019-20	(in %)
Debt	0.00	70.00	0.00	50.00
Equity	0.00	30.00	0.00	50.00
<b>Total</b>	<b>0.00</b>	<b>100.00</b>	<b>0.00</b>	<b>100.00</b>
Funding	ACE		De-capitalisation	
	2020-21	(in %)	2020-21	(in %)
Debt	414.40	70.00	42.45	50.00
Equity	177.60	30.00	42.45	50.00
<b>Total</b>	<b>592.00</b>	<b>100.00</b>	<b>84.89</b>	<b>100.00</b>
Funding	ACE		De-capitalisation	
	2021-22	(in %)	2021-22	(in %)
Debt	0.00	70.00	0.00	50.00
Equity	0.00	30.00	0.00	50.00
<b>Total</b>	<b>0.00</b>	<b>100.00</b>	<b>0.00</b>	<b>100.00</b>
Funding	ACE		De-capitalisation	
	2022-23	(in %)	2022-23	(in %)
Debt	1184.32	70.00	334.65	50.00
Equity	507.57	30.00	334.65	50.00
<b>Total</b>	<b>1691.89</b>	<b>100.00</b>	<b>669.30</b>	<b>100.00</b>
Funding	ACE		De-capitalisation	
	2023-24	(in %)	2023-24	(in %)
Debt	308.84	70.00	75.86	50.00
Equity	132.36	30.00	75.86	50.00
<b>Total</b>	<b>441.20</b>	<b>100.00</b>	<b>151.71</b>	<b>100.00</b>

**Debt- Equity for Gross Capital Cost as on 31.3.2024**

Funding	Amount (₹ in lakh)	(in %)
Debt	15445.42	52.69
Equity	13868.14	47.31
<b>Total</b>	<b>29313.56</b>	<b>100.00</b>



## Depreciation

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

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

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

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

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

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

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

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

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

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

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

*Provided that the remaining depreciable value as on 31st March of the year closing after a period of 12 years from the effective date of commercial operation of the station shall be spread over the balance useful life of the asset.*



(6) In case of the existing projects, the balance depreciable value as on 1.4.2019 shall be worked out by deducting the cumulative depreciation as admitted by the Commission up to 31.3.2019 from the gross depreciable value of the asset.

(7) The generating company or the transmission licensee, as the case may be, shall submit the details of proposed capital expenditure five years before the completion of useful life of the project along with justification and proposed life extension. The Commission based on prudence check of such submissions shall approve the depreciation on capital expenditure.

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

67. The Combined Asset 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 assets) to be recovered over the balance useful life. The depreciation has been worked out considering the admitted capital expenditure as on 31.3.2019 and accumulated depreciation up to 31.3.2019. However, depreciation for ACE (new additions) allowed during fag end of Combined Asset is allowed at normative rate of depreciation as specified in the 2019 Tariff Regulations. Depreciation allowed for Combined Asset for the 2019-24 tariff period is as follows:

	(₹ in lakh)				
Existing Assets	2019-20	2020-21	2021-22	2022-23	2023-24
Opening Gross Block	27494.37	27494.37	27409.48	27409.48	26740.18
De-capitalization	0.00	84.89	0.00	669.30	151.71
Closing Gross Block	27494.37	27409.48	27409.48	26740.18	26588.47
Average Gross Block	27494.37	27451.93	27409.48	27074.83	26664.33
Freehold Land	230.03	230.03	230.03	230.03	230.03
Rate of Depreciation (in %)	2.04	2.01	2.05	1.52	2.42
<b>Depreciable Value</b>	24537.91	24499.71	24461.51	24160.32	23790.87
Cumulative Depreciation at the beginning of the year	21730.45	22291.94	22772.05	23335.20	23145.39
Less: Dep. adjustment on a/c of de-capitalisation	0.00	71.83	0.00	602.37	136.53
Net Cumulative Depreciation after adjustment for de-capitalisation	22291.94	22772.05	23335.20	23145.39	23654.34
Remaining Depreciable Value	2807.46	2207.77	1689.45	825.12	645.47
Balance useful life of the asset	5.00	4.00	3.00	2.00	1.00



(Year)					
Lapsed life (Year)	29.00	30.00	31.00	32.00	33.00
<b>Depreciation</b>	<b>561.49</b>	<b>551.94</b>	<b>563.15</b>	<b>412.56</b>	<b>645.47</b>

	(₹ in lakh)				
<b>New Additions</b>	<b>2019-20</b>	<b>2020-21</b>	<b>2021-22</b>	<b>2022-23</b>	<b>2023-24</b>
Opening Gross Block		0.00	592.00	592.00	2283.89
Additional Capitalisation		592.00	0.00	1691.89	441.20
Closing Gross Block		592.00	592.00	2283.89	2725.09
Average Gross Block		296.00	592.00	1437.95	2504.49
WAROD (in %)		5.28	5.28	5.28	5.28
<b>Depreciable Value</b>		266.40	532.80	1294.15	2254.04
Cumulative Depreciation at the beginning of the year		0.00	15.63	46.89	122.81
<b>Depreciation</b>		<b>15.63</b>	<b>31.26</b>	<b>75.92</b>	<b>132.24</b>
Cumulative Depreciation at the end of the year		15.63	46.89	122.81	255.05
Remaining Depreciable Value at the end of the year		250.77	485.91	1171.34	1998.99

68. Therefore, the total depreciation in respect of Combined Asset allowed for the 2019-24 tariff period is as follows:

(₹ in lakh)				
<b>2019-20</b>	<b>2020-21</b>	<b>2021-22</b>	<b>2022-23</b>	<b>2023-24</b>
561.49	567.57	594.41	488.48	777.71

### **Interest on Loan**

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

**“32. Interest on loan capital:** (1) The loans arrived at in the manner indicated in Regulation 18 of these regulations shall be considered as gross normative loan for calculation of interest on loan.

(2) The normative loan outstanding as on 1.4.2019 shall be worked out by deducting the cumulative repayment as admitted by the Commission up to 31.3.2019 from the gross normative loan.

(3) The repayment for each of the year of the tariff period 2019-24 shall be deemed to be equal to the depreciation allowed for the corresponding year/period. In case of de-capitalization of asset, the repayment shall be adjusted by taking into account cumulative repayment on a pro rata basis and the adjustment should not exceed cumulative depreciation recovered up to the date of de-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.

(5) The rate of interest shall be the weighted average rate of interest calculated on the basis of the actual loan portfolio after providing appropriate accounting adjustment for interest capitalized:

Provided that if there is no actual loan for a particular year but normative loan is still outstanding, the last available weighted average rate of interest shall be considered; Provided further that if the generating station or the transmission system, as the case may be, does not have actual loan, then the weighted average rate of interest of the generating company or the transmission licensee as a whole shall be considered.

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

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

70. The weighted average rate of IoL has been considered on the basis of rates prevailing as on 1.4.2019. The floating rate of interest, if any, shall be considered at the time of true up. Therefore, IoL has been allowed in accordance with Regulation 32 of the 2019 Tariff Regulations which is as follows:

(₹ in lakh)					
Particulars	2019-20	2020-21	2021-22	2022-23	2023-24
Gross Normative Loan	13990.80	13990.80	13948.36	13948.36	13613.71
Cumulative Repayments up to Previous Year	13990.79	13990.80	13948.35	13948.35	13613.70
Net Loan-Opening	0.01	0.00	0.01	0.01	0.01
De-capitalisation	0.00	42.45	0.00	334.65	75.86
Repayment during the year	0.01	0.01	0.01	0.01	0.00
Adjustment of Cumulative Repayment Pertaining to de-capitalised asset	0.00	42.45	0.00	334.65	75.85
Net Loan-Closing	0.00	0.00	0.00	0.00	0.00
Average Loan	0.01	0.00	0.00	0.00	0.00
Weighted Average Rate of Interest on Loan (in %)	7.289	7.289	7.289	7.288	7.288
<b>Interest on Loan</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>





## New Additions

Particulars	(₹ in lakh)				
	2019-20	2020-21	2021-22	2022-23	2023-24
Gross Normative Loan	0.00	0.00	414.40	414.40	1598.72
Cumulative Repayments up to Previous Year	0.00	0.00	15.63	46.89	122.81
Net Loan-Opening	0.00	0.00	398.77	367.51	1475.91
Additions	0.00	414.40	0.00	1184.32	308.84
Repayment during the year	0.00	15.63	31.26	75.92	132.24
Net Loan-Closing	0.00	398.77	367.51	1475.91	1652.52
Average Loan	0.00	199.39	383.1424	921.7134	1564.215
Weighted Average Rate of Interest on Loan (in %)	7.289	7.289	7.289	7.288	7.288
<b>Interest on Loan</b>	<b>0.00</b>	<b>14.53</b>	<b>27.93</b>	<b>67.18</b>	<b>114.00</b>

71. Therefore, IoL in respect of Combined Asset allowed for the 2019-24 tariff period is as follows:

(₹ in lakh)				
2019-20	2020-21	2021-22	2022-23	2023-24
0.00	14.53	27.93	67.18	114.00

## Return on Equity

72. 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 due to Change in Law, shall be computed at the weighted average rate of interest on actual loan portfolio of the generating station or the transmission system;

Provided further that:

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

**“31. Tax on Return on Equity:** (1) The base rate of return on equity as allowed by the Commission under Regulation 30 of these regulations shall be grossed up with the effective tax rate of the respective financial year. For this purpose, the effective tax rate shall be considered on the basis of actual tax paid in respect of the financial year in line with the provisions of the relevant Finance Acts by the concerned generating company or the transmission licensee, as the case may be. The actual tax paid on income from other businesses including deferred tax liability (i.e. income from business other than business of generation or transmission, as the case may be) shall be excluded for the calculation of effective tax rate.

(2) Rate of return on equity shall be rounded off to three decimal places and shall be computed as per the formula given follows:

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.”

73. The Petitioner has submitted that MAT rate is applicable to the Petitioner's company. Accordingly, MAT rate applicable in 2019-20 has been considered for the purpose of RoE, which shall be trued-up with actual tax rate in accordance with Regulation 31(3) of the 2019 Tariff Regulations. RoE allowed for Combined Asset is as follows:

(₹ in lakh)					
Particulars	2019-20	2020-21	2021-22	2022-23	2023-24
Opening Equity	13503.57	13503.57	13638.72	13638.72	13811.64
Additions due to ACE	0.00	177.60	0.00	507.57	132.36
De-capitalisation	0.00	-42.45	0.00	-334.65	-75.86
Closing Equity	13503.57	13638.72	13638.72	13811.64	13868.14
Average Equity	13503.57	13571.14	13638.72	13725.18	13839.89
Return on Equity (Base Rate) (%)	15.500	15.500	15.500	15.500	15.500
MAT Rate for respective year (%)	17.472	17.472	17.472	17.472	17.472
Rate of Return on Equity (%)	18.782	18.782	18.782	18.782	18.782
<b>Return on Equity</b>	<b>2536.24</b>	<b>2548.93</b>	<b>2561.62</b>	<b>2577.86</b>	<b>2599.41</b>

### Operation & Maintenance Expenses

74. Regulations 35(3)(a) and 35(4) of the 2019 Tariff Regulations provide 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
<b>Norms for sub-station Bays (₹ Lakh per bay)</b>					
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
<b>Norms for Transformers (₹ Lakh per MVA)</b>					
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



<b>Particulars</b>	<b>2019-20</b>	<b>2020-21</b>	<b>2021-22</b>	<b>2022-23</b>	<b>2023-24</b>
<b>Norms for AC and HVDC lines (₹ Lakh per km)</b>					
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
<b>Norms for HVDC stations</b>					
HVDC Back-to-Back stations (Rs Lakh per 500 MW) (Except Gazuwaka BTB)	834	864	894	925	958
Gazuwaka HVDC Back-to-Back station (₹ Lakh per 500 MW)	1,666	1,725	1,785	1,848	1,913
500 kV Rihand-Dadri HVDC bipole scheme (Rs Lakh) (1500 MW)	2,252	2,331	2,413	2,498	2,586
±500 kV Talcher- Kolar HVDC bipole scheme (Rs Lakh) (2000 MW)	2,468	2,555	2,645	2,738	2,834
±500 kV Bhiwadi-Balia HVDC bipole scheme (Rs Lakh) (2500 MW)	1,696	1,756	1,817	1,881	1,947
±800 kV, Bishwanath-Agra HVDC bipole scheme (Rs Lakh) (3000 MW)	2,563	2,653	2,746	2,842	2,942

*Provided that the O&M expenses for the GIS bays shall be allowed as worked out by multiplying 0.70 of the O&M expenses of the normative O&M expenses for bays;*

*Provided further that:*

- i. the operation and maintenance expenses for new HVDC bi-pole schemes commissioned after 1.4.2019 for a particular year shall be allowed pro-rata on the basis of normative rate of operation and maintenance expenses of similar HVDC bi-pole scheme for the corresponding year of the tariff period;*
- ii. the O&M expenses norms for HVDC bi-pole line shall be considered as Double Circuit quad AC line;*
- iii. the O&M expenses of ±500 kV Mundra-Mohindergarh HVDC bipole scheme (2000*



- MW) shall be allowed as worked out by multiplying 0.80 of the normative O&M expenses for ±500 kV Talchar-Kolar HVDC bi-pole scheme (2000 MW);*
- iv. *the O&M expenses of ±800 kV Champa-Kurukshetra HVDC bi-pole scheme (3000 MW) shall be on the basis of the normative O&M expenses for ±800 kV, Bishwanath-Agra HVDC bi-pole scheme;*
- v. *the O&M expenses of ±800 kV, Alipurduar-Agra HVDC bi-pole scheme (3000 MW) shall be allowed as worked out by multiplying 0.80 of the normative O&M expenses for ±800 kV, Bishwanath-Agra HVDC bi-pole scheme; and*
- vi. *the O&M expenses of Static Synchronous Compensator and Static Var Compensator shall be worked at 1.5% of original project cost as on commercial operation which shall be escalated at the rate of 3.51% to work out the O&M expenses during the tariff period. The O&M expenses of Static Synchronous Compensator and Static Var Compensator, if required, may be reviewed after three years.*

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

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

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

**“35(4) Communication system:** *The operation and maintenance expenses for the communication system shall be worked out at 2.0% of the original project cost related to such communication system. The transmission licensee shall submit the actual operation and maintenance expenses for truing up.”*

75. The details of O&M Expenses in respect of various elements covered under Combined Asset as claimed by the Petitioner for the 2019-24 tariff period are as follows:

Particulars	2019-20	2020-21	2021-22	2022-23	2023-24
<b>Transmission Line</b>					
400 kV AC Twin S/C Itarsi Indore Circuit I (KM)	207.00	207.00	207.00	207.00	207.00
400 kV AC Twin S/C Indore- Asoj Circuit II (KM)	273.00	273.00	273.00	273.00	273.00
400 kV AC Twin DC Vindhyachal-Jabalpur Circuit I and Circuit II (KM)	360.00	360.00	360.00	360.00	360.00
400 kV AC Twin D/C Jabalpur-Itarsi Circuit I and Circuit II (KM)	232.00	232.00	232.00	232.00	232.00
400 kV AC Twin S/C Vindhyachal-Korba Circuit I (KM)	215.00	215.00	215.00	215.00	215.00
<b>Norms (₹ lakh/km)</b>					
S/C (Twin/Triple Conductor)	0.50	0.52	0.54	0.56	0.58
D/C (Twin/Triple Conductor)	0.88	0.91	0.94	0.98	1.01
<b>O&amp;M Expenses Transmission</b>	871.14	902.00	933.45	966.19	1000.22



Line					
<b>Transformers</b>					
400 kV Jabalpur ICT-I at Jabalpur (MVA)	315.00	315.00	315.00	315.00	315.00
400 kV Jabalpur ICT-II at Jabalpur (MVA)	315.00	315.00	315.00	315.00	315.00
<b>Norms (₹ lakh/km)</b>					
400 kV	0.36	0.37	0.38	0.40	0.41
<b>O&amp;M Expenses towards ICTS</b>	225.54	233.73	241.92	250.74	258.93
<b>Sub-station</b>					
Indore: ITRASI I	1	1	1	1	1
Indore: ASOJ II	1	1	1	1	1
Asoj: INDORE II	1	1	1	1	1
Jabalpur: VINDHYACHAL-I	1	1	1	1	1
Jabalpur: VINDHYACHAL-II	1	1	1	1	1
Jabalpur: ITRASI-I	1	1	1	1	1
Jabalpur: ITRASI-II	1	1	1	1	1
Jabalpur: ICT-I	1	1	1	1	1
Jabalpur: ICT II	1	1	1	1	1
Itarsi: INDORE I	1	1	1	1	1
Itarsi: JABALPUR I	1	1	1	1	1
Itarsi: JABALPUR II	1	1	1	1	1
BUS REACTOR I	1	1	1	1	1
<b>Norms (₹ lakh/Bay)</b>					
400 kV	32.15	33.28	34.45	35.66	36.91
<b>O&amp;M Expenses Sub-station</b>	417.95	432.64	447.85	463.58	479.83
<b>Communication System (PLCC)</b>					
Project Cost (₹ in lakh)	53.26	53.26	53.26	53.26	53.26
Norm (%)	2.00	2.00	2.00	2.00	2.00
O&M Expenses PLCC	1.07	1.07	1.07	1.07	1.07
<b>Total O&amp;M Expenses (₹ in lakh)</b>	1515.70	1569.45	1624.30	1681.58	1740.06

76. The Petitioner has claimed O&M Expenses separately for PLCC under Regulation 35(4) of the 2019 Tariff Regulations @2% of its original project cost in the instant petition. The Petitioner has made similar claim in other petitions as well. Though PLCC is a communication system, it has been considered as part of the sub-station in the 2014 Tariff Regulations and the 2019 Tariff Regulations and the norms for sub-station have been specified accordingly. Accordingly, the Commission vide order dated 24.1.2021 in Petition No. 126/TT/2020 had already concluded that no separate O&M Expenses can be allowed for PLCC under Regulation 35(4) of the





2019 Tariff Regulations even though PLCC is a communication system. Therefore, the Petitioner's claim for separate O&M Expenses for PLCC @2% is not allowed.

77. The O&M Expenses allowed for the various elements covered under Combined Asset for the 2019-24 tariff period are as follows:

Particulars	2019-20	2020-21	2021-22	2022-23	2023-24
<b>Transmission Line</b>					
400 kV AC Twin SC Intarsi Indore Circuiut I	207.00	207.00	207.00	207.00	207.00
400 kV AC Twin SC Indore- Asoj Circuiut II	273.00	273.00	273.00	273.00	273.00
400 kV AC Twin DC Vindhyachal-Jabalpur Circuiut I and Circuit II	360.00	360.00	360.00	360.00	360.00
400 kV AC Twin DC Jabalpur-Itarsi Circuiut I and Circuit II	232.00	232.00	232.00	232.00	232.00
400 kV AC Twin SC Vindhyachal-Korba Circuiut I	215.00	215.00	215.00	215.00	215.00
<b>Norms (₹ lakh/km)</b>					
S/C (Twin/Triple Conductor)	0.50	0.52	0.54	0.56	0.58
D/C (Twin/Triple Conductor)	0.88	0.91	0.94	0.98	1.01
<b>O&amp;M Expenses Transmission Line</b>	871.14	902.00	933.45	966.19	1000.22
<b>Transformers</b>					
400 kV Jabalapur ICT-I at Jabalpur	315.00	315.00	315.00	315.00	315.00
400 kV Jabalapur ICT-II at Jabalpur	315.00	315.00	315.00	315.00	315.00
<b>Norms (₹ lakh/km)</b>					
400 kV	0.36	0.37	0.38	0.40	0.41
<b>O&amp;M Expenses Transformers</b>	225.54	233.73	241.92	250.74	258.93
<b>Sub-station</b>					
Indore:ITRASI I	1	1	1	1	1
Indore:ASOJ II	1	1	1	1	1
Asoj:INDORE II	1	1	1	1	1
Jabalpur:VINDHYACHAL-I	1	1	1	1	1
Jabalpur:VINDHYACHAL-II	1	1	1	1	1
Jabalpur:ITRASI-I	1	1	1	1	1
Jabalpur:ITRASI-II	1	1	1	1	1
Jabalpur:ICT-I	1	1	1	1	1
Jabalpur:ICT II	1	1	1	1	1
Itarsi:INDORE I	1	1	1	1	1
Itarsi:JABALPUR I	1	1	1	1	1
Itarsi:JABALPUR II	1	1	1	1	1
BUS REACTOR I	1	1	1	1	1
<b>Norms (₹ lakh/Bay)</b>					
400 kV	32.15	33.28	34.45	35.66	36.91
<b>O&amp;M Expenses Sub-station</b>	417.95	432.64	447.85	463.58	479.83
<b>Total O&amp;M Expenses (₹ in lakh)</b>	1514.63	1568.37	1623.22	1680.51	1738.98



## Interest on Working Capital

78. Regulations 34(1)(c), 34(3), 34(4), Regulation 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 fixed cost;*
- ii. Maintenance spares @ 15% of operation and maintenance expenses including security expenses; and*
- iii. Operation and maintenance expenses, including security expenses for one month”*

*“(3) Rate of interest on working capital shall be on normative basis and shall be considered as the bank rate as on 1.4.2019 or as on 1st April of the year during the tariff period 2019-24 in which the generating station or a unit thereof or the transmission system including communication system or element thereof, as the case may be, is declared under commercial operation, whichever is later:*

*Provided that in case of truing-up, the rate of interest on working capital shall be considered at bank rate as on 1st April of each of the financial year during the tariff period 2019-24.”*

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

*“3. Definitions ...*

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

79. 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. In addition to this, the Petitioner has repeated its submissions made regarding IWC in numerous other petitions (already disposed by the Commission).

80. We have considered the submissions of the Petitioner. 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 Combined Asset for the 2019-24 tariff period are as follows:





(₹ in lakh)

Particulars	2019-20	2020-21	2021-22	2022-23	2023-24
WC for O & M Expenses (O&M Expenses for one month)	126.22	130.70	135.27	140.04	144.92
WC for Maintenance Spares (20% of O&M)	227.19	235.26	243.48	252.08	260.85
WC for Receivables <b>(Equivalent to 45 days of annual transmission charges)</b>	580.94	592.67	605.41	606.44	656.76
<b>Total</b>	<b>934.35</b>	<b>958.63</b>	<b>984.16</b>	<b>998.56</b>	<b>1062.52</b>
Rate of Interest on Working Capital (in %)	12.05	11.25	10.50	10.50	10.50
<b>Interest of Working Capital</b>	<b>112.59</b>	<b>107.85</b>	<b>103.34</b>	<b>104.85</b>	<b>111.57</b>

### **Annual Fixed Charges of the 2019-24 Tariff Period**

81. The transmission charges in respect of Combined Asset allowed for the 2019-24 tariff period are as follows:

(₹ in lakh)

Particulars	2019-20	2020-21	2021-22	2022-23	2023-24
Depreciation	561.49	567.57	594.41	488.48	777.71
Interest on Loan	0.00	14.53	27.93	67.18	114.00
Return on Equity	2536.24	2548.93	2561.62	2577.86	2599.41
O&M Expenses	1514.63	1568.37	1623.22	1680.51	1738.98
Interest on Working Capital	112.59	107.85	103.34	104.85	111.57
<b>Total</b>	<b>4724.95</b>	<b>4807.25</b>	<b>4910.52</b>	<b>4918.88</b>	<b>5341.67</b>

### **Filing Fee and Publication Expenses**

82. 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**

83. The Petitioner shall be entitled to reimbursement of licence fee in accordance with Regulation 70(4) of the 2019 Tariff Regulations for the 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**

84. 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.

85. 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**

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

87. We have considered the submissions and prayer of the Petitioner regarding security expenses (in other petitions already disposed by the Commission) and observe that the Petitioner has claimed consolidated security expenses for all the transmission assets 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**

88. 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**

89. 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. With effect from 1.11.2020, sharing of transmission charges is governed by the 2020 Sharing Regulations. Accordingly, the liabilities of the 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 shall be recovered from the concerned DICs through Bills under Regulation 15(2)(b) of the 2020 Sharing Regulations. Billing, collection and disbursement of transmission charges for subsequent period shall be recovered in terms of provisions of the 2020 Sharing Regulations as provided in Regulation 57 of the 2019 Tariff Regulations.

90. To summarise:

- a) The trued-up AFC approved in respect of Combined Asset for the 2014-19 tariff period are as follows:

(₹ in lakh)				
2014-15	2015-16	2016-17	2017-18	2018-19
4700.57	4766.68	4818.77	4894.54	5046.03

- b) AFC allowed in respect of Combined Asset for the 2019-24 tariff period in this order are as follows:

(₹ in lakh)				
2019-20	2020-21	2021-22	2022-23	2023-24
4724.95	4807.25	4910.52	4918.88	5341.67



91. This order disposes of Petition No. 321/TT/2020 in terms of the above discussions and findings.

sd/-  
**(P. K. Singh)**  
**Member**

sd/-  
**(I. S. Jha)**  
**Member**

sd/-  
**(P. K. Pujari)**  
**Chairperson**

