CENTRAL ELECTRICITY REGULATORY COMMISSION
NEW DELHI

Petition No. 473/TT/2020

Coram:

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

Date of order: 09.01.2023

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, truing up of transmission tariff of 2014-19 period under the Central Electricity Regulatory Commission (Terms and Conditions of Tariff) Regulations, 2014 and determination of transmission tariff of 2019-24 period under Central Electricity Regulatory Commission (Terms and Conditions of Tariff) Regulations, 2019 for Transmission System associated with Ramagundam STPP including ICT at Khammam and Reactor at Gazuwaka under "CTP Augmentation in Southern Region".

And in the Matter of:

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

Versus

1. Karnataka Power Transmission Corporation Limited,
   Kaveri Bhavan, Bangalore-560009.

2. Transmission Corporation of Andhra Pradesh Limited,
   Vidyut Soudha, Hyderabad-500082.

3. Kerala State Electricity Board,
   Vaidyuthi Bhavanam,
   Pattom, Thiruvananthapuram-695004.

4. Tamil Nadu Generation and Distribution Corporation Limited,
   (Formerly Tamil Nadu Electricity Board -TNEB),
   NPKRR Maaligai, 800, Anna Salai, Chennai-600002.

5. Electricity Department,
Govternment of Pondicherry,
Pondicherry-605001.

6. Eastern Power Distribution Company of Andhra Pradesh Limited,
APEPDCL, P&T Colony,
Seethmmadhara, Vishakhapatnam, Andhra Pradesh.

7. Southern Power Distribution Company of Andhra Pradesh Limited,
Srinivasasa Kalyana Mandapam Backside,
Tiruchanoor Road, Kesavayana Gunta, Tirupati-517501.
Chitoor District, Andhra Pradesh

8. Southern Power Distribution Company of Telangana Limited,
Corporate Office, Mint Compound,
Hyderabad-500063, Telangana.

9. Northern Power Distribution Company of Telangana Limited,
Opposite NIT Petrol Pump, Chaitanyapuri, Kazipet,
Warangal-506004, Telangana.

10. Bangalore Electricity Supply Company Limited,
Corporate Office, K.R.Circle,
Bangalore-560001, Karanataka.

11. Gulbarga Electricity Supply Company Limited,
Station Main Road, Gulburga, Karnataka.

12. Hubli Electricity Supply Company Limited,
Navanagar, PB Road.
Hubli, Karnataka.

13. MESCOM Corporate Office,
Paradigm Plaza, AB Shetty Circle,
Mangalore-575001, Karnataka.

14. Chamundeswari Electricity Supply Corporation Limited,
927, L J Avenue,
Ground Floor, New Kantharaj Urs Road,
Saraswatipuram, Mysore-570009, Karnataka.

15. Electricity Department,
Government of Goa,
Vidyuti Bhawan, Panaji, Goa-403001.

16. Transmission Corporation of Telangana Limited,
Vidhyut Sudha, Khairatabad,
Hyderabad-500082.

17. Tamil Nadu Transmission Corporation,
NPKRR Maaligai, 800, Anna Salai,
Chennai-600002. **.....Respondent(s)**

For Petitioner: Shri S. S. Raju, PGCIL
Shri Anshul Garg, PGCIL
Shri Ved Prakash Rastogi, PGCIL
Shri D. K. Biswal, PGCIL

For Respondents: Shri S.Vallinayagam, Advocate, TANGEDCO
Ms. R. Ramalakshmi, TANGEDCO
Dr. R. Kathiravan, TANGEDCO
Shri R. Srinivasan, TANGEDCO

ORDER

The instant petition has been filed by Power Grid Corporation of India Ltd (PGCIL), a deemed transmission licensee, 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 tariff from 1.4.2019 to 31.3.2024 under the Central Electricity Regulatory Commission (Terms and Conditions of Tariff) Regulations, 2019 (hereinafter referred to as "the 2019 Tariff Regulations") in respect of the Transmission System associated with Ramagundam STPP including ICT at Khammam and Reactor at Gazuwaka in Southern Region (hereinafter referred to as the "transmission asset") under "CTP Augmentation in Southern Region" (hereinafter referred to as "the transmission system").

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.

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.

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"

Background

3. The facts of the case succinctly stated are as follows:

(a) The Petitioner has been entrusted with the implementation of transmission system associated with Ramagundam STPP including ICT at Khammam and Reactor at Gazuwaka under CTP augmentation in Southern Region.

(b) The Revised Cost Estimates (RCE) for transmission system associated with Ramagundam STPP including ICT at Khammam and Reactor at Gazuwaka under transmission system were approved by the Central Government, Ministry of Power (MoP) vide letter dated 27.11.1990 at a total cost ₹198512 lakh, including ₹167462 lakh for Ramagundam Super Thermal Power Station and ₹31050 lakh for the associated transmission system. Also, approval for additional assets under augmentation of Central Transmission Project in Southern Region was accorded by the Board of Directors of the Petitioner company under its delegated powers vide Memorandum C/CP/SQ2-00 dated 12.5.1994 for ₹3857 lakh which, *inter alia* included implementation of 1 Number 315 MVA, 400/ 220 kV Transformer at Khammam and one Number 50 MVAR Reactor at Gazuwaka. The apportioned approved cost of ICT at Khammam and Reactor at Gazuwaka is ₹2012 lakh. The total approved cost of the transmission system of ₹33062 lakh.

(c) The date of commercial operation of the transmission assets included in the transmission system is as follows:

Srl. No.	Name of transmission line	Date of commercial operation
(i)	400 kV S/C Ramagundam-Hyderabad transmission line-I	1.10.1984
(ii)	400 kV S/C Hyderabad-Nagarjuna Sagar transmission line	1.9.1985
(iii)	400 kV S/C Nagarjuna-Sagar-Cuddappah-I transmission line	1.2.1986
(iv)	400 kV S/C Cuddapah-Bangalore transmission line	1.8.1986
(v)	400 kV S/C Cuddapah-Madras transmission line	6.6.1988
(vi)	400 kV D/C Ramagundam-Nagarjuna Sagar (Circuit I)(Circuit II)	21.6.1988 10.12.1988
(vii)	400 kV S/C Nagarjuna-Sagar-Cuddappah-II transmission line	15.3.1989
(viii)	400 kV S/C Banaglore-Salem transmission line	23.11.1988
(ix)	400 kV S/C Nagarjuna Sagar-Raichur transmission line	1.8.1989
(x)	400 kV S/C Raichur- Munirabad transmission line	1.8.1989
(xi)	315 MVA 400/ 220 kV transformer of Khammam	1.1.1997
(xii)	50 MVA Reactor at Gazuwaka	1.2.1997

(d) The Commission vide order dated 23.10.2003 in Petition No. 26/2002 approved the transmission tariff for the period 1.4.2001 to 31.3.2004 Further, the tariff was revised on account of FERV adjustment vide order dated 8.2.2008 in Petition No. 26/2002.

(e) The transmission tariff for the transmission assets was approved by the Commission vide order dated 2.5.2006 in Petition No. 130/2004 for the period 1.4.2004 to 31.3.2009. Susbquently, the transmission charges were revised on account of FERV adjustment vide order dated 17.3.2008 in Petition No. 130/2004. Further, the transmission tariff of 2008-09 was revised vide orders dated 7.8.2009, 10.12.2009 and 10.10.2012 in Petition No. 76/2009. The Petitioner has filed a Petition No. 235/2009 for revision of Interest on Loan (IoL) based on Add-cap during 2008-09. The

Commission vide order dated 20.8.2010 dismissed the Petition No. 235/2009 being devoid of merit.

(f) The transmission tariff for the 2009-14 period was allowed by the Comission vide order dated 18.2.2014 in Petition No. 298/2010 in accordance with Central Electricity Regulatory Commission (Terms and Conditions of Tariff) Regulations, 2009 (hereinafter referred to as "the 2009 Tariff Regulations").

(g) Subsquently, the transmission tariff for 2009-14 period was trued up and tariff for the period from 1.4.2014 to 31.3.2019 was determined by the Commission vide order dated 9.2.2016 in Petition No. 35/TT/2015.

(h) The Petitioner has sought revision of transmission tariff approved for the 2004-09 tariff period on account of change in Interest on Loan (IoL) and Interest on Working Capital (IWC) to the extent of revision in IoL and in Maintenance Spares in terms of the judgments of the Appellate Tribunal for Electricity ("the APTEL") dated 22.1.2007 and dated 13.6.2007 in Appeal No. 81/2005 and batch matters and Appeal No. 139 of 2006 and batch matters respectively. The Petitioner has also sought consequential revision of tariff allowed for the 2009-14 tariff period, truing up of tariff of the 2014-19 tariff period and determination of tariff for the 2019-24 tariff period of the transmission asset.

4. The Respondents are distribution licensees, power departments and transmission licensees, procuring transmission services from the Petitioner, are mainly beneficiaries of the Southern 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. Tamil Nadu Generation & Distribution Corporation Limited (TANGEDCO), Respondent No. 4 i.e. has filed its reply vide affidavit dated 19.4.2021 and has raised issues like revision of tariff, restrospective calculation of ARR, burden on consumers, ACE, de-cap and sharing of transmission charges. In response, the Petitioner has filed rejoinder vide affidavit dated 15.6.2021.

6. TANGEDCO has objected to the revision in tariff claimed by the Petitioner as the same is bad in law and contrary to settled law. TANGEDCO has further submitted that it is impossible to make retrospective calculations of ARR of the distribution companies for two decades and to bill the arrears to the same customers of the correspondimg tariff periods. By placing reliance on the judgement of Hon'ble Supreme Court of India in U.P. Power Corporation Limited Vs. NTPC Limited reported in (2009) 6 SCC 235, TANGEDCO has further submitted that the present consumers cannot be burdened with past liabilities.

7. In response, the Petitioner has submitted that it is a settled position of law that, if in the tariff order any aspect is decided against the Regulations, the same can be changed/ corrected in truing-up. Similar objections raised by other companies have been considered and rejected by the Commission in several petitions and revision has been allowed for 2001-04, 2004-09 and 2009-14 tariff periods. The Petitioner has further submitted that the revision is pursuant to the orders of APTEL and, hence, the same may be allowed.

8. We have considered the submissions of the Petitioner and TANGEDCO regarding the revision of tariff of 2001-04, 2004-09 and 2009-14 tariff periods. APTEL vide judgment dated 22.1.2007 in Appeal No. 81 of 2005 and batch matters observed that IoL for the period from 1.4.1998 to 31.3.2001 shall be computed only on normative loan repayment as per its judgment dated 14.11.2006 in Appeal No. 94 of 2005 and Appeal No. 96 of 2005. APTEL vide its judgment dated 14.11.2006 had set aside the Commission's methodology of computation of loan on actual repayment basis or normative repayment whichever is higher and held that the Commission is required to adopt normative debt repayment methodology for working out IoL liability order for the period from 1.4.1998 to 31.3.2001. APTEL vide judgment dated 13.6.2007 in Appeal No. 139/2006 and batch matters further held that Additional Capital Expenditure (ACE) after COD should also be considered for computation of maintenance spares. Further, APTEL in its judgement dated 13.6.2007 in Appeal No.139 of 2006 and batch matters observed that depreciation is an expense and it cannot be deployed for deemed repayment of loan and, accordingly, directed the Commission to compute the outstanding loan afresh. In view of the above directions of APTEL, the outstanding loan

allowed for the transmission assets for 2004-09 tariff period is revised in the instant order. The Commission and certain interested parties filed Civil Appeals against the APTEL's judgments before the Hon'ble Supreme Court in 2007. Based on the APTEL's judgments dated 22.1.2007 and 13.6.2007, the Petitioner had sought revision of tariff of its transmission assets for 2001-04 and 2004-09 tariff periods in Petition No.121/2007. The Commission taking into consideration the pendency of Appeals before the Hon'ble Supreme Court adjourned the said petition *sine die* and directed that the same be revived after the disposal of Civil Appeals by the Hon'ble Supreme Court.

9. The Hon'ble Supreme Court vide order dated 10.4.2018, dismissed the said Civil Appeals filed against the APTEL's said judgments. Thus, the judgements of APTEL have attained finality. Consequent to the Hon'ble Supreme Court's order dated 10.4.2018 in NTPC matters, Petition No. 121/2007 was listed for hearing on 8.1.2019. The Commission vide order dated 18.1.2019 in Petition No. 121/2007, directed the Petitioner to submit its claim separately for the assets at the time of filing of truing up petition for 2014-19 tariff period.

10. On the basis of the above directions in order dated 18.1.2019 in Petition No. 121/2007, the Petitioner sought revision of the tariff allowed earlier for the 2001-04, 2004-09 and 2009-14 tariff periods in all applicable cases and the consequent revision of tariff of 2014-19 tariff period. The Commission has revised the tariff of the 2001-04 and 2004-09 tariff periods allowed earlier for the transmission assets of the Petitioner on the basis of the APTEL's judgement at the stage of truing up of the 2014-19 tariff

and determination of tariff of the 2019-24 tariff period in some of the petitions filed by the Petitioner.

11. In a similar case, the Petitioner filed Petition No. 288/TT/2019 for revision of transmission tariff for 2001-04, 2004-09 and 2009-14 tariff periods, truing-up of transmission tariff of 2014-19 tariff period and determination of transmission tariff for 2019-24 tariff period for LILO of 400 kV S/C Chamera-1 Kishenpur transmission line at Chamera-II under transmission system associated with Chamera HEP Stage-II Transmission System in Northern Region. BRPL objected to the re-opening of the tariff of the transmission assets where final tariff has already been determined, on the ground that no appeal was filed by Petitioner against them and as such the orders of the Commission passed therein have attained finality. The objections of BRPL were rejected by the Commission vide order dated 6.11.2019 and tariff of 2001-04, 2004-09 and 2009-14 tariff periods earlier allowed for LILO of 400 kV S/C Chamera-1 Kishenpur transmission line at Chamera-II under transmission system associated with Chamera HEP Stage-II Transmission System in Northern Region was revised by the Commission vide order dated 31.7.2020. BRPL and BYPL filed Appeal No. 212 of 2020 and IA No. 1683 of 2022 and Appeal No. 335 of 2022 and IA No.1580 of 2020 respectively against the Commission's orders dated 6.11.2019 and 31.7.2020 in Petition No. 288/TT/2019 before APTEL. APTEL vide judgement dated 17.10.2022 in the abovesaid Appeals has set aside the Commission's interim order dated 6.11.2019 and the final order dated 31.7.2020 in Petition No. 288/TT/2019 filed by the Petitioner. The relevant portion of the APTEL's judgement dated 17.10.2022 is as follows:

"25. For the foregoing reasons, we find that the objections taken by the appellants to the maintainability of the petition (no. 288/TT/2019), in the case involving them, were wrongly rejected by the Central Commission by Order dated 6.11.2019. We hold to the contrary and, thus, set aside and vacate the said order. Resultantly, the subsequent proceedings in same matter taken out before the Central Commission are found to be impermissible rendering the final Order dated 31.07.2020 non est. The same is also consequently set aside.

26. The appeals are allowed in above terms. The pending applications are rendered infructuous and stand disposed of accordingly."

12. In view of the above referred APTEL's judgement dated 17.10.2022 in Appeal No. 212 of 2020 and IA No.1683 of 2022 and Appeal No. 335 of 2022 and IA No.1580 of 2020, the Petitioner's prayer for revision of transmission tariff of 2004-09 and 2009-14 tariff periods of the transmission assets is not allowed.

13. The hearing in this matter was held on 11.2.2022 through video conference and order was reserved.

14. This order is issued considering the submissions in the petition vide affidavit dated 16.1.2020 and affidavits dated 13.4.2021, 24.9.2021 and 2.2.2022, TANGEDCO's reply vide affidavit dated 19.4.2021 and the Petitioner's rejoinder vide affidavit dated 15.6.2021 thereto.

15. Having heard the learned counsel for TANGEDCO, representatives of the Petitioner and TANGEDCO and having perused the material on record, we proceed to dispose of the petition.

Truing up of Annual Fixed Charges for the 2014-19 Tariff Period

16. The Petitioner has revised its submission vide affidavit dated 24.9.2021 on account of de-capitalization of the replaced 4X167 MVA ICT at Somanahalli Sub-station which is covered in the instant transmission system.

17. The details of the trued up transmission charges claimed by the Petitioner are as follows:

(₹ in lakh)

Particulars	2014-15	2015-16	2016-17	2017-18	2018-19
Depreciation	773.82	842.16	1008.40	1254.61	1452.84
Interest on Loan	0.00	0.00	0.00	0.00	0.00
Return on equity	3562.80	3600.13	3638.49	3681.39	3730.25
O&M Expenses	2502.15	2586.47	2672.55	2760.67	2852.53
Interest on Working Capital	238.04	245.14	254.60	265.71	276.89
Total	**7076.81**	**7273.90**	**7574.04**	**7962.38**	**8312.51**

18. The details of the Interest on Working Capital (IWC) claimed by the Petitioner are as follows:

(₹ in lakh)

Particulars	2014-15	2015-16	2016-17	2017-18	2018-19
O&M expenses	208.51	215.54	222.71	230.06	237.71
Maintenance Spares	375.32	387.97	400.88	414.10	427.88
Receivables	1179.45	1212.32	1262.34	1324.03	1385.42
Total	**1763.28**	**1815.83**	**1885.93**	**1968.19**	**2051.01**
Rate of Interest (in%)	13.50	13.50	13.50	13.50	13.50
Interest on Working Capital	**238.04**	**245.14**	**254.60**	**265.71**	**276.89**

Capital Cost as on 1.4.2014

19. The capital cost of the transmission asset has been calculated in accordance with Regulation 9(3) and Regulation 9(6) of the 2014 Tariff Regulations. The Commission vide order dated 9.2.2016 in Petition No. 35/TT/2015 approved the transmission tariff of the transmission asset for the 2014-19 period based on admitted capital cost of ₹40246.82 lakh as on 31.3.2014. Therefore, the admitted capital cost of

₹40246.82 lakh as on 31.3.2014 has been considered for working out the trued up tariff for the 2014-19 tariff period.

Additional Capital Expenditure (ACE)

20. The Commission vide order dated 9.2.2016 in Petition No. 35/TT/2015 has approved the following ACE for 2014-19 period and the same is as follows:

(₹ in lakh)

Year	ACE		De-capitalisation		Total Net ACE
	Sub-station Equipments	Tower Strengthening	Sub-station Equipments	Tower Strengthening	
2014-15	145.38	0.00	-40.68	0.00	**104.70**
2015-16	1746.39	1270.00	-301.45	0.00	2714.94
2016-17	40.00	0.00	-1.71	0.00	38.29
2017-18	3155.02	0.00	0.00	0.00	3155.02
2018-19	0.00	0.00	0.00	0.00	0.00
Total	5086.79	1270.00	-343.84	0.00	6012.95

21. The Petitioner in the instant true-up Petition has submitted actual ACE incurred upto 31.3.2019. The details of ACE and de-capitalisation during 2014-19 tariff period as claimed by the Petitioner in respect of the transmission asset are as follows:

(₹ in lakh)

ACE & De-capitalisation										Total Net ACE
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	
46.03	-16.48	809.40	-100.91	940.75	-199.78*	1127.62	-210.39	520.12	-7.05	43156.12

**De-cap value of ₹192.46 lakh of 4X167 MVA ICT at Somanahalli Sub-station is included*

22. TANGEDCO has submitted that as per Regulation 14(3)(vii) of the 2014 Tariff Regulations, technical justification duly supported by documentary evidence like test results carried out of the old assets by an independent agency have to be produced by the Petitioner to claim ACE for the defective / problematic aged assets. Accoridngly, the Petitioner may be directed to provide the documentary evidence for the defective / problematic asset that have been de-capitalised for 2014-19 tariff period and submit the

details of the discussions held during the SRPC meetings regarding de-capitalisation of assets (sub-station equipment, building and civil structures) for the 2014-19 and 2019-24 tariff period.

23. In response, the Petitioner has submitted that, vide affidavit dated 13.4.2021, all the details pertaining to the ACE calimed during 2014-19 and 2019-24 tariff period has been submitted. Further, the correspondences with OEMs with regard to non-availability of spare parts of the problematic equipment along with CPRI report has also been submitted. As regards the discussion in SRPC meetings regarding de-capitalization of assets, the Petitioner has submitted that the proposed ACE is claimed as per Regulation 25(2) of the 2019 Tariff Regulation and the ACE shall be incurred only after approval of the Commission, hence RPC/ beneficiary approval for the same is not required.

24. The Petitioner vide affidavit dated 24.9.2021 has submitted that the Commission in order dated 6.2.2021 in Petition No. 505/TT/2020 considered the APTEL judgement dated 25.4.2016 in Appeal No. 98 of 2015 regarding approving tariff for the assets which have completed their useful life and are not in use. In Petition No. 505/TT/2020, 4X167 MVA ICT at Somanahalli has been replaced by 1X500 MVA ICT at Somanahalli. Accordingly, the replaced 4X167 MVA ICT at Somanahalli Sub-station covered in the instant petition is now decapitalized from actual date of removal i.e. 1.3.2017.

Capital Cost considered for true-up of tariff for the 2014-19 tariff period

25. We have considered the submission of the Petitioner and TANGEDCO. The actual ACE claimed towards replacement of problematic/defective equipments and

tower strengthening is allowed under Regulation 14(3)(vii) and Regulation 14(3)(ix) of the 2014 Tariff Regulations.

26. The Petitioner has submitted that 4x167 MVA ICTs at Somanahalli Sub-station have completed their useful life of 25 years and the Petitioner has replaced 4x167 MVA ICTs at Somanahalli with 500 MVA ICT and replaced ICTs are de-capitlaised on 1.3.2017. We have further considered that 4X167 MVA ICTs at Somanahalli Sub-station covered in the instant petition have completed their useful life and are de-capitalized from the original date of removal i.e. 1.3.2017. Accordingy, the capital cost considered for truing up of tariff for the 2014-19 tariff period is as follows:

(₹ in lakh)

Capital Cost as on 1.4.2014	ACE during 2014-19 Period										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	
40246.82	46.03	16.48	809.40	100.91	940.75	199.78	1127.62	210.39	520.12	7.05	43156.12

Debt-Equity Ratio

27. The Petitioner has claimed debt-equity ratio as on 31.3.2014 and approved by the Commission vide order dated 9.2.2016 in Petition No. 35/TT/2015 and the same has been considered as opening debt-equity ratio as on 1.4.2014 as provided under Regulation 19(3) of the 2014 Tariff Regulations. The details of the same are as follows:

Funding	Capital cost as on 1.4.2014 (₹ in lakh)	(in %)
Debt	22082.63	54.87
Equity	18164.19	45.13
Total	**40246.82**	**100.00**

28. The debt-equity ratio of 70:30 has been considered for ACE allowed during 2014-19 tariff period in accordance with Regulation 19(5) of the 2014 Tariff Regulations. The de-capitalisation of the asset in the instant case is carried out in the debt-equity ratio as claimed by the Petitioner in Form-10B.

29. The details of debt-equity as on 1.4.2014 and 31.3.2019 in respect of the transmission asset considered for the purpose of tariff for 2014-19 tariff period is as follows:

Debt-Equity for Capital Cost as on 1.4.2014

Funding	Capital cost as on 1.4.2014 (₹ in lakh)	(in %)
Debt	22082.63	54.87
Equity	18164.19	45.13
Total	**40246.82**	**100.00**

Debt-Equity For ACE and De-capitalisation during 2014-19

Particulars	ACE		De-capitalisation	
	2014-15 (₹ in lakh)	**(in %)**	**2014-15 (₹ in lakh)**	**(in %)**
Debt	32.22	70.00	9.04	54.87
Equity	13.81	30.00	7.44	45.13
Total	**46.03**	**100.00**	**16.48**	**100.00**
Particulars	**ACE**		**De-capitalisation**	
	2015-16 (₹ in lakh)	**(in %)**	**2015-16 (₹ in lakh)**	**(in %)**
Debt	566.58	70.00	55.37	54.87
Equity	242.82	30.00	45.54	45.13
Total	**809.40**	**100.00**	**100.91**	**100.00**
Particulars	**ACE**		**De-capitalisation**	
	2016-17 (₹ in lakh)	**(in %)**	**2016-17 (₹ in lakh)**	**(in %)**
Debt	658.53	70.00	109.62	54.87
Equity	282.23	30.00	90.16	45.13
Total	**940.75**	**100.00**	**199.78**	**100.00**
Particulars	**ACE**		**De-capitalisation**	
	2017-18 (₹ in lakh)	**(in %)**	**2017-18 (₹ in lakh)**	**(in %)**
Debt	789.33	70.00	115.44	54.87

Equity	338.29	30.00	94.95	45.13
Total	**1127.62**	**100.00**	**210.39**	**100.00**
Particulars	**ACE**		**De-capitalisation**	
	2018-19 (₹ in lakh)	**(in %)**	**2018-19 (₹ in lakh)**	**(in %)**
Debt	364.08	70.00	3.87	54.87
Equity	156.03	30.00	3.18	45.13
Total	**520.11**	**100.00**	**7.05**	**100.00**

Debt-Equity for Capital Cost as on 31.3.2019

Particulars	**Amount (₹ in lakh)**	**(in %)**
Debt	24200.03*	56.08
Equity	18956.09**	43.92
Total	**43156.12**	**100.00**

**Debt as on 1.4.2014 plus debt considered for ACE minus adjustment made in debt on de-capitalisation.*
***Equity as on 1.4.2014 plus equity considered for ACE minus adjustment made in equity on de-capitalisation*

Depreciation

30. The transmission asset has already completed 12 years before 1.4.2014. Accordingly, the depreciation has been calculated based on the remaining depreciable value to be recovered over the balance useful life and trued up depreciation allowed for 2014-19 tariff period is as follows:

(₹ in lakh)

	Particulars	**2014-15**	**2015-16**	**2016-17**	**2017-18**	**2018-19**
A	Opening Gross Block	40246.82	40276.37	40984.86	41725.83	42643.06
B	ACE	29.55	708.49	740.97	917.23	513.06
C	Closing Gross Block (A+B)	40276.37	40984.86	41725.83	42643.06	43156.12
D	Average Gross Block (A+C)/2	40261.60	40630.62	41355.35	42184.45	42899.59
E	Free hold Land	295.69	295.69	295.69	295.69	295.69
F	Average Gross Block (90% depreciable assets)	39965.91	40334.93	41059.66	41888.76	42603.90
G	Depreciable value (F*90%)	35969.31	36301.43	36953.69	37699.88	38343.51
H	Weighted Average Rate of Depreciation (WAROD) (in %)	1.32	1.32	1.32	1.32	1.32
I	Elapsed useful life at the beginning of the year (Year)	23.00	24.00	25.00	26.00	27.00
I	Balance useful life at the beginning of the year (Year)	7.00	6.00	5.00	4.00	3.00

J	**Depreciation during the year** (D*H)	**826.48**	**884.31**	**1032.92**	**1264.42**	**1542.08**
L	Aggregate Cumulative Depreciation at the end of the year	30995.60	31789.09	32642.20	33717.27	35253.01
M	Remaining Aggregate Depreciable Value at the end of the year(G-L)	4958.88	4421.53	4131.68	3793.26	3084.16

31. Accordingly, depreciation approved vide order dated 9.2.2016 in Petition No. 35/TT/2015, claimed by the Petitioner in the instant petition and trued up depreciation in respect of the transmission asset is as follows:

(₹ in lakh)

Particulars	**2014-15**	**2015-16**	**2016-17**	**2017-18**	**2018-19**
Approved vide order dated 9.2.2016 in Petition No. 35/TT/2015	835.68	1085.79	1333.84	1338.15	1811.40
As claimed by the Petitioner in the instant petition	773.82	842.16	1008.40	1254.61	1452.84
Allowed after true-up in this order	826.48	884.31	1032.92	1264.42	1542.08

Interest on Loan (IoL)

32. The Petitioner has not claimed any IoL for 2014-19 tariff period as the entire loan has already been repaid during 2009-14. Accordingly, IoL has been considered as NIL for the purpose of tariff.

Return on Equity (RoE)

33. The Petitioner is entitled to RoE for the tranmission asset in terms of Regulation 24 and Regulation 25 of the 2014 Tariff Regulations. The Petitioner has submitted that they are liable to pay income tax at MAT rates and has claimed following effective tax rates for the 2014-19 tariff period:

Year	**Claimed effective tax rate (in %)**	**Grossed up RoE [(Base Rate)/(1-t)] (in %)**
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

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

Year	Notified MAT rates (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

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

Year	Notified MAT rates (inclusive of surcharge & cess) (in %)	Base rate of RoE (in %)	Grossed up RoE [(Base Rate)/(1-t)] (in %)
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

36. Accordingly, the trued up RoE allowed for the transmission asset is as follows:

(₹ in lakh)

	Particulars	2014-15	2015-16	2016-17	2017-18	2018-19
A	Opening Equity	18164.19	18170.56	18367.84	18559.90	18803.24
B	Additions due to ACE	13.81	242.82	282.23	338.29	156.03
C	Decrease due to decapitalisation during the period	7.44	45.54	90.16	94.95	3.18
D	Closing Equity (A+B-C)	18170.56	18367.84	18559.90	18803.24	18956.09
E	Average Equity (A+D)/2	18167.38	18269.20	18463.87	18681.57	18879.67
F	Return on Equity (Base Rate) (in %)	15.500	15.500	15.500	15.500	15.500
G	Tax Rate applicable (in %)	20.961	21.342	21.342	21.342	21.549
H	Applicable RoE Rate (in %)	19.610	19.705	19.705	19.705	19.758

I	**Return on Equity for the year (E*H)**	**3562.62**	**3599.95**	**3638.31**	**3681.20**	**3730.24**

37. Accordingly, RoE approved vide order dated 9.2.2016 in Petition No. 35/TT/2015, claimed in the instant petition and trued up RoE allowed in respect of the transmission asset are as follows:

(₹ in lakh)

Particulars	**2014-15**	**2015-16**	**2016-17**	**2017-18**	**2018-19**
Approved vide order dated 9.2.2016 in Petition No. 35/TT/2015	3565.16	3648.10	3729.09	3730.22	3823.02
As claimed by the Petitioner in the instant petition	3562.80	3600.13	3638.49	3681.39	3730.25
Allowed after true-up in this order	3562.62	3599.95	3638.31	3681.20	3730.24

Operation & Maintenance Expenses (O&M Expenses)

38. The O&M Expenses claimed by the Petitioner are within the norms specified under the 2014 Tariff Regulations. The allowable O&M Expenses are as follows:

Asset-I				
Transmission Lines				
Srl. No.	**Name of Line**	**Single Circuit / Double Circuit**	**Number of sub-Conductors**	**Line Length (in km)**
1	400 kv Ramagundam-Hyderabad I	**Single Circuit**	2	187.291
2	400 kv Hyderabad – N' sagar	**Single Circuit**	2	155.264
3	400 kv N' sagar - Cuddapah I	**Single Circuit**	2	277.325
4	400 kv Cuddapah-Bangalore	**Single Circuit**	2	241.652
5	400 kv Cuddapah - Madras	**Single Circuit**	2	242.278
6	400 kv Ramagundam-N'sagar ckt 1 and 2(ckt1 : COD 21.06.88, ckt2 COD 10.12.88)	**Double Circuit**	2	267.2
7	400 kv N' sagar - Cuddapah II	**Single Circuit**	2	278.664
8	400 kv Bangalore-Salem	**Single Circuit**	2	181.357
9	400 kv N'' sagar – Raichur	**Single Circuit**	2	258.103
10	400 kv Raichur - Munirabad	**Single Circuit**	2	172.445

Particulars	**2014-15**	**2015-16**	**2016-17**	**2017-18**	**2018-19**
Transmission lines (km)					
Single circuit with Two conductors (km)	1994.379	1994.379	1994.379	1994.379	1994.379
Double circuit with Two conductors (km)	267.20	267.20	267.20	267.20	267.20

Norms (₹ lakh/km)						
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
Total Transmission line O&M Expenses (A)		**994.64**	**1028.97**	**1063.31**	**1097.91**	**1134.77**
Sub-station						
Srl. No.	**400 kV Sub-station bay**					
1	Somanahalli:Cuddapah Bay at Bangalore					
2	Somanahalli:Salem Bay at Bangalore					
3	Khammam:ICT-1 Bay at Khammam					
4	Cuddapah:N Sagar- 1 Bay at Cuddapah					
5	Cuddapah:Bangalore Bay at Cuddapah					
6	Cuddapah:ICT-1 Bay at Cuddapah					
7	Cuddapah:N Sagar-II Bay at Cuddapah					
8	Cuddapah:Madras Bay at Cuddapah					
9	Nagarjunasagar: Ramagundam-I Bay at N Sagar					
10	Hyderabad:N Sagar Bay at Hyderabad					
11	Hyderabad:Ramagundam I Bay at Hyderabad					
12	Hyderabad:ICT-I Bay at Hyderabad					
13	Salem: Bangalore Bay at Salem					
14	Kalivanthapattu: Cuddapah Bay at Madras					
15	Munirabad:ICT-I Bay at Munirabad					
16	Salem:ICT-I Bay at Bangalore					
17	Nagarjunasagar:ICT-I Bay at Nsagar					
18	Munirabad: Raichur Bay at Munirabad					
19	Nagarjunasagar: Cuddapah-I Bay at N Sagar					
20	Nagarjunasagar: Hyderabad Bay at N Sagar					
21	Nagarjunasagar: Cuddapah-II at N Sagar					
22	Nagarjunasagar: Ramagundam II at N Sagar					
23	Nagarjunasagar:ICT-II Bay at N Sagar					
24	Nagarjunasagar: Raichur Bay at N Sagar					
25	Gajuwaka/vishakhapatnam: Bus Reactor Bay at Vishakhapattinam					
Particulars		**2014-15**	**2015-16**	**2016-17**	**2017-18**	**2018-19**
Sub-station (Number of bays)						
400 kV		25	25	25	25	25
Norms (₹ lakh/bay)						
400 kV sub-station		60.30	62.30	64.37	66.51	68.71
Total Sub-station O&M (B)		**1507.50**	**1557.50**	**1609.25**	**1662.75**	**1717.75**
Total O&M Expenses calculated C= (A)+(B)		**2502.14**	**2586.47**	**2672.56**	**2760.66**	**2852.52**
Total O&M Expenses Claimed		**2502.14**	**2586.47**	**2672.56**	**2760.66**	**2852.52**
Total O&M Expenses Allowed		**2502.14**	**2586.47**	**2672.56**	**2760.66**	**2852.52**

39. Accordingly, the O&M Expenses approved vide order dated 9.2.2016 in Petition No. 35/TT/2015, claimed in the instant petition and trued up O&M Expenses approved in respect of the transmission asset are as follows:

(₹ in lakh)

Particulars	2014-15	2015-16	2016-17	2017-18	2018-19
Approved vide order dated 9.2.2016 in Petition No. 35/TT/2015	2502.14	2586.47	2672.56	2760.66	2852.52
As claimed by the Petitioner in the instant petition	2502.14	2586.47	2672.56	2760.66	2852.52
Allowed after true up in this order	2502.14	2586.47	2672.56	2760.66	2852.52

Interest on Working Capital (IWC)

40. The Petitioner has claimed IWC in terms of Regulation 28 of the 2014 Tariff Regulations. The components of the working capital and the Petitioner's entitlement to interest thereon are discussed as follows :

i. **Working Capital for Maintenance spares**:
Maintenance spares have been worked out based on 15% of Operation and Maintenance Expenses specified in Regulation 28.

ii. **Working Capital for O&M Expenses**:
O&M Expenses have been considered for one month of the allowed O&M Expenses.

iii. **Working Capital for Receivables**:
The receivables have been worked out on the basis of 2 months of annual transmission charges as worked out above.

iv. **Rate of interest on working capital**

Rate of interest on working capital is considered on normative basis in accordance with Clause (3) of Regulation 28 of the 2014 Tariff Regulations.

41. IWC worked out as per the methodology provided in Regulation 28 of the 2014 Tariff Regulations and allowed in respect of the instant transmission asset is as follows:

(₹ in lakh)

	Particulars	2014-15	2015-16	2016-17	2017-18	2018-19
A	Working Capital for O&M Expenses (Equivalent to annualized O&M Expenses for 1 month)	208.51	215.54	222.71	230.05	237.71
B	Working Capital for Maintenance Spares (Equivalent to 15% of O&M Expenses)	375.32	387.97	400.88	414.10	427.88
C	Working Capital for Receivables (Equivalent to two months of annual transmission charges)	1188.42	1219.47	1266.49	1328.77	1400.63
D	**Total Working Capital (A+B+C)**	**1772.25**	**1822.98**	**1890.09**	**1972.92**	**2066.22**
E	Rate of Interest (in %)	13.50	13.50	13.50	13.50	13.50
F	**Interest on Working Capital (DxE)**	**239.25**	**246.10**	**255.16**	**266.34**	**278.94**

42. Accordingly, the IWC approved vide order dated 9.2.2016 in Petition No. 35/TT/2015, IWC claimed in the instant petition and trued up IWC approved in respect of the transmission asset is as follows:

(₹ in lakh)

Particulars	2014-15	2015-16	2016-17	2017-18	2018-19
Approved vide order dated 9.2.2016 in Petition No. 35/TT/2015	239.52	252.64	264.97	269.17	287.66
As claimed by the Petitioner in the instant petition	238.04	245.14	254.60	265.71	276.89
Allowed after true-up in this order	239.25	246.10	255.16	266.34	278.94

Approved Annual Fixed Charges for the 2014-19 Tariff Period

43. The trued up annual fixed charges allowed for the transmission asset for the 2014-19 tariff period are as follows:

(₹ in lakh)

Particulars	2014-15	2015-16	2016-17	2017–18	2018-19
Depreciation	826.48	884.31	1032.92	1264.42	1542.08
Interest on Loan	0.00	0.00	0.00	0.00	0.00

Return on Equity	3562.62	3599.95	3638.31	3681.20	3730.24
O&M Expenses	2502.14	2586.47	2672.56	2760.66	2852.52
Interest on Working Capital	239.25	246.10	255.16	266.34	278.94
Total	**7130.49**	**7316.83**	**7598.95**	**7972.62**	**8403.78**

44. Accordingly, the details of the Annual Transmission Charges approved earlier, 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 earlier in order dated 9.2.2016 in Petition No. 35/TT/2015	7142.51	7607.22	8034.67	8098.20	8791.29
As claimed by the Petitioner in the instant petition	7076.81	7273.90	7574.04	7962.38	8312.51
Allowed after true-up in this order	7130.49	7316.83	7598.95	7972.62	8403.78

Determination of Annual Fixed Charges for 2019-24 Tariff Period

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

(₹ in lakh)

Particulars	**2019-20**	**2020-21**	**2021-22**	**2022-23**	**2023-24**
Depreciation	1833.39	3234.61	556.66	1299.79	1739.38
Interest on Loan	0.00	0.00	92.57	195.35	152.17
Return on Equity	3592.83	3670.28	3822.61	3974.10	3999.68
O&M Expenses	2718.95	2815.97	2914.23	3017.63	3122.43
Interest on Working Capital	200.09	226.96	194.56	214.11	224.66
Total	**8345.26**	**9947.82**	**7580.63**	**8700.98**	**9238.32**

46. The Petitioner has claimed the following IWC for the 2019-24 period in respect of the transmission assset:

(₹ in lakh)

Particulars	**2019-20**	**2020-21**	**2021-22**	**2022-23**	**2023-24**
O&M expenses	226.58	234.66	242.85	251.47	260.20
Maintenance Spares	407.84	422.40	437.13	452.64	468.36
Receivables	1026.06	1226.44	934.60	1072.72	1135.86
Total	1660.48	1883.50	1614.58	1776.83	1864.42
Rate of Interest (in %)	12.05	12.05	12.05	12.05	12.05

Interest on Working Capital	200.09	226.96	194.56	214.11	224.66

Capital Cost

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

"(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 trued up by excluding liability, if any, as on 1.4.2019;
(b) Additional capitalization and de-capitalization for the respective year of tariff as determined in accordance with these regulations;
(c) Capital expenditure on account of 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 GrameenVidyutikaranYojana (RGGVY) and DeendayalUpadhyaya Gram JyotiYojana (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."

48. The admitted capital cost of ₹43156.12 lakh as on 31.3.2019 for the transmission asset has been considered as 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 (ACE)

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

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

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

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

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

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

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

(1) The ACE incurred or projected to be incurred in respect of an existing project or a new project on the following counts within the original scope of work and after the 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."*

50. The Petitioner has projected net ACE/ de-capitalization proposed during 2019-24 as revised by the Petitioner vide affidavit dated 24.9.2021. The details of ACE are as follows:

(₹ in lakh)

Particulars	**Amount**
ACE in 2019-20	1169.35
ACE in 2020-21	1952.77
ACE in 2021-22	4420.87
ACE in 2022-23	2634.26
ACE in 2023-24	710.63
De-capitalisation in 2019-20	(10.51)
De-capitalisation in 2020-21	(148.76)
De-capitalisation in 2021-22*	(473.27)
De-capitalisation in 2022-23	(454.21)
De-capitalisation in 2023-24	(770.87)

**decapitalization value of ₹192.46 lakh is claimed in FY 2016-17 whereas the same has been de-capitalised in the books of account in FY 2021-22*

51. The Petitioner has submitted that the sub-station equipment proposed for replacement at sub-stations under RSTPP-I and II covered in the instant petition were put into commercial operation in 1991 and 1992. The useful life of sub-station equipment was completed during 2019-24 period. During various routine tests, critical conditions

were observed, and it was noticed that equipment were giving operational problems and, hence, created a threat to the reliability and security of the grid. The Petitioner has also submitted that designs have undergone substantial changes over the period since COD and manufacturers have discontinued the product models. The suppliers are unable to replenish parts required for quick restoration and repairs turned out unviable.

52. The Petitioner has further submitted that buildings and other civil structures like overhead tanks etc. which were constructed in the sub-stations have completed the useful life of 30 years in accordance with Schedule-II, Companies Act, 2013 Part-C (1b). The Petitioner has submitted that these buildings and civil structures were constructed in 1987-88 and have been in service for more than 30 years and they do not comply with the earthquake resistant provisions of latest IS codes. The Petitioner has submitted that it is mandatory for all Government owned buildings and structures to be seismic resistant as per the National Disaster Management Plan. Some of these buildings and civil structures are in dilapidated and unsafe condition and need urgent re-construction to avoid any damage/ threat to human life or property. Accordingly, the Petitioner has proposed to demolish these dilapidated and unsafe buildings and structures and construct new buildings and structures during 2019-24 tariff period. Thus, ACE/ de-capitalization proposed under the head of building and civil structures correspond to demolition of such old buildings and construction of new buildings and civil structures. The Petitioner has submitted that the test reports in respect of healthiness of buildings and civil structures will be submitted soon. The Petitioner has also mentioned relevant provisions of authenticated documents which recommends seismic retrofitting, demolishing and reconstruction.

53. The Petitioner has further submitted that the projected ACE has become necessary for efficient and secure operation of the transmission system as envisaged under Regulation 25(2)(c) of the 2019 Tariff Regulations.

54. As regards projected ACE during 2019-24, the Petitioner vide affidavit dated 13.4.2021 has submitted details for replacement of equipment as follows:

I. Replacement of 400 kV and 220 kV "ABB" make Pneumatically operated circuit breakers at Somahalli, Hyderabad and Nagarjunasagar and 220 kV "CGL" make circuit breaker at Hyderbad (10 numbers).

The Circuit Breakers (CB) supplied under RSTPP System are of pneumatically operated type. This type of Pneumatic technology has become obsolete and Original Equipment Manufacturer (OEM) has stopped production of these type of circuit breakers. The spares and service support from OEM was very poor for pneumatically operated CB and cost of spares are exorbitantly high and takes much longer time. Subsequently, OEM has stopped giving service support. Frequent maintenance problems are observed in the CB such as Pneumatic drive/Magnetic ventil failures, air leakages from various parts of the mechanisms, SF6 gas leakages, etc. leading to frequent break-down, prolonged outages and unreliable operation. Such type of CBs where controlled switching devices are installed, issue has also been observed in CSD tuning and performance due to large scattering/ variation in operating time of CBs resulting in adverse effect on associated shunt reactors. The letter of OEM for non-availability of service support has been submitted. Therefore, it is proposed to replace 09 Numbers ABB make Pneumatic CBs at Somanahalli,

Hyderabad and Nagarjuna Sagar and and 1 Number CGL make Pneumatic CB at Hyderabad.

II. Replacement of old & obsolete 400 kV & 220 kV "BHEL" & "WSI" make dead tank type Porcelain CTs at Somanahalli, Salem, Sriperumudur, Hyderabad, Nagarjunasagar and Munirabad (84 Numbers):

The CTs proposed for replacement under RSTPP project are completed 25 years of useful life and of old "BHEL" & "WSI" make, dead tank type with Porcelain housing. Oil leakages from different points such as dead tank joint gasket portion, secondary terminals, primary terminals, domes, oil sight glass, etc. have been noticed in many of these CTs. As there is leakage in the current transformer, it may lead to low oil level, moisture ingress and subsequent failure in the long run. The current transformers are hermetically sealed equipment and, therefore, major repair at site is not recommended. Further, as there is ingress of moisture, complete replacement of active insulation part is required at manufacturer works which will not be techno economically viable. Manufacturer has also stopped manufacturing and repair works of these types of CTs is difficult. The relevant communication from OEM has been submitted. Therefore, it is proposed to replace 75 numbers 400 kV and 9 numbers of 220 kV CTs at Somanahalli, Salem, Sriperumbudur, Hyderabad, Nagarjuna Sagar and Munirabad.

III. Replacement of 4 old obsolete 400 kV & 220 kV CVTs at Somanahalli, Salem, Sriperumudur, Hyderabad, Nagarjunasagar and Munirabad Substations (48 Numbers):

The 400 kV CVTs at Somanahalli and Sriperumbudur Sub-stations are more than 25 years old and of BHEL/WSI/HBB/PASIOVILA make. CVTs are used

for protection and metering purpose. Due to ageing, leakage/seepage from multiple points such as EMU tank, oil level glass, secondary terminal boxes are also observed. Capacitance of the CVTs have changed due to internal failure of capacitor elements due to ageing resulting into drift in secondary voltage. CVT secondary output is used in metering and protection system. Therefore, it becomes vital for metering and protection. The variation in secondary voltage may result in inaccurate metering and wrong operation of protection relays of transmission elements. The CVTs are hermetically sealed equipment and repairing of these equipment at site level is not recommended. Hence, these aged CVTs are not reliable for intended performance and prone to failure at any time causing forced outage of the critically loaded feeders. After 25 years of operation, repair of the CVTs at manufacturer works is not techno-economically viable due to change in design by the manufacturer and the repair requires change of majority part of CVT even if the problem is only in one part of equipment. Moreover, the manufacturer has also stopped manufacturing and repair works of these types of CVTs. The relevant communication from the OEM has been submitted. Therefore, it is proposed to replace 42 numbers of 400 kV and 6 numbers of 220 kV CVTs at Somanahalli, Sriperumbudur, Hyderabad, Nagarjuna Sagar and Munirabad.

IV. Replacement of old & obsolete Gapped/Porcelain type WSI/ELPRO make 390 kV & 216 kV Surge arrestors at Somanahalli, Salem and Sriperumbudur Sub-station (21 Numbers)

The 390 kV and 216 kV rated surge arrestors installed at Somanahalli, Salem and Sriperumbudur Sub-stations are of WSI/ELPRO make, gapped Porcelain

type and more than 30 years old. Due to aging, the performance of LAs has started deteriorating resulting into high number of failures and frequent preventive replacements on the basis of THRC. LA plays a vital role in protecting the equipment against lightning/ switching impulses and healthiness of LAs is vital to protection of other costly equipment from high surge voltage protection. Non-functioning of LAs may cause damage to Transformer/ Reactor. Therefore, it is proposed to replace 21 numbers of Surge arrestors at Somanhalli, Salem and Sriperumbudur latest specification which has high energy capability and superior performance.

V. Replacement of old & Obsolete 400 kV and 220 kV "HCB" type Isolators at Somanahalli, Hyderabad, Nagarjuna Sagar, Kadapa, & Munirabad (100 set)

The Isolators proposed to be replaced are of S&S and Hivelm make and have completed 25 years of useful life. These isolators are mainly of Horizontal Centre Break (HCB) type and frequent problem of misalignment are being faced. Current transfer assembly on isolator top and other major spares are not available anymore mostly due to old/ obsolete design of isolators and, thus, creating problem in maintaining these old isolators. Due to improper health of isolator, specially interlock mechanism, drive mechanism, etc. the isolators are unable to maintain the stable condition during storms and high wind conditions and are getting opened in On Load condition which is dangerous to the system as well as to the operating personnel. Due to rusting, many MOM boxes have been damaged leading to problem in components of MOM boxes and motorised operation of isolators are not possible. This leads to problem such

as improper indication, control, interlock and remote operation of isolators, which is unsafe. Due to ageing, TBs inside the MOM boxes have become brittle and many times terminals come in contact with boxes and creates DC earth fault which is detrimental to the control and protection system. Due to age and wear and tear, even local operation has become difficult. Further, timely support is not available from OEM due to old design. Existing spares have already been exhausted. Failure of any component may lead to improper and unreliable operation of isolator/ earth switches and risk to the system and safety of O&M staff. The letter of OEM (S&S, Raychem the then "Hivelm") for non-availability of service support has been submitted. Therefore, it is proposed to replace 93 sets of 400 kV and 7 sets of 220 kV Isolators at at Somanahalli, Hyderabad, Nagarjunsagar, Kadapa and Munirabad station.

VI. Replacement of Old & Obsolete high Impedence Static type 400 kV Bus bar protection relays at Somanhalli Sub-station

The present Bus bar scheme being used at Somanhalli is of English Electric Make Model (FAC-34). It is of high impedance static type based bus bar protection without individual bay monitoring oprtion. The above relay was commissioned more than 25 years old and service/ spares support from OEM is not avaialable. The communication regarding the discontinuation of the product received from OEM is submitted. Further, the realy is not having facility for communication, self-dignostic features, alarm reporting, time synchronisation, Disturbance recording & Event logging features etc. due to which detailed analysis and correlation during bus bar tripping is becoming difficult. Bus bar protection relay plays a vital role in the sub-station.

Malfunction of the relay may cause complete outage of the system. Therefore, it is proposed to replace 1 set of static bus bar proterction relay at Somanhalli sub-station.

VII. Replacement of old and obsolete static /Electro mechanical type Protection relays at Somanahalli, Salem and Sriperumbudur Sub-stations

The differential, REF/direction over-current cum earth fault, auto reclosure, master trip relays, etc. used for protection of line/ ICT/ reactor are of static/ electro mechanical type and are 25 years old. Due to ageing, the general performance of relays have deteriorated and become unreliable. The contacts of these relays have become sluggish and mal-operation in certain cases are observed and attended/ replaced on case to cases basis. Hence, in many such cases, the relays are to be kept out of service to avoid mal-operation and the only option is replacement. Further, these relays have following inherent drawbacks: • Lack of self-diagnostics features

• No disturbance recording/event logging features.

• Impossible for remote monitoring /remote accessing.

• Lack of time synchronization facility.

Hence, detailed trip analysis is not possible in case of tripping. Therefore, old & obsolete static/ Electro mechanical type Protection relays are proposed to be replaced with IEC 61850 compliant numerical type relays which overcomes above mentioned disadvantages at Somanahalli, Salem and Sriperumbudur Substations.

VIII. Replacement of old and obsolete station illumination system with energy efficient lighting system including cables at Somanahalli, Hyderabad, Nagarjunasagar, Kadapa and Munirabad Sub-stations

Luminaires proposed for replacement have been installed more than 25 years ago which have become obsolete, require frequent maintenance, consume high energy as compared to present day energy efficient LED lights. Glass and reflector of lights fittings have become faded leading to poor illumination level during night. Also cables laid for illumination system has become brittle and are facing frequent break-downs. Photos of fixtures and cables are submitted. Therefore, it is proposed to replace illumination system at Somanahalli, Hyderabad, Nagarjunasagar, Kadapa and Munirabad Sub-stations.

IX. Replacement of DCDB, ACDB and LT system including 33 kV CBVs, LT Transformer at Somanahalli, Hyderabad, Nagarjunasagar, Kadapa and Munirabad Sub-stations

The station auxiliary supply system includes the auxiliary transformers and its associated bay equipment, LT switch gear such as ACDBs, DCDBs, and MLDBs, etc. The LT system provides reliable auxiliary power supply to all the switchyard equipment/relays/battery chargers/PLCC system etc. in the sub-station. Multiple oil leakages were observed in the LT transformers in these sub-stations due to ageing. Further, insulators/supports in ACDB and DCDB panels have become brittle and are breaking during tightening/maintenance. Further, due to continuous operation since last 30 years, moving parts of SFUs are also failing frequently and causing unreliable auxiliary supply to the switch yard equipment/ relays/battery/ PLCC system, etc. As the model of these ACDBS and DCDBs are obsolete, spares of components used in the ACDBs/

DCCBs, etc. are also not available in the market. These equipment have completed their useful life of 25 years. It is essential to replace these equipment for efficient and reliable operation of the system. Hence, it is proposed to replace the old Auxiliary LT Supply System and DCDBs at Hyderabad, Nagarjunasagar, Kadapa and Munirabad.

X. **Replacement of Firefighting System at Hyderabad, Nagarjunasagar, Kadapa and Munirabad Sub-stations**

The pipe lines in the existing fire fighting systems were laid underground and due to ageing, anti-rusting coat on the pipes has worn out causing the pipes to start rusting and causing frequent and perennial leakages in the pipelines. Identification and rectification of these leakages is a tedious and time consuming process due to which fire fighting systems go out of service frequently for prolonged period causing risk on the ICT/ Reactor fire protection. Further, due to long service life, pumps, motors, deluge valves, sluice valves etc. are facing wear and tear, rusting which lead to frequent break-downs and unreliable operation of the same. The fire fighting systems have completed their useful life of 25 years. Since these equipment are very old, the design has become obsolete and spares of these items are not available anymore. In view of significance of fire protection system, it is very important to keep the same operational all the times with minimum outage and maintenance requirement. Hence, it is proposed to replace the existing old and worn out fire protection system at Hyderabad, Nagarjunasagar, Kadapa and Munirabad Sub-stations.

XI. Overhauling of ICT along with replacement of bushing at Kadapa

Due to ageing, gaskets of ICT got damaged and multiple oil leakages are being observed at Kadapa Sub-station. Further, all 400 kV and 220 kV bushings are showing high tan Delta values. With High Tan Delta values, the bushings are on highrisk of failure. To avoid failure of said ICT and damage to nearby equipment in future it is proposed to carry out overhauling of said ICT at Kadapa.

(XII) Replacement of conventional C&R panel to SAS based C&R panel at Hyderabad along with SCADA, SPR construction and necessary cables for SPR arrangement

• The panels were installed during 1995 and going to complete 25 years of service by 2019-24 tariff period.

•These relays are of electro-magnetic/static type and obsolete. The OEMs have themselves phased out these models of relays and there is no spares support.

• In case of non availability of healthy spares, the relays are to be kept out of service to avoid mal-operation and the only option is replacement.

• Due to ageing, problem of mal-operation/ non-operation occurs because the contact get stuck and other problem in the coils.

• These relays are not compatible with IEC 61850 resulting in difficulties in fault analysis.

•The cable, wiring and terminal blocks inside both control & protection panels and equipment MBs have become brittle leading to DC leakages and other circuit failures. TBs of suitable sizes are also not available in market for

replacement and it is also not feasible to replace the TBs and wiring inside these panels.

• Due to ageing, most of the cables laid in the sub-station have been damaged, causing DC earth fault and sometimes mal-operation of system. Presently control & power cables are laid between central control room and switchyard equipment. Replacement of the cables may require long outage of the sub-station which may not be feasible. Replacement of old C&R panels along with power and control cables with SAS based C&R panels along with SCADA shall be the most feasible and techno economical solution as it will require very less quantity of power and control cables and shall also comply with the latest technical requirement. In this case, the outage of the system shall also be lower.

• Therefore, it is proposed to replace line protection panel, transformer and reactor protection panels at Vijayawada Sub-station with SAS based C&R panel along with SCADA.

(XIII) Replacement of 50 MVAR Ramagundam-I L/R at Hyderabad Year of Manufacturing: 1991 (37 years old)

Condition based monitoring/maintenance of transformers/ reactors like DGA, Tan delta measurement of bushings and windings, oil parameters, Furan analysis, FDS, IR of core insulation, etc. are being carried out by the Petitioner to know the healthiness. From the test results of the said equipment, it was observed that Furan content was high and ratio of CO_2/CO was more than 10 which indicates degradation of solid insulation. CPRI (third party) was approached by the Petitioner to analyse the test results of said equipment and

to know the condition of the equipment. The test results were analyzed by CPRI and based on that, CPRI has recommended for replacement of the said unit. The report of CPRI has been submitted. The availability of line reactor is very much required for keeping the line in service/at the time of taking line into service. The said reactor is about to complete 25 years of useful service life and due to ageing chances of its failure is always high. In service, the failure of reactor will cause long outage of reactor, which may result in forced outage of line due to rise in voltage. Therefore, it is proposed to replace the 50 MVAR Ramagundam-I line reactor at Hyderabad.

(XIV) Replacement of 50 MVAR Vijayawada-II L/R at Nellore Year of Manufacturing: 1983 (37 years old)

Condition based monitoring/maintenance of transformers/ reactors like DGA, Tan delta measurement of bushings and windings, oil parameters, Furan analysis, FDS, IR of core insulation, etc. are being carried out by the Petitioner to know the healthiness. From the test results of the said equipment, it was observed that Furan content was high and ratio of CO_2/CO was more than 10 which indicates degradation of solid insulation. CPRI (third party) was approached by the Petitioner to analyse the test results of said equipment and to know the condition of the equipment. The test results were analyzed by CPRI and based on that, CPRI has recommended for replacement of the said unit. The report of CPRI has been submitted. The availability of line reactor is very much required for keeping the line in service/at the time of taking line into service. The said reactor is about to complete 25 years of useful service life and due to ageing chances of its failure is always high. In service, the failure

of reactor will cause long outage of reactor, which may result in forced outage of line due to rise in voltage. Therefore, it is proposed to replace the 50 MVAR Ramagundam-I line reactor at Hyderabad.

(XV) Replacement of 50 MVAR Bus Reactor at Vizag

Condition based monitoring/maintenance of transformers/ reactors like DGA, Tan delta measurement of bushings and windings, oil parameters, Furan analysis, FDS, IR of core insulation etc. are being carried out by the Petitioner to know the healthiness. From the test results of the said equipment, it was observed that Furan content was high and ratio of CO_2/CO was more than 10 which indicates degradation of solid insulation. CPRI (third party) was approached by the Petitioner to analyse the test results of said equipment and to know the condition of the equipment. The test results were analyzed by CPRI and based on that, CPRI has recommended for replacement of the said unit. The report of CPRI has been submitted. The availability of line reactor is very much required for keeping the line in service/at the time of taking line into service. The said reactor is about to complete 25 years of useful service life and due to ageing chances of its failure is always high. In service, the failure of reactor will cause long outage of reactor, which may result in forced outage of line due to rise in voltage. Therefore, it is proposed to replace the 50 MVAR Ramagundam-I line reactor at Hyderabad.

55. We have considered the submission of the Petitioner. The details of ACE allowed/ disallowed for 2019-24 tariff period are as follows:

(a) Replacement of sub-station equipment

56. The Petitioner has submitted that the sub-station has already completed more than 25 years of useful life and majority of the sub-station equipment need to be replaced. The proposed ACE towards replacement of 09 number of Circuit Breakers (CBs) at Somahalli, Hyderabad, Nagarjunasagar and 1 number at Hyderabad Sub-stations, 75 number of 400 kV and 9 number of 220 kV CTs at Somahalli, Salem, Sriperumbudur, Hyderabad, Nagarjunasagar and Munirabad Sub-stations, 42 number of 400 kV and 6 number of 220 kV CVT at Somahalli, Salem, Sriperumbudur, Hyderabad, Nagarjunasagar and Munirabad Sub-stations, 21 number of number of 216 kV Surge Arrestors at Somanhalli , Salem and Sriperumbudur Sub-station, 93 sets of 400 kV and 7 sets of 220 kV isolators at Somahalli, Hyderabad, Nagarjunasagar, Kadapa and Munirabad Sub-stations, one set of Static bus bar protection relay at Somanhalli Sub-station, replacement of old/obsolete electro-mechanical relay with IEC 61850 compliant numerical relays at at Somanhalli, Salem and Sriperumbudur Sub-stations, replacement of old auxiliary LT supply system and DC distribution Board (DCDB) at Hyderabad, Nagarjnasagar, Kadapa and Munirabad Sub-stations, replacement of existing old and worn-out fire protection system at Hyderabad, Nagarjunasagar, Kadapa and Munirabad Sub-stations with new fire fighting system, replacement of bushings at Kadapa, replacement of conventional C&R panel to SAS based C&R panel at Hyderabad Sub-station, these items are of critical nature and their failure may affect the stability and reliability of the grid. Hence, the replacement of these obsolete equipment and consequential ACE towards this is allowed under Regulation 25(2)(c) of the 2019 Tariff Regulations. The Petitioner is directed to submit the details of abstract cost

estimates and details of the actual cost of the replaced equipment sub-station wise and work wise at the time of truing up.

(b) Replacement of 50 MVAR line Reactor at Hyderabad, 50 MVAR line Reactor at Nellore and 50 MVAR Bus Reactor at Vizag

57. The Petitioner has submitted that 50 MVAR line Reactor installed at Hyderabad, 50 MVAR line Reactor installed at Nellore and 50 MVAR Bus Reactor installed at Vizag sub-station have completed more than 25 years of useful life.

58. The relevant extracts of the Minutes of the 39th meetings of TCC & SRPC held on 3.12.2021 are as follows:

> *"O.24. Up gradation of 63MVAR Bus Reactors of Gooty and Gajuwaka with 125MVAR under Additional Capitalization for the tariff block 2019- 24*
> *24.4 SRPC Deliberation:*
>
> > *a) Considering the views of CTUIL & SRLDC in support of PGCIL's proposal of replacement/ up gradation of the reactors at Gazuwaka and Gooty substations by 125 MVAR reactors, the Constituents agreed the same.*
> > *b) SRPC approved the Up-gradation of 63 MVAR Bus Reactors of Gooty and Gajuwaka with 125 MVAR under Additional Capitalization for the tariff block 2019-24."*

59. SRPC has approved for the up-gradation of 50 MVAR Bus Reactor at Gazuwaka of with 125 MVAR Bus Rector. Taking into consideration the approval of SRPC and the technical requirement, the up-gradation of 50 MVAR Bus Reactors at Gazuwaka with 125 MVAR Bus Rector is approved.The relevant extracts of the Minutes of the 44th meetings of SRPC and 43rd meeting of TCC held on 5.11.2022 and 4.11.2022 are as follows:

> *"9. Replacement of ICTs and reactors under ADD-CAP in Tariff block 2019- 24*
> *----------*
> *9.17 SRPC approved the replacement of 315 MVA ICT at Trichy with 500 MVA, 50 MVAR Reactor at Trichy with 80 MVAR, 50 MVAR Reactor Trissur with 50 MVAR, 50*

MVAR Reactor at Nellore with 80 MVAR & 50 MVAR Reactor at Hyderabad with 50 MVAR. The line reactors would be made switchable to be used as bus reactor wherever technically/space feasible."

60. Based on the approval of SRPC and TCC as mentioned above, we approve the 50 MVAR Bus Reactor at Gazuwaka with 125 MVAR Bus Rector, 50 MVAR Reactor at Nellore with 80 MVAR and replacement of old 50 MVAR Reactor at Hyderabad with new 50 MVAR.

(c) Building and Civil Works

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

62. The Petitioner has claimed ACE towards indoor and outdoor Illumination at Vijayawada, Khammam, Gooty and Gazuwaka Sub-stations. The indoor and outdoor Illumination is in the nature of O&M Expenses therefore, the same is not allowed and shall be met from O&M Expenses. It is observed that the Petiitoner has not submitted break-up of ACE proposed towards indoor and outdoor Illumination at Vijayawada, Khammam, Gooty and Gazuwaka Sub-stations. The Petitioner is directed to submit the break-up of cost towards indoor and outdoor Illumination at the time of truing-up.

63. Based on the above, ACE and de-capitalisation allowed for 2019-24 tariff period are as follows:

(₹ in lakh)

Sr. No.	Particulars	2019-20	2020-21	2021-22	2022-23	2023-24
1	**ACE**	1169.35	1952.77	4420.87	2634.26	710.63
2	**De-capitalisation**	10.51	148.76	280.81	454.21	770.87
3	**Net ACE (3=1-2)**	1158.84	1804.01	4140.06	2180.05	-60.24

64. Accordingly, the capital cost of the transmission asset as on 31.3.2024 is approved as follows:

Capital Cost as on 1.4.2019	Approved Net ACE					Capital Cost as on 31.3.2024
	2019-20	2020-21	2021-22	2022-23	2023-24	
43156.12	1158.84	1804.01	4140.06	2180.05	-60.24	**52378.84**

Adjustments to equity

65. The transmission asset was put into commercial operation on. 1.4.1992. The debt-equity ratio as on COD was 54.87:45.13. The Weighted Average Life for the transmission asset/transmission system was determined as 30 years vide order dated 9.2.2016 in Petition No. 35/TT/2015. Thus, the transmission system has completed its useful life on 31.3.2021. The first proviso to Regulation 18(3) of the 2019 Tariff Regulations provides that in case of a transmission system including communication system which has completed its useful life on or after 1.4.2019, and if the actual equity actually deployed as on 1.4.2019 is more than 30% of the capital cost, then the equity shall be restricted to 30% of the total equity deployed. Regulation 18(3) of the 2019 Tariff Regulations provides as follows:

> ***"18. Debt-Equity Ratio:***
> *(3) In case of the generating station and the transmission system including communication system declared under commercial operation prior to 1.4.2019,*

debt:equity ratio allowed by the Commission for determination of tariff for the period ending 31.3.2019 shall be considered:

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

66. The debt-equity ratio as on 31.3.2019 is 56.08:43.92 i.e. the equity deployed is more than 30%. Therefore, as per the first proviso to Regulation 18(3) of the 2019 Tariff Regulations, equity from 2020-21 onwards has been restricted to 30%. The loan has already been re-paid prior to 1.4.2019. Accordingly, the adjustment in equity for 2019-24 tariff period is allowed as follows:

(₹ in lakh)

Particulars	**Amount**
Closing equity as on 31.3.2020*	19302.15
Closing equity as on 31.3.2021**	19820.85
Opening equity as on 1.4.2021***	13835.69
Net reduction in equity	5985.16

**Represents 43.56% of Gross Block of ₹ 44314.96 lakh*
*** Represents 42.97% of Gross Block of ₹ 46118.97 lakh*
****Represents 30% of Gross Block of ₹46118.97 lakh*

Debt-Equity Ratio

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

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

Provided that:

i. where equity actually deployed is less than 30% of the capital cost, actual equity shall be considered for determination of tariff:
ii. the equity invested in foreign currency shall be designated in Indian rupees on the date of each investment:
iii. any grant obtained for the execution of the project shall not be considered as a part of capital structure for the purpose of debt: equity ratio.

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

such premium amount and internal resources are actually utilised for meeting the capital expenditure of the generating station or the transmission system.

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

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

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

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

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

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

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

68. The transmission asset/transmission system has completed its useful life in 2020-21 and de-capitalisation of the asset is proposed after the completion of useful life. In accordance with Regulation 18 of the 2019 Tariff Regulations, ACE for 2019-24 period is allowed in the ratio of 70:30. As decided above, the equity from 2021-22 onwards is

restricted to 30%. 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 capital cost as on 1.4.2019

Particulars	Amount (₹ in lakh)	(in %)
Debt	24200.03	56.08
Equity	18956.09	43.92
Total	**43156.12**	**100.00**

Debt-equity for ACE and de-capitalisation during 2019-24

Particulars	ACE		De-capitalisation	
	2019-20 (₹ in lakh)	(in %)	2019-20 (₹ in lakh)	(in %)
Debt	818.55	70.00	5.77	54.87
Equity	350.81	30.00	4.74	45.13
Total	**1169.35**	**100.00**	**10.51**	**100.00**
Particulars	**ACE**		**De-capitalisation**	
	2020-21 (₹ in lakh)	(in %)	2020-21 (₹ in lakh)	(in %)
Debt	1366.94	70.00	81.62	54.87
Equity	585.83	30.00	67.14	45.13
Total	**1952.77**	**100.00**	**148.76**	**100.00**
Particulars	**ACE**		**De-capitalisation**	
	2021-22 (₹ in lakh)	(in %)	2021-22 (₹ in lakh)	(in %)
Debt	3094.61	70.00	196.57	70.00
Equity	1326.26	30.00	84.24	30.00
Total	**4420.87**	**100.00**	**280.81**	**100.00**
Particulars	**ACE**		**De-capitalisation**	
	2022-23 (₹ in lakh)	(in %)	2022-23 (₹ in lakh)	(in %)
Debt	1843.98	70.00	317.95	70.00
Equity	790.28	30.00	136.26	30.00
Total	**2634.26**	**100.00**	**454.21**	**100.00**
Particulars	**ACE**		**De-capitalisation**	
	2023-24 (₹ in lakh)	(in %)	2023-24 (₹ in lakh)	(in %)
Debt	497.44	70.00	539.61	70.00
Equity	213.19	30.00	231.26	30.00
Total	**710.63**	**100.00**	**770.87**	**100.00**

Debt-equity for capital cost as on 31.3.2024

Particulars	Amount (₹ in lakh)	(in %)
Debt	30680.03	58.57
Equity	21698.81*	41.43
Total	***52378.84***	***100.00***

**Equity to be serviced as on 31.3.2024 is ₹15713.65 lakh (₹21698.81 lakh - ₹5985.16 lakh i.e. Equity in excess of 30% reduced as discussed in Para. 58 above)*

Depreciation

69. 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-capitalizedasset during its useful services.

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

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

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

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

70. We have considered the submissions of the Petitoner. The transmission asset has already completed more than 12 years (COD being 1.4.1992, it has completed 28 years as on 1.4.2019) before 1.4.2019. Accordingly, depreciation has been calculated based on the remaining depreciable value (up to 90% of existing gross block of transmission asset) to be recovered over the balance useful life up to 31.3.2021 (since the transmission asset completes useful life of 30 years from notional COD of 1.4.1992) and thereafter no depreciation is allowed on existing transmission asset. As discussed above, the Petitioner has proposed life extension for the transmission asset of five years, but there is no basis for the same. Hence, depreciation for ACE (new additions) claimed for 2021-22 onwards is allowed at normative rate of depreciation as specified in the 2019 Tariff Regulations, subject to submission of requisite documents/ information towards claim for life extension at the time of truing-up. The depreciation allowed for the transmission asset for 2019-24 tariff period is as follows:

(₹ in lakh)

	Existing Assets	**2019-20**	**2020-21**	**2021-22**	**2022-23**	**2023-24**
A	Opening Gross Block	43156.12	43145.61	42996.85	42716.04	42261.83
B	ACE	0.00	0.00	0.00	0.00	0.00
C	De-capitalisation	10.51	148.76	280.81	454.21	770.87
D	Closing Gross Block (A+B-C)	43145.61	42996.85	42716.04	42261.83	41490.96
E	Average Gross Block (A+D)/2	43150.87	43071.23	42856.45	42488.94	41876.40
F	Freehold Land included in Average Capital Cost	295.69	295.69			
G	Depreciable Value (E-F)*90%	38569.66	38497.99	38245.26	37836.47	37142.69
H	Weighted average rate of Depreciation (WAROD) (in %)	4.31	4.48			
I	Balance useful life at the beginning of the year (Year)	2.00	1.00			
J	Elapsed life at the beginning of the year (Year)	28.00	29.00			

K	Cumulative Depreciation at the beginning of the year	35253.00	36906.60	38497.99	38245.25	37836.52
L	Depreciation adjustment on account of de-capitalisation	9.46	133.86	252.74	408.73	693.78
M	Net Cumulative Depreciation after de-capitalisation	35243.54	36772.74	38245.25	37836.52	37142.74
N	Remaining depreciable value at the beginning of the year	3326.12	1725.25			
O	**Depreciation during the year** (N/I)	1663.06	1725.25			

(₹ in lakh)

	New Additions	**2019-20**	**2020-21**	**2021-22**	**2022-23**	**2023-24**
A	Opening Gross Block	0.00	1169.35	3122.12	7542.99	10177.25
B	ACE	1169.35	1952.77	4420.87	2634.26	710.63
C	Closing Gross Block (A+B)	1169.35	3122.12	7542.99	10177.25	10887.88
D	Average Gross Block (A+C)/2	584.68	2145.74	5332.56	8860.12	10532.57
E	Weighted average rate of Depreciation (WAROD) (in %)	5.28	5.28	5.28	5.28	5.28
F	Depreciable Value (D*90%)	526.21	1931.16	4799.30	7974.11	9479.31
G	Cumulative Depreciation at the beginning of the year	0.00	27.78	129.75	383.15	804.18
H	**Depreciation during the year (F*E)**	**27.78**	**101.97**	**253.40**	**421.03**	**500.51**
I	Cumulative Depreciation at the end of the year	27.78	129.75	383.15	804.18	1304.69
J	Remaining Depreciation recoverable at the end of the year	498.42	1801.41	4416.15	7169.92	8174.62

Interest on Loan (IoL)

71. 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 ofde-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.

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

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

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

72. Gross normative loan has already been repaid prior to 1.4.2019 and, therefore, IoL has been considered on ACE (new additions). The weighted average rate of IoL has been considered on the basis of rate prevailing as on 1.4.2019. Accordingly, 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. IoL allowed is as follows:

(₹ in lakh)

	Particulars	**2019-20**	**2020-21**	**2021-22**	**2022-23**	**2023-24**
A	Gross Normative Loan	24200.03	25012.80	26298.12	29196.16	30722.20
B	Cumulative Repayments up to Previous Year	24200.03	25012.80	26298.12	26354.96	26458.04
C	Net Loan-Opening (A-B)	0.00	0.00	0.00	2841.21	4264.16
D	Addition due to ACE	818.55	1366.94	3094.61	1843.98	497.44
E	Adjustment of gross loan pertaining to de-capitalised asset	5.77	81.62	196.57	317.95	539.61

F	Repayment during the year	818.55	1366.94	253.40	421.03	500.51
G	Adjustment of cumulative repayment pertaining to de-capitalised asset	5.77	81.62	196.57	317.95	539.61
H	Net Loan-Closing (C+D-E-F+G)	0.00	0.00	2841.21	4264.16	4261.09
I	Average Loan (C+H)/2	0.00	0.00	1420.60	3552.68	4262.62
J	Weighted Average Rate of Interest on Loan (in %)	7.72	7.70	7.69	7.68	7.66
K	**Interest on Loan (IxJ)**	**0.00**	**0.00**	**109.28**	**272.79**	**326.38**

Return on Equity (RoE)

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

> ***"30. Return on Equity****: (1) Return on equity shall be computed in rupee terms, on the equity base determined in accordance with Regulation 18 of these regulations.*
>
> *(2) Return on equity shall be computed at the base rate of 15.50% for thermal generating station, transmission system including communication system and run-of river hydro generating station, and at the base rate of 16.50% for the storage type hydro generating stations including pumped storage hydro generating stations and run-of river generating station with pondage:*
>
> *Provided that return on equity in respect of additional capitalization after cut-off date beyond the original scope, excluding additional capitalization on 7 account of emission control system, shall be computed at the weighted average rate of interest on actual loan portfolio of the generating station or the transmission system or in the absence of actual loan portfolio of the generating station or the transmission system, the weighted average rate of interest of the generating company or the transmission licensee, as the case may be, as a whole shall be considered, subject to ceiling of 14%.*
>
> *Provided further that:*
>
> *i. In case of a new project, the rate of return on equity shall be reduced by1.00% for such period as may be decided by the Commission, if thegenerating station or transmission system is found to be declared undercommercial operation without commissioning of any of the RestrictedGovernor 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 respectiveRLDC;*
>
> *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 equityshall be reduced by 1.00% for the period for which the deficiencycontinues;*
>
> *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 toachieve the ramp rate of 1% per minute;

b) an additional rate of return on equity of 0.25% shall be allowed forevery incremental ramp rate of 1% per minute achieved over and above the ramp rate of 1% per minute, subject to ceiling of additionalrate of return on equity of 1.00%:

Provided that the detailed guidelines in this regard shall be issued by National Load Dispatch Centre by 30.6.2019.

(3) The return on equity in respect of additional capitalization on account of emission control system shall be computed at the base rate of one year marginal cost of lending rate (MCLR) of the State Bank of India as on 1st April of the year in which the date of operation (ODe) occurs plus 350 basis point, subject to ceiling of 14%;"

***"31. Tax on Return on Equity**: (1) The base rate of return on equity as allowed by theCommission under Regulation 30 of these regulations shall be grossed up with theeffective tax rate of the respective financial year. For this purpose, the effective tax rateshall 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 fromother businesses including deferred tax liability (i.e. income from business other thanbusiness of generation or transmission, as the case may be) shall be excluded for thecalculation 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%

(4) 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."

74. The Petitioner has submitted that MAT rate is applicable to the Petitioner's Company. As observed above, equity from 2021-22 onwards has been restricted to 30% as per first proviso to Regulation 18(3) of the 2019 Tariff Regulations. We have considered the submissions of the Petitioner. Accordingly, the 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 the transmission asset is as follows:

(₹ in lakh)

	Particulars	2019-20	2020-21	2021-22	2022-23	2023-24
A	Opening Equity	18956.09	19302.15	13835.69*	15077.71	15731.72
B	Additions due to ACE	350.81	585.83	1326.26	790.28	213.19
C	Decrease due to decapitalisation during the period	4.74	67.14	84.24	136.26	231.26
D	Closing Equity (A+B-C)	19302.15	19820.85	15077.71	15731.72	15713.65
E	Average Equity (A+D)/2	19129.12	19561.50	14456.70	15404.72	15722.69
F	Return on Equity (Base Rate) (in %)	15.500	15.500	15.500	15.500	15.500
G	Tax Rate applicable (in %)	17.472	17.472	17.472	17.472	17.472
H	Applicable RoE Rate (in %)	18.782	18.782	18.782	18.782	18.782
I	**Return on Equity for the year (E*H)**	3592.83	3674.04	2715.26	2893.31	2953.04

**Equity restricted to 30%.*

Operation & Maintenance Expenses (O&M Expenses)

75. The norms for O&M Expenses for the trasnmission system specified under Regulation 35(3)(a) and Regulation 35(4) of the 2019 Tariff Regulations are as follows:

"35. Operation and Maintenance Expenses:

…

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

Particulars	***2019-20***	***2020-21***	***2021-22***	***2022-23***	***2023-24***
Norms for sub-station Bays (₹ Lakh per bay)					
765 kV	*45.01*	*46.60*	*48.23*	*49.93*	*51.68*
400 kV	*32.15*	*33.28*	*34.45*	*35.66*	*36.91*
220 kV	*22.51*	*23.30*	*24.12*	*24.96*	*25.84*
132 kV and below	*16.08*	*16.64*	*17.23*	*17.83*	*18.46*
Norms for Transformers (₹ Lakh per MVA)					
765 kV	*0.491*	*0.508*	*0.526*	*0.545*	*0.564*
400 kV	*0.358*	*0.371*	*0.384*	*0.398*	*0.411*
220 kV	*0.245*	*0.254*	*0.263*	*0.272*	*0.282*
132 kV and below	*0.245*	*0.254*	*0.263*	*0.272*	*0.282*
Norms for AC and HVDC lines (₹ Lakh per km)					
Single Circuit (Bundled Conductor with six or more sub-conductors)	*0.881*	*0.912*	*0.944*	*0.977*	*1.011*
Single Circuit (Bundled conductor with four sub-conductors)	*0.755*	*0.781*	*0.809*	*0.837*	*0.867*
Single Circuit (Twin & Triple Conductor)	*0.503*	*0.521*	*0.539*	*0.558*	*0.578*
Single Circuit (Single Conductor)	*0.252*	*0.260*	*0.270*	*0.279*	*0.289*
Double Circuit (Bundled conductor with four or more sub-conductors)	*1.322*	*1.368*	*1.416*	*1.466*	*1.517*
Double Circuit (Twin & Triple Conductor)	*0.881*	*0.912*	*0.944*	*0.977*	*1.011*
Double Circuit (Single Conductor)	*0.377*	*0.391*	*0.404*	*0.419*	*0.433*
Multi Circuit (Bundled Conductor with four or more sub-conductor)	*2.319*	*2.401*	*2.485*	*2.572*	*2.662*
Multi Circuit (Twin & Triple Conductor)	*1.544*	*1.598*	*1.654*	*1.713*	*1.773*
Norms for HVDC stations					
HVDC Back-to-Back stations (Rs Lakh per 500 MW) (Except Gazuwaka BTB)	*834*	*864*	*894*	*925*	*958*
Gazuwaka HVDC Back-to-Back station (₹ 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*

Particulars	*2019-20*	*2020-21*	*2021-22*	*2022-23*	*2023-24*
±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.

(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."*

76. The O&M Expenses claimed by the Petitioner and allowed for the trasnmisison asset for 2019-24 tariff period as follows:

Transmission Lines				
Srl. No.	**Name of Line**	**Single Circuit / Double Circuit**	**Number of sub-conductors**	**Line Length (in km)**
1	400 kV Ramagundam-Hyderabad I	**Single Circuit**	2	187.291
2	400 kV Hyderabad - N Sagar	**Single Circuit**	2	155.264
3	400 kV N Sagar - Cuddapah 1	**Single Circuit**	2	277.325
4	400 kV Cuddapah-Bangalore	**Single Circuit**	2	241.652
5	400 kV Cuddapah - Madras	**Single Circuit**	2	242.278
6	400 kV Ramagundam-N Sagar Ckt 1 and 2 (Ckt 1 : COD 21.6.1988, Ckt 2 COD 10.12.1988)	**Double Circuit**	2	267.2
7	400 kV N Sagar - Cuddapah II	**Single Circuit**	2	278.664
8	400 kV Bangalore-Salem	**Single Circuit**	2	181.357
9	400 kV N Sagar – Raichur	**Single Circuit**	2	258.103
10	400 kV Raichur - Munirabad	**Single Circuit**	2	172.445

Particulars	**2014-15**	**2015-16**	**2016-17**	**2017-18**	**2018-19**
Transmission lines (km)					
Single circuit with Two conductors (km)	1994.379	1994.379	1994.379	1994.379	1994.379
Double circuit with Two conductors (km)	267.20	267.20	267.20	267.20	267.20
Norms (₹ lakh/km)					
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
Total Transmission line O&M (A)	**1238.58**	**1282.76**	**1327.21**	**1373.92**	**1422.89**

Sub-station	
Srl. No.	**400 kV Substation bay**
1	Somanahalli:Cuddapah Bay at Bangalore
2	Somanahalli:Salem Bay at Bangalore
3	Khammam:ICT-1 Bay at Khammam
4	Cuddapah:N Sagar - 1 Bay at Cuddapah
5	Cuddapah:Bangalore Bay at Cuddapah
6	Cuddapah:ICT-1 Bay at Cuddapah
7	Cuddapah:N Sagar II Bay at Cuddapah
8	Cuddapah:Madras Bay at Cuddapah
9	Nagarjunasagar:Ramagundam-I Bay at N Sagar

10	Hyderabad:N Sagar Bay at Hyderabad
11	Hyderabad:Ramagundam I Bay at Hyderabad
12	Hyderabad:ICT-I Bay at Hyderabad
13	Salem:Bangalore Bay at Salem
14	Kalivanthapattu:Cuddapah Bay at Madras
15	Munirabad:ICT-I Bay at Munirabad
16	Salem:ICT I Bay at Bangalore
17	Nagarjunasagar:ICT-I Bay at N Sagar
18	Munirabad:Raichur Bay at Munirabad
19	Nagarjunasagar:Cuddapah -I Bay at N Sagar
20	Nagarjunasagar:Hyderabad Bay at N Sagar
21	Nagarjunasagar:Cuddapah II At N Sagar
22	Nagarjunasagar:Ramagundam II at N Sagar
23	Nagarjunasagar:ICT-II Bay at N Sagar
24	Nagarjunasagar:Raichur Bay at N Sagar
25	Gajuwaka/vishakhapatnam:Bus Reactor Bay at Vishakhapattinam
Srl. No.	**400 kV Sub-station bay**
1	Hyderabad:ICT at Hyderabad
2	Nagarjunasagar:ICT-I and II at N Sagar
3	Cuddapah:ICT-I at Cuddapah
4	Munirabad:ICT-I at Munirabad
5	Khammam:ICT-I at Khammam

Particulars	**2014-15**	**2015-16**	**2016-17**	**2017-18**	**2018-19**
Sub-station					
400 kV **(Number of bays)**	25	25	25	25	25
400 kV ICT **(MVA)**	1890	1890	1890	1890	1890
Norms (₹ lakh/bay)					
400 kV sub-station	32.15	33.28	34.45	35.66	36.91
400 kV sub-station ICT	0.358	0.371	0.384	0.398	0.411
Total Sub-station O&M (B)	**803.75**	**832.00**	**861.25**	**891.50**	**922.75**
Total O&M Expenses calculated C= (A)+(B)	**2718.95**	**2815.95**	**2914.22**	**3017.64**	**3122.43**
Total O&M Expenses Claimed	**2718.95**	**2815.95**	**2914.22**	**3017.64**	**3122.43**
Total O&M Expenses Allowed	**2718.95**	**2815.95**	**2914.22**	**3017.64**	**3122.43**

Interest on Working Capital (IWC)

77. Regulations 34(1)(c), Regulation 34(3), Regulation 34(4) and Regulation 3(7) of the 2019 Tariff Regulations specify as follows:

> ***"34. Interest on Working Capital***
> *(1)…*
> *(c) For Hydro Generating Station (including Pumped Storage Hydro Generating Station) and Transmission System:*
> *i. Receivables equivalent to 45 days of fixed cost;*
> *ii. Maintenance spares @ 15% of operation and maintenance expenses including security expenses; and*

iii. Operation and maintenance expenses, including security expenses for one month"

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

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

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

"3.Definitions …

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

78. The Petitioner has submitted that it has computed IWC for 2019-24 period considering the SBI Base Rate plus 350 basis points as on 1.4.2019. The Petitioner has considered the rate of interest on working capital as 12.05%. IWC is worked out in accordance with Regulation 34 of the 2019 Tariff Regulations. The Rate of Interest (RoI) on working capital is 12.05% (SBI 1 year MCLR applicable as on 1.4.2019 of 8.55% plus 350 basis points) for 2019-20, 11.25% (SBI 1 year MCLR applicable as on 1.4.2020 of 7.75% plus 350 basis points) for 2020-21 and 10.50% (SBI 1 year MCLR applicable as on 1.4.2021 of 7.00% plus 350 basis points) for 2021-22 and 10.50% (SBI 1 year MCLR applicable as on 1.4.2022 of 7.00% plus 350 basis points) for 2022-24. The components of the working capital and interest allowed for the transmission asset are as follows:

(₹ in lakh)

	Particulars	**2019-20**	**2020-21**	**2021-22**	**2022-23**	**2023-24**
A	Working Capital for O&M Expenses (Equivalent to	226.58	234.66	242.85	251.47	260.20

	annualized O&M Expenses for 1 month)					
B	Working Capital for Maintenance Spares (Equivalent to 15% of O&M Expenses)	407.84	422.39	437.13	452.65	468.36
C	Working Capital for Receivables (Equivalent to 45 days of annual transmission charges)	1008.27	1049.07	756.42	830.79	861.80
D	**Total Working Capital (A+B+C)**	**1642.69**	**1706.13**	**1436.41**	**1534.91**	**1590.36**
E	Rate of Interest (in %)	12.05	11.25	10.50	10.50	10.50
F	**Interest on Working Capital (DxE)**	**197.94**	**191.94**	**150.82**	**161.17**	**166.99**

Annual Fixed Charges for 2019-24 Tariff Period

79. The transmission charges allowed for the transmission asset for 2019-24 tariff period are as follows:

(₹ in lakh)

Particulars	2019-20	2020-21	2021-22	2022-23	2023-24
Depreciation	1690.84	1827.23	253.40	421.03	500.51
Interest on Loan	0.00	0.00	109.28	272.79	326.38
Return on Equity	3592.83	3674.04	2715.26	2893.31	2953.04
O&M Expenses	2718.95	2815.95	2914.22	3017.64	3122.43
Interest on Working Capital	197.94	191.94	150.92	161.52	167.77
Total	**8200.56**	**8509.16**	**6143.08**	**6766.29**	**7070.13**

Filing Fee and Publication Expenses

80. The Petitioner has sought reimbursement of fee paid by it for filing the petition and publication expenses, in terms of Regulation 70(1) of the 2019 Tariff Regulations.

81. We have considered the submissions of the Petitioner. Regulation 70(1) of the 2019 Tariff Regulations provides for reimbursement of filing fees and publication paid by the Petitioner. Accordingly, 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

82. The Petitioner has sought reibursment of licence fee and RLDC fees and charges in accordance with Regulation 70(4) and Regulation 70(3) of the 2019 Tariff Regulations for 2019-24 tariff period. We have considered the submissions of the Petitioner. The Petitioner shall be entitled to reimbursement of licence fee and RLDC fee and charges in accordance with Regulation 70(4) and Regulation 70(3) of the 2019 Tariff Regulations for 2019-24 tariff period.

Goods and Services Tax (GST)

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

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

Security Expenses

85. The Petitioner has submitted that security expenses for the transmission 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. The Petitioner has requested to consider the actual security expenses incurred during 2018-19 for claiming estimated security expenses for 2019-20 which will be subject to true up at the end of the year

based on the actuals. The Petitioner has submitted that similar petition for security expenses for 2020-21, 2021-22, 2022-23 and 2023-24 will be filed on a yearly basis on the basis of the actual expenses of previous year subject to true up at the end of the year on actual expenses. The Petitioner has submitted that the difference, if any, between the estimated security expenses and actual security expenses as per the audited accounts may be allowed to be recovered from the beneficiaries on a yearly basis.

86. We have considered the submissions of the Petitioner. 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. Therefore, 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

87. 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

88. TANGEDCO has submitted that the trued-up capital cost for 2014-19 period has to be shared among the beneficiaries as per the 2010 Sharing Regulations. However,

the new 2020 Sharing Regulations has been notified on 4.5.2021 that came into force with effect from 1.11.2020. Under these circumstances, it is essential to segregate the additional cost and tariff liability up to 31.10.2020 and from 1.11.2020 so as to allocate the charges based on the 2010 Sharing Regulations and the 2020 Sharing Regulations respectively. TANGEDCO has further requested the Commission to issue suitable directions to allocate the YTC up to 31.10.2020 as per the 2010 Sharing Regulations and any additional YTC from 1.11.2020 as per the 2020 Sharing Regulations.

89. In response, the Petitioner has submitted that the instant petition has been filed for truing up of transmission tariff for 2014-19 tariff period and determination of transmission tariff for 2019-24 tariff period for the transmission assets. After the truing up and determination of transmission tariff, sharing of transmission charges for 2014-19 period and 2019-24 period up to 31.10.2020 will be governed as per the 2010 Sharing Regulations and thereafter from 1.11.2020 onwards will be governed as per the 2020 Sharing Regulations. The Petitioner has further submitted that the tariff determination and sharing of transmission charges are two independent activities and same cannot be interlinked. After the determination of tariff of the transmission assets, the aspects of YTC bifurcation as raised by TANGEDCO will be taken care of by CTU at the time of billing.

90. We have considered the submissions of the Petitioner and TANGEDCO. The tariff determination and sharing of transmission charges are two independent activities and they are not interlinked. The tariff of the transmission assets is determined in accordance with the provisions of the relevant tariff regulations and after the

determination of tariff of the assets by the Commission, the sharing of the YTC amongst DICs are worked out in terms of provisions of the relevant Sharing Regulations and bills are raised accordingly. Therefore, the issue raised by TANGEDCO for splitting the capital cost of the transmission assets and the tariff components on the basis of the 2010 Sharing Regulations regime and the 2020 Sharing Regulations regime is not relevant. The concerns raised by TANGEDCO shall be taken care by the Petitioner at the time of billing by the CUTIL.

91. The billing, collection and disbursement of the transmission charges approved shall be governed by the provisions of the Central Electricity Regulatory Commission (Sharing of Inter-State Transmission Charges and Losses) Regulations, 2010 or the Central Electricity Regulatory Commission (Sharing of Inter-State Transmission Charges and Losses) Regulations, 2020, as applicable, as provided in Regulation 43 of the 2014 Tariff Regulations for 2014-19 tariff period and Regulation 57 of the 2019 Tariff Regulations for 2019-24 tariff period.

92. To summarise:

a) The trued-up Annual Fixed Charges allowed for the transmission asset for 2014-19 tariff period are as follows:

(₹ in lakh)

Particulars	**2014-15**	**2015-16**	**2016-17**	**2017-18**	**2018-19**
Annual Fixed Charges	7130.49	7316.83	7598.95	7972.62	8403.78

b) The Annual Fixed Charges allowed for the transmission asset for 2019-24 tariff period in this order are as follows:

(₹ in lakh)

Particulars	**2019-20**	**2020-21**	**2021-22**	**2022-23**	**2023-24**
Annual Fixed Charges	8200.56	8509.16	6143.08	6766.29	7070.13

93. This order disposes of Petition No. 473/TT/2020 in terms of the above discussions and findings.

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