

**CENTRAL ELECTRICITY REGULATORY COMMISSION
NEW DELHI**

Petition No. 539/TT/2014

Coram:

**Shri A.S Bakshi, Member
Dr. M.K. Iyer, Member**

**Date of Hearing : 02.12.2015
Date of Order : 22.02.2016**

In the matter of:

Truing up of transmission tariff for 2009-14 tariff period and determination of transmission tariff for 2014-19 tariff period for transmission system associated with NLC Stage-II in Southern Region under Regulation 86 of Central Electricity Regulatory Commission (Conduct of Business) Regulations, 1999, Central Electricity Regulatory Commission (Terms and Conditions of Tariff) Regulations, 2009, and Central Electricity Regulatory Commission (Terms and Conditions of Tariff) Regulations, 2014.

And in the matter of:

Power Grid Corporation of India Ltd.
'SAUDAMINI', Plot No-2,
Sector-29, Gurgaon -122 001 (Haryana).

.....**Petitioner**

Versus

1. Karnataka Power Transmission Corporation Ltd.
Kaveri Bhawan, Bangalore-560009
2. Transmission Corporation of Andhra Pradesh Ltd.
(APTRANSCO), Vidyut Soudha
Hyderabad-500082
3. Kerala State Electricity Board (KSEB)
Vaidyuthi Bhavanam, Pattom
Thiruvananthapuram-695004
4. Tamil Nadu Generation and Distribution Corporation Ltd
(Formerly TamilNadu Electricity Board-TNEB)
NPKRR Maaligai, 800, Anna Salai
Chennai- 600002



5. Electricity Department
Government of Pondicherry
Pondicherry- 605001
6. Eastern Power Distribution Company of Andhra Pradesh Ltd.
P&T Colony, Seethmmadhara, Vishakhapatnam
Andhra Pradesh
7. Southern Power Distribution Company of Andhra Pradesh
Tiruchanoor Road, Kesavayana Gunta
Tirupati- 517 501
8. Central Power Distribution Company of Andhra Pradesh
Mint Compound,
Hyderabad- 500 063
9. Northern Power Distribution Company of Andhra Pradesh
Chaitanyapuri, Kazipet
Warangal- 506 004
10. Bangalore Electricity Supply Company Ltd.
K.R.Circle
Bangalore- 560 001
11. Gulbarga Electricity Supply Company Ltd.
Station Main Road, Gulbarga
12. Hubli Electricity Supply Company Ltd.
Navanagar, P B Road
Hubli
13. MESCOM Corporate Office
Paradigm Plaza, AB Shetty Circle
Mangalore- 575 001
14. Chamundeswari Electricity Supply Corporation Ltd.
New Kantharaj Urs Road, Saraswatipuram,
Mysore-570 009
15. Electricity Department
Government of Goa
VidyutiBhawan, Panaji
Goa- 403001

.....**Respondents**

The following were present:



For Petitioner: Shri Anshul Garg, PGCIL
Shri Angaru Naresh Kumar, PGCIL
Shri Jasbir Singh, PGCIL
Shri S.K. Venkatesan, PGCIL
Shri M.M. Mondal, PGCIL
Shri Sashi Bhushan, PGCIL
Shri J. Mazumder, PGCIL
Shri R. Prasad, PGCIL
Shri Sunil Kumar, PGCIL
Shri S.S. Raju, PGCIL

For Respondent: Shri Vallinayagam, Advocate, TANGEDCO
Shri R. Jaya Prakash, TANGEDCO

ORDER

The present petition has been preferred by Power Grid Corporation of India Ltd. ('the petitioner'), a transmission licensee, for truing up of capital expenditure and tariff for transmission System associated with NLC Stage-II in Southern Region (hereinafter referred as "transmission asset") under Regulation 6 of the Central Electricity Regulatory Commission (Terms and Conditions of Tariff) Regulations, 2009 (hereinafter referred to as "the 2009 Tariff Regulations") based on actual expenditure for the period 1.4.2009 to 31.3.2014, and for determination of tariff under Central Electricity Regulatory Commission (Terms and Conditions of Tariff) Regulations, 2014 (hereinafter referred to as "the 2014 Tariff Regulations") for the period from 1.4.2014 to 31.3.2019.

2. The respondents are distribution licensees who are procuring transmission service from the petitioner, mainly beneficiaries of Southern Region.



3. The petitioner has served the petition to the respondents and notice of this application has been published in the newspaper in accordance with Section 64 of Electricity Act, 2003 ("the Act"). No comments have been received from the public in response to the notices published by the petitioner under section 64 of the Act. Reply has been filed by Tamil Nadu Generation and Distribution Corporation Ltd. (TANGEDCO), Respondent No. 4, vide affidavit dated 11.12.2015. The concerns expressed by respondents are being addressed in the respective paras of this order. The hearing in this matter was held on 2.12.2015. Having heard the representatives of the petitioner and respondents and perused the material on record, we proceed to dispose of the petition.

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

- a. The investment approval for the transmission was accorded by Central Government in Ministry of Coal in 1990 at an estimated cost of ₹36774.00 lakh, including IDC of ₹1794.00 lakh. Subsequently, the revised investment approval for setting up the transmission system associated with NLC Stage-II was accorded by Ministry of Power vide its letter dated 30.7.1998 at a revised cost of ₹ 42731.00 lakh, including IDC of ₹7957.00 lakh.
- b. The capital cost of ₹40407.00 lakh was considered by Ministry of Power, vide its notifications dated 1.12.1998 and 14.5.1999, for the transmission asset covered in the instant petition, and the tariff for the same was valid upto 31.3.2001.



- c. The tariff for the 2004-09 tariff period was initially allowed vide order dated 7.11.2005 in Petition No. 131/2004 by considering the gross block of ₹40407.00 lakh and the same was subsequently revised vide order dated 24.1.2008 by way of implementation of the Judgment of the Appellate Tribunal for Electricity dated 16.5.2007 in Appeal No. 121 of 2005 with regard to restoration of equity corresponding to gross fixed assets instead of net fixed assets. The capital cost of ₹40407.00 lakh and debt:equity ratio of 50:50 as on 31.3.2009 was admitted by the Commission.
- d. The tariff for tariff period 2009-14 was allowed vide order dated 1.8.2011 in Petition No. 90/2009 in accordance with the 2009 Tariff Regulations. The tariff allowed vide order dated 1.8.2011 for the tariff period 2009-14 is as under:-

(₹ in lakh)

Particulars	2009-10	2010-11	2011-12	2012-13	2013-14
Depreciation	718.09	718.09	718.09	718.09	718.09
Interest on Loan	0.00	0.00	0.00	0.00	0.00
Return on Equity	3531.77	3531.77	3531.77	3531.77	3531.77
Interest on Working Capital	167.73	172.25	177.05	182.11	187.44
O & M Expenses	1582.36	1672.77	1768.68	1869.86	1976.52
Total	5999.95	6094.89	6195.59	6301.83	6413.83

- e. The Commission, in its order dated 1.8.2011 in Petition No. 90/2009, has considered the admitted capital cost of ₹40407.00 lakh as on 31.3.2009. No additional expenditure was claimed by the petitioner for the tariff period 2009-14.
- f. The MAT rate applicable as on 2008-09 was considered to arrive at rate of return on equity for the tariff period 2009-14, which is required to be

adjusted as per the actual MAT rate applicable for the respective year at the time of truing up of tariff for 2009-14 tariff period.

TRUING UP OF ANNUAL FIXED CHARGES FOR TARIFF PERIOD 2009-14

5. The truing up of tariff for 2009-14 tariff period has been determined as discussed below.

Capital Cost

6. The petitioner has claimed admitted capital cost of ₹40407.00 lakh as on 31.3.2009 for the purpose of tariff.

7. The petitioner has further submitted that the 315 MVA ICT-I at Udumalpet has failed due to internal flashover on 23.3.2010. Since the transformer cannot be used until the same is replaced, the petitioner vide notification dated 23.3.2010 had notified that the transformer was not in commercial operation w.e.f. 23.3.2010. Subsequently, it was agreed in 12th TCC meetings held on 10.4.2010 and 13th SRPC meeting held on 11.5.2010 that the date of removal of ICT as 1.4.2010. Accordingly, the ICT was removed from transmission system from 1.4.2010 and again put into service through replacement of ICT w.e.f. 1.7.2010.

8. The petitioner has submitted that the GFA of part of transmission system corresponding to removed part of ICT-1 which was not utilised for three months in 2010-11 is ₹ 426.68 lakh and the AFC for the year has been reduced to the extent of three months. Respondents have not made any submission in this regard.



9. Last proviso to Clause (1) of Regulation 7 of the 2009 Tariff Regulations provides that:

“Provided that the assets forming part of the project, but not in use shall be taken out of the capital cost.”

10. Further, last proviso to Clause (2) of Regulation 7 of the 2009 Tariff Regulations provides that:

“Provided also that in case of the existing projects, the capital cost admitted by the Commission prior to 1.4.2009 duly trued up by excluding un-discharged liability, if any, as on 1.4.2009 and the additional capital expenditure projected to be incurred for the respective year of the tariff period 2009-14, as may be admitted by the Commission, shall form the basis for determination of tariff”.

11. The capital cost admitted as on 31.3.2009 vide order dated 1.8.2011 has been considered as the opening capital cost as on 1.4.2009 for determination of tariff in accordance with Regulation 7 of the 2009 Tariff Regulations. The admitted capital cost of ₹40407.00 lakh as on 1.4.2009 has been considered to work out the trued up tariff for the tariff period 2009-14. With regard to part of asset forming part of project but not being utilised for three months in 2010-11, we are of the view that the petitioner is not entitled for transmission charges. Since the transmission charges is being recovered based on overall availability of transmission system, the reduction of transmission system will not be accounted based on transmission system availability. It was agreed by the beneficiaries in the TCC and SRPC meeting. We feel it prudent to reduce the annual fixed charges corresponding to the period for which assets is removed from transmission system in line with Clause (1) of Regulation 7 of the 2009 Tariff Regulations. Similar methodology was adopted in order dated 17.12.2015 in Petition No. 9/TT/2015. Accordingly, the annual transmission charges for the



year 2010-11 has been restricted to the extent of the portion of asset being utilised for the year by reducing corresponding capital cost for the period of removal of transmission assets from the entire system for working out the AFC.

Additional Capital Expenditure

12. The petitioner has not claimed any additional capital expenditure for 2009-14 tariff period, and accordingly, no additional capital expenditure has been considered for the 2009-14 tariff period.

13. The petitioner in its petition has adjusted the impact of un-utilised portion of asset and has worked out capital cost by adjusting the capital cost of ICT-1 Udumplate. As discussed in the foregoing para, the capital cost for the purpose of tariff has been worked out as under:-

(₹ in lakh)			
Period	Particulars	As claimed by the petitioner	Allowed after trued up
2009-10	Opening Capital Cost as on 1.4.2009	40407.00	40407.00
	Additional capitalization during 2009-10	0.00	0.00
	Capital Cost of entire asset as on 31.3.2010	40407.00	40407.00
1.4.2010 to 30.6.2010	Additional capitalization during upto 30.6.2010	0.00	0.00
	Less :Capital Cost of failed ICT upto 30.6.2010*	426.68	426.68
	Capital cost for the period 1.4.2010 to 30.6.2010	39980.32	39980.32
1.7.2010 to 31.3.2011	Capital Cost as on 1.7.2010	40407.00	40407.00
2011-14	Additional capitalization	0.00	0.00
	Capital Cost as on 31.3.2014	40407.00	40407.00

*Capital cost of failed ICT-1 at Udumplate removed from transmission system.

14. Annual Fixed Charges has been adjusted separately for the reduction of gross fixed assets during 2010-11 as discussed in subsequent Paragraph.



Debt: Equity

15. Clause 2 of Regulation 12 of the 2009 Tariff Regulations provides that:

“In case of the generating station and the transmission system declared under commercial operation prior to 1.4.2009, debt:equity ratio allowed by the Commission for determination of tariff for the period ending 31.3.2009 shall be considered.”

16. The petitioner has claimed trued up Annual Fixed Charge based on admitted debt:equity ratio of 50:50 as on 31.3.2009. The transmission assets covered in the instant petition were commissioned prior to 1.4.2009. In Petition No. 90/2009, the Commission has considered admitted debt:equity ratio as on 31.3.2009 vide order dated 24.1.2008 in accordance with clause 2 of Regulation 12 of the 2009 Tariff Regulations. Accordingly, the admitted debt:equity ratio of 50:50 as on 31.3.2009 has been considered as opening debt:equity ratio as on 1.4.2009 for the purpose of truing up of the approved tariff for tariff period 2009-14 as given under:-

Funding	Amount (₹ in lakh)	(%)
Debt	20203.50	50.00
Equity	20203.50	50.00
Total	40407.00	100.00

Interest on Loan (“IOL”)

17. TANGEDCO has submitted that the weighted average rate of interest on loan @13.50% claimed by the petitioner vide Form-13 in the truing up petition for tariff period 2009-14 is on higher side. The petitioner has not furnished any relevant records in support of the claim. Even though there is no additional loan during the tariff period 2009-14, the petitioner is bound to furnish the relevant documents. TANGEDCO requested The Commission to direct the petitioner to furnish the clarification in this regard. In response, the petitioner vide affidavit



dated 29.12.2015 has submitted that no funding has been deployed during tariff period 2009-14 and as such, no weighted average rate of interest on loan has been utilized for computation of IOL. The petitioner has submitted that accordingly no IOL is considered for computation of tariff for 2009-14 tariff period.

18. The petitioner has not claimed any interest on loan for the tariff period 2009-14, as the complete loan has already been repaid before 1.4.2009. Further, there is no additional capital expenditure during the tariff period 2009-14. Accordingly, IOL has been considered as NIL for the purpose of truing up of tariff.

Return on Equity (“ROE”)

19. Clause (3), (4) and (5) of the Regulation 15 of the 2009 Tariff Regulations provides that

“(3) The rate of return on equity shall be computed by grossing up the base rate with the Minimum Alternate/Corporate Income Tax Rate for the year 2008-09, as per the Income Tax Act, 1961, as applicable to the concerned generating company or the transmission licensee, as the case may be.

(4) Rate of return on equity shall be rounded off to three decimal points and be computed as per the formula given below:

Rate of pre-tax return on equity = Base rate / (1-t)

Where “t” is the applicable tax rate in accordance with clause (3) of this regulation.

(5) The generating company or the transmission licensee, as the case may be, shall recover the shortfall or refund the excess Annual Fixed Charge 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:

Provided further that Annual Fixed Charge with respect to the tax rate applicable to the generating company or the transmission licensee, as the case may be, in line with the provisions of the relevant Finance Acts of the respective year during the tariff period shall be trued up in accordance with Regulation 6 of these regulations.”



20. The petitioner has submitted that MAT rate of 11.330% applicable for 2008-09 was considered in the order dated 1.8.2011. However, for truing up purpose, the computation of RoE for the tariff period 2009-14 has been done on the basis of actual MAT rate applicable during 2009-14. The petitioner has submitted the variation in the MAT rate during 2009-14 as per the Finance Act of the relevant year for the purpose of grossing up of ROE, as below:-

Particulars	MAT Rate	Grossed up RoE (Base rate/(1-t))
2009-10	16.995 %	18.674%
2010-11	19.931 %	19.358%
2011-12	20.008 %	19.377%
2012-13	20.008 %	19.377%
2013-14	20.961 %	19.610%

21. Accordingly, the RoE as trued up is as shown in the table below:-

Particulars	(₹ in lakh)				
	2009-10	2010-11	2011-12	2012-13	2013-14
Approved vide order dated 1.8.2011	3531.77	3531.77	3531.77	3531.77	3531.77
As claimed by the petitioner	3772.80	3910.99	3914.83	3914.83	3961.91
Allowed after trued up	3772.80	3910.99	3914.83	3914.83	3961.91

22. The return on equity allowed in the instant order is more than the return on equity allowed vide order 1.8.2011 due to increase in the applicable MAT rate for the purpose of grossing up of base rate of return on equity.

Depreciation

23. Clause (4) of Regulation 17 of the 2009 Tariff Regulations provides as follows:-

"17. Depreciation:

...



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

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

24. Depreciation was worked out, in order dated 1.8.2011, in accordance with Regulation 17 of the 2009 Tariff Regulations considering useful life of the asset as 33 years. As per the order dated 1.8.2011 in Petition No. 90/2009 and order dated 7.11.2005 in Petition No. 131/2004, balance useful life of the asset was 21 years as on 1.4.2004, and depreciation was spread over the balance useful life. Accordingly, the same approach has been adopted in the instant order.

25. The depreciation for the tariff period 2009-14 has been worked out in accordance with Regulation 17 of the 2009 Tariff Regulations based on admitted capital expenditure and additional capitalisation as under:-

(₹ in lakh)

Particulars	2009-10	2010-11	2011-12	2012-13	2013-14
Approved vide order dated 1.8.2011	718.09	718.09	718.09	718.09	718.09
As claimed by the petitioner	718.09	718.09	718.10	718.09	718.10
Allowed after trued up	718.09	718.09	718.09	718.09	718.09

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

26. The petitioner has computed O&M Expenses for the assets mentioned in the petition, in accordance with the O&M norms for 400 kV D/C twin conductor transmission line, 400 kV S/C twin conductor transmission line and 400 kV bay specified in Regulation 19(g) of the 2009 Tariff Regulations. The petitioner has claimed O&M Expenses for 400 kV D/C twin conductor transmission line of



424.454 km line length, 400 kV S/C twin conductor transmission line of 456.495 km line length and 22 bays of 400 kV level.

27. The O&M Expenses claimed by the petitioner for tariff period 2009-14 are same as that approved in the tariff order dated 1.8.2011 in Petition No. 90/2009. Accordingly, the O&M Expenses claimed by the petitioner, allowed and trued up are the same, and they are as follows:-

(₹ in lakh)					
Particulars	2009-10	2010-11	2011-12	2012-13	2013-14
Approved vide order dated 1.8.2011	1582.36	1672.77	1768.68	1869.86	1976.52
As claimed by the petitioner	1582.36	1672.77	1768.68	1869.86	1976.52
Allowed after trued up	1582.36	1672.77	1768.68	1869.86	1976.52

Interest on working capital (“IWC”)

28. Sub-clause (c) of clause (1) of Regulation 18 of the 2009 Tariff Regulations provides the components of the working capital for the transmission system and clause (3) of Regulation 18 of the 2009 Tariff Regulations provides for the rate of interest on working capital.

29. The petitioner has submitted that the rate of interest on working capital has been considered as 12.25% as per Clause (3) of Regulation 18 of the 2009 Tariff Regulations and the components of working capital are also considered in accordance with Sub-clause (c) of clause (1) of Regulation 18 of the 2009 Tariff Regulations.

30. The Commission in its order dated 1.8.2011 in Petition No. 90/2009 approved rate of interest on working capital of 12.25% applicable for 2008-09. In



accordance with clause (3) of Regulation 18 of the 2009 Tariff Regulations, rate of interest on working capital shall be on normative basis and in case of transmission assets declared under commercial operation prior to 1.4.2009, shall be equal to short-term Prime Lending Rate as applicable as on 1.4.2009. State Bank of India short-term Prime Lending Rate on 1.4.2009 was 12.25%. Therefore, interest rate of 12.25% has been considered to work out the interest on working capital in the instant case.

31. The IWC trued up is as under:-

(₹ in lakh)					
Interest on Working Capital	2009-10	2010-11	2011-12	2012-13	2013-14
Maintenance Spares	237.35	250.92	265.30	280.48	296.48
O & M Expenses	131.86	139.40	147.39	155.82	164.71
Receivables	1041.00	1080.33	1097.77	1115.48	1142.15
Total	1410.22	1470.65	1510.46	1551.78	1603.34
Rate of Interest	12.25%	12.25%	12.25%	12.25%	12.25%
Interest	172.75	180.15	185.03	190.09	196.41

(₹ in lakh)					
Particulars	2009-10	2010-11	2011-12	2012-13	2013-14
Approved vide order dated 1.8.2011	167.73	172.25	177.05	182.11	187.44
As claimed by the petitioner	172.75	180.16	185.03	190.09	196.41
Allowed after trued up	172.75	180.15	185.03	190.09	196.41

32. The IWC has increased on account of increase in receivables due to variation in ROE on account of applicable MAT rate during the 2009-14 tariff period.



ANNUAL FIXED CHARGES FOR 2009-14 TARIFF PERIOD

33. The detailed computation of the various components of the trued up annual fixed charges for the transmission asset for the tariff period 2009-14 is summarised below:-

(₹ in lakh)					
Particulars	2009-10	2010-11*	2011-12	2012-13	2013-14
Gross Block					
Opening Gross Block	40407.00	40407.00	40407.00	40407.00	40407.00
Additional Capitalization	0.00	0.00	0.00	0.00	0.00
Closing Gross block	40407.00	40407.00	40407.00	40407.00	40407.00
Average Gross block	40407.00	40407.00	40407.00	40407.00	40407.00
Depreciation					
Rate of Depreciation (%)	1.777	1.777	1.777	1.777	1.777
Depreciable Value	36291.60	36291.60	36291.60	36291.60	36291.60
Elapsed Life of the assets at beginning of the year	17	18	19	20	21
Weighted Balance Useful life of the assets	16	15	14	13	12
Remaining Depreciable Value	11489.46	10771.37	10053.28	9335.19	8617.09
Depreciation	718.09	718.09	718.09	718.09	718.09
Interest on Loan					
Gross Normative Loan	0.00	0.00	0.00	0.00	0.00
Cumulative Repayment upto Previous Year	0.00	0.00	0.00	0.00	0.00
Net Loan-Opening	0.00	0.00	0.00	0.00	0.00
Additions	0.00	0.00	0.00	0.00	0.00
Repayment during the year	0.00	0.00	0.00	0.00	0.00
Net Loan-Closing	0.00	0.00	0.00	0.00	0.00
Average Loan	0.00	0.00	0.00	0.00	0.00
Weighted Average Rate of Interest on Loan (%)	8.40	8.40	8.40	8.40	8.40
Interest	0.00	0.00	0.00	0.00	0.00
Return on Equity					
Opening Equity	20203.50	20203.50	20203.50	20203.50	20203.50
Additions	0.00	0.00	0.00	0.00	0.00
Closing Equity	20203.50	20203.50	20203.50	20203.50	20203.50
Average Equity	20203.50	20203.50	20203.50	20203.50	20203.50



Particulars	2009-10	2010-11*	2011-12	2012-13	2013-14
Return on Equity (Base Rate) (%)	15.50	15.50	15.50	15.50	15.50
MAT rate for the respective year (%)	16.995	19.931	20.008	20.008	20.961
Rate of Return on Equity (Pre Tax) (%)	18.674	19.358	19.377	19.377	19.610
Return on Equity (Pre Tax)	3772.80	3910.99	3914.83	3914.83	3961.91
Interest on Working Capital					
Maintenance Spares	237.35	250.92	265.30	280.48	296.48
O & M Expenses	131.86	139.40	147.39	155.82	164.71
Receivables	1041.00	1080.33	1097.77	1115.48	1142.15
Total	1410.22	1470.65	1510.46	1551.78	1603.34
Interest	172.75	180.15	185.03	190.09	196.41
Annual Transmission Charges					
Depreciation	718.09	718.09	718.09	718.09	718.09
Interest on Loan	0.00	0.00	0.00	0.00	0.00
Return on Equity	3772.80	3910.99	3914.83	3914.83	3961.91
Interest on Working Capital	172.75	180.15	185.03	190.09	196.41
O & M Expenses	1582.36	1672.77	1768.68	1869.86	1976.52
Total	6246.00	6482.01	6586.64	6692.87	6852.93

*AFC worked out for the entire Asset, however, net AFC entitlement discussed subsequently.

Annual Transmission charges for 2010-11 have been worked out by adjusting removal of part of assets in subsequent paragraph.

Annual Transmission Charges for 2010-11

34. The petitioner in its petition has adjusted the impact of un-utilised portion of asset and has submitted its AFC entitlement for 2010-11 as ₹6464.90 lakh for 2010-11. The Commission as discussed in the foregoing para, has decided that tariff of the utilised portion of the asset needs to be allowed and has accordingly adjusted the impact of un-utilised portion of the asset for 2010-11 as shown below:



(₹ in lakh)		
Particulars	As claimed by the petitioner	Allowed after trued up
Capital Cost of entire asset as on 31.3.2010	40407.00	40407.00
Actual Trued up Tariff for 2010-11	6482.01	6482.01
<u>Revised Annual Transmission charges</u>		
Capital cost for the period 1.4.2010 to 30.6.2010	39980.32	39980.32
AFC for the period 1.4.2010 to 30.6.2010 (A)	1603.39	1603.39
Capital Cost for the period 1.7.2010 to 31.3.2011	40407.00	40407.00
AFC for the period 1.7.2010 to 31.3.2011 (B)	4861.51	4861.51
Total AFC approved for 2010-11 (A+B)	6464.90	6464.90

DETERMINATION OF ANNUAL TRANSMISSION CHARGES FOR 2014-19

35. The petitioner vide its affidavit dated 4.12.2015 has claimed the transmission charges as under:-

(₹ in lakh)					
Particulars	2014-15	2015-16	2016-17	2017-18	2018-19
Depreciation	718.09	718.10	796.43	836.91	1115.63
Interest on Loan	0.00	0.00	0.00	0.00	2.13
Return on Equity	3961.91	3961.91	3983.07	4004.23	4053.24
Interest on Working Capital	207.78	211.12	216.84	221.80	233.09
O&M Expenses	1811.11	1871.69	1933.81	1997.89	2064.17
Total	6698.89	6762.82	6930.15	7060.83	7468.23

36. The details submitted by the petitioner in support of its claim for interest on working capital are given hereunder:-

(₹ in lakh)					
Particulars	2014-15	2015-16	2016-17	2017-18	2018-19
Maintenance Spares	271.67	280.75	290.07	299.68	309.63
O & M Expenses	150.93	155.97	161.15	166.49	172.01
Receivables	1116.48	1127.14	1155.03	1176.81	1244.71
Total	1539.08	1563.86	1606.25	1642.98	1726.35
Rate of Interest	13.50%	13.50%	13.50%	13.50%	13.50%
Interest	207.78	211.12	216.84	221.80	233.06



Capital Cost

37. Clause (1) and (3) of Regulation 9 of the 2014 Tariff Regulations provides as follows:-

“(1) The Capital cost as determined by the Commission after prudence check in accordance with this regulation shall form the basis of determination of tariff for existing and new projects.”

“(3) The Capital cost of an existing project shall include the following:
(a) the capital cost admitted by the Commission prior to 1.4.2014 duly trued up by excluding liability, if any, as on 1.4.2014;
(b) additional capitalization and de-capitalization for the respective year of tariff as determined in accordance with Regulation 14; and
(c) expenditure on account of renovation and modernisation as admitted by this Commission in accordance with Regulation 15.”

38. The petitioner has claimed capital expenditure of ₹40407.00 lakh as on 31.3.2014.

39. The trued up capital cost of ₹40407.00 lakh as on 1.4.2014 is considered for the purpose of tariff for tariff period 2014-19.

Additional Capital Expenditure

40. The petitioner has claimed the additional capitalization of ₹1236.05 lakh, and ₹3255.68 lakh for 2016-17 and 2018-19, respectively, and de-capitalisation of ₹516.62 lakh and ₹1589.53 lakh for 2016-17 and 2018-19, respectively, on account of replacement of sub-station equipments under Clause (3)(ix) of Regulation 14 of the 2014 Tariff Regulations. The petitioner has further submitted that additional capitalisation for 2016-17 and 2018-19 is on account of replacement of equipments at Udumalpet, Madurai, Trichy and Salem sub-stations as they are completing 25 years of service in 2016 and 2018.



41. The petitioner submitted that during various routine/special tests critical conditions were observed and such equipment were creating operational problems and are threat to the reliability and security of grid. The designs have undergone substantial changes over the period and manufacturers have discontinued the product models. The suppliers are unable to provide replenish parts required for quick restoration and repairs turned out unviable. Accordingly, it is necessary to replace such equipments. Also, the petitioner has provided the copy of management certificate for estimated additional capital expenditure from 1.4.2014 to 31.3.2019.

42. Further, the petitioner provided the justification for replacement of equipments as follows:

1. Replacement of old hydraulic 3AT2/3AT3 type "BHEL" make 400 kV circuit breakers at Udumalpet, Salem, Madurai and Trichur Sub-stations because of (i) more leakages of SF₆ gas, (ii) failure of auxiliary switches due to mechanical linkages failure between operating rod and auxiliary switch, (iii) old circuit breakers, (iv) exorbitantly high cost of spares due to obsolete technology, (v) long lead time for supply of spares, (vi) mal-operation of hydraulic pressure switches leading to unwarranted tripping of circuit breaker, (vii) wear and tear of moving and fixed contacts leading to failure of circuit breaker, (viii) degrading capacitor values beyond permissible limits, (ix) unavailability of mechanical blocking provision for slow opening operation of circuit breaker leading, which may lead to blasting of circuit breakers along with consequential damages to the adjacent equipments and threat to human safety.



2. Replacement of old and obsolete 400 kV pneumatic ELF-SL6-1 "V" type "ABB" make circuit breakers at Trichy Sub-station as OEM has discontinued production of such type of circuit breakers. Further, there are frequent air leakages from various parts of operating mechanism such as magnetic ventils, operating drive units and this takes long time to restore the circuit breaker as de-pressurization and pressurization to rated pneumatic pressure of 31.5 bar. There have been failure of auxiliary switches due to mechanical linkages failure between operating rod and auxiliary switch due to which real time data at RLDC and local SCADA show wrong data.
3. Replacement of old and obsolete 400 kV WSI & ABB make line and busbar connected CVTs at Salem, Udumalpet, Trichy, Madurai and Trichur Sub-stations as OEM has phased out production of such type of design/technology CVTs. Petitioner has submitted the copy of email from M/s ABB dated 28.4.2014 and M/s ALSTOM (WSI) dated 9.5.2014 vide which they have communicated their inability of taking up repair works of such type of CVTs. Also, OEM is not taking up repair works related to frequent oil leakages from EMU tank portion. Further, voltage drifts in many stations will have impact on old CVs and metering thereby affecting energy accounting.
4. Replacement of 400 kV "Hivelm & S&S make isolators at Udumalpet, Salem, Trichy, Madurai and Trichur Sub-stations because of (i) old and obsolete designs of such isolars, (ii) difficulty in obtaining spares from OEMs, (iii) frequent alignment problems due to ageing, wear and tear of



all components leading to long outage time of transmission elements after shutdown, (iv) high contact resistance (above the permissible limit of 300 micro ohms) observed during testing. Also, all the bearings of moving arms are getting stuck frequently, loading the clamps and connectors, leading to mechanical failure of equipment.

5. Replacement of old and obsolete BHEL and AE make 245 kV CTs in ICT bays at Udumalpet and Trichy Sub-stations because of old and obsolete design and technology of such type of CTs. In this regard, the petitioner has submitted the copy of email from M/s BHEL dated 8.5.2014 vide which it has communicated for difficulty in repair of such CTs. Further, oil leakages have been observed from primary terminals and bottom turret portion due to ageing of the gaskets.
6. Replacement of 245 kV CTs in 220 kV system of ICT bays at Trichy Sub-station as these isolators are of “Hi-power”, “Koushik” and “Southern switch gear” make and commissioned in 1993. Few of these manufactures are nowhere in existence. Mechanical alignment problems have been observed during closing and opening of these isolators.
7. Replacement of station firefighting system and station fire alarm/smoke detection systems at Udumalpet, Madurai, Trichur and Trichy Sub-stations due to frequent rusting and perennial leakages in the underground pipe lines. In the latest design, the pipe lines are put above ground level to avoid rusting. Identification and rectification of these leakages is tedious and time consuming process due to which the fire fighting system has been kept out of service for prolonged period leading to the risk on the



ICT/Reactor fire protection. The pumps, motors, deluge valves, sluice valves etc. have got rusted due to ageing and not operating properly. This may affect the safety aspects of major vital equipments such as ICT/Reactors in the system.

8. Replacement of station LT auxiliary supply system at Udumalpet, Madurai, Trichur and Trichy Sub-stations: As per the CEA grid connectivity guidelines, 2007, two independent source of auxiliary power supply should be made available. However, there is only one source of supply available from state utility at LT system scheme at Udumalpet, Madurai, Trichur and Trichy. Further, the LT transformers in these sub-stations have multiple oil leakages from various locations such as bucholz relay, OFTC, radiators fins, etc and manufacturers are not supplying any spares due to obsolete technology. Further, outdoor CTs in these stations have multiple oil leakages and all the LT structures have got rusted due to continuous exposure to atmosphere. OEM do not respond to requirement of services regarding old and obsolete models of LT vacuum circuit breakers. Further, LT switch gear is of old conventional type and most of the cubicles need replacement of isolator switches, door handles, terminal blocks, etc.
9. Replacement of station DG set at Udumalpet, Madurai, Trichur and Trichy Sub-stations as the existing DG set are of indoor type without acoustic enclosures. Due to ageing and mechanical wear and tear different components of the DG set are failing frequently and making the DG set non-operational. The existing DG sets are noisy and not complying with latest pollution norms and gazette notification dated 17.5.2002 from



Ministry of Environment and Forest. Further, it has been observed in site testing result that as per the actual measurement of DG consumption during 50% loading (100 kW) at Madurai Sub-station on 12.9.2014, 45 litres/hour of diesel was consumed. However, as new DG set vendors are claiming around 25-30 litres/hour, therefore, the old DG set is not fuel efficient and needs replacement.

10. Replacement of old and obsolete station air conditioning system at Udumalpet, Madurai and Trichur Sub-stations due to frequent problems like Freon gas compressor failures/ in-door unit/ outdoor unit failures, gas leakages in pipe lines, etc. Further, refrigerator gas used in this plant is powerful greenhouse R22 gas, which is huge environmental concern.
11. Replacement of old tubular type 220 kV station battery system and 48 V PLCC battery system along with chargers with VRLA batteries at Udumalpet, Madurai, Trichur and Trichy Sub-stations: The existing 220 kV and 48 V battery systems are normal lead acid tubular type battery system. Few of the battery cells have become bulged and fail frequently due to ageing and not taking appropriate load. As the battery system are vital for stable operation of the protection system and major switchyard equipments, therefore, it is necessary to replace existing old tubular type 220 kV and 48 V battery systems along with chargers with valve regulated lead acid (VRLA) batteries.
12. Replacement of switchyard lighting system including cables at Udumalpet, Madurai, Trichur and Trichy Sub-stations as many of these lighting fittings, switch boards, control panels, connecting cables, etc. have



got damaged and severely rusted due to extreme weather conditions over the years. Further, these are old technology lighting fittings and are energy intensive. Since lighting system is very essential for safety of working personnel in switchyard during the work at night time, therefore, it is necessary to replace these old and energy intensive lighting system with latest energy efficient lighting system including renewable system based lighting system.

43. Further, the petitioner has provided the summary of problems/failures observed in the above cases along with date wise chronology.

44. The petitioner has submitted the following details of additional capitalization and de-capitalization due to replacement of above equipments as given below:

(₹ in lakh)

Sr	Item	COD	2016-17		2018-19	
			Add-cap	De-cap	Add- cap	De-cap
1	Sub-station Equipments					
	Replacement of old hydraulic 3AT2/3AT3 type "BHEL" make 400 kV circuit breakers					
A	Udumalpet	1.2.1991, 1.2.1993 & 1.4.1993	240.30	129.00	224.94	126.00
B	Madurai	1.4.1993			240.30	190.00
C	Trichur	1.2.1993			285.29	176.00
D	Salem	1.2.1991 & 1.10.1991	150.33	75.00		
2	Replacement of old and obsolete 400 kV pneumatic ELF-SL6-1 "V" type "ABB" make circuit breakers					
A	Trichy				330.28	173.00
3	Replacement of old and obsolete 400 kV WSI & ABB make line and busbar connected CVTs					



Sr	Item	COD	2016-17		2018-19	
A	Udumalpet	1.2.1991, 1.2.1993 & 1.4.1993	44.04	19.00	44.04	19.00
B	Trichy	1.1.1994 & 1.4.1994			61.60	37.00
C	Madurai	1.4.1993			44.04	67.00
D	Trichur	1.2.1993			61.60	25.00
E	Salem	1.2.1991 & 1.10.1991	61.60	16.00		
4 Replacement of 400 kV "Hivelm & S&S isolators						
A	Udumalpet	1.2.1991, 1.2.1993 & 1.4.1993	166.82	33.00	148.50	35.00
B	Trichy	1.1.1994 & 1.4.1994			156.21	40.00
C	Madurai	1.4.1993			230.49	71.00
D	Trichur	1.2.1993			198.65	48.00
E	Salem	1.2.1991 & 1.10.1991	92.54	34.00		
5 Replacement of 245 kV CTs in ICT bays						
A	Udumalpet	1.2.1991	27.10	17.00		
B	Trichy	1.4.1994			27.10	23.00
6 Replacement of 245 kV CTs in 220 kV system of ICT bays						
A	Trichy	1.4.1994			7.59	20.00
7 Replacement of station firefighting system						
A	Udumalpet	1.2.1991	182.44	85.00		
B	Madurai	1.4.1993			191.58	73.00
C	Trichy	1.1.1994			191.58	79.00
D	Trichur	1.2.1993			182.44	68.00
8 Replacement of station LT auxiliary supply system						
A	Udumalpet	1.2.1991	109.50	44.00		
B	Madurai	1.4.1993			109.50	42.00
C	Trichy	1.1.1994			109.50	53.00
D	Trichur	1.2.1993			109.50	40.00
9 Replacement of station DG set						
A	Udumalpet	1.2.1991	22.75	15.00		



Sr	Item	COD	2016-17		2018-19	
B	Madurai	1.4.1993			22.75	18.00
C	Trichy	1.1.1994			22.75	20.00
D	Trichur	1.2.1993			22.75	15.00
10	Replacement of old tubular type station battery system (both 220 V & 48 V) with VRLA batteries along with chargers and air conditioning system for VRLA batteries					
A	Udumalpet	1.2.1991	33.73	4.00		
B	Madurai	1.4.1993			48.66	32.00
C	Trichy	1.1.1994			48.66	4.00
D	Trichur	1.2.1993	33.73	1.00		
11	Replacement of station air conditioning system					
A	Udumalpet	1.2.1991	17.29	10.00		
B	Madurai	1.4.1993			17.29	10.00
C	Trichur	1.2.1993			17.29	11.00
12	Replacement of switchyard lighting system including cables					
A	Udumalpet	1.2.1991	26.99	14.00		
B	Madurai	1.4.1993			26.99	19.00
C	Trichy	1.1.1994			26.99	30.00
D	Salem	1.5.1988	26.99	19.00		
E	Trichur	1.2.1993			26.99	24.00
	Total		1236.05	516.62	3255.71	1589.53

45. The petitioner was directed to provide the copy of deliberations, if any, regarding additional capitalization proposed has taken place at RPC level with beneficiaries. Also, the petitioner was directed to provide the basis of cost estimates of items considered for additional capitalization such as budgetary quotes, etc. along with administrative approval, if any. The petitioner in response submitted that during tariff period 2009-14, the Commission approved replacement of problematic/ defective equipments through additional capitalization for seven projects as permitted under Regulation 9(2)(v) of the 2009 Tariff Regulations. The proposal was submitted to the Commission directly and same procedure has been followed for additional capitalization in tariff period



2014-19 under Regulation 14(3)(ix) of the 2014 Tariff Regulations. The petitioner further submitted that the cost estimate of different equipment are based on the latest available letter of awards of similar equipment. However, work will be carried out based on tendering process. Since the replacements as claimed by the petitioner are necessary for successful and efficient operation of transmission system as per Clause 3(ix) of Regulation 14 of the 2014 Tariff Regulations, therefore, no deliberations at RPC level have been carried out.

46. With regard to the additional capitalization proposed by the petitioner in tariff period 2014-19, Tamil Nadu Generation and Distribution Corporation Ltd. (TANGEDCO) during hearing held on 2.12.2015 requested the Commission to direct the petitioner to provide the test reports, third party study or OEM correspondences and other supporting documents recommending replacement of equipments as proposed in the instant petition.

47. Further, TANGEDCO have submitted that Clause (3)(ix) of Regulation 14 of the 2014 Tariff Regulations provides as follows:-

“(3) The capital expenditure, in respect of existing generating station or the transmission system including communication system, incurred or projected to be incurred on the following counts after the cut-off date, may be admitted by the Commission, subject to prudence check:

.....

(ix) In case of transmission system, any additional expenditure on items such as relays, control and instrumentation, computer system, power line carrier communication, DC batteries, replacement due to obsolesce of technology, replacement of switchyard equipment due to increase of fault level, tower strengthening, communication equipment, emergency restoration system, insulators cleaning infrastructure, replacement of porcelain insulator with polymer insulators, replacement of damaged equipment not covered by insurance and any other expenditure which has become necessary for successful and efficient operation of transmission system; and.....

Provided that any expenditure on acquiring the minor items or the assets including tools and tackles, furniture, air-conditioners, voltage stabilizers, refrigerators, coolers, computers, fans, washing machines, heat convectors,



mattresses, carpets etc. brought after the cut-off date shall not be considered for additional capitalization for determination of tariff w.e.f. 1.4.2014:....

Provided also that if any expenditure has been claimed under Renovation and Modernisation (R&M), repairs and maintenance under (O&M) expenses and Compensation Allowance, same expenditure cannot be claimed under this regulation.”

48. TANGEDCO further submitted that on scrutiny of the petition, it is found that the petitioner has not furnished the test reports for having executed the tests as required. Also, the petitioner has not furnished the details like the correspondences made with the original equipment manufacturer with regard to supply/ rectification of the equipments and the life period of the new equipment proposed to be replaced in place of existing equipments. Also, the petitioner has not furnished the certificates like grid reports furnished by nodal agencies stating the treat to reliability and security to grid as specified by the petitioner. Further, the petitioner has not furnished the details of approvals obtained from its Board for incurring the additional capital expenditure. Further, petitioner has stated that the equipments will complete 25 years of service during 2016 and 2018. In this regard, TANGEDCO further submitted that the petitioner should approach the Commission through the application for Renovation and Modernization (R&M) as provided under Regulation 15(1) of the 2014 Tariff Regulations it desires for modernizing the existing equipments. Hence, TANGEDCO has submitted that the expenditure towards modernization of equipments cannot be included in capital cost through additional capital expenditure. Accordingly, the Commission has been requested to disallow the petitioner’s claim of incurring additional capital expenditure for 2016-17 and 2018-19 as the same is without any justification.



49. The petitioner in response submitted that during tariff period 2009-14, the Commission approved replacement of problematic/defective equipments through additional capitalization for seven projects as permitted under Regulation 9(2)(v) of the 2009 Tariff Regulations. The proposal was submitted to CERC directly and same procedure was followed for additional capitalization in tariff period 2014-19 also under Regulation 14(3)(ix) of 2014 Tariff Regulations. Further, such type of expenditure or its variation is put up to the Board of Directors under the head “Non-plan capital expenditure” in the annual revenue budget of the company based on the activities scheduled during that year and the next year. In this case, the matter is not capitalization of new project; it is the replacement of problematic equipments due to ageing effect, through additional capitalization in tariff. These equipments are in service for 25 years and replacement of the same is required to be carried out for smooth operation of the grid with reliability and stability without any untoward incident as per provision of Regulation 9(2)(v) of the 2009 Tariff Regulations. During tariff period 2009-14, the Commission approved replacement of problematic equipments under O&M through additional capitalization in tariff for seven projects for which proposal was submitted directly to CERC. Board approval for replacement of such equipment is taken up only after approval received from CERC.

50. During hearing held on 2.12.2015, the Commission asked the petitioner to provide the details of procedure of approval for additional capitalization for 2014-19. The petitioner in response submitted that additional capital expenditure claimed has been approved by competent authority and funding approval for the same shall be sought from the Board of Directors of the petitioner company after



approval of same by the Commission. In this regard, the Commission observed that competent authority of the petitioner should approve the technical requirements of the equipments that are sought to be procured and the beneficiaries should be taken into confidence before seeking approval of the Commission and the tariff. Accordingly, during hearing held on 2.12.2015, the Commission directed the petitioner to submit the approval of the additional capital expenditure by the Board of Directors or the competent authority by 9.12.2015. In this regard, the petitioner has already provided justification as discussed in above paras.

51. We have considered the submissions of the petitioner submissions and TANGEDCO reply. The total capital cost of the transmission asset including additional capitalisation and de-capitalisation incurred during 2014-15, 2016-17 and 2017-18 works out to ₹ 42792.58 lakh. Accordingly, the Commission has provisionally allowed the additional capitalisation of ₹1236.05 lakh, and ₹3255.68 lakh for 2016-17 and 2018-19, respectively, and de-capitalisation of ₹516.62 lakh and ₹1589.53 lakh for 2016-17 and 2018-19, respectively, as claimed by the petitioner on account of replacement of sub-station equipments under Clause (3)(ix) of Regulation 14 of the 2014 Tariff Regulations. The additional capitalisation for tariff period 2014-19 shall be finally approved after the detailed scrutiny of additional capitalization and approval of the additional capital expenditure by the Board of Directors or the competent authority in true up petition.



52. The total capital cost including additional capitalisation during 2014-19 period considered by the Commission is given in table below:-

Capital cost as on 31.3.2014	Additional Net capitalisation (after deducting de-capitalisation)					Total additional capitalisation	Total capital cost as on 31.3.2019
	2014-15	2015-16	2016-17	2017-18	2018-19		
40407.00	0.00	0.00	719.43	0.00	1666.15	2385.58	42792.58

(₹ in lakh)

Debt: Equity Ratio

53. Clause 3 and 4 of Regulation 19 of the 2014 Tariff Regulations provides as under:-

“(3) In case of the generating station and the transmission system declared under commercial operation prior to 1.4.2014, debt:equity ratio allowed by the Commission for determination of tariff for the period ending 31.3.2014 shall be considered.

(4) In case of the generating station and the transmission system including communication system declared under commercial operation prior to 1.4.2014, but where debt: equity ratio has not been determined by the Commission for determination of tariff for the period ending 31.3.2014, the Commission shall approve the debt:equity ratio based on actual information provided by the generating company or the transmission licensee as the case may be.”

54. The petitioner has considered debt:equity ratio as 50:50. Debt equity ratio of 50:50 as on 31.3.2009 was considered by the Commission in its order dated 1.8.2011 in Petition No. 90/2009. No additional capitalization has been claimed during tariff period 2009-14. Accordingly, we have considered the debt-equity ratio of 50:50 as on 31.3.2014, as the debt-equity ratio as on 01.04.2014. The details of the debt:equity considered for the purpose of tariff for 2014-19 tariff period is as follows:-



Funding	Amount (in ₹ lakh)	(%)
Debt	20203.50	50.00
Equity	20203.50	50.00
Total	40407.00	100.00

55. Further the debt:equity ratio as on 31.3.2019 after taking into consideration the additional capitalization during 2014-19 period is as shown below:

Funding	Amount (in ₹ lakh)	(%)
Debt	21873.41	51.11
Equity	20919.17	48.89
Total	42792.58	100.00

Interest on Loan (“IOL”)

56. Clause (5) & (6) of Regulation 26 of the 2014 Tariff Regulations are reproduced as under:-

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

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

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

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

57. The petitioner has not claimed any interest on loan for the tariff period 2009-14 as the entire loan has already been repaid before 1.4.2009. Further, due



to additional capitalization, the petitioner had initially claimed IOL in 2014-19 considering interest rate of 15%, which was on higher side.

58. In this regard, Respondent No. 4, i.e. Tamil Nadu Generation and Distribution Corporation Ltd. (TANGEDCO) vide its affidavit dated 11.12.2015 submitted that the petitioner has considered the interest rate of 15% for the purpose of calculation of interest on loan, which is on higher side when compared to the interest rates furnished by the petitioner in its various petitions for southern region. Also, the petitioner has not furnished the details of borrowings proposed to be made for the proposed loan. Hence, in the absence of such information, the interest rate claimed by the petitioner is not reasonable and need to be restricted to the rates considered for 2013-14 pertaining to tariff period 2009-14. Further, Regulation 16(7) of the 2009 Tariff Regulations and Regulation 26(7) of the 2014 Tariff Regulations states that the generating company/transmission licensee shall make every effort to refinance the loan as long as it results in net saving of interest. Hence, the Commission has been requested to direct the petitioner to take all efforts to reduce the interest rates to the maximum extent considering the balance useful life of the asset.

59. Further, the petitioner was directed to provide the basis of considering interest rate of 15% for 2016-17, 2017-18 and 2018-19 along with supporting documents. The petitioner in response vide its affidavit dated 4.12.2015 submitted that the interest rate last available interest rate is 8.4% (Bond XL dated 17.5.2015) and the same should be used in the computation of IOL. Further, the petitioner in its affidavit dated 4.12.2015 submitted the revised Form 9E



considering interest rate of 8.4%. Further, during hearing held on 2.12.2015, the Commission directed the petitioner to provide the reason for variation in interest rate of 15% as considered in Form 9E and interest rate of 13.50% as considered in Form 9C. In this regard, the petitioner during hearing replied that the rate of interest for Bond-III series (2nd end) in Form 9C has been wrongly shown as 13.50% instead of 9.75%. The petitioner in response vide its affidavit dated 29.12.2015 submitted that the interest rate of 15% considered in the instant asset is an inadvertent typographical error. Rate of interest as per the last available interest rate is 8.4% (Bond XL)(27.5.2015) and the same is used in the computation of interest on notional loan arising due to additional capitalization. The petitioner has submitted revised Form-1, Form-9E and Form-11.

60. We have considered the interest rate of 8.40% for computation of IOL for tariff period 2014-19. Accordingly, the IOL has been worked out in accordance with Regulation 26 of the 2014 Tariff Regulations. The IOL has been worked out and allowed as follows:-

(₹ in lakh)					
Particulars	2014-15	2015-16	2016-17	2017-18	2018-19
Gross loan opening	0.00	0.00	0.00	503.60	503.60
Cumulative Repayment upto COD/previous year	0.00	0.00	0.00	503.60	503.60
Net Loan-Opening	0.00	0.00	0.00	0.00	0.00
Additions during the year	0.00	0.00	503.60	0.00	1166.31
Repayment during the year	0.00	0.00	503.60	0.00	923.00
Net Loan-Closing	0.00	0.00	0.00	0.00	243.30
Average Loan	0.00	0.00	0.00	0.00	121.65
Rate of Interest (%)	8.40%	8.40%	8.40%	8.40%	8.40%
Interest	0.00	0.00	0.00	0.00	10.22



Return on Equity (“ROE”)

61. Clause (1) and (2) of Regulations 24 and Clause (2) of Regulation 25 of the 2014 Tariff Regulations specifies as under:-

“24. Return on Equity: (1) Return on equity shall be computed in rupee terms, on the equity base determined in accordance with regulation 19.
(2) Return on equity shall be computed at the base rate of 15.50% for thermal generating stations, transmission system including communication system....
.....”

“25. Tax on Return on Equity:

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

Rate of pre-tax return on equity = Base rate / (1-t)

Where “t” is the effective tax rate in accordance with Clause (1) of this regulation and shall be calculated at the beginning of every financial year based on the estimated profit and tax to be paid estimated in line with the provisions of the relevant Finance Act applicable for that financial year to the company on pro-rata basis by excluding the income of non-generation or non-transmission business, as the case may be, and the corresponding tax thereon. In case of generating company or transmission licensee paying Minimum Alternate Tax (MAT), “t” shall be considered as MAT rate including surcharge and cess.”

62. The petitioner has computed ROE at the rate of 19.610% after grossing up the ROE with MAT rate as per the above Regulation. The petitioner has further submitted that the grossed up ROE is subject to truing up based on the actual tax paid along with any additional tax or interest, duly adjusted for any refund of tax including the interest received from IT authorities, pertaining to the tariff period 2014-19 on actual gross income of any financial year. Any under-recovery or over-recovery of grossed up ROE after truing up shall be recovered or refunded to the beneficiaries on year to year basis.

63. The petitioner has further submitted that adjustment due to any additional tax demand including interest duly adjusted for any refund of the tax including



interest received from IT authorities shall be recoverable/adjustable after completion of income tax assessment of the financial year.

64. In this regard, Respondent No. 4, i.e. Tamil Nadu Generation and Distribution Corporation Ltd. (TANGEDCO) vide its affidavit dated 11.12.2015 submitted that the petitioner vide para 12.5 of the petition has stated that adjustment due to any additional tax demand including interest duly adjusted for any refund of tax including interest received from IT authorities shall be recoverable/adjustable during/after completion of income tax assessment of the financial year. Further, the effective tax rate shall be considered on the basis of actual tax paid in respect of the financial year in line with the provisions of the relevant acts by the concerned generating company or the transmission licensee, as the case may be, as provided under Regulation 25(1) of the 2014 Tariff Regulations. TANGEDCO further submitted that petitioner cannot claim the difference in tax from the beneficiaries and is entitled for grossing up of ROE only on the actual tax paid during the financial year. Therefore, the difference in tax liabilities should not be passed on to the beneficiaries unless there is any amendment in the provisions in Income Tax Act providing retrospective effect. The petitioner in response vide its affidavit dated 29.12.2015 submitted that ROE has been calculated @19.610% after grossing up the ROE with MAT rate of 20.961% based on the rate prescribed under Clause 2(i) of Regulation 25 of the 2014 Tariff Regulations. Further, in accordance with Clause 3 of Regulation 25 of the 2014 Tariff Regulations, the grossed up rate of ROE at the end of every financial year shall be trued up based on actual tax paid together with any additional tax demand including interest thereon duly adjusted for any refund of



tax including interest received from the IT authorities pertaining to the tariff period 2014-19 on actual gross income of any financial year. Any under-recovery or over-recovery of grossed up rate on ROE after truing up shall be recovered or refunded to beneficiaries on year to year basis. Further, adjustment due to any additional tax demand including interest duly adjusted for any refund of tax including interest received from IT authorities shall be recoverable/adjustable during/after completion of income tax assessment of the financial year.

65. We have considered the submissions made by the petitioner. Regulation 24 read with Regulation 25 of the 2014 Tariff Regulations provides for grossing up of return on equity with the effective tax rate for the purpose of return on equity. It further provides that in case the generating company or transmission licensee is paying Minimum Alternative Tax (MAT), the MAT rate including surcharge and cess will be considered for the grossing up of return on equity. The petitioner has submitted that MAT rate is applicable to the petitioner's company. Accordingly, the MAT rate applicable during 2013-14 has been considered for the purpose of allowing return on equity, which shall be trued up with actual tax rate in accordance with Regulation 25 (3) of the 2014 Tariff Regulations. Accordingly, the ROE determined by the Commission is given below:-

(₹ in lakh)					
Particulars	2014-15	2015-16	2016-17	2017-18	2018-19
Opening Equity	20203.50	20203.50	20203.50	20419.33	20419.33
Addition due to Additional Capitalization	0.00	0.00	215.83	0.00	499.85
Closing Equity	20203.50	20203.50	20419.33	20419.33	20919.17
Average Equity	20203.50	20203.50	20311.41	20419.33	20669.25
Return on Equity (Base Rate) (%)	15.50	15.50	15.50	15.50	15.50



Particulars	2014-15	2015-16	2016-17	2017-18	2018-19
MAT rate for the year (%)	20.961	20.961	20.961	20.961	20.961
Rate of Return on Equity (Pre Tax) (%)	19.610	19.610	19.610	19.610	19.610
Return on Equity (Pre Tax)	3961.91	3961.91	3983.07	4004.23	4053.24

Depreciation

66. Clause (2), (5) and (6) of Regulation 27 of the 2014 Tariff Regulations provides as follows:-

"27. Depreciation:

...(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 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

...

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

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

(6) In case of the existing projects, the balance depreciable value as on 1.4.2014 shall be worked out by deducting the cumulative depreciation as admitted by the Commission upto 31.3.2014 from the gross depreciable value of the assets."

67. The petitioner has computed depreciation considering capital expenditure of ₹40407.00 lakh as on 31.3.2014.

68. It is observed that the petitioner has not carried out the adjustment in the cumulative depreciation on account of de-capitalization during 2016-17 and 2017-18. The Commission has however, considered the same while computing the cumulative depreciation.



69. Depreciation is allowed as provided under Regulation 27 of the 2014 Tariff Regulations. The details of the depreciation allowed are given hereunder:-

(₹ in lakh)					
Details of Depreciation	2014-15	2015-16	2016-17	2017-18	2018-19
Opening Gross block	40407.00	40407.00	40407.00	41126.43	41126.43
Additions during the year due to projected additional capitalization	0.00	0.00	719.43	0.00	1666.15
Closing Gross block	40407.00	40407.00	41126.43	41126.43	42792.58
Rate of Depreciation (%)	1.777	1.777	1.954	2.394	2.200
Depreciable Value	36291.60	36291.60	36615.34	36939.09	37688.85
Elapsed Life of the assets at beginning of the year	22	23	24	25	26
Weighted Balance Useful life of the assets	11	10	9	8	7
Remaining Depreciable Value	7899.00	7180.91	7168.72	7877.55	6461.01
Depreciation	718.09	718.09	796.52	984.69	923.00

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

70. The petitioner has computed normative O&M Expenses as per sub clause (a) of clause (3) of Regulation 29 of the 2014 Tariff Regulations. Accordingly, the petitioner’s entitlement to O&M Expenses has been worked out as given hereunder:-

Particulars		(₹ in lakh)				
		2014-15	2015-16	2016-17	2017-18	2018-19
Actual line length (km)	Double Circuit (Twin & Triple Conductor)	424.454	424.454	424.454	424.454	424.454
	Single Circuit (Twin & Triple Conductor)	456.495	456.495	456.495	456.495	456.495
Actual (No. of bays)	400 kV Bays	22	22	22	22	22
Norms as per Regulation	Double Circuit (Twin & Triple Conductor) (₹lakh/km)	0.707	0.707	0.707	0.707	0.707
	Single Circuit (Twin & Triple Conductor)	0.404	0.404	0.404	0.404	0.404



Particulars		2014-15	2015-16	2016-17	2017-18	2018-19
	(₹lakh/km)					
	400 kV Bays (₹lakh/bay)	60.30	60.30	60.30	60.30	60.30
Total (₹ in lakh)		1811.11	1871.69	1933.81	1997.89	2064.17

71. The petitioner has submitted that O&M Expenses for the tariff period 2014-19 have been arrived on the basis of normalized actual O&M Expenses during the period 2008-13. The petitioner has further submitted that the wage revision of the employees of the petitioner Company is due during 2014-19 and actual impact of wage hike, which will be effective at a future date, has not been factored in fixation of the normative O&M rate specified for the tariff period 2014-19. The petitioner has prayed to be allowed to approach the Commission for suitable revision in the norms of O&M Expenses for claiming the impact of such increase.

72. The O&M Expenses have been worked out as per the norms of O&M Expenses specified in the 2014 Tariff Regulations. As regards impact of wage revision, we would like to clarify that any application filed by the petitioner in this regard will be dealt with in accordance with the appropriate provisions of the 2014 Tariff Regulations.

73. The details of O&M Expenses allowed are given hereunder:-

Particulars	Year				
	2014-15	2015-16	2016-17	2017-18	2018-19
O&M Expenses allowed	1811.11	1871.69	1933.81	1997.89	2064.17



Interest on Working Capital (“IWC”)

74. Clause 1 (c) of Regulation 28 and Clause 5 of Regulation 3 of the 2014 Tariff Regulations specifies as follows:-

“28. Interest on Working Capital

- (c)(i) Receivables equivalent to two months of fixed cost;
(ii) Maintenance spares @ 15% of operation and maintenance expenses specified in regulation 29; and
(iii) Operation and maintenance expenses for one month”

“(5) ‘Bank Rate’ means the base rate of interest as specified by the State Bank of India from time to time or any replacement thereof for the time being in effect plus 350 basis points;”

75. The petitioner has submitted that it has computed IWC for the tariff period 2014-19 considering the SBI Base Rate as on 1.4.2014 plus 350 basis points. The rate of interest on working capital considered for the purpose of computation of tariff is 13.50%.

76. The interest on working capital is worked out in accordance with Regulation 28 of the 2014 Tariff Regulations. The rate of interest on working capital considered is 13.50% (SBI Base Rate of 10% plus 350 basis points). The interest on working capital as determined is shown in the table below:-

	(₹ in lakh)				
Particulars	2014-15	2015-16	2016-17	2017-18	2018-19
Maintenance Spares	271.67	280.75	290.07	299.68	309.63
O & M expenses	150.93	155.97	161.15	166.49	172.01
Receivables	1116.48	1127.13	1155.04	1202.00	1213.24
Total	1539.07	1563.86	1606.26	1668.18	1694.88
Rate of Interest	13.500%	13.500%	13.500%	13.500%	13.500%
Interest	207.77	211.12	216.85	225.20	228.81



Annual Transmission Charges

77. The Annual Transmission Charges allowed for the transmission asset is given hereunder:-

(₹ in lakh)					
Particulars	2014-15	2015-16	2016-17	2017-18	2018-19
Depreciation	718.09	718.09	796.52	984.69	923.00
Interest on Loan	0.00	0.00	0.00	0.00	10.22
Return on Equity	3961.91	3961.91	3983.07	4004.23	4053.24
Interest on WC	207.77	211.12	216.85	225.20	228.81
O&M Expenses	1811.11	1871.69	1933.81	1997.89	2064.17
Total	6698.89	6762.81	6930.25	7212.02	7279.44

78. The detailed computation of various components of annual fixed charges for the tariff period 2014-19 is summarized below:-

(₹ in lakh)					
Particulars	2014-15	2015-16	2016-17	2017-18	2018-19
Gross Block					
Opening Gross Block	40407.00	40407.00	40407.00	41126.43	41126.43
Additional Capitalisation	0.00	0.00	719.43	0.00	1666.15
Closing Gross Block	40407.00	40407.00	41126.43	41126.43	42792.58
Average Gross Block	40407.00	40407.00	40766.72	41126.43	41959.51
Depreciation					
Rate of Depreciation	1.777	1.777	1.954	2.394	2.200
Depreciable Value	36291.60	36291.60	36615.34	36939.09	37688.85
Elapsed Life of the assets at beginning of the year	22	23	24	25	26
Weighted Balance Useful life of the assets	11	10	9	8	7
Remaining Depreciable Value	7899.00	7180.91	7168.72	7877.55	6461.01
Depreciation	718.09	718.09	796.52	984.69	923.00
Interest on Loan					
Gross Normative Loan	0.00	0.00	0.00	503.60	503.60
Cumulative Repayment upto Previous Year	0.00	0.00	0.00	503.60	503.60
Net Loan-Opening	0.00	0.00	0.00	0.00	0.00



Additions	0.00	0.00	503.60	0.00	1166.31
Repayment during the year	0.00	0.00	503.60	0.00	923.00
Net Loan-Closing	0.00	0.00	0.00	0.00	243.30
Average Loan	0.00	0.00	0.00	0.00	121.65
Weighted Average Rate of Interest on Loan (%)	8.4000	8.4000	8.4000	8.4000	8.4000
Interest	0.00	0.00	0.00	0.00	10.22
Return on Equity					
Opening Equity	20203.50	20203.50	20203.50	20419.33	20419.33
Additions	0.00	0.00	215.83	0.00	499.85
Closing Equity	20203.50	20203.50	20419.33	20419.33	20919.17
Average Equity	20203.50	20203.50	20311.41	20419.33	20669.25
Return on Equity (Base Rate) (%)	15.50	15.50	15.50	15.50	15.50
MAT Rate for the year 2013-14 (%)	20.961	20.961	20.961	20.961	20.961
Rate of Return on Equity (Pre Tax) (%)	19.610	19.610	19.610	19.610	19.610
Return on Equity (Pre Tax)	3961.91	3961.91	3983.07	4004.23	4053.24
Interest on Working Capital					
Maintenance Spares	271.67	280.75	290.07	299.68	309.63
O & M expenses	150.93	155.97	161.15	166.49	172.01
Receivables	1116.48	1127.13	1155.04	1202.00	1213.24
Total	1539.07	1563.86	1606.26	1668.18	1694.88
Interest	207.77	211.12	216.85	225.20	228.81
Annual Transmission Charges					
Depreciation	718.09	718.09	796.52	984.69	923.00
Interest on Loan	0.00	0.00	0.00	0.00	10.22
Return on Equity	3961.91	3961.91	3983.07	4004.23	4053.24
Interest on Working Capital	207.77	211.12	216.85	225.20	228.81
O & M Expenses	1811.11	1871.69	1933.81	1997.89	2064.17
Total	6698.89	6762.81	6930.25	7212.02	7279.44

Filing Fee and Publication Expenses

79. The petitioner has sought reimbursement of fee paid by it for filing the petition and publication expenses, in terms of Regulation 52 of the 2014 Tariff



Regulations. 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 clause (1) of Regulation 52 of the 2014 Tariff Regulations.

Licence Fee and RLDC Fees and Charges

80. The petitioner has requested to allow the petitioner to bill and recover licence fee and RLDC fees and charges, separately from the respondents. The petitioner shall be entitled for reimbursement of licence fee and RLDC fees and charges in accordance with Clause (2)(b) and (2)(a), respectively, of Regulation 52 of the 2014 Tariff Regulations.

Service Tax

81. The petitioner has sought to recover service tax on transmission charges separately from the respondents, if at any time service tax on transmission is withdrawn from negative list in future. We are of the view that the petitioner's prayer is premature.

Deferred Tax Liability

82. The petitioner has sought recovery of deferred tax liability before 1.4.2009 from the beneficiaries or long term consumers/ DICs as and when materialized under Regulation 49 of the 2014 Tariff Regulations. In this regard, Respondent No. 4, i.e. Tamil Nadu Generation and Distribution Corporation Ltd. (TANGEDCO) vide its affidavit dated 11.12.2015 submitted that petitioner has not furnished the details of works executed prior to the cut-off date, total estimated cost of package, reasons for such withholding of payment, etc. as



required under Regulation 14(2) of the 2014 Tariff Regulations. Accordingly, the Commission has been requested to disallow the petitioner's claim of recovering deferred tax liability prior to 1.4.2009 from the beneficiaries as the claim is unreasonable. The petitioner in response vide its affidavit dated 29.12.2015 submitted that details of additional capitalization and de-capitalization has been furnished at para 10 and 12 of the petition. A management certificate for the same has also been furnished at enclosure 6 at page 11 of the petition.

83. The deferred tax liability shall be dealt as per Regulations 49 of the 2014 Tariff Regulations, as amended. Accordingly, the petitioner is entitled to recover the deferred tax liability upto 31.3.2009 whenever the same materializes, directly from the beneficiaries or long term transmission customers /DICs.

Sharing of Transmission Charges

84. The billing, collection and disbursement of the transmission charges approved shall be governed by the provisions of Central Electricity Regulatory Commission (Sharing of Inter-State Transmission Charges and Losses) Regulations, 2010, as amended from time to time, as provided in Regulation 43 of the 2014 Tariff Regulations.

85. This order disposes of Petition No. 539/TT/2014.

Sd/-
(Dr. M. K. Iyer)
Member

Sd/-
(A.S. Bakshi)
Member

