

**CENTRAL ELECTRICITY REGULATORY COMMISSION  
NEW DELHI**

**Petition No. 270/TT/2015**

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

**Date of Hearing : 29.04.2016  
Date of Order : 23.05.2016**

**In the matter of:**

Determination of transmission tariff for **Asset-I**: 2 nos at 400 kV bays at Khammam (existing) sub-station and 2 nos 400 kV bays at Nagarjunasagar sub-station under "Sub-station works associated with System strengthening in Southern Region for Import of Power from Eastern Region" in Southern Region for 2014-19 Tariff period under Central Electricity Regulatory Commission (Terms and Conditions of Tariff) Regulations, 2014 and Regulation 86 of Central Electricity Regulatory Commission (Conduct of Business) Regulations, 1999.

**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 Electricity Board  
NPKRR Maaligai, 800, Anna Salai  
Chennai- 600002



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



16. Vizag Transmission Limited  
GM I/C (TBCB)  
Power Grid Corporation of India Limited  
SAUDAMINI, Plot No-2, Sector-29,  
Gurgaon-122001

.....Respondents

The following were present:-

For Petitioner:        Shri M.M. Mondal, PGCIL  
                              Shri Rakesh Prasad, PGCIL  
                              Shri S.S Raju, PGCIL  
                              Shri Jasbir Singh, PGCIL  
                              Shri Vivek Kumar Singh, PGCIL

For Respondent:        Shri S.Vallinayagam, Advocate, TANGEDCO

### **ORDER**

The present petition has been filed by Power Grid Corporation of India Ltd. ("the petitioner") for determination of tariff for 2 nos 400 kV bays at Khammam (existing) sub-station and 2 nos 400 kV bays at Nagarjunasagar sub-station under "Sub-station works associated with System strengthening in Southern Region for Import of Power from Eastern Region" in Southern Region (herein referred as transmission asset) for 2014-19 Tariff period under Central Electricity Regulatory Commission (Terms and Conditions of Tariff) Regulations, 2014 (hereinafter referred to as "the 2014 Tariff Regulations") for the period from COD to 31.3.2019.



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

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

(a) The investment approval for the project was accorded by Board of Directors of the petitioner's company vide Memorandum no. C/CP/Import ER to SR dated 18.11.2014 at an estimated cost of ₹97242 lakh, which included IDC of ₹5972 lakh. The petitioner has submitted that RCE (Revised Cost Estimate) of the project shall be submitted once approved by the petitioner's company.

(b) The scope of the instant project is as under:-

**Transmission Line:**

a. LILO of Gazuwaka-Vijaywada 400 kV S/C line at Vemagiri Pooling station.

**Sub-station:**

- a. Establishment of 765/400 kV GIS Pooling station at Vemagiri with 2\*1500 MVA 765/400 kV transformers.
- b. 2 nos 765 kV bays each at Vemagiri Pooling station and Srikakulam Pooling station for terminating Srikakulam PP- Vemagiri-II Pooling station 765 kV D/C line being implemented under tariff based competitive bidding.
- c. 2 nos 400 kV bays at Khammam (existing) and Nagarjunasagar for terminating Khammam- Nagarjunasagar 400 kV D/C line being implemented under tariff based competitive bidding.

**Reactive Compensation**

- a. 2 nos 240 MVAR, 765 kV Bus reactors at Vemagiri Pooling station.
- b. 1 no 80 MVAR, 400 kV Bus reactor at Vemagiri Pooling station.



c. 1 no 240 MVAR switchable line reactor at Vemagiri Pooling station and Srikakulam Pooling station each for both circuits of Srikakulam PP- Vemagiri-II Pooling station 765 kV D/C line.

(c) The instant petition was filed on 3.11.2015 claiming tariff for Asset-I. The tariff for the computation of PoC was allowed under Regulation 7(7) of the 2014 Tariff Regulations vide order dated 31.12.2015.

(d) The details of commissioning and approved apportioned cost of the instant assets are given in the table below:-

Asset	Actual COD	Approved apportioned cost (₹ in lakh)
<b>Asset-I:</b> Split Bus Arrangement at Durgpaur Sub-station	4.1.2016	1899.94

4. The petitioner has claimed the revised transmission charges on the basis of actual COD vide affidavit dated 28.3.2016 as under:-

(₹ in lakh)				
Asset-I	2015-16 (Pro-rata)	2016-17	2017-18	2018-19
Depreciation	12.43	88.67	109.01	109.01
Interest on Loan	14.82	101.73	117.66	108.50
Return on Equity	15.03	107.07	131.43	131.43
Interest on Working Capital	4.30	21.07	22.94	23.21
O&M Expenses	60.29	257.48	266.04	274.84
<b>Total</b>	<b>106.87</b>	<b>576.02</b>	<b>647.08</b>	<b>646.99</b>

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

(₹ in lakh)				
Asset-I	2015-16 (Pro-rata)	2016-17	2017-18	2018-19
Maintenance Spares	37.38	38.62	39.91	41.23
O & M Expenses	20.77	21.46	22.17	22.90
Receivables	73.63	96.00	107.85	107.83



Asset-I	2015-16 (Pro-rata)	2016-17	2017-18	2018-19
<b>Total</b>	<b>131.78</b>	<b>156.08</b>	<b>169.93</b>	<b>171.96</b>
Rate of Interest (%)	13.50	13.50	13.50	13.50
Interest	17.79	21.07	22.94	23.21
<b>Pro-rata interest</b>	<b>4.30</b>	<b>21.07</b>	<b>22.94</b>	<b>23.21</b>

6. The petitioner has submitted additional information vide affidavit dated 28.3.2016. The petitioner has also submitted Auditor's Certificate dated 22.3.2016 for the transmission asset.

7. The petitioner has served the petition on the respondents and notice of this application has been published in the newspapers in accordance with Section 64 of the Electricity Act, 2003 ("the Act"). TANGEDCO (Tamil Nadu Generation and Distribution Company Ltd), Respondent No.4 vide affidavit dated 10.12.2015 filed its reply to the petition. In response, the petitioner has submitted rejoinder vide affidavit dated 10.5.2016. The petitioner was directed to submit certain information vide Record of Proceedings dated 9.5.2016. In response, the petitioner submitted replies vide affidavit dated 11.5.2016. No comments have been received from the public in response to the notices published by the petitioner under Section 64 of the Act. The hearing in this matter was held on 29.4.2016. Having heard the representatives of the petitioner and perused the material on record, we proceed to dispose of the petition.



## **Commercial Operation Date (“COD”)**

8. The petitioner has claimed the date of the commercial operation of the instant transmission asset as 4.1.2016 for the Asset. Regulation 4(3) of the 2014 Tariff Regulations provides as follows:-

**“4. Date of Commercial Operation:** The date of commercial operation of a generating station or unit or block thereof or a transmission system or element thereof shall be determined as under:

xxx

(3) Date of commercial operation in relation to a transmission system shall mean the date declared by the transmission licensee from 0000 hour of which an element of the transmission system is in regular service after successful trial operation for transmitting electricity and communication signal from sending end to receiving end:

xxx”

9. The petitioner has submitted RLDC certificate issued by SRLDC, POSOCO vide letter dated 14.3.2016 in support of the claim of commercial operation and in accordance with Regulation 5(2) of the 2014 Tariff Regulations indicating completion of successful trial run operation of the subject assets. The petitioner has also submitted the CEA Energisation certificate and single line diagram of the subject asset vide affidavit dated 28.3.2016.

10. Accordingly, the commercial operation date of 4.1.2016 has been considered for the subject transmission asset and the tariff has been worked out from COD to 31.3.2019 for the assets.



## Capital Cost

11. The petitioner vide affidavit dated 28.3.2016 has submitted the revised capital cost along with revised tariff forms for the said assets. The petitioner has claimed capital cost of ₹715.39 lakh as on COD of the asset based on Auditor's certificate. The petitioner has submitted the Auditor's Certificate dated 22.3.2016 for the Asset certifying the capital cost claimed.

12. The petitioner has however considered capital cost of ₹702.52 lakh and for the Asset after adjustment of IDC on cash basis for the purpose of tariff computation. The petitioner has claimed the capital cost as follows:

(₹ in lakh)

Asset Name	Approved Apportioned Cost	Capital cost as per Auditor's Certificate	Capital Cost as on COD claimed by petitioner after adjustment of IDC on cash basis
Asset-I	1899.94	715.39	702.52

13. Regulation 9 (1) and (2) and 10 (1) of the 2014 Tariff Regulations specify as follows:-

**“9. Capital Cost:** (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.

(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) Increase in cost in contract packages as approved by the Commission;





- d) Interest during construction and incidental expenditure during construction as computed in accordance with Regulation 11 of these regulations;
- e) capitalised Initial spares subject to the ceiling rates specified in Regulation 13 of these regulations;
- f) expenditure on account of additional capitalization and de-capitalisation determined in accordance with Regulation 14 of these regulations;
- g) adjustment of revenue due to sale of infirm power in excess of fuel cost prior to the COD as specified under Regulation 18 of these regulations; and
- h) adjustment of any revenue earned by the transmission licensee by using the assets before COD.”

**“10. Prudence Check of Capital Expenditure:** The following principles shall be adopted for prudence check of capital cost of the existing or new projects:

(1) In case of the thermal generating station and the transmission system, prudence check of capital cost may be carried out taking into consideration the benchmark norms specified/to be specified by the Commission from time to time: Provided that in cases where benchmark norms have not been specified, prudence check may include scrutiny of the capital expenditure, financing plan, interest during construction, incidental expenditure during construction for its reasonableness, use of efficient technology, cost over-run and time over-run, competitive bidding for procurement and such other matters as may be considered appropriate by the Commission for determination of tariff.”

### **Time over-run**

14. As per the investment approval dated 11.11.2014, the scheme was scheduled to be commissioned within 36 months from the date of investment approval. Accordingly, the schedule completion date works out to 10.11.2017. However, the actual commissioning of the subject assets is 4.1.2016 and hence, the transmission assets have been completed within time.

### **Cost over-run**

15. The estimated completion cost of the transmission assets is ₹2223.32 lakh is as per Auditor’s Certificate dated 22.3.2016 and the approved apportioned cost is ₹1899.94 lakh. Hence, there is a cost over-run. The petitioner submitted that, the cost over-run is mainly due to high rates received against competitive bidding



as compared to the rates considered in the initial estimate. For procurement, open competitive bidding route was followed and by providing equal opportunity to all eligible firms, lowest market prices for product/services was obtained and contracts were awarded on lowest evaluated eligible bidder. The best competitive bid prices against tenders may happen to be lower or higher than cost estimate depending on prevailing market condition.

16. TANGEDCO vide affidavit dated 10.12.2015 submitted that, petitioner's claim is unjustifiable since the investment approval was on 18.11.2014 based on prevailing market price level. Hence, petitioner should have exercised due prudence and care in preparing cost estimate and awarding the tender. Break up of project cost in Form-5 clearly shows there is an exorbitant hike in prices of many items. Hence, TANGEDCO has requested the Commission to restrict the final completion cost to the approved cost owing to the fact that there is no time lag between investment approval and award of contract. In response the petitioner vide affidavit dated 10.5.2016 submitted that, against total apportioned cost of ₹1899.94 lakh, the anticipated completion cost is ₹2223.32 lakh. So, there is a cost over-run of ₹323 lakh in comparison to FR cost. Cost variation is mainly due to change in price levels and higher rates received in competitive bidding as compared to rates considered in initial estimate. Further, the asset amounts to only 3-5% of the overall project cost and thus RCE for the project will be considered only after entire project is completed.



17. The Commission has considered the petitioner's and respondent's submissions. We are of the view that, estimated completion cost is to be restricted to the approved apportioned FR cost in the absence of RCE. However, the petitioner is given the liberty to submit the RCE of the project at the time of truing up.

### **IDC and IEDC**

18. The petitioner vide affidavit dated 28.3.2016 submitted the cash basis IDC for the Asset as follows:

Particulars	IDC discharged as on COD	(₹ in lakh)		
		2015- 16	2016- 17	<b>Total IDC</b>
Asset-I	0.00	0.00	12.87	<b>12.87</b>

19. The petitioner further submitted that, entire IDC will be discharged during 2016-17 and has not been included in the additional capital expenditure of 2016-17 as per the Auditor Certificate. The entire IEDC has been discharged as on COD of the assets.

20. TANGEDCO vide affidavit dated 10.12.2015 submitted that, the petitioner has claimed IEDC of ₹117.34 lakh which is exorbitant in absence of any benchmark, hence should be restricted. In response the petitioner submitted vide affidavit dated 10.5.2016 that, IEDC as per FR cost is 120 lakh. Further, 8% of IEDC has been booked in investment approval. The completion of the project is ₹2223.32 lakh. Actual IEDC booked is approximately ₹40 lakh which is within FR cost.



**Treatment of Initial spares:**

21. Regulation 13(d) of the 2014 Tariff Regulations provides that initial spares shall be capitalised as a percentage of plant and machinery cost upto cut-off date, subject to following ceiling norms:-

- “(a) Coal-based/lignite-fired thermal generating stations - 4.00%
- (b) Gas Turbine/Combined Cycle thermal generating stations - 4.00%
- (c) Hydro generating stations including pumped storage hydro generating station. - 4.0%
  
- (d) Transmission system
  - (i) Transmission line - 1.00%
  - (ii) Transmission Sub-station (Green Field) - 4.00%
  - (iii) Transmission Sub-station (Brown Field) - 6.00%
  - (iv) Series Compensation devices and HVDC Station - 4.00%
  - (v) Gas Insulated Sub-station (GIS) - 5.00%
  - (vi) Communication system - 3.5%”

22. The petitioner has claimed initial spares for the Asset as ₹95.20 lakh for sub-station (brownfield). The petitioner has submitted ₹10.29 lakh (4.08%) for communication system in Form-13 of the petition. However, the same is not mentioned in the Auditor’s certificate. Hence, not considered.

23. TANGEDCO vide affidavit dated 10.12.2015 submitted that, the details of actual procurement of spares are not furnished by the petitioner so as to ascertain the essentiality of the spares. In response the petitioner vide affidavit dated 10.5.2016 submitted as below:

(₹ in lakh)	
Description	Amount
Expenditure towards initial spares during 2015-16	8.06
Balance estimated expenditure on initial spares from 1.4.2016 to 31.3.2017	87.14



during 2016-17 (Add Cap)	
<b>Total</b>	<b>95.20</b>

24. It is observed that, initial spares as on COD is considered as ₹8.06 lakh and ₹87.14 lakh, are included in the additional capitalization for 2016-17.

25. The initial spares calculated for Asset-I is as shown below:-

(₹ in lakh)

Description	Plant and Machinery Cost (Excl IDC, IEDC, land cost & civil works)	Initial spares claimed	Ceiling limit (%) as per Regulation 13 of the 2014 Tariff Regulation	Ceiling limit of Initial Spares	Initial Spares allowed
	(a)	(b)	(c)	(d)=*((a-b)*c)/(100-c)%	Min(b,d)
Asset-I (Sub-station)	1708.37	95.20	6.00%	102.97	95.20

26. The capital cost as on COD approved for the instant asset is as follows:-

(₹ in lakh)

Asset Name	Approved apportioned cost of the asset	Capital cost as per Auditor's Certificate (a)	IDC /IEDC deducted as on cash basis(b)	Deduction of excess initial spares (c)	Capital cost approved in this order (a-b-c)
Asset-I	1899.94	715.39	12.87	0.00	<b>702.52</b>

### **Additional Capital Expenditure**

27. Clause (1) of Regulation 14 of the 2014 Tariff Regulations provides as under:-

“ (1) The capital expenditure in respect of the 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:

- (i) Undischarged liabilities recognised to be payable at a future date;
- (ii) Works deferred for execution;



- (iii) Procurement of initial capital spares within the original scope of work, in accordance with the provisions of Regulation 13;
- (iv) Liabilities to meet award of arbitration or for compliance of the order or decree of a court; and
- (v) Change in Law or compliance of any existing law.”

Provided that 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 shall be submitted along with the application for determination of tariff.

30. Clause (13) of Regulation 3 of the 2014 Tariff Regulations defines “cut-off”

date as under:-

“cut-off date” means 31<sup>st</sup> March of the year closing after two years of the year of commercial operation of whole or part of the project, and in case the whole or part of the project is declared under commercial operation in the last quarter of the year, the cut-off date shall be 31<sup>st</sup> March of the year closing after three years of the year of commercial operation”.

Provided that the cut-off date may be extended by the Commission if it is proved on the basis of documentary evidence that the capitalisation could not be made within the cut-off date for reasons beyond the control of the project developer;”

The cut-off date in the case of Asset-I is 31.3.2019.

31. The petitioner has proposed additional capitalization of ₹696.50 lakh and ₹824.30 lakh for the years 2015-16 and 2016-17 respectively for the Asset respectively towards balance and retention payment under Regulation 14(1)(i) of 2014 Tariff Regulations, after adjustment of cash basis IDC.

32. The petitioner was directed to submit the balance and retention payment amount yet to be made along with details of contract for which payment has been retained along with amount retained. The petitioner, vide affidavit dated 28.3.2016, has submitted the desired information.



33. The completion cost claimed by the petitioner i.e. ₹2223.32 lakh exceeds the approved apportioned cost of the assets i.e. ₹1899.94 lakh, hence the capital cost is restricted to the approved apportioned cost in absence of RCE along with deduction of excess initial spares. The total estimated completion cost including the additional capitalization approved for the asset is ₹1899.94 lakh as shown below. Accordingly, additional capitalization is allowed under Regulation 14(1)(i) of the 2014 Tariff Regulations.

(₹ in lakh)

Particulars	Approved Apportioned Cost	Capital Cost as on COD	Additional Capitalization		Total Additional Capitalization	Total capital Cost as on 31.3.2019
			2015-16	2016-17		
As Claimed	1899.94	702.52	696.50	824.30	<b>1520.80</b>	<b>2223.32</b>
Approved in this order		702.52	696.50	500.92	<b>1197.42</b>	<b>1899.94</b>

### **Debt:Equity Ratio**

34. Regulation 19 (1) of the 2014 Tariff Regulations specifies as under:-

**“19. Debt-Equity Ratio:** (1) For a project declared under commercial operation on or after 1.4.2014, the debt-equity ratio would be considered as 70:30 as on COD. 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.”

35. The petitioner has considered debt:equity ratio as 70:30 as on COD as well as for additional capitalisation. We have considered debt:equity ratio of



70:30 as on COD and for additional capitalization during 2015-16 and 2016-17. The details of the debt:equity as on the date of COD for the assets and 31.3.2019 considered for the purpose of tariff computation for the 2014-19 tariff period is as follows:-

**(₹ in lakh)**

Particulars	As on COD		Additional capitalization during 2014-19		As on 31.3.2019	
	Amount	(%)	Amount	(%)	Amount	(%)
<b>Asset-I</b>						
Debt	491.76	70.00	838.29	70.00	1330.06	70.00
Equity	210.76	30.00	359.13	30.00	569.88	30.00
<b>Total</b>	<b>702.52</b>	<b>100.00</b>	<b>1197.42</b>	<b>100.00</b>	<b>1899.94</b>	<b>100.00</b>

### **Interest on Loan (“IOL”)**

36. Clause (5) & (6) of Regulation 26 of the 2014 Tariff Regulations provides 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.”

37. We have considered the weighted average rate of IOL on the basis of rate prevailing as on 1.4.2015 Further, the petitioner has prayed to allow it to bill and adjust impact on interest on loan due to change in interest rate on account of





floating rate of interest applicable during 2015-19 period, if any from the respondents. The IOL has been worked out in accordance with Regulation 26 of the 2014 Tariff Regulations. The petitioner's prayer to bill and adjust the impact on interest on loan due to change in interest rate on account of floating rate of interest applicable during 2015-19 period from the respondents will be considered at the time of truing up. The details of weighted average rate of interest are placed at **Annexure-I** and the IOL has been worked out as follows:-

(₹ in lakh)				
Asset-I	2015-16 (Pro-rata)	2016-17	2017-18	2018-19
Gross loan opening	491.76	979.40	1330.06	1330.06
Cumulative Repayment upto previous year	0.00	12.35	93.04	186.09
Net Loan-Opening	491.76	967.05	1237.01	1143.96
Additions during the year	487.64	350.66	0.00	0.00
Repayment during the year	12.35	80.70	93.05	93.05
Net Loan-Closing	967.05	1237.01	1143.96	1050.91
Average Loan	729.41	1102.03	1190.49	1097.44
Rate of Interest (%)	8.4000	8.4000	8.4000	8.4000
<b>Interest</b>	<b>14.73</b>	<b>92.57</b>	<b>100.00</b>	<b>92.18</b>

### **Return on Equity ("ROE")**

38. Clause (1)& (2) of Regulation 24 and Clause (2) of Regulation 25 of the 2014 Tariff Regulations specify 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 and run of the 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:



xxx”

**“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.”

39. The petitioner has submitted grossed up ROE at the rate of 19.705% after grossing up the ROE of 15.50% with MAT rate applicable for 2014-15. 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.

40. 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.

41. 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 return on equity, which shall be trued up with actual tax rate in accordance with Regulation 25 (3) of the 2014 Tariff Regulations. The grossed up ROE considered for computation of tariff is 19.610%. Hence, the ROE allowed for the instant transmission asset is given below:-

(₹ in lakh)				
Asset-I	2015-16 (Pro-rata)	2016-17	2017-18	2018-19
Opening Equity	210.76	419.62	569.88	569.88
Additional Capitalization	208.86	150.26	0.00	0.00
Closing Equity	419.62	569.88	569.88	569.88
Average Equity	315.19	494.75	569.88	569.88
Return on Equity (Base Rate) (%)	15.50	15.50	15.50	15.50
Tax rate for the year (%)	20.961	20.961	20.961	20.961
Rate of Return on Equity (Pre Tax) (%)	19.610	19.610	19.610	19.610
<b>Return on Equity (Pre Tax)</b>	<b>14.86</b>	<b>97.02</b>	<b>111.75</b>	<b>111.75</b>

### **Depreciation**

42. Clause (2), (5) and (6) of Regulation 27 of the 2014 Tariff Regulations provide 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.”

43. Clause (67) of Regulation 3 of the 2014 Tariff Regulations defines useful life as follows:-

“(67) **‘Useful life’** in relation to a unit of a generating station and transmission system from the COD shall mean the following, namely:

- (a) Coal/Lignite based thermal generating station 25 years
- (b) Gas/Liquid fuel based thermal generating station 25 years
- (c) AC and DC sub-station 25 years
- (d) Gas Insulated Substation (GIS) 25 years
- (d) Hydro generating station including pumped Storage hydro generating stations 35 years
- (e) Transmission line (including HVAC & HVDC) 35 years
- (f) Communication system 15 years”

44. The petitioner has claimed depreciation considering capital cost as on COD and additional capitalisation claimed by it for the 2014-19 tariff period.

45. We have considered the submissions of the petitioner and have computed depreciation considering capital expenditure of ₹702.52 lakh as on COD for Asset-I with additional capitalization of ₹1197.42 lakh. The weighted average



useful life for the asset has been considered as 25 years in accordance with the above regulation. The details of the depreciation allowed are given hereunder:-

(₹ in lakh)				
Asset-I	2015-16 (Pro-rata)	2016-17	2017-18	2018-19
Opening Gross block	702.52	1399.02	1899.94	1899.94
Additional Capitalization	696.50	500.92	0.00	0.00
Closing Gross block	1399.02	1899.94	1899.94	1899.94
Average Gross block	1050.77	1649.48	1899.94	1899.94
Rate of Depreciation (%)	4.887	4.892	4.898	4.898
Depreciable Value	945.69	1484.53	1709.95	1709.95
Elapsed Life of the assets at beginning of the year	0	1	2	3
Weighted Balance Useful life of the assets	25	24	23	22
Remaining Depreciable Value	945.69	1472.18	1616.90	1523.85
<b>Depreciation</b>	<b>12.35</b>	<b>80.70</b>	<b>93.05</b>	<b>93.05</b>

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

46. The petitioner has computed normative O&M Expenses as per Regulation 29(4)(a) of the 2014 Tariff Regulations. Accordingly, the petitioner’s entitlement to O&M expenses have been worked out as given hereunder:-

Asset-I	2015-16 (Pro-rata)	2016-17	2017-18	2018-19
400 kV Bays (in lakh/bay)	62.30	64.37	66.51	68.71
400 kV Bays (Nos)	4	4	4	4
<b>Total O&amp;M Expenses (in lakh)</b>	<b>59.92</b>	<b>257.48</b>	<b>266.04</b>	<b>274.84</b>

47. The petitioner submitted that norms for 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 is due during the 2014-19 tariff period



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.

48. TANGEDCO vide affidavit dated 10.12.2015 submitted that, O&M rates are calculated considering 10% margin over effective CAGR. Further, petitioner is making huge profits by awarding maintenance contracts to State utilities by paying them mere 1.5% of capital cost towards O&M expenses. The respondent has requested the Commission to negate the revision of Annual fixed charges based on wage revision. In response vide affidavit dated 10.5.2016, the petitioner submitted that O&M expenses for transmission system as specified in Regulation 29(3)(a) of the tariff regulations for block 2014-19 has been arrived after considering 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 is due during the 2014-19 tariff period 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.

49. 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, any application filed by the petitioner in this regard will be dealt with in accordance with the appropriate provisions of the 2014 Tariff Regulations.



(₹ in lakh)				
O&M Expenses Allowed	2015-16 (Pro-rata)	2016-17	2017-18	2018-19
Asset-I	<b>59.92</b>	<b>257.48</b>	<b>266.04</b>	<b>274.84</b>

### **Interest on Working Capital (“IWC”)**

50. As per 2014 Tariff Regulations the components of the working capital and the interest thereon are discussed hereinafter:-

#### **(i) Receivables**

As per Regulation 28(1) (c) (i) of the 2014 Tariff Regulations, receivables will be equivalent to two months average billing calculated on target availability level. The petitioner has claimed the receivables on the basis of 2 months transmission charges claimed in the petition. In the tariff being allowed, receivables have been worked out on the basis of 2 months transmission charges.

#### **(ii) Maintenance Spares**

Regulation 28 (1) (c) (ii) of the 2014 Tariff Regulations provides for maintenance spares @ 15% per annum of the O&M Expenses from 1.4.2014. The petitioner has claimed maintenance spares for the instant asset and value of maintenance spares has accordingly been worked out as 15% of O&M Expenses.

#### **(iii) O & M Expenses**

Regulation 28 (1) (c) (iii) of the 2014 Tariff Regulations provides for operation and maintenance expenses for one month to be included in the



working capital. The petitioner has claimed O & M Expenses for the instant asset and value of O & M Expenses has accordingly been worked out by considering 1 month O&M Expenses.

**(iv) Rate of interest on working capital**

Rate of interest on working capital shall be on normative basis and shall be considered as the bank rate as on 1.4.2014 or as on 1st April of the year during the tariff period 2014-15 to 2018-19 in which the transmission system including communication system or element thereof, as the case may be, is declared under commercial operation, whichever is later. Further, the 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. The rate of interest on working capital considered is 13.50% (SBI Base Rate of 10% plus 350 basis points).

51. The interest on working capital allowed is shown in the table below:-

(₹ in lakh)				
Asset-I	2015-16 (Pro-rata)	2016-17	2017-18	2018-19
Maintenance Spares	8.99	38.62	39.91	41.23
O & M expenses	4.99	21.46	22.17	22.90
Receivables	17.69	91.37	98.76	98.97
<b>Total</b>	<b>31.67</b>	<b>151.45</b>	<b>160.84</b>	<b>163.10</b>
Rate of Interest (%)	13.50	13.50	13.50	13.50
<b>Interest</b>	<b>4.28</b>	<b>20.45</b>	<b>21.71</b>	<b>22.02</b>





## Annual Transmission Charges

52. The detailed computation of the various components of the annual fixed charges for the transmission asset for the tariff period 2014-19 is summarised below:-

(₹ in lakh)				
Asset-I	2015-16 (Pro-rata)	2016-17	2017-18	2018-19
<b>Gross Block</b>				
Opening Gross Block	702.52	1399.02	1899.94	1899.94
Additional Capitalization	696.50	500.92	0.00	0.00
Closing Gross Block	1399.02	1899.94	1899.94	1899.94
Average Gross Block	1050.77	1649.48	1899.94	1899.94
Rate of Depreciation	4.887	4.892	4.898	4.898
Depreciable Value	945.69	1484.53	1709.95	1709.95
Elapsed Life of the assets at beginning of the year	0	1	2	3
Weighted Balance Useful life of the assets	25	24	23	22
Remaining Depreciable Value	945.69	1472.18	1616.90	1523.85
Depreciation	12.35	80.70	93.05	93.05
<b>Interest on Loan</b>				
Gross Normative Loan	491.76	979.40	1330.06	1330.06
Cumulative Repayment upto Previous Year	0.00	12.35	93.04	186.09
Net Loan-Opening	491.76	967.05	1237.01	1143.96
Additions	487.64	350.66	0.00	0.00
Repayment during the year	12.35	80.70	93.05	93.05
Net Loan-Closing	967.05	1237.01	1143.96	1050.91
Average Loan	729.41	1102.03	1190.49	1097.44
Weighted Average Rate of Interest on Loan (%)	8.4000	8.4000	8.4000	8.4000
Interest	14.73	92.57	100.00	92.18
<b>Return on Equity</b>				
Opening Equity	210.76	419.62	569.88	569.88
Additions	208.86	150.26	0.00	0.00
Closing Equity	419.62	569.88	569.88	569.88
Average Equity	315.19	494.75	569.88	569.88
Return on Equity (Base Rate) (%)	15.50	15.50	15.50	15.50
MAT Rate for the year 2013-14 (%)	20.961	20.961	20.961	20.961



Asset-I	2015-16 (Pro-rata)	2016-17	2017-18	2018-19
Rate of Return on Equity (Pre Tax) (%)	19.610	19.610	19.610	19.610
Return on Equity (Pre Tax)	14.86	97.02	111.75	111.75
<b>Interest on Working Capital</b>				
Maintenance Spares	8.99	38.62	39.91	41.23
O & M expenses	4.99	21.46	22.17	22.90
Receivables	17.69	91.37	98.76	98.97
<b>Total</b>	<b>31.67</b>	<b>151.45</b>	<b>160.84</b>	<b>163.10</b>
Interest	4.28	20.45	21.71	22.02
<b>Annual Transmission Charges</b>				
Depreciation	12.35	80.70	93.05	93.05
Interest on Loan	14.73	92.57	100.00	92.18
Return on Equity	14.86	97.02	111.75	111.75
Interest on Working Capital	4.28	20.45	21.71	22.02
O & M Expenses	59.92	257.48	266.04	274.84
<b>Total</b>	<b>106.13</b>	<b>548.21</b>	<b>592.56</b>	<b>593.85</b>

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

53. 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**

54. The petitioner has requested to allow the petitioner to bill and recover License 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**

55. 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 of service tax is premature.

### **Sharing of Transmission Charges**

56. 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.

57. This order disposes of Petition No. 270/TT/2015.

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

Sd/-  
**(A.S. Bakshi)**  
Member



## ANNEXURE-I

### DETAILS OF LOAN BASED ON ACTUAL LOAN PORTFOLIO 2014-19

(₹ in lakh)

Asset-I	Interest Rate (%)	Loan deployed as on COD	Additions during the tariff period	Total
Proposed Loan 2015-2016 (8.40%)- DOCO Loan-	8.40	491.76	0.00	491.76

### CALCULATION OF WEIGHTED AVERAGE RATE OF INTEREST ON LOAN FOR TARIFF PERIOD 2014-19

(₹ in lakh)

Asset-I	2015-16	2016-17	2017-18	2018-19
Gross Opening Loan	491.76	491.76	491.76	491.76
Cumulative Repayments of Loans upto Previous Year	0.00	0.00	0.00	0.00
Net Loans Opening	491.76	491.76	491.76	491.76
Add: Drawl(s) during the year	0.00	0.00	0.00	0.00
Less: Repayment(s) of Loan during the year	0.00	0.00	0.00	0.00
Net Closing Loan	491.76	491.76	491.76	491.76
Average Net Loan	491.76	491.76	491.76	491.76
<b>Rate of Interest on Loan (%)</b>	<b>8.4000</b>	<b>8.4000</b>	<b>8.4000</b>	<b>8.4000</b>
Interest on Loan	41.31	41.31	41.31	41.31

