

**CENTRAL ELECTRICITY REGULATORY COMMISSION  
NEW DELHI**

**Petition No. 315/2010**

**Coram:**       **Dr. Pramod Deo, Chairperson**  
                  **Shri S. Jayaraman, Member**  
                  **Shri V.S. Verma, Member**  
                  **Shri M. Deena Dayalan, Member**

**Date of Hearing:** 23.6.2011

**Date of Order:** 14.3.2012

**In the matter of**

Approval under Regulation 86 of Central Electricity Regulatory Commission (Conduct of Business) Regulations, 1999 and Central Electricity Regulatory Commission (Terms and Conditions of Tariff) Regulations, 2009 for Determination of Transmission tariff for Pole-I of +/-500 kV, 2500 MW Balia- Bhiwadi HVDC Bipole including HVDC transmission line associated with Barh Generation project (3X660 MW) in Eastern Region from DOCO (1.9.2010) to 31.3.2014.

**And**

**In the matter of**

Power Grid Corporation of India Limited

.....**Petitioner**

**Vs**

1. Uttar Pradesh Power Corporation Ltd., Lucknow
2. Rajasthan Rajya Vidyut Prasaran Nigam Ltd, Jaipur
3. Ajmer Vidyut Vitran Nigam Ltd, Jaipur
4. Jaipur Vidyut Vitaran Nigam Ltd, Jaipur
5. Jodhpur Vidyut Vitran Nigam Ltd., Jaipur
6. Himachal Pradesh State Electricity Board, Shimla
7. Punjab state Electricity Board, Patiala
8. Haryana Power Purchase Centre, Panchkula
9. Power Development Department, Jammu
10. Delhi Transco Ltd., New Delhi
11. BSES Yamuna Power Ltd., New Delhi
12. BSES Rajdhani Power Ltd., New Delhi
13. North Delhi Power Ltd., New Delhi
14. Chandigarh Administration, Chandigarh
15. Uttarakhand Power Corporation Ltd., Dehradun
16. North Central Railway, Allahabad
17. New Delhi Municipal Council, New Delhi.....**Respondents**

**The following were present:**

- 1) Shri S.S. Raju, PGCIL
- 2) Shri J. Mazumder, PGCIL
- 3) Shri Rajeev Gupta, PGCIL
- 4) Shri M.M. Mondal, PGCIL
- 5) Shri T.P.S. Bawa, Consultant, PSPCL

**ORDER**

This petition has been filed by Power Grid Corporation Limited (PGCIL) seeking approval of transmission tariff for Pole-I of +/-500 kV, 2500 MW Balia- Bhiwadi HVDC Bipole including HVDC transmission line associated with Barh Generation project (3X660 MW) in Eastern Region (hereinafter referred to as "transmission system") from the date of commercial operation, i.e. 1.9.2010 to 31.3.2014 under Central Electricity Regulatory Commission (Terms and Conditions of Tariff) Regulations, 2009 (hereinafter referred to as "2009 regulations").

2. The investment approval for the project was accorded by Government of India, Ministry of Power, vide their letter Memorandum No. 12/13/2003-PG dated 12.12.2005 at an estimated cost of ₹377929 lakh including Interest During Construction of ₹ 17941 lakh, at 2<sup>nd</sup> quarter 2005 price level.

3. The instant petition covers the following transmission lines and substations:-

**Transmission Lines**

- a) LILO of Kahalgaon-Patna 400 kV D/C (Quad) line at Barh
- b) Barh-Balia 400 kV D/C (Quad) line
- c) Balia-Bhiwadi 2500 MW, +/- 500 kV HVDC bipole line
- d) Seaoni-Bina 765 kV S/C line (to be initially charged at 400 kV)
- e) Two nos. 66 kV Earth Electrode lines (one each at Balia and Bhiwadi 2 conductors of Twin Moose for each line)

## Sub-stations

- a) Balia 400kV Substation (S/S) Extension
- b) Bhiwadi 400/220kV Substation (S/S) Extension
- c) Seoni 400kV Substation (S/S) Extension
- d) Bina 400kV Switching Station Extension
- e) Balia and Bhiwadi Converter Stations including Earth Electrode Stations and Repeater Stations
- f) Barh 400kV Switchyard extension (NTPC) – Provision of power Line Carrier Communication

4. Details of the transmission charges claimed by the petitioner are as under:-

|                             | (₹ in lakh)     |                 |                 |                 |
|-----------------------------|-----------------|-----------------|-----------------|-----------------|
|                             | 2010-11         | 2011-12         | 2012-12         | 2013-14         |
| Depreciation                | 6327.71         | 11818.36        | 12055.77        | 12055.77        |
| Interest on loan            | 1887.08         | 3307.51         | 3079.75         | 2782.11         |
| Return on equity            | 6437.51         | 12096.92        | 12351.69        | 12351.69        |
| Interest on working capital | 347.34          | 642.88          | 653.79          | 653.82          |
| O&M Expenses                | 1140.44         | 2067.57         | 2184.95         | 2309.71         |
| <b>Total</b>                | <b>16140.08</b> | <b>29933.24</b> | <b>30325.95</b> | <b>30153.10</b> |

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

|                    | (₹ in lakh)    |                |                |                |
|--------------------|----------------|----------------|----------------|----------------|
|                    | 2010-11        | 2011-12        | 2012-12        | 2013-14        |
| Maintenance Spares | 293.26         | 310.14         | 327.74         | 346.46         |
| O&M Expenses       | 162.92         | 172.30         | 182.08         | 192.48         |
| Receivables        | 4611.45        | 4988.87        | 5054.33        | 5025.52        |
| <b>Total</b>       | <b>5067.63</b> | <b>5471.31</b> | <b>5564.15</b> | <b>5564.46</b> |
| Interest           | 347.34         | 642.88         | 653.79         | 653.82         |
| Rate of Interest   | 11.75%         | 11.75%         | 11.75%         | 11.75%         |

6. No comments or suggestions have been received from the general public in response to the notices published by the petitioner under section 64 of the Electricity Act, 2003. Reply to the petition has been filed by Uttar Pradesh Power Corporation

Limited (UPPCL), Respondent No.1, Punjab State Power Corporation Limited (PSPCL), Respondent No.7 and Haryana Power Purchase Centre (HPPC), Respondent No.8.

7. UPPCL in its reply, vide its affidavit dated 26.3.2011, has raised the issue of time and cost over-run, operation and maintenance expenses, licence fee, filing fee, service tax and floating rate of interest. PSPCL in its reply, vide its affidavit dated 30.3.2011, has raised the issue of operation and maintenance expenses, time over-run, date of commercial operation and cost over-run. HPPC has raised the issue of floating rate of interest, grossing up of rate of return and licence fee in its reply, vide affidavit dated 30.3.2011. The issues raised by the respondents are covered in the relevant paragraphs of this order.

8. Having heard the representatives of the parties and perused the material on record, we proceed to dispose of the petition.

9. The instant petition covers determination of tariff based on the actual expenditure incurred up to the date of commercial operation, i.e. 1.9.2010 and projected expenditure to be incurred from the date of commercial operation to 31.3.2014 for the assets under Barh Transmission System. The details of apportioned approved cost as on the date of commercial operation and projected expenditure to be incurred for the above mentioned assets is summarized below:-

(₹ In lakh)

| Apportioned approved cost | Actual cost incurred as on the date of commercial operation | Proposed expenditure from the date of commercial operation to 31.3.2011 | Proposed expenditure for 2011-12 | Total estimated completion cost |
|---------------------------|---|---|----------------------------------|---------------------------------|
| 205054.00                 | 195054.65   | 30754.00  | 9716.00                          | 235524.65                       |

10. The total estimated completion cost exceeds the apportioned approved cost. The petitioner was asked to submit the RCE. The petitioner, vide affidavit dated 1.3.2011, has submitted that RCE of the project is under approval and the same shall be submitted after the approval. Hence, in the absence of RCE the total capital cost of the project has been restricted up to the apportioned approved cost i.e. ₹205054lakh and shall be re-examined after the submission of RCE.

### **TIME OVER-RUN**

11. As per investment approval, dated 12.12.2005, the transmission system was to be completed within 45 months. Accordingly, the system was to be commissioned in October, 2009. However, the project was put under commercial operation on 1.9.2010 and thus there was a delay of 11 months in commissioning of the system.

12. The petitioner has submitted that the delay of 11 months is due to delay in commissioning of generating units of NTPC Barh Project and delay in getting Excise Duty Exemption Certificate (EDEC). The petitioner has submitted that the generating units are expected to be commissioned in 2012-13 to 2014-15. The EDEC was issued by the statutory authority after almost one year of award, in April 2008 and it had

affected both the onshore and off-shore supplies and due to this delay no activity could be performed at site.

13. The respondent, PSPCL has submitted that the Balia-Bhiwadi Bipole was under-utilised due to non-commissioning of LILO of second ckt. of 400 kV Kahalgaon-Patna Line and non-utilization of 400 kV Barh-Balia line. The petitioner in its rejoinder, dated 21.6.2011, has submitted that non-utilisation of Balia-Bhiwadi line has not reduced the utilization of the subject line as the capacity of the existing corridor i.e. Patna-Balia and Biharshariff-Balia was sufficient to take care of transfer of surplus power from Eastern Region to Balia and from Balia to Bhiwadi through Balia-Bhiwadi corridor. It has been submitted that the LILO of Kahalgaon-Patna line at Barh and Barh-Balia section would be utilized shortly after commissioning of switchyard at Barh by NTPC. Later, the Balia-Bhiwadi line would provide additional reliability to the existing corridor for transfer of surplus power from Eastern Region to Balia. UPPCL in its reply submitted that the delay of 11 months must not be condoned.

14. The petitioner has also submitted that the transmission project was to be completed within 45 months from the date of investment approval in a progressive manner matching with the commissioning schedule of the three generating units of Barh Power Project, which were to be implemented by NTPC. The petitioner had to align the actual completion of transmission assets with Barh generating units. However, in the 23rd TCC / 24th NRPC meeting held on 23rd and 24th December, 2009, it was decided that the Balia-Bhiwadi HVDC Bipole would provide additional corridor for the power transfer from Eastern Region to Northern Region and the petitioner should go ahead

with the commissioning of these lines. The petitioner has accordingly completed the transmission project ahead of the Barh generation project. We are of the opinion that the delay in commissioning of subject assets was not attributable to the petitioner and accordingly the delay has been condoned.

### **COST OVER-RUN**

15. The total actual expenditure incurred/ projected to be incurred by the petitioner is ₹235524.65 lakh against the apportioned approved cost of ₹205054 lakh. The petitioner has attributed the cost variation of ₹ 30470.65 lakh (14.9 %) to inclusion of civil work of Balia sub-station extension, increase in area of the land and high awarded cost as per competitive bidding.

16. PSPCL, during the course of hearing on 23.6.2011, raised the issue of high cost variation in certain items like emergency DG set. The petitioner was directed to give reasons for cost variation. The petitioner has submitted, vide affidavit dated 22.9.2011, that the cost of line includes the capital cost of tower steel of ₹27060 lakh, cost of conductor of ₹25414 lakh and cost of insulator ₹70.42 lakh. It has been further submitted that complete line along with material and accessories was constructed simultaneously. As the complete line has been constructed and operationalised along with pole-I, it has been capitalized with pole-I. Regarding the cost variation in control room and office building, including HVAC it has been submitted that actual cost includes cost of some additional works like valve hall construction and various other civil works like stores, workshop, equipment foundations etc.

17. Regarding the cost of D.G. set, it has been submitted that the total cost includes cost of 2 nos. (1500 kVA) DG set. The balance cost consists of cost of other miscellaneous equipments like battery set and charger, illumination system and firefighting and smoke detector etc. pertaining to both Balia and Bhiwadi Sub-stations.

### **ADDITIONAL CAPITAL EXPENDITURE**

18. As per Regulation 9(1) of 2009 regulations-

*“Additional Capitalization: (1) The capital expenditure 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;*
- (ii) XXX*
- (iii) XXX*
- (iv) XXX*
- (v) XXX”*

19. As per 2009 regulations,

*“cut-off date means 31<sup>st</sup> March of the year closing after 2 years of the year of commercial operation of the project, and in-case 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 3 years of the year of commercial operation”.*

Therefore, cut-off date for the above mentioned assets is 31.3.2013.

20. Petitioner has claimed additional capital expenditure of ₹ 30754.00 lakh and ₹9716.00 lakh for the year 2010-11 (from the date of commercial operation to 31.3.2011) and 2011-12 respectively. However, estimated completion cost exceeds the apportioned approved cost and the petitioner has not submitted the revised cost estimates. Accordingly, additional capital expenditure has been restricted to the difference between the apportioned approved cost and the actual cost as on the date of commercial operation (₹205054.00 lakh minus ₹195054.65 lakh). Accordingly, additional capital expenditure of ₹9999.35 lakh, for the year 2010-11, has been



considered for the purpose of tariff calculation and no further additional capital expenditure has been allowed.

### **DEBT- EQUITY RATIO**

21. Regulation 12(1) of the 2009 regulations provides that-

*"(1) For a project declared under commercial operation on or after 1.4.2009, 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 where equity actually deployed is less than 30% of the capital cost, the actual equity shall be considered for determination of tariff:*

*Provided further that the equity invested in foreign currency shall be designated in Indian rupees on the date of each investment."*

22. The details of opening Debt-Equity of asset considered for the purpose of tariff calculation as on the date of commercial operation:-

| <b>Approved capital cost as on the date of commercial operation</b> |                               |          |                               |          |
|---|-------------------------------|----------|-------------------------------|----------|
| <b>Particulars</b>  | <b>Amount<br/>(₹ in lakh)</b> | <b>%</b> | <b>Amount<br/>(₹ in lakh)</b> | <b>%</b> |
| Debt  | 143537.80                     | 70.00    | 136538.26                     | 70.00    |
| Equity  | 61516.20                      | 30.00    | 58516.40                      | 30.00    |
| Total   | 205054.00                     | 100.00   | 195054.65                     | 100.00   |

23. Details of Debt-Equity as on 31.3.2014 is as follows:-

| <b>Capital cost as on 31.3.2014</b> |                               |          |
|-------------------------------------|-------------------------------|----------|
| <b>Particulars</b>                  | <b>Amount<br/>(₹ in lakh)</b> | <b>%</b> |
| Debt                                | 143537.80                     | 70.00    |
| Equity                              | 61516.20                      | 30.00    |
| Total                               | 205054.00                     | 100.00   |

24. Details of projected additional capital expenditure, referred to as "Add-Cap" herein below, claimed by the petitioner is as follows:-

| Particulars  | Normative                  |               |
|--------------|----------------------------|---------------|
|              | (₹ in lakh)                | %             |
|              | <b>Add-Cap for 2010-11</b> |               |
| Debt         | 21527.80                   | 70.00         |
| Equity       | 9226.20                    | 30.00         |
| <b>Total</b> | <b>30754.00</b>            | <b>100.00</b> |
|              | <b>Add Cap for 2011-12</b> |               |
| Debt         | 6801.20                    | 70.00         |
| Equity       | 2914.80                    | 30.00         |
| <b>Total</b> | <b>9716.00</b>             | <b>100.00</b> |

25. Detail of additional capital expenditure considered for the purpose of tariff calculation is as under:-

| Particulars  | Add- Cap for 2010-11 |               |
|--------------|----------------------|---------------|
|              | (₹ in lakh)          | %             |
| Debt         | 6999.54              | 70.00         |
| Equity       | 2999.80              | 30.00         |
| <b>Total</b> | <b>9999.35</b>       | <b>100.00</b> |

26. Additional capital expenditure of ₹ 9999.35 lakh has been considered out of ₹ 30754.00 lakh for the year 2010-11 and no further additional capital expenditure has been considered as capital cost has been restricted to apportioned approved cost in the absence of revised capital expenditure.

### **RETURN ON EQUITY**

27. Regulation 15 of the 2009 regulations provides that:-

*"15. (1) Return on equity shall be computed in rupee terms, on the equity base determined in accordance with regulation 12.*

*(2) Return on equity shall be computed on pre-tax basis at the base rate of 15.5% to be grossed up as per clause (3) of this regulation:*

*Provided that in case of projects commissioned on or after 1st April, 2009, an additional return of 0.5% shall be allowed if such projects are completed within the timeline specified in **Appendix-II**:*

Provided further that the additional return of 0.5% shall not be admissible if the project is not completed within the timeline specified above for reasons whatsoever.

(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:

Provided that return on equity with respect to the actual 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 separately for each year of the tariff period along with the tariff petition filed for the next tariff period.

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

$$\text{Rate of pre-tax return on equity} = \text{Base rate} / (1-t)$$

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 financial year during the tariff period shall be trued up in accordance with Regulation 6 of these regulations"

28. In view of (2) above, the following amount of equity has been considered for calculation of return of equity:-

| (₹ in lakh)                                   |   |  |   |  |
|---|---|--|---|--|
| Equity as on the date of commercial operation | Notional equity due to ACE for the period 2010-11 | Total equity considered for tariff calculations for the period 2010-11 | Notional equity due to ACE for the period 2011-14 | Total equity considered for tariff calculations for the period 2011-14 |
| 58516.40                                      | 2999.80   | 60016.30   | 0.00  | 61516.20   |

29. HPCC submitted that the petitioner's prayer for grossing up of base rate of return with the applicable tax rates for particular financial year and truing up of ROE every year

should not be allowed in view of the specific provisions for truing up at the end of the tariff period as per the 2009 regulations. It is clarified that petitioner's prayer to allow grossing up the base rate of ROE based on the tax rates viz., MAT, surcharge, any other cess, charges, levies etc., as per the relevant Finance Act, shall be settled in accordance with the provisions of Regulation 15 of 2009 regulations.

30. Return on equity has been calculated as per Regulation 15 of the 2009 regulations with pre-tax ROE of 17.481%.

31. In view of the above, the following amount of equity has been considered for calculation of return of equity:-

|   | (₹in lakh) |          |          |          |
|---|------------|----------|----------|----------|
|   | 2010-11    | 2011-12  | 2012-13  | 2013-14  |
| Opening Equity                            | 58516.40   | 61516.20 | 61516.20 | 61516.20 |
| Addition due to Additional Capitalisation | 2999.80    | 0.00     | 0.00     | 0.00     |
| Closing Equity                            | 61516.20   | 61516.20 | 61516.20 | 61516.20 |
| Average Equity                            | 60016.30   | 61516.20 | 61516.20 | 61516.20 |
| Return on Equity (Base Rate )             | 15.50%     | 15.50%   | 15.50%   | 15.50%   |
| Tax rate for the year 2008-09 (MAT)       | 11.33%     | 11.33%   | 11.33%   | 11.33%   |
| Rate of Return on Equity (Pre Tax )       | 17.481%    | 17.481%  | 17.481%  | 17.481%  |
| <b>Return on Equity (Pre Tax)</b>         | 6120.01    | 10753.65 | 10753.65 | 10753.65 |

## **INTEREST ON LOAN**

32. Regulation 16 of the 2009 regulations provides that,-

*"16. (1) The loans arrived at in the manner indicated in regulation 12 shall be considered as gross normative loan for calculation of interest on loan.*

*(2) The normative loan outstanding as on 1.4.2009 shall be worked out by deducting the cumulative repayment as admitted by the Commission up to 31.3.2009 from the gross normative loan.*

*(3) The repayment for the year of the tariff period 2009-14 shall be deemed to be equal to the depreciation allowed for that year:*

*(4) Notwithstanding any moratorium period availed by the generating company or the transmission licensee, as the case may be the repayment of loan shall be considered from the first year of commercial operation of the project and shall be equal to the annual depreciation allowed,.*

*(5) The rate of interest shall be the weighted average rate of interest calculated on the basis of the actual loan portfolio at the beginning of each year applicable to the project:*

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

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

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

*(7) The generating company or the transmission licensee, as the case may be, shall make every effort to re-finance the loan as long as it results in net savings on interest and in that event the costs associated with such re-financing shall be borne by the beneficiaries and the net savings shall be shared between the beneficiaries and the generating company or the transmission licensee, as the case may be, in the ratio of 2:1.*

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

*(9) In case of dispute, any of the parties may make an application in accordance with the Central Electricity Regulatory Commission (Conduct of Business) Regulations, 1999, as amended from time to time, including statutory re-enactment thereof for settlement of the dispute:*

*Provided that the beneficiary or the transmission customers shall not withhold any payment on account of the interest claimed by the generating company or the transmission licensee during the pendency of any dispute arising out of re-financing of loan.”*

## **INTEREST ON LOAN**

33. In these calculations, the interest on loan has been worked out as detailed below:-

(i) Gross amount of loan, repayment of instalments and rate of interest and weighted average rate of interest on actual average loan have been considered as per the petition.

(ii) The repayment for the tariff period 2009-14 shall be deemed to be equal to the depreciation allowed for that period.

(iii) Moratorium period availed by the transmission licensee, the repayment of the loan shall be considered from the first year of commercial operation of the project and shall be equal to the annual depreciation allowed.

(iv) Weighted average rate of interest on actual average loan worked out as per (i) above is applied on the notional average loan during the year to arrive at the interest on loan.

34. The methodology adopted in calculation of weighted average rate of interest in case of floating interest loans in Petition No. 132/2010 has been adopted in the instant petition. Accordingly, the interest on loan has been calculated on the basis of rate prevailing as on 1.4.2009, the date of commercial operation. Any change in rate of interest subsequent to 1.4.2009 will be considered at the time of truing up.

35. Detailed calculations of the weighted revised average rate of interest have been in Annexure to this order.

36. Details of the interest on loan worked on the above basis are as under:-

|   | (₹in lakh)     |                |                |                |
|---|----------------|----------------|----------------|----------------|
|   | 2010-11        | 2011-12        | 2012-13        | 2013-14        |
| Gross Normative Loan                      | 136538.26      | 143537.80      | 143537.80      | 143537.80      |
| Cumulative Repayment upto Previous Year   | 0.00           | 6038.97        | 16629.97       | 27220.97       |
| Net Loan-Opening                          | 136538.26      | 137498.83      | 126907.83      | 116316.83      |
| Addition due to Additional Capitalisation | 6999.54        | 0.00           | 0.00           | 0.00           |
| Repayment during the year                 | 6038.97        | 10591.00       | 10591.00       | 10591.00       |
| Net Loan-Closing                          | 137498.83      | 126907.83      | 116316.83      | 105725.83      |
| Average Loan                              | 137018.54      | 132203.33      | 121612.33      | 111021.33      |
| Weighted Average Rate of Interest on Loan | 2.2444%        | 2.2164%        | 2.1890%        | 2.1628%        |
| <b>Interest</b>                           | <b>1793.87</b> | <b>2930.14</b> | <b>2662.08</b> | <b>2401.13</b> |

## **DEPRECIATION**

37. Petitioner has claimed actual depreciation as a component of Annual Fixed Charges. However, Regulation 17 (4) of the 2009 regulations provides as under:-

*"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 asset".*

38. The date of commercial operation of the transmission system was 1.9.2010. Accordingly, it will complete 12 years beyond 2013-14 and thus depreciation has been calculated annually based on Straight Line Method and at rates specified in Appendix-III to the 2009 regulations.

39. Details of the depreciation worked out are as under:-

|  | (₹ in lakh) |           |           |           |
|--|-------------|-----------|-----------|-----------|
|  | 2010-11     | 2011-12   | 2012-13   | 2013-14   |
| Opening Gross Block  | 195054.65   | 205054.00 | 205054.00 | 205054.00 |
| Addition during 2009-14 due to Projected Additional Capitalization | 9999.35     | 0.00      | 0.00      | 0.00      |
| Closing Gross Block  | 205054.00   | 205054.00 | 205054.00 | 205054.00 |
| Average Gross Block  | 200054.33   | 205054.00 | 205054.00 | 205054.00 |
| Rate of Depreciation   | 5.1749%     | 5.1650%   | 5.1650%   | 5.1650%   |
| Depreciation Value   | 178652.23   | 182955.30 | 182955.30 | 182955.30 |
| Remaining Depreciable Value  | 178652.23   | 176916.32 | 166325.32 | 155734.32 |
| Depreciation   | 6038.97     | 10591.00  | 10591.00  | 10591.00  |

## **OPERATION & MAINTENANCE EXPENSES**

40. Clause (g) of Regulation 19 of the 2009 regulations prescribes the norms for operation and maintenance expenses (O&M expenses) based on the type of sub-station and line. The Balia-Bhiwadi transmission line is of 1250 MW. But, the 2009 regulations do not specify norms for 1250 MW transmission line. The petitioner has claimed the

O&M expenses for each pole of 1250 MW of Balia and Bhiwadi HVDC stations at the rate of 2.5 times of norms provided in the 2009 regulations for 500 MW HVDC back to back station. The norms provided in the 2009 regulations for HVDC Bipole sub-stations are different from that of HVDC back to back stations.

41. PSPCL has submitted that O&M expenses may be calculated on the basis of Talcher-Kolar HVDC bipole. It has requested to adopt this rate, considering O&M for 2000 MW, as base rate and to reduce it pro-rata to 1250 MW. The petitioner in its rejoinder, dated 21.6.2011, has submitted that deriving the O&M expenses considering the normative rate of Talcher- Kolar HVDC system is not justified.

42. The petitioner has claimed O&M expenses for the transmission line portion of the Balia-Bhiwadi HVDC system on the basis of double ckt. bundled conductor. The norms specified in the 2009 regulations are applicable for HVDC transmission line as well as AC lines. PSPCL, in its reply dated 1.4.2011 has submitted that in one pole of HVDC transmission line, number of sub-conductors are 4 and number of insulator string is only one. In a 400 kV double ckt. (Quad ) transmission line the number of sub-conductors would be 24 and number of insulator string would be 6. PSPCL has submitted that it would be not correct to adopt the O&M for 400 kV double ckt. quad line to a HVDC bipole with 1 pole in commercial operation. PSPCL has also submitted that the norms of single ckt. quad line should be applied for one pole instead of double ckt. norms.

43. The petitioner in its rejoinder, dated 11.6.2011, to PSPCL's reply, submitted that as per the "Statement of Objects and Reasons" of 2009 regulations, each pole of an



HVDC line is considered as one ckt. for the purpose of deriving O&M norms. Therefore, each pole should be considered as one ckt. and then the number of sub-conductor criterion should be applied. It was also submitted that since both the circuits of Balia-Bhiwadi link is being used for power flow using metallic return mode of operation even when one pole is operative at terminals, the petitioner is entitled for O&M charges of both the circuits.

44. The O&M expenses of the Balia-Bhiwadi HVDC sub-station cannot be determined on the basis of the HVDC back to back sub-stations and it can only be determined on the basis of the existing norms for other HVDC bipoles. Talcher-Kolar HVDC system of 2000 MW was put under commercial operation in 2002-03 and Rihand-Dadri HVDC system of 1500 MW was put under commercial operation in 1991-92. Talcher-Kolar HVDC system of 2000 MW is closer to Balia-Bhiwadi HVDC system of 2500 MW and accordingly the O&M expenses are determined on the basis of Talcher-Kolar HVDC system. In view of above, the O&M of HVDC transmission line of the Balia-Bhiwadi Bipole system is calculated on the basis of norms for double ckt. bundled conductor (with four or more sub-conductors) transmission line as per 2009 regulations. The O&M for the one pole of 1250 MW of this HVDC system is calculated on the basis of pro-rata rate of norms for 2000 MW Talcher –Kolar HVDC system, prescribed in 2009 regulations. The allowable O&M for the assets covered in the petition are as follows:-

| Element  | 2009-10 | 2010-11                             | 2011-12        | 2012-13        | 2013-14        |
|--|---------|-------------------------------------|----------------|----------------|----------------|
| <b>Norms as per 2009 regulations</b>   |         |                                     |                |                |                |
| Norms for double ckt. (Bundled conductor with four or more sub-conductor) Transmission Line (= L)<br>(₹ in lakh/km.) | 0.940   | 0.994                               | 1.051          | 1.111          | 1.174          |
| Norms for Talcher- Kolar HVDC Pole Scheme (= C)<br>(₹ in lakh/km.)   | 1699    | 1796                                | 1899           | 2008           | 2122           |
| <b>Allowable O&amp;M expenses</b>  |         |                                     |                |                |                |
| Element  | 2009-10 | 2010-11<br>( Pro-rata for 7 months) | 2011-12        | 2012-13        | 2013-14        |
| HVDC Transmission line Line Length -789.786 km.<br>( O&M = L*789.786)<br>(₹ in lakh)                                 | ---     | 457.94                              | 830.07         | 877.45         | 927.21         |
| One Pole of 1250 MW of Bipole HVDC Stations<br>( O&M=1250*C/2000)<br>(₹ in lakh)                                     | ---     | 654.79                              | 1186.88        | 1255.00        | 1326.25        |
| Total O&M Expenses<br>(₹ in lakh)  | ---     | <b>1112.74</b>                      | <b>2016.94</b> | <b>2132.45</b> | <b>2253.46</b> |

45. The Petitioner has stated that O&M expenditure for 2009-14 tariff block had been arrived on the basis of normalized actual O&M expenses of the petitioner during the year 2003-04 to 2007-08. The wage hike of 50% on account of pay revision of the employees of public sector undertaking was also considered while calculating the O&M charges for tariff period 2009-14. The petitioner has submitted that it would approach Commission for suitable revision in the norms for O&M expenditure in case the impact of wage hike w.e.f 1.1.2007 is more than 50%. The petitioner further submitted that in O&M norms for tariff block 2009-14 the cost associated with license fees had not been captured and the license fee may be allowed to be recovered separately from the respondents.

46. UPPCL, in its reply dated 28.3.2011, submitted that once the regulations have been framed after detailed discussion and consultation the sanctity of the same should

be maintained and therefore, the petitioner's request for higher O&M expenses due to revision of pay is not tenable. The petitioner in its rejoinder, dated 6.6.2011 has reiterated its claim.

47. It is clarified that, if any, such application regarding O&M expenditure is filed in future, it will be dealt with in accordance with law.

### **INTEREST ON WORKING CAPITAL**

48. As per the 2009 regulations the components of the working capital and the interest thereon are discussed are given as under:-

**(i) Receivables:** As per Regulation 18(1) (c) (i) of the 2009 regulations, receivables will be equivalent to two months of fixed cost. 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 18(1)(c)(ii) of the 2009 regulations provides for maintenance spares @ 15% per annum of the O & M expenses from 1.4.2009. The value of maintenance spares has accordingly been worked out.

**(iii) O & M expenses:** Regulation 18(1) (c) (iii) of the 2009 regulations provides for operation and maintenance expenses for one month as a component of

working capital. The petitioner has claimed O&M expenses for 1 month of the respective year. This has been considered in the working capital.

**(iv) Rate of interest on working capital:** In these calculations, interest rate of 11.00% (SBI Base Rate 7.50% as on 1.7.2010 plus 350 bps) has been considered in accordance with the 2009 regulations, as amended vide the second amendment regulations notified in June 2011, for calculating interest on working capital.

49. Necessary computations in support of interest on working capital are appended hereunder:-

|                    | (₹ in lakh)    |                |                |                |
|--------------------|----------------|----------------|----------------|----------------|
|                    | 2010-11        | 2011-12        | 2012-13        | 2013-14        |
| Maintenance Spares | 286.13         | 302.54         | 319.87         | 338.02         |
| O & M expenses     | 158.96         | 168.08         | 177.70         | 187.79         |
| Receivables        | 4393.16        | 4472.58        | 4447.18        | 4423.95        |
| <b>Total</b>       | <b>4838.25</b> | <b>4943.20</b> | <b>4944.75</b> | <b>4949.76</b> |
| Rate of Interest   | 11.00%         | 11.00%         | 11.00%         | 11.00%         |
| Interest           | 310.45         | 543.75         | 543.92         | 544.47         |

### **TRANSMISSION CHARGES**

50. The transmission charges being allowed for the transmission lines are summarized below:-

|                             | (₹ in lakh)     |                 |                 |                 |
|-----------------------------|-----------------|-----------------|-----------------|-----------------|
|                             | 2010-11         | 2011-12         | 2012-13         | 2013-14         |
| Depreciation                | 6038.97         | 10591.00        | 10591.00        | 10591.00        |
| Interest on Loan            | 1793.87         | 2930.14         | 2662.08         | 2401.13         |
| Return on equity            | 6120.01         | 10753.65        | 10753.65        | 10753.65        |
| Interest on Working Capital | 310.45          | 543.75          | 543.92          | 544.47          |
| O & M Expenses              | 1112.74         | 2016.94         | 2132.45         | 2253.46         |
| <b>Total</b>                | <b>15376.05</b> | <b>26835.48</b> | <b>26683.10</b> | <b>26543.71</b> |

### **FILING FEE AND THE PUBLICATION EXPENSES**

51. The respondent, UPPCL has submitted that the petitioner's request for filing fee must be governed by the Commission's order. As regards the tariff period 2009-14, the Commission has allowed reimbursement of filing fee in its order dated 11.1.2010 in Petition No. 109/2009. Accordingly, the petitioner shall be entitled to recover the filing fee and publication expenses from the beneficiaries on pro-rata basis.

### **LICENCE FEE**

52. The respondent, UPPCL has submitted that licence fee is the onus of the petitioner and hence the petitioner's prayer is not justified and it is not tenable. Similarly, HPCC has submitted that the licence fee is the onus of the petitioner and it should not be passed over to the beneficiaries. It is clarified that reimbursement of licence fee the same shall be dealt with in accordance with our order dated 25.10.2011 in Petition No.21/2011 and 22/2011.

### **SERVICE TAX**

53. The petitioner has made a prayer to bill and recover the service tax on transmission charges separately from the respondents, if it is subjected to such service tax in future. UPPCL has submitted that issue of service tax is pending before the Hon'ble Supreme Court and hence petitioner's prayer is pre-mature. We consider the petitioner's prayer pre-mature and accordingly it is rejected.

54. The transmission charges allowed shall be recovered on monthly basis in accordance with Regulation 23 and shared by the beneficiaries in accordance with

Regulation 33 of the 2009 regulations upto 30.6.2011. With effect from 1.7.2011, the billing collection and disbursement of the transmission charges shall be governed by the provisions of Central Electricity Regulatory Commission (Sharing of Inter-State Transmission Charges and Losses) Regulations, 2010.

55. This order disposes of Petition No.315/2010.

Sd/-  
(M. DEENA DAYALAN)  
Member

Sd/-  
(V.S. VERMA)  
Member

Sd/-  
(S. JAYARAMAN)  
Member

Sd/-  
(Dr. PRAMOD DEO)  
Chairperson

## ANNEXURE

| CALCULATION OF WEIGHTED AVERAGE RATE OF INTEREST ON LOAN |  |                                       |               |               |               |
|--|--|---------------------------------------|---------------|---------------|---------------|
| (₹ in lakh)  |  |                                       |               |               |               |
|  | Details of Loan                              | 2010-11                               | 2011-12       | 2012-13       | 2013-14       |
| <b>1</b>   | <b>Bond-XXII</b>                             |                                       |               |               |               |
|  | Gross loan opening                           | <b>900.00</b>                         | <b>900.00</b> | <b>900.00</b> | <b>900.00</b> |
|  | Cumulative Repayment upto DOCO/previous year | <b>0.00</b>                           | <b>75.00</b>  | <b>150.00</b> | <b>225.00</b> |
|  | Net Loan-Opening                             | 900.00                                | 825.00        | 750.00        | 675.00        |
|  | Additions during the year                    | 0.00                                  | 0.00          | 0.00          | 0.00          |
|  | Repayment during the year                    | 75.00                                 | 75.00         | 75.00         | 75.00         |
|  | Net Loan-Closing                             | 825.00                                | 750.00        | 675.00        | 600.00        |
|  | Average Loan                                 | 862.50                                | 787.50        | 712.50        | 637.50        |
|  | Rate of Interest                             | 8.68%                                 | 8.68%         | 8.68%         | 8.68%         |
|  | Interest                                     | <b>74.87</b>                          | <b>68.36</b>  | <b>61.85</b>  | <b>55.34</b>  |
|  | Rep Schedule                                 | 12 Annual instalments from 07.12.2010 |               |               |               |
|  |  |                                       |               |               |               |
| <b>2</b>   | <b>Bond-XX</b>                               |                                       |               |               |               |
|  | Gross loan opening                           | <b>82.00</b>                          | <b>82.00</b>  | <b>82.00</b>  | <b>82.00</b>  |
|  | Cumulative Repayment upto DOCO/previous year | <b>0.00</b>                           | <b>6.83</b>   | <b>13.67</b>  | <b>20.50</b>  |
|  | Net Loan-Opening                             | 82.00                                 | 75.17         | 68.33         | 61.50         |
|  | Additions during the year                    | 0.00                                  | 0.00          | 0.00          | 0.00          |
|  | Repayment during the year                    | 6.83                                  | 6.83          | 6.83          | 6.83          |
|  | Net Loan-Closing                             | 75.17                                 | 68.33         | 61.50         | 54.67         |
|  | Average Loan                                 | 78.58                                 | 71.75         | 64.92         | 58.08         |
|  | Rate of Interest                             | 8.93%                                 | 8.93%         | 8.93%         | 8.93%         |
|  | Interest                                     | 7.02                                  | 6.41          | 5.80          | 5.19          |
|  | Rep Schedule                                 | 12 Annual instalments from 07.09.2010 |               |               |               |
|  |  |                                       |               |               |               |
|  |  |                                       |               |               |               |
| <b>3</b>   | <b>Bond- XXI</b>                             |                                       |               |               |               |
|  | Gross loan opening                           | <b>405.00</b>                         | <b>405.00</b> | <b>405.00</b> | <b>405.00</b> |
|  | Cumulative Repayment upto DOCO/previous year | <b>0.00</b>                           | <b>33.75</b>  | <b>67.50</b>  | <b>101.25</b> |
|  | Net Loan-Opening                             | 405.00                                | 371.25        | 337.50        | 303.75        |
|  | Additions during the year                    | 0.00                                  | 0.00          | 0.00          | 0.00          |
|  | Repayment during the year                    | 33.75                                 | 33.75         | 33.75         | 33.75         |
|  | Net Loan-Closing                             | 371.25                                | 337.50        | 303.75        | 270.00        |
|  | Average Loan                                 | 388.13                                | 354.38        | 320.63        | 286.88        |
|  | Rate of Interest                             | 8.73%                                 | 8.73%         | 8.73%         | 8.73%         |
|  | Interest                                     | 33.88                                 | 30.94         | 27.99         | 25.04         |
|  | Rep Schedule                                 | 12 Annual instalments from 11.10.2010 |               |               |               |
|  |  |                                       |               |               |               |

|          |  |   |                 |                 |                 |
|----------|--|---|-----------------|-----------------|-----------------|
| <b>4</b> | <b>Bond- XIX</b>                             |   |                 |                 |                 |
|          | Gross loan opening                           | <b>893.00</b>                               | <b>893.00</b>   | <b>893.00</b>   | <b>893.00</b>   |
|          | Cumulative Repayment upto DOCO/previous year | <b>74.42</b>                                | <b>74.42</b>    | <b>148.83</b>   | <b>223.25</b>   |
|          | Net Loan-Opening                             | 818.58                                      | 818.58          | 744.17          | 669.75          |
|          | Additions during the year                    | 0.00  | 0.00            | 0.00            | 0.00            |
|          | Repayment during the year                    | 0.00  | 74.42           | 74.42           | 74.42           |
|          | Net Loan-Closing                             | 818.58                                      | 744.17          | 669.75          | 595.33          |
|          | Average Loan                                 | 818.58                                      | 781.38          | 706.96          | 632.54          |
|          | Rate of Interest                             | 9.25%                                       | 9.25%           | 9.25%           | 9.25%           |
|          | Interest                                     | 75.72                                       | 72.28           | 65.39           | 58.51           |
|          | Rep Schedule                                 | 12 Annual Instalments from 24.07.2010       |                 |                 |                 |
|          |  |   |                 |                 |                 |
| <b>5</b> | <b>Bond- XXIV</b>                            |   |                 |                 |                 |
|          | Gross loan opening                           | <b>5037.00</b>                              | <b>5037.00</b>  | <b>5037.00</b>  | <b>5037.00</b>  |
|          | Cumulative Repayment upto DOCO/previous year | <b>0.00</b>                                 | <b>419.75</b>   | <b>839.50</b>   | <b>1259.25</b>  |
|          | Net Loan-Opening                             | 5037.00                                     | 4617.25         | 4197.50         | 3777.75         |
|          | Additions during the year                    | 0.00  | 0.00            | 0.00            | 0.00            |
|          | Repayment during the year                    | 419.75                                      | 419.75          | 419.75          | 419.75          |
|          | Net Loan-Closing                             | 4617.25                                     | 4197.50         | 3777.75         | 3358.00         |
|          | Average Loan                                 | 4827.13                                     | 4407.38         | 3987.63         | 3567.88         |
|          | Rate of Interest                             | 9.95%                                       | 9.95%           | 9.95%           | 9.95%           |
|          | Interest                                     | 480.30                                      | 438.53          | 396.77          | 355.00          |
|          | Rep Schedule                                 | 12 annual inatalments from 26.03.2011       |                 |                 |                 |
|          |  |   |                 |                 |                 |
| <b>6</b> | <b>IBRD III</b>                              |   |                 |                 |                 |
|          | Gross loan opening                           | <b>46367.86</b>                             | <b>46367.86</b> | <b>46367.86</b> | <b>46367.86</b> |
|          | Cumulative Repayment upto DOCO/previous year | <b>0.00</b>                                 | <b>0.00</b>     | <b>2256.38</b>  | <b>4611.28</b>  |
|          | Net Loan-Opening                             | 46367.86                                    | 46367.86        | 44111.48        | 41756.57        |
|          | Additions during the year                    | 0.00  | 0.00            | 0.00            | 0.00            |
|          | Repayment during the year                    | 0.00  | 2256.38         | 2354.91         | 2456.92         |
|          | Net Loan-Closing                             | 46367.86                                    | 44111.48        | 41756.57        | 39299.66        |
|          | Average Loan                                 | 46367.86                                    | 45239.67        | 42934.03        | 40528.11        |
|          | Rate of Interest                             | 1.82%                                       | 1.82%           | 1.82%           | 1.82%           |
|          | Interest                                     | 843.89                                      | 823.36          | 781.40          | 737.61          |
|          | Rep Schedule                                 | 30 Half yearly Installments from 15.09.2011 |                 |                 |                 |
|          |  |   |                 |                 |                 |
| <b>7</b> | <b>IBRD IV</b>                               |   |                 |                 |                 |
|          | Gross loan opening                           | <b>82853.01</b>                             | <b>82853.01</b> | <b>82853.01</b> | <b>82853.01</b> |
|          | Cumulative Repayment upto DOCO/previous year | <b>0.00</b>                                 | <b>0.00</b>     | <b>0.00</b>     | <b>0.00</b>     |
|          | Net Loan-Opening                             | 82853.01                                    | 82853.01        | 82853.01        | 82853.01        |
|          | Additions during the year                    | 0.00  | 0.00            | 0.00            | 0.00            |
|          | Repayment during the year                    | 0.00  | 0.00            | 0.00            | 1833.81         |
|          | Net Loan-Closing                             | 82853.01                                    | 82853.01        | 82853.01        | 81019.20        |
|          | Average Loan                                 | 82853.01                                    | 82853.01        | 82853.01        | 81936.10        |
|          | Rate of Interest                             | 1.86%                                       | 1.86%           | 1.86%           | 1.86%           |



|  |   |                  |                  |                  |
|--|---|------------------|------------------|------------------|
| Interest                                     | 1541.07                                     | 1541.07          | 1541.07          | 1524.01          |
| Rep Schedule                                 | 30 Half yearly Installments from 15.11.2013 |                  |                  |                  |
|  |   |                  |                  |                  |
|  |   |                  |                  |                  |
| <b>Total Loan</b>                            |   |                  |                  |                  |
| Gross loan opening                           | <b>136537.87</b>                            | <b>136537.87</b> | <b>136537.87</b> | <b>136537.87</b> |
| Cumulative Repayment upto DOCO/previous year | 74.42                                       | 609.75           | 3475.88          | 6440.53          |
| Net Loan-Opening                             | 136463.45                                   | 135928.12        | 133061.99        | 130097.33        |
| Additions during the year                    | 0.00  | 0.00             | 0.00             | 0.00             |
| Repayment during the year                    | 535.33                                      | 2866.13          | 2964.66          | 4900.48          |
| Net Loan-Closing                             | 135928.12                                   | 133061.99        | 130097.33        | 125196.85        |
| Average Loan                                 | 136195.78                                   | 134495.05        | 131579.66        | 127647.09        |
| <b>Rate of Interest</b>                      | <b>2.2444%</b>                              | <b>2.2164%</b>   | <b>2.1890%</b>   | <b>2.1628%</b>   |
| Interest                                     | 3056.74                                     | 2980.94          | 2880.26          | 2760.70          |
|  |   |                  |                  |                  |