CENTRAL ELECTRICITY REGULATORY COMMISSION

NEW DELHI

Petition No. 41/TT/2013

Coram:

Shri Gireesh B. Pradhan, Chairperson
Shri A.K. Singhal, Member
Shri A.S. Bakshi, Member

Date of Hearing : 26.08.2014
Date of Order : 09.11.2015

In the matter of:

Approval of transmission tariff for **Asset-I:** 765 kV, 240 MVAR Switchable Line Reactor under Bus Reactor at Balia S/S (COD: 1.10.2012); **Asset- II:** 765 kV Line bays at Sasaram S/S (for 765 kV Sasaram-Fatehpur TL under SASAN Project) (anticipated COD: 1.4.2013) under Common Scheme for 765 kV Pooling Stations and Network for NR, Import by NR from ER and from NER/SR/WR via ER and Common schemes for network for WR and Import by WR from ER and from NER/SR/WR via ER in Eastern Region for tariff block 2009-14,under Regulation-86 of Central Electricity Regulatory Commission (Conduct of Business) Regulations, 1999 and Central Electricity Regulatory Commission (Terms and Condition) Regulations, 2009.

And in the matter of:

Power Grid Corporation of India Limited,
"Saudamani", Plot No.2,
Sector-29, Gurgaon -122 001

…….Petitioner

Vs

1. Rajasthan Rajya Vidyut Prasaran Nigam Ltd.,
   Vidyut Bhawan, Vidyut Marg,
   Jaipur- 302 005.

2. Ajmer Vidyut Vitran Nigam Ltd.,
   400 kV GSS Building (Ground Floor), Ajmer Road,
   Heerapura, Jaipur.

3. Jaipur Vidyut Vitran Nigam Ltd.,
   400 kV GSS Building (Ground Floor), Ajmer Road,

Heerapura, Jaipur.

4. Jodhpur Vidyut Vitran Nigam Ltd.,
   400 kV GSS Building (Ground Floor), Ajmer Road,
   Heerapura, Jaipur.

5. Himachal Pradesh State Electricity Board,
   Vidyut Bhawan, Kumar House Complex Building II,
   Shimla-171 004.

6. Punjab State Electricity Board,
   The Mall, Patiala-147 001.

7. Haryana Power Purchase Centre,
   Shakti Bhawan, Sector-6
   Panchkula (Haryana)-134 109

8. Power Development Department,
   Govt. of Jammu and Kashmir
   Mini Secretariat, Jammu.

9. Uttar Pradesh Power Corporation Ltd.,
   Shakti Bhawan, 14, Ashok Marg,
   Lucknow-226 001.

10. Delhi Transco Ltd.,
    Shakti Sadan, Kotla Road,
    New Delhi-110 002.

11. BSES Yamuna Power Ltd.,
    Shakti Kiran Building, Karkardooma,
    Delhi-110 092.

12. BSES Rajdhani Power Ltd.,
    BSES Bhawan, Nehru Place,
    New Delhi.

13. North Delhi Power Ltd.,
    Power Trading & Load Dispatch Group,
    Cennet Building, Adjacent to 66/11kV Pitampura-3,
    Grid Building, Near PP Jewellers,
    Pitampura, New Delhi-110 034.

14. Chandigarh Administration,
    Sector-9, Chandigarh.

15. Uttarakhand Power Corporation Ltd.,
Urja Bhawan, Kanwali Road,
Dehradun.

16. North Central Railway,
Allahabad.

17. New Delhi Municipal Council,
Palika Kendra, Sansad Marg,
New Delhi-110 002. **….Respondents**

For Petitioner : Smt. Seema Gupta, PGCIL
Shri Swapnil Verma, PGCIL
Shri S.S.Raju, PGCIL
Shri M.M. Mondal, PGCIL
Shri S.K. Venkatesan, PGCIL

For Respondents : Shri Padamjit Singh, PSPCL
Shri T PS Bawa, PSPCL
Shri R.B. Sharma, BRPL

ORDER

The instant petition has been filed by Power Grid Corporation of India Ltd. (PGCIL)for approval of the transmission tariff for **Asset-I:** 765 kV, 240 MVAR Switchable Line Reactor under Bus Reactor at Balia Sub-station (COD: 1.10.2012); **Asset- II:** 765 kV Line bays at Sasaram Sub-station (for 765 kV Sasaram-Fatehpur TL under Sasan Project) (anticipated COD: 1.4.2013) under Common Scheme for 765 kV Pooling Stations and Network for NR, Import by NR from ER and from NER/SR/WR via ER and Common schemes for network for WR and Import by WR from ER and from NER/SR/WR via ER in Eastern Region the tariff block 2009-14, in terms of the Central Electricity Regulatory Commission (Terms and Conditions of Tariff) Regulations, 2009 (hereinafter "the 2009 Tariff Regulations").

2. The investment approval for the transmission project was accorded by the Board of Directors of the petitioner company, vide C/CP/DVC and Maithon RB project, dated 29.8.2008, at an estimated cost of ₹707533 lakh, including IDC of ₹71360 lakh (based on 1st Quarter, 2008 price level). As per the investment approval dated 29.8.2008, the transmission asset was scheduled to be commissioned within 48 months from the date of investment approval, i.e. by 1.9.2012. Against this the assets covered under the instant petition have been commissioned on 1.10.2012 and 1.3.2013 respectively. The scope of work covered under the scheme is as follows:-

Transmission Lines

I. Maithon-Gaya 400kV Quad D/C line

II. Gaya-Sasaram 765 kV S/C line

III. Gaya-Balia 765 kV S/C line

IV. Balia-Lucknow 765 kV S/C line

V. Ranchi-WR Pooling Station 765 kV S/C line

VI. Lucknow 765/400 kV new sub-station-Lucknow 400/220 kV existing Sub-station 400 kV quad D/c line

VII. Ranchi 765/400 kV new sub-station-Ranchi 400/220 kV existing sub-station 400 kV Quad 2xD/C line

VIII. LILO of both circuits of Allahabad-Mainpuri 400 kV D/C line at Fatehpur 765/400 kV sub-station of PGCIL

IX. LILO of Barh-Balia 400 kV Quad D/C line at Patna.

Sub-stations

I. Augmentation of Maithon 400/220 kV sub-station

a) 2 nos. of 400 kV line bays (for terminating Maithon-Gaya D/C line)

b) 2 nos. of 400 kV line bays (for terminating Mejia-Maithon D/C line)

II. New 765/400 kV sub-station at Gaya

a) 3x1500 MVA, 765/400 kV Transformer along with associated bays

b) 2 nos. of 765 kV line bays (for Gaya-Sasaram& Gaya-Balia 765 kV lines)

c) 4 nos. of 400 kV line bays (for Maithon-Gaya line & Kodarma-Gaya line)

III. New 765/400 kV sub-station at Sasaram

a) 2x1500 MVA, 765/400 kV Transformer along with associated bays

b) 2 nos. of 765 kV line bays (for Gaya-Sasaram 765 kV S/C and Sasaram-Fatehpur 765 kV S/c)

c) 2 nos. of 400 kV bays (for Biharshariff-Sasaram 400 kV quad D/c line)

IV. Augmentation of Biharshariff 400/220 kV sub-station

a) 2 nos. of 400 kV bays (for Biharshariff-Sasaram 400 kV Quad D/C line)

V. New 765/400 kV sub-station at Fatehpur

a) 2x1500 MVA, 765/400 kV Transformer along with associated bays

b) 2 nos. of 765 kV line bays (for Sasram-Fatehpur&Fatehpur-Agra 765 kV lines)

c) 4 nos. of 400 kV line bays (for LILO of Allahabad-Mainpuri 400 kV D/c line)

VI. Augmentation of 400 kV Agra sub-station to 765 kV

a) 2x1500 MVA, 765/400 kV Transformer along with associated bays

b) 1 nos. of 765 kV line bay (for Fatehpur-Agra 765 kV line)

VII. Augmentation of 400 kV Balia sub-station to 765 kV

a) 2x1500 MVA, 765/400 kV transformer along with associated bays

b) 2 nos. of 765 kV line bay (for Gaya-Balia&Balia-Lucknow 765 kV line)

VIII. New 765/400 kV sub-station at Lucknow

a) 2x1500 MVA, 765/400 kV transformer along with associated bays

b) 1 nos of 765 kV line bays (for Balia-Lucknow 765 kV line)

c) 2 nos. of 400 kV bays (for Lucknow 765/400 kV new sub-station Lucknow 400/220 kV existing sub-station 400 kV quad D/c line)

IX. Augmentation of existing Lucknow 400/220kV sub-station

a) 2 nos. of 400 kV bays (for Lucknow 765/400 kV new sub-station-Lucknow 400/220 kV existing sub-station 400 kV quad D/c line)

X. New 2x1500 MVA, 765/400 kV sub-station at Ranchi

a) 1 no. of 765 kV line bay (for Ranchi-WR Pooling 765 kV S/C line)

b) 4 nos. of 400 kV bays (for Ranchi 400 kV new sub-station-Ranchi 400/220 kV existing sub-station 400 kV quad 2xD/c line)

XI. Augmentation of Ranchi 400/220 kV sub-station

a) 6 nos. of 400 kV bays (4 nos. for Ranchi 765/400 kV new sub-station-Ranchi 400/220 kV existing sub-station 400 kV quad 2xD/c line and 2 nos. for Raghunathpur TPS-Ranchi line)

XII. 765/400 kV WR Pooling sub-station

a) 1 no. of 765 kV line bay (or Ranchi-WR Pooling 765kV S/C line)

XIII. Augmentation of Patna 400/220 kV sub-station

a) 4 nos. of 400 kV line bay (for LILO of Barh-Balia 400 kV Quad line).

3. The instant petition covers two assets i.e. Asset-I: 765 kV, 240 MVAR Switchable Line Reactor under Bus reactor at Balia Sub-station and Asset-II: 765 kV line bays at Sasaram Sub-station (for 765 kV Sasaram-Fatehpur transmission line under SASAN Project) alongwith line reactor.

4. The petitioner has submitted that the above assets were planned to evacuate power from various generation projects of DVC. DVC has indicated that Mejia-B (1000 MW), Koderma (1000 MW), Durgapur (1000 MW) and Maithon-RB (1000 MW) generation projects (Total=4000 MW) are scheduled to be commissioned progressively. At the time of planning of the transmission system, the schedule of commissioning of these various generation projects of DVC was indicated progressively from December, 2009 to December, 2010. The proposed beneficiaries of these projects and the power supply scenario of Eastern Region, Northern Region

and Western Region suggests that power from these projects are to be transferred to power deficit regions like Northern Region and Western Region.

5. The petitioner has submitted that the comprehensive transmission system was evolved and discussed in various Standing Committee/Regional Power Committee meetings of NR, WR and ER. The summary record of discussions held during 22nd meeting of the Standing Committee on Power System Planning of Northern Region on 12th March 2007, wherein the transmission system from the new generation capacity planned by DVC for supply of power to NR constituents was discussed in detail. The petitioner has further submitted that the Northern Region has been facing a shortage of power upto about 2000-3000 MW during peak hours in the year 2012. The transmission elements covered under this petition shall be useful in supplying power to constituents of Northern Region to mitigate the deficit and these assets shall benefit the Northern Region constituents.

6. The petitioner has claimed the following transmission charges for the instant asset:-

(₹ in lakh)

Particulars	Asset-I		Asset-II
	2012-13	2013-14	2013-14
Depreciation	99.25	230.93	290.26
Interest on Loan	114.36	252.54	209.12
Return on equity	98.81	230.20	288.30
Interest on Working Capital	11.98	26.55	28.26
O & M Expenses	86.68	183.28	183.28
Total	411.08	923.50	999.22

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

(₹ in lakh)

Particulars	Asset-I		Asset-II
	2012-13	2013-14	2013-14
Maintenance Spares	26.00	27.49	27.49
O & M expenses	14.45	15.27	15.27
Receivables	137.03	153.92	166.54
Total	**177.48**	**196.68**	**209.30**
Interest	11.98	26.55	23.55
Rate of Interest	13.50%	13.50%	13.50%

8. 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. Replies have been filed by Punjab State Power Corporation Limited (PSPCL), Respondent No. 6, vide affidavit dated 30.8.2014 and BSES Rajdhani Power Limited (BRPL), Respondent No. 12, vide affidavit dated 22.8.2014. The petitioner has filed the rejoinder to the reply of BRPL vide affidavit dated 2.6.2015. The respondents have raised the issues regarding time over-run, cost over-run, approval of scheme, petition filing fee and service tax. The objections raised by the respondents in their reply and the clarifications given by the petitioner are addressed in the relevant paragraphs of this order.

9. Having heard the representatives of the petitioner present at the hearing and perused the material on record, we proceed to dispose of the petition.

10. PSPCL has made the following submissions:-

a) 765 kV S/C Gaya-Balia line which is a part of the project is not operational as per the ERLDC website. As per the CEA documents, regarding the status of construction of new lines, a 765 kV S/C line is

being constructed from Gaya to Varanasi and from Varanasi to Balia with anticipated commissioning in June 2015;

b) The instant petition relates to the 765 kV bay at Balia for the incoming line from Gaya. Since the Gaya-Balia line is not operational, the petition is for utilizing the 765 kV Gaya bay at Balia, with the switchable line reactor, to be used as bus reactor. The proposal to use the line reactor as bus reactor is not justified;

c) The details of Balia Sub-station have been given wherein Balia is to have 2x1500 MVA ICTs of 765 kV/400 kV and one incoming bay for Gaya line and one outgoing bay for Lucknow line. Since the incoming line from Gaya is not in operation, practically, the 765 kV Balia Sub-station will have the power supply from 400 kV Balia stepped up to 765 kV through 2X1500 MVA ICT's and this 765 kV supply would be transmitted on single circuit line to 765 kV Lucknow;

d) As per Form 2 of the petition, the transmission assets of this scheme will have one circuit breaker for the switchable line reactor. Thus, 2 nos. 765 kV breakers is not justified as it would increase the transmission tariff on account of capital cost and also on account of O&M charges. For connecting the line reactors, one breaker is adequate;

e) The original scheme therefore had reactive compensation of 1200 MVAR with 2 no. lines in service i.e. Balia-Lucknow and Balia-Gaya. The proposal in the petition is to have 1200 MVAR with only Balia-Lucknow

line. This is a case of over compensation which is not justified particularly when the Gaya-Balia line has not been commissioned. The petitioner should give justification for proposing 1200 MVAR reactive compensation for just one Balia- Lucknow line. The petitioner should also provide the sketch/drawing of the relevant transmission system.

f) When the State constituents gave their consent/approval for the 765 kV system, it was never envisaged or approved that the total scheme would be modified with the incoming lines at Gaya missing and with the 765 kV Gaya-Balia line missing and it was not approved in this incomplete system, the use of 765 kV line reactor as bus reactor is justified in any way; and

g) The tariff of the Asset-II should be charged only from the date of COD of the connected transmission line.

12. The petitioner was directed, vide "Record of Proceedings" dated 26.8.2014, to submit the justification for proposing 1200 MVAR reactive compensation for just one Balia-Lucknow line and also the sketch/drawing of the transmission system.

13. In response, the petitioner vide affidavit dated 8.10.2014 has submitted that the 1200 MVAR (5X240 MVAR) compensation for Balia-Lucknow 765 kV transmission line, the reactive compensation (both Bus and line compensation) is required and planned for long lines (above 200 km) after carrying out detailed system studies and probable load flow analysis. The said line is not part of the instant petition. The said 765 kV Balia-Lucknow line is 316 km in length and as such

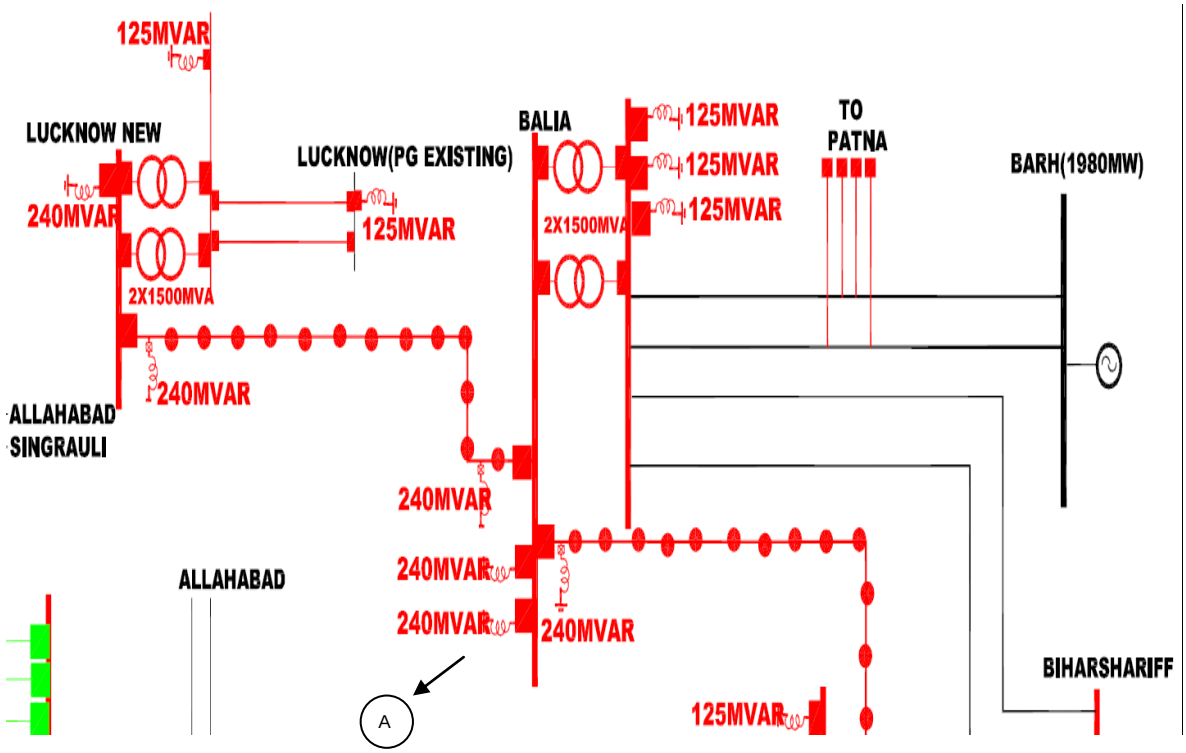
1x240 MVAR line reactor is proposed at both Balia and Lucknow ends. Further, the bus compensation is also required for maintaining the voltage profile of the transmission system. The other reactors are bus reactor required for voltage control at respective sub-stations. In addition, numbers of other long distance lines are terminating at both Balia and Lucknow Sub-stations under this DVC scheme, which are also considered for reactive compensation planning.

14. The petitioner was directed vide letter dated 15.1.2015 to submit the justification for amount of reactive compensation with respect to Asset-1 and investment approval/ RPC/ SCM for the use of line reactor associated with Gaya-Balia line as Bus Reactor and justification for claiming this line reactor as bus reactor. In response, petitioner vide affidavit dated 7.4.2015 has submitted that this compensation (Asset-1) was proposed for 765 kV Balia-Lucknow transmission line (not part of this petition), after carrying out detailed system planning and power flow studies, the reactive compensation is considered on transmission line based on their length and voltage level. In the instant case 765 kV Balia-Lucknow transmission line is 316 km and as such 240 MVAR line reactor was proposed and installed at both Gaya and Balia ends. In principle approval for the use of 240 MVAR line reactor associated with Gaya-Balia line as Bus Reactor was accorded by CEA vide their letter dated 28.9.2012. It was observed that several 400 kV lines were kept open due to over voltage condition. The 240 MVAR line reactor at Balia to be utilised for 765 kV Gaya-Balia line was available since the line was not upgraded to 765 kV charging. Therefore, 240 MVAR line rector along with 765 kV bay at Balia Sub-

station was utilised as Bus Reactor to control the over voltage being experienced by emanating 400 kV lines at Balia Sub-station.

15. The petitioner was again directed vide letter dated 8.5.2015 to submit the approval of RPC/SCM of Asset-I i.e 240 MVAR switchable line reactor as bus reactor and its usage and comments on the issues raised by PSPCL during hearing on 26.8.2014, especially regarding proposing 1200 MVAR reactive compensation for just one Balia- Lucknow line. In response, the petitioner vide affidavit dated 2.6.2015 has submitted that the instant petition is a 240 MVAR Bus Reactor and not the switchable line reactor. As per DPR and investment approval, this is the bus reactor which has been put under commercial operation w.e.f. 1.10.2012 as a bus reactor. Hence, the requirement of RPC/SCM approval for the commissioning of the switchable line reactor as a bus reactor is not required. The petitioner has further submitted that in the petition inadvertently this reactor was mentioned as switchable line reactor along with the 1 no. 765 kV line bay.

16. As regards the PSPCL's query, the petitioner submitted that switchable line reactor is used as bus reactor at Balia Sub-station. However the instant petition covers only the Bus Reactor at Balia Sub-station (marked as "A" in below mentioned diagram).



The reactive compensation (both Bus and Line compensation) is required and planned for long lines (above 200 km) after carrying out detailed system studies and probable load flow analysis. The said transmission line of 765kV Balia-Lucknow is 316 km long and as such 1X240 MVAR line compensation is required for this transmission line at both ends (i.e. Balia and Lucknow end). Further, the bus compensation is also required for maintaining the voltage profile of the transmission system. In the case of 400 kV lines terminating and emanating from the Balia and Lucknow end, the bus compensation was required. (i.e. 1X240 MVAR at Lucknow due to {400 kV Lucknow (new) to Lucknow (new) TL} and 2X240 MVAR was required at Balia end due to various 400kV transmission lines like Balia-Mau, Balia-Patna, Balia-Biharshariff etc.)

17. We have considered the submission of petitioner and the respondent. The petitioner has submitted that initially in the petition this reactor has been inadvertently mentioned as switchable line reactor for which one bay of 765 kV has been claimed however, it has been clarified vide affidavit dated 2.6.2015 that this reactor is a bus reactor and is not a switchable line reactor. The petitioner has submitted revised forms for bus reactor accordingly. It is observed that all along since February, 2013, the petitioner has been claiming the reactor as switchable line reactor when it was actually a bus reactor. Such errors on part of the petitioner should be avoided in future.

18. It is observed that the switchable line reactor at Balia associated with Gaya-Balia line covered under Asset-I in the petition was actually claimed as switchable line reactor in Petition No.87/TT/2012 (as Asset D(ii) i.e. 765 kV S/C Gaya-Balia TL along with associated bays at both ends) where tariff was allowed vide order dated 3.2.2015. However, we observe that the line rector is a 765 kV line reactor and the 765 kV Gaya-Balia line was reconfigured as 400 kV Sasaram-Balia and 400 kV Gaya-Biharsariff and charged on 400 kV. The Gaya-Balia line was charged on 765 kV only on 8.1.2015.

19. It is observed that in Petition No.87/TT/2012, this 765 kV line reactor at Balia has been charged at 765 kV as Bus reactor as per COD letter submitted by petitioner in Petition No.41/TT/2013. The date of COD of this reactor is 1.10.2012 as per the COD letter. Its associated Gaya-Balia line was charged at 400 kV (400 kV Balia-Sasaram) which implies line was charged at 400 kV bus bar of Balia Sub-

station. 765 kV line reactor was actually charged as bus reactor at 765 kV bus of Balia. The petitioner has not brought this to our notice in Petition No.87/TT/2012 and no approval was provided by the petitioner in Petition No.87/TT/2012 for charging line reactor as bus reactor. However, the petitioner has furnished approval of CEA vide letter dated 20.9.2012 whereby CEA has recommended that 240 MVAR line reactor for Gaya-Balia 765 kV line be taken as bus reactor as it would help in reducing voltage. On perusal of Petition No. 87/TT/2012, it is found that petitioner has claimed actual COD for this asset i.e. Asset D (ii) in Petition No. 87/TT/2012, which includes 765 kV line reactor with actual COD as 1.3.2012. The COD letter dated 15.10.2012 indicates that 765 kV line reactor at Balia under bus reactor was actually charged on 1.10.2012 but the petitioner has claimed it COD in Petition No. 87/TT/2012 as 1.3.2012. Such a grave misrepresentation of facts by the petitioner is a matter of serious concern. When the COD of an asset has been declared on 1.10.2012, the petitioner cannot claim its tariff form 1.3.2012. Further, the 765 kV Gaya-Balia line was charged on 765 kV only on 8.1.2015, hence till 8.1.2015 this reactor was actually being charged under bus reactor as a temporary arrangement. Keeping in view, CEA's letter dated 28.9.2012, we allow COD of 765 kV, 240 MVAR reactor from 1.10.2012. The petitioner is directed to submit details as per modified COD of 1.10.2012 for 765 kV, 240 MVAR line reactor associated with 765 kV Gaya-Balia line at Balia at time of filing truing up for assets covered in Petition No. 87/TT/2012.

20. On perusal of the petition, it is observed that initially the line bays were anticipated to be commissioned alongwith Sasaram-Fatehpur line and bays at

Sasaram on 1.4.2013. The petitioner vide affidavit dated 10.10.2013 has submitted that the 765 line bays at Sasaram Sub-station were commissioned on 1.3.2013 and has also submitted the COD letters. As per the COD letter dated 20.3.2013, the line reactor has been charged as bus reactor. However, this fact has not been declared by the petitioner in the said affidavit and further the petitioner has not submitted the relevant documentary evidence to show that approval has been obtained to charge the line reactor as a bus reactor. The petitioner declared the COD of Asset-II as 1.3.2013, however, the corresponding transmission line of 765 kV Sasaram-Fatehpur S/C transmission line was commissioned on 1.6.2013, therefore, the COD of 765 kV line bays along-with the switchable line reactor bay i.e. Asset-II has been considered as 1.6.2013. The tariff for Asset-II has been worked out on the basis of management certificates. The petitioner is given liberty to claim IDC and IEDC for three months at the time of truing up. Earlier, the Commission vide orders dated 30.6.2015 and 6.5.2015 in Petition No. 99/TT/2013 and Petition No. 201/TT/2012 has taken a similar view and tariff was awarded. In the instant case, the owners of the line and the associated bays are different. The bays cannot be put into regular service till the line is commissioned. The mismatch between commissioning of line and commissioning of bay should be covered by an Indemnification Agreement between owner of the bay and the line. The CTU should ensure that such an agreement should be entered in all future cases. The Commission had issued similar direction in order dated 5.8.2015 in Petition No. 11/SM/2014.

21. It is observed that the petitioner usually approaches CEA for in-principle approval for its proposals to utilize line reactor as bus reactor to control the over-

voltage experienced at 400 kV or 765 kV systems. However, planning for maintaining proper voltages through review of reactive compensation requirement is a function identified for the RPC in Indian Electricity Grid Code, 2010 under 2.4.2. We are of the view that consent of the constituents of the RPC should be obtained before approving the use of line reactor as a bus reactor. Therefore, the petitioner is directed to obtain the approval of respective RPCs before utilizing line reactor as bus reactor.

Capital cost

22. Regulation 7 of the 2009 Tariff Regulations provides as follows:-

"(1) Capital cost for a project shall include:-

(a) The expenditure incurred or projected to be incurred, including interest during construction and financing charges, any gain or loss on account of foreign exchange risk variation during construction on the loan – (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 fund deployed, - up to the date of commercial operation of the project, as admitted by the Commission, after prudence check.

(b) capitalised initial spares subject to the ceiling rates specified in regulation 8; and

(c) additional capital expenditure determined under regulation 9.

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

(2) The capital cost admitted by the Commission after prudence check shall form the basis for determination of tariff:

Provided that in case of the thermal generating station and the transmission system, prudence check of capital cost may be carried out based on the benchmark norms to be specified by the Commission from time to time:

Provided further that in cases where benchmark norms have not been specified, prudence check may include scrutiny of the reasonableness of the capital expenditure, financing plan, interest during construction, use of efficient technology,

cost over-run and time over-run, and such other matters as may be considered appropriate by the Commission for determination of tariff."

23. Details of capital cost based on Auditor's Certificate and Management Certificate as on actual COD submitted in petition and vide affidavit dated 9.10.2013 and estimated additional capital expenditure projected to be incurred for the assets are summarized below:-

(₹ in lakh)

Name of the asset	**Apportioned approved cost**	**Projected cost incurred as on COD**	**Projected additional capital expenditure**		**Total estimated completion cost**
			From COD to 31.3.2013	**2013-14**	
Asset-I	4289.82	3388.05	760.51	481.98	4630.54
Asset-II	11134.74	4519.6	295.20	1365.16	6179.96

Cost over-run

24. The total estimated completion cost of Asset-I exceeds its apportioned approved cost. The capital cost is restricted to the apportioned approved cost. Accordingly, the additional capital expenditure for the financial year 2013-14 has been reduced to the extent of apportioned approved cost. In case of Asset-II, the total estimated completion cost is within the apportioned approved cost but there is cost variation in certain items.

25. The petitioner was directed vide letter dated 5.9.2013 to furnish the reasons for cost over-run in Asset-I and variation in cost under various heads as per Form-5B of petition. In response, the petitioner vide affidavit dated 2.7.2014 has submitted that the prime reason for cost variation is due to the actual awarded rate. Further,

the assets under the scope of DVC Common scheme consist of number of elements and only a small part of expenditure of the total approved cost of the project has till date been made in the Asset-I of the instant petition. The petitioner has submitted that completed cost of the entire project should be compared with the approved cost of the entire project.

26. As regards cost over-estimation in case of Asset-II, the petitioner has submitted that the cost estimate is broad indicative cost worked out generally on the basis of average unit rates of three recently awarded contracts. For procurement, open competitive bidding route is followed and by providing equal opportunity to all eligible firms, lowest possible market prices for required product/services is obtained and contracts are awarded on the basis of lowest evaluated eligible bidder. The best competitive bid prices against tenders may happen to be lower or higher than the cost estimate depending upon prevailing market conditions. The petitioner has submitted that the said process was adopted in case of Asset-II as well.

27. In case of Asset-I, there is increase in cost of items such as "Control Room and Office Building, Switchgear-CT, PT, Circuit Breakers, Isolators, Bus-bars/ Conductors/ insulators, Outdoor lighting, Power and Control Cable, Misc. Common equipment (DG+FF). The petitioner has submitted that the prime reason for increase in cost of these items is due to award of contract for these items were made on the basis for various items under the sub-station package. Number of bids were received from different vendors through Domestic and Global competitive Bidding. The award was made to the lowest evaluated bidder. The item-wise comparison of different items under the turnkey package with respective cost estimates may not lead us to

appropriate results since the actual prices solely depend on how the bifurcation of the total price has been made by the vendor while quoting for different items under complete turnkey package. The rates of individual item are asked only for the purpose of on account payment and not for any comparison. Further, in case of power and control cable (466.92%), the increase is due to actual site variation wherein the quantity of cable increased owing to this being extension work at the existing Balia Sub-station. Moreover, for increase in item cost control cable, Misc. common equipment (DG+FF), the increase of 466% & 516% respectively is not a huge variation (in context of project cost) when we consider the actual values of these works which is only about few lakh rupees. Moreover, there is overall reduction in cost of asset vis-a-vis FR apportioned cost in the petition as a whole. Regarding details of miscellaneous civil work, elaboration of the expression "Site condition" stated by the petitioner while explaining the reasons, the petitioner has submitted that miscellaneous civil works includes site leveling, soil cutting, making drain/nala etc. as per requirement for preparation of site or execution of works.

28. BRPL has submitted that there is cost over-run in case of Asset-I and the justification given by the petitioner are very casual and hence the cost over-run may not be allowed. BRPL has submitted that though there is no cost over-run in case of Asset-II, there is cost variation in some of the items for which reason submitted by the petition is similar to Asset-I. The petitioner has clarified that the major reason for cost variation in Asset I, is due to the structural configuration of the switchyard (consisting of bay equipment structure, gantry and civil works, erection etc.). The petitioner has submitted that it is due to the technical requirements as elaborated

below:-

a) The bus reactor bay in the instant petition is the first entrant in its Dia. The second feeder in this Dia is the non commissioned end which has been reserved for the further extension work. Therefore, the erection equipment of the main bay along with the tie bay were needed to be used for operationalization of this bus reactor;

b) Further in Asset-I, an additional isolator was an essential technical requirement in the second main bay for its normal operation and subsequent declaration of its commercial operation; and

c) The supply as well as the erection cost of main bay along with the tie bay has been included in the switchyard cost of the bus reactor along with additional isolator and other supporting equipment has been included in the completion cost of the bus reactor for the commercial purpose, which in turn led to an increased cost of this Bus Reactor as compared to the FR apportioned cost.

29. The petitioner has further submitted that at the time of FR, the land and its layout is not identified. It is only during the actual execution of the project that the final layout is clear and the transmission and sub-station elements are fitted in the scheme of layout as per required scenario of the system. In the instant petition also during the FR stage, it could not be envisaged that this bay would be the first entrant in its Dia. Hence, the corresponding Dia elements (tie bay equipment, additional isolator, etc pertaining to the other end of Dia) were also required to commission along-with the bus reactor in absence of non-commissioned incoming feeder of the

same Dia, which resulted in the cost variation. The petitioner has further submitted that in case of power and control cable, bus bars/conductors/insulators and misc. civil works, the increase is due to actual site variation wherein the quantity of cable increased owing to this being extension work at the existing Balia and Sasaram Sub-station respectively. In case of increase in item cost misc. common equipment and outdoor lighting, there is not a huge variation (in context of project cost) when we consider the actual values of these items/works, which is only about few lakh rupees. Moreover, the overall estimated completion cost falls within the FR apportioned cost for the petition as well as for the project as a whole. The variation in the capital cost of subject assets against the FR cost in the circumstances is natural and is not on account of any factor attributable to the petitioner. The increased capital cost of subject assets is due to the equipment requirements which necessitated additional costs.

30. We have considered the submission of petitioner and respondent. In case of Asset-I, there is marginal cost over-run of 7.94%. The increase in cost is due to increase in quantity of cable used owing to extension work at the existing Balia Sub-station. Further, the variation is due to higher awarded rates for which bidding process has been followed for procurement of equipment and contract was awarded on the basis of lowest evaluated eligible bidder. The rates of individual item are only for the purpose of on account payment and not for any comparison. Further, the asset is first entrant in the Dia and other end of Dia is kept for future extension, which was not envisaged during FR stage. Hence, additional equipment/items were required for tie bays in absence of non-commissioned feeder of same Dia.

Accordingly, the cost over-run is allowed. As regards Asset-II, we are of the view that reasons for cost variation in different items seem to be in order and therefore the cost variation is allowed.

Time Over-run

31. As per the investment approval 29.8.2008, the assets were scheduled to be commissioned by 1.9.2012. The petitioner vide affidavit dated 2.7.2014, has submitted that Assets-I and II were commissioned on 1.10.2012 and 1.3.2013 respectively. Thus, there is delay of one month and six months in case of Assets-I and II respectively.

32. The petitioner was directed vide letter dated 5.9.2013, the reasons for time over-run alongwith PERT Chart. In response, petitioner vide affidavit dated 2.7.2014 has submitted that in case of Asset-I there was marginal delay of one month mainly due to delay in construction of 765 kV Balia sub-station due to non-availability of compacted leveled land which had cascading effect and led to delay in construction. Further, due to heavy rains in 2010 the whole construction area became flooded. There was no progress of work for about four months (from 20.6.2010 to 15.10.2010). Further, the water table at Balia is very high, which badly hampered the progress of civil works.

33. As regards Asset-II, the petitioner has submitted that one reactor was to be type tested in Ukraine and then had to be manufactured and again tested in India based on same design and under strict supervision of ZTR personal. Due to visa constraints only one person was allowed to stay in India for a maximum period of 15

weeks and this requires different persons for each activity of manufacturing like winding/core building etc. Due to this force majeure condition there was delay in delivery of the equipments. All huge consignment like reactors and transformers had to cross a busy Railway crossing to reach Sasaram Sub-station. The application for shut-down of track was made on 6.2.2012 and the corresponding permission was granted on 27.4.2012 (after about 3 months). Due to heavy rain, it was difficult to construct foundation and the civil works started in the month of March, 2011 till May, 2011 for reactor bank but in the month of June, 2011 pre-monsoon rain started and continued till mid September, 2011. Commissioning further got delayed by approximately 4 weeks (one month) for getting tree cutting permission in sub-station premises from Forest Department, Bhabhua. Permission from forest department for tree cutting was sought on 14.9.2011. Tree cutting permission was received on 11.10.2011 (one month). Due to heavy fog condition in winter season between December, 2011 to January, 2012 and December, 2012 to January, 2013, erection work could be carried out only for few hours during mid day. Further, there was delay in achieving 800 kV HV Bushing Tan–delta values for many days due to high moisture content for air in foggy conditions.

34. BRPL has submitted that since the petitioner has not given any justification for time over-run, IDC and IEDC should not be allowed for the period of delay. The petitioner is required to explain about the balance woks covered in the investment approval and how their non-completion would affect the system operation. The petitioner in its rejoinder has reiterated the submissions made earlier in affidavit

dated 2.7.2014. The petitioner further clarified that the entire scope of work has been commissioned.

35. The petitioner was directed to submit the documentary evidence in support of the reasons for delay in the commissioning of the assets, i.e. (i) non-availability of compacted levelled land, (ii) rain MET Department data for the months lost due to rain and report from the print media, and (iii) visa related issues for ZTR personnel. In response, the petitioner vide affidavit dated 8.10.2014 has submitted that the delay of one month in case of Asset-I and delay of six months in case of Asset-II is primarily due to heavy rain fall during the month from July to September, 2012 at Balia and from June to September, 2012 at Sasaram, which severely hampered works at sites. The rainfall data of the districts as published by India Meteorological Department has been submitted along with photographs of Sasaram site showing inundation of working area. On perusal of data it is observed that in Sasaram area during the month of June to September, 2012 there was heavy rainfall. While in Balia, there has been heavy rainfall during June and September, 2010 and July to September, 2012. As regards visa related issues, the petitioner submitted that Ukraine being disturbed area, the grant of visa for ZTR personnel took considerable time. The petitioner has submitted that the matter is being taken up with ZTR, whose personnel have since left the country after completion of work, and documentary evidence, if any, received regarding visa shall be submitted in due course.

36. We have considered the submissions of petitioner and respondents. As regards Asset-I, perusal of meteorological data submitted by the petitioner shows that there was heavy rains from June to September, 2010 and July to September

2012 at Balia and it has led to time over-run of one month. The time over-run of one month is beyond the control of the petitioner and accordingly it is condoned.

37. As regards Asset-II, the petitioner has not submitted any documents in support of visa related problems of the personnel from Ukraine. We are of the view that it cannot be considered as force majeure event. However, we are of the view that heavy rains for four months in Sasaram, one month delay in issuing tree cutting permission, heavy fog condition during December, 2011 and January, 2013 and time taken in obtaining railway crossing permission delayed the commissioning by six months which was beyond the control of the petitioner. Therefore, the delay of six months in commissioning of Asset-II is condoned.

Treatment of IDC

38. The petitioner has claimed Interest during Construction (IDC) of ₹432.24 lakh and ₹301.73 lakh for Asset-I and Asset-II respectively. Detailed working of IDC calculation as well details of IDC paid after date of commercial operation is not available in the petition.

39. IDC on cash basis has been worked out based on the loans deployed for the assets as per Form-13 of the petition assuming that the petitioner has not made any default in the payment of interest.

40. Thus, on the basis of above IDC on cash basis up to the actual date of commercial operation works out to ₹308.54 lakh and ₹ 227.14 lakh respectively. Amount of IDC accrued as on COD and to be discharged after COD has not been considered in the capital cost due to non-availability of adequate information. The un-

discharged liability pertaining to IDC would be considered once it is paid subject to prudence check and submission of adequate information at the time of truing up. The petitioner is directed to submit the amount of actual IDC paid for the assets up to COD and balance IDC paid after COD. The amount of IDC being allowed now will be reviewed at the time of truing-up.

Treatment of IEDC

41. The petitioner has claimed Incidental Expenditure during Construction (IEDC) of ₹119.62 lakh and ₹160.70 lakh for both the assets which is within the percentage on hard cost as indicated in the abstract cost estimate. Similar approach was adopted in Petition No. 120/TT/2013. The amount of IEDC worked out and allowed is ₹119.62 lakh and ₹160.70 lakh for Asset-I and Asset-II respectively. The petitioner is directed to submit the year-wise details of actual IEDC paid till COD for both the assets at the time of truing-up.

Treatment of initial spares

42. Regulation 8 of 2009 Tariff Regulations provides that initial spares shall be capitalised as a percentage of the original project cost , subject to following ceiling norms:-

Transmission line	0.75%
Transmission sub-station	2.5%
Series compensation devices & HVDC Station	3.5%

43. The petitioner has claimed initial spares for Asset-I in the petition and for Asset-II (as per statement of estimated completion cost dated 4.10.2013) submitted vide affidavit dated 9.10.2013 and the details are as follows:-

(₹ in lakh)

Asset	Sub-station cost	Cost of spares	Spares as % of sub-station cost
Asset-I	4630.54	84.96	1.86%
Asset-II	6179.96	48.45	0.78%

The petitioner has claimed initial spares pertaining to sub-station in both the assets which are within the ceiling limits specified in the 2009 Tariff Regulations.

44. Details of capital cost as on COD considered for tariff is summarized as under:-

(₹ in lakh)

Name of the Asset	**Hard cost claimed**	**IDC claimed**	**IEDC claimed**	**IDC worked and allowed out**	**IDC worked and allowed**	**Total Capital Cost allowed for Tariff calculation**
	(a)	(b)	(c)	(d)	(e)	(a)+(d)+(e)
Asset-I	2836.18	432.24	119.61	308.54	119.62	3264.34
Asset-II	4579.90	301.73	160.70	227.14	160.70	4967.73

*Hard cost (as on 1.6.2013) claimed for Asset II includes hard cost as on 1.3.2013 ₹4057.17 lakh, additional capital expenditure for financial year 2012-13 ₹295.20 lakh and proportionate additional capital expenditure for the month of April and May, 2013 ₹227.53 lakh.

Projected additional capital expenditure

45. Clause (1) of Regulation 9 of the 2009 Tariff Regulations provides as under:-

> "Additional Capitalisation: (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) Works deferred for execution;

(iii) Procurement of initial capital Spares within the original scope of work, subject to the provisions of Regulation 8;
(iv) Liabilities to meet award of arbitration or for compliance of the order or decree of a court; and
(v) Change in Law:"

46. Clause (11) of Regulation 3 of the 2009 Tariff Regulations defines "cut-off" date as under:-

> "cut-off date" means 31st March of the year closing after 2 years of the year of commercial operation of the project, and incase the project is declared under commercial operation in the last quarter of the year, the cut-off date shall be 31st March of the year closing after 3 years of the year of commercial operation".

As per the above definition, cut-off date in respect of the transmission asset covered in the instant petition is 31.3.2016.

47. Details of the additional capital expenditure claimed by the petitioner are as below:-

(₹ in lakh)

Assets	**From COD to 31.3.2013**	**2013-14**
Asset-I	760.51	481.98
Asset-II	295.20	1365.16

In case of Asset-I, the total estimated completion cost claimed for Asset-I (₹ 4630.53 lakh) exceed its apportioned approved cost (₹4289.82 lakh). Therefore, additional capital expenditure for the financial year 2013-14 has been reduced by ₹340.71 lakh. Thus, ₹141.27 lakh (i.e. ₹481.98 lakh- ₹ 340.17 lakh) has been allowed as additional capital expenditure for Asset-I for 2013-14. As regards Asset-II, additional capital expenditure up to 31.3.2013 and proportionate additional capital expenditure for the months of April and May 2013 is included in the capital cost as on the date of commercial operation i.e. 1.6.2013. The balance pro-rata additional capital

expenditure claimed from 1.6.2013 to 31.3.2014 period is being allowed as an additional capital expenditure for financial year 2013-14.

48. The total estimated cost allowed from COD to 31.3.2014 for the purpose of tariff is summarized as under:-

(₹ in lakh)

Assets	Capital cost as on COD	Additional capitalisation		Total estimated cost
		2012-13	2013-14	
Asset-I	3264.34	760.51	141.27	4166.12
Asset-II	4967.73	0.00	1137.63	6105.37

Debt- equity ratio

49. Regulation 12 of the 2009 Tariff Regulations provides as under:-

> "12. Debt-Equity Ratio (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.
>
> **Explanation-** The premium, if any, raised by the generating company or the transmission licensee, as the case may be, while issuing share capital and investment of internal resources created out of its free reserve, for the funding of the project, shall be reckoned as paid up capital for the purpose of computing return on equity, provided such premium amount and internal resources are actually utilised for meeting the capital expenditure of the generating station or the transmission system.
>
> (2) In case of the generating station and the transmission system declared under commercial operation prior to 1.4.2009, debt-equity ratio allowed by the Commission for determination of tariff for the period ending 31.3.2009 shall be considered.
>
> (3) Any expenditure incurred or projected to be incurred on or after 1.4.2009 as may be admitted by the Commission as additional capital expenditure for determination of tariff, and renovation and modernisation expenditure for life extension shall be serviced in the manner specified in clause (1) of this regulation."

50. Details of debt-equity in respect of the asset as on the date of commercial operation are given hereunder:-

(₹ in lakh)

Asset-I		
Capital cost as on date of commercial operation		
Particulars	**Amount**	**%**
Debt	2285.04	70.00
Equity	979.30	30.00
Total	**3264.34**	**100.00**
Asset-II		
Capital cost as on date of commercial operation		
Particulars	**Amount**	**%**
Debt	3477.41	70.00
Equity	1490.32	30.00
Total	**4967.73**	**100.00**

51. Debt-equity ratio for additional capital expenditure considered in computing tariff is 70:30 for both the assets.

52. Detail of debt-equity ratio of asset as on 31.3.2014 is as per details given hereunder:-

(₹ in lakh)

Asset-I		
As on 31.3.2014		
Particulars	**Amount**	**%**
Debt	2916.28	70.00
Equity	1249.83	30.00
Total	**4166.12**	**100.00**

(₹ in lakh)

Asset-II		
As on 31.3.2014		
Particulars	**Amount**	**%**
Debt	4273.76	70.00
Equity	1831.61	30.00
Total	**6105.37**	**100.00**

Return on equity

53. Regulation 15 of the 2009 Tariff Regulations provides as follows:-

"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% for thermal generating stations, transmission system and run of the river generating station, and 16.5% for the storage type generating stations including pumped storage hydro generating stations and run of river generating station with pondage and shall 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:

(4) Rate of return on equity shall be rounded off to three decimal points and be computed as per the formula given below:
Rate of pre-tax return on equity = Base rate / (1-t)

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

(5) The generating company or the transmission licensee as the case may be, shall recover the shortfall or refund the excess Annual Fixed charge on account of Return on Equity due to change in applicable Minimum Alternate/ Corporate Income Tax Rate as per the Income Tax Act, 1961 (as amended from time to time) of the respective financial year directly without making any application before the Commission;

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

54. Based on the above, the return on equity considered are given overleaf:-

(₹ in lakh)

Particulars	Asset -I		Asset -II
	2012-13 (pro-rata)	2013-14	2013-14 (pro-rata)
Opening Equity	979.30	1207.45	1490.32
Addition due to Additional Capitalisation	228.15	42.38	341.29
Closing Equity	1207.45	1249.83	1831.61

Average Equity	1093.38	1228.64	1660.97
Return on Equity (Base Rate)	15.50%	15.50%	15.50%
Tax rate for the year 2008-09 (MAT)	11.33%	11.33%	11.33%
Rate of Return on Equity (Pre Tax)	17.481%	17.481%	17.481%
Return on Equity (Pre Tax)	95.57	214.78	241.96

55. Return on equity has been calculated as per Regulation 15 of the 2009 Tariff Regulations with pre-tax return on equity of 17.481%. The petitioner's request to allow to recover the shortfall or refund the excess Annual Fixed Charges, on account of return on equity due to change in applicable Minimum Alternate/ Corporate Income Tax rate as per the Income Tax Act, 1961 (as amended from time to time) of the respective financial year directly, shall be settled in accordance with the provisions of Regulation 15 of the 2009 Tariff Regulations.

Interest on loan

56. Regulation 16 of the 2009 Tariff Regulations provides as under:-

> "16. **Interest on loan capital** (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."

57. In keeping with the provisions of Regulation 16 of the 2009 Tariff Regulations, the petitioner's entitlement to interest on loan has been calculated on the following basis:-

(i) Gross amount of loan, repayment of instalments and rate of interest on loan have been considered as per petition and affidavit dated 9.10.2013.

(ii) The repayment for the tariff period 2009-14 has been considered to be equal to the depreciation allowed for that period.

(iii) There is a slight variation in the weighted average rate of interest on actual loan portfolio given in Form-13. In view of the facts mentioned in para 58 below, the weighted average rate of interest on actual average loan has been worked out and is applied on the normative average loan during the year to arrive at the interest on loan.

58. As regards Asset-I, the loan amount corresponding to Bond XLI was allotted on 19.10.2012 i.e. after the COD of the asset. Therefore, loan amount is considered as "Addition during the year 2013-14". In case of Asset-II, the loan amount corresponding to Bond XL was drawn on 28.6.2012, therefore it is considered as loan as on tariff date i.e. 1.6.2013 for the financial year 2013-14. The floating rate of interest (submitted by the petitioner vide affidavit dated 26.6.2014) corresponding to foreign loan i.e. IFC-A is considered for computing weighted average rate of interest.

59. Detailed calculations in support of the weighted average rates of interest have been given in Annexure-I and II to this order.

60. Based on the above, interest on loan has been calculated are given as follows:-

(₹ in lakh)

Particulars	**Asset-I**		**Asset-II**
	2011-12 (pro-rata)	**2012-13**	**2013-14 (pro-rata)**
Gross Normative Loan	2285.04	2817.39	3477.41
Cumulative Repayment upto Previous Year	0.00	95.98	0.00
Net Loan-Opening	2285.04	2721.41	3477.41
Addition due to Additional Capitalisation	532.36	98.89	796.34
Repayment during the year	95.98	215.41	243.61
Net Loan-Closing	2721.41	2604.89	4030.15
Average Loan	2503.22	2663.15	3753.78
Weighted Average Rate of Interest on Loan	8.8366%	8.8364%	5.5157%
Interest	**110.60**	**235.33**	**172.54**

Depreciation

60. Regulation 17 of the 2009 Tariff Regulations provides as under:-

> "17. **Depreciation** (1) The value base for the purpose of depreciation shall be the capital cost of the asset admitted by the Commission.

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

Provided that in case of hydro generating stations, the salvage value shall be as provided in the agreement signed by the developers with the State Government for creation of the site;

Provided further that the capital cost of the assets of the hydro generating station for the purpose of computation of depreciable value shall correspond to the percentage of sale of electricity under long-term power purchase agreement at regulated tariff.

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

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

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

(5) In case of the existing projects, the balance depreciable value as on 1.4.2009 shall be worked out by deducting the cumulative depreciation as admitted by the Commission up to 31.3.2009 from the gross depreciable value of the assets.

(6) 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."

61. The asset in the instant petition was commissioned on 1.3.2013 and 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 Tariff Regulations. Accordingly, depreciation has been worked out on the basis of capital expenditure as on the date of commercial operation and additional capital expenditure incurred/ projected to be incurred thereafter, wherein depreciation for the first year has been calculated on *pro-rata* basis for the part of year.

62. Based on the above, the depreciation has been considered are given

hereunder:-

(₹ in lakh)

Particulars	**Asset-I**		**Asset-II**
	2011-12 (pro-rata)	**2012-13**	**2013-14 (pro-rata)**
Opening Gross Block	3264.34	4024.85	4967.73
Addition during 2009-14 due to Projected Additional Capitalisation	760.51	141.27	1137.63
Closing Gross Block	4024.85	4166.12	6105.37
Average Gross Block	3644.59	4095.48	5536.55
Rate of Depreciation	5.2672%	5.2597%	5.2800%
Depreciable Value	3280.13	3685.93	4982.90
Remaining Depreciable Value	3280.13	3589.95	4982.90
Depreciation	95.98	215.41	243.61

Operation &Maintenance Expenses (O&M Expenses)

63. The detail of elements covered and their date of commercial operation (COD) are as under:-

Asset-I Common scheme for 765 kV Pooling Stations and network for NR	COD	Length (km)
Balia 765 kV Sub-station		No of bays
765 kV Balia bus reactor bay	1.10.2012	1
Asset-II 765 kV line bays at Sasaram S/S (for 765 kV Sasaram-Fatehpur T/Line under Sasan project)		
Sasaram 765 kV Sub-station (COD: 1.3.2013)		
765 kV Line bay	1.3.2013	1
765 kV Switchable line reactor bay	1.3.2013	1

64. Clause (g) of Regulation 19 of the 2009 Tariff Regulations prescribes the norms for operation and maintenance expenses based on the type of sub-station and line. Norms prescribed in respect of the elements covered in the instant petition are as follows:-

Element	2012-13	2013-14
765 kV bay (₹ lakh/ bay)	86.68	91.64

65. Accordingly, the following operation and maintenance expenses are allowed in respect of the assets covered in this petition:-

(₹ in lakh)

Element (Asset-I)	2012-13 (pro-rata for 6 months)	2013-14
1 nos., 765 kV bay	43.34	91.64
Total O&M Asset-I	43.34	91.64
(Asset-II)	-	(pro-rata for 10 months)
2 nos., 765 kV bays	---	152.73
Total O&M Asset-II	---	152.73

66. The petitioner has submitted that O & M Expenses for the period 2009-14 was arrived at on the basis of normalized actual O & M Expenses during the period 2003-04 to 2007-08. The wage hike of 50% on account of pay revision of the employees of public sector undertaking has also been considered while calculating the O&M Expenses for the tariff period 2009-14. The petitioner has further submitted that it would approach the Commission for additional manpower cost on account of wage revision (if any) during the tariff block 2009-14 for claiming in the tariff.

67. While specifying the norms for the O & M Expenses, the Commission has in the 2009 Tariff Regulations, given effect to impact of pay revision by factoring 50% on account of pay revision of the employees of PSUs after extensive consultations with the stakeholders, as one time compensation for employee cost. We do not see any reason why the admissible amount is inadequate to meet the requirement of the

employee cost. In this order, we have allowed O&M expenses as per the existing norms.

Interest on working capital

68. The petitioner is entitled to claim interest on working capital as per the 2009 Tariff Regulations. The components of the working capital and the petitioner's entitlement to interest thereon are discussed hereunder:-

(i) Receivables

As per Regulation 18(1) (c) (i) of the 2009 Tariff Regulations, receivables as a component of working capital will be equivalent to two months fixed cost. The petitioner has claimed the receivables on the basis of 2 months annual transmission charges. 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 Tariff 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 Tariff 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 as claimed in the petition. This has been considered in the working capital.

(iv) Rate of interest on working capital

As per Central Electricity Regulatory Commission (Terms and Conditions of Tariff) (Second Amendment) Regulations, 2011 dated 21.6.2011, SBI Base rate (10.00%) and (9.70%) as on 1.4.2012 and 1.4.2013 for Asset-I and Asset-II respectively plus 350 Bps i.e. 13.50% for Asset I and 13.20% for Asset II has been considered as the rate of interest on working capital.

69. Necessary computations in support of interest on working capital are given hereunder:-

(₹ in lakh)

Particulars	**Asset-I**		**Asset-II**
	2012-13	**2013-14**	**2013-14**
Maintenance Spares	13.00	13.75	27.49
O & M expenses	7.22	7.64	15.27
Receivables	118.28	129.59	166.78
Total	138.51	150.97	209.54
Rate of Interest	**9.35**	**20.38**	**23.05**

Transmission charges

70. The transmission charges being allowed for the assets are as follows:-

(₹ in lakh)

Particulars	**Asset-I**		**Asset-II**
	2012-13	**2013-14**	**2013-14**
Depreciation	95.98	215.41	243.61
Interest on Loan	110.60	235.33	172.54
Return on equity	95.57	214.78	241.96
Interest on Working Capital	9.35	20.38	23.05
O & M Expenses	**43.34**	**91.64**	**152.73**
Total	**354.84**	**777.54**	**833.89**

Filing fee and the publication expenses

71. The petitioner has sought reimbursement of fee paid by it for filing the petition and publication expenses. The BRPL submitted that the filing fee shall be governed

as per the Commission's order. The petitioner has clarified that reimbursement of expenditure has been claimed in terms of Regulation 42 of the 2009 Tariff Regulations. The petitioner shall also be entitled for reimbursement of the publication expenses in connection with the present petition, directly from the beneficiaries on *pro-rata* basis.

Licence fee

72. The petitioner has 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. The petitioner shall be entitled for reimbursement of licence fee in accordance with Regulation 42 A (1) (b) of the 2009 Tariff Regulations.

Service tax

73. The petitioner has made a prayer to be allowed to bill and recover the service tax on transmission charges separately from the respondents, if it is subjected to such service tax in future. The BRPL has objected to recovery of service tax from the beneficiaries in future as service tax on transmission service is exempted. The petitioner has clarified that if notifications regarding granting of exemption to transmission service are withdrawn at a later date, the beneficiaries shall have to share the service tax paid by the petitioner. We consider petitioner's prayer pre-mature and accordingly this prayer is rejected.

Sharing of Transmission Charges

74. 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.

75. This order disposes of Petition No. 41/TT/2013.

sd/-	sd/-	sd/-
(A.S. Bakshi)	**(A.K. Singhal)**	**(Gireesh B. Pradhan)**
Member	**Member**	**Chairperson**

Annexure I

(₹ in lakh)

CALCULATION OF WEIGHTED AVERAGE RATE OF INTEREST ON LOAN			
	Details of Loan	**2012-13**	**2013-14**
1	**Bond XXX**		
	Gross loan opening	100.00	100.00
	Cumulative Repayment upto DOCO/previous year	0.00	0.00
	Net Loan-Opening	100.00	100.00
	Additions during the year	0.00	0.00
	Repayment during the year	0.00	8.33
	Net Loan-Closing	100.00	91.67
	Average Loan	100.00	95.83
	Rate of Interest	8.80%	8.80%
	Interest	8.80	8.43
	Rep Schedule	12 annual installments from 29.9.2013	
2	**Bond XXXI**		
	Gross loan opening	500.00	500.00
	Cumulative Repayment upto DOCO/previous year	0.00	0.00
	Net Loan-Opening	500.00	500.00
	Additions during the year	0.00	0.00
	Repayment during the year	0.00	41.67
	Net Loan-Closing	500.00	458.33
	Average Loan	500.00	479.17
	Rate of Interest	8.90%	8.90%
	Interest	44.50	42.65
	Rep Schedule	12 annual installments from 25.2.2014	
3	**Bond XLI**		
	Gross loan opening	**0.00**	**121.63**
	Cumulative Repayment upto DOCO/previous year	**0.00**	**0.00**
	Net Loan-Opening	0.00	121.63
	Additions during the year	121.63	0.00
	Repayment during the year	0.00	0.00
	Net Loan-Closing	121.63	121.63
	Average Loan	60.82	121.63
	Rate of Interest	8.85%	8.85%
	Interest	5.38	10.76
	Rep Schedule	12 annual installments from 19.10.2016	

4	**Bond XXXII**		
	Gross loan opening	**50.00**	**50.00**
	Cumulative Repayment upto DOCO/previous year	**0.00**	**0.00**
	Net Loan-Opening	50.00	50.00
	Additions during the year	0.00	0.00
	Repayment during the year	0.00	4.17
	Net Loan-Closing	50.00	45.83
	Average Loan	50.00	47.92
	Rate of Interest	8.84%	8.84%
	Interest	4.42	4.24
	Rep Schedule	12 annual installments from 27.3.2014	
5	**Bond XXXVI**		
	Gross loan opening	**50.00**	**50.00**
	Cumulative Repayment upto DOCO/previous year	**0.00**	**0.00**
	Net Loan-Opening	50.00	50.00
	Additions during the year	0.00	0.00
	Repayment during the year	0.00	0.00
	Net Loan-Closing	50.00	50.00
	Average Loan	50.00	50.00
	Rate of Interest	9.35%	9.35%
	Interest	4.68	4.68
	Rep Schedule	12 annual installments from 29.8.2016	
6	**Bond XXXIII**		
	Gross loan opening	**500.00**	**500.00**
	Cumulative Repayment upto DOCO/previous year	**0.00**	**0.00**
	Net Loan-Opening	500.00	500.00
	Additions during the year	0.00	0.00
	Repayment during the year	0.00	0.00
	Net Loan-Closing	500.00	500.00
	Average Loan	500.00	500.00
	Rate of Interest	8.64%	8.64%
	Interest	43.20	43.20
	Rep Schedule	12 annual installments from 08.07.2014	
7	**Bond XXXIV**		
	Gross loan opening	**1000.00**	**1000.00**
	Cumulative Repayment upto DOCO/previous year	**0.00**	**0.00**
	Net Loan-Opening	1000.00	1000.00
	Additions during the year	0.00	0.00
	Repayment during the year	0.00	0.00
	Net Loan-Closing	1000.00	1000.00
	Average Loan	1000.00	1000.00
	Rate of Interest	8.84%	8.84%

	Interest	88.40	88.40
	Rep Schedule	12 annual installments from 21.10.2014	
8	**Bond XXXV**		
	Gross loan opening	**50.00**	**50.00**
	Cumulative Repayment upto DOCO/previous year	**0.00**	**0.00**
	Net Loan-Opening	50.00	50.00
	Additions during the year	0.00	0.00
	Repayment during the year	0.00	0.00
	Net Loan-Closing	50.00	50.00
	Average Loan	50.00	50.00
	Rate of Interest	9.64%	9.64%
	Interest	4.82	4.82
	Rep Schedule	12 annual installments from 31.5.2015	
	Total Loan		
	Gross loan opening	2250.00	2371.63
	Cumulative Repayment upto DOCO/previous year	0.00	0.00
	Net Loan-Opening	2250.00	2371.63
	Additions during the year	121.63	0.00
	Repayment during the year	0.00	54.17
	Net Loan-Closing	2371.63	2317.46
	Average Loan	2310.82	2344.55
	Rate of Interest	**8.8366%**	**8.8364%**
	Interest	204.20	207.17

Annexure II

(₹ in lakh)

CALCULATION OF WEIGHTED AVERAGE RATE OF INTEREST ON LOAN		
	Details of Loan	**2013-14**
1	**Bond XXXI**	
	Gross loan opening	**300.00**
	Cumulative Repayment upto DOCO/previous year	**0.00**
	Net Loan-Opening	300.00
	Additions during the year	0.00
	Repayment during the year	25.00
	Net Loan-Closing	275.00
	Average Loan	287.50
	Rate of Interest	8.90%
	Interest	25.59
	Rep Schedule	12 annual installments from 25.2.2014
2	**Bond XL**	
	Gross loan opening	**206.64**
	Cumulative Repayment upto DOCO/previous year	**0.00**
	Net Loan-Opening	206.64
	Additions during the year	0.00
	Repayment during the year	0.00
	Net Loan-Closing	206.64
	Average Loan	206.64
	Rate of Interest	9.30%
	Interest	19.22
	Rep Schedule	12 annual installments from 28.6.2016
3	**Bond XXXVI**	
	Gross loan opening	**36.00**
	Cumulative Repayment upto DOCO/previous year	**0.00**
	Net Loan-Opening	36.00
	Additions during the year	0.00
	Repayment during the year	0.00
	Net Loan-Closing	36.00
	Average Loan	36.00
	Rate of Interest	9.35%
	Interest	3.37

	Rep Schedule	12 annual installments from 29.8.2016
4	**Bond XXXIII**	
	Gross loan opening	**400.00**
	Cumulative Repayment upto DOCO/previous year	**0.00**
	Net Loan-Opening	400.00
	Additions during the year	0.00
	Repayment during the year	0.00
	Net Loan-Closing	400.00
	Average Loan	400.00
	Rate of Interest	8.64%
	Interest	34.56
	Rep Schedule	12 annual installments from 08.07.2014
5	**Bond XXXIV**	
	Gross loan opening	**400.00**
	Cumulative Repayment upto DOCO/previous year	**0.00**
	Net Loan-Opening	400.00
	Additions during the year	0.00
	Repayment during the year	0.00
	Net Loan-Closing	400.00
	Average Loan	400.00
	Rate of Interest	8.84%
	Interest	35.36
	Rep Schedule	12 annual installments from 21.10.2014
6	**IFC A- Loan**	
	Gross loan opening	**2027.72**
	Cumulative Repayment upto DOCO/previous year	**0.00**
	Net Loan-Opening	2027.72
	Additions during the year	0.00
	Repayment during the year	0.00
	Net Loan-Closing	2027.72
	Average Loan	2027.72
	Rate of Interest	3.31%
	Interest	67.12
	Rep Schedule	21 semi annually installments from 15.9.2017
	Total Loan	
	Gross loan opening	3370.36
	Cumulative Repayment upto DOCO/previous year	0.00
	Net Loan-Opening	3370.36

	Additions during the year	0.00
	Repayment during the year	25.00
	Net Loan-Closing	3345.36
	Average Loan	3357.86
	Rate of Interest	**5.5157%**
	Interest	185.21