

**CENTRAL ELECTRICITY REGULATORY COMMISSION
NEW DELHI**

Petition No. 51/TT/2013

Coram:

**Shri Gireesh B. Pradhan, Chairperson
Shri M. Deena Dayalan, Member
Shri A. K. Singhal, Member**

Date of Hearing : 22.04.2014

Date of Order : 24.12.2014

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 (i) 765/400 kV, 3*500 MVA ICT-II along with associated bays of 765 kV & 400 kV at Gwalior Sub-station (ii) Up-gradation of existing Gwalior-Agra Ckt-II Transmission Line at 765 kV level along with associated bays at Agra Sub-station & Gwalior Sub-station (iii) 765/400 kV, 4*500 MVA ICT-I along with associated bays of 765 kV & 400 kV at Gwalior Sub-station (iv) 765/400 kV, 3*333 MVA ICT-II along with associated bays of 765 kV & 400 kV at Bina Sub-station (v) Up-gradation of existing Bina-Gwalior Ckt-1 Transmission Line at 765 kV level along with associated bays at Bina Substation & Gwalior Sub-station (vi) Up-gradation of existing Gwalior-Agra Ckt-I Transmission Line at 765 kV level along with associated bays at Agra Sub-station & Gwalior Sub-station under SASAN UMPP Transmission System in Western Region for tariff block 2009-14.

And in the matter of:

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

.....**Petitioner**

Vs

1. Madhya Pradesh Power Trading Company Ltd.,
Shakti Bhawan, Rampur,
Jabalpur-482 008.
2. Madhya Pradesh Audyogik Kendra Vikas Nigam (Indore) Ltd.
3/54, Press Complex, Agra-Bombay Road,
Indore-452 008.



3. Rajasthan Rajya Vidyut Prasaran Nigam Ltd.,
Vidyut Bhawan, Vidyut Marg,
Jaipur- 302 005.
4. Ajmer Vidyut Vitran Nigam Ltd.,
400 kV GSS Building (Ground Floor), Ajmer Road,
Heerapura, Jaipur.
5. Jaipur Vidyut Vitran Nigam Ltd.,
400 kV GSS Building (Ground Floor), Ajmer Road,
Heerapura, Jaipur.
6. Jodhpur Vidyut Vitran Nigam Ltd.,
400 kV GSS Building (Ground Floor), Ajmer Road,
Heerapura, Jaipur.
7. Punjab State Electricity Board
The Mall, Patiala-147 001.
8. Haryana Power Purchase Centre,
Shakti Bhawan, Sector-6,
Panchkula (Haryana)-134 109.
9. UP 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.,
BSES Bhawan, Nehru Place,
New Delhi.
12. BSES Rajdhani Power Ltd.,
BSES Bhawan, Nehru Place,
New Delhi.
13. North Delhi Power Ltd.
Power Trading and Load Dispatch Group,
Cennet Building, Adjacent to 66/11 kV 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.
18. Sasan Power Ltd.
1st Floor, I Block,
Dhirubhai Ambani Knowledge City (DAKC),
Thane-Belapur Road, Koparkhairane.
19. Maharashtra State Electricity Distribution Company Limited,
Prakashgad, 4th floor,
Andehri (East), Mumbai-400 052.
20. Gujarat Urja Vikas Nigam Ltd.,
Sardar Patel Vidyut Bhawan,
Race Course Road, Vadodara-390 007.
21. Electricity Department, Government of Goa,
Vidyut Bhawan, Panaji,
Near Mandvi Hotel, Goa-403 001.
22. Electricity Department,
Administration of Daman and Diu,
Daman-396 210.
23. Electricity Department,
Administration of Dadra Nagar Haveli,
U.T., Silvassa-396 230.
24. Chhattisgarh State Electricity Board,
P.O. Sunder Nagar, Dangania, Raipur,
Chhattisgarh-492 013.

.....Respondents

For petitioner : Shri Padamjit Singh, PSPCL
Shri S. K. Venkatesan, PGCIL
Ms. Sangeeta Edwards, PGCIL
Shri S.S Raju, PGCIL
Ms. Seema Gupta, PGCIL

For respondent : Shri Padamjit Singh, PSPCL
Shri T. P. S. Bawa, PSPCL

ORDER

The instant petition has been filed by Power Grid Corporation of India Limited (PGCIL) seeking approval of the transmission charges for (i) 765/400 kV, 3*500 MVA ICT-II along with associated bays of 765 kV & 400 kV at Gwalior Sub-station (ii) Up-gradation of existing Gwalior-Agra Ckt-II Transmission Line at 765 kV level along with associated bays at Agra Sub-station & Gwalior Sub-station (iii) 765/400 kV, 4*500 MVA ICT-I along with associated bays of 765 kV & 400 kV at Gwalior Sub-station (iv) 765/400 kV, 3*333 MVA ICT-II along with associated bays of 765 kV & 400 kV at Bina Sub-station (v) Up-gradation of existing Bina-Gwalior Ckt-1 Transmission Line at 765 kV level along with associated bays at Bina Sub-station & Gwalior Sub-station (vi) Up-gradation of existing Gwalior-Agra Ckt-I Transmission Line at 765 kV level along with associated bays at Agra Sub-station & Gwalior Sub-station (hereinafter referred to as "transmission asset") under SASAN UMPP Transmission System (hereinafter referred to as "transmission system") in Western Region for tariff block 2009-14 based on the Central Electricity Regulatory Commission (Terms and Conditions of Tariff) Regulations, 2009 (hereinafter referred to as "the 2009 Tariff Regulations").

2. The Investment Approval (IA) of the project was accorded by Board of Directors of the petitioner for SASAN UMPP Transmission System vide their letter C/CP/SASAN dated 10.12.2008 at an estimated cost of ₹703188 lakh including Interest During Construction of ₹76782 lakh based on 2nd Quarter, 2008 price



level. The commissioning schedule of the project is 48 months from the date of IA i.e. 1.1.2013. The scope of work covered in the transmission system broadly includes:-

Part-A: Transmission System of Sasan (400 MW) UMPP

Transmission Lines

- i) Sasan- Satna 765 kV 2x S/C Line: Ckt-1- 268 km & Ckt-II- 279 km
- ii) Satna-Bina 765 kV 2xS/C line: Ckt-1- 272 km & Ckt- 2-274 km
- iii) LILO of both circuits of one Vindhyachal-Jabalpur 400 kV D/C line at Sasan- 8 km
- iv) Bina-Bina (MPPTCL) 400 kV D/C line- 5 km
- v) Sasaram-Fatehpur 765 kV S/C line- 352 km
- vi) Fatehpur-Agra 765 kV S/C line- 340 km

Sub-station

- i) Establishment of 765/400 kV, 2x1000MVA Sub-station at Satna,
- ii) Line bays for operation of Agra-Gwalior-Bina-Seoni S/C lines at 765 kV level

Part-B: Regional System Strengthening in WR for Sasan UMPP

Transmission Lines

- i) Bina-Indore 765 S/C line- 320 km
- ii) Indore-Indore (MPPTL) 400 kV D/C (Quad) line- 60 km

Sub-station

- i) Establishment of 765/400 kV, 2x1500 MVA Sub-station at Indore
- ii) Upgradation Bina & Gwalior Sub-station to 765/400 kV: 2x1000 MVA, 765/400 kV at Bina and 2x1500 MVA, 765/400 kV at Gwalior

3. Sasan UMPP Transmission Scheme includes 8 transmission lines and 4 sub-stations. Out of which 6 sub-stations at Gwalior, Agra and Bina are covered in the instant petition. The details of various assets covered in the instant petition are given overleaf:-

Sr. No.	Name of Asset
1	765/400 kV, 3*500 MVA ICT-II along with associated bays of 765 kV & 400 kV at Gwalior Sub-station– Asset-I
2	Up-gradation of existing Gwalior–Agra Ckt II TL at 765 kV level along with associated bays at Agra Sub-station & Gwalior Sub-station – Asset-II
3	765/400 kV, 4*500 MVA ICT-I along with associated bays of 765 kV & 400 kV at Gwalior Sub-station- Asset-III
4	765/400 kV, 3*333 MVA ICT-II along with associated bays of 765 kV & 400 kV at Bina Sub-station– Asset IV.
5	Up-gradation of existing Bina-Gwalior Ckt I Transmission Line at 765 kV level along with associated bays at Bina Sub-station & Gwalior Sub-station – Asset-V
6	Up-gradation of existing Gwalior-Agra Ckt I Transmission Line at 765 kV level along with associated bays at Agra Sub-station & Gwalior Sub-station – Asset-VI

4. The tariff of the transmission elements was initially claimed on the basis of anticipated date of commercial operation. Subsequently, petitioner has submitted the actual date of commercial operation. The details of the date of commercial operation of the assets covered in the instant petition are as under:-

Transmission Elements	Anticipated DOCO as per original petition	Actual DOCO as per affidavit date 22.1.2014
Asset I -765/400 kV, 3*500 MVA ICT-II along with associated bays of 765 kV & 400 kV at Gwalior sub-station	1.2.2013	1.4.2013
Asset II -Upgradation of existing Gwalior-Agra Ckt 2 transmission line at 765 kV level along with associated bays at Agra sub-station & Gwalior sub-station	1.2.2013	1.4.2013
Asset III -765/400 kV, 4*500 MVA ICT-I along with associated bays of 765 kV & 400 kV at Gwalior sub-station	1.3.2013	1.4.2013
Asset IV -765/400 kV, 3*333 MVA ICT-II along with associated bays of 765 kV & 400 kV at Bina sub-station	1.3.2013	1.4.2013
Asset V -Upgradation of existing Bina-Gwalior Ckt 1 transmission line at 765 kV level along with associated bays at Bina sub-station & Gwalior sub-station	1.3.2013	1.4.2013
Asset VI -Upgradation of existing Gwalior-Agra Ckt 1 transmission line at 765 kV level along with associated bays at Agra sub-station & Gwalior sub-station	1.3.2013	1.4.2013

5. The transmission charges claimed by the petitioner are as follows:-

Particulars	(₹ in lakh)					
	Asset-I 2013-14	Asset-II 2013-14	Asset-III 2013-14	Asset-IV 2013-14	Asset-V 2013-14	Asset-VI 2013-14
Depreciation	324.93	177.54	412.72	330.63	373.58	160.55
Interest on Loan	382.30	205.18	486.18	386.43	83.75	184.60
Return on Equity	322.73	175.84	409.93	328.40	370.51	158.93
Interest on Working capital	31.65	22.46	37.92	28.47	33.46	21.23
O & M Expenses	157.10	183.28	157.10	91.64	274.92	183.28
Total	1218.71	764.30	1503.85	1165.57	1136.22	708.59

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

Particulars	(₹ in lakh)					
	Asset-I 2013-14	Asset-II 2013-14	Asset-III 2013-14	Asset-IV 2013-14	Asset-V 2013-14	Asset-VI 2013-14
Maintenance Spares	23.56	27.49	23.56	13.75	41.24	27.49
O & M Expenses	13.09	15.27	13.09	7.64	22.91	15.27
Receivables	203.12	127.38	250.64	194.26	189.37	118.10
Total	239.77	170.14	287.29	215.64	253.52	160.86
Rate of Interest	13.20%	13.20%	13.20%	13.20%	13.20%	13.20%
Interest	31.65	22.46	37.92	28.47	33.46	21.23

7. 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. Reply to the petition has been filed by Ajmer Vidyut Vitran Nigam Limited (AVVNL), Respondent No. 4, vide affidavit dated 15.4.2013. Maharashtra State Electricity Distribution Co. Ltd. (MSEDCL), Respondent No.19, has filed its reply vide affidavit dated 10.4.2013. The petitioner has filed its rejoinder to the reply filed by MSEDCL vide affidavit dated 15.5.2013. Punjab State Power Co. Ltd. (PSPCL), Respondent No.7 has raised its objections during the hearing on 22.4.2014. The petitioner has filed its clarifications to the objections raised by PSPCL vide its affidavit dated 19.6.2014. The respondents have raised the issue

of time over-run, cost estimates, O&M Expenses, licence fee, service tax, etc. The issues raised by the respondents and the clarifications given by the petitioner are dealt in the relevant paragraphs of this order.

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

9. During the hearing on 22.4.2014 the representative of PSPCL raised the following issues:-

(a) As per the Investment Approval dated 10.12.2008, the assets were to be commissioned within 48 months i.e. by December, 2013. Even though it was known that first unit of Sasan UMPP would be delayed, (which was actually commissioned in August, 2013) the petitioner commissioned the assets on 1.4.2003. CTU has failed to carryout coordination with SASAN in terms of Section 38 of the Act.

(b) The petitioner has tried to advance the work of upgrading Asset-2 from 400 kV to 765 kV by taking shut down of the line in July, 2012 even in the absence of SASAN generation, which resulted in a massive grid failure. The petitioner has not given any justification as to why they took a shut down in July, 2012 without the SASAN unit;

(c) The 765 kV Gwalior-Bina line initially operating at 400 kV has been upgraded to 765 kV and the 400 kV bays including switchgear, CT,

PTs, etc are replaced. However, the petitioner has not given the credit of the dismantled equipments which have been spared after up-gradation of Gwalior-Bina line. The petitioner should give details of such circuit breakers so that capital cost could be reduced.

10. The petitioner, vide affidavit dated 19.6.2014, has given the following clarifications in response to PSPCL queries:-

(a) The petitioner being CTU is performing its duty of coordination in line with Electricity Act, 2003. In an integrated system, the transmission system of a generating project is planned after considering the other transmission schemes likely to be available in that time frame. Thus, even if a generation project does not materialize, its associated transmission system (except radial dedicated transmission line) may be required for other generation coming up at the same time or near future. Accordingly, the transmission system of Vindhyachal Super Thermal Power Project-IV (VSTPP) and Rihand-III was planned considering the availability of SASAN Transmission System. Due to delay in transmission system associated with VSTPP-IV and Rihand-III, it was agreed by WR & NR constituents to utilize the transmission system of SASAN for evacuation of power from these NTPC projects. Accordingly, a contingency scheme for evacuation of VSTPP-IV and Rihand-III was approved in SCM of WR and NR. Thus, the transmission elements associated with SASAN were commissioned prior to SASAN generation due to their requirement in the grid. The contingency arrangement

integrated with the SASAN UMPP scheme has been deliberated and agreed in various Standing Committees of Western Region constituents. The contingency arrangement has undergone changes as per the progress of various transmission lines. Further, at the time of planning of SASAN Transmission System, ER used to have surplus power whereas WR was short of power. The development of a large number of generation projects by IPPS in Chattisgarh and other areas of WR were not envisaged. Accordingly, the study based on the load generation balance projected for ER & WR at that time suggested the power flow from ER to WR and ER to NR. However, the generation projects envisaged to come up in ER like Barh, North Karanpura have been delayed and WR has become surplus. Thus, the power flow from WR to NR has increased. The early up-gradation of Gwalior-Agra link was being done to enhance the transfer capacity between WR and NR. Thus, the petitioner as CTU has fulfilled its responsibility of co-ordination by ensuring that not only SASAN, but power generated by other ISGS generations in the grid is also evacuated utilizing the available transmission network;

- (b) Shut-down of 400 kV Bina-Gwalior-2 and Agra-Gwalior-2 was planned from 27-28 July, 2012. Upgradation of this link was planned in July, 2012 because Bina and Agra Sub-stations were already upgraded to 765 kV level and Gwalior was not fully ready. Accordingly, in order to enhance the power flow on Bina-Gwalior-Agra link, it was decided to

upgrade this link by anchoring 2 sets of 3x80 MVAR reactors at Gwalior Sub-station. However, on third day of shutdown there was major grid disturbance and after that a decision was taken to keep this corridor at 400 kV level. There is no additional expenditure on account of this and thus no additional booking in capital cost;

(c) After upgradation of 765 kV Gwalior-Bina line, the 400 kV bay equipments at Gwalior are being used at Pithampura bay extension at Indore at zero cost. Thus, reducing capital cost of Pithampura bays by utilizing less costly and dismantled equipment (due to depreciation) from Gwalior instead of procuring new equipment at present market cost has benefited the consumers. The tariff for 400 kV bay at Gwalior Sub-station was allowed in Petition No. 291/2010 dated 19.4.2011 for tariff period 2009-14.

11. We have considered the issues raised by PSPCL and the clarifications given by the petitioner. In the instant case, there was delay in commissioning of transmission system planned for evacuation of power from VSTPP and Rihand-III and as such the petitioner made a contingency arrangement and commissioned the SASAN Transmission System with the consent of WR and NR constituents prior to the commissioning of SASAN generation for evacuation of power from the NTPC projects. This has resulted in effective utilisation of the instant assets and prevented bottling up of power from the NTPC projects. Hence, it is felt that there is no failure on the part of the petitioner in performing its responsibility of coordination as envisaged under Section 38 of the Electricity Act, 2003.

12. As regards utilization of bay equipment vacated from Bina-Gwalior-Agra at Pithampura bay extension in Indore, it is observed that the transmission charges for the 400 kV bay in Gwalior Sub-station was allowed for the 2009-14 period vide order dated 19.4.2011 in Petition No. 291/2010. Tariff for the upgraded 765 kV Bina-Gwalior-Agra line is allowed in the instant petition. With the upgradation of the said line, the 400 kV bay equipments at Gwalior are stated to be utilized in the Pithampura bay extension in Indore at zero cost. The petitioner is directed to decapitalise these 400 kV bay equipments and submit the cost of these decapitalised equipment at the time of truing up for adjustment in the capital cost. The cost of these dismantled equipments should be included at the written down value of the capital cost of the Pithampura bay extension at Indore while filing the tariff petition for the said asset.

Capital Cost

12. 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.”

13. The petitioner has claimed the following capital cost as on the date of commercial operation vide Auditor's certificate dated 24.12.2013 along with additional capital expenditure, IDC and IEDC:-

Asset	Incurred/ to be incurred expenditure up to DOCO *	Projected Additional Capital Expenditure		Total Est. Expenditure
		2013-14	2014-15	
Asset I	5197.88	1912.22	940.55	8050.65
Asset II	3131.48	442.91	49.54	3623.93
Asset III	6528.25	2576.87	1104.37	10209.49
Asset IV	6053.29	417.29	257.41	6727.99
Asset V	6166.06	1797.91	831.67	8795.64
Asset VI	2873.52	313.88	48.73	3236.13

Cost Over-run

14. The completion cost of the assets covered in the instant petition is as follows:-

Sr. No.	Asset	Apportioned approved cost	Completion cost (as per Management Certificate)	Revised
1	Asset I	15031.90	8050.65	
2	Asset II	6585.25	3623.93	
3	Asset III	18887.56	10209.49	
4	Asset IV	12987.31	6727.99	
5	Asset V	12122.17	8795.64	
6	Asset VI	6417.70	3236.13	

15. There is huge over estimation of the cost of the assets and variation in cost of certain elements of the instant assets. AVVNL has submitted that the petitioner should explain the reasons for the huge over estimation of cost. The petitioner was directed to give reasons for such an over estimation. The petitioner, vide affidavit dated 30.1.2014, has submitted that at the time of preparation of FR for Sasan UMPP Transmission System, 765 kV Sub-stations was a new technology and there were very few of them in the country. The only price available for 765 kV transformer was of DVC, Maithon project awarded to M/s Hyosung (OBD: 24.6.2008), in which only two bidders participated. However, many bidders participated in the bidding process of SASAN UMPP Transmission System. M/s Baoding, China quoted ₹8.70 crore per 500 MVA Single Phase 765/400kV transformer units which was much lesser than the FR cost of ₹21.06 crore. This reduction in cost of the transformers led to huge savings in total completion cost.

16. We have considered the submissions of the petitioner and AVVNL. As there is no overall cost over-run, the cost variation in different heads is being allowed. However, on perusal of the documents submitted by the petitioner, it is observed that the details of estimation of FR cost have not been submitted. A copy of FR cost and copy of letter of award indicating details of equipment and their cost has not been submitted in the instant petition. The Commission has been observing that though overall cost of the project is within the apportioned approved cost, there is substantial variation in the actual cost of a number of items as compared to the FR cost. The Commission has also been pointing out that the cost estimates of the petitioner are not realistic and has directed the

petitioner in certain petitions like Petition No.112/TT/2012 to adopt a prudent procedure to make cost estimates of different elements of the transmission projects more realistic. The situation in the instant petition is no different from the other petitions. It is further observed that instead of giving the cost details of the projects which formed the basis for preparation of FR cost, the petitioner has been submitting the usual reply that the estimates are prepared as per well defined procedure and that the best competitive bid price may vary from the cost estimates depending upon prevailing market conditions. The petitioner is therefore, directed to submit specific cost details of items which are at variance from the FR cost. The petitioner is further directed to provide actual, specific and comprehensive reasons for variation in cost and desist from submitting routine and incomplete justification for variation in cost of elements of the transmission system.

Time Over-run

17. As per the IA dated 10.12.2008, the instant assets were to be commissioned within 48 months from the date of IA, i.e. by 1.1.2013. However, the assets have been commissioned on 1.4.2013, after a time over-run of three months. AVVNL, MSEDCL and PSPCL submitted that IDC and IEDC for the period of delay should not be allowed. The petitioner was directed to submit the detailed justification for time over-run of three months in commissioning of the assets. In response, the petitioner, vide affidavit dated 30.1.2014, has submitted that the up-gradation of Bina-Gwalior-Agra corridor from 400 kV to 765 kV level along with 765/400 kV transformers at Bina, Gwalior and Agra Sub-stations were

to be completed by December, 2012. However, the work was completed during March, 2013. The marginal delay of three months is mainly due to dense fog conditions in Northern part of India around Agra and Gwalior Sub-station. Several times transmission elements in the Region trip due to flashover across the insulators during fog conditions. Such repeated flashover also causes de-capping of insulators resulting into grounding of conductor. In some cases cross arms are damaged due to dynamic loading at low ambient condition. Further, several EHV lines are also being kept on instruction from RLDCs on high voltage due to sudden crash in load. Under such contingent conditions, generally being encountered during winter days, progress of work is affected. Being an important link, planned shutdown was also not taken during intensive fog for crossing of new 765 kV line over existing 400 kV line and the same was planned later on taking into consideration security of grid and finally up-gradation work was completed in March, 2013

18. During the hearing on 22.4.2014, the petitioner was directed to submit the documentary evidence to show that foggy conditions prevailed in and around Agra and Gwalior Sub-stations and details of lines, which the petitioner wanted to close during the up-gradation and justification for taking a shut-down during July, 2012. In response, the petitioner has submitted vide affidavit dated 20.6.2014 the material downloaded from the net to show that foggy conditions prevailed during December and January, 2012. We have considered the submission of the petitioner. The foggy condition during the said period reduced visibility to great extent and paralyzed the life and the movement of plant and machinery was

difficult. There were Grid disturbance during July, 2012, which were taken cognizance in our order dated 22.02.2014 in Petition No. 167/SM/2012. Had the Grid disturbance not occurred, the petitioner might have commissioned the instant asset in time. We are of the view that the foggy conditions during December and January, 2012 delayed the commissioning of the instant assets and accordingly time over-run of three months is condoned.

Initial Spares

19. As per Regulation 8 (iv) (a) of the 2009 Tariff Regulations, initial spares for sub-station are to be capitalised at the rate of 2.5% of the original project cost. The petitioner has claimed initial spares of ₹169.94 lakh, ₹31.88 lakh, ₹208.81 lakh, ₹142.80 lakh, ₹199.96 lakh and ₹22.26 lakh for Asset I, II, III, IV, V and VI respectively. The initial spares claimed by the petitioner for the sub-stations are within the ceiling limit specified in the said Regulation, except in case of Asset V. The initial spares in case of Asset V are restricted to the norms specified and excess initial spares of ₹0.88 lakh has been excluded from the capital cost as on the date of commercial operation. The initial spares allowed for the instant assets as under:-

(₹ in lakh)					
Particulars	Capital cost up to 31.3.2014	Initial spares claimed	Ceiling limit as per the 2009 Tariff Regulations	Initial spares worked put	Excess initial spares
Asset I	7110.10	169.94	2.50%	177.95	0.00
Asset II	3574.39	31.88	2.50%	90.83	0.00
Asset III	9105.12	208.81	2.50%	228.11	0.00
Asset IV	6470.58	142.80	2.50%	162.25	0.00
Asset V	7963.97	199.96	2.50%	199.08	0.88
Asset VI	3187.40	22.26	2.50%	81.16	0.00

The capital cost upto 31.3.2014 is considered as the cut-off date falls beyond 31.3.2014.

20. The details of the capital cost as on the date of commercial after allowing capitalization of IDC, IEDC and disallowing excess initial spares considered for the purpose of the determination of transmission tariff is as given under:-

(₹ in lakh)

Particulars	Capital cost up to DOCO	Excess Initial Spares	Capital cost considered for the purpose of tariff
Asset I	5197.88	0.00	5197.88
Asset II	3131.48	0.00	3131.48
Asset III	6528.25	0.00	6528.25
Asset IV	6053.29	0.00	6053.29
Asset V	6166.06	0.88	6165.08
Asset VI	2873.52	0.00	2873.52

Projected Additional Capital Expenditure

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

“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.”

22. 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 in case 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”.

Accordingly, the cut-off date for the instant assets is 1.4.2016.

23. The petitioner has claimed projected additional capital expenditure pertaining to construction of sub-station. It is mainly on account of balance and retention payments covered under Regulation 9 (1) of the 2009 Tariff Regulations. Accordingly, the additional capital expenditure upto 2013-14 has been considered to work out the tariff as follow:-

(₹ in lakh)

Particulars	Transmission element	2013-14	Reason
Asset I	Sub-Station	1912.22	Final/Retention payment, PV etc
Asset II	Sub-Station	439.76	
	PLCC	3.15	
Asset III	Sub-Station	2576.87	
Asset IV	Sub-Station	417.29	
Asset V	Sub-Station	1781.42	
	PLCC	16.49	
Asset VI	Sub-Station	304.73	
	PLCC	9.15	

Debt- Equity Ratio

24. 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.”

25. The petitioner has claimed debt-equity ratio as on the date of commercial operation of the assets and additional capital expenditure in the ratio 70:30 as provided in Regulation 12 of the 2009 Tariff Regulations. The debt-equity ratio of 70:30 has been considered to work out the tariff as per the 2009 Tariff Regulations.

Return on Equity

26. Regulation 15 of the 2009 Tariff Regulations provides as under:-

“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".

27. Based on the above, the return on equity has been considered as given hereunder:-

(₹ in lakh)

Particulars	Asset I	Asset II	Asset III	Asset IV	Asset V	Asset VI
	2013-14	2013-14	2013-14	2013-14	2013-14	2013-14
Opening Equity	1559.36	939.44	1958.48	1815.99	1849.55	862.06
Addition due to Additional Capitalization	573.67	132.87	773.06	125.19	539.37	94.16
Closing Equity	2133.03	1072.32	2731.54	1941.17	2388.93	956.22
Average Equity	1846.20	1005.88	2345.01	1878.58	2119.24	909.14
Return on Equity (Base Rate)	15.50%	15.50%	15.50%	15.50%	15.50%	15.50%
Tax rate for the year 2008-09 (MAT)	11.33%	11.33%	11.33%	11.33%	11.33%	11.33%
Rate of Return on Equity (Pre Tax)	17.481%	17.481%	17.481%	17.481%	17.481%	17.481%
Return on Equity (Pre Tax)	322.73	175.84	409.93	328.39	370.46	158.93

Interest on Loan

28. 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.”

29. The petitioner’s entitlement to interest on loan has been calculated as provided under Regulation 16 of the 2009 Tariff Regulations, on the following basis:-

(a) 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;

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

(c) Weighted average rate of interest on actual average loan worked out as per (a) above is applied on the notional average loan during the year to arrive at the interest on loan; and

(d) Notwithstanding 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.

30. Accordingly, the interest on loan has been calculated on the basis of prevailing rate on the date of commercial operation. Any change in rate of interest subsequent to the date of commercial operation will be considered at the time of truing up.

31. Detailed calculations in support of the weighted average rates of interest have been given in Annexure 1 to 6.

32. Based on the above, interest on loan has been calculated as given overleaf:-

(₹ in lakh)

Particulars	Asset I	Asset II	Asset III	Asset IV	Asset V	Asset VI
	2013-14	2013-14	2013-14	2013-14	2013-14	2013-14
Gross Normative Loan	3638.52	2192.04	4569.78	4237.30	4315.62	2011.46
Cumulative Repayment upto Previous Year	0.00	0.00	0.00	0.00	0.00	0.00
Net Loan-Opening	3638.52	2192.04	4569.78	4237.30	4315.62	2011.46
Addition due to Additional Capitalization	1338.55	310.04	1803.81	292.10	1258.54	219.72
Repayment during the year	324.93	177.54	412.72	330.63	373.54	160.55
Net Loan-Closing	4652.14	2324.53	5960.86	4198.78	5200.62	2070.63
Average Loan	4145.33	2258.28	5265.32	4218.04	4758.12	2041.05
Weighted Average Rate of Interest on Loan	9.2224%	9.0856%	9.2337%	9.1615%	1.7600%	9.0443%
Interest	382.30	205.18	486.18	386.43	83.74	184.60

Depreciation

33. Regulation 17 of the 2009 Tariff Regulations provides as follows:-

“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.”

34. The petitioner has claimed actual depreciation as a component of Annual Fixed Charges. The instant transmission assets were put under commercial operation on 1.4.2013. Accordingly, assets will complete 12 years beyond 2013-14. Thus, depreciation has been calculated annually based on Straight Line Method and at rates specified in Appendix-III of the 2009 Tariff Regulations, as per details given hereunder:-

Particulars	(₹ in lakh)					
	Asset I 2013-14	Asset II 2013-14	Asset III 2013-14	Asset IV 2013-14	Asset V 2013-14	Asset VI 2013-14
Opening Gross Block	5197.88	3131.48	6528.25	6053.29	6165.18	2873.52
Additional Capital Expenditure	1912.22	442.91	2576.87	417.29	1797.91	313.88
Closing Gross Block	7110.10	3574.39	9105.12	6470.58	7963.09	3187.40
Average Gross Block	6153.99	3352.94	7816.69	6261.94	7064.13	3030.46
Rate of Depreciation	5.2800%	5.2950%	5.2800%	5.2800%	5.2878%	5.2978%
Depreciable Value	860.50	199.31	1159.59	187.78	6357.72	141.25
Remaining Depreciable Value	860.50	199.31	1159.59	187.78	6357.72	141.25
Depreciation	324.93	177.54	412.72	330.63	373.54	160.55
Cumulative Depreciation	324.93	177.54	412.72	330.63	373.54	160.55

Operation & Maintenance Expenses (O&M Expenses)

35. Clause (g) of Regulation 19 of the 2009 Tariff Regulations specifies the norms for O&M Expenses for the transmission system based on the type of sub-

station and the transmission line. The norms for the instant assets are as follows:-

Norms for Sub-station:

Element	2013-14
400 kV bay (₹ lakh per bay)	65.46
765 kV bay (₹ lakh per bay)	91.64

36. AVVNL and MSEDCL have submitted that the O&M Expenses should be allowed as per the norms specified in the 2009 Tariff Regulations. The O&M Expenses for the assets covered in the petition, as per the above said norms are as under:-

(₹ in lakh)

Particulars	2013-14
Asset-I	157.10
Asset-II	183.28
Asset-III	157.10
Asset-IV	91.64
Asset-V	274.92
Asset-VI	183.28
Total	1,047.32

37. The 765 kV Bina-Gwalior Ckt-I was commissioned and put under commercial operation w.e.f. 1.4.2007 at 400 kV level under Sipat-II Transmission System. Transmission tariff for this line was allowed in Petition No. 291/2010 considering 400 kV bays at both ends. Now, Bina-Gwalior Ckt-I is being upgraded to its rated voltage of 765 kV under Sasan Transmission System. On charging the line at 765 kV level, the 400 kV Gwalior bay at Bina Sub-station shall become free. This 400 kV bay of Gwalior-I at Bina Sub-station of the Bina-Gwalior Ckt-I

will be utilized as 400 kV ICT-II bay at Bina Sub-station. The O&M Expenses for 400 kV ICT-II bay at Bina is not considered in the instant petition for calculation of O&M Expenses as the same has been allowed in Petition No. 291/2010.

38. The petitioner has submitted that O&M Expenses 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 Expenses for tariff period 2009-14. The petitioner has also submitted that it would approach the Commission for suitable revision in the norms for O&M Expenses due to impact of wage revision.

39. The Commission has given effect to the impact of pay revision in the 2009 Tariff Regulations by factoring 50% on account of pay revision of the employees of PSUs after extensive stakeholders' consultation. We do not see any reason why the admissible amount is inadequate to meet the requirement of the employee cost.

Interest on Working Capital

40. 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 of fixed cost. The petitioner has claimed the receivables on the basis of 2 months of annual 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 Tariff Regulations provides for maintenance spares @ 15% per annum of the O & M Expenses as part of the working capital 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 O&M Expenses for one month to be included in the 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 accordance with clause (3) of Regulation 18 of the 2009 Tariff Regulations, as amended, rate of interest on working capital shall be on normative basis and shall be equal to State Bank of India Base Rate @ 13.20% (Base rate as on 1.4.2013 and 350 basis points) for asset. The

interest on working capital for the assets covered in the petition has been worked out accordingly.

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

Particulars	(₹ in lakh)					
	Asset-I 2013-14	Asset-II 2013-14	Asset-III 2013-14	Asset-IV 2013-14	Asset-V 2013-14	Asset-VI 2013-14
Maintenance Spares	23.57	27.49	23.57	13.75	41.24	27.49
O & M Expenses	13.09	15.27	13.09	7.64	22.91	15.27
Receivables	203.12	127.38	250.64	194.26	189.37	118.10
Total	239.78	170.15	287.30	215.64	253.52	160.86
Interest	31.65	22.46	37.92	28.46	33.46	21.23

Transmission Charges

42. The transmission charges being allowed for the assets are summarized hereunder:-

Particulars	(₹ in lakh)					
	Asset I 2013-14	Asset II 2013-14	Asset III 2013-14	Asset IV 2013-14	Asset V 2013-14	Asset VI 2013-14
Depreciation	324.93	177.54	412.72	330.63	373.58	160.55
Interest on Loan	382.30	205.18	486.18	386.43	83.75	184.60
Return on Equity	322.73	175.84	409.93	328.39	370.51	158.93
Interest on Working Capital	31.65	22.46	37.92	28.46	33.46	21.23
O & M Expenses	157.10	183.28	157.10	91.64	274.92	183.28
Total	1218.71	764.30	1503.86	1165.56	1136.23	708.59

Filing Fee and the Publication Expenses

43. The petitioner has sought reimbursement of fee paid by it for filing the petition and publication expenses. The petitioner shall be entitled for

reimbursement of the filing fees and publication expenses in connection with the present petition, directly from the beneficiaries on *pro-rata* basis in accordance with Regulation 42A (1) (a) of the 2009 Tariff Regulations.

Licence Fee

44. 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. MSEDCL has submitted that licence fee should be allowed as per the norms specified in the 2009 Tariff Regulations. The petitioner shall be entitled for reimbursement of licence fee in accordance with Regulation 42A (1) (b) of the 2009 Tariff Regulations.

Service Tax

45. 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. MSEDCL has submitted that the petitioner's prayer is premature. We consider petitioner's prayer pre-mature and accordingly this prayer is rejected.

Sharing of Transmission Charges

46. The actual date of commercial operation of the instant transmission assets is 1.4.2013. Accordingly, 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.

47. This order disposes of Petition No. 51/TT/2013.

sd/-

(A. K. Singhal)
Member

sd/-

(M. Deena Dayalan)
Member

sd/-

(Gireesh B. Pradhan)
Chairperson



Annexure-1**Calculation of Weighted Average Rate of Interest on Actual Loans****(₹ in lakh)**

	Details of Loan	2013-14
1	Bond XLI	
	Gross loan opening	200.00
	Cumulative Repayment upto DOCO/previous year	0.00
	Net Loan-Opening	200.00
	Additions during the year	0.00
	Repayment during the year	0.00
	Net Loan-Closing	200.00
	Average Loan	200.00
	Rate of Interest	8.64%
	Interest	17.28
2	Bond XXXVIII	
	Gross loan opening	20.00
	Cumulative Repayment upto DOCO/previous year	0.00
	Net Loan-Opening	20.00
	Additions during the year	0.00
	Repayment during the year	0.00
	Net Loan-Closing	20.00
	Average Loan	20.00
	Rate of Interest	9.25%
	Interest	1.85
3	BOND-XXIX	
	Gross loan opening	100.00
	Cumulative Repayment upto DOCO/previous year	8.33
	Net Loan-Opening	91.67
	Additions during the year	0.00
	Repayment during the year	7.64
	Net Loan-Closing	84.03
	Average Loan	87.85
	Rate of Interest	9.20%
	Interest	8.08
4	Bond XXXIV	
	Gross loan opening	2.00
	Cumulative Repayment upto DOCO/previous year	0.00
	Net Loan-Opening	2.00
	Additions during the year	0.00
	Repayment during the year	0.00
	Net Loan-Closing	2.00
	Average Loan	2.00
	Rate of Interest	8.840%
	Interest	0.18

5	Bond XXXVII	
	Gross loan opening	40.00
	Cumulative Repayment upto DOCO/previous year	0.00
	Net Loan-Opening	40.00
	Additions during the year	0.00
	Repayment during the year	0.00
	Net Loan-Closing	40.00
	Average Loan	40.00
	Rate of Interest	9.25%
	Interest	3.70
6	Bond XL	
	Gross loan opening	2611.52
	Cumulative Repayment upto DOCO/previous year	0.00
	Net Loan-Opening	2611.52
	Additions during the year	0.00
	Repayment during the year	0.00
	Net Loan-Closing	2611.52
	Average Loan	2611.52
	Rate of Interest	9.300%
	Interest	242.87
7	Bond XXXVI	
	Gross loan opening	40.00
	Cumulative Repayment upto DOCO/previous year	0.00
	Net Loan-Opening	40.00
	Additions during the year	0.00
	Repayment during the year	0.00
	Net Loan-Closing	40.00
	Average Loan	40.00
	Rate of Interest	9.350%
	Interest	3.74
8	Bond XXXII	
	Gross loan opening	200.00
	Cumulative Repayment upto DOCO/previous year	0.00
	Net Loan-Opening	200.00
	Additions during the year	0.00
	Repayment during the year	16.67
	Net Loan-Closing	183.33
	Average Loan	191.67
	Rate of Interest	8.840%
	Interest	16.94
9	Bond XXXIX	
	Gross loan opening	125.00
	Cumulative Repayment upto DOCO/previous year	0.00
	Net Loan-Opening	125.00

	Additions during the year	0.00
	Repayment during the year	0.00
	Net Loan-Closing	125.00
	Average Loan	125.00
	Rate of Interest	9.40%
	Interest	11.75
10	Bond XXX	
	Gross loan opening	200.00
	Cumulative Repayment upto DOCO/previous year	0.00
	Net Loan-Opening	200.00
	Additions during the year	0.00
	Repayment during the year	16.67
	Net Loan-Closing	183.33
	Average Loan	191.67
	Rate of Interest	8.80%
	Interest	16.87
11	Bond XXXV	
	Gross loan opening	100.00
	Cumulative Repayment upto DOCO/previous year	0.00
	Net Loan-Opening	100.00
	Additions during the year	0.00
	Repayment during the year	0.00
	Net Loan-Closing	100.00
	Average Loan	100.00
	Rate of Interest	9.64%
	Interest	9.64
	Total Loan	
	Gross loan opening	3638.52
	Cumulative Repayment upto DOCO/previous year	8.33
	Net Loan-Opening	3630.19
	Additions during the year	0.00
	Repayment during the year	40.97
	Net Loan-Closing	3589.21
	Average Loan	3609.70
	Rate of Interest	9.2224%
	Interest	332.90

Annexure-2**Calculation of Weighted Average Rate of Interest on Actual Loans****(₹ in lakh)**

	Details of Loan	2013-14
1	Bond XXXIII	
	Gross loan opening	170.00
	Cumulative Repayment upto DOCO/previous year	0.00
	Net Loan-Opening	170.00
	Additions during the year	0.00
	Repayment during the year	0.00
	Net Loan-Closing	170.00
	Average Loan	170.00
	Rate of Interest	8.64%
	Interest	14.69
2	Bond XXXVIII	
	Gross loan opening	40.00
	Cumulative Repayment upto DOCO/previous year	0.00
	Net Loan-Opening	40.00
	Additions during the year	0.00
	Repayment during the year	0.00
	Net Loan-Closing	40.00
	Average Loan	40.00
	Rate of Interest	9.25%
	Interest	3.70
3	BOND-XXIX	
	Gross loan opening	200.00
	Cumulative Repayment upto DOCO/previous year	16.67
	Net Loan-Opening	183.33
	Additions during the year	0.00
	Repayment during the year	16.67
	Net Loan-Closing	166.67
	Average Loan	175.00
	Rate of Interest	9.20%
	Interest	16.10
4	Bond XXXIV	
	Gross loan opening	3.00
	Cumulative Repayment upto DOCO/previous year	0.00
	Net Loan-Opening	3.00
	Additions during the year	0.00
	Repayment during the year	0.00
	Net Loan-Closing	3.00
	Average Loan	3.00
	Rate of Interest	8.840%
	Interest	0.27

5	Bond XXXVII	
	Gross loan opening	100.00
	Cumulative Repayment upto DOCO/previous year	0.00
	Net Loan-Opening	100.00
	Additions during the year	0.00
	Repayment during the year	0.00
	Net Loan-Closing	100.00
	Average Loan	100.00
	Rate of Interest	9.25%
	Interest	9.25
6	Bond XL	
	Gross loan opening	445.00
	Cumulative Repayment upto DOCO/previous year	0.00
	Net Loan-Opening	445.00
	Additions during the year	0.00
	Repayment during the year	0.00
	Net Loan-Closing	445.00
	Average Loan	445.00
	Rate of Interest	9.300%
	Interest	41.39
7	Bond XXXVI	
	Gross loan opening	100.00
	Cumulative Repayment upto DOCO/previous year	0.00
	Net Loan-Opening	100.00
	Additions during the year	0.00
	Repayment during the year	0.00
	Net Loan-Closing	100.00
	Average Loan	100.00
	Rate of Interest	9.350%
	Interest	9.35
8	Bond XXXII	
	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	8.840%
	Interest	25.42
9	Bond XXXIX	
	Gross loan opening	100.00
	Cumulative Repayment upto DOCO/previous year	0.00
	Net Loan-Opening	100.00

	Additions during the year	0.00
	Repayment during the year	0.00
	Net Loan-Closing	100.00
	Average Loan	100.00
	Rate of Interest	9.40%
	Interest	9.40
10	Bond XXX	
	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	8.80%
	Interest	25.30
11	Bond XXXV	
	Gross loan opening	170.00
	Cumulative Repayment upto DOCO/previous year	0.00
	Net Loan-Opening	170.00
	Additions during the year	0.00
	Repayment during the year	0.00
	Net Loan-Closing	170.00
	Average Loan	170.00
	Rate of Interest	9.64%
	Interest	16.39
12	Bond XLII	
	Gross loan opening	131.04
	Cumulative Repayment upto DOCO/previous year	0.00
	Net Loan-Opening	131.04
	Additions during the year	0.00
	Repayment during the year	0.00
	Net Loan-Closing	131.04
	Average Loan	131.04
	Rate of Interest	8.80%
	Interest	11.53
13	Bond XLI	
	Gross loan opening	125.00
	Cumulative Repayment upto DOCO/previous year	0.00
	Net Loan-Opening	125.00
	Additions during the year	0.00
	Repayment during the year	0.00
	Net Loan-Closing	125.00
	Average Loan	125.00
	Rate of Interest	8.85%
	Interest	11.06

14	SBI (21.3.2012)	
	Gross loan opening	0.00
	Cumulative Repayment upto DOCO/previous year	0.00
	Net Loan-Opening	0.00
	Additions during the year	8.00
	Repayment during the year	0.00
	Net Loan-Closing	8.00
	Average Loan	4.00
	Rate of Interest	10.45%
	Interest	0.42
	Total Loan	
	Gross loan opening	2184.04
	Cumulative Repayment upto DOCO/previous year	16.67
	Net Loan-Opening	2167.37
	Additions during the year	8.00
	Repayment during the year	66.67
	Net Loan-Closing	2108.71
	Average Loan	2138.04
	Rate of Interest	9.0856%
	Interest	194.25

Annexure-3**Calculation of Weighted Average Rate of Interest on Actual Loans****(₹ in lakh)**

	Details of Loan	2013-14
1	Bond XXXIII	
	Gross loan opening	135.00
	Cumulative Repayment upto DOCO/previous year	0.00
	Net Loan-Opening	135.00
	Additions during the year	0.00
	Repayment during the year	0.00
	Net Loan-Closing	135.00
	Average Loan	135.00
	Rate of Interest	8.64%
	Interest	11.66
2	Bond XXXVIII	
	Gross loan opening	30.00
	Cumulative Repayment upto DOCO/previous year	0.00
	Net Loan-Opening	30.00
	Additions during the year	0.00
	Repayment during the year	0.00
	Net Loan-Closing	30.00
	Average Loan	30.00
	Rate of Interest	9.25%
	Interest	2.78
3	BOND-XXIX	
	Gross loan opening	200.00
	Cumulative Repayment upto DOCO/previous year	16.67
	Net Loan-Opening	183.33
	Additions during the year	0.00
	Repayment during the year	16.67
	Net Loan-Closing	166.67
	Average Loan	175.00
	Rate of Interest	9.20%
	Interest	16.10
4	Bond XXXIV	
	Gross loan opening	2.00
	Cumulative Repayment upto DOCO/previous year	0.00
	Net Loan-Opening	2.00
	Additions during the year	0.00
	Repayment during the year	0.00
	Net Loan-Closing	2.00
	Average Loan	2.00
	Rate of Interest	8.840%
	Interest	0.18

5	Bond XXXVII	
	Gross loan opening	90.00
	Cumulative Repayment upto DOCO/previous year	0.00
	Net Loan-Opening	90.00
	Additions during the year	0.00
	Repayment during the year	0.00
	Net Loan-Closing	90.00
	Average Loan	90.00
	Rate of Interest	9.25%
	Interest	8.33
6	Bond XL	
	Gross loan opening	3372.78
	Cumulative Repayment upto DOCO/previous year	0.00
	Net Loan-Opening	3372.78
	Additions during the year	0.00
	Repayment during the year	0.00
	Net Loan-Closing	3372.78
	Average Loan	3372.78
	Rate of Interest	9.300%
	Interest	313.67
7	Bond XXXVI	
	Gross loan opening	90.00
	Cumulative Repayment upto DOCO/previous year	0.00
	Net Loan-Opening	90.00
	Additions during the year	0.00
	Repayment during the year	0.00
	Net Loan-Closing	90.00
	Average Loan	90.00
	Rate of Interest	9.350%
	Interest	8.42
8	Bond XXXII	
	Gross loan opening	250.00
	Cumulative Repayment upto DOCO/previous year	0.00
	Net Loan-Opening	250.00
	Additions during the year	0.00
	Repayment during the year	20.83
	Net Loan-Closing	229.17
	Average Loan	239.58
	Rate of Interest	8.840%
	Interest	21.18
9	Bond XXXIX	
	Gross loan opening	50.00
	Cumulative Repayment upto DOCO/previous year	0.00
	Net Loan-Opening	50.00
	Additions during the year	0.00

	Repayment during the year	0.00
	Net Loan-Closing	50.00
	Average Loan	50.00
	Rate of Interest	9.40%
	Interest	4.70
10	Bond XXX	
	Gross loan opening	250.00
	Cumulative Repayment upto DOCO/previous year	0.00
	Net Loan-Opening	250.00
	Additions during the year	0.00
	Repayment during the year	20.83
	Net Loan-Closing	229.17
	Average Loan	239.58
	Rate of Interest	8.80%
	Interest	21.08
11	Bond XXXV	
	Gross loan opening	100.00
	Cumulative Repayment upto DOCO/previous year	0.00
	Net Loan-Opening	100.00
	Additions during the year	0.00
	Repayment during the year	0.00
	Net Loan-Closing	100.00
	Average Loan	100.00
	Rate of Interest	9.64%
	Interest	9.64
	Total Loan	
	Gross loan opening	4569.78
	Cumulative Repayment upto DOCO/previous year	16.67
	Net Loan-Opening	4553.11
	Additions during the year	0.00
	Repayment during the year	58.33
	Net Loan-Closing	4494.78
	Average Loan	4523.95
	Rate of Interest	9.2337%
	Interest	417.73

Annexure-4**Calculation of Weighted Average Rate of Interest on Actual Loans****(₹ in lakh)**

	Details of Loan	2013-14
1	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
2	Bond XXXVIII	
	Gross loan opening	60.00
	Cumulative Repayment upto DOCO/previous year	0.00
	Net Loan-Opening	60.00
	Additions during the year	0.00
	Repayment during the year	0.00
	Net Loan-Closing	60.00
	Average Loan	60.00
	Rate of Interest	9.25%
	Interest	5.55
3	BOND-XXIX	
	Gross loan opening	300.00
	Cumulative Repayment upto DOCO/previous year	25.00
	Net Loan-Opening	275.00
	Additions during the year	0.00
	Repayment during the year	25.00
	Net Loan-Closing	250.00
	Average Loan	262.50
	Rate of Interest	9.20%
	Interest	24.15
4	Bond XXXIV	
	Gross loan opening	5.00
	Cumulative Repayment upto DOCO/previous year	0.00
	Net Loan-Opening	5.00
	Additions during the year	0.00
	Repayment during the year	0.00
	Net Loan-Closing	5.00
	Average Loan	5.00
	Rate of Interest	8.840%
	Interest	0.44

5	Bond XXXVII	
	Gross loan opening	100.00
	Cumulative Repayment upto DOCO/previous year	0.00
	Net Loan-Opening	100.00
	Additions during the year	0.00
	Repayment during the year	0.00
	Net Loan-Closing	100.00
	Average Loan	100.00
	Rate of Interest	9.25%
	Interest	9.25
6	Bond XL	
	Gross loan opening	1968.30
	Cumulative Repayment upto DOCO/previous year	0.00
	Net Loan-Opening	1968.30
	Additions during the year	0.00
	Repayment during the year	0.00
	Net Loan-Closing	1968.30
	Average Loan	1968.30
	Rate of Interest	9.300%
	Interest	183.05
7	Bond XXXVI	
	Gross loan opening	100.00
	Cumulative Repayment upto DOCO/previous year	0.00
	Net Loan-Opening	100.00
	Additions during the year	0.00
	Repayment during the year	0.00
	Net Loan-Closing	100.00
	Average Loan	100.00
	Rate of Interest	9.350%
	Interest	9.35
8	Bond XXXII	
	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	33.33
	Net Loan-Closing	366.67
	Average Loan	383.33
	Rate of Interest	8.840%
	Interest	33.89
9	Bond XXXIX	
	Gross loan opening	354.00
	Cumulative Repayment upto DOCO/previous year	0.00
	Net Loan-Opening	354.00
	Additions during the year	0.00

	Repayment during the year	0.00
	Net Loan-Closing	354.00
	Average Loan	354.00
	Rate of Interest	9.40%
	Interest	33.28
10	Bond XXX	
	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	33.33
	Net Loan-Closing	366.67
	Average Loan	383.33
	Rate of Interest	8.80%
	Interest	33.73
11	Bond XXXV	
	Gross loan opening	150.00
	Cumulative Repayment upto DOCO/previous year	0.00
	Net Loan-Opening	150.00
	Additions during the year	0.00
	Repayment during the year	0.00
	Net Loan-Closing	150.00
	Average Loan	150.00
	Rate of Interest	9.64%
	Interest	14.46
	Total Loan	
	Gross loan opening	4237.30
	Cumulative Repayment upto DOCO/previous year	25.00
	Net Loan-Opening	4212.30
	Additions during the year	0.00
	Repayment during the year	91.67
	Net Loan-Closing	4120.63
	Average Loan	4166.47
	Rate of Interest	9.1615%
	Interest	381.71

Annexure-5

Calculation of Weighted Average Rate of Interest on Actual Loans		(₹ in lakh)
Details of Loan		2013-14
1	Bond IBRD V	
	Gross loan opening	4316.24
	Cumulative Repayment upto DOCO/previous year	0.00
	Net Loan-Opening	4316.24
	Additions during the year	0.00
	Repayment during the year	0.00
	Net Loan-Closing	4316.24
	Average Loan	4316.24
	Rate of Interest	1.76%
	Interest	75.97
	Total Loan	
	Gross loan opening	4316.24
	Cumulative Repayment upto DOCO/previous year	0.00
	Net Loan-Opening	4316.24
	Additions during the year	0.00
	Repayment during the year	0.00
	Net Loan-Closing	4316.24
	Average Loan	4316.24
	Rate of Interest	1.7600%
	Interest	75.97

Annexure-6**Calculation of Weighted Average Rate of Interest on Actual Loans****(₹ in lakh)**

	Details of Loan	2013-14
1	Bond XXXIII	
	Gross loan opening	150.00
	Cumulative Repayment upto DOCO/previous year	0.00
	Net Loan-Opening	150.00
	Additions during the year	0.00
	Repayment during the year	0.00
	Net Loan-Closing	150.00
	Average Loan	150.00
	Rate of Interest	8.64%
	Interest	12.96
2	Bond XXXVIII	
	Gross loan opening	40.00
	Cumulative Repayment upto DOCO/previous year	0.00
	Net Loan-Opening	40.00
	Additions during the year	0.00
	Repayment during the year	0.00
	Net Loan-Closing	40.00
	Average Loan	40.00
	Rate of Interest	9.25%
	Interest	3.70
3	BOND-XXIX	
	Gross loan opening	400.00
	Cumulative Repayment upto DOCO/previous year	33.33
	Net Loan-Opening	366.67
	Additions during the year	0.00
	Repayment during the year	33.33
	Net Loan-Closing	333.33
	Average Loan	350.00
	Rate of Interest	9.20%
	Interest	32.20
4	Bond XXXIV	
	Gross loan opening	3.00
	Cumulative Repayment upto DOCO/previous year	0.00
	Net Loan-Opening	3.00
	Additions during the year	0.00
	Repayment during the year	0.00
	Net Loan-Closing	3.00
	Average Loan	3.00
	Rate of Interest	8.840%
	Interest	0.27

5	Bond XXXVII	
	Gross loan opening	50.00
	Cumulative Repayment upto DOCO/previous year	0.00
	Net Loan-Opening	50.00
	Additions during the year	0.00
	Repayment during the year	0.00
	Net Loan-Closing	50.00
	Average Loan	50.00
	Rate of Interest	9.25%
	Interest	4.63
6	Bond XL	
	Gross loan opening	390.00
	Cumulative Repayment upto DOCO/previous year	0.00
	Net Loan-Opening	390.00
	Additions during the year	0.00
	Repayment during the year	0.00
	Net Loan-Closing	390.00
	Average Loan	390.00
	Rate of Interest	9.300%
	Interest	36.27
7	Bond XXXVI	
	Gross loan opening	50.00
	Cumulative Repayment upto DOCO/previous year	0.00
	Net Loan-Opening	50.00
	Additions during the year	0.00
	Repayment during the year	0.00
	Net Loan-Closing	50.00
	Average Loan	50.00
	Rate of Interest	9.350%
	Interest	4.68
8	Bond XXXII	
	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	8.840%
	Interest	25.42
9	Bond XXXIX	
	Gross loan opening	50.00
	Cumulative Repayment upto DOCO/previous year	0.00
	Net Loan-Opening	50.00
	Additions during the year	0.00

	Repayment during the year	0.00
	Net Loan-Closing	50.00
	Average Loan	50.00
	Rate of Interest	9.40%
	Interest	4.70
10	Bond XXX	
	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	8.80%
	Interest	25.30
11	Bond XXXV	
	Gross loan opening	50.00
	Cumulative Repayment upto DOCO/previous year	0.00
	Net Loan-Opening	50.00
	Additions during the year	0.00
	Repayment during the year	0.00
	Net Loan-Closing	50.00
	Average Loan	50.00
	Rate of Interest	9.64%
	Interest	4.82
12	Bond XLII	
	Gross loan opening	113.28
	Cumulative Repayment upto DOCO/previous year	0.00
	Net Loan-Opening	113.28
	Additions during the year	0.00
	Repayment during the year	0.00
	Net Loan-Closing	113.28
	Average Loan	113.28
	Rate of Interest	8.80%
	Interest	9.97
13	Bond XLI	
	Gross loan opening	110.00
	Cumulative Repayment upto DOCO/previous year	0.00
	Net Loan-Opening	110.00
	Additions during the year	0.00
	Repayment during the year	0.00
	Net Loan-Closing	110.00
	Average Loan	110.00
	Rate of Interest	8.85%
	Interest	9.74
14	SBI (21.3.2012)	

	Gross loan opening	0.00
	Cumulative Repayment upto DOCO/previous year	0.00
	Net Loan-Opening	0.00
	Additions during the year	5.18
	Repayment during the year	0.00
	Net Loan-Closing	5.18
	Average Loan	2.59
	Rate of Interest	10.45%
	Interest	0.27
	Total Loan	
	Gross loan opening	2006.28
	Cumulative Repayment upto DOCO/previous year	33.33
	Net Loan-Opening	1972.95
	Additions during the year	5.18
	Repayment during the year	83.33
	Net Loan-Closing	1894.79
	Average Loan	1933.87
	Rate of Interest	9.0443%
	Interest	174.90