

**CENTRAL ELECTRICITY REGULATORY COMMISSION
NEW DELHI**

Petition No. 196/GT/2013

Coram:

Shri Gireesh B Pradhan, Chairperson

Shri A.K.Singhal, Member

Date of Hearing: 01.07.2014

Date of Order: 12.03.2015

In the matter of

Approval of generation tariff of Chandrapura Thermal Power Station Unit Nos.7 and 8 (2 x 250 MW) for the period from their respective dates of commercial operation till 31.3.2014

And In the matter of

Damodar Valley Corporation
DVC Towers, VIP Road,
Kolkata-700054

...Petitioner

Vs

1. Delhi Transco Ltd
Shakti Sadan, Kotla Road
New Delhi

2. Madhya Pradesh Power Trading Company Ltd
Shakthi Bhavan, Vidyut Nagar,
Jabalpur-482008

...Respondents

Parties present:

Shri M.G.Ramachandran, Advocate, DVC

Ms. Anushree Bardhan, Advocate, DVC

Shri Amit Biswas, DVC

Shri D.K.Aich, DVC

Shri R.B.Sharma, Advocate, BRPL

Ms. Megha Bajpeyi, BRPL

ORDER

This petition has been filed by the petitioner, DVC for approval of generation tariff of Chandrapura Thermal Power Station, Unit Nos. 7 and 8 (2 x 250 MW) ('the generating station') for the period from their respective dates of commercial operation

(COD) till 31.3.2014, in terms of the liberty granted by Commission's order dated 6.7.2011 in Petition No.339/2010 and based on the Central Electricity Regulatory Commission (Terms and Conditions of Tariff) Regulations, 2009 ('the 2009 Tariff Regulations').

2. The generating station comprises of two units of 250 MW and the dates of commercial operation of the units of the generating station are as under:

| | |
|--------------------------------|-----------|
| Unit No.8 | 15.7.2011 |
| Unit No.7 (generating station) | 2.11.2011 |

3. The petitioner had prayed for grant of provisional tariff of the generating station and the Commission by its order dated 10.10.2012 in Dock No. 42/GT/2011 granted provisional tariff, subject to adjustment after determination of final tariff as per proviso to Regulation 5(3) of the 2009 Tariff Regulations.

4. The claim of the petitioner for Capital cost (including Interest During Construction and Financing Charges) of the generating station, considering the COD of Unit No.8 (as 15.7.2011) and estimated COD of Unit No. 7 (as 31.10.2011) are as under:

| | 2011-12 | | 2012-13 | 2013-14 |
|---|-------------------------------|-------------------------------|------------------|------------------|
| | 15.7.2011 to 30.10.2011 | 31.10.2011 to 31.3.2012 | | |
| Capital cost | 167066.01 | 280333.88 | 284416.72 | 285644.64 |
| Actual/projected Additional Capital Expenditure | 0.00 | 4082.85 | 1227.92 | 0.00 |
| Closing Capital Cost | 167066.01 | 284416.72 | 285644.64 | 285644.64 |

5. Based on the above capital cost, the Annual Fixed Charges claimed by the petitioner in respect of the generating station is as under:

(` in lakh)

| | 2011-12 | | 2012-13 | 2013-14 |
|--|-------------------------|----------------------------------|-----------------|-----------------|
| | 15.7.2011 30.10.2011 | to 31.10.2011 to 31.3.2012 | | |
| Depreciation | 3817.90 | 9207.86 | 22121.75 | 22121.75 |
| Interest on Loan | 3398.01 | 7930.71 | 17625.84 | 15506.82 |
| Return on Equity | 2865.74 | 6861.89 | 16569.07 | 16604.76 |
| Interest on Working Capital | 625.15 | 1661.92 | 3981.86 | 3972.73 |
| O&M Expenses | 1500.49 | 4251.39 | 10755.00 | 11370.00 |
| Cost of secondary fuel oil | 196.38 | 556.42 | 1327.41 | 1327.41 |
| Interest on Govt. Capital (as per Section 38 of DVC Act) | 850.39 | 2036.23 | 4916.78 | 4927.37 |
| Total | 13254.07 | 32506.42 | 77297.70 | 75830.84 |

6. Unit No.7 had achieved commercial operation on 2.11.2011. However, the petitioner has not revised its claim for annual fixed charges in view of actual COD of Unit No.7. In response to the directions of the Commission, the petitioner vide affidavit dated 1.11.2013 has furnished the capital cost as on actual COD of both units of the generating station duly certified by Auditor. The actual capital expenditure as on COD of both units as per Auditor's certificate is as under;

(` in lakh)

| | COD of Unit No. 8 (15.7.2011) | COD of Unit No.7 (2.11.2011) | Total |
|----------------------------|-------------------------------------|---------------------------------|------------------|
| Actual Capital expenditure | 110274.00 | 104878.00 | 215152.00 |
| IDC Capitalized | 44166.00 | 1570.00 | 45736.00 |
| Total | 152083.00 | 98364.00 | 250447.00 |

7. Reply to the petition has been filed by respondent/ beneficiary, BSES-BRPL and the petitioner has filed its rejoinder to the same. Based on the submissions of the parties and the documents available on record, we proceed to examine the claim of the petitioner in the subsequent paragraphs.

Commissioning Schedule

8. The petitioner vide affidavit dated 27.10.2011 had furnished the scheduled and the actual/ estimated dates of commercial operation of the units of the generating station as under:

| Unit Nos | Date of LOA | Schedule COD as per LOA | Actual Synchronization on oil | Actual Synchronization on Coal | Actual COD | Delay (months) |
|----------|-------------|-------------------------|-------------------------------|--------------------------------|------------|----------------|
| 7 | 30.6.2004 | 31.1.2007 | 6.1.2009 | 15.9.2009 | 31.10.2011 | 57 |
| 8 | | 31.3.2007 | 28.3.2010 | 31.3.2010 | 15.7.2011 | 51.5 |

9. Subsequently, the petitioner vide affidavit dated 1.11.2013 has revised the period of delay in completion of the project by computing the scheduled COD from the date of investment approval as per the time line specified under the 2009 Tariff Regulations. In justification of this, the petitioner has clarified that the Commission had considered the delay in commissioning with reference to the date of investment approval. Accordingly, the petitioner has computed the commissioning schedule as per the completion timeline specified by this Commission for green field project of unit size 250 MW in Annexure-II of the 2009 Tariff Regulations. The petitioner has submitted that the delay of 51.5 months in the commissioning of Unit No.8 (as per actual COD) and 57 months (as per estimated COD) for Unit No.7 was earlier calculated with reference to the date of start of work/zero date as per Letter of Award (LOA).

10. The time line for completion of the project as specified under Annexure-II of the 2009 Tariff Regulations is 33 months for First unit and 37 months for Second unit from the date of investment approval. The date of Investment approval is 8.9.2005. Accordingly, the details of the actual date of commercial operation (COD) of the project as against its scheduled date of commercial operation as indicated by the petitioner are as under:

| | Date of investment approval | Schedule COD as per timeline specified by Commission | Actual COD | Delay (months) |
|------------|-----------------------------|--|------------|----------------|
| Unit No.8 | 8.9.2005 | 8.6.2008 | 15.7.2011 | 37 |
| Unit No. 7 | | 8.10.2008 | 2.11.2011 | 37 |

11. Thus, according to petitioner, there is delay of 37 months in case of both the units of the generating station. The petitioner, in justification for the computation of scheduled COD as per timeline specified by Commission has pointed out that the Commission while passing the provisional tariff order dated 10.10.2012 in respect of Chandrapura TPS Units 7 & 8 (*this generating station*) had considered the delay in the commissioning of the project with respect to the date of investment approval as per Appendix-II of Regulation 15 of the 2009 Tariff Regulations. Accordingly, the petitioner has argued that the time overrun of 37 months for both the units of the generating station is as per the timeline specified by the Commission.

12. The matter has been examined. We are not inclined to accept the submissions of the petitioner as regards the computation of scheduled COD as per time line specified by the Commission. It could be observed from para-12 of the Commission's order dated 10.10.2012, that the schedule CoD as per timeline specified by the Commission is considered to examine whether the units of the generating station are entitled for additional Return on Equity (RoE) of 0.5% for timely commissioning of plant in terms of 2009 Tariff Regulations, and not for assessing the time overrun. The question of time overrun was left to be decided before the determination of final tariff after hearing of all the parties on merit. It is clarified that the timeline specified by the Commission in Regulation 15 of the 2009 Tariff Regulations is for considering whether any project/unit is entitled for an additional Return on Equity (ROE) of 0.5% on account of timely commissioning of unit/project and shall not be taken as a benchmark norm to assess the actual time over run in the commissioning of different units. In this connection, the observations of the Appellate Tribunal for Electricity (The Tribunal) in its judgment dated 12.1.2012 in Appeal No. 104/2011 is extracted as under:

"13. Perusal of Regulation 15 along with Appendix II and Para 13.12.1 of SoR would amply reveal that these deal with Return on Equity and completion time frame provided therein refers only to additional Return on Equity of 0.5%. It does to limit the time frame for calculation of IDC.

14. The period of 36 months is the actual construction period allowed. Regulation 7 (1) does not provide for the construction period to commence from the date of the Investment Approval. In fact, such construction period cannot be construed to be commenced immediately from the date of Investment Approval. After the Investment Approval is given, the Appellant has to initiate the process of awarding the contract, select the contractor and then issue the Letter of Award. Thus, the construction can start only after the award of contract and not before."

13. Accordingly, the time line for the purpose of time overrun shall be reckoned on the basis of the timeline indicated in the Investment approval.

Time Overrun

14. The petitioner vide affidavit dated 1.11.2013 has submitted that the Board of the petitioner corporation in its 544th meeting held on 31.1.2002 had adopted a resolution for capacity addition of 5420 MW during the 10th Five Year Plan (2002-07) which also included the commissioning of this generating station. From the LOA dated 30.6.2004, it is observed that the schedule COD of both the units were envisaged in such a manner so that the units are commissioned within 10th Five Year Plan (2002-07). Accordingly, we consider it prudent to examine the time overrun by considering the schedule COD of the units as per the LOA. The details of actual COD as against the scheduled COD as per LOA is as under:

| Unit Nos. | Date of LOA | Schedule COD as per LOA | Actual Synchronization on Coal | Actual COD | Delay (months) |
|-----------|-------------|-------------------------|--------------------------------|------------|----------------|
| 7 | 30.6.2004 | 31.1.2007 | 15.9.2009 | 2.11.2011 | 57 |
| 8 | | 31.3.2007 | 15.7.2011 | 15.7.2011 | 51.5 |

15. Considering the above, we conclude that there is time overrun of 57 months in respect of Unit No.7 and 51.5 months for Unit No.8 of the generating station.

Reasons for Time overrun

16. The petitioner was directed by letter dated 21.10.2013, to submit additional information, amongst others, on the following;

“(a) Copy of original investment approval of Board of DVC. The scheduled COD of the units as per investment approval shall be indicated.

(b) There is time overrun of 51.5 months for Unit-8 and 57 months for Unit-7 from the date of letter of award i.e. 30.6.2004. Therefore, the reasons for time overrun shall be explained giving PERT chart clearing specifying the delay in different critical activities. Further, the steps during the construction period to arrest the time overrun shall also be clearly specified. Reasons for damage of rotor of Unit-7 shall also be submitted.

(c) The implication of time overrun on the project cost shall be submitted giving details of increase in IDC & FC price escalation in different packages, increase in IEDC, etc. separately from the date of scheduled COD. Further, if delay is attributable to EPC contractor, the amount of liquidated damaged (LD) recovered/ to be recovered as per the contractual agreement on different packages shall be submitted.”

17. In response, the petitioner vide affidavit dated 1.11.2013 has submitted the information justifying the main reasons for the delay in COD as under:

| Sl. No. | Reasons | Delay (months) |
|--|--|-----------------------|
| (a) | The delay in handing over site, free from all encumbrances to BHEL. | 11 months |
| (b) | Due to unprecedented rise in steel and cement price the activity of sub contractor/Vendor/Sub-vendor supply temporarily withdrawn. | 18 months |
| (c) | Delay due to adverse working condition and hindrances by local people/surroundings | 5 months |
| (d) | Erection activity hampered for non-shipment of existing materials for non-completion of proper storage space | 6 months |
| Delay up to coal synchronization of Unit No.7 on 15.9.2009 (a+b+c+d) | | 40 months |

18. The petitioner has further submitted as under:

(i) That during the commissioning activities after synchronization of Unit No.7 with coal on 15.9.2009 and full load was achieved on 4.11.2009, the Turbine rotor of Unit No.7 got damaged on 7.5.2010. After trial run, fulfillment of contractual obligations and Performance Guarantee tests, the said unit along with its associated 220 kV switchyard was due to be formally handed over to the petitioner by M/s BHEL. Considering the above, the COD of Unit No. 7 was expected to be declared by January, 2010 and M/s BHEL was attending to various teething troubles at areas like Switchyard, Control & instrument circuitry, protection system etc. of newly erected equipment.

(ii) On 4.5.2010, both 220 kV BTPS & CTPS (old) line tripped during heavy rain & thunderstorm resulting total power failure of new switchyard of CTPS. As fault of BTPS line persisted and main Circuit Breaker of CTPS line was found in locked out condition, attempt was being made to restore power in switchyard through Transfer Bus by closing Isolator #4 of CTPS line, Main bus #1 isolator & Bus coupler breaker. But Isolator #4 opened automatically causing total power failure again. After restoring Auxiliary AC power through DG set, the compressor of CTPS line Breaker was started and Main bus #1 charged through CTPS (new)-CTPS (old) line main breaker. Considering the event of total power failure of CTPS Switchyard on 4.5.2010, some maintenance drill was being practiced to make ready of the whole switchyard at the maximum possible extent after necessary implementation of interlocks, protection on the Switchyard.

(iii) On 7.5.2010, during the process of pre-commissioning checks in the switchyard, back charging of generator of Unit No. 7 happened due to malfunctioning of protection & interlocking system in the switchyard and the generator suffered motoring for a spell of 43 seconds. After necessary inspection at BHEL-Hardwar, BHEL declared the Generator rotor as "unserviceable".

(iv) Though, Unit No.8 was synchronized with coal on 30.3.2010, the commercial operation of the said unit got delayed on account of the following:-

(a) Non-completion of very important pending works such as central air conditioning system, fire fighting system, insulation works, chemical lab set up & SWASS system etc. due to non-availability of material as well as skilled and experienced agencies.

(b) Repeated tripping of generator transformer & boiler tube leakage etc.

(c) Non-availability of coal due to (i) changes in policy of Govt. of India by restricting coal linkage supply to 50% of committed quantity; (ii) actual coal shortage in the country effecting existing old units of Chandrapura TPS which are not getting their full coal requirement resulting in running the units on partial load.

19. The learned counsel for the respondent/beneficiary, BRPL has submitted that the reasons furnished by the petitioner as regards the delay in the completion of units of the generating station is attributable to the delay in providing inputs like making land available to the contractor and slackness in project management etc. are problems narrated by the petitioner only an excuse for the delay, and the same is entirely attributable to the petitioner. The learned counsel has also submitted that the reasons furnished by the petitioner falls under situation (i) referred to in the judgment of the

Appellate Tribunal for Electricity (the Tribunal) dated 24.7.2011 in Appeal No.72/2010 (MSPGCL-v-MERC & Ors) and hence the petitioner is responsible for the said delay in the completion of the project and the entire burden of time and cost overrun is to be borne by the petitioner.

Analysis

20. We have examined the matter. The Tribunal in its judgment dated 27.4.2011 in Appeal No. 72 of 2010 has laid down the following principle for prudence check of time over run and cost overrun of a project as under:

“7.4. The delay in execution of a generating project could occur due to following reasons:

i. Due to factors entirely attributable to the generating company, e.g., imprudence in selecting the contractors/suppliers and in executing contractual agreements including terms and conditions of the contracts, delay in award of contracts, delay in providing inputs like making land available to the contractors, delay in payments to contractors/suppliers as per the terms of contract, mismanagement of finances, slackness in project management like improper co-ordination between the various contractors, etc.

ii Due to factors beyond the control of the generating company e.g. delay caused due to force majeure like natural calamity or any other reasons which clearly establish, beyond any doubt, that there has been no imprudence on the part of the generating company in executing the project.

iii. Situation not covered by (i) & (ii) above.

In our opinion in the first case the entire cost due to time over run has to be borne by the generating company. However, the Liquidated damages (LDs) and insurance proceeds on account of delay, if any, received by the generating company could be retained by the generating company. In the second case the generating company could be given benefit of the additional cost incurred due to time over-run. However, the consumers should get full benefit of the LDs recovered from the contractors/suppliers of the generating company and the insurance proceeds, if any, to reduce the capital cost. In the third case the additional cost due to time overrun including the LDs and insurance proceeds could be shared between the generating company and the consumer. It would also be prudent to consider the delay with respect to some benchmarks rather than depending on the provisions of the contract between the generating company and its contractors/suppliers. If the time schedule is taken as per the terms of the contract, this may result in imprudent time schedule not in accordance with good industry practices.

7.5 in our opinion, the above principle will be in consonance with the provisions of Section 61(d) of the Act, safeguarding the consumers ' interest and at the same time, ensuring recovery of cost of electricity in a reasonable manner.”

21. In the light of the judgment of the Tribunal and based on the submissions of the parties, the question of time overrun is examined as under:

A. From the date of LOA to Synchronization of Units

22. It is observed that the Letter of Award (LOA) was issued to M/s BHEL for EPC contract on 30.6.2004. However, the excavation on boiler area could start only on 20.4.2005 due to delay in handing over of site by the petitioner to M/s BHEL. It emerges that the delay of 11 months was due to fault on the part of the petitioner in handing over an under developed land with many existing structures such as women's college, 11 kV HT line, temples, which were required to be removed. Also, the said delay had occurred due to late permission granted for cutting of trees, removal of steel scrap by petitioner, diversion of water line and phusro road. Similarly, there has been a delay of 18 months due to unprecedented rise in steel and cement price due to which the EPC contractor/vendor/sub-contractor had temporarily withdrawn their supplies and 6 months due to the non-shipment of existing materials by sub-contractor/vendor/sub-vendor hampering the erection activity of the project respectively.

23. In our view, the factors like the delay in handing over the land/site to M/s BHEL etc., the withdrawal of supplies and non-shipment of existing materials by EPC contractor/vendor/sub-contractor as narrated above have contributed to the total delay of 35 months (11+18+6) in completion of the project and the same cannot be said to be beyond the control of the petitioner. The delay, according to us, is mainly due to improper project monitoring and co-ordination on the part of the petitioner and therefore fully attributable to the petitioner. Moreover, the petitioner has the remedy to seek compensation from the EPC contractor and/or its sub-contractors/vendors for the said delay within the frame work of the contract entered into by the petitioner with the said

parties Accordingly, in terms of the principles laid down by the Tribunal in its judgment dated 27.4.2011 [(situation (i) above)], the total delay of 35 months in completion of the project is fully attributable to the petitioner and the entire cost on account of the said delay has to be borne by the petitioner. However, the Liquidated Damages and insurance proceeds, if any, received by the petitioner could be retained.

24. In support of the justification for the delay of 5 months in completion of the project due to local disturbances/ dislocation of work, the petitioner has submitted documentary evidence, such as copies of newspaper cuttings, copies of letter from M/s BHEL indicating forcible stoppage of work by local parties along with the total days of interruption of work for 96 days. It is observed from the said submissions that though the actual days of interruption of work was 96 days, the impact of disturbances, manhandling, threat etc. had actually affected the normal work activities of the project on account of the fear psychosis among the labourers of the different working agencies and the additional delays for the re-mobilisation of workforce after each disturbances. Taking these factors into consideration, we are of the view that the delay of 5 months as claimed by the petitioner is mainly due to adverse working conditions and hindrances created by local people / surroundings which in our view, is beyond the control of the petitioner. Accordingly, in terms of the principles laid down by the Tribunal in its judgment dated 27.4.2011 [(situation (ii) above)], the delay of 5 months is for reasons beyond the control of the petitioner for which the petitioner cannot be held responsible and the generating company is given the benefit of additional cost incurred due to time overrun. However, the LD recovered from the contractor and the insurance proceeds, if any, would be considered for reduction of capital cost.

25. In view of above discussions, the delay of 5 months up to synchronization of both the units of the generating station has been allowed.

B. From Synchronisation of units to COD of generating station

26. The reasons submitted by the petitioner justifying the delay in COD of Unit Nos.7 & 8 has been examined. As stated above, the delay of 5 months in respect of Unit No 7 from LOA upto the date of synchronization has been admitted. It is noticed that the TG rotor for Unit No.7 which had been damaged on 7.5.2010 had to be replaced by a new TG rotor for which the petitioner had to place an open order to M/s BHEL for supply of new TG rotor as per letter of M/s BHEL dated 14.7.2010. The petitioner has not furnished any clarification/information as to why an open order had to be placed on M/s BHEL for supply of new TG rotor. However, this process had resulted in considerable time taken towards ordering, supply from works to site and for erection works. From the submissions, it is also not clear as to how the rotor got damaged beyond repair as the petitioner has not submitted any documentary evidence which would conclusively prove that the damage of rotor was not due to wrong operation on the part of petitioner/EPC contractor or due to any design deficiency. In the absence of this, it can only be inferred that the damage to the rotor could have been due to design deficiency or due to operational fault, which could be attributable to the petitioner and/or the EPC contractor. In this background, we hold that the delay due to damage of TG rotor and the implication in cost on this count is required to be borne by the petitioner and the beneficiaries cannot be burdened on this count. Accordingly, we are inclined not to condone the delay of 17 months from the date of synchronization to date of COD in case of Unit No.7.

27. As stated in para 23 above, the delay of 5 months in respect of Unit No. 8 from LOA up to the date of synchronization has been condoned. Despite the petitioner being

directed by letter dated 21.10.2013 to justify the delay in COD of Unit No.8 after the synchronization on 30.3.2010, no information/clarification has been submitted by the petitioner in this regard. In the absence of specific information/clarification justifying the delay, the delay in COD of Unit No.8 after its synchronization has not been condoned.

28. Based on the above discussions, the time overrun of 52 months in case of Unit No.7 and 46.5 months in case of Unit No.8 due to reasons such as delay in handing over site to BHEL, due to unprecedented rise in steel and cement price, non-shipment of existing materials acquisition, damage of TG Rotor etc. are for reasons fully attributable to the petitioner and is covered by the principle [(situation (i))] of the judgment of the Tribunal dated 27.4.2011 and accordingly the entire cost for time overrun is required to be borne by the petitioner. However, the LD /Insurance proceeds recovered in such cases may be retained by the petitioner.

29. Based on the above discussions, the time overrun allowed (against the actual time overrun) for the units are summarized as under:

| | Schedule COD as per LOA | Actual COD | Time overrun (months) | Time over run Allowed (months) | After allowing 5 months time overrun Scheduled COD works out |
|------------|-------------------------|------------|-----------------------|--------------------------------|--|
| Unit No.7 | 31.1.2007 | 2.11.2011 | 57 | 5 | 30.6.2007 |
| Unit No. 8 | 31.3.2007 | 15.7.2011 | 51.5 | 5 | 31.8.2007 |

Admissibility of Additional Return on Equity

30. As specified by the Commission, the timeline for completion of projects (Coal/lignite) for green field projects, with a unit size of 250 MW from the date of investment approval is 33 months with subsequent units at an interval of 4 months each. The actual COD of Unit No.8 is 15.7.2011 and Unit No.7 is 2.11.2011. Thus, considering the date of Investment Approval of 8.9.2005, the time taken for COD of Unit

No.8 is 70.22 months and Unit No.7 is 73.84 months. Thus, both the units of the generating station have been declared under commercial operation beyond the timeline specified by the Commission. For the reasons stated in para 11 above, these units of the generating station are not entitled to additional return on equity of 0.5% in terms of the 2009 Tariff Regulations.

Interest During Construction (IDC) & Financing Charges (FC)

31. Regulation 7(1)(a) of 2009 Tariff Regulations provides as under;

“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 funds deployed, - up to the date of commercial operation of the project, as admitted by the Commission, after prudence check;”

32. The claim of the petitioner for IDC, including Notional IDC, as on COD of Unit Nos.7 is as under:

| | <i>(Rs. in lakh)</i> | |
|------------------------------------|---|---|
| | COD of Unit No.8 (15.7.2011) | COD of Unit No.7 (2.11.2011) |
| IDC & FC including Notional IDC | 61769.30 | 64810.85 |

It emerges from the above regulation that if the actual equity deployed is less than 30% of funds deployed (i.e. actual debt is more than 70%), the interest on the actual amount of loan has to be included in capital cost. Also, if the actual equity deployed is more than 30% of the funds deployed (i.e. actual debt is less than 70%), interest on 70% of the funds deployed has to be included in capital cost as Interest during Construction (IDC) by treating equity infusion above 30% as normative loan by the company to itself. Accordingly, IDC has been worked out based on the actual amount of loan deployed as per the details submitted by the petitioner in Form-7 and Form-14 (quarterly cash expenditure) by using average re-payment method. This method has

been considered by the Commission in its tariff orders determining tariff in respect of other generating stations for the period 2004-09 which has been upheld by the Appellate Tribunal for Electricity. Accordingly, interest on normative loan has been worked out as per regulations and by considering the following.

- The fund deployment done by the petitioner periodically till the COD of respective units (i.e. during construction period) has been sourced partly by equity and partly by debt (i.e. debt-equity ratio) which was not uniform during the entire construction period. Therefore, quarter wise debt-equity ratio has been computed as per the quarter-wise cash expenditure submitted by the petitioner in Form 14 and Appendix V of the petition and the infusion of debt has been computed as per the drawl and repayment schedule claimed by the petitioner in Form 7 and Appendix VI of the petition.
- In case the cumulative equity deployed in any quarter is more than 30% of the cumulative fund deployed, the excess of equity over and above 30% of cumulative fund deployed has been treated as normative loan.
- The interest on normative loan has been allowed based on the quarter-wise rate arrived as per the actual interest and the actual loan balance applicable to the concerned quarter.
- It is observed that the debt infusion started only after some period and the initial expenditure for the project has been met entirely through equity. For this period, interest on normative loan has been allowed by considering the Weighted Average Rate of Interest (WAROI) of all corporate loans running during that period. The interest rate allowed in order dated 8.5.2013 in Petition No. 272/2013 has been considered as the WAROI of all corporate loans during that period.
- The interest during construction including interest on normative loan has been allowed as per the capitalization ratio arrived from the details of capitalization submitted by the petitioner.

33. Based on above, the IDC& FC worked out and allowed in respect of the Units of the generating station are as under:

| | 2011-12 | | Total |
|----------------------------|------------------------------------|------------------------------------|-----------------|
| | As on COD of Unit No.8 (15.7.2011) | As on COD of Unit No.7 (2.11.2011) | |
| IDC & FC | 176.71 | 1089.13 | 1265.84 |
| Interest on Normative loan | 6617.37* | 6977.34* | 13594.71* |
| Total | 6794.08 | 8066.47 | 14860.55 |

* Interest on normative loan is to be treated as income in the Financial Statement i.e Profit & Loss A/c and Balance Sheet by the petitioner as it form part of capital cost for the purpose of allowing tariff.

Capital Cost

34. Regulation 7(1) of the 2009 Tariff Regulations, provides as follows:

"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 (i) being equal to the actual amount of loan in the event of the actual equal less than 30% of the funds deployed, up to the date of commercial operation of the project, as admitted by the Commission, after prudence check;

Capitalized initial spares subject of the ceiling rates specified in regulation 8; and

Additional capital expenditure determined under regulation 9:

Provided that the assets forming part of the project, but in use shall be taken out of the capital cost.

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.

35. The Board of the Petitioner Corporation in its 589th meeting on 20.8.2009 had approved the revised project cost of `2611.34 crore, including IDC & FC of `429.13 crore and the transfer cost of Bulldozer for ` 3.50 crore from MTPS to CTPS.

Actual Capital Cost as on COD

36. The petitioner vide affidavit dated 5.11.2013 has furnished the actual capital cost of `152083 lakh (including IDC of `44100 lakh) as on COD of Unit No.8 and `98364 lakh (including IDC of `1570 lakh) as on COD of Unit No.7 duly audited and certified by auditor. The total actual capital cost as on COD of the generating station (2.11.2011) is ` 250447 lakh.

Initial Spares

37. The cost of initial spares capitalised as on COD of Unit No.8 and Unit No.7 are `1809 lakh and `1977 lakh respectively. Thus, the total initial spares incurred up to COD of the generating station are `3786 lakh. This is within the ceiling limit of 2.5% of the project cost as specified under Regulation 8 of the 2009 Tariff Regulations and hence considered.

Sale of infirm power

38. The petitioner has submitted that the revenue generated from sale of infirm power from Unit No.7 and Unit No.8 up to the COD of the generating station is `22509 lakh against which, an amount to the tune of `15091 lakh is towards Start-up Fuel. It has also submitted that the revenue earned from infirm power after adjustment of Start-up fuel is `7418 lakh and the net revenue earned from infirm power has been adjusted in the capital cost of the generating station.

39. The petitioner has submitted that there is no cost overrun in case of actual IDC due to time overrun, as the actual loan drawl started on a much later date. It has also been submitted that the actual IDC is `45826 lakh and in case the loan had been drawn from the date of investment approval (on 8.9.2005), the IDC would have been `68671 lakh. It is observed that as per Investment approval, the estimated IDC & FC approved for the project is `42913 lakh and the actual IDC as per the Audit certified cost is `45736 lakh.

40. The petitioner has capitalized an amount of `88.00 lakh as on COD of Unit No.8 and `175.00 lakh as on COD of Unit No.7 towards cost of Bulldozer transferred from Mejia TPS Unit Nos. 5 & 6 (another generating station of petitioner). The Commission while determining tariff of the generating stations of NTPC for the period 2009-14, had decided that the inter-unit transfer of assets shall remain in the capital base of the sending station for the purpose of tariff. In line with this decision, the capitalization of Bull dozer for this generating station (receiving station) has not been considered. Accordingly, the capital cost, excluding the cost of Bull dozer, is works out as under:

| | (` in lakh) | | |
|--|--|---|--|
| | Actual capital expenditure as on COD of Unit No.8 (15.7.2011) | Actual capital expenditure as on COD of Unit No.7 (2.11.2011) | Total Capital Cost as on COD of the generating station |
| Total Actual Capital Expenditure | 152083 | 98364 | 250447 |
| Less : Bull dozer Cost | 88 | 175 | 263 |
| Capital cost (excluding Bull dozer cost) | 151995 | 98189 | 250184 |

41. As stated, the TG rotor for Unit No.7 had been damaged on 7.5.2010 and was replaced with a new TG rotor for which open order was placed on M/s BHEL for supply of new TG rotor. The petitioner vide affidavit dated 25.7.2014 has submitted that the cost of the new rotor is `1294 lakh which includes taxes & duties etc and the same has been included in the capital cost as on COD of Unit No 8.

42. It is observed that the cost of damaged Rotor for `548.00 lakh (on notional basis as the contract to BHEL was on EPC basis) has also been included in the capital cost as on COD of Unit No. 7. The petitioner has submitted that the actual value of the new TG

Rotor could be ascertained after settlement of the salvage value of damaged Rotor and the insurance claim as per contract placed on M/s BHEL and the same shall be submitted at the time of truing up of tariff of the generating station. In consideration of the submissions of the petitioner, the cost of new Rotor has not been considered in the capital cost, in this order, since the cost of damaged rotor has already been included in the EPC cost of the project. However, the cost of new Rotor shall be considered (in place of damaged rotor) at the time of truing-up of tariff of the generating station subject to the petitioner submitting the details of the actual gross block of the damaged rotor, insurance proceeds etc., recovered from the contractor/vendor, as the case may be. Based on this, the capital cost, after excluding the cost of bulldozer and new TG rotor, is worked out as under:

(` in lakh)

| | Actual capital expenditure as on COD of Unit No.8 (15.7.2011) | Actual capital expenditure as on COD of Unit No.7 (2.11.2011) | Total capital cost as on COD of generating station |
|---|---|---|--|
| Capital cost (excluding Bulldozer Cost) | 151995.00 | 98189.00 | 250184.00 |
| Less : Cost of new Rotor | 0.00 | 1294.00 | 1294.00 |
| Total actual capital expenditure | 151995.00 | 96895.00 | 248890.00 |

Reasonability of Capital cost

43. The total actual capital cost as on COD of Unit No.7 (2.11.2011) is `2488.90 crore (excluding bulldozer cost and new rotor cost of Unit No.7). Thus, the capital cost per MW works out to $(2488.90/500)=4.98$ crore/MW and the hard cost works out to $(2488.90-457.36)/500=4.06$ crore/MW as on COD. The petitioner has claimed actual additional capital expenditure of `73.27 crore after COD of the generating station till 31.3.2014 (cut-off date). Thus, the capital cost including the additional capital

expenditure works out to `2562.17 crore and the hard cost works out to `2104.81 crore, which is `4.21 crore /MW.

44. The Commission has not specified any bench mark capital cost for 250 MW size Units based on coal /lignite firing. However, the bench mark capital cost (hard cost) for 500 MW unit size is `5.08 crore/MW for first unit and `4.71 crore /MW for subsequent Units. Considering this, the hard cost of this project is less than the bench mark hard cost specified for 500 MW unit size. Considering the fact that smaller units have less advantage of economies of scale in comparison to larger size units, the hard cost of this project is considered to be reasonable. Accordingly, the project cost of `203154 lakh, excluding IDC of `45736 lakh as on COD of the generating station has been considered for the purpose of tariff.

Capital Cost as on COD of Unit No.8 (15.7.2011)

45. The Capital cost of `151995.00 lakh as on 15.7.2011 (Unit No.8) is inclusive of IDC of `44166 lakh. Hence, the capital cost as on 15.7.2011 has been revised after exclusion of IDC as under:

| (` in lakh) | |
|---|------------------|
| Capital Cost considered as on 15.7.2011 | 151995.00 |
| Less; IDC as per Auditor's certificate | 44166.00 |
| Capital Cost allowed (excluding IDC) | 107829.00 |

46. The Capital cost, after considering the allowable IDC & FC and adjustment of liability is worked out as under:

| (` in lakh) | |
|------------------------------------|---------------|
| | Amount |
| Capital Cost allowed excluding IDC | 107829.00 |

| | |
|--|------------------|
| Add: IDC & FC including interest on Normative loan | 6794.08 |
| Total | 114623.08 |
| Less: Un discharged Liabilities | 8859.00 |
| Total Capital Cost (on cash basis) as on COD of Unit No.8 | 105764.08 |

Capital Cost as on COD of Unit-7/Generating station (2.11.2011)

47. The capital cost as on COD of Unit No.7 is `203154 lakh, excluding IDC. However, the capital cost, after considering the allowable IDC & FC and adjustment of liability is worked out as under:

| | (` in lakh) |
|---|------------------|
| | Amount |
| Capital Cost excluding IDC as on 2.11.2011 | 203154.00 |
| Add: IDC & FC including interest on normative loan | 14860.55 |
| Total | 218014.55 |
| Less: Un-discharged liabilities | 9383.00 |
| Total Capital Cost as on COD Unit No.7 (2.11.2011) | 208631.55 |

48. The interest on normative loan of `14860.55 lakh allowed is to be treated as income in the Financial Statements i.e. Profit and Loss A/c and Balance Sheet of the petitioner as the same forms part of capital cost for the purpose of tariff determination.

Additional Capital Expenditure

49. Regulation 9 of the 2009 Tariff Regulations, as amended on 21.6.2011 and 31.12.2012, provides as under:

*"9. **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) Un-discharged 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;

(iii) Liabilities to meet award of arbitration or for compliance of the order or decree of a court; and

(v) Change in law:

Provided that the details of works included in the original scope of work along with estimates of expenditure, un-discharged liabilities and the works deferred for execution shall be submitted along with the application for determination of tariff.

(2) The capital expenditure incurred or projected to be incurred on the following counts after the cut-off date may, in its discretion, be admitted by the Commission, subject to prudence check:

(i) Liabilities to meet award of arbitration or for compliance of the order or decree of a court;

(ii) Change in law;

(iii) Deferred works relating to ash pond or ash handling system in the original scope of work;

(iv) In case of hydro generating stations, any expenditure which has become necessary on account of damage caused by natural calamities (but not due to flooding of power house attributable to the negligence of the generating company) including due to geological reasons after adjusting for proceeds from any insurance scheme, and expenditure incurred due to any additional work which has become necessary for successful and efficient plant operation; and

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

Provided that in respect sub-clauses (iv) and (v) above, any expenditure on acquiring the minor items or the assets like tools and tackles, furniture, air-conditioners, voltage stabilizers, refrigerators, coolers, fans, washing machines, heat convectors, mattresses, carpets etc.

brought after the cut-off date shall not be considered for additional capitalization for determination of tariff w.e.f. 1.4.2009.

(vi) In case of gas/liquid fuel based open/ combined cycle thermal generating stations, any expenditure which has become necessary on renovation of gas turbines after 15 year of operation from its COD and the expenditure necessary due to obsolescence or non-availability of spares for successful and efficient operation of the stations.

Provided that any expenditure included in the R&M on consumables and cost of components and spares which is generally covered in the O&M expenses during the major overhaul of gas turbine shall be suitably deducted after due prudence from the R&M expenditure to be allowed.

(vii) Any capital expenditure found justified after prudence check necessitated on account of modifications required or done in fuel receipt system arising due to non-materialisation of full coal linkage in respect of thermal generating station as result of circumstances not within the control of the generating station.

(viii) Any un-discharged liability towards final payment/withheld payment due to contractual exigencies for works executed within the cut-off date, after prudence check of the details of such deferred liability, total estimated cost of package, reason for such withholding of payment and release of such payments etc.

(ix) Expenditure on account of creation of infrastructure for supply of reliable power to rural households within a radius of five kilometres of the power station if, the generating company does not intend to meet such expenditure as part of its Corporate Social Responsibility.”

50. The petitioner has not claimed any additional capital expenditure in respect of Unit No.8 during the period from 15.7.2011 to 2.11.2011. However, for the period from 2.11.2011 to 31.3.2014, the projected additional capital expenditure claimed by the petitioner is as under:

| (` in lakh) | | | |
|----------------|----------------|-------------|----------------|
| 2011-12 | 2012-13 | 2013-14 | Total |
| 1175.00 | 6152.04 | 0.00 | 7327.04 |

51. The petitioner vide affidavit dated 27.10.2011 has submitted that the additional capital expenditure after COD includes both balance payments and for balance works. Subsequently, the petitioner vide affidavit dated 25.7.2014 has furnished detailed break-up of assets capitalized during the years 2011-12 and 2012-13 along with justification. The petitioner has further submitted that the additional capital expenditure for the year 2013-14 shall be claimed after completion of accounts upto 31.3.2014.

52. The additional capital expenditure for the years 2011-12 and 2012-13 have been claimed under Regulation 9(1)(i)-(un-discharged liabilities) and Regulation 9(1)(ii) – (Works deferred for execution) of the 2009 Tariff Regulations. It is observed that the expenditure claimed mainly pertain to deferred works under the original scope of work and comprises of power house building, residential building, guest house, plants and machinery, ash handling equipments, coal handling equipments, cable trenches, tools and tackles, hospital equipments, office furniture etc. On prudence check of the asset-wise justification furnished by the petitioner, the projected expenditure claimed towards balance work/ balance payments for works under original scope of the project are found to be in order. Hence, the total claim of the petitioner for `7327.04 lakh for 2011-13 has been allowed under Regulation 9(1)(i) and 9(1)(ii) of the 2009 Tariff Regulations.

Liabilities

53. The petitioner has not submitted any details of the liabilities included in the additional capital expenditure claimed for 2011-14. Accordingly, we direct the petitioner to furnish the asset-wise and party-wise liabilities included in the capital cost as on COD of both the units and in the additional capital expenditure claimed, along with discharge of liabilities, if any, at the time of truing-up of tariff of the generating station in terms of Regulation 6 of the 2009 Tariff Regulations.

Capital Cost for 2011-14

54. Based on the above discussions, the capital cost considered for the purpose of tariff for the period 2011-14, is as under:

| | 2011-12 | | 2012-13 | 2013-14 |
|--------------------------------|---------------------------|---------------------------|-----------|-----------|
| | 15.7.2011 to 1.11.2011 | 2.11.2011 to 31.3.2012 | | |
| Opening Capital cost | 105764.08 | 208631.55 | 209806.55 | 215958.60 |
| Additional capital expenditure | 0.00 | 1175.00 | 6152.04 | 0.00 |

| | | | | |
|-----------------------------|------------------|------------------|------------------|------------------|
| Closing Capital cost | 105764.08 | 209806.55 | 215958.60 | 215958.60 |
| Average Capital cost | 105764.08 | 209219.05 | 212882.58 | 215958.60 |

Debt-Equity Ratio

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

“(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.

56. The normative Debt equity ratio of 70:30 has been considered for capital cost as on COD of the generating station and the additional capital expenditure allowed. This is subject to truing-up in terms of Regulation 6 of the 2009 Tariff Regulations.

Return on Equity

57. Regulation 15 of the 2009 Tariff Regulations, as amended on 21.6.2011, provides as under:

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

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

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

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

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

(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 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 without making any application before the Commission:

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

58. Accordingly, return on equity has been worked out after accounting for the projected additional capital expenditure as under:

| | 2011-12 | | 2012-13 | 2013-14 |
|--|------------------------|------------------------|-----------------|-----------------|
| | 15.7.2011 to 1.11.2011 | 2.11.2011 to 31.3.2012 | | |
| Notional Equity- Opening | 31729.22 | 62589.47 | 62941.97 | 64787.58 |
| Addition of Equity due to Additional capital expenditure | 0.00 | 352.50 | 1845.61 | 0.00 |
| Normative Equity-Closing | 31729.22 | 62941.97 | 64787.58 | 64787.58 |
| Average Normative Equity | 31729.22 | 62765.72 | 63864.77 | 64787.58 |
| Return on Equity (Base Rate) | 15.500% | 15.500% | 15.500% | 15.500% |
| Tax Rate for respective years | 20.008% | 20.008% | 20.008% | 20.008% |
| Rate of Return on Equity (Pre-Tax) | 19.377% | 19.377% | 19.377% | 19.377% |
| Return on Equity(Pre Tax)- Annualised | 6148.17 | 12162.11 | 12375.08 | 12553.89 |

Interest on loan

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

“(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”

60. The interest on loan has been worked out as mentioned below:

(i) The gross normative loan corresponding to 70% of admissible capital cost works out to `74034.86 lakh as on 15.7.2011 and `146042.09 lakh as on 2.11.2011.

(ii) The net loan opening as on 15.7.2011 is same as gross loan. The cumulative repayment of loan up to the previous year/period is nil.

(iii) Addition to normative loan on account of admitted additional capital has been considered.

(iv) Depreciation allowed for the period has been considered as repayment of loan.

(v) Average net loan has been calculated as average of opening and closing.

(vi) Weighted Average Rate of Interest has been calculated as shown below:

(a) The rate of interest considered in calculation in case of all loans is on annual rest basis.

(b) Actual draws up to COD of the generating station, as furnished by the petitioner, has been considered.

(c) Actual rate of interest corresponding to each loan as furnished by the petitioner has been considered.

(d) The weighted average rate of interest has been calculated considering the actual loan portfolio during respective periods. Further, average method of repayment has been considered for the calculation of weighted average rate for the purpose of tariff as per Annexure-I to this order.

61. The necessary calculation for the interest on loan is as under:

(` in lakh)

| | 2011-12 | | 2012-13 | 2013-14 |
|--|---------------------------|---------------------------|-----------------|-----------------|
| | 15.7.2011 to 1.11.2011 | 2.11.2011 to 31.3.2012 | | |
| Gross opening loan | 74034.86 | 146042.09 | 146864.59 | 151171.02 |
| Cumulative repayment of loan up to previous year | 0.00 | 2171.92 | 8069.74 | 22615.42 |
| Net Loan Opening | 74034.86 | 143870.16 | 138794.85 | 128555.59 |
| Addition due to Additional capitalisation | 0.00 | 822.50 | 4306.43 | 0.00 |
| Repayment of loan during the year | 2171.92 | 5897.82 | 14545.69 | 14755.86 |
| Net Loan Closing | 71862.94 | 138794.85 | 128555.59 | 113799.73 |
| Average Loan | 72948.90 | 141332.51 | 133675.22 | 121177.66 |
| Weighted Average Rate of Interest on Loan | 9.9096% | 10.5671% | 10.5765% | 10.5895% |
| Interest on Loan | 7228.92 | 14934.72 | 14138.20 | 12832.06 |

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

“(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 3[the cumulative depreciation including Advance against 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.

63. Depreciation has been calculated considering the weighted average rate of depreciation computed on the gross value of asset as on 31.3.2012 as per rates approved by C&AG and is worked out as 6.8327%. Further, the value of freehold land as on 31.3.2012 is 'nil' as per books of account and hence the same has been considered. However, the petitioner is directed to furnish the asset-wise information of the gross block as on COD of the units and for subsequent years of the tariff period for calculation of the depreciation rate as per Regulation 42 (2) (3) of 2009 Tariff Regulations at the time of truing-up of tariff of the generating station. The necessary calculation in support of depreciation is as under:

| | 2011-12 | | 2012-13 | 2013-14 |
|----------------------------------|------------------------|------------------------|-----------------|-----------------|
| | 15.7.2011 to 1.11.2011 | 2.11.2011 to 31.3.2012 | | |
| Opening capital cost | 105764.08 | 208631.55 | 209806.55 | 215958.60 |
| Closing capital cost | 105764.08 | 209806.55 | 215958.60 | 215958.60 |
| Average capital cost | 105764.08 | 209219.05 | 212882.58 | 215958.60 |
| Depreciable value @ 90% | 95187.67 | 188297.15 | 191594.32 | 194362.74 |
| Balance depreciable value | 95187.67 | 186125.23 | 183524.58 | 171747.31 |
| Rate of Depreciation | 6.8327% | 6.8327% | 6.8327% | 6.8327% |
| Depreciation | 2171.92 | 5897.82 | 14545.69 | 14755.86 |
| Depreciation (annualized) | 7226.57 | 14295.37 | 14545.69 | 14755.86 |
| Cumulative depreciation at | 2171.92 | 8069.74 | 22615.42 | 37371.29 |

| | | | | |
|---------------------|--|--|--|--|
| the end of the year | | | | |
|---------------------|--|--|--|--|

Normative Annual Plant Availability Factor

64. The Normative Annual Plant Availability Factor (NAPAF) of 85% has been considered for the purpose of tariff.

O & M Expenses

65. O&M expense norms for 250 MW units of coal based generating stations for the period 2011-14 specified under the 2009 Tariff Regulations is as under:

(` in lakh/MW)

| 2011-12 | 2012-13 | 2013-14 |
|---------|---------|---------|
| 20.34 | 21.51 | 22.74 |

66. The O & M expenses claimed by the petitioner (*on pro rata basis*) are as under:

(` in lakh)

| 2011-12 | | 2012-13 | 2013-14 |
|------------------------|------------------------|----------|----------|
| 15.7.2011 to 1.11.2011 | 2.11.2011 to 31.3.2012 | | |
| 1500.49 | 4251.39 | 10755.00 | 11370.00 |

67. Based on the norms specified by the Commission, the O & M expenses have been worked out and allowed as under:

(` in lakh)

| | 2011-12 | | 2012-13 | 2013-14 |
|------------------------------------|------------------------|------------------------|----------|----------|
| | 15.7.2011 to 1.11.2011 | 2.11.2011 to 31.3.2012 | | |
| O&M Expenses (<i>Pro rata</i>) | 1528.28 | 4195.82 | 10755.00 | 11370.00 |
| O&M Expenses (<i>annualized</i>) | 5085.00 | 10170.00 | 10755.00 | 11370.00 |

Cost of Secondary Fuel Oil

68. The cost of secondary fuel oil for the period 2011-14 claimed by the petitioner is as under:

(` in lakh)

| | 2011-12 | | 2012-13 | 2013-14 |
|----------------------------|------------------------|------------------------|---------|---------|
| | 15.7.2011 to 1.11.2011 | 2.11.2011 to 31.3.2012 | | |
| Cost of Secondary fuel Oil | 196.38 | 556.42 | 1327.41 | 1327.41 |

69. The cost of secondary fuel oil based on the weighted average price and GCV for the three preceding months from the COD of Unit No.8 (15.7.2011) and from COD of Unit No.7 (2.11.2011) is worked out and allowed as under:

| | 2011-12 | | 2012-13 | 2013-14 |
|--|------------------------|------------------------|---------|---------|
| | 15.7.2011 to 1.11.2011 | 2.11.2011 to 31.3.2012 | | |
| Cost of secondary fuel oil (<i>Pro-rata</i>) | 200.02 | 803.38 | 1941.94 | 1941.94 |
| Cost of secondary fuel oil (<i>annualised</i>) | 665.53 | 1947.26 | 1941.94 | 1941.94 |

(` in lakh)

Interest on Working Capital

70. Regulation 18(1)(a) of the 2009 Tariff Regulations provides that the working capital for coal based generating stations shall cover:

- (i) Cost of coal for 1.5 months for pit-head generating stations and two months for non-pithead generating stations, for generation corresponding to the normative annual plant availability factor;
- (ii) Cost of secondary fuel oil for two months for generation corresponding to the normative annual plant availability factor, and in case of use of more than one liquid fuel oil, cost of fuel oil stock for the main secondary fuel oil;
- (iii) Maintenance spares @ 20% of operation and maintenance expenses specified in regulation 19.
- (iv) Receivables equivalent to two months of capacity charge and energy charge for sale of electricity calculated on normative plant availability factor; and
- (v) O&M expenses for one month.

71. Clause (3) of Regulation 18 of the 2009 Tariff Regulations as amended on 21.6.2011 provides as under:

"Rate of interest on working capital shall be on normative basis and shall be considered as follows:

- (i) SBI short-term Prime Lending Rate as on 01.04.2009 or on 1st April of the year in which the generating station or unit thereof or the transmission system, as the case may be, is declared under commercial operation, whichever is later, for the unit or station whose date of commercial operation falls on or before 30.06.2010.

(ii) SBI Base Rate plus 350 basis points as on 01.07.2010 or as on 1st April of the year in which the generating station or a unit thereof or the transmission system, as the case may be, is declared under commercial operation, whichever is later, for the units or station whose date of commercial operation lies between the period 01.07.2010 to 31.03.2014.

Provided that in cases where tariff has already been determined on the date of issue of this notification, the above provisions shall be given effect to at the time of truing up.

72. Working capital has been calculated considering the following elements:

Fuel components in working capital

73. The petitioner has claimed the cost of fuel in working capital vide affidavit dated 27.10.2011 as under:

| | 2011-12 | | 2012-13 | 2013-14 |
|-------------------------|------------------------|------------------------|---------|---------|
| | 15.7.2011 to 1.11.2011 | 2.11.2011 to 31.3.2012 | | |
| Coal stock for 2 months | 1071 | 3034 | 7239 | 7239 |
| Oil stock for 2 months | 33 | 93 | 221 | 221 |

(` in lakh)

74. Based on the weighted average GCV and price of fuel for the preceding three months from the COD of Unit No.8 (15.7.2011) and from COD of Unit No.7 (2.11.2011), the fuel components in working capital for the period 2011-14 vide affidavit dated 8.7.2014 is worked out and allowed (*on pro rata basis*) as under:

| | 2011-12 | | 2012-13 | 2013-14 |
|--------------------------|------------------------|------------------------|---------|---------|
| | 15.7.2011 to 1.11.2011 | 2.11.2011 to 31.3.2012 | | |
| Coal stock for 2 months | 1090.84 | 3487.75 | 8430.64 | 8430.64 |
| Oil stock for two months | 33.34 | 133.90 | 323.66 | 323.66 |

(` in lakh)

Maintenance Spares

75. The maintenance spares has been worked out and considered as under:

| | 2011-12 | | 2012-13 | 2013-14 |
|---|------------------------|------------------------|---------|---------|
| | 15.7.2011 to 1.11.2011 | 2.11.2011 to 31.3.2012 | | |
| Maintenance Spares (<i>pro rata</i>) | 305.66 | 839.16 | 2151.00 | 2274.00 |

(` in lakh)

Receivables

76. Receivables have been worked out on the basis of two months of fixed and energy charges (based on primary fuel only) as under:

| | 2011-12 | | 2012-13 | 2013-14 |
|----------------------------|------------------------|------------------------|-----------------|-----------------|
| | 15.7.2011 to 1.11.2011 | 2.11.2011 to 31.3.2012 | | |
| Variable Charges -2 months | 3629.51 | 8453.74 | 8430.64 | 8430.64 |
| Fixed Charges - 2 months | 4656.09 | 9498.14 | 9542.40 | 9494.52 |
| Total | 8285.60 | 17951.88 | 17973.04 | 17925.16 |

O & M expenses for 1 month

77. O & M expenses for 1 month claimed by the petitioner for the purpose of working capital are as under:

| 2011-12 | | 2012-13 | 2013-14 |
|------------------------|------------------------|---------|---------|
| 15.7.2011 to 1.11.2011 | 2.11.2011 to 31.3.2012 | | |
| 125 | 354 | 896 | 948 |

78. O&M expense for 1 month based on annualised O&M has been worked out and allowed as under:

| 2011-12 | | 2012-13 | 2013-14 |
|------------------------|------------------------|---------|---------|
| 15.7.2011 to 1.11.2011 | 2.11.2011 to 31.3.2012 | | |
| 423.75 | 847.50 | 896.25 | 947.50 |

79. Against the claim of the petitioner for rate of interest of 13%, SBI base rate plus 350 basis points as on 1.4.2011 has been considered in the computation of the interest on working capital, as per regulations. Necessary computations in support of calculation of interest on working capital on annualised basis are given as under:

| | 2011-12 | | 2012-13 | 2013-14 |
|---------------------------------------|------------------------|------------------------|---------|---------|
| | 15.7.2011 to 1.11.2011 | 2.11.2011 to 31.3.2012 | | |
| Cost of coal – 2 months | 3629.51 | 8453.74 | 8430.64 | 8430.64 |
| Cost of secondary fuel oil – 2 months | 110.92 | 324.54 | 323.66 | 323.66 |
| O&M expenses – 1 month | 423.75 | 847.50 | 896.25 | 947.50 |
| Maintenance Spares | 1017.00 | 2034.00 | 2151.00 | 2274.00 |

| | | | | |
|------------------------------------|-----------------|-----------------|-----------------|-----------------|
| Receivables – 2 months | 8285.60 | 17951.88 | 17973.04 | 17925.16 |
| Total working capital | 13466.78 | 29611.66 | 29774.59 | 29900.95 |
| Rate of interest | 11.7500% | 11.7500% | 11.7500% | 11.7500% |
| Interest on working capital | 1582.35 | 3479.37 | 3498.51 | 3513.36 |

Operational Norms

80. The following norms of operation have been considered by the petitioner:

| | |
|--|------|
| Normative Annual Plant Availability Factor | 85% |
| Gross Station Heat rate (kcal/kWh) | 2403 |
| Auxiliary power consumption (%) | 9.0 |
| Specific Fuel Oil Consumption (ml/kWh) | 1.0 |

The operational norms considered by the petitioner are in accordance with the provisions of the 2009 Tariff Regulations and hence allowed.

Interest on Capital as per Section 38 of the DVC Act

81. The interest on Government capital is not allowable as per provisions of the 2009 Tariff Regulations. As per the provisions of the 2009 Tariff Regulations, the interest on Government capital is not allowable. Also, the Tribunal in its judgment dated 10.5.2010 in Appeal No. 146/2009 (against Commission's order dated 6.8.2009) had confirmed that the interest on Government capital is not to be allowed separately, if the capital deployed is getting fully serviced either through return on equity or interest on loan. The relevant portion of the judgment is extracted as under:

*"(7) In regard to the issue relating to the aspect of Revenues to be allowed under section 38 of the DVC Act, 1948, the Tribunal in the Remand order directed the Central Commission to ensure that the capital deployed in financing operating assets is getting fully serviced either through Return on Equity or interest on loan. **In compliance with the said order, the Central Commission allowed Debt Equity Ratio on the total capital employed and provided return @ of 14% on normative equity capital and also provided interest on loan of the normative type.** The revised Debt Equity Ratio and depreciation was considered in line with the direction of the Tribunal. The Appellant itself had admitted in the earlier appeal that the Appellant is required to pay interest on the amount of capital under section 38 of the DVC Act, but the same was retained by the Appellant in view of the obligation of participating Governments and as such the retained interest is ploughed back as capital to the creation of capital assets relating to power. Thus, the Appellant enjoyed the perpetual moratorium on it and never repaid the loans. So the question of adjustment of depreciation for the loan does not arise."*

82. Accordingly, this interest on Government capital has not been considered for the computation of tariff.

Annual Fixed Charges for 2009-14

83. The annual fixed charges for the period 2011-14 in respect of the generating station are summarized as under:

| | 2011-12 | | 2012-13 | 2013-14 |
|-----------------------------|------------------------|------------------------|-----------------|-----------------|
| | 15.7.2011 to 1.11.2011 | 2.11.2011 to 31.3.2012 | | |
| Depreciation | 7226.57 | 14295.37 | 14545.69 | 14755.86 |
| Interest on Loan | 7228.92 | 14934.72 | 14138.20 | 12832.06 |
| Return on Equity | 6148.17 | 12162.11 | 12375.08 | 12553.89 |
| Interest on Working Capital | 1582.35 | 3479.37 | 3498.51 | 3513.36 |
| O&M Expenses | 5085.00 | 10170.00 | 10755.00 | 11370.00 |
| Cost of Secondary fuel oil | 665.53 | 1947.26 | 1941.94 | 1941.94 |
| Total | 27936.54 | 56988.83 | 57254.41 | 56967.11 |

Note: i) All figures are on annualized basis. ii) All the figures under each head have been rounded. The figure in total column in each year is also rounded. Because of rounding of each figure the total may not be arithmetic sum of individual items in columns.

Energy Charge Rate (ECR)

84. The petitioner has claimed an Energy Charge Rate (ECR) of 128.20 paise/kWh based on the weighted average price and GCV of Coal procured and burnt for the preceding three months from the COD of Unit No.8 (15.7.2011) i.e from April, 2011 to June, 2011 and from COD of Unit No.7 (2.11.2011) i.e. from August, 2011 to October, 2011 and the operational norms as per the 2009 Tariff Regulations. The ECR based on the weighted average price and GCV of Coal procured and burnt for the preceding three months from the COD of Unit No.8 (15.7.2011) and from the COD of Unit No.7 (2.11.2011) is worked out and allowed as under:

| | | 15.7.2011 to 1.11.2011 (Unit-8) | 2.11.2011 to 31.3.2014 (Generating station) |
|-------------------------------|----------|------------------------------------|--|
| | Unit | | |
| Capacity | MW | 250 | 500 |
| Gross Station Heat Rate | kCal/kWh | 2403 | 2403 |
| Specific Fuel Oil Consumption | ml/kWh | 1.0 | 1.0 |
| Aux. Energy Consumption | % | 9.0 | 9.0 |
| Weighted Average GCV of Oil | kCal/l | 9365 | 9307 |
| Weighted Average GCV of Coal | kCal/Kg | 3524.67 | 3235.67 |
| Weighted Average Price of Oil | Rs./KL | 35654.43 | 52160.56 |

| | | | |
|-------------------------------------|------------------|----------------|----------------|
| Weighted Average Price of Coal | Rs./MT | 1717.94 | 1836.60 |
| Rate of energy charge ex-bus | Paise/kWh | 128.205 | 149.306 |

85. The Energy charge on month to month basis shall be billed by the petitioner as per Regulation 21 (6) (a) of the 2009 Tariff Regulations.

Application fee and the publication expenses

86. In terms of our decision contained in order dated 11.1.2010 in Petition No.109/2009, the expenses towards filing of tariff application and the expenses incurred on publication of notices are to be reimbursed. Accordingly, the expenses incurred by the petitioner for petition filing fees for the period 2009-14 in connection with the present petition and the publication expenses incurred shall be directly recovered from the beneficiaries, on *pro rata* basis.

87. The difference between the tariff determined by this order and the provisional tariff granted vide order dated 10.10.2012 shall be adjusted in accordance with the proviso to Regulation 5(3) of the 2009 Tariff Regulations.

88. Petition No. 196/GT/2013 is disposed of in terms of the above.

Sd/-
(A.K.Singhal)
Member

Sd/-
(Gireesh B. Pradhan)
Chairperson

Annexure-I

Calculation of Weighted Average Rate of Interest on Loan

| Sl. no. | Name of loan | Particulars | 2011-12 (15.7.2011 to 1.11.2011) | 2011-12 (2.11.2011 to 31.3.2012) | 2012-13 | 2013-14 |
|---------|---------------------|-----------------------------------|--|--|----------------|----------------|
| 1 | PFC | Net opening loan | 40000.00 | 38333.33 | 37500.00 | 34166.67 |
| | | Add: Addition during the period | - | - | - | - |
| | | Less: Repayment during the period | 1666.67 | 833.33 | 3333.33 | 3333.33 |
| | | Net Closing Loan | 38333.33 | 37500.00 | 34166.67 | 30833.33 |
| | | Average Loan | 39166.67 | 37916.67 | 35833.33 | 32500.00 |
| | | Rate of Interest | 11.0000% | 11.0000% | 11.0000% | 11.0000% |
| | | Interest | 4308.33 | 4170.83 | 3941.67 | 3575.00 |
| 2 | Consortium of Banks | Net opening loan | 65850.00 | 63655.00 | 59265.00 | 50485.00 |
| | | Add: Addition during the period | - | - | - | - |
| | | Less: Repayment during the period | 2195.00 | 4390.00 | 8780.00 | 8780.00 |
| | | Net Closing Loan | 63655.00 | 59265.00 | 50485.00 | 41705.00 |
| | | Average Loan | 64752.50 | 61460.00 | 54875.00 | 46095.00 |
| | | Rate of Interest | 9.2500% | 10.3000% | 10.3000% | 10.3000% |
| | | Interest | 5989.61 | 6330.38 | 5652.13 | 4747.79 |
| 3 | Gross Total | Net opening loan | 105850.00 | 101988.33 | 96765.00 | 84651.67 |
| | | Add: Addition during the period | - | - | - | - |
| | | Less: Repayment during the period | 3861.67 | 5223.33 | 12113.33 | 12113.33 |
| | | Net Closing Loan | 101988.33 | 96765.00 | 84651.67 | 72538.33 |
| | | Average Loan | 103919.17 | 99376.67 | 90708.33 | 78595.00 |
| | | Rate of Interest | 9.9096% | 10.5671% | 10.5765% | 10.5895% |
| | | Interest | 10297.94 | 10501.21 | 9593.79 | 8322.79 |