

**CENTRAL ELECTRICITY REGULATORY COMMISSION  
NEW DELHI**

**Petition No. 219/GT/2013**

**Coram:**

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

**Date of Hearing: 29.5.2014**

**Date of Order: 06.07.2015**

**In the matter of**

Approval of tariff for Koderma Thermal Power Station, Unit Nos. I & II (1000 MW) for the period from the actual date 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 – 110002

(a) BSES-Rajdhani Power Ltd.  
BSES Bhawan, Nehru Place,  
New Delhi - 110019

(b) BSES-Yamuna Power Ltd.,  
Shakti Kiran Building,  
Karkardooma, Delhi- 110092

(c) North Delhi Power Ltd.,  
33 kV Sub-Station Building  
Hudson Lane, Kingsway Camp,  
New Delhi-110009

2. Haryana Power Generation Corporation Ltd.  
Shakti Bhawan, Sector – 6,  
Panchkula – 134109

**...Respondents**

**Parties present:**

**For Petitioner:** Shri M.G. Ramachandran, Advocate, DVC  
Ms. Anushree Bardhan, Advocate, DVC  
Shri D.K. Aich, DVC

**For Respondents:** Shri R.B.Sharma, Advocate, BRPL



## ORDER

This petitioner, DVC has filed this petition on 22.11.2012 for approval of tariff of Koderma Thermal Power Station, Unit Nos. I & II ('the generating station') from the anticipated dates of commercial operation (COD) of Unit-I (30.11.2012) and Unit-II (1.4.2013) till 31.3.2014, based on the provisions of the Central Electricity Regulatory Commission (Terms and Conditions of Tariff) Regulations, 2009 ("the 2009 Tariff Regulations").

2. The project comprises of two units of 500 MW each. The petitioner has informed that Unit No. I had been declared under commercial operation on 18.7.2013. The Commission by letter dated 9.10.2013 directed the petitioner to file certain information based on the actual COD of Unit-I which was submitted by the petitioner vide affidavit dated 20.11.2013. Thereafter, the petitioner vide affidavit dated 13.12.2013 revised the tariff filing forms based on the actual COD of Unit-I and the projected capital expenditure upto the anticipated COD of Unit-II as 31.3.2014. The Commission however directed the petitioner to file certain additional information which was filed by the petitioner vide affidavit dated 10.4.2014.

3. The matter was heard on 29.5.2014 and the Commission while reserving orders for determination of tariff (*wrongly mentioned as provisional tariff in ROP*) of Unit-I had directed the petitioner to file rejoinder to the reply of the respondent BRPL. In compliance, the petitioner by affidavit dated 11.6.2014 has filed the rejoinder. Thereafter, the petitioner by letter dated 23.6.2014 informed that Unit-II of the generating station has been declared under commercial operation on 14.6.2014. Since Unit-II has been declared under commercial operation on 14.6.2014, the tariff of the same will be governed by the provisions of the Central Electricity Regulatory Commission (Terms and Conditions of Tariff) Regulations, 2014. Accordingly, by this order, the tariff of Unit-I of the generating

station is only being determined in terms of the provisions of the 2009 Tariff Regulations, as stated in the subsequent paragraphs.

4. The capital cost claimed by the petitioner vide affidavit dated 13.12.2013 is as under:

(₹ in lakh)

	2013-14	
	18.7.2013 to 30.3.2014	31.3.2014
Capital cost	385245.19	689201.15
Actual/projected additional capital expenditure	0.00	0.00
<b>Closing Capital Cost</b>	<b>385245.19</b>	<b>689201.15</b>

5. The annual fixed charges claimed by the petitioner vide affidavit dated 13.12.2013 are as under:

(₹ in lakh)

	2013-14	
	18.7.2013 to 30.3.2014	31.3.2014
Depreciation	19561.58	136.70
Interest on Loan	22167.33	140.18
Return on Equity	15706.91	109.76
Interest on Working Capital	3923.88	30.24
O&M Expenses	5695.12	44.49
Cost of secondary fuel oil	1396.85	10.91
Interest on Govt. Capital	4660.94	32.57
Interest & Contribution on Sinking Fund	1734.80	6.78
<b>Total</b>	<b>74847.42</b>	<b>511.64</b>

6. Reply to the petition has been filed by the respondent, BRPL and the petitioner has filed its rejoinder to the said reply.

### Commissioning Schedule

7. From the Minutes of Meeting dated 14.2.2007 submitted by petitioner, it is observed that the project was envisaged to supply power to Delhi Transco Ltd (DTL) and the Govt. of India, Ministry of Power (MOP), had approved the project subject to the condition that the units are to be commissioned prior to the Commonwealth Games during the year October, 2010. Thus, the generating station should have been under commercial operation before October, 2010. The petitioner vide affidavit dated 13.12.2013 has

submitted the target COD as against the actual COD of the generating station by computing the commissioning schedule of units as per the time line specified by the Commission in Appendix –II of the 2009 Tariff Regulations for unit size of 500 MW for Green field projects. The completion schedule, as per the time line specified by the Commission is 44 months for the first Unit and 50 months for the second Unit from the date of investment approval, which is stated to be 21.7.2007. The details of the actual COD as against the schedule COD submitted by the petitioner is as under:

Units	Date of investment approval	Schedule COD as per timeline specified by Commission	Actual /anticipated COD	Delay (months)
I	21.7.2007	20.3.2011	18.7.2013 (Actual)	<b>28</b>
II		20.9.2011	31.3.2014 (anticipated)	<b>30</b>

8. The petitioner vide affidavit dated 13.12.2013 has submitted that there is delay of 28 months in case of Unit-I and an estimated delay of 30 months in case of Unit-II. The actual COD of Unit-II is 14.6.2014. Accordingly, the petitioner has argued that the time overrun for both the units of the generating station is as per the timeline specified by the Commission. 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 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."*

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

10. It is observed that the date of investment approval is 21.7.2007. However, the petitioner has neither submitted a copy of the investment approval as documentary evidence in support of its submission nor any details of the scheduled COD as per investment approval. In order to take a considered view on the question of time overrun, the Investment Approval indicating the commissioning schedules is required. Accordingly, the Commission during the hearing on 29.5.2014 sought additional details regarding the time and cost overrun along with copy of investment approval and PERT chart from the petitioner. In response, the petitioner has clarified that all information sought for by the Commission has been submitted and no further details are available for submission in the matter.

11. On scrutiny of the documents available on record, it is noticed that a high level committee under the Chairmanship of Secretary (Power) was constituted to review the progress of the different projects of DVC and NTPC which were targeted to be commissioned before the Common Wealth Games in October, 2010 in Delhi. In the meeting held on 14.2.2007, the high level committee had stressed the need for completion of both the units of the petitioner in advance of three months as against those proposed by DVC in order to ensure the supply of electricity to Delhi during the said games. Accordingly, the revised schedule for commercial operation of the generating station was

indicated as April, 2010 for Unit-I and August, 2010 for Unit-II. Subsequently, CEA, after discussions with BHEL, DVC and NTPC (consultant) vide its letter dated 6.6.2007 had proposed the COD for Unit-I after 35 months from the date of Letter of Award (LOA) and COD for Unit-II after 38 months from the date of LOA. Considering the fact that the actual Supply, Erection and Commissioning of the equipments are to be undertaken by M/s BHEL and a realistic time schedule had been proposed by CEA (in consultation with BHEL and NTPC), the same has been considered in order to take a fair view on the time and cost overrun involved in the execution of the project. Based on the above discussions, the zero date has been considered as the date of issue of LOA i.e.29.6.2007 and the schedule COD has been considered as 35 months for Unit-I and 38 months for Unit-II from the date of LOA as detailed below:

Unit	Date of LOA (Form 5D)	Commissioning Schedule from LOA (months)	Schedule date of COD	Actual COD	Time overrun (months)
I	29.6.2007	35	29.5.2010	18.7.2013	<b>37.5</b>
II		38	29.8.2010	14.6.2014	<b>45.5</b>

### **Admissibility of Additional Return on Equity**

12. As stated, the petitioner has not submitted the copy of the original investment approval and accordingly, the date of Investment Approval indicated as 21.7.2007 is without any documentary evidence. However, as the date of LOA for main plant package is shown as 29.6.2007, this date has been considered as the date of Investment Approval, since LOA is generally placed on the date of Investment Approval or within a short time from the date of Investment Approval. The actual COD of the Unit-I and Unit-II is 18.7.2013 and 14.6.2014 respectively. Accordingly, Unit-I has been declared under commercial operation after 72.5 months and Unit-II has declared under commercial operation after 83.5 months from the date of LOA (29.6.2007). In order to avail additional ROE of 0.5%, the time line as specified in the 2009 Tariff Regulations is 44 months for the first Unit of 500MW for Greenfield Projects and for subsequent Units at an interval of 6

months. For the reasons stated 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.

### **Time Overrun**

13. As stated, the petitioner was directed to furnish reasons for time overrun accompanied with the PERT chart. However, instead of the PERT/CPM chart, the petitioner vide affidavit dated 13.12.2013 has only furnished the "Delay Analysis Report" along with reasons for the said delay. The Commission during the hearing on 29.5.2014 sought additional details from the petitioner regarding the time and cost overrun along with copy of investment approval and PERT chart. In response, the petitioner has clarified that all information sought for by the Commission has been submitted and no further details are available for submission in the matter. Accordingly, based on the submissions of the parties and the documents available on record, the reasons for the delay in the commissioning of the units of the generating station has been examined as discussed in the subsequent paragraphs.

### **Reasons for Time Overrun**

14. The petitioner vide affidavit dated 13.12.2013 has furnished the main reasons for the delay in commissioning of the units of the generating station as under:

- (i) Non-availability of land for main plant area, CHP area for law & order problem. Loss of man-days due to strike, agitation by villagers/local bodies.
- (ii) Non-availability of land for sub-station adjacent to power house for arranging start-up power due to ROW issue, protest by local people during erection of towers.
- (iii) Non-availability of land for water pipeline corridor.
- (iv) Delay in power evacuation system (commissioning of KTPS-BiharShariff Line) due to non-availability of forest clearance.
- (v) Delay in possession of land for construction of main ash pond due to agitation by local people. Contingency Ash Pond constructed within the acquired land.
- (vi) Delay in establishing transportation system for coal through Rail.



15. The Delay Analysis Report furnished by the petitioner provides the following details:

Sl. No.	Major milestone / Contractual Scheduled date/Actual completion date	Actual completion date with Remarks
	Site Mobilization by Main Package-BHEL <ul style="list-style-type: none"> <li>Scheduled date: 15.10.2007</li> <li>Actual date : October,2007</li> </ul>	Site mobilization by BHEL done on October, 2007. Initial fencing of the available working area was started by October, 2007. Civil work-Grading/Leveling work started in March,2008
1	Boiler Drum lift <ul style="list-style-type: none"> <li>Schedule date: 17.9.2008</li> <li>Actual date: 8.3.2009</li> </ul>	Boiler foundation work (L1 date of 20.12.2007) started in July, 2008 due to initial disturbance by local people in regard to land dispute. Consequently, the Boiler erection work started on 15.9.2008 instead of 20.4.2008 as per L1 schedule. Total delay in starting of boiler erection work was 5 months. After readiness of Boiler Structure, drum was lifted on 8.3.2009, resulting in a cumulative delay of about 5 <sup>1/2</sup> months.
2	Boiler Hydro-test (HT) (Drainable) <ul style="list-style-type: none"> <li>Schedule date: 17.9.2008</li> <li>Actual date: 7.3.2010</li> </ul>	HT done on 7.3.2010. During the period (Drum lift to HT) there was disturbance of 10 days by local people in regard to land compensation issue, wage hike, fatal accident etc.
3	Start-up power availability: <ul style="list-style-type: none"> <li>Schedule date: 22.11.2009</li> <li>Actual date: 19.11.2010</li> </ul>	Start-up power provision was planned by establishing one 220 kV/132 kV/33 kV Sub-station adjacent to the main power house. The initial incoming power was taken by loop-in loop-out of Barhi-Koderma 132 kV line at this Sub-station. Delay was mainly due to non-availability of land for this sub-station (Approx. 10 Months delay) and 132 kV line LILO due to protest by local people during erection of towers.
4	Boiler Lit-up: <ul style="list-style-type: none"> <li>Scheduled date: 5.2.2010</li> <li>Actual date: 30.12.2010</li> </ul>	After commissioning of start-up power commissioning of equipments related to BLU e.g 11 kV/3.3 kV/415 V switchgear/MCC, ID Fan FD pump etc taken-up. Cumulative delay upto BLU is 11 months.
5	TG Deck casting: <ul style="list-style-type: none"> <li>Scheduled date: 14.12.2008</li> <li>Actual date: 22.10.2009</li> </ul>	PCC of TG foundation was started in January-2009 and TG Deck casting was completed on 22.10.2009. Initial delay in starting the work was due to non-availability of surrounding land for dumping evacuated earth. Delay was mainly on account of hard rock in this area, irregular cement supply etc. Total delay to achieve this milestone is 10 months.
6	TG Erection/Box-up: <ul style="list-style-type: none"> <li>Scheduled date: 18.1.2010</li> <li>Actual date: 20.12.2010</li> </ul>	TG erection was started on 10.12.2009 against schedule date of 20.4.2009. TG Box up was completed on 20.12.2010 against schedule of 18.1.2010 -- delay by 11 months. TG was brought on barring gear on 12.5.2011 instead of 24.4.2010. Thus, there was a cumulative delay by 12.5 months.
7	Power Evacuation: <ul style="list-style-type: none"> <li>Scheduled date: 22.11.09</li> <li>1<sup>st</sup> line (Bihar Shariff L-2) 8.6.2011, 2<sup>nd</sup> line (Bihar-Shariff L1) 26.6.2012</li> </ul>	The work was scheduled to be completed on 22.11.2009 but the 1 <sup>st</sup> Ckt. of KTPP-Bihar Shariff line was charged on 8.6.2011. Delay was for nearly 18 months, mainly due to non availability of forest clearance.
8	CHP 1 <sup>st</sup> Stream <ul style="list-style-type: none"> <li>Scheduled date: 9.6.2010</li> <li>Actual date: 7.6.2011</li> </ul>	CHP 1 <sup>st</sup> stream was scheduled to be commissioned by 9.6.2010 but it could be done only on 7.6.2011. The delay of 12 months was mainly due to delay in the availability of land in CHP area and the delay in the completion of TP 4 and 5 by M/s BHEL.



9	Oil Synchronization <ul style="list-style-type: none"> <li>Scheduled date: 5.5.2010</li> <li>Actual date: 27.6.2011</li> </ul>	Oil synchronization of the unit was scheduled on 5.5.2010 which was achieved on 27.6.2011. Delay was approximately by 13.5 months mainly due to late start of boiler erection work, as Civil front was not available for erection in time.
10	Coal at Bunker <ul style="list-style-type: none"> <li>Scheduled date: 18.4.2010</li> <li>Actual date: 8.6.2011</li> </ul>	Coal bunkering was done on 8.6.2011, on contingency basis, as railway track was not ready for coal transportation. The delay was almost by 14 months due to non completion of work related to TP 4 and 5 by M/s BHEL.
11	Coal Synchronization <ul style="list-style-type: none"> <li>Scheduled date: 8.5.2010</li> <li>Actual date: 15.7.2011</li> </ul>	Coal synchronization was done on 15.7.11 against schedule of 8.5.2010; Subsequently full load was achieved on 20.7.2011. The delay was approximately 14 months.
12	COD of Unit I <ul style="list-style-type: none"> <li>Scheduled date: No milestone is provided in L1 schedule.</li> <li>Actual date: 18.7.2013</li> </ul>	<ul style="list-style-type: none"> <li>Delay occurred mainly due to stiff resistance of local people &amp; law problem to start ash pond work.</li> <li>Construction of contingency ash pond in absence of permanent ash pond.</li> <li>Teething problem during unit stabilization &amp; trial run.</li> </ul> <p>Delay from full load was 12 months approximately.</p>

16. In respect of other packages, the submissions of the petitioner are as under:

**(a) Coal Handling Plant Packages**

(i) The work was awarded to M/s L&T on 10.3.2008. As per contract they were supposed to complete 1<sup>st</sup> stream conveying system by 9.6.2010 and full completion including 2<sup>nd</sup> stream is 9.9.2010.

(ii) DVC handed over land in phase to work instead of total land within 3 months of award as per contract. A list in this respect is annexed (Annexure-C). There was considerable delay in handing over the land of Track hopper area, Wagon Tripler area, TP-12 and Crusher House are mainly due to land dispute.

(iii) 1<sup>st</sup> stream was made available for bunkering of Coal at Unit-I in June, 2011, a delay of 12 months. The same was tested by road borne coal as Rail Infrastructure was not ready. The work of 2<sup>nd</sup> Stream was completed on 29.6.2013. The 1<sup>st</sup> stream was delayed for about 12 months, mainly due to delay in handing over the land as well as fronts from Main package vendor (BHEL).

**(b) Water Package (KBL)**

(i) Separate arrangement was done for supply of DM Water by installing one RO Plant as the installation of DM Plant equipment were not completed by that time and DM water made available in January, 2010.

(ii) Finally one stream of DM Plant was put into service in March, 2011 i.e. a delay of 20 months. Production of DM Water started after installation of cross country pipe line from Tilaiya Dam to Power House and two numbers temporary pumps at Dam end.

(iii) The Civil work for Intake well was started in March, 2009 against the schedule date of 6.9.2008, a delay of 7 months. In course of construction of Intake well, a tilt of well was noticed in April, 2010 causing the delay for starting Bottom plugging by three months. A major technical problem was faced in bottom plugging as leakages from

bottom could not be arrested properly. A considerable time has been lost for this reason and finally decided for epoxy grouting. As leakage was not arrested completely, the construction procedure for dummy wall was reviewed and based on the recommendations; the dummy wall was completed in February, 2012. Operating floor casting was completed on 14.4.2012.

(iv) With this arrangement, the make-up supply towards running the units on commercial basis has been ensured, pending balance Civil work for PWS package.

(v) There was delay in handing over of total land to KBL for cross country pipe line and disturbances at site due to agitation/strike by local people/bodies, political parties etc.

### **(c) Readiness of Rail track (RITES)**

(i) Order was placed on RITES vide LOA dated 29.10.2008.

(ii) As per contractual completion period the work is to be completed by 31.1.2011. However, readiness of Railway infra-structure for transportation of coal entry & exit from Hirodhi end to be completed by 31.3.2010.

(iii) Formation work for a stretch of 1 km on railway land near Hirodhi station could not be completed in time due to exiting Signaling cable of E.C. Railways which were infringing the approved rail alignment. As per prevailing practice the aforesaid work is to be carried out by Railway authority but E.C. Railway on 26.07.2010 stated that due to pre-occupation the said work could not be carried out by them and suggested to complete the work through RITES.

(iv) The existing H.T. lines were required to be shifted as the same were crossing at two locations over the proposed Railway Corridor. However, the same was delayed by Jharkhand state government.

(v) DVC had deposited ₹7.66 crores to E.C. Railways as per their estimation for Civil and OHE work over Railway Land near Hirodhi station on 13.10.2010. But after a long duration on 07.02.2011 they expressed that due to tight schedule of Railways, RITES may undertake OHE work at Hirodhi station.

(vi) Time to time strike and bandh called by different political parties.

(vii) After a long persuasion with Railways Track Fitness for the selection from Hirodhi station to KTPS Power House have been obtained on 11.07.2012 and temporary commercial notification for KTPS siding have been obtained on 21.09.2012. Now track is ready for receiving coal.

(viii) 1<sup>st</sup> rake of coal was received at site on 26.9.2012. Coal transportation by Rail established for commercial operation of Units.

17. Based on the above, the conclusions of the petitioner on the issue of time overrun are as follows:

(i) As per norms for Green field thermal power plant having capacity 2x500 MW, the scheduled completion period is 44 months for 1<sup>st</sup> unit and 50 months for 2<sup>nd</sup> unit. As per above norms, the completion date for 1<sup>st</sup> and 2<sup>nd</sup> unit shall be 20.3.2011 and 20.9.2011 respectively.

(ii) It is appreciable that the full load operation of Unit-I was achieved on 20.7.2011 i.e. within 48 months from the zero date even after delayed receipt of Land and initial Law & Order problems faced. But after achievement of full load operation, several labour strikes in the month of July, 2011 to November, 2011 (20.7.2011 to 27.7.2011, 15.9.2011 to 22.9.2011, 29.9.2011 to 17.11.2011 and 20.5.2012 to 12.6.2012) was faced by the project. The after effects of this strike took another two or three months for further mobilization of labour.

(iii) COD of 1<sup>st</sup> unit was achieved on 18.7.2013. The delay in declaration of COD after achieving full load operation on 20.7.2011 was mainly due to:

- Stiff resistance of the local villagers faced in starting of construction of main ash pond by M/s. BHEL/NECL. Accordingly contingency ash pond constructed within acquired land through M/s. BHEL. Clay lining of the contingency ash pond bed also delayed due to non-availability of clay around the generating station.
- There were some teething troubles during stabilization and trial run of the unit before declaration of COD.
- Jharkhand Pollution Control Board stopped the ash disposal within the main plant area as the overflow was going to nearby villages and trial run of the unit was delayed on this account.

From the above analysis, it is observed that though there were delays in the execution of individual packages, the major reasons are:

(i) Availability of Land for Main plant area (within boundary) in phases causing delay in execution of work in parallel for every package.

(ii) Law & Order problem is also one of the reasons for delay of the project. On many occasions there was huge loss of man days due to strike, agitation by villagers/local bodies.

(iii) Availability of land for water pipe corridor delayed the availability of Raw water. Also due to the delay in bottom plugging of Intake Well, the commissioning of make-up water pump in intake was delayed and ultimately one pump was made available by 20.10.2012.

(iv) Delay in establishing transportation system for coal through Rail has been made available by 26.9.2012 mainly due to delay in clearance from Railway department.

(v) The critical constraint for running the commercial operation of units is the availability of land free from encumbrances of ash pond. To run the plant continuously, availability of this land followed by readiness of ash pond is a must.

## **Submissions of the Respondent, BRPL**

18. The respondent, BRPL vide affidavit dated 28.5.2014 has filed its response to the petition and has submitted as under:

(a) BRPL has already surrendered the capacity allocation from this generating station and subsequently power from this station is not flowing into the BRPL system. The petitioner has agreed in-principle for surrender of capacity allocation. In the light of this, the petitioner may disclose the re-allocation of power to any other party and make such party as the respondent to protect their interests in the determination of tariff for 2009-14.

(b) The petitioner has not furnished the schedule for commission of the project. However, it is noted from Appendix-VI that the implementation schedule for completion of Unit-I and II were 35 months and 36 months respectively from the zero date (21.7.2007). Accordingly, Unit-I was to be completed by 21.6.2010. As against this schedule date of completion, the actual date of completion is 18.7.2013 and therefore the time over run of the first unit is 3 years. The reasons for the delay in the completion of Unit-I furnished by the petitioner would show that the entire delay in the completion of Unit-I is entirely attributable to delay in providing inputs like, making land available to the contractors and slackness in Project Management, by improper coordination with various contractors etc. The petitioner has withheld payment on account of delayed execution of work/supply in terms of contract agreement.

(c) The petitioner is well conversant with the problems being encountered in the area like agitation as he is operating in this area since 1948. Keeping all these aspects in view a completion period of 35 months was decided by the petitioner. The alleged problems now narrated by the petitioner are only an excuse for delay which is entirely attributable to the slackness in project management.

(d) BRPL submits that the exact time over-run on each account in execution of the project has not been furnished in the petition as any claim for condonation of time over run is required to be explained for each and every day's delay in the completion of the project through the CPM/PERT Chart. PERT and CPM are two most popular technique for project scheduling which explain delays and the time cushion, if any, available in the execution of various activities on the critical path.

(e) BRPL submits that there are no specific regulations to deal with the issue related to the time over run, related costs. The situation furnished by the petitioner are covered by the situation under para 7.4 (i) of the judgment of the Appellate Tribunal for Electricity in its judgment dated 27.4.2011 in Appeal No.72 of 2010 (MSPGCL v MERC & ors).

(f) BRPL further submits that the Main Plant Package is based on firm pricing and accordingly the cost overrun due to time over run may also be borne by the petitioner.

19. 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.”*

20. The issue of time overrun in respect of Unit-I has only been considered in this order since Unit-II of the generating station has achieved COD on 14.6.2014 i.e during the tariff period 2014-19 and would therefore be governed by the 2014 Tariff Regulations. There is a total time overrun of 37.5 months in the completion of Unit-I of the generating station. The petitioner has submitted that the delay of 14 months up to the coal synchronization of Unit-I (15.7.2011) has occurred mainly due to (i) the delay in land availability for main plant area, CHP area, Raw Water pipeline corridor, start-up power, stiff resistance by local people and problem of law and order. Other problems for the delay include hard rock availability in TG foundation area, irregular cement supply, non- availability of forest clearance in case of power evacuation work etc.,(ii) the delay for about 24 months from coal synchronization to declaration of COD on 18.7.2013 is mainly due to stiff resistance of

local people in starting of construction of main ash pond, construction of contingency ash pond in absence of permanent ash pond and non-availability of clay around the generating station, teething troubles during stabilization and stoppage of work on the direction of Jharkhand Pollution Control Board due to the overflowing of ash pond and delay in clearances from Railway authorities for rail tracks. We now examine the submissions of the petitioner on the following heads:

### **Resistance of local people and Problem of law and order**

21. The petitioner has submitted documentary evidence such as copies of newspaper cuttings for disturbances / dislocation of work, copies of letter from M/s BHEL for forcible stoppage of work by local parties, along with dates of interruptions of work for 135 days i.e. 4.5 months during the entire commissioning period in support of its contention that the delay was due to local disturbances in regard to land dispute. However, the petitioner has not furnished the number of days delay in each activity due to strikes/disturbances except for the dates on which the work suffered in entire span of time. We have examined the documentary evidences in support of the delay and are of the considered view that the delay in each activity due to disturbance/strikes was beyond the control of the petitioner and the contractor and there has been no imprudence in execution of the project. Accordingly, the delay of 4.5 months up to COD of Unit-I (18.7.2013) on account of strike/disturbances is for reasons beyond the control of the petitioner for which the petitioner cannot be held responsible and the same is condoned. In view of this, the generating company shall be given the benefit of additional cost incurred due to time overrun of 4.5 months due to law and order problem, disturbance by local people etc.

### **Boiler Drum Lift**

22. There is no delay/deviation in activity of site mobilization by main plant package contractor M/s BHEL as the schedule and actual date of site mobilization is stated as October, 2007. The boiler drum lifting was scheduled on 17.9.2008 and was actually done



on 8.3.2009 with a delay of  $5\frac{1}{2}$  months. The petitioner has attributed this delay on account of disturbances by local people in regard to land dispute. Till 17.9.2008, the delay due to strike/ disturbance by local people with regard land dispute as claimed by petitioner is 15 days and the same has been condoned and allowed in the delay of 4.5 months due to disturbance by local people etc., as discussed in Para 21 above. From the table for package-wise land acquisition status submitted by the petitioner, it is noticed that more than 83% of land for Main plant package area was acquired by 20.12.2007. Though, sufficient land was available for main plant package to start the work, the civil work (Grading/leveling work) was started only in March, 2008, with a delay of about 5 months after the site mobilization. No justification has been submitted by the petitioner in regard to this delay of 5 months. Accordingly, we are not inclined to condone the delay of 5 months after the site mobilization. Hence, the delay is attributable to the petitioner and therefore the entire cost for time overrun for this period is required to be borne by the petitioner.

### **Boiler Hydro Test**

23. The Boiler hydro test was scheduled on 21.8.2009 and was actually conducted on 7.3.2010. Thus, there is a cumulative delay of 6.5 months (approx) up to the boiler hydro test. It has also not been clarified by the petitioner as to why the boiler hydro test was delayed for a period of one year i.e from 8.3.2009 (date of drum lift) to 7.3.2010. No justification has been submitted by the petitioner for this delay of 12 months, except for the fact that there has been disturbance for 10 days by local people. The total delay due to the disturbances by local people up to the 21.8.2009 (schedule of hydro test) as submitted by the petitioner is 18 days and the same has already been subsumed in the period of 4.5 months (para 21 above), which has already been condoned. However, the remaining period of 6 months (approx) delay in our view is attributable to the petitioner and has not been condoned. Accordingly, the entire cost for time overrun of 6 months is required to be borne by the petitioner.



### **Delay in T.G foundation & Erection work**

24. The petitioner has submitted that there has been delay of 12.5 months due to problems such as hard rock availability in TG foundation area and irregular cement supply. These submissions justifying the delay are not acceptable. The petitioner, in our view, is expected to carry out the geological/ soil analysis of the plant area and take a view on the type of foundation etc. It is also the responsibility of the petitioner to ensure the regular supply of cement. Moreover, these activities are parallel to the activities undertaken up to boiler hydro test. In view of this, the delay of 12.5 months in T.G foundation and erection work has not been condoned. Accordingly, the entire cost for time overrun is required to be borne by the petitioner.

### **Start-Up Power Availability**

25. Provision for Start-up power was planned by establishing one 220 kV/132 kV/33 kV sub-station adjacent to the main power house. Though the petitioner has submitted that the delay is on account of the non-availability of land, it is noticed that most of the land for the main plant package was acquired by 20.12.2007 and accordingly the schedule given by petitioner for availability of start-up power was 22.11.2009. Accordingly, we are not inclined to condone the delay as the factors for the delay cannot be considered to be beyond the control of petitioner. Moreover, the delay of 22 days was due to protest by local people up to 22.11.2009 and this activity has been accounted for in the delay of 4.5 months allowed due to resistance by local people etc. in para 21 above. Hence, the delay of 12 months due to non availability of start-up power is attributable to the petitioner and is therefore not condoned. Accordingly, the entire cost for time overrun is required to be borne by the petitioner.

### **Coal Handling Plant Package**

26. The petitioner has justified the delay of 12 months for handing over the land as well as fronts from M/s BHEL, the Main Package Vendor, without separately indicating the

period of delay. However, from the package-wise land acquisition status for CHP package it is observed that out of the 111.93 acres of land, only 83.34 acres (74.45%) had been acquired on 18.6.2008. Thus, the delay cannot be attributable to the land dispute. According to petitioner, the delay of 14 months at coal bunker activity is attributable to M/s BHEL which also covers the boiler and turbine activities, the delay for which has not been condoned. This submission of the petitioner is not acceptable since the petitioner should have undertaken coordinated efforts to avoid the delay in making land available and for execution of the said work. There has been slackness in project management which in our view is attributable to the petitioner. Hence, we are not inclined to condone the delay of 12 months. Accordingly, the entire cost for time overrun is required to be borne by the petitioner.

### **Power Evacuation Work**

27. The schedule completion of power evacuation work was 22.11.2009 and the actual completion for line-I was 8.6.2011 and for line-II was 26.6.2012. In case of power evacuation work, the petitioner has attributed the delay of 18 months to forest clearance. However, the petitioner has not furnished any correspondence made with statutory authorities of the Central and/or the State Government, as regards forest clearance. The petitioner has also not furnished any documentary evidence to indicate that there has been no slackness on the part of the petitioner in this regard. For this reason, the delay of 18 months due to forest clearance cannot be considered as factors beyond the control of the petitioner and the same is not condoned. Accordingly, the entire cost for time overrun is required to be borne by the petitioner.

### **Water Package (KBL) III**

28. The petitioner has submitted that the delay of 20 months is attributable to the handing over of land and the agitation /strike. However, the petitioner has not furnished the scheduled commencement date and the scheduled completion date of the cross

country pipe line work. In our view, the D.M Plant commissioning is a parallel work with boiler light-up and turbine box up. As per the status of land acquisition submitted by the petitioner, the acquisition of land for water pipeline commenced in January, 2008 and more than 80% of land allotted for this package was handed over till 27.4.2009 and 100% land was available by 8.10.2009. Further, the petitioner has not furnished any justification for the delay in the commencement of the construction work of intake well for 7 months. Moreover, the tilting problem of intake well and its delayed rectification are also attributable to the civil contractor. In these circumstances, we are of the considered view that the delay is not beyond the control of the petitioner. The petitioner should have taken coordinated efforts to avoid the delay and for execution of the said work. In view of this, we attribute the delay on the part of the petitioner and are accordingly not inclined to condone the delay. Accordingly, the entire cost for time overrun is required to be borne by the petitioner.

### **Readiness of Rail Track (RITES)**

29. The petitioner had placed the order on RITES on 29.10.2008 with completion target of 31.1.2011 for this activity. The existing signaling cable of East Coast Railways (ECR) which was infringing the approved rail alignment, the work was to be carried out by the Railway authorities, as per practice. However the ECR on 26.7.2010 has stated that due to pre-occupation, the said work could not be carried out by them and suggested the completion of the work through RITES. The petitioner had also deposited an amount of ₹7.66 crore to ECR as per estimates towards Civil and OHE work over Railway land near Hirodhi station on 13.10.2010. But on 7.2.2011, ECR had expressed inability to do the said work due to tight schedule of Railways and suggested that RITES may undertake OHE work at Hirodhi station. It is evident from the above that that a period of 4 months (from 13.10.2010 to 7.2.2011) was lost by the petitioner after depositing the required payments on account of the delayed decision by ECR regarding its inability to do the said

work. In this background and considering the fact that there has been no imprudence on the part of the petitioner in the execution of the said work, we condone the delay of 4 months due to non-readiness of Rail track which was beyond the control of the petitioner. The petitioner cannot be held responsible and the generating company is to be given the benefit of additional cost incurred due to time overrun.

### **Teething troubles during stabilization**

30. The petitioner has mentioned teething troubles during the stabilization of the unit and the trial run for delay in commercial operation. No details regarding the troubles faced by the petitioner has been submitted. In our view, problems encountered during the stabilization of a unit and trial run cannot be considered as justifiable reasons for delay in commercial operation of the unit. In view of this, the delay attributable to the petitioner and is not condoned. Accordingly, the entire cost for time overrun is required to be borne by the petitioner.

### **Ash Pond Problem**

31. The petitioner has submitted that the delay under this head is due to the stiff resistance by local people and delay in land acquisition, contingency pond construction, clay unavailability, restriction by the State Pollution Control Board etc. It is observed from the documents that a major portion of land for ash pond (175.09 acre) was acquired on 12.4.2012 which is 9 months (approx) after the coal synchronization of Unit-I. It is also noticed that the declaration of land acquisition was made in January, 2010 unlike other lands for power plant for which declaration was made in January/ February, 2007. Though it appears that there was delay in the initiation of land acquisition process for ash pond, no explanation has been submitted by the petitioner justifying the delay. Also, no documentary evidence showing the correspondences made and the efforts taken by the petitioner with the concerned authorities for making land available has been submitted. The petitioner has submitted that the ash disposal work within the main plant was stopped

by the Jharkhand State Pollution Control Board due to overflow of water in the nearby villages. However, no documents justifying the period of stoppage of work has been furnished. In the absence of documentary evidence and information, it appears that there has been slackness in the project management and the delay on this count cannot be said to be beyond the control of the petitioner. There has been lack of diligence on the part of the petitioner in project management and the consequent delay is attributable to the petitioner. Accordingly, the delay on this count has not been condoned. The delay is attributable to the petitioner and is therefore covered by the principle [(situation (i))] of the judgment of the Tribunal dated 27.4.2011 and the entire cost for time overrun for this period is required to be borne by the petitioner. However, the LD /Insurance proceeds recovered in such cases may be retained by the petitioner.

32. In the above background, out of the total time overrun of 37.5 months in the completion of Unit-I, the total delay of 8.5 months (4 months due to non readiness of Rail track by ECR (from 13.10.2010 to 7.2.2011) and 4.5 months due to strike/local disturbances) has been condoned as the delay is due to factors beyond the control of the petitioner for which the petitioner cannot be made attributable. Accordingly, in terms of the principles laid down by the Tribunal in its judgment dated 27.4.2011 [(situation (ii) above)], the total delay of 8.5 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. However, the remaining period of delay of 29 months which are due to factors such as delay in the activities till the hydro test, delay in start-up power availability, boiler light up, TG desk casting & TG Erection, power evacuation, CHP, water package and Coal at bunker has not been condoned as there has been slackness in project management and improper co-ordination by the petitioner for execution of the works. Accordingly, the total

delay of 29 months is attributable to the petitioner and is therefore covered by the principle in [(situation (i)] of the judgment of the Tribunal dated 27.4.2011. Based on this, 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.

33. Based on the above discussions, the time overrun allowed (against the actual time overrun) for the unit and the schedule COD (reset) for the purpose of computation IDC due to time overrun is summarized as under:

	Schedule COD as per LOA	Actual COD	Time overrun considering SCOD (months)	Time over run allowed (months)	SCOD for IDC computation
Unit I	29.5.2010	18.7.2013	37.5	8.5	14.2.2011

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

34. 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;”*

35. The claim of the petitioner for IDC, including Notional IDC, as on COD of Unit No.1 is as under:

	(₹ in lakh)
	<b>As on COD of Unit No. I (18.7.2013)</b>
IDC & FC including Notional IDC	142408.43

36. We have examined the matter. 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.

37. 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 in respect of other generating stations for the period 2004-09 and the same has been upheld by the Tribunal. Interest on normative loan has been worked out as per regulations and by considering the following.

(a) 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 14A & Appendix VI and the infusion of debt has been computed as per the drawl and repayment schedule claimed by the petitioner in Form 7& Appendix VII-IX.

(b) 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.

(c) 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.

(d) 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. 272/2010 has been considered as the WAROI of all corporate loans during that period.

38. It is observed from the submissions of the petitioner that the IDC claim of Unit-I is based on the total cash expenditure as on COD of Unit-I. The petitioner is therefore directed to submit the unit-wise break-up of the cash expenditure as on COD of Unit-I at the time of revision of tariff based on truing-up exercise in terms of Regulation 6(1) of the 2009 Tariff Regulations, for the computation of IDC/Notional IDC. However, for the present, the IDC including interest on normative loan has been allowed as per the information submitted by petitioner, subject to truing-up.

39. Based on above, IDC & FC has been worked out and allowed in respect of the Unit-I of the generating station as under:

	( <i>₹ in lakh</i> )
	<b>2013-14 As on COD of Unit-I (18.7.2013)</b>
IDC & FC	36862.84
Interest on Normative loan*	963.64
<b>Total</b>	<b>37826.48</b>

\* 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

40. 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 not 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.*

### **Approved Capital Cost**

41. The Board of the petitioner company vide Resolution No. 8057 in its 595<sup>th</sup> meeting held on 5.3.2011 approved the Revised Cost Estimate of ₹5583.08 crore including IDC & Margin money of ₹158.67 crore.

### **Actual Capital Cost as on COD**

42. The petitioner vide affidavit dated 13.12.2013 has furnished the actual capital cost incurred up to COD of Unit-I duly certified by auditor as given below:

	(₹ in crore)
	<b>Actual capital expenditure as on COD of Unit-1 on 18.7.2013</b>
Capital cost excluding IDC & FC	2428.37
Interest during construction (IDC) & Financing Charges (FC)	1424.08
<b>Capital cost including IDC &amp; FC</b>	<b>3852.45</b>

### **Initial Spares**

43. The cost of initial spares capitalised as on the actual date of COD of the generating station (18.7.2013) is ₹35.14 crore. Thus, the total initial spares capitalized works out to 1.44% of the project cost, which is within the ceiling limit of 2.5% of the project cost in terms of Regulation 8 of the 2009 Tariff Regulations. Hence, the claim of the petitioner has been allowed.

### **Infirm power**

44. The petitioner vide affidavit dated 11.6.2014 has submitted that the net amount of (-)₹9.01 crore has been generated as revenue after adjustment of cost of fuel of ₹56.10 crore from the revenue of ₹47.09 crore earned from sale of infirm power as on the COD of Unit No. I.

45. The petitioner was asked to furnish the details of increase in IDC, IEDC and price escalation in the different packages of contracts from the date of scheduled COD to the actual COD. The petitioner vide affidavit dated 13.12.2013 has submitted the total overheads and no separate head of IEDC was maintained. The total overheads as per auditor certificate as on 18.7.2013 (COD of Unit-I) is shown as ₹147.59 crore. The cost overrun due to time overrun as on COD of Unit-I is ₹872.13 crore, considering the time overrun of 28 months for Unit-I.

46. It is observed from the submissions of the petitioner in Form-5B & Form-5D of the affidavit dated 13.12.2013 that there is an increase in cost overrun due to time overrun. The value of award (firm) of main plant package is shown as ₹3280.53 crore. The actual expenditure as on COD of Unit-I is ₹3333.11 crore and the cost overrun is ₹52.58 crore (3333.11-3280.53). The cost overrun for Unit-I on pro rata basis is ₹27.55 crore (52.58 x 1746.64 / 3333.11). Also, due to the delay in the declaration of commercial operation of the unit, the Overhead expenses in establishment under IEDC such as salary, transportation, office expenditure etc. have also been increased. This requires a pro rata disallowance of the overhead expenses for the period of 18 months as on COD of Unit-I. The total overheads as submitted by the petitioner is ₹147.59 crore. Thus, a pro rata deduction in the Overhead expenses due to the delay of 18 months in the COD of Unit-I is worked out as under:

	Total period taken from zero date to actual COD (months)	Time overrun disallowed (months)	Overhead Expenses	(₹ in crore) Pro-rata reduction = (col.4x col.3) / col.2
Unit-I	72.5	29	147.59	59.036

47. After adjustment of the pro rata reduction of Overheads expenses as on the COD of Unit-I, the capital cost of Unit-I is worked out as under:

	(₹ in crore)
	<b>As on COD of Unit-I 18.7.2013</b>
Capital cost including IDC	3852.45
IDC	1424.08
<b>Capital cost excluding IDC</b>	<b>2428.37</b>
Pro-rata reduction in (Overheads: Establishment, Audit & Accounts, Design and Contingencies)	59.036
Capital cost (excluding IDC) after <i>pro rata</i> reduction in Overheads	<b>2369.334</b>
Adjustment due to infirm power (provisional)	(+ ) 9.01
Adjustment due to LD recovered	0.00
Pro-rata reduction on account of cost overrun due to time overrun in main plant package.	27.55
<b>Capital cost for purpose of tariff</b>	<b>2350.794</b>

48. Further, the petitioner vide Annexure–B of the affidavit dated 11.4.2014 has submitted the details of liabilities included in the capital cost. However, certain deviations are noticed in the liability amount furnished with that of the liability details shown in Form No. 9A and 9B. For the present, the amount as per the liability statement of the petitioner has been considered as un-discharged liabilities for tariff computation. The capital cost after considering the allowable IDC & FC and after liability adjustments works out as under. This is subject to revision of tariff at the time of truing-up exercise based on the clarification /information to be submitted by the petitioner.

	(₹ in lakh)
Capital Cost excluding IDC & FC	235079.40
Add: IDC & FC	36862.84
Add: Interest on Normative Loan	963.64
<b>Total</b>	<b>272905.88</b>
Less: Un-discharged liabilities	40169.90
<b>Total Capital Cost on cash basis as on COD of Unit-I</b>	<b>232735.98</b>

49. The interest on normative loan of ₹963.64 lakh is to be treated as income in the financial statements of the petitioner 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.

### **Reasonableness of Capital Cost**

50. The petitioner vide affidavit dated 13.12.2013 has submitted that the Hard cost of the project (excluding IDC&FC) as on COD of Unit-I was ₹242837 lakh (including

Transmission line cost of ₹6898 lakh and cost of Railway infrastructure of ₹7775 lakh). The actual cost certified by the Auditor as on COD of Unit-I is ₹242837 lakh, excluding IDC & FC. Thus, the hard cost works out to be ₹4.85 crore/MW. The bench mark capital cost (Hard cost) for 500 MW unit size is ₹5.08 crore/MW for first unit. Thus, the hard cost of the project is less than the bench mark hard cost for 500 MW unit size. The capital cost in respect of Unit-I thus appear to be competitive and hence accepted for tariff computation. It is observed that the petitioner has not furnished the details of the expenditure of transmission line. Accordingly, the petitioner is directed to furnish the details of the expenditure of transmission line included in the capital cost as on COD of Unit-I at the time of revision of tariff based on truing-up exercise along with proper clarification /information.

### **Additional Capital Expenditure**

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

*“9. **Additional Capitalization.**(1) The capital expenditure incurred or projected to be incurred, on the following counts within the original scope of work, after the date of commercial operation and up to the cut-off date may be admitted by the Commission, subject to prudence check:*

*(i) 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.”*

52. The petitioner in Form-9 has claimed the projected additional capital expenditure during 2013-14 for ₹337.165 crore. The petitioner was directed vide letter dated 9.10.2013 to furnish the Form-9 duly complete in all respects indicating the asset-wise breakup of the claim for additional capital expenditure in 2013-14 along with justification against each items claimed. In response, the petitioner vide affidavit dated 13.12.2013 has submitted

that the details of the additional capital expenditure will be furnished after the declaration of COD of Unit-II of the generating station. Though Unit-II has achieved commercial operation on 14.6.2014, no information/document pertaining to the details of the additional capital expenditure claimed has been submitted by the petitioner. In the absence of any information /details, the claim of the petitioner for additional capital expenditure has not been considered in this order. The petitioner is however granted liberty to submit Form-9, duly complete in all respects, indicating the asset-wise break-up of the claim for additional capital expenditure duly certified by Statutory auditors, at the time of revision of tariff of the generating station, based on truing up exercise and the same shall be considered in accordance with law.

### **Liquidated Damages (LD)**

53. The petitioner vide affidavit dated 13.12.2013 has submitted that the amount withheld / retention of payment is mainly of two types i.e. one is on account of mandatory deduction of security deposit-cum-performance guarantee and the other on account of the delayed execution of work / supply in terms of contract agreement. The petitioner has submitted that the amount which has been withheld has not been adjusted against the project capital cost as the final closing of the contract has not yet been done. It has also submitted that the security deposit will be refunded after the warranty period is over as per the provisions of the contract. The adjustment of LD depending upon whether the petitioner is liable or not for the delay has been examined in this order. Accordingly, the adjustment of LD shall be guided in terms of our decision on the question of time overrun.

### **Capital Cost as on COD of Unit No. I (18.7.2013)**

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

	(₹ in lakh)
	<b>2013-14</b>
Opening Capital cost	232735.98
Additional Capital Expenditure	0.00
Closing Capital cost	232735.98
<b>Average Capital cost</b>	<b>232735.98</b>



55. The capital cost allowed above is subject to truing-up in terms of Regulation 6 of the 2009 Tariff Regulations.

### **Debt-Equity Ratio**

56. 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.*

57. Accordingly, the actual debt equity ratio as on COD, on cash basis, has been considered, since the equity actually deployed as on COD is less than 30% of the total cash expenditure and the actual debt-equity ratio works out to 80.58:19.42 as on COD of the Unit. This debt-equity ratio has been considered subject to truing-up in terms of Regulation 6 (1) of the 2009 Tariff Regulations.

### **Return on Equity**

58. 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:

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

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

(5) The generating company or the transmission licensee, as the case may be, shall recover the shortfall or refund the excess Annual Fixed 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.”

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

	(₹ in lakh)
	<b>2013-14 18.7.2013 to 31.3.2014</b>
Notional Equity- Opening	45197.33
Addition of Equity due to additional capital expenditure	0.00
Normative Equity-Closing	45197.33
Average Normative Equity	45197.33
Return on Equity (Base Rate)	15.500%
Tax Rate for period	20.008%
Rate of Return on Equity (Pre Tax)	19.377%
<b>Return on Equity (Pre Tax)-(annualised)</b>	<b>8757.89</b>

### Interest on loan

60. 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.”

61. Interest on loan has been worked out as mentioned below:

(a) The gross normative loan corresponding to 80.58% of the admitted capital cost is ₹187538.65 lakh as on 18.7.2013 (COD of Unit I).

(b) Net loan opening as on 18.7.2013 is same as the gross loan. Hence, cumulative repayment of loan up to previous year/period is ‘nil’.

(c) Addition to normative loan on account of approved additional capital expenditure has been considered.

(d) Depreciation allowed for the period has been considered as repayment.

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

(f) Weighted Average Rate of Interest has been calculated as under:

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

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

(iii) Actual rate of interest corresponding to each loan as furnished by the petitioner has been considered. However the petitioner is required to furnish documentary proof in case of loan from PFC for variation of Interest rates and guarantee fee in case of Bonds.

(iv) In line with the provisions of the above regulations, the weighted average rate of interest has been calculated considering the actual loan portfolio during the respective period. Further, average method of repayment has been considered for the calculation of weighted average rate for the purpose of tariff (calculations enclosed at Annexure-I).

62. The necessary calculations for the interest on loan are as under:

	( <i>₹ in lakh</i> )
	<b>2013-14</b> <b>18.7.2013 to 31.3.2014</b>
Gross opening loan	187538.65
Cumulative repayment of loan up to previous year	0.00
Net Loan Opening	187538.65
Addition due to Additional capitalisation	0.00
Repayment of loan during the year	11513.29
Net Loan Closing	176025.36
Average Loan	181782.01
Weighted Average Rate of Interest on Loan	10.0079%
<b>Interest on Loan</b>	<b>18192.56</b>

## Depreciation

63. 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.”

64. Depreciation has been calculated considering the weighted average rate of depreciation computed on the gross value of asset furnished vide affidavit dated 10.4.2014 at the rates approved by C&AG. Further an amount of ₹10851.17 lakh has been considered as the value of freehold land. The necessary calculations in support of depreciation are as shown below:

	(₹ in lakh)
	<b>2013-14</b> <b>18.7.2013 to 31.3.2014</b>
Opening capital cost	232735.98
Closing capital cost	232735.98
Average capital cost	232735.98
Depreciable value @ 90%	199696.33
Balance depreciable value	199696.33
Rate of Depreciation	7.0258%
Depreciation	11513.29
<b>Depreciation (annualized)</b>	<b>16351.56</b>
Cumulative depreciation at the end	11513.29

### Operation & Maintenance Expenses

65. The 2009 Tariff Regulations provides for the following O&M expense norms in respect of 500 MW units of coal based generating stations for the period 2013-14:

	(₹ lakh / MW)
	<b>2013-14</b>
O&M expenses Norms for 500 MW Units	16.24

66. The O&M expenses claimed by the petitioner for the year 2013-14 is as under:

	(₹ in lakh)	
	2013-14 Unit-I	2013-14 Unit-I & II
O&M Expenses (Pro rata )	5695.12	44.49

67. The O&M expenses claimed based on the projected COD of Unit-II has not been considered. Accordingly, the O&M expenses for Unit-I based on the O&M expense norms specified under the 2009 Tariff Regulations is allowed is as under:

(₹ in lakh)	
	<b>2013-14</b> 18.7.2013 to 31.3.2014 (257 days)
O&M Expenses ( <i>annualized</i> )	8120.00
O&M Expenses ( <i>Pro rata</i> )	5717.36

### Interest on Working Capital

68. 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.

69. 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 1<sup>st</sup> 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 1<sup>st</sup> 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.*



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

### Fuel components in working capital

71. The petitioner has claimed cost of Fuel in working capital on *pro rata* basis based on the weighted average GCV and price of fuel for the preceding three months i.e. April, 2013, May, 2013 and June, 2013 from the COD of Unit No.1 (18.7.2013) as follows:

	(₹ in lakh)	
	2013-14	
	18.7.2013 to 30.3.2014 (256 days)	30.3.2014 to 31.3.2014 (256 days)
Cost of Coal on pro rata basis	7363.79	57.53
Cost of Oil	232.81	10.91

72. Since the data for June, 2013 has not been furnished, the weighted average GCV and price of fuel for the preceding two months i.e. April, 2013 and May, 2013 for coal and for the preceding three months i.e. April, 2013, May, 2013 and June, 2013 for oil from COD of Unit I (18.7.2013) has been considered. Accordingly, the fuel components in working capital for the period 2013-14 is worked and allowed as under:

	(₹ in lakh)	
	2013-14	
	18.7.2013 to 31.3.2014	
Coal stock for 2 months (annualised)	10723.89	
Oil stock for 2 months (annualised)	331.93	
Energy charges for 2 months	10723.89	

### Cost of Secondary Fuel Oil

73. The petitioner has claimed the cost of Secondary fuel oil during 2013-14 as under:

	(₹ in lakh)	
	2013-14	
	18.7.2013 to 30.3.2014	30.3.2014 to 31.3.2014
Cost of Secondary fuel Oil	1396.85	10.91

74. The cost of Secondary fuel oil based on the weighted average price and GCV for the three preceding months from the COD of Unit I (18.7.2013) is worked out and allowed for purpose of tariff as under:

	( <i>₹ in lakh</i> )
	<b>2013-14</b>
	<b>18.7.2013 to 31.3.2014</b>
Cost of Secondary fuel Oil (pro rata)	1402.31
Cost of Secondary fuel Oil (annualised)	1991.60

### Maintenance Spares

75. Maintenance Spares claimed by the petitioner for the purpose of working capital is as under:

	( <i>₹ in lakh</i> )	
	2013-14	
	18.7.2013 to 30.3.2014 (256 days)	30.3.2014 to 31.3.2014 (1day)
<b>Cost of maintenance spares</b>	1139.02	8.90

76. The cost of maintenance spares in working capital in terms of the 2009 Tariff Regulations is allowed as under:

	( <i>₹ in lakh</i> )
	<b>2013-14</b> <b>(18.7.2013 to 31.3.2014)</b>
Cost of Maintenance of spares (Pro rata)	1143.47
Cost of Maintenance of spares (Annualized)	1624.00

### 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:

( <i>₹ in lakh</i> )	
2013-14	
18.7.2013 to 30.3.2014 (256 days)	30.3.2014 to 31.3.2014 (1 day)
474.59	3.71

78. For the purpose of computation of interest on working capital for Unit-I, the O&M expense for one month has been worked out as allowed as under:

( <i>₹ in lakh</i> )
<b>2013-14</b> <b>(18.7.2013 to 31.3.2014)</b>
476.45



## Receivables

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

	(₹ in lakh)	
	<b>2013-14</b>	
	18.7.2013 to 31.3.2014	
Variable Charges - 2 months	10723.89	
Fixed Charges - 2 months	9644.21	
<b>Total</b>	<b>20368.10</b>	

80. SBI Base Rate plus 350 basis points as on 1.4.2013 has been considered on all the above components of working capital for the purpose of calculating interest on working capital on annualized basis as under:

	(₹ in lakh)	
	<b>2013-14</b>	
	18.7.2013 to 31.3.2014	
Cost of coal – 2 months	10723.89	
Cost of secondary fuel oil – 2 months	331.93	
O&M expenses – 1 month	676.67	
Maintenance Spares	1624.00	
Receivables – 2 months	20368.10	
<b>Total working capital</b>	<b>33724.59</b>	
Rate of interest	13.20%	
<b>Interest on working capital</b>	<b>4451.65</b>	

## Normative Annual Plant Availability Factor

81. The Normative Annual Plant Availability factor of 85% has been considered for the purpose of tariff.

## Operational Norms

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

Gross Station Heat Rate (kCal/kWh)	2443
Auxiliary power consumption (%)	6.83
Specific Fuel Oil Consumption (ml/kWh)	1.0

83. **Gross Station Heat Rate:** The petitioner has furnished the design turbine cycle heat rate and boiler efficiency as 1944.50 kCal/kWh and 83.23% respectively. Accordingly, the unit Design Heat Rate worked out from the data furnished by petitioner is 2336.36 Cal/kWh (1944.5/0.8323). As per Regulation 26 (ii) B of 2009 Tariff Regulations, for New

Thermal Generating Station achieving COD on or after 1.4.2009 for Coal-based and lignite-fired Thermal Generating Stations, the Gross Station Heat Rate is 1.065 X Design Heat Rate (kCal/kWh). In terms of this, the Station Heat Rate is worked out as 2488 kCal/kWh (1.065x2336.36). Provided however, the design heat rate shall not exceed the maximum design unit heat rates depending upon the pressure and temperature ratings of the units as specified by the Commission. The design heat rate for plants having temperature and pressure rating nearer to the generating station using sub-bituminous coal is given as maximum 2294 kcal/kWh. Therefore, the Unit heat rate has been restricted to the ceiling of 2294 kcal/kWh. Thus, taking the multiplying factor of 1.065, the applicable Station Heat rate is 2443 kCal/kWh (1.065x2294). Since this is less than the GSHR of 2488 kCal/kWh arrived at as above, the GSHR of 2443 kCal/kWh as considered by the petitioner has been allowed.

84. **Auxiliary Energy Consumption:** The petitioner in Form-3 of the tariff filing forms vide affidavit dated 13.12.2013 has claimed Auxiliary Energy Consumption (AEC) of 6.83 % as against the norm of 6.0% with natural draft cooling specified under the 2009 Tariff Regulations. The generating station has two steam driven BFP and one number electrical motor driven BFP. The auxiliary power consumption is 6% for steam driven BFPs and 8.5% for electrical driven BFP. It appears that the petitioner has considered the weighted average of the two, which works out to 6.83%  $[(6.0*2+8.5*1)/3]$ . It is noticed that the Commission in respect of the generating stations of NTPC having same configuration of BFPs with natural draft cooling system, had by its orders allowed the AEC of 6%. Considering this, we allow the normative Auxiliary Energy Consumption of 6.0% in respect of this generating station also. The norms regarding Specific Fuel Oil Consumption claimed by the petitioner is in order and has been considered for tariff.

## Contribution to Sinking Fund

85. As per judgment of the Appellate Tribunal for Electricity (Tribunal) dated 23.11.2007 in Appeal No. 273/2006, sinking fund, established with the approval of Comptroller and Accountant General of India vide letter dated December 29, 1992 under the provision of Section 40 of the DVC Act, 1948 is to be taken as an item of expenditure to be recovered through tariff. Accordingly, in terms of Regulation 43(iv) of the 2009 Tariff Regulations, the contribution towards sinking fund created for redemption of bond is allowed. This is however subject to the decision of the Hon'ble Supreme Court in C.A.No.4289/2008. The petitioner has claimed Contribution and Interest on sinking fund created for redemption of bond as per Section 40 of DVC Act as under:

	(₹ in lakh)	
	18.7.2013 to 30.3.2014 (Unit-I)	31.3.2014 (Unit I & II)
Contribution to sinking fund including interest.	1734.80	6.78

86. Para 4.2 of the note to the financial statements for the year ended 31<sup>st</sup> March 2013 provides as under:

*"For Bonds issued from 1<sup>st</sup> April 2012, the sinking fund is created for redemption of Bonds with the proportionate annuity contribution every year. The amount will be kept in a separate fund account to be managed and governed through **Escrow Mechanism**. Interest on investment on such fund will be credited to the Sinking Fund Account on annual basis"*

87. It emerges from the above that the funds are being managed outside and the interest which accrues on the investment are being credited to the fund annually. Hence the claim of the petitioner towards interest on sinking fund cannot be considered as there is no actual cash outlay towards interest. Accordingly, the amount allowed towards contribution to the sinking fund has been worked out as under:

	(₹ in lakh)	
	2013-14 18.7.2013 to 31.3.2014	
Contribution to sinking fund (pro rata)	1498.64	
Contribution to sinking fund (annualized)	2128.42	

88. The contribution towards sinking fund allowed as above is subject to trueing-up in terms of Regulation 6 of the 2009 Tariff Regulations.

## Interest on Capital as per Section 38 of the DVC Act

89. 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."*

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

## Annual Fixed Charges

91. The annual fixed charges for the generating station for the period from 18.7.2013 to 31.3.2014 are approved as under:

	(₹ in lakh)
	<b>2013-14</b>
	18.7.2013 to 31.3.2014
Depreciation	16351.56
Interest on Loan	18192.56
Return on Equity	8757.89
Interest on Working Capital	4451.65
O&M Expenses	8120.00
Cost of Secondary fuel oil	1991.60
<b>Total</b>	<b>57865.26</b>
Contribution to Sinking fund	2128.42
<b>Total</b>	<b>59993.68</b>

**Note:** 1) All figures are on annualized basis. 2) 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)

92. The petitioner has claimed Energy Charge Rate (ECR) of ₹181.83 paise/kWh based on the weighted average price and GCV of Coal procured and burnt for the preceding two months i.e. April, 2013 and May, 2013 from the COD of Unit I (18.7.2013) and the operational norms as per the 2009 Tariff Regulations. The computation of ECR based on the weighted average price and GCV of Coal procured and burnt for the preceding two months from the COD of Unit I (18.7.2013) is worked out and allowed as under:

		18.7.2013 to 31.3.2014 (Unit-I)
Description	Unit	
Capacity	MW	500
Gross Station Heat Rate	kCal/kWh	2443
Specific Fuel Oil Consumption	ml/kWh	1.0
Aux. Energy Consumption	%	6.0
Weighted Average GCV of Oil	kCal/l	10339.33
Weighted Average GCV of Coal	kCal/Kg	2906.5
Weighted Average Price of Oil	₹/KL	53494.58
Weighted Average Price of Coal	₹/MT	2064.90
<b>Rate of energy charge ex-bus</b>	<b>Paise/kWh</b>	<b>183.858</b>

93. 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

94. The petitioner has made publication of the tariff application in accordance with Regulation 3(6) of the Central Electricity Regulatory Commission (Procedure for making of application for determination of tariff, publication of application and other related matters) Regulations, 2004. 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 for publication of application are to be reimbursed. Accordingly, the expenses incurred by the petitioner for petition filing fees in connection with the present tariff petition and the publication expenses incurred shall be directly recovered from the beneficiaries, on *pro rata* basis.

95. Petition No. 219/GT/2013 is disposed of in terms of the above.

*Sd/-*  
**(A.K.Singhal)**  
**Member**

*Sd/-*  
**(Gireesh B Pradhan)**  
**Chairperson**

## Calculation of Weighted Average Rate of Interest on Loan

(₹ in lakh)

Sl. no.	Name of loan	Particulars	2013-14
1	PFC	Net opening loan	260,495.00
		Add: Addition during the period	
		Less: Repayment during the period	260,495.00
		<b>Net Closing Loan</b>	-
		Average Loan	130,247.50
		Rate of Interest	10.00
		Interest	13,024.75
2	SBI	Net opening loan	-
		Add: Addition during the period	300,000.00
		Less: Repayment during the period	7,500.00
		<b>Net Closing Loan</b>	<b>292,500.00</b>
		Average Loan	146,250.00
		Rate of Interest	10.6000%
		Interest	15,502.00
3	Bonds (30.3.2012)	Net opening loan	65,000.00
		Add: Addition during the period	-
		Less: Repayment during the period	-
		<b>Net Closing Loan</b>	<b>65,000.00</b>
		Average Loan	65,000.00
		Rate of Interest	9.3000%
		Interest	6,045.00
4	Bonds (30.4.2002)	Net opening loan	30,000.00
		Add: Addition during the period	-
		Less: Repayment during the period	-
		<b>Net Closing Loan</b>	<b>30,000.00</b>
		Average Loan	30,000.00
		Rate of Interest	8.6900%
		Interest	2,607.00
5	<b>Gross Total</b>	Net opening loan	355,495.00
		Add: Addition during the period	300,000.00
		Less: Repayment during the period	267,995.00
		<b>Net Closing Loan</b>	<b>387,500.00</b>
		Average Loan	371,497.50
		Rate of Interest	10.0079%
		Interest	37,179.25