

**CENTRAL ELECTRICITY REGULATORY COMMISSION  
NEW DELHI**

**Coram:**

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

**Date of hearing: 13.10.2014**

**Date of Order: 09.02.2016**

**Petition No. 207/GT/2013**

**In the matter of**

Approval of generation tariff of Muzaffarpur TPS, Stage-I (220 MW) for the period from the date of commercial operation of Unit-I to 31.3.2014.

**And**

**In the matter of**

**Petition No. 260/GT/2014**

Revision of tariff of Muzaffarpur TPS, Stage-I (220 MW) after truing-up exercise based on the admitted capital cost as on 31.10.2013 and the actual capital expenditure incurred as on COD of Unit-I (1.11.2013) to 31.3.2014.

**And**

**In the matter of**

Kanti Bijlee Utpadan Nigam Ltd,  
NTPC Bhawan, Core-7, Scope Complex,  
7, Institutional Area, Lodhi Road,  
New Delhi-110003

.....**Petitioner**

Vs

Bihar State Power (Holding) Company Ltd  
(formerly Bihar State Electricity Board)  
Vidyut Bhawan, Bailey Road  
Patna -800021

.....**Respondent**

**Parties Present:**

Ms. Anushree Bardhan, Advocate, KBUNL  
Ms. Poorva Saigal, Advocate, KBUNL  
Shri M.K. Sinha, KBUNL

**ORDER**

The petitioner, Kanti Bijlee Utpadan Nigam Ltd (KBUNL) filed this petition for determination of generation tariff of Muzaffarpur TPS, Stage-I, (2 x 110 MW) ('the generating station') for the period from the anticipated date of commercial operation of Unit-I to 31.3.2014 in terms of the Central



Electricity Regulatory Commission (Terms and Conditions of Tariff) Regulations, 2009 (hereinafter referred to as "the 2009 Tariff Regulations").

2. KBUNL (the petitioner) is a subsidiary of NTPC Ltd and was set up as a joint venture company with the respondent, BSEB to take over the assets and business of the generating station. NTPC holds 65% equity shares in the joint venture company and thus, the petitioner is a Government company covered under Section 79(1)(a) of the Electricity Act, 2003. The generating station was established by the respondent during 1985-86 and has been transferred and vested in favour of the petitioner with effect from 8.9.2006 in terms of the Bihar Electricity Reforms (Transfer of Muzaffarpur Thermal Power Station) Scheme, 2006. The generating station comprises of two units of 110 MW capacity which was commissioned during the years 1985-86 and was under shut down from October, 2003. The entire power generated from the generating station, is supplied to the respondent in terms of the Power Purchase Agreement dated 22.8.2006 and has been made part of the Transfer scheme notification dated 8.9.2006.

3. The project was in depleted condition at the time of transfer and the generating station was in a position to generate power only at 10% to 15% of its capacity. As there was acute shortage of power being faced by the respondent, BSEB, only selective refurbishment works for restoration of generation from Unit-II was taken up and the commercial operation of the Unit-II was declared on 15.10.2010, without doing any major R&M work. Unit-I was taken under Renovation & Modernization (R&M) during 2010.

4. Petition No. 271/2010 was filed by the petitioner for approval of tariff of Unit-II (110 MW) of the generating station for the period from 15.10.2010 to 31.3.2014 with relaxed operational norms and O&M expenses. The petitioner had also prayed that it may be allowed to file separate petitions for determination of tariff after completion of R&M activities of Unit-I and II of the generating station. Thereafter, the Commission, after hearing the parties, by order dated 23.2.2012 granted provisional tariff for Unit-II of the generating station for the period from the date of commercial operation 15.10.2010 till 31.3.2014, based on relaxed norms, pending determination of final tariff. Subsequently, during the hearing of the said petition on 29.10.2013, the petitioner submitted that



Unit-II was under shut down due to R&M activities and the expected time for completion of R&M for Unit-II is April, 2014. Considering the fact that the said unit was under shut down, the Commission by order dated 13.5.2014 disposed of the said petition with liberty to file separate petition after completion of R&M. The relevant portion of the order dated 13.5.2014 is extracted as under:

*“8.....Since the unit is under shut down due to R&M and since tariff can be determined only after completion of R&M and based on revised norms, there is no reason to keep this petition pending for determination of final tariff of the said unit. Accordingly, we dispose of this petition with liberty to the petitioner to approach the Commission with a fresh petition for determination of tariff of the said unit of the generating station after completion of R&M.*

*9. In view of the above, the provisional tariff granted by order dated 23.2.2012 is subject to adjustment after determination of final tariff of the said unit of the generating station based on the petition to be filed by the petitioner.*

*10. The petition is disposed of in terms of the above. The filing fees deposited by the petitioner in respect of this tariff petition, shall be adjusted against the tariff petition to be filed in terms of the liberty granted above, after deduction of ₹3.00 lakh towards this petition considered as 'Miscellaneous Petition'.”*

5. The present petition has been filed by the petitioner for determination of tariff of the generating station considering the gross block based on the audited accounts as of 31.3.2012 and estimated capitalization upto the anticipated date of commercial operation (COD) of Unit-I (30.9.2012) and anticipated COD of Unit-II (1.4.2013). Since Unit-I of the generating station was declared under commercial operation on 1.11.2013, Commission by order dated 21.2.2014 in Petition No.207/GT/2013, granted interim tariff for the year 2013-14 (1.11.2013 to 31.3.2014) considering the opening capital cost of ₹7245.91 lakh (as on 1.11.2013) after reduction of the apportioned grant amount of ₹22718.00 lakh (vide Form 6) from the capital cost of ₹29963.91 lakh (on cash basis).

6. While so, Petition No.260/GT/2014 was filed by the petitioner for revision of tariff of the generating station after true-up in terms of Regulation 6(1) & 6(2) of the 2009 Tariff Regulations based on the admitted capital cost as on 1.11.2013 and the actual additional capital expenditure incurred for the year 2013-14 (1.11.2013 to 31.3.2014).

7. The annual fixed charges claimed by the petitioner are as under:

	<b>2013-14 (1.11.2013 to 31.3.2014)</b>
Depreciation	354.12
Interest on Loan	452.68
Return on Equity	517.21
Interest on Working Capital	610.67



O & M Expenses	1636.80
Secondary fuel oil cost	686.39
<b>Total</b>	<b>4257.87</b>

8. Reply to the petition has been filed by the respondent, BSEB and the petitioner has filed its rejoinder to the said reply. Both the petitions were clubbed and heard on 13.10.2014 and the Commission after directing the petitioner to submit certain additional information, reserved its order in these petitions. Based on the submissions of the parties and the documents available on records, we proceed to determine the tariff of Unit-I of the generating station, on prudence check, as stated in the subsequent paragraphs.

### **R&M completion schedule**

9. The petitioner vide its affidavit dated 31.10.2011 while furnishing the status of R&M activities had stated that the expected date for completion of R&M of Unit-I was 15.4.2012. The Commission vide Record of Proceedings of the hearing dated 13.10.2014 directed the petitioner to submit, amongst others, information regarding the 'Scheduled completion of R&M of Unit-I as against the actual date of completion'.

10. In response, the petitioner vide affidavit dated 25.11.2014 has submitted that the R&M contract of BTG for supply and execution package was awarded to M/s BHEL on 15.4.2010 and the schedule completion of R&M of Unit-I as per contractual time line was 24 months from the date of award. The Unit-I was declared under commercial operation on 1.11.2013. Thus, there is a delay of 18.5 months in the completion of R&M and/or the declaration of COD of Unit-I. The details of actual COD of Unit-I as against the schedule COD are as under:

Date of Award of R&M package	Timeline for Completion of R&M (in months)	Schedule COD as per Timeline	Actual COD	Completion Time (months)	Delay (Months)
15.4.2010	24	14.4.2012	1.11.2013	42.5	<b>18.5</b>

### **Time Overrun**

11. As stated above, the time overrun involved in the COD of Unit-I is 18.5 months as against the scheduled COD in terms of the award for R&M package.



### **Reasons for Time Overrun**

12. The petitioner vide affidavit dated 19.1.2013 has submitted that the reasons for delay in synchronization/commissioning of Unit-I is mainly due to the delay in supply of materials/equipments from the implementing agency, M/s BHEL. It has also submitted that the critical elements, particularly that of Milling system are not yet received at site, without which full loading would not be possible. It has further submitted that HP heater pipings are also in critical path and yet to reach the site. The petitioner has added that it had permitted the diversion of certain materials from Unit-II which was taken R&M w.e.f 29.3.2012 for early commissioning of Unit-I and M/s BHEL could not ensure the commissioning of Unit-I. The petitioner has stated that despite several commitments at different level and full co-operation of the petitioner, BHEL has failed to supply the critical materials/equipments in time and complete R&M works. Accordingly, the petitioner has submitted that the delays in commissioning are fully attributable to the delays in supply of materials/equipments by BHEL which is beyond the control of the petitioner. The above reasons for the delay in completion of R&M work in Unit-I was submitted by the petitioner prior to the date of declaration of COD of Unit-I after R&M. Hence, the Commission vide ROP of the hearing dated 13.10.2014 directed the petitioner to furnish the reasons for the delay in the declaration of COD of Unit-I as under:

*(ii) Reasons for the delay in completion for R&M for Unit-I as against the contractual timeline, along with the amount of LD recovered from the contractor, if any, due to delay in completion of R&M for Unit-I;*

13. In response, the petitioner vide affidavit dated 25.11.2014 has submitted that the reasons for the delay in completion of R&M of Unit-I as against the contractual timeline was mainly due to delay in supply of Equipment's /components of 110 MW Turbine of old Skoda Design. It has also submitted that a lot of re-engineering and retrofit technology was involved in manufacturing and supply of equipment's/components of 110 MW Turbine and old Skoda design.

### **Submissions of Respondent**

14. The respondent, BSEB vide its counter affidavit dated 19.12.2014 has submitted that the petitioner does not stand clean in as much as it has delayed the proper commissioning of both units of the generating station much beyond the reasonable time and there has been delays in



achieving completion targets in the implementation of R&M/LE works. The respondent has stated that the petitioner was under obligation to restore power supply after taking over the plant as per clause 16 of the PPA and also continue doing the R&M activity side by side. Accordingly, the respondent has submitted that the delay in putting the units in commercial operation is enormous.

### **Rejoinder of Petitioner**

15. The petitioner in its rejoinder affidavit dated 5.2.2015 has submitted that R&M was initially envisaged to be completed within 31 months of the signing of the contract and the same was delayed due to factors not attributable to the petitioner. It has further submitted that contract was awarded to BHEL only on 15.4.2010 on account of the fact that approval of the Planning Commission was granted in September, 2009, without which the project work could not be proceeded with. The petitioner has reiterated that the delay in commissioning of Unit-I is not attributable to the petitioner.

### **Analysis**

16. We have examined the submissions of the parties and the documents available on record. The Appellate Tribunal for Electricity (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 overrun and cost overrun of a project as under:

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

*Due to factors entirely attributable to the generating company, e.g.,*

*i. imprudence in selecting the contractors/suppliers 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/supplied 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."*

17. It is observed that the petitioner has not furnished the activity-wise, detailed analysis and the reasons for time overrun during each stage of R&M. However, from the submissions made by the petitioner, it is evident that the factors due to the delay in R&M are mainly on account of the delay in supply of equipment's by M/s BHEL. Also, the delay on the part of M/s BHEL to supply materials/equipment's is stated to be that R&M of 110 MW Turbine involves the re-engineering & retrofitting of old Skoda design turbine. The petitioner, in terms of the R&M contract has the option to impose LD on M/s BHEL for delay in completion of the said package. The petitioner, in our view cannot escape its responsibility stating that the agency BHEL had delayed the supply of materials/equipments and the delay is therefore not attributable to it. In our view, there has been slackness and improper coordination on the part of the petitioner with the contractor M/s BHEL to ensure the completion of R&M package and commissioning of Unit-I. Considering the factors in totality, we hold that the delay in the commissioning of Unit-I is attributable to the petitioner and there is no reason to condone the delay of 18.5 months in the declaration of COD of Unit-I of the generating station. Accordingly, in terms of the principles laid down by the Tribunal in the judgment dated 27.4.2011 [(situation (i))], the delay of 18.5 months cannot be said to be beyond the control of petitioner and hence cannot be condoned. Therefore, the increase in cost on account of the said delay has to be borne by the petitioner. However, the Liquidated Damages (LD) and Insurance proceeds if any, received by the generating company, on account of the said delay, could be retained by the generating company.

18. Based on the above decision to disallow the time overrun of 18.5 months for COD of Unit-I, the schedule COD for the purpose of computation IDC is as under:



Unit	Schedule COD as per LOA	Actual COD	Time overrun (months)
I	14.4.2012	1.11.2013	18.5

### Capital Cost

19. At the time of takeover of the project, the performance of both units was abysmally low and accordingly for revival, R&M of the plant was envisaged. The scheme of RLA/ R&M of Units -I & II of the generating station (and Units 6&7 of Barouni TPS) under the Rashtriya Sam VikasYojna (RSVY) as a special plan for Bihar was approved by the Planning Commission in the meeting held on 10.5.2005. Accordingly, ₹506.20 crore was approved as the project cost for Units -I & II of the generating station and also for Units 6&7 of Barouni TPS). Further, MOA regarding the R&M, Life Extension of the generating station was entered into between the State Government of Bihar, BSEB, Ministry of Power, GOI and NTPC on 29.5.2005. MOA was approved by the Energy Department, Government of Bihar vide notification dated 15.05.2006. BSEB transferred the generating station to Vaishali Power Generation Company Ltd. on 6.9.2006. Thereafter, the Bihar Electricity Board Reform (Transfer of Muzaffarpur Thermal Power station) Scheme, 2006 was notified by the Energy Department, Government of Bihar on 8.9.2006. The proposal for R&M work of both the plants were recommended and approved by CEA and proposal was received by the Ministry of Power, GOI for undertaking R&M at the cost of ₹471.80 crore, which was approved by the Planning Commission vide letter dated 16.11.2009.

20. As regards Capital cost, the respondent vide affidavit dated 4.12.2014 has submitted that any grant received from the Central/State Government or any statutory body or Authority for the execution of the project which does not carry any liability of repayment shall be from the capital cost for the purpose of computation of interest on loan, return on equity and depreciation.

### Capital Cost as on COD

21. 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 (ii) 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.

22. The capital cost for installed capacity as on COD of the generating station (1.11.2013) as claimed by the petitioner is ₹30631.24 lakh, which is inclusive of the apportioned amount of ₹29232.00 lakh as grant in the form of Special Central Assistance under Rashtriya Sam Vikas Yojna to the generating station. The petitioner by affidavit dated 30.1.2014 has furnished the actual capital expenditure of ₹29963.91 lakh as on the actual COD of the generating station (1.11.2013) duly certified by Chartered Accountant. Thereafter, the petitioner vide affidavit dated 19.8.2014 has furnished the capital expenditure on cash basis and liabilities as on COD of Unit-I duly certified by Chartered Account on 18.2.2014 as detailed under:

(₹ in lakh)		
SI No.	Particulars	Amount
1	Taken Over Assets	1654.58
2	<b>Addition due to R&amp;M</b>	
	(i) Addition upto 31.10.2013	23797.78
	(ii) Total Incidental Expenses During Construction (IEDC) upto 31.10.2013	1868.84
	(iii) Pre-commissioning expenses	2346.97
	<b>Total (i+ii+iii)</b>	<b>28013.59</b>
3	Interest During Construction (IDC)	223.51
4	Liability	882.71
	<b>Total Capital cost (on cash basis) excluding liabilities</b>	<b>29008.97</b>

23. The capital cost submitted by the petitioner as per Form 5B and 9A of the petition is as under:

(₹ in lakh)				
Form	As on	Capital cost on accrual basis	Liabilities	Cash cost
Form-5B	1.11.2013 (COD)	29892.00	(not mentioned)	(not mentioned)
	31.3.2014		596.40	29295.29
Form-9A	1.11.2013 (COD)	29892.00	882.00	29010.00
	31.3.2014		596.40	29295.29



24. It is observed that the petitioner has considered the capital cost as on COD as ₹29295.29 lakh (instead of ₹29010.00 lakh) for calculation of Return on Equity, Interest on loan and depreciation. The capital cost indicated above includes the RSVY grant amount of ₹23590.00 lakh received by the project. However, for the purpose of tariff, the petitioner has deducted the said grant amount from the capital cost. Accordingly, the capital cost arrived at after deduction of the amount of grant received, based on which the petitioner has claimed Return on Equity, Interest on loan and depreciation is as under:

<i>(Rs. in lakh)</i>		
1	Opening capital cost	29295.29
2	Additions	0.00
3	Closing capital cost (1-2)	29295.29
4	RSVY grant received	23590.00
5	<b>Capital Cost excluding grant (3-4)</b>	<b>5705.29</b>

25. It is noticed from the table under para 22 above that the value of taken over assets as per Auditor certificate is ₹1654.58 lakh. However, from the submission of the petitioner in affidavit dated 17.1.2011, the value of taken over assets of Unit-I was ₹1368.00 lakh on the basis of physical verification and valuation done at the time of takeover. This variation of ₹286.58 lakh in the cost of taken over assets of Unit-I is not supported by any documentary proof. In view of this, the value of taken over assets of Unit-I is considered as ₹1368.00 lakh.

26. As the total grant is ₹471.80 crore, the approved amount for Unit-I is ₹235.90 crore. Accordingly, an excess expenditure of ₹44.24 crore has been incurred in the R&M of Unit-I, since Unit-I was in a bad condition as compared to Unit-II at the time of take over. Since Unit-I had to undergo comprehensive R&M, the higher R&M expenditure of ₹280.14 crore (₹28013.59 lakh) has been considered instead of ₹235.90 crore.

#### **Interest During Construction (IDC)**

27. The petitioner has claimed IDC of ₹223.51 lakh. The petitioner has submitted that the only loan availed by the petitioner related to Stage-I is ₹3200.00 lakh which has been raised from NTPC Ltd. (holding company). Though the Commission vide ROP of the hearing dated 13.10.2014 directed the petitioner to submit necessary details in Forms 14 and 14A duly filled



and audited (in Petition No.260/GT/2014), the petitioner has not submitted the same and in its absence, the quarterly expenditure met and fund drawn/ utilised could not be verified. Similarly, the petitioner has also not furnished the detailed calculation of IDC including dates of loan draws, rate of interest applied etc. The rate of interest claimed on the loan is State Bank Advance Rate on six monthly rest basis and is in accordance with the loan agreement.

28. As regards the grants sanctioned/ availed for the project, the petitioner has submitted the details vide affidavit dated 25.11.2014 as under:

R&M of BTG Package of Unit-I and Unit-II (BHEL Scope)

Fund approved: ₹ 28476.00 lakh

Fund received: ₹. 24967.00 lakh

R&M of BOP (Common facilities) KBUNL Scope

Fund approved: ₹ 18704.00 lakh,

Fund received: ₹ 18000.00 lakh

29. It is observed from the above that out of the approved grant, there are un-availed funds as detailed below:

(₹ in lakh)	
Purpose of grant	Un-availed fund
R&M of BTG Package of Unit-I and Unit-II (BHEL scope)	3509.00
R&M of BOP (common facilities) (Petitioner's scope)	704.00
Total	4303.00

30. It appears from the above that the petitioner has not availed the cost free funds amounting to ₹4303.00 lakh receivable in the form of grants. The petitioner has instead, bridged the fund gap by an interest bearing loan from NTPC Ltd and has claimed IDC on the same. Clause 2.1 (e) of the MOU between BHEL, NTPC, BSEB and MoP, GOI provides as under:

*2.iii "Additional requirement of funds arising out of variation between initial estimated cost and the revised cost and/ or final completed cost shall be arranged by Ministry of Power from Planning Commission under RSVY and by the state Government shall be released to BHEL/ NTPC for smooth execution of the work."*

31. It is further observed that the entire funding requirement of the project (including the requirements over and above the estimated cost) was envisaged to be met from the grants from the MoP, GOI and the State Government of Bihar. In the view of the above, the requirement of raising loan from NTPC (joint venture partner) for meeting the project expenditure does not appear justified.



32. It is pertinent to mention that the Board Resolutions of the Petitioner Company dated 13.10.2006 and dated 31.12.2007 for availing loans of ₹20.00 crore and ₹12.03 crore respectively, indicate that the loans would be short term working capital loans. It is therefore apparent that these loans were not intended for meeting the capital expenditure of the project. Hence, the IDC claimed by the petitioner on the loan raised from NTPC has not been allowed to form part of the capital cost of the project. The petitioner is however directed to furnish on affidavit, proper justification as to the necessity for availing loan from NTPC, the details of utilisation of the loan and grant, detailed date-wise calculation of the IDC claimed, the exact details of the rate of interest applied along with Form-14 and Form-14A, separately, at the time of filing the tariff petition for determination of tariff of the generating station for the period 2014-19.

#### **Initial Spares**

33. The petitioner vide affidavit dated 25.11.2014 has submitted that no initial spares have been capitalized as on the COD of Unit-I after R&M.

#### **Infirm Power**

34. The petitioner vide affidavit dated 25.11.2014 has submitted that the revenue (excluding fuel cost) on account of injection of infirm power from the date of synchronization to the actual COD of Unit-I is ₹377.93 lakh and the same has been adjusted as per the audited certificate.

#### **Cost Overrun**

35. Due to time overrun in the completion of R&M of Unit-I, the petitioner was directed to furnish details of escalation in prices from the date of scheduled COD to the actual COD. In response, the petitioner vide affidavit dated 25.11.2014 has submitted that there is no escalation in price due to time overrun in respect of R&M of Unit-I.

#### **Incidental Expenses During Construction (IEDC)**

36. As per audited certificate, the total IEDC i.e establishment expenditure as on 1.11.2013 is ₹1868.84 lakh. However, due to the delay of 18.5 months in the COD of Unit-I, there has been increase in the establishment expenses such as salary, transportation, office expenditure etc.,



Accordingly, *pro rata* deduction of establishment expenses has been made and is worked out as under:

Total period taken from zero date to actual COD (in months)	Time overrun disallowed (in months)	Establishment expenses (₹ in lakh)	Pro rata deduction (col.4 x col.3/col.2) (₹ in lakh)
42.5	18.5	1868.84	813.50

### Un-discharged liabilities/ Discharge of liabilities

37. The un-discharged liability as on COD of Unit-I as per the Auditor's certificate is ₹882.71 lakh. The petitioner has also submitted the party-wise statement of un-discharged liabilities as on COD and as on 31.3.2014. As per this, the un-discharged liability as on 31.3.2014 is ₹596.40 lakh. However, the petitioner has not furnished clarification as to whether the said reduction of ₹286.30 lakh in capital liability is on account of the actual discharge of liability or due to adjustment of liability. In view of this, the un-discharged liability as on COD is considered as ₹ 882.71 lakh.

38. Based on the above discussions, the Capital cost as on COD of Unit-I found justified on prudence check, is summarized as under:

(₹ in lakh)		
<b>a</b>	Value of taken over assets on COD of Unit-I	1368.00
<b>b</b>	R&M Expenditure as on COD of Unit-I	28013.59
<b>c</b>	Less: Pro-rata reduction in establishment cost	(-) 813.50
<b>d</b>	Interest During Construction	0.00
<b>f</b>	<b>Capital Cost as on accrual basis (a+b-c+d)</b>	<b>28568.09</b>
<b>g</b>	Less: Un-discharged liabilities	(-) 882.71
	<b>Capital Cost on cash basis as on 1.11.2013 (f-g)</b>	<b>27685.38</b>

### Cost Benefit analysis of R&M

39. Regulation 10 (1) of the 2009 Tariff Regulations provides as under:

**“Renovation and Modernisation.(1)** *The generating company or the transmission licensee, as the case may be, for meeting the expenditure on renovation and modernization (R&M) for the purpose of extension of life beyond the useful life of the generating station or a unit thereof or the transmission system, shall make an application before the Commission for approval of the proposal with a Detailed Project Report giving complete scope, justification, cost-benefit analysis, estimated life extension from a reference date, financial package, phasing of expenditure, schedule of completion, reference price level, estimated completion cost including foreign exchange component, if any, record of consultation with beneficiaries and any other information considered to be relevant by the generating company or the transmission licensee”*



40. The capital expenditure incurred for R&M of the generating station has been considered in terms of the above regulation. As regards consultation with beneficiaries, the petitioner has submitted as under:

*“The R&M of MTPS has been decided vide Memorandum of Agreement (MOA) between the Govt. of Bihar, BSEB and NTPC on 26.12.2005 and five party agreement i.e MOP, GOI, Govt. of Bihar, BSEB, NTPC and BHEL on 29.5.2006 has been put in place. Besides a letter from CEA regarding summary record of discussion of the review meeting for R&M of MTPS dated 31.12.2008 which was attended by all constituents of the agreement.”*

41. The Commission vide ROP of the hearing dated 13.10.2014 directed the petitioner to furnish the Cost benefit analysis after completion of R&M of Unit-I of the generating station. In response, the petitioner vide affidavit dated 25.11.2014 has submitted that the Cost benefit envisaged for taking up R&M of Unit-I and Unit-II to improve the operating parameters and in turn enhance the performance of the generating units. It has also submitted that the operating parameters of both the units of the generating station prior to take over were abysmally low in the year 2003-04 and the PLF of Unit-I and Unit-II was 7.80% and 6.79% respectively. It has further submitted that the Plant Availability Factor of Unit-I for the period from COD of Unit-I (1.11.2013) to 31.3.2014 is 80.05%. A comparative chart of the operating parameters at the time of takeover and the actual operating parameters of Unit-I as submitted by the petitioner is as under:

Parameters	Parameters of 2003 (at the time of takeover)	Actual parameter of Unit-I after COD
Plant Availability Factor (%)	35	80.05
Gross Station Heat Rate (kcal/kWh)	4800	3087
Auxiliary Power Consumption (%)	14	11.89
Specific fuel oil consumption (Average of 2008-11) (ml/kWh)	8.387	3.23
Energy Charge Rate (ECR) (based on comparative parameters) (paise/kWh)	489.34	304.64

42. It is evident from the above that there is improvement in the performance parameters of Unit-I after R&M. The improvement in Gross Station Heat Rate, Auxiliary Power Consumption and Specific Fuel Oil consumption will reduce the energy charge rate as compared to the operating parameters at the time of takeover of Unit-I. Also, the Energy Charge Rate has been reduced by ₹1.847/kWh considering the actual parameters as compared to the operating parameters at the time of takeover of Unit-I. Considering the Plant Availability Factor of 80.05%,



the total units generated during the year (2013-14) is 683.47 Mus. Also, considering the saving in Energy Charge Rate of ₹1.847/unit (4.89-3.05), the total extra revenue generated on account of saving in ECR will be ₹126.24 crore [(₹1.847 x (683.47/10))]. The total capital expenditure allowed for R&M (table under para 37 above) is ₹27200.09 lakh (28013.59-813.50). This would translate to annual fixed charge of ₹68 crore to ₹70 crore, thereby resulting in a saving of ₹58.24 crore (126.24-68.00) per year, which would justify the per year expenditure on R&M of Unit-I. Accordingly, the capital cost of ₹28568.09 lakh as on 1.11.2013, including the cost of takeover assets is allowed in terms of Regulation 10 of the 2009 Tariff Regulations.

#### **Additional Capital Expenditure**

43. No additional capital expenditure has been claimed by the petitioner for the period from 1.11.2013 to 31.3.2014

#### **Capital Cost for tariff purpose**

44. As stated, the petitioner has received grants from the GOI, for meeting the project expenditure towards R&M of Units I & II and the grants received being a source of fund without any cost of capital attached to it, do not form part of the project cost for the purpose of tariff. It is pertinent to mention that in Commission's order dated 20.8.2002 in Petition No.46/2000 and Order dated 31.3.2003 in Review Petition No.145/2002 (in Petition No.46/2000), it has been decided that the amount of Government grant shall not be considered in the capital cost for the purpose of tariff. In line with the above decision, the grant amount received by the petitioner has not been considered for the working out the capital cost for the purpose of tariff.

45. The total grant received upto the COD of Unit-I (1.11.2013) is ₹42967.00 lakh. The petitioner has not furnished the details regarding the utilization of this fund with respect to the expenditure of each unit separately. However, an amount of ₹23590.00 lakh has been claimed as the grant amount utilized for Unit-I. Accordingly, the capital cost, excluding the above grant received for Unit-I is as under:

<i>(₹ in lakh)</i>	
Capital Cost on cash basis as on 1.11.2013	27685.38
Grant received (considered for Unit-I)	23590.00
Capital Cost on cash basis (excluding grant as on COD)	4095.38



46. The Bihar Electricity reform (Transfer of Muzaffarpur Thermal Power Station) Scheme, 2006 as notified by the Govt. of Bihar on 8.9.2006 provides as follows:

*"(f) The Board, NTPC and the State Government have agreed that NTPC shall pay an amount of Rs. 57.10 crores on behalf of the Transferee to Life Insurance Corporation of India to get the existing charges over the assets of Muzaffarpur station in favour of the said Corporation released and the amount paid by NTPC for the purpose shall be adjusted against the subscription by NTPC towards equity shares in the Transferee to the extent of 74 percent shares and balance amount, if any, remaining unadjusted shall be paid by the State Government to transferee for payment to NTPC."*

47. Also, Clause 2.1 (e) of the MOU dated 29.5.2006 between M/s BHEL, NTPC, BSEB and the MoP, GOI provides as under:

*2.iii "Additional requirement of funds arising out of variation between initial estimated cost and the revised cost and/ or final completed cost shall be arranged by Ministry of Power from Planning Commission under RSVY and by the state Government shall be released to BHEL/ NTPC for smooth execution of the work."*

48. It is clear from the above that in the entire project cost, only the asset takeover was envisaged through fund infusion by the Petitioner Company and all the other expenditure was to be met through Government funding. Any expenditure exceeding the estimated cost is required to be met by MoP, GOI and the State Govt. As such, the takeover price of Unit-I (as per Auditor certificate) amounting to ₹1368.00 lakh could only be allowed as the capital cost incurred by the petitioner as against the cash expenditure of Rs 4095.38 lakh. Accordingly, the admissible capital cost for Unit-I will be ₹1368.00 lakh.

49. The petitioner has submitted vide affidavit dated 25.11.14 that the revenue (excluding fuel cost) on account of injection of infirm power from the date of synchronization to actual COD of Unit-I is ₹377.93 lakh. This amount shall be deducted from the capital cost of ₹1368.00 lakh as admitted above. Accordingly, the capital cost allowed for the purpose of tariff is as under:

<i>(₹ in lakh)</i>	
Price of takeover assets	1368.00
Less: Revenue from sale of infirm power	(-) 377.93
Capital Cost allowed for tariff as on 1.11.2013 (1-2)	<b>990.07</b>
Additional Capital Expenditure (1.11.2013 to 31.3.2014)	0.00
<b>Capital cost allowed for tariff as on 31.3.2014</b>	<b>990.07</b>

### **Debt Equity Ratio**

50. Regulation 12 of the 2009Tariff 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.

51. The petitioner has claimed debt: equity ratio as on COD of Unit-I as detailed under:

	(₹ in lakh)	
	Amount	Percentage
Capital Cost	29295.29	-
Less: Grants received	23590.00	-
<b>Capital Cost claimed excluding grant</b>	<b>5705.29</b>	-
Equity		
Equity due to take over price	1368.00	
Add: 30% of the R&M expenditure (excluding grant)(5705.29-1368.00)x 30%		
Equity claimed	2669.19	46.78%
Normative loan (balance)	3036.10	53.22%

52. The capital cost allowed as above for Unit-I of the generating station as on 1.11.2013 for the purpose of tariff is ₹990.07 lakh. Based on this and in terms of the Bihar Electricity reform (Transfer of Muzaffarpur Thermal Power Station) Scheme, it can be concluded that the entire project cost allowed for tariff, which comprise of the takeover price for Unit-I, is required to be met by the petitioner through equity only. It is further observed that the equity infused in the project is more than 30%. Accordingly, in line with Regulation 12 of the 2009 Tariff Regulations, the debt equity ratio of 70:30 is considered for purpose of tariff.

### Return on Equity

53. 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.”

54. From the Annual Report of the Petitioner Company for the year 2013-14 it is observed that there was no taxable income and accordingly no tax was payable for the said year. As such, the Return on Equity cannot be permitted to be grossed up with the MAT rate as applied by the petitioner. Hence, Return on Equity has not been grossed up as no tax has been paid against the same. As such, Return on equity has been computed as under:

	(₹ in lakh)
	<b>1.11.2013 to 31.3.2014</b>
Gross Notional Equity	297.02
Addition due to Additional Capital expenditure	-
Closing Equity	297.02
Average Equity	297.02
Return on Equity (Base Rate )	15.500%
Tax rate	0.000%
Rate of Return on Equity (Pre Tax )	15.500%
Return on Equity (annualised)	46.04
<b>Return on Equity (pro rata)</b>	<b>19.05</b>

#### Interest on loan

55. 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.”*

56. The petitioner has availed loan amounting to ₹3200.00 lakh for R&M of Units-I &II from NTPC in two tranches (i.e ₹2000.00 lakh and ₹1200.00 lakh) respectively. The petitioner has also furnished the loan agreements, according to which the applicable rate of interest shall be the State Bank advance Rate (with 6 months reset).The weighted average rate of interest for the year 2013-14 claimed by the petitioner is 15.83%, based on the interest paid and the average loan amount from NTPC. This has been allowed for calculation of interest on normative loan. However, as there is no actual loan allowed for the project, the petitioner in line with the above regulations shall furnish separately, on affidavit, the weighted average rate of interest with



respect to the company as a whole, if any, at the time of filing the petition for determination of tariff for the period 2014-19. Accordingly, the Interest on Normative loan is calculated as under:

	(₹ in lakh)
	1.11.2013 to 31.3.2014
Gross Notional Loan	693.05
Cumulative Repayment of Loan upto previous year	-
Net Opening Loan	693.05
Addition during the period	-
Repayment of Loan during the period	89.11
Net Closing Loan	603.94
Average Loan	648.50
Weighted Average Rate of Interest on Loan	15.83%
<b>Interest on loan (annualised)</b>	<b>102.68</b>
<b>Interest on loan (pro rata)</b>	<b>42.48</b>

### Depreciation

57. 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 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.”*

58. The petitioner has claimed depreciation considering the balance life of 15 years after the completion of R&M. As per Clause 7.1.1(i) of the Power Purchase Agreement, the life of the generating station shall be considered as 15 years from the date of takeover in 2006 for the



purpose of depreciation. The petitioner was directed to furnish the details on the estimated life extension after completion of R&M and in response, the petitioner vide affidavit dated 24.11.2011 has submitted that the expected life of the units is 10 to 15 years after completion of R&M.

59. It is observed from the recommendations of committee on RLA that the life of major equipment's like drum, economisers, water walls, re-heaters has been recommended as 10 years and that the life of Turbine, after stress analysis, has been recommended as 9 years. In view of the above, the balance useful life, after completion of R&M of Unit-I is considered as 10 years. Accordingly, in line with the above regulations, depreciable value has been spread over the balance useful life of 10 years and depreciation has been worked out as under:

	(₹ in lakh)
	1.11.2013 to 31.3.2014
Opening Gross Block	990.07
Additions due to actual/ Projected additional capitalisation	-
Closing Gross Block	990.07
Average Gross Block	990.07
Value of freehold land included in Gross Block	<b>0.00</b>
Value of Gross block excluding Land	990.07
Rate of Depreciation	-
Depreciable value (90%)	891.06
Remaining Life of the plant	10.00
Remaining Depreciable value	891.06
<b>Depreciation (annualised)</b>	<b>89.11</b>
<b>Depreciation (pro rata)</b>	<b>36.86</b>

### Operation & Maintenance Expenses

60. The Commission in its order dated 21.2.2014 in Petition No. 207/GT/2013 had allowed the following O&M cost:

	2013-14 1.11.2013 to 31.3.2014
For 110 MW Unit (₹ in lakh/MW/Year)	35.98
O&M Expenses ( <b>pro rata</b> ) (₹ in lakh)	<b>1637.34</b>
<b>O&amp;M Expenses (annualised)</b> (₹ in lakh)	<b>3957.80</b>

61. In the said order, the Commission had also observed that the O&M expense norms allowed would be reviewed after the completion of R&M schemes of the generating station.



62. The O&M expenses norms in respect of 110 MW unit of Tanda TPS for the year 2013-14 under the 2009 Tariff Regulations is ₹32.79 lakh/MW. Considering the fact that (i) the unit size of the generating station (MTPS) is same as that of Tanda TPS and (ii) the units have undergone R&M, the norms for O&M expenses in respect of Tanda TPS for 2013-14 are adopted and considered as O&M expense norms in respect of this generating station for 2013-14. Based on this, the O&M expense norm is worked out and allowed for Unit-I for the period from 1.11.2013 to 31.3.2014 as under:

(₹ in lakh)	
	<b>1.11.2013 to 31.3.2014</b>
O&M Expenses ( <i>pro rata</i> )	1492.17
<b>O&amp;M Expenses (<i>annualised</i>)</b>	<b>3606.90</b>

### Interest on Working Capital

63. Regulations 18(1)(a) of the 2009 Regulations provides for computation of interest on working capital as under:

*“18(1)(a) Coal-based/lignite-fired thermal generating stations:*

*(i) Cost of coal or lignite and limestone, if applicable, for 1½ months for pit-head generating stations and two months for non-pit-head 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 secondary 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;*

*(v) Operation and maintenance expenses for one month.”*

64. Clause (3) of Regulation 18 of the 2009 Tariff Regulations, as amended on 2.6.2011 provides as under:

*“ Rate of interest on working capital shall be on normative basis and shall be equal to the short-term Prime Lending Rate of State Bank of India as on 1.4.2009 or on 1st April of the year in which the generating station or a unit thereof or the transmission system, as the case may be, is declared under commercial operation, whichever is later.”*

65. In accordance with the above provisions, interest on working capital has been worked out as under:



### Fuel component in working capital

66. The petitioner has claimed the following cost of fuel in working capital on *pro rata* basis based on the weighted average GCV and price of fuel for the months i.e August, 2011, September, 2011 and October, 2011 prior to the COD of Unit-I (1.11.2013) in the absence of coal cost of the preceding three months from COD of Unit-I:

<i>(₹ in lakh)</i>	
<b>2013-14</b> 1.11.2013 to 31.3.2014	
Cost of coal (pro rata)	1618
Cost of oil (pro rata)	114

67. Based on the weighted average GCV and price of fuel for three months for coal and oil i.e August, 2011, September, 2011 and October, 2011 prior to the COD of Unit-I (1.11.2013), the fuel component for two months in working capital for the period 2013-14 is worked out and allowed as under:

<i>(₹ in lakh)</i>	
<b>2013-14</b> 1.11.2013 to 31.3.2014	
Coal stock for two months (annualized)	3914.07
Oil stock for two months (annualized)	255.20
Energy Charges for two months	4169.27

### Cost of secondary fuel oil

68. The petitioner has claimed the cost of secondary fuel oil for ₹686.00 (on *pro rata* basis) for 1.11.2013 to 31.3.2014. The cost of secondary fuel oil based on the weighted average price and GCV for the preceding three months of the COD of Unit-I is worked out and allowed as under:

<i>(₹ in lakh)</i>	
1.11.2013 to 31.3.2014	
Cost of secondary Fuel oil (annualized)	1531.17
Cost of secondary Fuel oil (pro rata)	633.44

### Maintenance spares

69. The petitioner has considered 20% of O&M cost as maintenance spares in working capital in terms of the Commission's order dated 21.2.2014 in Petition No.207/GT/2013 granted interim tariff for Unit-I from COD till 31.3.2014, as under:



	(₹ in lakh)
	<b>2013-14</b> 1.11.2013 to 31.3.2014
Maintenance spares (20% of O&M cost ) pro rata	327.00
Maintenance spares (20% of O&M cost ) annualized	791.56

70. Considering the fact that O&M expenses in respect of Tanda TPS in 2013-14 are considered for this generating station as stated above, the cost of maintenance spares is worked out and allowed as under:

	(₹ in lakh)
	<b>2013-14</b> 1.11.2013 to 31.3.2014
Maintenance spares (20% of O&M cost ) pro rata	298.43
Maintenance spares (20% of O&M cost ) annualized	721.38

### Receivables

71. Receivables equivalent to two months has been worked out and allowed as under:

	(₹ in lakh)
Receivables (Capacity Charges- 2 months)	1126.70
Receivables (Energy Charges- 2 months)	4169.27

### O&M Expenses (1 month)

72. O&M expenses for one month allowed for the purpose of working capital are as under:

	(₹ in lakh)
	<b>2013-14</b> 1.11.2013 to 31.3.2014
O&M cost for one month (pro rata)	124.35
O&M cost for one month (annualized)	300.58

### Rate of Interest

73. Considering the interest rate of 13.20% (Base rate as on 1.4.2013 and 350 basis points) in accordance with the provisions of the 2009 Tariff Regulations, Interest on working capital is worked out as under:

	(₹ in lakh)
Cost of coal for 2 months	3914.07
Secondary fuel oil for 2 months	255.20
O&M expenses (one month)	300.58
Receivables (Capacity Charges- 2 months)	1126.70
Receivables (Energy Charges- 2 months)	4169.27
Maintenance Spare	721.38
<b>Total Working Capital</b>	<b>10487.20</b>
Rate of Interest	13.20%
Interest on Working Capital ( <i>annualised</i> )	1384.31
<b>Interest on Working Capital (<i>pro rata</i>)</b>	<b>572.69</b>





## Annual Fixed Charges

74. Accordingly, the fixed charges allowed for the period from 1.11.2013 to 31.3.2014 is summarized as under:

	<i>(₹ in lakh)</i>
Depreciation	36.86
Interest on Loan	42.48
Return on Equity	19.05
Interest on Working Capital	572.69
O&M Expenses	1492.17
Secondary fuel oil	633.44
<b>Total Fixed Charges</b>	<b>2163.24</b>

## Operational Norms

75. The Commission vide its order dated 21.2.2014 in Petition No. 207/GT/2013 has relaxed the operational norms and allowed the following operational norms for interim tariff for Unit-I of the generating station as under:

<b>Parameter/Year</b>	<b>2013-14</b>
Normative Annual Plant Availability Factor (%)	80
Specific Fuel Oil Consumption (ml/kWh)	3.5
Auxiliary Power Consumption (%)	12.0
Gross Station Heat Rate (Kcal /kWh)	3000

76. The Commission in the said order had also directed that post R&M, the petitioner shall conduct performance test of the units of the generating station and furnish the results of the same on affidavit, in order to take a comprehensive view on the operational norms of the generating station.

77. The petitioner in its petition has considered the above said operational norms allowed by the Commission in order dated 21.2.2014 for consideration of the Commission. The petitioner was directed vide ROP of the hearing dated 13.10.2014 to furnish the details of performance parameters as against the guaranteed performance parameters. In response, the petitioner vide affidavit dated 25.11.2014 has not furnished the guaranteed performance parameters, but has submitted the actual operating parameters for Unit-I for the period from 1.11.2013 to 31.3.2014 as under:



<b>Parameter</b>	<b>1.11.2013 to 31.3.2014</b>
Normative Annual Plant Availability Factor (%)	80.05
Specific Fuel Oil Consumption (ml/kWh)	3.23
Auxiliary Power Consumption (%)	11.89
Gross Station Heat Rate (Kcal /kWh)	3087

78. The petitioner was earlier directed to furnish the particulars on the improvement in operating parameters of Units I & II of the generating station as per R&M contract with M/s BHEL and those achieved in Performance Guaranteed Test (PG Test) after R&M. In response, the petitioner vide affidavit dated 23.3.2013 had submitted that only two parameters namely, Boiler output at super heater outlet and Availability are guaranteed in the contract. The petitioner has further submitted that after R&M works, the availability as guaranteed by M/s BHEL would be 80%. However, the petitioner has not furnished the guaranteed improvement in the Station Heat Rate, Auxiliary Power Consumption. It is noticed that the operational norms with respect to Gross Station Heat Rate and Secondary Fuel oil consumption as furnished by the petitioner, after R&M activities, are inferior to the operational norms specified for 110 MW units of Tanda TPS generating station of NTPC.

### **Submissions of Respondent**

79. The respondent has submitted that the Commission while accepting the fact that this generating station is similar to Tanda TPS of NTPC has erred in fixing the Station Heat Rate of Unit-I of the generating station as 3000 kcal/Kwh, while the Station Heat Rate of Tanda TPS under the 2009 Tariff Regulations for 2009-14 is 2825 kcal/kWh. Accordingly, it has prayed that the same is required to be revised.

80. As regards Auxiliary Power Consumption, the respondent has submitted that CEA had conducted performance review of thermal power stations, wherein the Auxiliary Power Consumption for all India has been determined as 8.44% and for BHEL make as 8.29%. In view of this, the Commission has erred by fixing the Auxiliary Power Consumption as 12% and the same may be reviewed.



## Analysis

81. We have examined the matter. Considering the fact that the R&M of Unit-I has just been completed and would take time to stabilize its performance, we are of the considered view that it would be difficult for this generating station at this stage to achieve the norms of operation in respect of Tanda TPS for 2009-14. Accordingly, considering the size of the units of this generating station, the following is decided:

- (i) Normative Annual Plant Availability Factor: NAPAF as guaranteed by M/s BHEL is 80% and the actual availability submitted for the period 1.11.2013 to 31.3.2014 is 80.05%. Hence, NAPAF of 80% is considered.
- (ii) Gross Station Heat Rate: It is observed from the Detailed Project Report (DPR) for R&M of the generating station, that the Station Heat Rate (SHR), post R&M, is expected to be 3000 kcal/kWh. Accordingly, SHR of 3000 kcal/kWh has been considered for tariff.
- (iii) Auxiliary Power Consumption and Specific Fuel Oil Consumption: As there is no information regarding the improvement in APC and Specific Fuel Oil Consumption, after R&M in the DPR, the actual value of Secondary Fuel Oil Consumption of 3.23 ml/kWh and APC of 11.89% for the period from 1.11.2013 to 31.3.2014 is considered.

82. Based on the above discussions, the following operational norms have been considered for Unit-I of the generating station for the purpose of tariff.

Parameter	1.11.2013 to 31.3.2014
Normative Annual Plant Availability Factor (%)	80
Specific Fuel Oil Consumption (ml/kWh)	3.23
Auxiliary Power Consumption (%)	11.89
Gross Station Heat Rate (Kcal /kWh)	3000

## Energy Charge Rate (ECR)

83. The petitioner has claimed Energy Charge Rate (ECR) of 345.9 paisa/kWh during the period 1.11.2013 to 31.3.2014. ECR based on the weighted average price and GCV of Coal procured and burnt for three months i.e. August' 2013, September' 2013 and October' 2013 and Operational norms considered by the Commission are worked out as under:

Description	Unit	1.11.2013 to 31.3.2014
Capacity	MW	110
Gross Station Heat Rate	kCal/kWh	3000
Auxiliary Energy Consumption	%	11.89



Weighted Average GCV of Oil	kCal/l	9609.67
Weighted Average GCV of Coal	kCal/Kg	3447.54
Weighted Average Price of Oil	Rs./KL	61494.23
Weighted Average Price of Coal	Rs./MT	3537.51
Rate of Energy Charge from Coal	Paise/kWh	304.64
<b>Rate of Energy Charge ex-bus per kWh Sent</b>	<b>Paise/kWh</b>	<b>345.755</b>

84. 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**

85. 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 (Unit-I) and the publication expenses incurred shall be directly recovered from the beneficiaries, on *pro rata* basis. The excess filing fee if any paid, shall be adjusted against the tariff petition in respect of Unit-II (Block-II) of the generating station of the petitioner.

86. The petitioner is already billing the respondents on provisional basis in accordance with the provisional tariff granted vide order dated 21.2.2014. The provisional billing of tariff shall be adjusted in terms of proviso to Regulation 5(3) of the 2009 Tariff Regulations as amended on 21.6.2011.

87. Petition Nos. 207/GT/2013 & 260/GT/2014 is disposed of in terms of the above.

**Sd/-**  
**(A. S. Bakshi)**  
**Member**

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

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

