CENTRAL ELECTRICITY REGULATORY COMMISSION
NEW DELHI

Petition No. 205/GT/2013

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

Date of Hearing: 25.11.2014
Date of Order: 14.03.2016

In the matter of

Approval of tariff of Rihand Super Thermal Power Station, Stage-III (1000 MW) for the period from anticipated date of commercial operation of Units-I &II till 31.3.2014.

And

In the matter of

NTPC Ltd
NTPC Bhawan,
Core-7, SCOPE Complex,
7, Institutional Area, Lodhi Road,
New Delhi-110003 …Petitioner

Vs

1. Uttar Pradesh Power Corporation Ltd
Shakti Bhawan, 14, Ashok Marg,
Lucknow – 226001

2. Jaipur Vidyut Vitaran Nigam Ltd.,
Vidyut Bhawan, Janpath, Jaipur – 302005

3. Jodhpur Vidyut Vitaran Nigam Ltd.
New Power House, Industrial Area,
Jodhpur – 342003

4. Ajmer Vidyut Vitaran Nigam Ltd.
Old Power House, Hatthi Bhatta,
Jaipur Road, Ajmer – 305001

5. Tata Power Delhi Distribution Ltd
33 kV Sub-station, Kingsway Camp,
Delhi –110009

6. BSES Rajdhani Power Ltd
2nd Floor, B-Block
BSES Bhawan, Nehru Place,
New Delhi – 110019

7. BSES Yamuna Power Ltd
Shakti Kiran Building, Kakardooma,
Delhi – 110 092

8. Haryana Power Purchase Centre,
Shakti Bhawan, Sector, VI
Panchkula – 134109

9. Punjab State Power Corporation Limited
The Mall, Secretariat Complex,
Patiala – 147001

10. Himachal Pradesh State Electricity Board,
Vidyut Bhawan, Kumar House,
Shimla-171004

11. Power Development Department,
Govt of J&K, Secretariat,
Srinagar

12. Engineering Department,
Union Territory of Chandigarh, Sector 9D,
Addl. Office Building
Chandigarh-160009

13. Uttarakhand Power Corporation Ltd,
Urja Bhawan, Kanwali Road,
Dehradun-248001 ...**Respondents**

Parties present:

Shri Ajay Dua, NTPC
Shri A. K. Bishoi, NTPC
Shri Neeraj Kumar, NTPC
Shri Vivek Kumar, NTPC
Shri Ajay Mehta, NTPC
Shri Manish Garg, UPPCL
Shri R. B. Sharma, Advocate, BRPL

ORDER

The petitioner, NTPC Ltd filed this petition for approval of tariff of Rihand Super Thermal Power Station, Stage-III (2 x 500 MW) ('the generating station") for the period from the anticipated date of commercial operation of Unit-I to 31.3.2014, in accordance with the Central Electricity Regulatory Commission (Terms and Conditions of Tariff) Regulations, 2009 (hereinafter referred to as "the 2009 Tariff Regulations").

2. The investment approval of the project was accorded by the Board of the petitioner company on 24.1.2009 at an estimated project cost of ₹67368.97 million including IDC and FC of ₹7741.62 million and WCM of ₹1161.93 million at a price level of 4th quarter of 2008. The

petitioner has entered into Power Purchase Agreement (PPA) with the respondents herein on 27.3.2009 and the power generated from the generating station is supplied to the respondents in terms of the allocation made by the Ministry of Power, Government of India vide its letter dated 23.8.2010. The petitioner has accordingly filed the petition for determination of tariff of the generating station from the anticipated date of commercial operation of Unit-I (23.7.2012) to 31.3.2014.

3. While so, Unit-I of the generating station was declared under commercial operation with effect from 19.11.2012 and the petitioner prayed for grant of provisional tariff in order to bill the respondents for the power supplied from the generating station, subject to adjustment after determination of final tariff by the Commission. Accordingly, the Commission by order dated 24.12.2012 granted provisional tariff for Unit-I of the generating station and also directed the petitioner to revise the figures after taking into consideration the date of commercial operation of Unit-I of the generating station. Based on this, the petitioner vide affidavit dated 8.3.2013 revised its claim based on the audited capital cost as on actual COD of Unit-I (19.11.2012) and also revised the projected additional capital expenditure from the date of COD of Unit-I (19.11.2012) to 31.3.2014.

4. Thereafter, Unit-II of the generating station was declared under commercial operation with effect from 24.3.2014 and the Commission by order dated 10.7.2014 granted provisional tariff for Units-I & II of the generating station, subject to adjustment as per clause 5 (3) of the 2009 Tariff Regulations. The petition was heard on various dates and the petitioner, in terms of the direction of the Commission has filed additional information. Thereafter, the matter was finally heard on 25.11.2014 and the Commission after directing the petitioner to file certain additional information, reserved its order in the matter. The petitioner has also revised the annual fixed charges of the generating station based on the actual COD of the units and has also submitted the additional information in terms of the directions of the Commission after serving copies of the same on the respondents.

5. The annual fixed charges claimed by the petitioner vide affidavit dated 30.9.2014 is summarised as under:

(₹ in lakh)

	2012-13	2013-14	
	19.11.2012 to 31.3.2013	1.4.2013 to 26.3.2014	27.3.2014 to 31.3.2014
Return on Equity	11171.94	14655.72	26059.17
Interest on Loan	12175.21	14255.59	25786.38
Depreciation	14346.50	18364.42	33078.40
O&M Expenses	3226.82	3474.72	6773.11
Interest on Working Capital	7680.00	8120.00	16240.00
Cost of secondary fuel oil	2270.99	2270.99	3983.04
Total	**50871.46**	**61141.45**	**111920.40**

6. Reply in the matter has been filed by the respondents, UPPCL, TPDDL, BRPL, the discoms of Rajasthan (AVVNL, JVVNL and JoVVNL) and PSPCL and the petitioner has filed its rejoinder to the said replies. We now proceed to examine the claim of the petitioner, on prudence check, based on the submissions of the parties and the documents available on records, as stated in the subsequent paragraphs.

Commissioning Schedule

7. The generating station comprises of two units of 500 MW each. The Investment Approval of the project was accorded by the Board of the Petitioner Company on 24.1.2009 wherein it was envisaged that Unit-I would be commissioned in schedule time line of 41 months and Unit-II to be commissioned six months thereafter from date of Letter of Award (LOA) of the Main Plant pending environmental clearance by the Ministry of Environment & Forests (MOE&F), GOI and clearance from the Central Water Commission (CWC). The petitioner vide its affidavit dated 8.1.2015 has reiterated that the investment approval envisages the COD of Unit-I in 41 months from Main Plant Award and further time of six months for Unit-II, subject to environment clearance by MOE&F, GOI and CWC. The petitioner has submitted that the zero date as per investment approval is 4.8.2010 since the CWC clearance was granted on 4.8.2010. The petitioner has also submitted that when it was observed that CWC clearance was getting delayed, various construction/ mobilization activities were tapered in order to minimize the investment risks and that when CWC clearance was in the final stages, the petitioner made all

out efforts to mobilize resources to commission at least one unit as early as possible. It has further submitted that during this process, the resources planned for Unit-II were diverted to Unit-I and with these special efforts, the petitioner could achieve early COD of Unit-I i.e. on 19.11.2012 and thereafter COD of Unit-II was achieved on 27.3.2014. In view of above, the petitioner has submitted that there is no time overrun with respect to the scheduled time line in the investment approval.

8. The submissions have been considered. It is observed that in the "Guidelines for preparation of Feasibility Report for Power Projects" issued by the Planning Commission, GOI in 1992, the Project Developers have been advised to interact with the MOE&F, GOI and the CWC / Ministry of water Resources, GOI from the initial stage of site studies and selections. It is further observed that the CWC clearance letter dated 4.8.2010 is with reference to the letter of the petitioner dated 6.5.2010, which is approximately 15 months after the investment approval date of 24.1.2009. In terms of the aforesaid guidelines, the process of obtaining clearances from MOE&F and CWC should have been taken up by the petitioner prior to the investment approval of the project. In the absence of this, we are not inclined to accept the submissions of the petitioner. Accordingly, we hold that the delay in getting CWC clearance is attributable to petitioner and accordingly the CWC clearance date (4.8.2010) has not been considered as Zero Date. In view of this, the Zero Date for computation of the schedule time line of 41 months and 47 months for commissioning of Unit-I & Unit-II respectively has been considered from the date of LOA of the Main Plant. The details of the actual COD of the units as against the schedule COD as per LOA of the Main Plant are as under:

	Date of LOA of the Main Plant	**Schedule COD as per investment approval (with respect to LOA)**	**Actual COD**	**Time overrun**
Unit-I	18.2.2009	17.7.2012	19.11.2012	125 days (about 4 months)
Unit-II		17.1.2013	27.3.2014	434 days (about 14 months & 8 days)

9. In terms of the above, there is a time overrun of 125 days (about 4 months) in the COD of Unit-I and 434 days (about 14 months 8 days) in the COD of Unit-II of the generating station.

Admissibility of Additional Return on Equity

10. The investment approval of the project was accorded by the Board of the Petitioner Company at its 328th meeting held on 24.1.2009. The actual COD of Unit-I and Unit-II is 19.11.2012 and 27.3.2014 respectively. Accordingly, Unit-I was declared under commercial operation after 45 months & 26 days and Unit-II has been declared under commercial operation after 62 months & 3 days from the date of investment approval. The respondent, TPDDL has pointed out that there has been delay in the COD of the units with respect to the investment approval of the project and has submitted that the petitioner is not entitled for additional ROE of 0.5%. The matter has been examined. In order to avail additional ROE of 0.5%, the time line as specified under the 2009 Tariff Regulations is 42 months from the date of Investment Approval for extension projects and subsequent units at an interval of 6 months. Hence, both the units have been declared under commercial operation beyond the time line specified under the 2009 Tariff Regulations. Therefore, the generating station is not entitled to additional return of 0.5% on equity for timely completion in terms of the 2009 Tariff Regulations.

Time Overrun and Cost Overrun

11. As indicated above, there is a time overrun of 125 days (about 4 months) in the COD of Unit-I and 434 days (about 14 months & 8 days) in the COD of Unit-II of the generating station as compared to the schedule COD as per LOA from the date of Main Plant. We now set forth the submissions of the parties on this issue as under:

Submissions of the Petitioner

12. The petitioner vide affidavits dated 10.1.2014, 20.11.2014 and 8.1.2015 has furnished the main reasons for the delay in declaration of commercial operation of both units of the generating station as under:

(A) <u>Heavy rainfall</u>

13. The petitioner vide affidavits dated. 20.11.2014 and 8.1.2015 has submitted as under:

(a) The average rainfall in a year in region (Sonebhadra district) is 1036 mm. During the execution period initially during 2009-10, heavy rainfall of 1314 mm was witnessed which is 27% higher than the normal rainfall. The affected period was from 9.8.2009 to 8.9.2009 which further slowed down initial civil work of Unit-I.

(b) Further, the year 2011-12 witnessed unprecedented very heavy rainfall of 1718 mm, which was 68% higher than normal rainfall. The months from June, 2011 to August 2011 i.e. 3 months in itself witnessed rainfall of 1416 mm. The working area was flooded during the period. This hampered the civil works of offsite packages of Unit-1, main plant civil works of SG & TG packages of Unit-2 and acted as a major blow to NTPCs efforts to make good the time lost due to delayed CWC clearance.

(c) Again, during the year 2013-14, the site received heavy rainfall of 1528 mm which is 47% higher than the normal rainfall. The rains were heavy during the period 26.5.2013 to 24.10.2013 i.e. for 5 months. The work areas got flooded during the period. This affected the civil works of critical offsite packages mainly Cooling tower and Ash handling very badly. This again resulted in setback to NTPCs efforts to make good the time lost due to delayed CWC clearance.

(d) The rainfall experienced during the years 2009-10, 2011-12 and 2012-13 was much higher than average rainfall. Further, even in 2010-11, though annual rain fall was around the level of average rainfall, the month of July, 2010 had unprecedented rainfall of 515 mm i.e. around 50% of the annual rainfall. Compared to this, rainfall in the same month i.e. July in years 2009, 2011, 2012 & 2013 was 244 mm, 281 mm, 86 mm & 316 mm respectively. This hampered various activities like boiler erection/drum lifting. The delay in boiler drum lifting further delayed sequential activities which could have been taken up after removal of heavy duty crane on completion of boiler drum lifting. These are foundation of PA Fans, FD Fans, and civil works of transfer Points TP-21, TP-22 & TP-23 for Unit-I.

(e) It is submitted that even after rain has stopped, it required lot of efforts and time to dewater the area and make the passage healthy for movement of heavy materials and crane, which effectively means the civil works were delayed by not the rain period rather got delayed beyond the period to subsequent month.

(f) The delay caused by heavy rainfall is tabulated below:

	Rainfall	Rain Period	Normalization period	Total work stoppage
2009-10	1314 mm 27% higher than average of 1036 mm	1 month (9-Aug-2009 to 8-Sept-2009)	15 days	1.5 months
2010-11 (month of July)	515 mm Unprecedented high rain during July	1 month	15 days	1.5 months
2011-12	1718 mm 68% higher than avg. of 1036 mm	3 months (June, July, Aug 2011)	15 days	3.5 months
2013-14	1528 mm 47% higher than avg. of 1036 mm	5 months (26-May-13 to 24-Oct-2013)	15 days	5.5 months

(B) Geological surprises

14. The petitioner vide affidavits dated 10.1.2014 and 20.11.2014 has submitted as under:

(a) The underground structure was designed based on Geo-Technical report proposed for the site. However, while digging it was found that the water table is very high i.e. only 2 meter below ground level.

(b) The high water table increased the execution time of underground work as the same required frequent dewatering and caused interruption in the progress of civil foundation works. All the foundation works of critical areas, including CW duct were adversely affected due to this geological surprise.

(C) Interruption in Availability of Stone Aggregate in Civil works

15. The petitioner vide affidavits dated 10.1.2014, 20.11.2014 and 8.1.2015 has submitted as under:

(a) When Rihand Stage-III construction activities were at its peak, lot of major projects were under way concurrently in the vicinity of Rihand that include NTPC Vindhyanchal Stage-IV (1000 MW), Reliance Sasan UMPP (3960 MW) & Essar Mahan-I & II (1200 MW).

(b) The major source of aggregate supply for all these projects was Dalla mines of U.P. and its associated crushers. In February, 2012, there was a major accident at Dalla mines resulting into number of casualties of the mine workers. As per direction of the District administration dated 28.2.2012, mining of stones at Dalla was stopped immediately and mining activities were allowed to be restored by the District Administration from 2.11.2012.

(c) This resulted in severe shortage of supply of aggregate and virtually stoppage of all civil works at Rihand for around 10 months.

(d) After clearance from District Administration, the supply / crushing activities were allowed to be resumed from 2.11.2012 in a reduced way. The non availability of aggregate resulted in consequential delays in commissioning of Unit-I and Unit-2 of Rihand –III. The Unit-I whose major civil work of main plant was completed before the Dalla mine accident, suffered due to slow progress in off-site packages like Cooling tower, Ash handling package, CHP etc., whereas all civil works of Unit-2 were affected badly. It is noteworthy that even in Unit-I wherein cooling tower, which were being constructed in situ and various other works stuck up in middle.

(e) Even the alternate source of aggregate in Madhya Pradesh - Makaroha mines though was taken up as a back-up, it could provide only partial relief as being of inferior quality of aggregate & due to heavy demand of aggregate in the area as lot of construction activity were underway in the vicinity as mentioned. Supply of aggregate was quite erratic & not reliable, therefore the mining/crushing capacity was inadequate to cater to the unprecedented demand of aggregate from the Makaraha mine.

(f) High quality aggregate requirement of concrete type of M30 and M35 could not be met through Makaroha mines. The activities affected on account of the above were civil works for Wagon Tippler, Coal handling plant, Cooling Tower. So the concurrent civil works of Wagon Tippler and its associated underground duct for conveyor, where the aggregate for concrete strength of M 35/ M 30 is required there was no relief as the quality requirement could not be met through Makaroha mines. Also for cooling tower and other Coal handling plant related civil works where the aggregate requirement was for concrete strength of M 30, there was no supply during period of shut down of Dalla mines. Huge requirement of M 30/M35 grade aggregate for Cooling tower & CHP works suffered most as stocks maintained of aggregate exhausted soon. Also, the CW duct where though the quality of aggregate required was M 25 but quantity required was huge, no relief could be provided by small quantity of aggregate available from Makaroha.

(D) <u>Ash Dyke Land</u>

16. The petitioner vide affidavit dated 10.1.2014 has submitted as under:

(a) A proposal for transfer of forest land measuring 186.66 hectare in Sirsoli (Bijpur) for ash dyke was submitted to DFO on 6.2.2010. After numerous meeting and site visit, DFO advised to revise the ash dyke area on 18.3.2011. So the earlier proposal of 186.66 hectare was revised to 146.31 hectare in April, 2011. The proposal was forwarded by state forest department to MOEF in October, 2011. Inspection by Chief Conservator of Forest has been completed in January, 2012. However forest clearance for this land is still

awaited. NTPC is following up the case and the letters of MOE & F are enclosed (Annexure-V)

(b) As a contingency measure, ash disposal system was redesigned that inter-alia included re-routing of pipeline from Ash Slurry pump to existing ash dyke of Rihand-I & Rihand-II. Rihand-I & Rihand-II put together have Central Ash Dyke-I & II and Mithini Ash Dyke-I & II. In order to cater the increased requirement of Ash disposal, the raising of the Ash Dyke has been undertaken and are underway. Further, though Unit-2 of Rihand Stage-III has been commissioned using the contingency, its sustained operation may be hampered due to non availability of ash dyke land.

(E) <u>Power evacuation by Power Grid</u>

17. The petitioner vide affidavit dated 10.1.2014 has submitted as under:

(a) The evacuation of Rihand-III power was proposed through 2 nos. single circuit 765KV/400KV Rihand-Vindhyachal line upto Vindhyachal pooling substation. Later on, the originally planned ATS have been changed to double circuit in view of the forest involvement. Tendering activity of the line was delayed and work started in October, 2012. Due to this delay, contingency arrangement proposed by powergrid through Rihand-III Sasan pooling sub-station (by passing Vindhyachal pooling sub-station). Even for the contingency line only 83% of civil work foundation and 50% of tower erection has been completed and is now expected to complete by March 14.

(b) At present Unit-5 load is being evacuated through the existing stage-I & II lines. There is no spare transmission capacity available to take care of Unit-6 generation.

18. In addition, the petitioner vide affidavit dated 10.1.2014 has submitted that inordinate delays by State authorities in giving transport clearance for transporting the material from BHEL units especially Boiler Drum has prevented NTPC from early commissioning of Unit-2. It has also reiterated that with zero date as CWC clearance i.e 4.8.2010, there is no time overrun in case of Rihand-III. However, in case of those projects, where there is time overrun, the following is submitted:

(i) Generally Letters of Awards (LOAs) for various packages envisage price escalation payable by NTPC to contractors/vendors as per the scheduled dates of supplies/erection. If any delay on the part of the contractor leads to delay in supply/erection, additional escalation if any is generally borne by the contractors. It may be therefore be seen that time overrun does not generally result in cost overrun of works cost.

(ii) Even if the time overrun of a package is attributed to non availability of fronts etc., additional escalation claimed by the vendor is subject to recovery from the defaulting vendor. These claims are generally settled at the time of contract closing. Therefore on this count also there is no additional liability on NTPC.

19. With regard to the details of increase in IDC/IEDC due to time over run from the scheduled date of commercial operation to the actual date of commercial operation, the petitioner vide affidavit dated 10.1.2014 has submitted that in the event of shifting of various activities related to project construction/execution/commissioning to a later date, the corresponding expenditure on deferred activities through equity and loan deployment also gets shifted. The petitioner has further submitted that loans are drawn at the corporate (central) level, common to all stations/projects, and these loans are allocated to various projects/stations as per their running/current activities/expenditure. It has also stated that these factors, in fact, help in reducing the actual IDC/IEDC. Accordingly, the petitioner has submitted that there is no extra interest liability on account of delay in schedule of activities/expenditures and therefore incremental IDC/IEDC added between schedule COD and actual COD cannot be treated as increase in IDC/IEDC due to time over run rather it should be considered as normal liability as per actual status of works.

Submission of the Respondent (BRPL)

20. The Respondent No. 6, BRPL vide reply affidavit dated 31.10.2014 has submitted as under:

(i) The problems narrated by the petitioner are the casual problems which are faced day in and day out during the erection of the project of this nature for which the petitioner is squarely responsible.

(ii) The petitioner is operating in this area for more than three decades and well conversant with the local problems faced in this area as mentioned in his petition. It is clearly evident that the delay caused in the completion of the project is due to slackness in project management like improper co-ordination with various agencies on the part of the petitioner.

(iii) The alleged grounds furnished by the petitioner factors do not establish that the delay caused was beyond the control of the generating company. 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 will be the reasons beyond the control of the petitioner.

(iv) Further, there are no specific regulations to deal with the issue related to the time over run related costs. The Hon'ble Tribunal for Electricity in its judgment dated 27.4.2011 in Appeal No. 72 of 2010 (MSPGCL Vs MERC & others) has laid down the principle for prudence check of time over run and cost overrun of a project.

(v) The situation as furnished by the petitioner are covered under 7.4(i) of the judgment and the entire cost of time over run including the IDC and the IEDC during the period of time over run in respect of Unit-I and Unit-2 may be borne by the petitioner in the light of the above judgment of the Hon'ble Tribunal.

Analysis of Time Overrun

21. The Appellate Tribunal for Electricity in its judgment dated 27.4.2011 in Appeal No. 72 of 2010 (MSPGCL Vs MERC & others) have 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.

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."

22. In response to the directions of the Commission vide ROP of the hearing dated 25.11.2014, the petitioner vide affidavit dated 8.1.2015 has tabulated the reasons for the delay in achieving COD of Units-I & II, along with justification as under:

Detailed break-up of Time Taken (Unit-I)

Sl No	Reasons for delay	Activities suffered	Start date		Completion date		No. of days lost in the activity	If some activity suffered simultaneously due to two or more than two reasons effective days lost should be furnished	Description in detail indicating the manner in which the specified reason delayed the commissioning of the plant along with supporting documents and PERT / BAR chart, wherever necessary
			Schedule	Actual	Schedule	Actual			
1	Environment Clearance		24.1.2009	5.2.2009			12		The investment approval on 24 January 2009 was subject to receipt of Environment Clearance from Ministry of Environment &

2	CWC Clearance	All the activities suffered due to late receipt of CWC clearance and MOEF clearance.	24.1.2009	4.8.2010			557		Forest and clearance of Central Water Commission (CWC). The Environment Clearance was granted on 5.2.2009 and CWC clearance could be granted on 4.8.2010. So the zero date as per investment approval is 4.8.2010. Anticipating early Environment and CWC clearances, NTPC awarded the Main Plant package. When it was observed that CWC clearance was getting delayed, various construction/mobilization activities were tapered off to minimize the investment risks. However, when CWC clearance was in the final stages, NTPC made all out efforts to mobilize all resources to commission at least one unit as early as possible.
3	a) Heavy Rainfall b) Geological surprise	Boiler Foundation start	18.6.2009	1.8.2009			44		1) The rain fall during 2009-10 was 1314 mm which was 27% Higher than normal rainfall. 2) Water table was very high which required frequent dewatering

									and caused interruption in progress of Civil work
4	Heavy Rainfall	Boiler Erection Start	27.11.2009	7.2.2010			28		Heavy rain fall in consecutive months of August,2009 & Sept,2009 was 519 mm and 252 mm respectively. Even after that it took many weeks to dry up the area so that it is fit for heavy vehicle movement/ transfer of heavy structures etc. This hampered the various activities which enable start of Boiler erection activities.
5	Heavy Rainfall	Boiler Erection upto Drum Lifting	27.11.2009	7.2.2010	24.4.2010	6.8.2010	32		1. Though the annual rainfall was around the average rain fall, the month of July 2010 witnessed un precedented heavy rain of 515 mm which is 50% of yearly rainfall. Compared to this, rainfall in the same month i.e. July in years 2009, 2011, 2012 & 2013 was 244 mm, 281 mm, 86 mm & 316 mm respectively. This not only hampered the Crane movement completely but also led to stoppage of movement of heavy material for some week when the rain

									had stopped. Which resulted into delay in erection of boiler structure above 66 meter and delay in readiness of other foundations like that of FD Fan, PA Fan, Coal conveyer transfer pointsTP-21, TP-22, TP-23 and Trestles, which was possible only after shifting of the cranes from boiler cavity to different area. 2. Heavy rain in July 2010 resulting in water logging in of the boiler area requiring extensive dewatering of the area to prepare/achieve desired soil condition which is a pre-requisite for resuming the boiler erection activities. All the bottlenecks resulted in further delay.
6	a) Heavy Rainfall (August 2011 i.e. 741 mm) b) Delay in Transportation of Boiler Drum of Unit-2 due to non availability of permission of State Transport Authority. Control room foundation could have been taken up only after	Boiler Light Up	27.9.2011	30.1.2012			21	As the reasons are so interlinked and overlapping, segregation of delays reason wise is not practically feasible.	1. The year 2011-12 witnessed very heavy rain of 1718 mm which is 68% higher than the annual average rain fall of 1036 mm. Adding to difficulty was unprecedented high rain witnessed in August 2011 of 741 mm. This led to stoppage of movement of

	Drum Lifting of Unit-2.								heavy vehicles like cranes and shifting of material till the time passage is healthy enough to take the load. 2. Control room foundation was delayed due to delay in drum lifting as it was only possible to take up the work of control room foundation after drum lifting of Unit-2
7	Dalla mines closure - Non availability of required quality Aggregate	Cooling Tower	23.1.2010	23.1.2010	21.7.2012	19.11.2012		Parallel Activity	1. Dalla mines was closed down by Local District Administration during the period Feb 12 to Nov 12 due to mine accident which claimed many lives. This unfortunately coincided with construction of cooling towers. 2. Cooling towers require M-30 grade of concrete which in turn required high quality/strength of aggregates and that could have been sourced from Dalla mines. Therefore Dalla mines closure not only hampered the sourcing of huge quantity of aggregates, but also deprived Rihand-III from getting quality aggregate required for M-30 type of concrete.

8	a. Non availability of Ash Dyke Land from Forest Department b. Dalla mine accident - Delay in commissioning of cooling towers	COD	17.7.2012	19.11.2012			Total Delay 125 days	As the reasons are so interlinked and overlapping, segregation of delays reason wise is not practically feasible.	As ash dyke land was not made available by Forest department, permanent ash pipe line planned required re routing to make the contingency arrangement for disposing the ash in the existing ash dykes.

Detailed break-up of Time Taken (Unit-II)

Sl. No	Reasons for delay	Activities suffered	Start date		Completion date		No. of days lost in the activity	If some activity suffered simultaneously due to two or more than two reasons, effective days lost should be furnished	Description in detail indicating the manner in which the specified reason delayed the commissioning of the plant along with supporting documents and PERT/BAR chart, wherever necessary (separate sheet may be attached, if required)
			Schedule	Actual	Schedule	Actual			
1	Un-seasonal Rainfall (October, 2009 & Nov,2009)	Boiler Foundation	19.10.2009	12.10.2009	27.2.2010	12.3.2010	20		October, 2009 & November, 2009 are normally dry months however there were unseasonal rains to the tune of 43 mm in Oct 09 & 79 mm in Nov 09 which affected the boiler foundation work adding to delays.
2		Boiler Erection Start	27.3.2010	25.4.2010			9		
3	Heavy Rainfall	Boiler Structure Erection for Boiler Drum	27.3.2010	26.4.2010	20.8.2010	30.11.2010	72		1. Though the annual rainfall was around the average rain fall, the month of July 2010 witnessed unprecedented heavy rain of 515 mm which is 50% of yearly rainfall. Compared to this, rainfall in the same month i.e. July in years 2009, 2011, 2012 & 2013 was 244 mm, 281 mm, 86 mm & 316 mm

									respectively. This not only hampered the Crane movement completely but also led to stoppage of movement of heavy material for some week when the rain had stopped. Which resulted into delay in erection of boiler structure above 66 meter and delay in readiness of other foundations like that of FD Fan, PA Fan, Coal conveyer transfer pointsTP-21, TP-22, TP-23 and Trestles, which was possible only after shifting of the cranes from boiler cavity to different area. 2. Heavy rain in July 2010 resulting in water logging in of the boiler area extensive dewatering of the area carried out to prepare/achieve desired soil condition which is a pre-requisite for resuming the boiler erection activities. All these bottleneck resulting in further delay
4	Delay in Transportation of Boiler Drum of Unit-2 due to non availability of permission of State Transport Authority.	Boiler Drum Lifting	27.8.2010	22.11.2011			47		Transpiration of Boiler drum was delayed due to delay in granting permission by State Transport Authority. In this context daily mails communications received from the Vendor are enclosed

5	a. Dalla mines closure - Non availability of required quality Aggregate b. Geological Surprises	Cooling Tower & Cooling Water Duct	23.1.2010	23.1.2010	21.11.2012	27.3.2014	286		Dalla mines were closed down by Local District Administration during the period Feb,2012 to Nov 2012 due to mine accident which claimed many lives. This unfortunately coincided with construction of cooling towers. Cooling towers requires M-30 type of concrete whereas CHP activities require M-35 as well as M-30 type of concrete which in turn require high quality / strength of aggregates and that could have been sourced from Dalla mines. Therefore Dalla mines closure not only hampered the sourcing of huge quantity of aggregates, but also deprived Rihand-III from getting quality aggregate required for M-30/M-35 type of concrete. This affected the progress of CHP (Civil Work of Wagon Tippler, TP-14/15 and underground tunnel work) which was essential for coal supply of Unit-6 and of Cooling Tower. 2. Site encountered Geological surprises in the erection work of CW Duct. The underground CW piping with concrete encasement was designed based on geotechnical report proposed for the site. However while
6		Coal Handling Plant	27.1.2010		26.6.2013	27.3.2014			

									digging it was found that the water table was very high i.e. only 2 meter below ground level. The high water table increased the execution time for underground work as the same required frequent de-watering and caused interruption in progress of civil foundation work. To avoid further delay the entire CW duct layout was redesigned by reducing the depth of CW Duct structure from 10 meter to 6 meter below the ground level and by increasing the width by approximately 7 meter (by keeping the pipes in single tier in place of two tier). On one hand redesigning of CW duct structure has delayed the project and the other hand incidence of closer of Dalla mines during the civil works of CW duct prevented the site from sourcing of aggregate required for huge concreting in CW duct.
7	a. Non availability of Ash Dyke Land from Forest Department b. Delay in commissioning of Evacuation by Power Grid	COD	17.1.2013	27.3.2014			Total Delay 434 days	As the reasons are so interlinked and overlapping, segregation of delays reason wise is not practically feasible.	.As ash dyke land was not made available by Forest department, permanent ash pipe line planned required re routing to make the contingency arrangement for disposing the ash in the existing ash dykes.2. The Transmission System planned for Rihand-III was

									765KV/400KV Rihand-Vindhyachal line up to Vindhyachal pooling station. However, the execution of line was delayed. Due to delay contingency arrangement was made by Power Grid which took some time.

23. As stated, against the scheduled COD of 17.7.2012, the actual COD of Unit-I is 19.11.2012, resulting in the time overrun of 125 days (i.e 4 months & 2 days). The delay of 125 days (i.e delay of 44 days in Start of boiler column foundation, delay of 28 days in Start of erection of boiler, delay of 32 days in erection of boiler upto drum lifting and delay of 21 days on account of boiler light-up) in the completion of Unit-I of the generating station is discussed as under:

Effect of Heavy Rainfall & Geological Surprises

24. From the rainfall data submitted by the petitioner vide affidavit dated 20.11.2014, it is observed that there has been heavy rainfall during the years 2009-10, 2010-11 and 2011-12. The rainfall during the year 2009-10 was 1314 mm as against the average rainfall of 1036 mm which is about 27% higher than the average rainfall. The rainfall in the month of July, 2010 was 515 mm, which is unprecedently higher than the normal rainfall. Similarly, for the year 2011-12, the rainfall was 1718 mm which is about 68% higher than the average rainfall of 1036 mm. From the PERT/BAR chart submitted by the petitioner, it is noticed that various civil works at the generating station, including the activities of boiler foundations, boiler erection start, boiler erection up to drum lifting, boiler light up and Cooling Tower work had suffered and/or got delayed due to rainfall. Also, the boiler foundation which was scheduled to start on 18.6.2009 could only be started on 1.8.2009 due to heavy rainfall during the months of June, 2009 and July, 2009 and very high water table, thereby requiring frequent de-watering. Thus, there has been a delay of 44 days (from 18.6.2009 to 1.8.2009) to start the boiler foundation work on account of the heavy rainfall as narrated above. The delay due to heavy rainfall as narrated

above, in our view is not attributable to the petitioner and the petitioner cannot be attributable for the same.

25. There has been a delay of 103 days in the completion of Boiler erection upto drum lifting. Though the schedule completion of boiler erection upto drum lifting was 24.4.2010, the same could be completed only on 6.8.2010. The petitioner has considered the delay of 60 days (28 days for boiler erection start *plus* 32 days for boiler erection upto drum lifting). In consideration of the rainfall data during the period from November, 2009 to July, 2010 we are of the considered view that the effective delay of 60 days on account of rainfall during the years 2009-10 and 2010-11 is reasonable and justified. Though, boiler was scheduled to be lighted up on 27.9.2011, the same could be started only on 31.1.2012, due to heavy rainfall. In justification of the delay, the petitioner vide affidavit dated 9.7.2014 has submitted that the month of August, 2011 (2011-12) witnessed very heavy rain of 741 mm, which led to the stoppage of movement of vehicle like cranes etc. However, the petitioner has furnished the effective delay of 21 days in light-up of boiler. On account of the above, there has been a delay of 125 days in boiler light-up which is consequential upon the delay in boiler erection upto drum lifting due to rainfall. Considering the above, the delay in boiler erection upto drum lifting, the effective delay of 21 days for boiler light up claimed by the petitioner is found reasonable and has been condoned.

26. Thus, the total delay of 125 days (44+60+21) as above, in the commissioning of Unit-I in our considered view is beyond the control of the petitioner and is not attributable to the petitioner. Accordingly, in terms of the principles laid down by the Tribunal in the judgment dated 27.4.2011 [(situation 7.4(ii)], the total delay of 125 days is condoned and the generating company is given the benefit of the 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.

Effect of closure of Dalla Mines

27. From the PERT / BAR chart submitted by the petitioner, it is observed that the work of Cooling Tower actually commenced on the schedule date of 23.1.2010. The said work which

was to scheduled to be completed on 21.7.2012, could only be completed on 19.11.2012 (COD of Unit-I) due to combined effect of rainfall during the years 2010-11 and 2011-12 and the Closure of Dalla mines from February, 2012 to November, 2012 on account of major accident resulting in causalities to mine workers. The closure of Dalla mines from February, 2012 to November, 2012 due to the said accident had affected the aggregate supply of requisite type and size of aggregate and the petitioner could arrange the aggregate from alternate nearby source of aggregate in Madhya Pradesh-Makaraha as a back-up, which could only provide partial relief as the aggregate was of inferior quality and also since there was heavy demand of aggregate in the area as lot of construction activities were under way within the vicinity. However, we notice that the total delay of 123 days in the work of Cooling Tower on account of the closure of Dalla mines has been subsumed in the overall delay of 125 days in boiler light-up due to boiler erection upto drum lifting on account of heavy rainfall (as stated above). In view of this, there is no effective delay in the completion of Cooling Towers due to closure of Dalla Mines.

Non availability of Ash Dyke land from Forest department

28. The schedule date for start of Ash dyke work was 17.7.2012. However, due to the delay in acquisition of land till 16.5.2012 and since the matter was under process before the MOE&F, GOI and the State Govt. of Uttar Pradesh, the said work could be started only on 19.11.2012. The delay in the availability of Ash dyke land necessitated the re-routing of permanent ash pipeline planned earlier. Accordingly, contingency arrangement was made for disposal of ash in the existing Ash dykes and thus the COD of Unit-I was declared on 19.11.2012. Thus, there is no effective delay on account of non-availability of Ash dyke land as the delay from 17.7.2012 to 19.11.2012 has been subsumed in the total delay of 125 days in boiler light-up due to boiler erection up to drum lifting on account of heavy rainfall (as stated above) during the years 2009-10, 2010-11 and 2011-12 respectively.

29. As stated, against the scheduled COD of 17.1.2013, the actual COD of Unit-II is 27.3.2014, resulting in the time overrun of 434 days (i.e 14 months & 14 days). The delay of 434 days is categorized as under:

(i) *Boiler foundation start– 20 days*
(ii) Boiler of erection Start – 9 days
(iii) Boiler structure erection for Boiler Drum - 72 days
(iv) Boiler Drum lifting – 47 days
(v) (a) Cooling tower & Cooling water duct and (b) Coal handling plant } *286 days*

30. The reasons for the delay of 434 days in the commissioning of Unit-II of the generating station are discussed as under:

Effect of Heavy Rainfall

31. From the rainfall data submitted by the petitioner vide affidavit dated 20.11.2014, it is observed that there has been heavy rainfall during the years 2009-10, 2010-11 and 2011-12. The rainfall during the year 2009-10 was 1314 mm as against the average rainfall of 1036 mm which is about 27% higher than the average rainfall. The rainfall in the month of July, 2010 was 515 mm, which is unprecedently higher than the normal rainfall. Similarly, for the year 2011-12, the rainfall was 1718 mm which is about 68% higher than the average rainfall of 1036 mm. From the PERT/BAR chart submitted by the petitioner, it is noticed that various civil works at the generating station, including the activities of boiler foundations, boiler erection start, boiler erection up to drum lifting which was scheduled to be completed on 27.2.2010, could be completed only on 12.3.2010 due to unseasonal rainfall during the months of October, 2009 and November, 2009. Thus, the delay of 20 days in the completion of boiler foundation due to unseasonal rainfall in our view is not attributable to the petitioner and the petitioner cannot be held responsible for the same. Hence, the said delay is condoned.

32. Similarly, there has been a delay of 81 days (9 +72) in the completion of Boiler erection for Boiler drum. The scheduled start for boiler erection work was 27.3.2010 and the said work had actually started on 25.4.2010, thereby leading to a delay of 29 days. The petitioner has however

considered an effective delay of 9 days on account of rainfall during the months of October, 2009 and November, 2009, which led to the stoppage of movement of vehicles like cranes etc. Accordingly, the delay of 9 days (out of the actual delay of 29 days) is found justified and has been condoned.

33. In addition, the schedule completion for erection of Boiler structure was 20.8.2010 and the same was actually completed by the petitioner on 30.11.2010, thereby leading to a delay of 101 days. However, the petitioner has considered an effective delay of 72 days for erection of Boiler structure for drum. In justification of the same, the petitioner has submitted that the month of July, 2010 witnessed unprecedented heavy rainfall of 515 mm and the same had led to the stoppage of movement of crane etc., resulting in the delay in Boiler erection work. In view of the justification furnished by the petitioner, the effective delay of 72 days on account of heavy rainfall during the month of July, 2010 is found justified and has been condoned.

34. Accordingly, in terms of the principles laid down by the Tribunal in the judgment dated 27.4.2011 [(situation 7.4(ii)], the total delay of 101 days is condoned and the generating company is given the benefit of the 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.

Delay in Transportation of Boiler Drum

35. The petitioner has claimed a delay of 47 days in boiler drum lifting on account of the delay in transportation of boiler drum due to delay in permission from the Maharashtra State Authority to move the vehicle from Wankadi Border to project site. Though the boiler drum lifting of Unit-II was scheduled on 27.8.2010, the boiler drum was lifted on 22.1.2011, resulting in the total delay of 148 days. Out of the total delay of 148 days, 96 days have been subsumed in the delay of erection of boiler structure for drum on account of the same being a parallel activity. Thus, the delay of 52 days is on account of rainfall and the delayed transportation of boiler drum. The petitioner has, however, considered the delay of 47 days on account of the delay in transportation of boiler drum for not getting permission from Maharashtra State Authority.

36. We have examined the matter. The schedule date for boiler drum lifting was 27.8.2010 and the actual drum lifting was done on 22.1.2011 by the petitioner on account of the delay in getting permission from Maharashtra State Authority for movement of vehicles. Considering the schedule drum lifting date of 27.8.2010, the contractor M/s BHEL should have supplied the boiler drum before August, 2010. However, it is observed from the documents / mails submitted by the petitioner that the contractor M/s BHEL, Trichy had taken up the matter with State Government authorities only during the month of December, 2010. There is no reason as to why the petitioner did not take coordinate with BHEL and take effective steps to ensure that the contractor (M/s BHEL) supplied the boiler drum prior to the scheduled date of boiler drum lifting. In our view there has been slackness on the part of the petitioner in the management of the project which has caused the situation. The delay in transportation of boiler drum on account of not getting the permission from the Maharashtra State Authority to move the vehicle from Wankadi Border to project site, in our view cannot be said to be beyond the control of the petitioner and is attributable to the petitioner. Accordingly, in terms of the principles laid down by the Tribunal in the judgment dated 27.4.2011 [(situation 7.4(i)], the delay of 47 days 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.

Effect of closure of Dalla Mine and geological surprises

37. The petitioner has claimed total delay of 286 days due to (i) delay in work of Cooling tower and Cooling water duct and (ii) Work of Coal Handling Plant (CHP) due to non availability of required quality aggregate on account of closure of Dalla Mines by the District Administration for about 10 months (from February, 2012 to November, 2012) and also water table being very high. It is observed from the PERT / BAR chart, that the schedule completion date of work of Cooling Tower was 21.11.2012 and the same could be completed only on 27.3.2014, resulting in the delay of 491 days.

38. Further, the schedule completion of CHP was 26.6.2013 and the same could be completed only on 27.3.2014, leading to a delay of 275 days. It is evident from the above that the delay of 275 days for work of CHP has been subsumed in the delay of 491 days for completion of Cooling tower work. From the submissions of the petitioner vide affidavit dated 10.1.2014, It is observed that Unit-II was affected badly due to the slow progress in off-site package like Cooling tower, Ash handling package, CHP etc and this unfortunately coincided with construction of the Cooling tower. The Cooling towers require M-30 grade type of concrete whereas, the CHP activities require M-35 as well M-30 type of concrete which in turn require high quality/strength of aggregate which could have been sourced from Dalla Mines. The closure of Dalla Mines not only hampered the sourcing of huge quantity of aggregates, but also deprived the generating station from quality aggregates. This also had affected the progress of CHP (Civil Work of Wagon Tippler, TP-14/15 and underground tunnel work) which was essential to supply coal for Unit-II of Stage-III (Unit-6). The petitioner vide its affidavits dated 20.11.2014 and 8.1.2015 has submitted that the underground structure was designed based on GEO-Technical report proposed for the site. Also, while digging, the water table was found to be very high i.e. only 2 meter below the ground level. It is noticed that the high water table increased the execution time for under-ground work as the same required frequent de-watering and caused interruption in the progress of civil foundation work. In order to avoid further delay, the entire CW duct layout was redesigned by the petitioner by reducing the depth of CW Duct structure from 10 meter to 6 meter below the ground level and by increasing the width by approximately 7 meter (by keeping the pipes in single tier in place of two tier). While on the one hand, redesigning of CW duct structure had delayed the project, on the other, major accident leading to closure of Dalla mines during the civil works of CW duct prevented the site from sourcing of aggregate required for huge concerting in CW duct. However, the petitioner has considered the delay of 286 days instead of 491 days.

39. The consideration of the effective delay of 286 days by the petitioner appear to be on account of the fact that though the Dalla Mines was closed for about 10 months, the petitioner

was arranging aggregate from other source in Madhya Pradesh. It is therefore evident that there was not complete of stoppage of Cooling Tower work, but only the progress of work of Cooling tower and Cooling water ducts was slow. The petitioner has instead compressed the delay to 286 days in place 491 days. Accordingly, the effective delay 286 days due to closure of Dalla Mines is beyond the control of petitioner and the same is condoned. The delay of 274 days in Coal Handling Plant due to geological surprises and the non-availability of aggregate have been subsumed in the delay of 491 days in the completion of Cooling Tower work. Accordingly, in terms of the principles laid down by the Tribunal in the judgment dated 27.4.2011 [(situation 7.4 (ii)], the total delay of 101 days is condoned and the generating company is given the benefit of the 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

Delay due to (i) non-availability of Ash dyke land from Forest Department and (ii) delay in commission of Evacuation by Power grid

40. As stated, the schedule COD of Unit-II is 17.1.2013 and the said Unit was declared under commercial operation on 27.3.2014, resulting in a delay of 434 days. The petitioner vide its affidavit dated 20.11.2014 has submitted that Ash Dyke land was not made available by Forest Department and the permanent ash pipe line planned required re routing to make contingency arrangement for disposal of the ash in the existing ash dykes. There has been delay in the commissioning of evacuation by Power grid as the transmission system planned for the generating station was 765 KV/ 400 kV Rihand-Vindhyanchal pooling station. However, this delay of 434 days has been subsumed in the delay of 491 days in the work of Cooling tower and water duct. Hence, there is no effective delay on this count.

41. Accordingly, the delay of 125 days in the COD of Unit-I and delay of 387 days (101 + 286) [(out of total delay of 434 days in COD of Unit-II] has been condoned as the same is for factors beyond the control of the generating station. Accordingly, in terms of the principles laid down by the Tribunal in the judgment dated 27.4.2011 [(situation 7.4 (ii)], the total delay of 101 days is condoned and the generating company is given the benefit of the 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. In view of this, the total time overrun involved and the time overrun allowed in commissioning of Unit-I and Unit-II are summarised as under:

Unit No.	SCOD from 18.2.2009 (zero date)	Actual COD	Time overrun considering SCOD	Time over run Allowed
Unit-I	17.7.2012	19.11.2012	125 days	**125 days**
Unit-II	17.1.2013	27.3.2014	434 days	**387 days**

42. Based on the above discussions, the time overrun allowed (against the actual time overrun) for Unit-I and Unit-II and the schedule COD (reset) for the purpose of computation IDC is summarized as under:

Units	SCOD from 18.2.2009 (zero date)	SCOD shifted to	Actual COD	Time overrun (days)
Unit-I	17.7.2012	19.11.2012	19.11.2012	**0**
Unit-II	17.1.2013	8.2.2014	27.3.2014	**47**

Capital Cost

43. Regulation 7(1) of the 2009 Tariff Regulations, provides as under:

> *"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 finds 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 Cost

44. The Board of the Petitioner Company vide resolution dated 24.1.2009 had accorded approval at an estimated completed project cost of ₹67368.97 million (₹6736.90 crore) including IDC & FC of ₹7741.62 Million (₹774.16 crore) and WCM of ₹1161.93 Million (₹116.19 crore) at a price level of 4th quarter of 2008, pending Environmental Clearance of Ministry of Environment & Forests (MOE&F) and clearance from Central Water Commission (CWC).

Impact of time overrun on Contract price, IDC etc. and Capital Cost as on COD

45. The petitioner was directed by letter dated 19.8.2013 to submit the following additional information:

> "*5. Comparison of the actual capital cost with the Bench Mark capital cost specified by the Commission on 4.6.2012 and variations, if any, in capital cost with explanation;*
>
> *6. xxx*
>
> *7. It is noticed from Form-5D that SG package with ESP and TG package was awarded based on single bid submitted against the ICB. Therefore, the reason for not re-tendering and proceeding with single bid shall be explained in detail;*
>
> *8. The variation in prices of different packages than the awarded price shall be justified with price escalation formula agreed in different packages. The price formula to be applied to the awarded packages shall be furnished."*

46. In response, the petitioner vide affidavit dated 10.1.2014 has submitted as under:

> ***"****The SG and TG packages for Rihand Stage-lll (2x500 MW) were invited on Open Tender ICB (international Competitive Bidding) basis. In SG package, three parties purchased the bid documents, out of which BHEL was the only bidder who participated in the tender and submitted their bid. Award was placed upon BHEL for a total contract price of Rs. 1492.38 cr (in equivalent rupees) against cost estimate of Rs. 1473.67 cr on 28.01.2009. In TG package, two parties purchased the bid documents, out of which BHEL was the only bidder who participated in the tender and submitted their bid. Award was placed upon BHEL for a total contract price of Rs. 806.28 cr (in equivalent rupees) against cost estimate of Rs.811.15 cr on 17.02.2009. Rihand-lll, awards for SG and TG packages were scheduled for 31.08.2008 and resorting to retendering would have delayed ordering for the two packages further. Further, the awarded price are close to cost estimates in both the cases.*
>
> *...The variation in prices of different packages than the awarded prices mainly due to following reasons:*
>
> *i. As per price escalation clause provided in the respective contracts.*
>
> *ii. Variation in scope (subject to approval which is to be finalised during contract closing)."*

47. The petitioner was directed vide ROP of the hearing dated 13.10.2014 to submit the following additional information:

iii)The detailed break-up of construction/supply/services packages through DCB/ICB is mentioned (at page 12 of the petition) and the value of the award as indicated at serial no. 8 in the forms. The date of award of contract for each package and in addition value of similar package awarded around the same time for similar projects shall be furnished;

iv) Detail calculation of notional IDC as claimed shall be furnished along with the editable soft copy;

v) Cost audit report for the year 2012-13 and 2013-14;

vi) Breakup of time overrun in a tabular form giving details of:

a. Activities delayed, start date and end date of period of delay of each activity along with reasons for delay and total working days lost due to each reason for delay;

b. Net loss of working days lost wherever two or more activities have been affected simultaneously in execution of the project; and

c. Documentary evidence wherever necessary to support the reason for delay and to support the efforts that the petitioner had undertaken to commission the project within the scheduled

vii) Cost overrun due to time overrun be quantified with detailed computations giving break-up of increase from scheduled COD to actual COD due to escalation in prices in different contract packages, increase in IDC, IEDC, FC, etc., and increase due to change in scope, if any;

viii) The original estimated cost of SG + ESP package was ₹1230.13 crore and that of TG Package was ₹841.21 crore as per Form-5B. However, the petitioner in its submission of additional information filed vide affidavit dated 10.1.2014 indicated the estimated value of SG + ESP package as ₹1473.67 crore on 28.1.2009 and ₹811.15 crore as on 17.2.2009 for TG package. Justification with regard to variation of ₹243.54 crore in SG + ESP package and reduction of ₹30.13 crore in TG package with complete scope and difference in estimates, if any shall be furnished;

ix) Reasons for acceptance of bid at a higher value i.e. ₹1492.38 crore instead of estimated value of ₹1230 crore as per the original estimate;

x) Comparative statement of capital cost with regard to 3-4 contemporary projects of NTPC and its JVs of similar unit size establishing the reasonableness and competitiveness of the capital cost of the generating station; and

48. In response, the petitioner vide affidavit dated 20.11.2014 has submitted the information as under:

> *".....In continuation of NTPC submission vide affidavit dtd. 10.1.2014, it is submitted that the investment approval for Rihand-III was accorded in the 328th Board Meeting of NTPC held on 24.01.2009 (Copy enclosed at Annexure-V). The investment approval envisages COD of Unit-1 in scheduled time frame of 41 months from Main Plant Award and further 6 months for Unit-2 subject to environment clearance by MoEF & clearance by Central Water Commission (CWC).*

*The CWC clearance could be granted on 04.08.2010 (Copy enclosed at **Annexure-VI**). So the zero date as per investment approval is 04.08.2010. Anticipating early clearance of Central Water Commission, NTPC awarded the main plant package. When it was observed that CWC clearance was getting delayed, various construction/mobilization activities were tapered to minimize the investment risks. However, when CWC clearance was in the final stages, NTPC made all out efforts to mobilise all resources to commission at least one unit as early as possible. During this process even resources planned for Unit-2 were diverted to Unit-1. With these special efforts, NTPC could at least achieve early commissioning of Unit-1 i.e. on 19.11.2012. Thereafter, Unit#2 has been declared under commercial operation on 27.3.2014.*

Since CWC clearance was available on 4.8.2010, the zero date for the project is 4.8.2010. Accordingly, there is no time overrun w.r.t. approved time schedule in Investment approval.
During the implementation of the project, NTPC encountered unanticipated developments which were beyond the reasonable control of NTPC that adversely impacted the adherence of schedules of execution. It may kindly be appreciated that these bottlenecks which were encountered in key activities were abrupt, unexpected and beyond NTPC's reasonable control. However, the petitioner would like to reiterate that because of all out efforts put in by NTPC, considering the zero date of 04-08-2010 (i.e. CWC clearance) both the units have been commissioned within the approved time schedule of 41 months(as per investment approval)

As regards the activity wise delay, the petitioner respectfully submits that as a result of all out efforts made by NTPC the project/ Units have been timely commissioned even though certain unforeseen developments / bottlenecks unfolded during the implementation of the project which were totally beyond the reasonable control of NTPC. The petitioner took all possible steps to overcome these unanticipated developments / bottlenecks by way of additional mobilization of resources and better coordination amongst various agencies. Any activity that had to be deferred, the petitioner also ensured to mitigate the financial impact by way of consequential deferment of corresponding deployment of funds for such activity.

***For SG Package:** For the purpose of this clause the date of shipment/ dispatch shall mean the schedule date of shipment/ dispatch or actual date of shipment/ dispatch whichever is earlier. The schedule date of shipment / dispatch shall be as identified in line with provisions of Time Schedule, Appendix-4 to the Contract Agreement.*
In case of shipments/ dispatch which are delayed beyond the schedule date of shipment/ dispatch for reasons attributable to the contractor the price adjustment provision shall not be applicable for the period of time between the schedule date of shipment/ dispatch and the actual date of shipment/ dispatch. For this purpose, the schedule date of shipment/ dispatch shall be as identified in line with provisions of Time Schedule Appendix-4 to this Contract Agreement.

***For TG Package:** For the purpose of this clause the date of shipment/ dispatch shall mean the schedule date of shipment/ dispatch or actual date of shipment/ dispatch whichever is earlier. The schedule date of shipment / dispatch shall be as identified in line with provisions of Time Schedule, Appendix-4 to the Contract Agreement.*

In case of shipments/ dispatch which are delayed beyond the schedule date of shipment/ dispatch for reasons attributable to the contractor the price adjustment provision shall not be applicable for the period of time between the schedule date of shipment/ dispatch and the actual date of shipment/ dispatch. For this purpose, the schedule date of shipment/ dispatch shall be as given above.

For erection portion similar provisions are there in the respective contract agreements. The petitioner further wish to submit that in case Hon'ble Commission wish to have any further assurance/confirmation on this matter, the petitioner is willing to submit any amount of data/documents in any format as desired by Hon'ble Commission.

The Cost of SG with ESP & TG shown in the form-5B is as per cost estimates for Investment approval. It may be appreciated that these estimates were arrived at the time of Investment approval considering the then prevailing prices and market scenario. The Updated cost of SG with ESP & TG packages has been arrived by adding price escalation for the period from the reference date of the original estimates to contract award time.

The awarded price for SG package with ESP (Rs. 1492.38 crore) is only 1.26% higher than the updated cost estimate (Rs. 1473.67 crore). It is further submitted that through negotiation with the vendor, NTPC could bring down the quoted prices (Rs. 1660.58 crore) very much near to its updated estimates. In a commercial negotiation with vendor, it is not always possible to bring down the quoted price to NTPC's cost estimates or lower than that. The variation of 1.26% is a small variation. Moreover, original estimates of Rs. 1230.13 crore does not include cost of spares and cost of erection, whereas the updated cost & negotiated price mentioned above include these elements. Therefore, original estimates of Rs. 1230.13 crore and negotiated price of Rs. 1492.38 crore are not comparable. Total cost of spares and total cost of erection for the project have been separately mentioned in Form-5B."

49. The respondent, BRPL vide reply filed in October, 2014 has submitted that the estimated cost of the project for a 1000 MW project is too high and that too for an expansion project. It has also submitted that the indicative cost of the project when completed is expected to be ₹6620.70 crore which works out to ₹6.62 crore per MW, much higher than the Bench mark capital cost for thermal power project of this size contained in order dated 4.6.2012 of this Commission. It has further submitted that there is huge cost overrun in some items as noted from Form 5B especially items like Steam Generator + ESP, Turbine Generator Island and CW system/External water supply system etc., to the hugely over estimated cost by the Petitioner's Board of Director's for such project.

50. We have examined the matter. The petitioner vide affidavit dated 23.2.2015 has furnished the copy of certificate from Auditor certifying that no price escalation amounts have been paid/included in the capitalization values, beyond the scheduled dates prescribed in contract agreements. The petitioner by the said affidavit has claimed capital cost as on COD of Unit-I 19.11.2012) and as on COD of Unit-II (27.3.2014) duly reconciled and audited as detailed under:

(₹ in lakh)

Sl. No.		**COD of Unit-I (19.11.2012)**	**COD of Unit-II (27.3.2014)**
1	Gross Block	207219.47	501274.08
2	Un-discharged liabilities in the gross block	18601.86	33603.00
3	Cash expenditure (1-2)	188617.61	467671.08
4	Add : Notional IDC	641.78	1722.61
5	Add : Short Term FERV	(-) 643.84	(-) 658.75
6	**Capital cost claimed (3+4+5)**	**188615.55**	**468734.94**

51. The petitioner has submitted that there is no cost overrun in the contractual price due to time overrun. It is however observed that on account of the delay in the declaration of commercial operation of Unit-II, the Overhead expenses in establishments under IEDC such as salary, transportation, Office expenditure etc., have increased. In our view, this overhead expenses is required to be disallowed *pro rata* for the period of 47 days as on the COD of Unit-II. The establishment cost as on COD of Unit-i is ₹69.85 crore and the total overhead cost as on COD of Unit-II is ₹197.11 crore. Therefore, establishment cost from COD of Unit-I to COD of Unit-II works out to ₹127.26 crore. Accordingly, the pro rata deduction in Overhead expenses on account of the delay of 47 days in the COD of Unit-II is worked out as under:

	Total period taken from zero date to actual COD (days)	Time overrun disallowed (days)	Overhead Expenses *(₹ in lakh)*	Pro-rata reduction **= (col.4x col.3)/col.2** *(₹ in lakh)*
(1)	**(2)**	**(3)**	**(4)**	**(5)**
Unit-II	1864	47	12726	320.88

Capital Cost claimed by Petitioner

52. The petitioner vide affidavit dated 20.11.2014 has submitted Auditor's certificate with respect to stage-wise and year-wise break-up of gross block. Based on the said details, the capital cost (on accrual basis) claimed by the petitioner is as under:

(₹ in lakh)

1	Closing gross block as on 31.3.2012	3576.04
2	Opening gross block as on 1.4.2012	3576.04
3	**Opening gross block as on 19.11.2012**	**207219.47**
4	Additional Capital expenditure claimed for Unit-I for the period from 19.11.2012 to 31.3.2013	22078.24
5	**Closing Gross block as on 31.3.2013 (3+4)**	**229297.71**
6	Opening Gross block as on 1.4.2014	229297.71
7	Capital cost of Unit-II	198551.92
8	Additional Capital expenditure claimed for Unit-I for the period from 1.4.2013 to 26.3.2014	73424.45
9	Additional Capital expenditure for the period from 1.4.2013 to 26.3.2014 (7+8)	271976.37
10	**Opening Gross block as on 27.3.2014 (6+9)**	**501274.08**
11	Additional Capital expenditure claimed for the period from 27.3.2014 to 31.3.2014	(-) 387.79
12	**Closing Gross Block as on 31.3.2014**	**500886.29**

53. The details of un-discharged liabilities as on respective COD of the units as certified by Auditor and submitted by the petitioner vide affidavit dated 20.11.2014 is as under:

(in ₹)

As on 18.11.2012	1860186234.00
As on 26.3.2014	3360299573.42

54. As per Form-5B furnished by the petitioner, the details of IDC, FC, FERV and Hedging cost included in the capital cost is as under:

(₹in crore)

	As on COD of Unit-I	**As on COD-of Unit-II**
	19.11.2012	**27.3.2014**
IDC	169.32	510.47
FC	8.20	10.04
FERV	79.67	271.48
Hedging cost	0.00	0.00
IDC,FC, FERV and hedging cost included in capital cost above	**257.19**	**791.99**

55. Based on the above, the capital cost claimed by the petitioner in Form-IB of the petition is as under:

(₹in crore)

	2012-13 (19.11.2012 to 31.3.2013)	**2013-14 (1.4.2013 to 26.3.2014)**	**2013-14 (27.3.2013 to 31.3.2014)**
Opening Capital Cost	1886.18	2282.40	4676.71
Notional IDC	6.42	0.00	17.23
Short Term ERV	(-) 6.44	0.00	(-) 6.59
Effective Opening Capital Cost	**1886.16**	**2282.40**	**4687.35**
Addition during the period	396.24	649.18	16.84
Closing Capital Cost	**2282.40**	**2931.58**	**4704.19**
Closing Capital Cost *(in lakh)*	**228239.99**	**293158.09**	**470418.74**

56. After adjustment of the cost towards *pro rata* reduction of establishment cost as on COD of Unit-II, the capital cost of unit-II is worked out as under:

(₹in lakh)

	Actual capital expenditure of Unit-II as on COD (27.3.2014)
Capital cost including IDC & FC, FERV & Hedging cost of ₹412 crore	468734.94
Less: Pro rata establishment cost due to time overrun disallowed	320.88
Capital cost including IDC, FC, FERV & Hedging cost	**468414.06**

Reasonableness of capital cost

57. The per MW capital cost (hard cost) based on investment approval and gross block as on COD of Unit-II/generating station is tabulated as under:

S. No.		Completed capital cost as per Investment approval	As per Gross Block As on COD of Generating station
1	Capital cost including IDC & FC (₹ in crore)	6010.19	5012.74
2	IDC & FC (₹ in crore)	559.69	729.01
3	Hard Cost (₹ in crore)	5450.50	4283.73
4	Hard Cost (₹ in crore /MW)	5.45	4.28
5	Benchmark capital cost (December, 2011) as per Commission's order dated 4.6.2012 *(₹ in crore/MW*)	-	**4.71**

58. The petitioner was directed vide ROP of the hearing dated 13.10.2014 to furnish the Comparative statement of capital cost with regard to 3-4 contemporary projects of NTPC and its JVs of similar unit size establishing the reasonableness and competitiveness of the capital cost of the generating station. In response, the petitioner vide affidavit dated 20.11.2014 has submitted the comparative statement of capital cost of contemporary projects of NTPC and its JVs as under:

Sl. No		Capacity (MW)	COD of generating station	Capital cost as on 31.3.2014 claimed *(₹ in crore)*	Capital cost as on COD *(₹ in crore/MW)*
1	Farakka-III	1 x 500	4.4.2012	2499.01	4.78
2	Mauda-I	2 x 500	29.3.2014	5521.38	5.53
3	Vindhyachal-IV	2 x 500	27.3.2014	4760.80	4.77
4	Jhajjar	3 x 500	26.4.2013	8156.22	4.91
5	Rihand-III (this generating station)	2 x 500	27.3.2014	4704.19	4.70

59. The details of capital cost of contemporary projects of NTPC & JVs considered by the Commission which were declared under commercial operation during the tariff period 2009-14 is as under:

Sl. No		Capacity (MW)	COD of generating station	Capital cost as considered by the Commission *(₹ in crore)*	Capital cost as on COD *(₹ in crore/MW)*
1	Farakka-III	1 x 500	4.4.2012	2387.96	4.78
2	Mauda-I	2 x 500	29.3.2014	5533.58	5.53
3	Vindhyachal-IV	2 x 500	27.3.2014	4767.08	4.77
4	Jhajjar (IGTPP)	3 x 500	26.4.2013	7361.24 (as on COD)	4.91
5	Rihand-III (***this generating station***)	2 x 500	27.3.2014	4704.19	4.70

60. It is observed from the above that the capital cost of this generating station as on COD is comparable with the benchmark cost of ₹4.71 crore/MW based on December, 2011 price level, as specified in the Commission's order dated 4.6.2012 as against other contemporary generating stations of NTPC such as Vindhyachal-IV, Mauda-I and Farakka-III etc and Joint venture projects of NTPC as indicated above. The Mauda-I and Jhajjar Projects are greenfield projects and includes substantial land cost of ₹244 crore (0.244 crore/MW) and ₹503 crore (0.335 crore/MW) as against the land cost of ₹22 crore (0.022 crore/MW) in case of this generating station (Rihand STPS –III). This is also comparable after excluding the cost of land in case of Mauda-I and Jhajjar projects. Further, the capital cost is comparable to other expansion projects such as Farakka –III and Vndhyachal Stage-IV project of the petitioner.

61. In addition to the above, a comparison of the capital cost of the generating station with some non NTPC generating stations such as Maithon Right Bank Power Project of Maithon Power Limited and Durgapur Steel Thermal Power Station of DVC, which were commissioned during the period 2009-14 for which capital cost had been approved by the Commission while determining tariff for the period 2009-14 are tabulated under:

Sl. No.	**Generating station**	**Capacity (MW)**	**COD of generating station**	**Capital cost ass considered by the Commission as on 31.3.2014** ***(₹ in crore)***	**Capital cost** ***(₹ in crore/MW)***
1	Maithon Right Bank Power Project	2 x 525	24.7.2012	5170.25	4.92
2	Durgapur Steel Thermal Power Station	2 x 500	5.3.2013	4657.14 (as on COD of the generating station)	4.66

62. It is observed from the above that the capital cost of ₹4.70 crore/MW in respect of this generating station as on COD is comparable with the capital cost per MW in respect of non NTPC generating stations such namely, Maithon Right Bank and Durgapur Steel Thermal Power Plant of DVC.

63. Based on the above discussions, the capital cost (hard cost) of this generating station as on COD, in our view, is reasonable and has been considered for the purpose of tariff.

Actual Additional Capital Expenditure

64. Regulation 9 of the 2009 Tariff Regulations, as amended on 21.6.2011, provides as under**:**

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

(i) Un-discharged liabilities;

(ii) Works deferred for execution;

(iii) Procurement of initial capital spares within the original scope of work, subject to the provisions of regulation 8;

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

(v) Change in law

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

(2) The capital expenditure incurred 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."

65. The petitioner vide affidavits dated 30.9.2014 and 20.11.2014 has furnished the details of additional capital expenditure, duly audited and certified by Auditors for the period from 19.11.2012 (actual COD of Unit-1) to 31.3.2014 as tabulated under:

(₹in lakh)

Sl. No	**Name of work/equipment**	Regulation under which claimed	**2012-13**	**2013-14**	
			19.11.2012 to 31.3.2012	**1.4.2013 to 26.3.2014**	**27.3.2014 to 31.3.2014**
1	SG+ESP	9(1)(ii)	2030.38	11821.71	-
2	TG		1560.14	2949.52	-
3	Workshop & Lab equipment		960.04	136.84	-
4	CPU system		0.00	1183.54	-
5	CW system / External water supply system		2516.86	1209.51	-
6	WTP & ETP		1135.00	1177.68	-
7	Ash handling system		166.02	2083.50	-
8	Coal handling plant		382.23	28748.51	-
9	Air condition & ventilation system		17.84	-2.23	-
10	fire fighting system		278.60	1394.45	-
11	HP/LP piping		2.01	783.66	-
12	Switchyard package		98.30	41.48	-
13	Transformers package		10.79	120.63	-
14	Switchgear package		86.21	997.99	-
15	Cables, Cable facilities & grouting		1441.31	-228.34	-
16	C&I		226.71	268.44	-
17	Spare	9(1)(iii)	829.61	1570.35	-
18	(Main plant/Chimney/CW system/offsite civil works	9(1)(ii)	6043.34	142.48	19.74

19	Cooling Tower		1057.06	762.72	-
20	LOCO		2198.28	5066.73	-
21	Temp Construction		645.48	1597.18	-
22	Road & Drainage		11.24	415.02	-
23	tools & Plant		255.57	1060.52	-
23	MBOA		80.09	140.12	8.37
24	5 km scheme			1283.39	-
26	LMGR			1597.18	-
27	Package ERV				0.00
	Total Additional Capital Expenditure		**22033.11**	**64725.40**	**28.11**

Regulation 9(1)(ii)

Works deferred for execution

66. The petitioner has claimed actual additional capital expenditure of ₹21203.50 lakh (excluding cost of capital spares of ₹829.61 lakh) from 19.11.2012 to 31.3.2013, ₹61871.66 lakh (excluding cost of capital spares for ₹1570.35 lakh) and expenditure of ₹1283.39 lakh towards the Scheme for supply of electricity within the radius of 5 km of the generating station for the period from 1.4.2013 to 26.3.2014 and ₹28.11 lakh from 27.3.2014 to 31.3.2014 under Regulation 9(1)(ii) of the 2009 Tariff Regulations.

67. The COD of the generating station is 27.3.2014. Accordingly, the cut-off-date of the generating station in terms of Regulation 3(13) of the 2009 Tariff Regulations is 31.3.2017 The actual additional capital expenditure of ₹21203.50 lakh (22033.11-829.61) for the period from 19.11.2012 to 31.3.2013, ₹61871.66 lakh for the period from 1.4.2013 to 26.3.2014 (excluding the cost of ₹1570.35 lakh for Capital spares and ₹1283.39 lakh towards the Scheme for supply of electricity within the radius of 5 km of the generating station and ₹28.11 lakh for the period from 27.3.2014 to 31.3.2014 claimed in respect of Works/ assets like Main Plant/CW system/office site civil works, Tools & Plant etc., which are within the original scope of work and have been capitalized after COD and upto the cut-off date of the generating station is allowed under Regulation 9(1)(ii) of the 2009 Tariff Regulations.

68. The actual additional expenditure claimed for Capital spares and the Expenditure incurred towards the Scheme for supply of electricity within the radius of 5 km of the generating station are discussed as under:

Expenditure towards the Scheme for supply of electricity within the radius of 5 km of the generating station

69. The petitioner had projected the capitalisation of an expenditure of ₹16.79 crore during the period from 1.7.2013 to 31.3.2014 towards the Scheme for supply of electricity within the radius of 5 km of the generating station. The petitioner vide affidavit dated 8.8.2014 has also submitted that MOP, GOI vide letter dated 5.3.2014 has granted exemption from withdrawal of the scheme in respect of 8 generating stations including this generating station of the petitioner. Since the petitioner had not projected the capitalisation of this expenditure in its affidavit dated 8.3.2013, but had projected the expenditure as ₹14.85 lakh for 2013-14 in affidavits dated 8.8.2014 and 30.9.2014 respectively, the Commission vide ROP of the hearing dated 13.10.2014 directed the petitioner to submit reasons for the same. In response, the petitioner vide affidavit dated 20.11.2014 has clarified as under:

> *"It is submitted that the petitioner has projected the 5 km scheme in 2013-14 in its original petition filed affidavit dated 13.7.2012. But during the execution, there was agitation of local villagers and based on the then prevailing situation, it was felt that the package may not be commissioned /capitalised in FY 2013-14. Hence the petitioner did not project the scheme in its amended petition filed vide affidavit dated 8.3.2013. Afterwards, with persistent joint efforts, of concerned discom & NTPC, the issue was resolved and the scheme was commissioned /capitalised in FY 2013-14. Accordingly, based on actual capitalisation, the expenditure on the scheme has been indicated in its affidavit dated 8.8.2014 & 30.9.2014."*

70. Accordingly, the petitioner vide affidavit dated 30.9.2014 has claimed actual additional capital expenditure of ₹1283.39 lakh during 2013-14 towards the Scheme for supply of electricity within the radius of 5 km of the generating station under Regulation 9(1)(ii).

71. The respondent, BRPL vide its affidavit filed on 31.10.2014 has submitted that the scheme does not from part of the original scope of work and therefore not permissible under Regulation 9(1) of the 2009 Tariff Regulations. The respondent has also submitted that the expenditure may be disallowed and if the petitioner wants to incur this expenditure, the same may be done under Corporate Social Responsibility (CSR) of the petitioner. The respondent, UPPCL has submitted that the petitioner may be directed to explain why the expenditure need not be apportioned amongst all the three stages of Rihand as the expenditure is common to all the three stages of the generating station. In response to the reply of BRPL, the petitioner vide affidavit dated

19.12.2014 has clarified that all the schemes except the 5 Km scheme are under original scope of work as per investment approval. It has also submitted that the GOI vide order dated 5.3.2014 had directed to continue to execute the 5 km scheme in eight stations including Rihand and hence the contention of the respondent is liable for rejection. In response to the reply of UPPCL, the petitioner vide affidavit dated 28.11.2014 has clarified that the work was completed and capitalised after the bottlenecks were resolved and hence the expenditure on 5 km scheme has been indicated on actual capitalisation basis. It has also submitted that the obligations like 5 km scheme being created now may be allowed to be capitalised in Stage-III as the beneficiaries of all stages are same.

72. The matter has been considered. The Govt of India vide its notification dated 27.4.2010 had issued a scheme for provision of supply of electricity within a radius of 5 km area of power stations set up by Central Power Sector Undertakings (CPSU). Under the scheme, the concerned CPSU, was required to create infrastructure for supply of reliable power to the rural households of the villages within a radius of 5 km of existing and new power stations and the Commission shall consider the expenditure incurred for implementation of such scheme for the purpose of determining tariff of the generating station of the CPSU. The scheme for supply of electricity within 5 km radius around Central Power Plants was withdrawn vide Ministry of Power, Government of India notification dated 25.3.2013. It is noticed that the Ministry of Power, GOI by letter dated 8.3.2014 had granted exemption in respect of 8 ongoing projects around the generating stations of the petitioner, including this generating station, under the erstwhile scheme and has conveyed the approval for capitalization of expenditure for this generating station also as per provisions of the said scheme, subject to orders of this Commission. The petitioner has submitted that the work was awarded for execution on 17.1.2012 prior to the date of withdrawal of the said scheme by MOP, GOI on 25.3.2013. It has also submitted that the work has been undertaken on the basis of the said scheme which provides for consideration of the expenditure for purpose of tariff and is not intended to be carried out under CSR. Since the petitioner has incurred the expenditure for creation of the infrastructure, we are of the considered view that the same should be allowed.

However, instead of servicing the same as part of the capital cost, we in relaxation of Regulation 9(2)(ix) of the 2009 Tariff Regulations, direct that the said actual expenditure of ₹1283.39 lakh should be reimbursed by the beneficiaries in proportion to their share in the remaining three years of the tariff period 2016-19, in equal monthly instalments beginning from April, 2016, along with regular bills, with the weighted average rate of interest on loan at reducing balance for the relevant years as indicated in the table under para 97 of this order.

Initial Spares [Regulation 9(1)(iii)]

73. The petitioner vide affidavits dated 20.11.2014 and 8.1.2015 has submitted the details of the actual additional capital expenditure, duly audited and certified by the auditors, wherein, initial spares for ₹2399.96 lakh [₹829.61 lakh from 19.11.2012 to 31.3.2013 and ₹1570.35 lakh from 1.4.2013 to 26.3.2014 has been capitalized.

74. We have examined the matter. As per affidavit dated 23.2.2015, the closing capital cost of the generating station as on 31.3.2014 is ₹470418.74 lakh. Accordingly, the cost of initial spares for ₹2399.96 lakh capitalized up to 31.3.2014 works out to 0.51% [(2399.96/470418.74)*100] and the same is within the ceiling limit of 2.5% of the original project cost specified under Regulations 8 of the 2009 Tariff Regulations. In view of this, the initial spares amounting to ₹2399.96 lakh claimed as additional capital expenditure for the period from 19.11.2012 to 31.3.2014 is allowed.

Package ERV

75. The petitioner has claimed expenditure of (-) 26.54 lakh towards Package FERV. Thus, there is no actual capital expenditure on account of package ERV for the main plant.

Exclusions

Loan FERV

76. The petitioner has excluded amount of (-) ₹389.67 lakh for the period from 27.3.2014 to 31.3.2014 on account of impact of Loan FERV. The respondent, UPPCL vide reply affidavit dated 10.10.2014 has pointed out that the petitioner has not stated whether the loading of Loan

ERV is only in tariff or has been done in financial books also. It has also stated that in case loading has been done in financial books, then the exclusion should create a difference between the capital cost considered in tariff and as considered in financial books. Considering the fact that the petitioner is expected to recover the said amount directly from the beneficiaries in accordance with the 2009 Tariff Regulations, the exclusion of Loan FERV of (-) ₹389.67 lakh is in order and is allowed as exclusion.

77. The petitioner has not furnished the details of the balance /deferred works to be executed within the cut-off date of the generating station i.e. 31.3.2017. In view of this, the reasonableness of capital cost has been assessed based on the capital expenditure as on the COD of the generating station and till 31.3.2014. The reasonableness of the capital cost along with the admitted additional capital expenditure up to the cut-off date of the generating station shall be examined afresh based on details of the balance work to be submitted by the petitioner.

78. Accordingly, the additional capital expenditure allowed in respect of the generating station for the period from 19.11.2012 to 31.3.2014 is summarised as under:

(₹in lakh)

	2012-13	2013-14	
	19.11.2012 to 31.3.2013	**1.4.2013 to 26.3.2014**	**27.3.2013 to 31.3.2014**
Works deferred for execution-Regulation 9(1)(ii)	21203.50	61871.66	28.11
Capital spares-Regulation 9(1)(iii)	829.61	1570.35	0.00
Expenditure towards Scheme for supply of electricity within 5 km radius of generating station	0.00	0.00	0.00
Add : Exclusions not allowed	0.00	0.00	0.00
Total Additional Capital Expenditure allowed	**22033.11**	**63442.01**	**28.11**

79. Based on the above, the capital cost as on COD of Unit-I and COD of Unit-II (generating station) worked out for the purpose of tariff, subject to adjustment on account of IDC, FC, FERV is as under:

(₹in lakh)

	COD of Unit-I	**COD of Unit-II**
	19.11.2012	**27.3.2014**
Opening capital cost	188615.55	467451.55

Normative IDC

80. The petitioner has claimed normative IDC (indicated as notional IDC) as under:

(₹in lakh)

	As on COD of Unit-I (19.11.2012)	As on COD of Unit-II (27.3.2014)
Interest on normative loan	642.00	1722.61

81. The petitioner has applied the rate of interest as arrived at on the basis of quarterly interest accrued on entire loan. Due to the reset of scheduled COD of Unit-II to 8.2.2014 (as stated in *para 42 above*), normative IDC has been restricted till 7.2.2014. Based on this, normative IDC is worked out and allowed as under:

(₹in lakh)

As on COD of Unit-I (19.11.2012)	As on COD of Unit-II (restricted till 7.2.2014)
642.00	1672.38

Interest During Construction (IDC), Financial Charges (FC) and Foreign Exchange Rate Variation (FERV)

82. The petitioner in Form 5b has capitalised amounts of IDC, FC and FERV as under:

(₹in lakh)

	As on 19.11.2012	As on 27.3.2014
IDC	16932.00	51047.00
FC	820.00	1004.00
FERV	7967.00	27148.00
Hedging Cost	0.00	0.00
Total	**25719.00**	**79199.00**

83. The claim of the petitioner with respect to IDC on domestic loan, foreign loans and bonds is as under:

(₹in lakh)

	2008-09	2009-10	2010-11	2011-12	2012-13	2012-13	2013-14 (till 26.3.2014)	Total
Domestic loans	90.41	2495.80	6290.24	11699.16	10564.42	6562.86	19174.93	**56877.81**
Foreign Loans	0.00	0.00	45.73	1852.51	2673.84	1714.91	5972.18	**12259.17**
Bonds	0.00	0.00	2.56	69.58	256.05	248.07	1323.31	**1899.58**
Total	**90.41**	**2495.80**	**6338.53**	**13621.25**	**13494.31**	**8525.84**	**26470.43**	**71036.56**

84. As regards the claim for Financial charges, it is observed that the petitioner has not furnished the detailed break-up along with supporting documents to substantiate its claim.

Similarly, as regards FERV, except for the year-wise break-up of ₹27148.00 capitalised in the gross block vide affidavit dated 8.8.2014, no detailed break-up/ calculation along with explanation has been submitted by the petitioner. The petitioner vide affidavit dated 20.11.2014 has furnished the Statement of Capital cost duly certified by Auditor which doesn't depict FERV, FC as component of the capital cost separately. However, the total capital cost as certified by Auditor matches with the capital cost claimed vide Form 5b, which indicates the FC and FERV claims as component of capital cost. Accordingly, the FC and FERV amount of FC claimed in Form 5b is allowed. The petitioner has not furnished the basis on which the IDC and FC has been allocated to the respective units of the generating station. However, in order to examine certain aspects regarding ERV package and loan, we direct the petitioner to file separately on affidavit, the detailed break-up of the same at the time of filing the petition for approval of tariff of the generating station for the period 2014-19. However, as per submissions of the petitioner vide affidavit dated 8.8.2014, IDC & FC calculated and capitalised by the petitioner is as under:

(₹in lakh)

	Interest DOMESTIC LOAN	Interest BONDS	Interest FOREIGN LOAN	ERV Treated as BC	Financial charges	Total	Interest Charged to P&L	IDC taken to CWIP	Cumm IDC in CWIP	IDC capitalised in Gross Block	Balance in CWIP
2008-09	90.41	0.00	0.00	0.00	45.11	135.52	0.00	135.52	135.52	-	135.52
2009-10	2495.80	0.00	0.00	0.00	1.12	2496.92	0.00	2496.92	2632.44	-	2632.44
2010-11	6290.24	2.56	45.73	126.45	478.06	6943.03	0.00	6943.03	9575.48	-	9575.48
2011-12	11699.16	69.58	1852.51	1882.86	480.66	15984.77	0.00	15984.77	25560.24	-	25560.24
2012-13 (upto 18.11.2012)	10564.42	256.05	2673.84	1882.86	33.68	11645.14	0.00	11645.14	37205.38	17752.00	19453.38
2012-13 (19.11.2012 to 31.3.2013)	6562.86	248.07	1714.91	0.00	46.10	8571.93	4201.84	4370.10	23823.48	-	23823.48
2013-2014 (upto 26.3.2014)	19174.93	1323.31	5972.18	0.00	161.60	26632.03	13436.82	13195.21	37018.69	34299.00	2719.69
Total upto 26.3.2014	56877.81	1899.58	12259.17	126.45	1246.34	72409.35	17638.65	54770.69	-	52051.00	-

85. As stated earlier, on account of scheduled COD of Unit-II being reset to 8.2.2014, IDC in case on Unit-II has been restricted upto 7.2.2014. Accordingly, IDC and FC to be considered has been allocated in the same proportion as per the statement above and the calculations are as under:

(₹ in lakh)

	IDC domestic loan	IDC FL	IDC Bonds	FC	ERV Treated as BC	Total	Interest Charged to P&L	IDC taken to CWIP	Cumulative IDC in CWIP	IDC capitalised in Gross Block	Balance in CWIP
2008-09	90.41	0.00	0.00	45.11	0.00	135.52	0.00	135.52	135.52	0.00	135.52
2009-10	2493.95	0.00	0.00	1.12	0.00	2495.07	0.00	2495.07	2630.59	0.00	2630.59
2010-11	6292.33	45.73	2.41	478.06	126.45	6944.98	0.00	6944.98	9575.57	0.00	9575.57
2011-12	11700.95	1852.51	69.73	480.66	1882.86	15986.70	0.00	15986.70	25562.28	0.00	25562.28
2012-13 (upto 18.11.2012)	10560.62	2673.84	256.18	33.68	1882.86	11641.46	0.00	11641.46	37203.74	**17751.21**	19452.52
2012-13 (19.11.2012 to 31.3.2013)	6556.95	1714.91	248.11	46.10	0.00	8566.07	4198.96	4367.11	23819.63	0.00	23819.63
2013-14 (upto 7.2.2014)	16479.62	5192.48	1094.22	161.60	0.00	22927.92	11567.96	11359.96	35179.59	32595.01	2584.58
Total	**54174.83**	**11479.47**	**1670.64**	**1246.34**	**126.45**	**68697.72**				**50346.23**	

86. In view of the above, IDC, FC, FERV is allowed as under:

(₹ in lakh)

	As on COD of Unit-I (19.11.2012)	As on COD of Unit-II (27.3.2014)
IDC & FC	**17751.21**	**50346.23**
FERV	7967.00	27148.00
Total	**25718.21**	**77494.23**

87. Based on the above discussions, the Capital cost allowed for the purpose of tariff is as follows:

(₹ in lakh)

Sl. No		2012-13	2013-14	2013-14
		19.11.2012 to 31.3.2013	1.4.2013 to 26.3.2014	27.3.2014 to 31.3.2014
1	**Opening Capital Cost on cash basis**	**188615.55**	**228237.30**	**467451.55**
	IDC claimed	16932.00	-	51047.00
	FC claimed	820.00	-	1004.00
	FERV claimed	7967.00	-	27148.00
	Interest on Normative loan claimed	641.78	-	1722.61
2	**Total IDC, FC, FERV and Hedging cost**	**26360.78**	-	**80921.61**
3	Hard cost allowed **(1-2)**	162254.77	-	386529.94
	Add: IDC allowed (including FC)	17751.21	-	50346.23
	Add: FERV allowed	7967.00	-	27148.00
	Add: Interest on Normative loan allowed	641.78	-	1655.94
4	Total IDC, FC, FERV allowed	26360.00	-	79150.16
5	**Opening Capital cost allowed including IDC, FC and FERV (3+4)**	**188614.76**	**228239.20**	**465680.11**
6	Add: Admitted Additional capital expenditure	22033.11	63442.01	28.11
7	Add: Discharge of liabilities	17591.33	192.70	1628.00
8	Less: Loan ERV	-	-	389.67
9	**Closing Capital cost (5+6+7-8)**	**228239.20**	**291873.91**	**466946.55**

88. Normative IDC 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 tariff.

Debt Equity Ratio

89. 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"*

90. As per the submissions of the petitioner vide affidavit dated 20.11.2014, the total cash expenditure and capital advances are as under:

(₹ in lakh)

		19.11.2012	**27.3.2014**
1	Total cash expenditure	393223.55	494298.16
2	Capital Advances (unadjusted)	8432.26	2947.52
3	Actual cash expenditure (1-2)	384791.29	491350.64

91. On the basis of actual cash expenditure calculated as above (excluding capital advances) and the net loan position as on COD of both the units, the debt equity ratio is worked out as under:

	19.11.2012	**27.3.2014**
Net debt (as per Form 13)	269367.03	336502.96
Equity (balancing figure) (3-4)	115424.26	154847.68
Debt%	**70.00%**	**68.49%**
Equity%	**30.00%**	**31.51%**

92. It is observed from the above that the equity deployed is 30% as on COD of Unit-I and 31.51%. as on COD of Unit-II. Since the actual equity deployed is more than 30% (equal to 30% in case of COD of Unit-I), the debt-equity ratio of 70:30 has been considered as on COD of both the Units for calculation of Return on Equity and Interest on Loan, in accordance with the provisions of the 2009 Tariff Regulations.

Return on Equity

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

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

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

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

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

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

(4) Rate of return on equity shall be rounded off to three decimal points and be computed as per the formula given below:

Rate of pre-tax return on equity = Base rate / (1-t)

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

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

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

94. Return on Equity has been worked out in accordance with the above said regulation as under:

(₹in lakh)

	19.11.2012 to 31.3.2013	**1.4.2013 to 26.3.2014**	**27.3.2014 to 31.3.2014**
Gross Notional Equity	56578.00	68463.98	139704.03
Addition due to Additional Capitalisation	11885.98	19088.24	496.83
Closing Equity	68463.98	87552.22	140200.86
Average Equity	62520.99	78008.10	139952.45
Return on Equity (Base Rate)	15.500%	15.500%	15.500%
Tax rate for the year	32.445%	33.990%	33.990%
Rate of Return on Equity (Pre Tax)	22.944%	23.481%	23.481%
Return on Equity (Pre Tax) - *Annualised*	**14344.82**	**18317.08**	**32862.23**

Interest on loan

95. 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."

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

(a) The weighted average rate of interest (annualized) of Rs 8.4631% (19.11.2012 to 31.3.2013), 8.3273% (1.4.2013 to 26.3.2014) and 8.3181% (27.3.2014 to 31.3.2014) as claimed by the petitioner is in order and has been considered for calculation of interest on loan.

(b) The repayment for the year has been considered equal to the depreciation allowed for that year;

97. Interest on loan has been computed as under:

(₹in lakh)

	19.11.2012 to 31.3.2013	**1.4.2013 to 26.3.2014**	**27.3.2014 to 31.3.2014**
Gross Notional loan	132036.77	159775.23	325976.07
Cumulative Repayment of loan upto previous year	-	11,171.89	25791.47
Net Opening loan	132036.77	148603.33	300184.60
Addition due to Additional Capitalisation	27738.46	44,546.47	1159.28
Repayment of loan during the period	11171.89	14619.58	25877.97
Net Closing Loan	148603.33	178530.22	275465.91
Average Loan	140320.05	163566.78	287825.26
Weighted Average Rate of Interest on Loan	8.463%	8.327%	8.318%
Interest on Loan (annualised)	**11875.48**	**13620.74**	**23941.66**

Depreciation

98. 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."

99. The weighted average rate of depreciation of 5.3601% (19.11.2012 to 31.3.2013), 5.6217% (1.4.2013 to 26.3.2014) and 5.5495% (27.3.2014 to 31.3.2014) as considered by the petitioner has been allowed for the purpose of calculation of depreciation. Accordingly, depreciation has been worked out as under:

(₹in lakh)

	19.11.2012 to 31.3.2013	**1.4.2013 to 26.3.2014**	**27.3.2014 to 31.3.2014**
Opening Gross Block	188614.76	228239.20	465680.11
Addition due to Projected Additional Capitalisation	39624.44	63634.71	1656.11
Closing Gross Block (*as per para 88 above*)	**228239.20**	**291873.91**	**466946.55**
Average Gross Block	208426.98	260056.56	466313.33
Value of Freehold Land included in Gross Block	-	-	-
Rate of Depreciation	5.3601%	5.6217%	5.5495%
Depreciable value including amortisation of lease land in 25 years	187584.29	234050.90	419681.99
Remaining depreciable value	187584.29	222879.01	393890.52
Depreciation (annualised)	**11171.89**	**14619.58**	**25877.97**

Operation & Maintenance Expenses

100. The O&M expense norms specified under Regulation 19 (a) of the 2009 Tariff Regulations for 500 MW coal based generating station for the period 2012-14 is as under:

(₹in lakh/MW/year)

2012-13	**2013-14**
15.36	16.24

101. Based on above norms, the O&M expenses (annualised) claimed by the petitioner are as under:

(₹in lakh)

2012-13	2013-14	
19.11.2012 to 31.3.2013	1.4.2013 to 26.3.2014 Unit-I	27.3.2013 to 31.3.2014 Units I & II
7680.00	**8120.00**	**16240.00**

102. Proviso to Regulation 19(a) also provides that the above norms shall be multiplied by a factor of 0.85% for additional 5th and above units. Units 5 & 6 of Rihand STPS Stage-III whose CODs have occurred after 1.4.2009 are the extension units of Rihand Stage-I & II [(Units- 1 & 2 pertains to Stage-I and Units- 3 & 4 pertains to Stage-II)]. Accordingly, in terms of the proviso to Regulation 19(a) of the 2009 Tariff Regulations, the O&M expenses for the 5th & 6th Unit of Rihand are worked out as under:

(₹in lakh)

	2012-13	2013-14	
	19.11.2012 to 31.3.2013	1.4.2013 to 26.3.2014 Unit-I	27.3.2013 to 31.3.2014 -Units I & II
Admissible O&M Expenses (annualised)	7680.00	8120.00	16240.00
Normative factor for additional 5th & 6th Units	0.85	0.85	0.85
O&M Expenses allowed (annualised)	**6528.00**	**6902.00**	**13804.00**

Operational Norms

103. The petitioner vide affidavit dated 20.6.2014 has considered operational norms for the purpose of tariff are as under:

Normative Annual Plant Availability Factor (%)	85
Gross Station Heat Rate (kcal/kWh)	2423.94
Auxiliary Power Consumption (with induced draft cooling) (%)	6.5%
Specific Oil Consumption (ml/kwh)	1.0

104. The operation norms considered by the petitioner are in order. However, as regards Heat Rate, it is observed that based on Design Turbine Cycle Heat Rate of 1932 kcal/kWh and boiler efficiency of 84.05% and 6.5% deviation as per specified norms, the Gross Station Heat Rate (GSHR) works out to 2448.04 kcal/kWh. The ceiling Design Heat Rate as specified by the

Commission for steam pressure of 170 kg/cm^2 and Super heater / Reheater temperature of 540/565^0 C is 2276 kcal/kWh and considering a deviation of 6.5% for design value, the GSHR works out to 2423.94 kcal/kWh (2276x1.065. The petitioner has considered the ceiling GSHR of 2423.94 kcal/kWh and the same is in order. Accordingly, the operational norms considered by the petitioner have been allowed.

Interest on Working Capital

105. Regulations 18(1)(a) of the 2009 Regulations provides for the computation of the 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."

106. 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."

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

Fuel Component and Energy charges

108. The petitioner vide its affidavit dated 8.8.2014 has claimed coal cost of Rs 1741.35/ MT based on the weighted average GCV and price of fuels for three months i.e. August,2012, September, 2012 and October, 2012 for primary fuel and ₹60999.02/KL for Secondary fuel based on the oil cost for the Month of September, 2012 prior to the actual COD of Unit-I

(19.11.2012) and based on the price & GCV of coal for the months of December, 2013, January, 2014 and February, 2014 and for Secondary fuel oil for the months from April, 2013 to March, 2014 prior to COD of Unit-II as under:

(₹in lakh)

	2012-13	**2013-14**	
	19.11.2012 to 31.3.2013	1.4.2013 to 26.3.2014 Unit-I	27.3.2013 to 31.3.2014 -Units I & II
Cost of coal for 1 ½ months	5515.41	5515.41	11739.83
Cost of secondary fuel oil for two months	378.50	378.50	663.84

109. The cost of coal and secondary fuel cost considered as above are in order and has been allowed.

Maintenance Spares

110. The petitioner vide affidavit dated 8.8.2014 has claimed the following maintenance spares (annualised) in the working capital.

(₹in lakh)

2012-13	**2013-14**	
19.11.2012 to 31.3.2013	1.4.2013 to 26.3.2014 (Unit-I)	27.3.2013 to 31.3.2014 (Units I & II)
1305.60	**1380.40**	**2760.80**

111. The 2009 Tariff Regulations provide for Maintenance spares @ 20% of the operation and maintenance expenses as specified in Regulation 19. Accordingly, Maintenance spares @ 20% claimed by the petitioner as above are allowed.

Receivables

112. Receivables equivalent to two months of capacity charge and energy charge for sale of electricity has been calculated on normative plant availability factor. Accordingly, receivables have been worked out on the basis of two months of fixed and energy charges (based on primary fuel only) as shown below:

(₹in lakh)

	2012-13	**2013-14**	
	19.11.2012 to 31.3.2013	**1.4.2013 to 26.3.2014 Unit-I**	**27.3.2013 to 31.3.2014 -Units I & II**
Fixed Charges	8216.90	9833.14	17806.93
Variable Charges	7078.12	7078.12	14156.24

O&M expenses for 1 month

113. The O&M expenses for one month claimed by the petitioner as per Regulations 18(1)(a) of the 2009 Tariff Regulations has been allowed (on annualized basis) as under:

(₹in lakh)

2012-13	2013-14	
19.11.2012 to 31.3.2013	1.4.2013 to 26.3.2014 Unit-I	27.3.2013 to 31.3.2014 -Units I & II
544.00	**575.17**	**1150.33**

114. Necessary computations in support of calculation of interest on working capital are as under*:*

(₹in lakh)

	2012-13	2013-14	
	19.11.2012 to 31.3.2013	1.4.2013 to 26.3.2014 (Unit-I)	27.3.2013 to 31.3.2014 (Units I & II)
O&M expense (1 month)	544.00	575.17	1150.33
Receivables (Fixed Charges)	8216.90	9833.14	17806.93
Receivables (Variable Charges)	7078.12	7078.12	14156.24
Maintenance Spare	1305.60	1380.40	2760.80
Secondary Fuel oil cost	378.50	378.50	663.84
Fuel Stock	5515.41	5515.41	11739.83
Total Working Capital	**23038.53**	**24760.73**	**48277.98**
Rate of Interest	13.50%	13.20%	13.20%
Interest on Working Capital	**3110.20**	**3268.42**	**6372.69**

Annual Fixed Charges

115. Accordingly, the annual fixed charges allowed from the COD of the units of the generating station till 31.3.2014 is summarized as under:

(₹in lakh)

	2012-13	2013-14	
	19.11.2012 to 31.3.2013	1.4.2013 to 26.3.2014 (Unit-I)	27.3.2013 to 31.3.2014 (Units I & II)
Depreciation	14344.82	18317.08	32862.23
Interest on Loan	11875.48	13620.74	23941.66
Return on Equity	11171.89	14619.58	25877.97
Interest on Working Capital	3110.20	3268.42	6372.69
O&M Expenses	6528.00	6902.00	13804.00
Secondary fuel oil cost	2270.99	2270.99	3983.04
Annual Fixed Charges	**49301.39**	**58998.81**	**106841.59**

Energy Charge Rate (ECR)

116. Clauses 5 and 6 of Regulation 21 of the 2009 Tariff Regulations provides for computation of Energy Charge for thermal generating stations as under:

"5. The Energy Charge shall cover the primary fuel cost and limestone consumption cost (where applicable), and shall be payable by every beneficiary for the total energy scheduled to be supplied to such beneficiary during the calendar month on ex-power plant basis, at the energy charge rate of the month (with fuel and limestone price adjustment). Total Energy charge payable to the generating company for a month shall be:

(Energy charge rate in ₹ / kWh) x {Scheduled energy (ex-bus) for the month in kWh.}

6. Energy charge rate (ECR) in Rupees per kWh on ex-power plant basis shall be determined to three decimal place in accordance with the following formula:

(a) for coal based and lignite fired stations

ECR = {(GHR –SFC x CVSF) x LPPF / CVPF +LC x LPL}X 100/(100-AUX)}

Where,

AUX = Normative auxiliary energy consumption in percentage.

CVPF = Gross calorific value of primary fuel as fired, in kCal per kg, per litre or per standard cubic metre, as applicable.

ECR = Energy charge rate, in Rupees per kWh sent out.

GHR = Gross station heat rate, in kCal per kWh.

LC = Normative limestone consumption in kg per kWh

LPL= Weighted average landed price of limestone in Rupees per kg.

LPPF = Weighted average landed price of primary fuel, in Rupees per kg, per litre or per standard cubic metre, as applicable, during the month.

SFC = Specific fuel oil consumption, in ml per kWh.

117. The petitioner vide affidavit dated 8.8.2014 has revised the tariff filing forms and has claimed Energy Charge Rate (ECR) of 126.754 paisa/kWh based on the weighted average price and GCV of coal procured and burnt for three months prior to the actual COD of Unit-I (19.11.2012) till 26.3.2014 and ECR of 134.902 p/kWh based on the weighted average price and GCV of coal procured and burnt for three months prior to COD of Unit-II for period from 27.3.2014 to 31.3.2014 and operational norms based on the 2009 Tariff Regulations as under :

Description	Unit	2012-13	2013-14	
		19.11.2012 to 31.3.2013	1.4.2013 to 26.3.2014 (Unit-I)	19.11.2012 to 31.3.2013 (Units I & II)
Capacity	MW	500	500	1000
Gross Station Heat Rate	kCal/kWh	2423.94	2423.94	2423.94
Auxiliary Energy Consumption	%	6.50	6.50	6.50
Weighted Average GCV of Oil	kCal/l	9869	9869	9869
Weighted Average GCV of Coal	kCal/Kg	3547.00	3547.00	3547.00
Weighted Average Price of Oil	Rs./KL	60999.02	60999.02	53492.34
Weighted Average Price of Coal	Rs./MT	1741.35	1741.35	1707.75
Rate of Energy Charge from Coal	Paise/kWh	118.515	118.515	126.133
Rate of Energy Charge ex-bus per kWh Sent	**Paise/kWh**	**126.754**	**126.754**	**134.902**

118. The Energy Rate (ECR) claimed by the petitioner is in order and is allowed. 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.

Water Charges

119. The petitioner in the petition has made detailed submissions regarding the increase in water charges on account of abnormal increase in water charges resorted to by the State Governments of Orissa, Chhattisgarh and Madhya Pradesh and has submitted that the additional cost incurred in respect of the increase in water charges over and above as allowed for O&M expenses be permitted to be billed and recovered additionally from the beneficiaries.

Submission of Respondent, BRPL

120. The respondent, BRPL has submitted that certain states have increased the water charges and the same cannot be absorbed by the petitioner by applying 5.72% escalation on O&M expenses. It has also submitted that the project is located in State of Uttar Pradesh and any change would be through a change in law and can be adequately addressed if and when such change takes place. Accordingly, the respondent has submitted that no deviation from O&M norms should be allowed.

Submission of Respondent, PSPCL

121. The respondent, PSPCL has submitted that the petitioner should take up the increase in water charges with the State Govts. and in case the matter is not settled, the case could be taken up at the component court, to obtain a stay order. Only after exhausting the available legal channels, the matter could be then taken up before the Commission.

122. We have considered the submissions of the parties. In case of O & M expenses, all factors including the water charges have been taken into consideration while fixing the norms for the period 2009-14. In our view, the O&M expenses allowed under the 2009 Tariff Regulations are a complete package and water charges are just one element of the package. It is pertinent to mention that the petitioner had filed Petition No.121/MP/2011 praying for recovery of additional cost incurred due to abnormal increase in water charges in some of its generating stations for the period 2009-14 and the Commission by order dated 10.4.2015 had rejected the relief prayed for in the said petition. Hence, the prayer of the petitioner in this petition for grant of additional cost over and above the O&M expenses due to increase in water charges is disposed of in terms of the decision of the Commission in Petition No.121/MP/2011.

Application fee and the Publication expenses

123. The petitioner has prayed for the reimbursement of tariff filing fees towards filing of the petition for the period 2012-14 and the publication fees towards the publication of notice in newspapers as per Regulation 3(8) of the CERC (Procedure for making of application for determination of tariff, publication of the application and other related matters) Regulations, 2004.In terms of Regulation 42 of the 2009 Tariff Regulations and based on our decision contained in order dated 11.1.2010 in Petition No.109/2009, the expenses towards filing of tariff application for the period considered in this order and the expenses incurred on publication of notices shall be directly recovered from the beneficiaries, on *pro rata* basis on production of documentary proof. The excess filing fees, if any, shall be adjusted against the tariff petition filing fees for the next tariff period.

124. The petitioner is already billing the respondents on provisional basis in accordance with the provisional tariff granted vide orders dated 24.12.2012 /10.7.2014. 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.

125. Petition No. 205/GT/2013 is disposed of in terms of the above.

Sd/-	***Sd/-***	***Sd/-***
[A.S.Bakshi]	**[A.K.Singhal]**	**[Gireesh B. Pradhan]**
Member	**Member**	**Chairperson**