CENTRAL ELECTRICITY REGULATORY COMMISSION
NEW DELHI

Petition No. 204/GT/2011

Coram:
Shri V.S.Verma, Member
Shri M.Deena Dayalan, Member

Date of Hearing: 18.6.2013
Date of Order: 21.1.2014

In the matter of

Approval of generation tariff of Farakka Super Thermal Power Station, Stage-III (1 x 500 MW) for the period from the actual date of commercial operation COD (4.4.2012) to 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. West Bengal State Electricity Distribution Co. Ltd.
   Vidyut Bhawan, Block-DJ, Sector-II,
   Salt Lake City, Kolkata-7000091

2. Bihar State Electricity Board
   Vidyut Bhawan, Bailey Road
   Patna-800001

3. Jharkhand State Electricity Board
   Engineering Bhawan, Heavy Engineering Corporation
   Dhurwa, Ranchi-834004

4. GRIDCO Ltd.
   Vidyut Bhawan, Janpath
   Bhubaneshwar-751007

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

6. Power Department, Government of Sikkim,
   Kazi Road, Gangtok Sikkim-737101 …**Respondents**

Parties present:

Shri Ajay Dua, NTPC
Shri Guryog Singh, NTPC
Shri Rohit Chhabra, NTPC
Shri K.K. Narang, NTPC
Shri Umesh Ambati, NTPC
Shri Y.R. Dhingra, NTPC
Shri S.K. Sharma, NTPC
Shri Bhupinder Kumar, NTPC
Shri R.B.Sharma, Advocate, GRIDCO & JSEB
Shri Dadan Singh, BRBCL

ORDER

This petition has been filed by the petitioner, NTPC, for approval of generation tariff of Farakka Super Thermal Power Station, Stage-III (1x500 MW) (hereinafter referred to as "the generating station") for the period from actual COD (i.e. 4.4.2012) to 31.3.2014 based on the Central Electricity Regulatory Commission (Terms and Conditions of Tariff) Regulations, 2009 (hereinafter referred to as "the 2009 Tariff Regulations").

2. The generating station is an expansion project of NTPC in the existing Farakka Stage-I (600 MW) and Stage-II (1000 MW) located in the State of West Bengal. The investment approval of the project was accorded by NTPC Board at its 291st meeting held on 30.10.2006 at an estimated project cost of ₹2570.44 crore [(at 2006 price level (2nd quarter)] pending clearance of the Ministry of Environment & Forests, Govt. of India and the West Bengal Pollution Control Board.

3. The allocation of power from the generating station was notified by the Ministry of Power, Govt. of India on 9.12.2010, wherein a capacity of 425 MW of power has been allocated to the beneficiaries of the Eastern Region and the balance 75 MW capacity of power is to be sold outside the long term PPA by the petitioner. Accordingly, tariff for the long term allocation of 425 MW has been sought for by the petitioner in this petition.

4. The petitioner vide affidavit dated 26.8.2011 had filed this petition for determination of tariff for the generating station for the period from the anticipated COD i.e.1.10.2011 to 31.3.2014 in terms of the provisions of the 2009 Tariff Regulations. Thereafter, the petitioner by its letter dated 27.10.2011 submitted that the generating station is expected to be declared under commercial operation in the first week of November, 2011 and had prayed for grant of provisional tariff till 31.3.2014. Accordingly, the Commission by its order dated 14.11.2011 granted provisional tariff of the generating station from the anticipated date of commercial operation till 31.3.2014 based on the capital cost claimed by the petitioner.

5. The generating station has been declared under commercial operation on 4.4.2012. Accordingly, the petitioner vide its affidavit dated 7.9.2012 has amended the petition along with the tariff filing forms in line with the provisions of the 2009 Tariff Regulations. The annual fixed charges claimed for the installed capacity of 500 MW by the petitioner from COD of Unit-I (4.4.2012) till 31.3.2014 vide affidavit dated 7.9.2012 is as under:

(₹in lakh)

	2012-13	**2013-14**
	4.4.2012 to 31.3.2013	**1.4.2013 to 31.3.2014**
Depreciation	11861.07	12539.98
Interest on Loan	15652.00	15275.00
Return on Equity	16005.05	16921.16
Interest on Working Capital	6128.70	6184.08
O&M Expenses	7680.00	8120.00
Secondary Fuel Oil cost	1766.76	1766.76
Total	**59093.59**	**60806.99**

6. The respondent, GRIDCO has filed its reply to the petition and the petitioner has filed its rejoinder to the same.

Date of Commercial Operation (COD) and Time Overrun

7. The petitioner vide its affidavit dated 20.7.2012 has submitted that the investment approval of the project was accorded by NTPC Board at its 291st meeting on 30.10.2006 pending clearance of Ministry of Environment & Forests (MoEF), Govt of India and the West Bengal Pollution Control Board (WBPCB). It has also submitted that MoEF clearance for this project

was accorded on 7.2.2007 and WBPCB consent letter was received on 29.3.2007. The petitioner vide affidavit dated 6.2.2013 has also clarified that as per Board resolution approved in the 289th Board meeting, the zero date shall be reckoned as the date of receipt of environmental clearance from MoEF, Govt. of India and as per investment approval, the COD of the unit has been envisaged as 45 months from the date of Main Plant Order. Accordingly, the petitioner has submitted that the original scheduled COD as per Board approval is 6.11.2010

Time Overrun

8. The environmental clearance from MoEF, Govt. of India was accorded on 7.2.2007. The petitioner has submitted that the zero date shall be reckoned as the date of receipt of environmental clearance from MoEF, Govt. of India. As the actual COD of the generating station is 4.4.2012, there is a time over run of 17 months in the completion of the project.

9. The petitioner vide its affidavits dated 11.10.2011, 20.7.2012 and 06.2.2013 has enumerated the various reasons for time overrun in the execution of the project which according to it were beyond the control of the petitioner. Also, the petitioner vide its affidavit dated 2.8.2013 has graphically represented by a PERT diagram the reasons for the delay of 17 months in the execution of the project. It is noticed from the PERT diagram that there has been a delay of 12 months (approx) in completion of 'Boiler Drum lifting' from the scheduled date. The petitioner has also submitted that in project implementation plan of a 500 MW unit, completion of erection of boiler and its auxiliaries are critical, as any delay in any activity of boiler erection would lead to delay in commissioning of the unit even if other systems such as TG, Electrical Switchgear, BOP etc. are ready. The various reasons for time overrun as submitted by the petitioner are briefly summarised as under:

(a) Delay in start of Boiler Erection work: The first milestone in boiler erection is start of Boiler erection after the completion of enabling civil works. As per the schedule, BHEL was to start Boiler Erection and ESP Erection from September, 2007 and February, 2008

respectively and drum lifting was planned to be completed on 31.1.2008. The petitioner could not comply with the schedule of start of Boiler erection as M/s BHEL could not finalize any boiler erection sub-agency till the scheduled date. As communicated by M/s BHEL, the bids received for the work were much higher than the estimated price due to reasons such as single unit work, work environment / culture in that part of the country etc. BHEL could not award the work. On persistent follow up by NTPC, M/s BHEL appointed a make shift agency M/s Golden Edge Engineering Ltd. on 12.3.2008 to start the boiler erection through short term-contract so as to avoid further delay. This make shift agency was hired by BHEL to complete Boiler erection up to Boiler Drum Lifting (2nd milestone). Under this circumstance, the petitioner could start boiler erection only after a delay of 9 months on 30.5.2008 from scheduled date i.e. 30.8.2007.

(b) Non mobilisation of High Capacity Crane: The Boiler erection activities almost came to a standstill after four months from start of work due to non-mobilisation of Heavy Lift Crawler crane by M/s BHEL since the identified crane by M/s BHEL was damaged. The petitioner continuously followed up with M/s BHEL for arrangement of High Capacity Crawler crane. As a unique initiative, the petitioner arranged the required High Capacity Crane for M/s BHEL so as to avoid further delay. With all efforts and initiative by the Petitioner the 600 MT High Capacity Crane was made available to BHEL at the earliest possible time at site by 4.12.2008 after load test. Hence, there was stoppage of work for two months due to non-mobilisation of High Capacity crane by M/s BHEL. With all efforts and optimum use of resources, drum lifting could be completed on 4.2.2009 (against the scheduled date of 31.1.2008) with a total delay of 12 months (approx) which is beyond the control of the petitioner. It can be observed that the petitioner as a special case has arranged for the 600 MT High Capacity crane for M/s BHEL for timely completion of the project to safeguard the interests of the beneficiaries and commission the unit at the earliest.

Further, the activities of Boiler erection were further adversely affected due to issues in changeover from makeshift agency to main agency for Boiler erection. M/s BHEL could appoint main Boiler erection agency (M/s Powermech) only in the month of January 2009 who could start work only after four months due to associated industrial relations issues. (i.e. retrenchment of workers by make shift agency M/s Golden Edge and new appointments by main erection agency M/s Powermech). The progress of erection activities of boiler were adversely affected intermittently due to abnormal heavy rains and industrial relations surrounding socio work culture issues in and around the plant.

(c) Retrenchment on disciplinary grounds: M/s Powermech, the main erection agency engaged by M/s BHEL for Boiler erection had retrenched 13 workers on disciplinary grounds and refused to take them under pressure from Labour Unions leading to workers' strike and stoppage of work in boiler area from 27.3.2010 to 30.4.2010. In spite of all these difficulties, the petitioner made all out efforts with due diligence to reduce the delay in implementation of the project. The petitioner through rigorous monitoring has been able to demonstrate full load substantially reducing the initial delay of 12 months by approximately 25%.

(d) Delay on account of rainfall: It is worth mentioning that enabling civil works were further severely affected due to abnormally high rainfall during the months of June to September. Farakka site experienced abnormal heavy rainfall of 1400mm and 1100 mm during the monsoon period in the years 2007 and 2011 respectively. The civil works which were critical and important for all the erection activities were planned in the year 2007. The local soil characteristic (clay soil) further limited the progress of erection at site. Rainfall data and extracts of Annual Climate Summary 2007, Annual Climate Summary 2011and Monsoon Report 2011 have been submitted by the petitioner. It is evident from the rainfall statistics that in the years 2007 and 2011, Gangetic West Bengal received 43% and 19% more rainfall during the monsoon period than normal. The disruptions/poor progress in civil

works due to rains had delayed handing over fronts to mechanical agencies for erection. Hence, the heavy rainfall in this area adversely affected the construction activities which were beyond the control of the petitioner.

(e) Failure of Instrument air and Service Air Compressor Motors: The Compressed Air System at this generating station is a unique system implemented at NTPC station for the first time. M/s BHEL awarded the works for compressed air system to vendor M/s KCPL who in turn engaged a sub-vendor M/s Marathon for drives/ motors. The motors of Service Air Compressor (SAC) and Instrument Air Compressor (IAC) failed on 17.3.2011 and 24.3.2011 respectively in course of unit stabilization operation after the unit commissioning on 7.3.2011. Due to uniqueness of the system the motors could not be diverted from other NTPC stations. These failed motors were sent to the Original Equipment Manufacturer (OEM) M/s Marathon works for repair. The OEM took around 5 months' time for repair of the motors and M/s BHEL could re-commission the system after a further period of one month time i.e. total time of 6 months. Finally, the Compressed Air System (both IAC and SAC) were commissioned after rectification of all the problems on 28.12.2011.

(f) Bottom Ash Handling System: ash handling system in case of the generating station is a turnkey package where the entire scope of design, supply, erection related civil works etc is in the scope of the vendor M/s Indure. During the trial operation and stabilization period, smooth and reliable operation of Bottom Ash Handling system consistent operation could not be established due to major & critical technical flaws in the various associated components including Scrapper Conveyors, Clinker Grinders and Bottom Ash Transfer Pumps as elaborated. The supplies of Bottom Ash Handling system from M/s Indure were inordinately delayed. M/s Indure could take up Bottom Ash Handling system commissioning system only in September, 2011 after supplies were available.

Despite various attempts/modifications in the scheme in the course of commissioning as stated, the consistent bottom ash evacuation was not achieved. Finally, after several meetings between the designers of M/s Indure and NTPC Engineering group (25.9.2011, 25.11.2011 and 30.12.2011), including at site and carrying out various modifications in Scrapper conveyor and Clinker Grinder, the consistent operation of Bottom Ash Handling system could start in January, 2012.

(g) Shortage of cooling water from Feeder canal: Farakka barrage supplies cooling water to Farakka generating station. However, its two nos. sluice gates (maintained by CWC) got damaged in February, 2012 affecting the supply of cooling water to this generating station drastically. The supply of cooling water to the 1600 MW Stage-I and II of the generating station was also not adequate. As a result, 271 Million Units (MUs) generation from the existing station was lost on this account. The commercial operation of a new unit therefore could not be planned in the prevailing situation. The situation was further aggravated due to the Indo-Bangla Water treaty as per which the agreed quantity of water has to be released to Bangladesh during lean season. The cooling water supply to the generating station improved only after repair of sluice gates by Farakka Barrage (CWC).

(h) Impact of Parliamentary elections (May, 2009) and Assembly elections (May 2011): The State of West Bengal being a politically sensitive state, the mass population is grossly involved in the political process and elections. During the period of elections, of around 2 months in the above years, very few agency workers were available for effective work despite on NTPC initiative, special incentive were offered to agency workers by the employers during the above period. As the majority of the work force refused to join the work force, the work progress during the period was very poor.

(i) Road Infrastructure issues: Farakka power generating station is connected with the National Highway by a single lane bridge over Farakka feeder canal. Over the years traffic on this route has grown manifold. The narrow approach bridge on feeder canal leading to plant has resulted in delay in transportation of material due to long traffic jam etc., and has caused delay in smooth flow of materials and manpower for project work. The condition of the road has also worsened. Therefore, some of the larger equipment's were required to be diverted through longer alternative routes (through Shankarpur Bridge). In case of some of critical equipment's viz Generator Transformers, the transportation had to be diverted through further longer routes due to limitation of the Shankarpur Bridge. Even this identified available route has several railway crossings and passes through densely populated areas. Due to above factors, most of the equipment's took extra time to reach the site.

Submissions of GRIDCO

10. The respondent, GRIDCO in its reply dated 26.12.2012 has submitted that the time line for completion of 500 MW unit of an expansion project as per Appendix-II of the 2009 Tariff Regulations is 42 months from the date of investment approval. It has also submitted that enough cushion were made available for completion of the project within the scheduled period of completion of 46 months which means that the project was to be completed by 30.8.2009. The respondent has further submitted that the COD of the project is 4.4.2012 resulting into a total time over-run of 31 months reckoned from the date of investment approval. The objections of the respondent to the justification for time overrun as submitted by the petitioner are summarised as under:

(a) The problems related to the delay in local conditions, delay in ash disposal system due to encroachment on NTPCs land/obstruction by local public in laying ash pipe lines, impact of Parliamentary and Assembly elections, road infrastructure and heavy rainfall are the problems which are well known to the petitioner as he operates the Farakka STPS at the same place for more than 25 years now. The alleged problems narrated by the petitioner

are only an excuse for delays in completion of the project which is attributable for lack of supervision.

(b) The problems related to mobilisation of sub-agency and 600 MT crane by BHEL is entirely the responsibility of the contractor and the contractor is liable to make good the losses on this count as time is the essence of the contract.

(c) As regards the failure of instrument Air and Service Air compressor motors, NTPC was implementing the unique system for the first time which failed during stabilisation work. The entire risk of undertaking this kind of research work without keeping spares rests with the petitioner and vendor.

(d) The delay in supply of Ash handling system by the vendor even though the entire package is a turnkey package within the scope of vendor M/s Indure. The contractor is liable to make good the losses for the inordinate delay in the COD of the generating station.

Analysis and decision

11. We have considered the submissions of the parties. A tabulated statement containing the reasons and the period of delay involved in the commissioning of the project as submitted by the petitioner vide its affidavit dated 6.2.2013 is as under:

Zero date (date of receipt of MoEF, GOI clearance)	**7.2.2007**
Project implementation schedule	45 months
Reasons for delay	**Period**
Delay due to heavy rainfall (June, 2007 to September, 2007)	2 months (*effective delay*)
Delay in start of boiler erection by M/s Golden Edge (*make shift agency)*	9 months
Delay due to non-mobilisation of High Capacity crane	2 months
Delay on account of IR problems caused due to new appointments by M/s Power Mech (*main boiler erection agency*)	3 months
Impact of Parliamentary elections (May 2009) -Socio work environment delays	1 month
IR problems delay-Disciplinary action on 13 workers by M/s Powermech.	1 month
Delay due to Plant and Instrument Air Compressor system	6 months
Impact of Assembly elections (May 2011)-Socio work environment delays	1 month
Delays on account of materials supply and non-reliable operation of Bottom Ash handling system	10 months
Delay due to water crisis on account of problem in sluice gate operation by Farakka Barrage authority	2 months
Actual COD against the scheduled COD on 6.11.2010 (***17 months delay***)	4.4.2012

12. The contention of the respondent GRIDCO that there has been a time over run of 31 months reckoned from the date of investment approval cannot be acceptable since the time line of 42 months as specified under Appendix-II of the 2009 Tariff Regulations, is only for the purpose of determining as to whether the generating station is eligible for additional ROE of 0.5% for successful completion of its expansion project. As stated, the investment approval was accorded on 30.10.2006 pending MoEF clearance. As per the Board Resolution approved in the 289th meeting, 'Zero date' shall be reckoned as the date of receipt of environmental clearance of MoEF, Govt of India. Since the environmental clearance was received by the petitioner on 7.2.2007, zero date shall be reckoned accordingly, and the scheduled COD of the generating station is 6.11.2010. As the actual COD of the generating station is 4.4.2012, the time overrun in respect of the generating station is worked out as 17 months.

13. The Appellate Tribunal for Electricity (the Tribunal) in its judgment dated 27.4.2011 in Appeal No. 72 of 2010 (MSPGCL V MERC & ors**)** has laid down the following principles for prudence check of time overrun and cost overrun of a project as under:

> ***"****In the absence of specific regulations, we will now find answer to the question raised by us relating to prudence check of time overrun related costs.*
>
> *7.4. The delay in execution of a generating project could occur due to following reasons:*
>
> *i) due to factors entirely attributable to the generating company, e.g., imprudence in selecting the contractors/suppliers and* ***in executing contractual agreements including terms and conditions of the contracts,*** *delay in award of contracts, delay in providing inputs like making land available to the contractors, delay in payments to contractors/suppliers as per the terms of contract, mismanagement of finances,* ***slackness in project management like improper co-ordination between the various contractors, etc****.*
>
> *ii) due to factors beyond the control of the generating company e.g. delay caused due to force majeure like natural calamity or any other reasons which clearly establish, beyond any doubt, that there has been no imprudence on the part of the generating company in executing the project.*
>
> *iii) situation not covered by (i) & (ii) above.*
>
> *In our opinion in the first case the entire cost due to time over run has to be borne by the generating company. However, the Liquidated Damages (LDs) and insurance proceeds on account of delay, if any, received by the generating company could be retained by the generating company. In the second case the generating company could be given benefit of the additional cost incurred due to time over-run. However, the consumers should get full benefit of the LDs recovered from the contractors/suppliers of the generating company and the insurance proceeds, if any, to reduce the capital cost. In the third case the additional cost due to time overrun including the LDs and insurance proceeds could be shared between the generating company and the*

consumer. It would also be prudent to consider the delay with respect to some benchmarks rather than depending on the provisions of the contract between the generating company and its contractors/suppliers. If the time schedule is taken as per the terms of the contract, this may result in imprudent time schedule not in accordance with good industry practices.

7.5. In our opinion, the above principles 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. **"**

14. We now consider the submissions of the petitioner, in line with the above said principles laid down by the Tribunal. As regards the erection of Turbo-Generator (TG) and its auxiliaries, it is observed that though there has been some delay in the start of Condenser erection and start of TG erection, all activities up to TG Box up and TG on barring gear had been completed within the start of commissioning activities of Boiler. From the PERT chart of Turbine activities, it could be noticed that there has been no delay in the declaration of COD on this count.

15. The petitioner has submitted various reasons for the delay and has also justified the said delay with the help of the PERT chart in respect of Boiler and Turbine activities. It is noticed that there has been a delay of 3 months (approx) for completion of Boiler foundation (completed on 25.11.2007) as compared to the scheduled date of completion (23.8.2007) of the said work and the said delay is on account of heavy rainfall during the months of June to September, 2007 as observed from the rainfall data submitted by the petitioner. The boiler foundation work was likely to take around 2 months starting from 29.6.2007 to be completed by 23.8.2007. However, the work could be commenced only from 23.7.2007 due to rains during the month of June, 2007. On account of the rains continuing upto September, 2007, the said work could only be completed on 25.11.2007. Though the effective delay as indicated by the petitioner is only two months, the actual delay, on account of rain is 3 (three) months (23.8.2007 to 25.11.2007).The disruptions/poor progress in civil works due to heavy rainfall in this area has adversely affected the construction activities which according to us, were beyond the control of the petitioner. In view of this, the delay of 3 months for boiler foundation work due to heavy rainfall is not

attributable to the petitioner and the time overrun involved in the completion of the project, on this count, is allowed.

16. It is noticed from Form-5D of the amended petition vide affidavit 7.9.2012, that the main plant turnkey contract with price escalation clause was placed to BHEL on 30.10.2006 i.e.10 months ahead of schedule date (30.8.2007) of start of Boiler erection work. It is also observed from the PERT chart that as per schedule M/s BHEL was to start Boiler erection and ESP erection from September, 2007 and February, 2008 respectively and drum lifting was planned to be completed on 31.1.2008. On account of the failure on the part of M/s BHEL to appoint any boiler erection sub–agency till the scheduled date, a make-shift agency M/s Golden Edge on short-term contract to start boiler erection was engaged on 12.3.2008 and the boiler erection work could start on 30.5.2008. Due to non-mobilisation of High Capacity Crane by M/s BHEL, another crane was arranged by the petitioner on 4.12.2008 and thus there has been stoppage of work for two months. As drum lifting could be completed only in February, 2009 (4.2.2009), there has been a delay of about 12 months. It is also observed that M/s BHEL had appointed main boiler erection agency (M/s Powermech) only in the month of January, 2009, which could start work after four months due to associated industrial relations**.** It is also observed from the PERT chart that after the boiler drum lifting, the subsequent activities such as pressure parts erection, hydro test, auxiliaries for boiler etc. were completed without further delay and the boiler was lighted up on 12.10.2010 as against the schedule date of 27.10.2009. Steam blowing was completed on 7.2.2011 as against the schedule of 8.2.2010. Similarly, full load was achieved on 23.3.2011 as against the schedule date of 19.6.2010. Thus, the petitioner could compress / reduce the time overrun of 12 (twelve) months (as on the date of boiler light up) to 9 (nine) months (as on date of achieving full load) due to rigorous monitoring of the said work and diligence. However, there was a delay of 12 months (approx) from the date of achieving full load (23.3.2011) upto the date of declaration of the commercial operation of the generating station (4.4.2012). We have examined the reasons for the delay of 12 months in the declaration of COD

from the date of synchronisation. It is observed that the first 6 months were lost due to failure of motors of Instrument Air System & Service Air System before being repaired after 5 months and M/s BHEL had re-commissioned the same in another one month. Further, the commissioning of Bottom Ash handling system was started only in September, 2011 i.e. 6 months from the date of synchronisation and due to stabilisation problem in the bottom Ash due to the technical flows in certain components including Scrapper Conveyors, Clinker Grinders and Bottom Ash Transfer pumps and consistent operation of bottom Ash handling system was achieved in January, 2012. Even though the petitioner cannot absolve itself of its responsibility for the delay due to non performance of the contractors, it is necessary to consider as to whether there was slackness on the part of the petitioner to coordinate with the contractor or to take prudent steps to prevent the delay in completion of the project. It is evident from the above submissions that the delay of 14 months (excluding 3 months due to rainfall) in the completion of the project is due to the non-mobilisation of resources on the part of M/s BHEL, delay due to technical flaws in Bottom Ash hopper, failure of the instrument air and service air compressor motors, etc., It is noticed that Boiler Erection activities came to a standstill after four months from start of work due to non mobilization of Heavy lift crawler crane by M/s BHEL and the petitioner had continuously followed up with M/s BHEL for mobilization of high capacity crawler crane. This issue was finally resolved in a meeting between the petitioner and BHEL on 2.9.2008 wherein it was decided that the petitioner would hire High Capacity Crane as per technical specifications of BHEL and provide the same to BHEL on rental basis as a unique and special initiative. The petitioner had placed LOI on 27.10.2008 on the agency for mobilisation of High capacity crane at site and with all efforts and initiative, the high capacity crane was made available to BHEL at the earliest possible time at site by 4.12.2008 after load test. Thus, with all efforts taken by the petitioner, and optimum use of resources, drum lifting could be completed during February, 2009 i.e with a delay of 12 months. Also, BHEL was finding it difficult to finalise qualified sub-vendor for boiler erection due to non-participation of qualified vendors in the bidding process and ultimately, one

bidder qualified with its financial offer being too high. BHEL could not award the contract and on persistent follow up by the petitioner, short term contract, to start boiler erection was resorted to avoid further delay and M/s Golden Edge Engineering was engaged by BHEL as makeshift agency to compete the work upto drum lifting which took one and half months to mobilise its resources at site. Similarly, in the course of commissioning, bottom ash handling system consistent operation could not be established due to major and critical technical flaws in the various associated components as mentioned earlier. It is observed that these problems were resolved only after several meetings between M/s Indure and NTPC on various dates i.e on 25.9.2011, 25.11.2011 and 30.12.2011 respectively. Pursuant to this, the operation of Bottom ash handling system could be established in January, 2012 after carrying out various modifications. It is evident from the above that there has been no imprudence on the part of the petitioner in the selection of M/s BHEL as the principal contractor or in the execution of contractual agreements or any delay in awarding of contracts or any slackness in project monitoring. However, there has been delay in the completion of project due to various reasons like the non participation of qualified vendors in bidding process, the non mobilisation of resources at site, technical flaws in bottom Ash system and Instrumentation Air system etc. It is observed that the petitioner was constantly monitoring and co-ordinating the activities of the principal contractor/sub-contractors and had initiated various steps to mitigate the delay in the completion of the project as narrated above. Despite reasonable efforts on the part of the petitioner, there has been delay in the completion of the project. This in our view cannot be fully attributable to the petitioner. Accordingly, we are of the considered view, that the principle to be applied in terms of the situation (i) and (ii) as laid down in the judgment of the Tribunal referred to in para 12 above, is not attracted in the instant case. However, the delay in the completion of the project had occurred due to the failure on the part of contactor/sub-contractors to carry out the works as per schedule, despite reasonable efforts taken by the petitioner. This, in our view, cannot fully absolve the petitioner and the respondents cannot also be asked to carry the entire

burden on account of the said delay. Keeping in view that time is the essence of the contract in respect of the project work, and considering the fact that delay in the completion of the project is not fully attributable to the petitioner, we conclude that the principle laid down in situation (iii) of the judgment of the Tribunal as referred to in para 12 above is applicable in the instant case. Accordingly, we direct that the impact of time and cost overrun of 14 months should be borne equally in the ratio of 50:50 by the petitioner and the respondents. Moreover, the additional cost due to time overrun including the Liquidated damages and insurance proceeds, if any, received from the contractor should be shared between the generating company and the respondents/consumers.

Impact of Parliamentary elections and State Assembly elections

17. The petitioner has claimed stoppage of work in May, 2009 due to parliamentary elections. However, it is noticed that M/s Powermech (main agency for boiler erection) was appointed during January, 2009, but could not start work only after 4 months due to industrial unrest which came to an end only on 30.4.2009. Since the work had not stated, the claim of the petitioner for stoppage of work due to parliamentary election is not acceptable. Similarly, the stoppage of work as claimed by the petitioner during May, 2011 due to State Assembly election is also not admissible as the work had already been delayed due to outage of instrument/service air compressor system due to failure of motors at the relevant point in time. Hence, delay not acceptable.

18. The petitioner has further submitted that the commercial operation of the new unit could not be planned as water supply to the existing generating station was affected as two sluice gates of Farakka barrage maintained by CWC got damaged in February, 2012. In addition, agreed quantity of water had to be released to Bangladesh as per Indo-Bangla treaty. In our view, had the work of bottom ash handling system and instrument air system been completed in time i.e as per the original schedule or even by the time of actual synchronisation on 23.3.2011, the petitioner could have declared COD without the supply of cooling water from Farakka

barrage during that point of time. As such, the petitioner cannot be given the benefit of its own fault and accordingly, the contention of the petitioner is not accepted.

Capital Cost

19. Regulation 7(1)(a) of the 2009 Tariff Regulations provides as under:

> "*7. **Capital Cost.** (1) Capital cost for a project shall include: (a) the expenditure incurred or projected to be incurred, including interest during construction and financing charges, any gain or loss on account of foreign exchange risk variation during construction on the loan - (i) being equal to 70% of the funds deployed, in the event of the actual equity in excess of 30% of the funds deployed, by treating the excess equity as normative loan, or (ii) being equal to the actual amount of loan in the event of the actual equity less than 30% of the funds deployed, - up to the date of commercial operation of the project, as admitted by the Commission, after prudence check;"*

20. The actual capital cost claimed by the petitioner vide affidavit dated 7.9.2012 on cash basis, as on 4.4.2012 and duly certified by statutory auditor is ₹222249 lakh. This includes IEDC of ₹6733 lakh and IDC of ₹38975 lakh.

21. The respondent GRIDCO has submitted that there is huge cost and time over run in the completion of the project for which no proper justification has been submitted. It has also submitted that the cost of the project when completed works out to ₹5.76 crore/MW and the cost overrun has been 12.12% to the hugely over estimated cost for an expansion project. The respondent has also submitted that the details of capital expenditure incurred as on COD along with proposed additional capital expenditure during the years 2012-13 and 2013-14 has not been submitted under an auditor certificate.

22. In response, the petitioner in the rejoinder dated 8.2.2013 has pointed out that copies of audited balance sheet and Profit & Loss account of Farkka STPS along with the audited and certified gross block pertaining to the generating station as on 4.4.2012. The petitioner while objecting to the submission of the respondent GRIDCO that the projected cost of ₹288283 lakh is very high, has clarified that the prevailing GOI guidelines /policy allows only coal generating stations with more than 1000 MW to get Mega Power Projects benefits in the form of Excise duty & Custom duty etc. It has therefore submitted that the generating station being a 500 MW

non-Mega Power Project, its cost could be higher due to non-availability of any duty exemption. The petitioner has further submitted that IDC, FC, taxes, duties, cost of R&R etc., if deducted from the indicative completed cost of ₹288283 lakh, the capital cost/MW would work out to be less than the bench mark capital cost of ₹4.92 crore/MW, specified by the Commission in its order dated 4.6.2012. Accordingly, the petitioner has argued that the submission of the respondent GRIDCO that there is huge cost overrun shall not be accepted.

23. We have examined the submissions of the parties. As stated, the generating station is an expansion project. The bench mark hard cost excluding IDC & FC for the first unit of unit size of 500 MW of an expansion project is ₹4.92 crore/ MW at December, 2011 price level. The Capital cost of the project as on COD is ₹222249 lakh which works out to ₹4.44 crore /MW including IDC, IEDC etc. as claimed by the petitioner. The total capital cost for the project has been indicated as ₹265499 lakh including IDC &FC of ₹38975 lakh (which works out to ₹5.31 crore/ MW) including additional capital expenditure of ₹33330 lakh and the discharge of liability of ₹9919 lakh. The hard cost after excluding IDC & FC of ₹38975 lakh works out as ₹226524 lakh (₹4.53 crore/MW) which is lower than the benchmark capital cost of ₹4.92 crore.

Infirm Power

24. The respondent GRIDCO has submitted that the revenue earned by the petitioner from sale of infirm power, after accounting for fuel expenses is to be considered for reduction of capital cost. It has also submitted that the amount covered under the head "construction and pre commissioning expenses" amounting to ₹134.71 crore may not be allowed as the same is against the provisions of the 2009 Tariff Regulations. The respondent has further submitted that the figures in the profit and loss accounts do not tally with the information submitted by the petitioner in Annexure-II of the petition. In response, the petitioner vide its rejoinder has submitted as under:

> *"..The petitioner has earned ₹12084.41 lakh from sale of infirm power from date of synchronisation to date of COD which has been reduced from the capital cost of Form-5B.*

Further any net income /expenditure from the sale of infirm power depends on the UI rate applicable at the instant grid frequency and ECR of power generated. If and only the UI rate at the instant grid frequency is greater than the ECR then only revenue will be generated after accounting for fuel cost. It is known fact that the grid frequency varies between certain range and is not constant. Hence, it is not possible for the petitioner to earn revenue from sale of infirm power all the times. The petitioner couldn't have waited for frequency to become low and then do the testing/commissioning of the Unit. Moreover some fuel is also consumed during certain testing and commissioning of the Unit where no generation takes place. The petitioner has provided statement of expenditure incurred for procuring fuel at Form-15 & 15A for three months as per provisions of Tariff Regulations, 2009. Therefore the contention of the respondent is without any merit and needs to be rejected."

25. Further, the petitioner vide its affidavit dated 2.8.2013 has also submitted as under:

"It is submitted that the Fuel expenses and revenue earned from the generation reflected in the Audited Accounts corresponds to Farakka STPS Stage-I &II. The fuel expenses and the revenue earned for the period from 7.3.2011 to 3.4.2012 of Farakka STPS Stage-III, was accumulated every year and shown in the schedule / note of Capital Work in Progress under the head "Pre-Commissioning expenses (Net). This accumulation was carried out till the date of commercial operation of the unit i.e. 4.4.2012 and an amount of ₹1347135136.90 was adjusted through CWIP Schedule (line-31) Annexure-C. Further, a certificate from the Auditor with regard to year wise fuel expenses, units generated and revenue earned for Farkka STPS, Stage-III is attached at Annexure-D"

26. Taking into consideration the above submissions of the petitioner, we are of the considered view that the net construction and pre-commissioning expenses amounting to ₹134.71 crore, after deducting the revenue earned from the sale electricity, excluding fuel cost, shall be capitalised as on COD of the generating station.

27. In order to work out the impact of cost overrun due to time over run, the petitioner by letter dated 28.5.2012 was directed to provide the escalation paid during the period from the schedule COD to the actual COD in the different contract packages. In response, the petitioner has submitted as under:

''*Generally Letters of Awards (LOAs) for various packages envisage price escalation payable by NTPC to contractor/ vendors as per the scheduled dates of supplies/ erection. If any delay on the part of the contractors leads to delay in supply/ erection, additional escalation if any is generally borne by the contractors. It may therefore be seen that time overrun does not result in cost overrun of works cost. Even if 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 (i.e. vendor responsible for handing over of the front). These claims are generally settled at the time of contracts closing. Therefore, on this account also there is no additional liability on NTPC It is further submitted that details furnished vide affidavit dated 20.07.2012 and 14.11.2011 establish that there is no unreasonable time taken which can be attributed to the petitioner and the reasons for the delay were beyond the control of the petitioner.*

Further it is respectfully submitted that during the execution of the project the primary intention of the Petitioner was to complete the project by optimization of the project cost as well as time. Merely by completing the project within scheduled time doesn't ensure reduced cost of the project. In the instant case the petitioner has tried its best that no cost overrun is there due to time overrun (which was beyond NTPC's reasonable control) by optimizing the resources."

28. It is noticed from the above that no proper clarification has been submitted by the petitioner in respect of the information sought for by the Commission. It is observed that the cost approved by the Board of the petitioner company was on higher side and the capital cost actually bid on different contract packages worked out to be much lesser than the approved cost. In case the project had been completed without delay, the escalation of cost beyond the scheduled COD for the different packages could have been avoided. The petitioner has also not furnished the details of escalation in prices from the actual COD dates for the different packages. It has been submitted by the petitioner that even if 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 (i.e. vendor responsible for handing over of the front).

29. The petitioner has not submitted any data/details indicating the recoveries made against the contractors who were responsible for delay and that there was no increase in cost of different packages. As per Form-5D which provides the break-up of construction/supply/ services packages as on COD of 4.4.2012, it is noticed there has been increase in the contract price than the value of award in main plant turnkey package and main plant civil work package which are due to delay in the commissioning of the project.

30. The increase in the main plant turnkey package works out to ₹9925 lakh based on actual capital expenditure of ₹124311 lakh against the awarded value of ₹114386 lakh. Similarly there is increase of ₹9556 lakh under the main plant civil work package where the actual capital expenditure is ₹18756 lakh as against the awarded value of ₹9200 lakh. The increase in other packages is minor and is expected to be completed well before the synchronization of the unit.

31. In the light of above, the *pro rata* increase in the contract price due to escalation of cost for the period of delay of 14 months is worked out for main plant turnkey package and main plant civil work package on *pro rata* basis as ₹2105 lakh and ₹2152 lakh respectively. As such, an amount of ₹4262 lakh is to be shared in the ratio of 50:50 by the petitioner and the respondents. In view of this, ₹2132 lakh has been reduced from the actual expenditure of ₹176541 lakh on this count, as on 4.4.2012.

32. In view of the fact that the time overrun of 14 months is not fully attributable to the petitioner, the increase in IEDC due to delay of 14 months is required to be shared by the petitioner with the respondents in the ratio of 50:50. The IEDC claimed is ₹6733.00 lakh for 62 months from the zero date (7.2.2007) to the date of actual COD (4.4.2012) of the generating station. The pro-rata IEDC for 14 months works out to ₹1520.36 lakh {(6733/62)*48}. Out of ₹1520.36 lakh, an amount of ₹760.18 lakh (constituting 50%) is to be borne by the petitioner. Accordingly, IEDC of ₹5972.82 lakh (6733.00-760.18) has been considered in the capital cost as on COD of the generating station.

Capital cost as on actual COD (4.4.2012)

33. The petitioner had revised its claim for tariff vide affidavit 7.9.2012 based on the audited capital cost as on actual COD. The petitioner has also claimed an amount of ₹223282.86 lakh as on COD which comprise of the Capital cost on cash basis ₹222249.27 lakh, the notional IDC ₹1037.32 lakh and FERV gain charged to P&L Account for ₹3.73 lakh.

34. The petitioner has claimed projected additional capital expenditure amounting to ₹18475.70 lakh for the period from 4.4.2012 to 31.3.2013 and ₹8142.73 lakh for the year 2013-14, which are inclusive of projected discharge of liabilities.

35. As decided above, the time overrun of 3 months has been allowed/condoned and the time overrun for the remaining 14 months has been found not fully attributable the petitioner. Hence,

it is decided that the corresponding escalation in prices, IEDC, IDC, FC should also be equally shared by the petitioner with the respondents in the ratio of 50:50 for the purpose of tariff. Accordingly, the admitted capital cost on cash basis, without IDC has been worked out as under:

(*₹in lakh)*

	As on 4.4.2012
Net cash outflow towards hard cost	176541.00
Less: Pro-rata escalation in contract package for the delay of 14 months	2134.00
Add: Pro-rata IEDC allowed	5972.82
Total Capital cost allowed without IDC (on cash basis)	**180381.82**
Liabilities as on COD of the generating station	**9919.25**

36. The petitioner is directed to submit the unit-wise, asset-wise details in respect of all the six units of Farrakka generating station separately as on 3.4.2012, at the time of truing-up, for reconciliation with the gross block amount of the combined balance sheet, with clear confirmation as to whether the allowed/claimed asset or disallowed asset or asset belongs to Katwa project, along with editable soft copies, in terms of Regulation 6 of the 2009 Tariff Regulations. As the petitioner has been directed to equally share with the respondents the amount received towards recovery of LD from the contractors, in the ratio of 50:50, the details regarding the status of LD recovered shall also be furnished at the time of truing up.

Interest during construction (IDC) & Financing Charges (FC)

37. The IDC & FC claimed by the petitioner as per affidavit dated 7.9.2012 is as under:

(*₹ in lakh)*

	As on 4.4.2012
Actual IDC & FC claimed	38974.61
Notional IDC claimed	1037.32
Total IDC & FC claimed	**40011.93**

38. In terms of Regulation 7(1)(a) of the 2009 Tariff Regulations as quoted above, if the actual equity deployed is less than 30% of funds deployed (i.e. actual debt is more than 70%), the interest on the actual amount of loan has to be included in capital cost. If the actual equity deployed is more than 30% of the funds deployed (i.e. actual debt is less than 70%), interest on

70% of the funds deployed has to be included in capital cost as Interest During Construction (IDC) by treating equity infusion above 30% as normative loan by the company to itself.

(a) Interest on actual loan: The actual amount of loan deployed based on the details submitted by the petitioner in Form- 8 and Form-14 has been considered. The IDC on actual loan has been allowed subject to the following:

(i) The petitioner has considered the repayment method as FIFO method in its claim for the loans taken from Corporation Bank, Punjab National Bank and State Bank of India IV. However, the average re-payment method for these loans as consistently followed by the Commission in earlier orders and affirmed by the Tribunal has been considered.

(ii) Some minor excess IDC claim has been found in few Bond series due to difference in applying the starting date. This has been restricted to interest on bonds as per the details submitted in Form 8.

(b) Interest on Normative loan: For the purpose of quantifying the normative loan (i.e. excess of equity infusion over and above 30 % of funds deployed) and allowing interest there on, the following has been considered.

(i) The fund deployment done by the petitioner periodically till the COD of unit (i.e. during construction period) has been sourced partly by equity and partly by debt (i.e. debt-equity ratio) which was not uniform during the entire construction period. Therefore quarter-wise debt –equity ratio has been computed as per the quarter-wise cash expenditure submitted by the petitioner in Form-14A and the infusion of debt has been computed as per the drawl and repayment schedule claimed by the petitioner in Form-8. For this purpose, the Average method of re-payment has been considered in place of FIFO method wherever claimed by the petitioner.

(ii) In case of the cumulative equity deployed in any quarter is more than 30% of the cumulative fund deployed, the excess of equity over and above 30% of cumulative fund deployed is treated as normative loan.

(iii) The interest on normative loan has been allowed based on the quarter wise rate arrived as per the actual interest and the actual loan balance applicable to the concerned quarter.

IDC & FC Cost overrun due to Time overrun

39. For the purpose of computation of time overrun, the zero date and the scheduled COD has been considered as 7.2.2007 and 6.11.2010 respectively. As stated, the time overrun of 3 months has been allowed/condoned in the instant case. Therefore the actual IDC & FC has been allowed up to 5.2.2011 (i.e. scheduled COD 6.11.2010 plus 3 months time-overrun). In case of interest on normative loan, the normative interest from 1.1.2011 to 5.2.2011 could not

be computed as the details of cash expenditure up to 5.2.2011 is not available in this petition. Therefore, the interest on normative loan has been allowed only up to 3rd quarter of 2010-11. The interest on normative loan for the period from 1.1.2011 to 5.2.2011 (4th Quarter) would be considered at the time of truing-up on filing of relevant information from the petitioner.

40. The petitioner vide its affidavit dated 6.2.2013 has submitted justification for its claim of IDC & FC due to time over run, as under:

> *" As regard to details of increase in IDC and FC due to time over run from the scheduled date of commercial operation to the actual date of commercial operation it is 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. It is submitted that loans are drawn at the corporate (Central) level, common to all station/projects and these loans are allocated to various projects/stations as per their running / current activities / expenditure. These factors, in fact, help in reducing the actual IDC and FC. Hence there is no extra interest liability on account of delay in schedule of activities / expenditure. These factors, in fact, help in reducing the actual IDC and FC. Hence there is no extra interest liability on account of delay in schedule of activities / expenditures. Therefore incremental IDC and FC added between schedule COD and actual COD cannot be treated as increase in IDC and FC due to time overrun rather it should be considered as normal liability as per actual status of works."*

41. We are in the view that though some capital expenditure could get deferred due to time overrun, it cannot be concluded that as a consequence of this, there would be no impact on IDC. Part of the expenditure which has been made prior to such deferment continue to accrue as IDC as the same is still under CWIP and cannot be put to use until all other activities which had got deferred are completed. Thus, there is impact on IDC due to time overrun, to the extent that part of expenditure that is incurred in time during the course of project execution but cannot be put to use due to other necessary expenditure which gets deferred due to time delay. In the instant case, based on Form-14 A which provides for cash expenditure incurred during various quarters of the execution of the project, it is noticed that out of the cumulative loan as on COD of ₹167472 lakh, the loan drawn up to the 4th Quarter of 2010-11 (i.e. the quarter up to which the time overrun is allowed) is ₹140618 lakh constituting 83.96% of total loan as on COD. Only the balance loan has been drawn during the period from 1.4.2011 and the actual date of commercial operation (4.4.2012). Even in terms of the expenditure, it is observed that about

82% of the expenditure (₹200475/₹244511 lakh) has been incurred up to the 4th Quarter of 2010-11. Since the details of cash expenditure and loan balance are not available up to the date 5.2.2011, the entire 4th Quarter has been considered for the above analysis.

42. Therefore, IDC & FC, including interest on normative loan for the period from 6.2.2011 to 4.4.2012 (actual COD) amounting to ₹15841.04 lakh (after capitalization) has been treated as cost overrun due to time overrun and the same is subject to truing-up. However, as decided, this cost shall be equally shared between the petitioner and the respondents in the ratio of 50:50. Accordingly, amount of ₹7920.52 lakh (50% of ₹15841.04 lakh), has been treated as the cost overrun towards IDC & FC and the same has not been included in capital cost for the purpose of tariff.

43. The details regarding allocation of IDC & FC between gross block and CWIP as on COD and as on 5.2.2011 (i.e. the date up to which the time over run is allowed) has not been furnished in this petition. However the capitalization has been considered based on the total interest and FC as per Form-14 and the IDC & FC claimed in Form-5B as on COD. This capitalization shall however be reconciled in terms of the details to be submitted by the petitioner at the time of truing up.

44. Based on the above discussions, IDC and FC has been worked out as ₹31799.07 lakh as on COD (4.4.2012) of the generating station and the same has been allowed and included in the capital cost. However, the petitioner shall submit the following information at the time of truing up:

(i) The COD of the generating station is 4.4.2012, whereas, the details in Form 14 A furnished are only up to 31.3.2012. Hence, the petitioner shall clarify as to whether the cash expenditure as on 31.3.2012 would remain the same as on 4.4.2012. In case of any difference, the petitioner shall submit revised Form 14A consisting of cash expenditure upto 4.4.2012. The petitioner shall also provide details in Form 14A by splitting the 4th Quarter of 2010-11 up to 5.2.2011 and thereafter.

(ii) The details of the year-wise allocation of interest between gross block and CWIP till the date of actual COD along with the splitting up to 5.2.2011 and thereafter.

Liabilities deducted from Capital cost as on 4.4.2012

45. The admitted Capital cost as on 4.4.2012 is on cash basis which has been arrived at after deducting the liabilities of ₹9919.25 lakh as on 4.4.2012. Any discharge of these liabilities would be considered as additional capital expenditure in the year of discharge as per Regulation 9 of the 2009 Tariff Regulations.

Short Term FERV

46. The Short term FERV gain amounting to ₹3.73 lakh as on 4.4.2012 has been adjusted with the admitted capital cost. This is subject to truing -up. The petitioner is directed to submit the unit-wise computation of Short Term FERV claim in order to reconcile with the amount specified in Schedule 7 of the combined balance sheet as on 3.4.2012.

47. In view of above discussions, the capital cost allowed for the purpose of tariff as on COD of the generating station is summarized as under:

(₹in lakh)

	As on 4.4.2012
Capital cost allowed excluding IDC & FC (on cash basis) after deducting liabilities of ₹9919.25 lakh	180381.82
Add: IDC & FC allowed including the interest on normative loan	31799.07
Add: Short term FERV Loss/(Gain)	(-) 3.73
Capital cost on cash basis allowed for the purpose of tariff.	**212177.16**

Additional Capital Expenditure

48. Regulation 9 (1) of the 2009 Tariff Regulations, as amended on 21.6.2011 and 31.12.2012, provides as under:

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

(i) Un-discharged liabilities;

(ii) Works deferred for execution;

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

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

(v) Change in law:

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

49. The additional capital expenditure claimed by the petitioner under the provisions of Regulation 9(1) is as under:

(₹in lakh)

Details of work	**Regulation**	**2012-13**	**2013-14**
Works deferred for execution under original scope	9(1)(ii)	10094.23	7207.25
Discharge of liabilities	9(1)(i)	5809.83	844.72
Capital Spares	9(1)(iii)	2571.64	90.76
Total		**18475.70**	**8142.73**

50. It is observed that the additional capital expenditure claimed as above are mostly towards deferred works/liabilities and towards the capitalization of spares within the cut-off date. On prudence check, the expenditure claimed as above is allowed under the said Regulations as claimed by the petitioner. It is pertinent to mention that the discharge of liabilities allowed as above are the projected discharge of liabilities claimed by the petitioner vide its affidavit dated 7.9.2012. However, subsequently, the petitioner vide its affidavit dated 6.2.2013 submitted the details of actual liabilities discharged upto 30.11.2012, which represented details of discharge of liabilities for a partial period in a year. Hence, the projected discharge of liabilities claimed vide affidavit dated 7.9.2012 has only been allowed. The additional capital expenditure allowed is subject to truing-up based on actual capital expenditure incurred.

Expenditure for creating infrastructure for supply of electricity within 5 km radius

51. The petitioner has submitted that it would be approaching the Commission for consideration of the cost incurred in implementation of the Govt. of India scheme for provision of supply of electricity within a radius of 5 km. of power stations after finalisation of detailed project report. Since the said scheme has been withdrawn with effect from March, 2013, by the Ministry of Power, GOI, the same has not been considered.

52. Based on the above, the capital cost considered for the purpose of tariff for the period 2009-14 is as under:

(₹in lakh)

	2012-13	2013-14
	4.4.2012 to 31.3.2013	1.4.2013 to 31.3.2014
Opening Capital Cost	212177.16	230652.86
Add: Projected Additional Capital Expenditure	18475.70	8142.73
Closing Capital Cost	**230652.86**	**238795.59**

Debt-Equity Ratio

53. Regulation 12 of the 2009 Tariff Regulations provides that*:*

(a) 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.

54. The normative debt-equity ratio of 70:30 has been considered for capital cost as on COD and the additional expenditure as allowed for the purpose of tariff. The same is subject to truing-up in terms of Regulation 6 of the 2009 Tariff Regulations.

Return on Equity

55. Regulation 15 of the 2009 Tariff Regulations, as amended on 21.6.2011, provides that:

"(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."

56. The petitioner has claimed Return on Equity of 22.944% (15.50/(1-32.445%)) per annum on the normative equity after considering base rate of 15.50%, in line with the first proviso to clause (2) of the Regulation 15 and the Tax rate of 32.445% as applicable to the generating company for the year 2012-13.This has been considered for the year 2013-14 also. Accordingly, return on equity has been worked out @ 22.944% per annum on the normative equity after accounting for additional capital expenditure. Return on Equity has been computed as under:

(₹in lakh)

	2012-13 (4.4.2012 to 31.3.2013)	**2013-14**
Normative Equity -Opening	63653.15	69195.86
Add: Addition to equity on account of Additional Capital Expenditure	5542.71	2442.82
Normative Equity -Closing	69195.86	71638.68
Average Equity	66424.50	70417.27
Return on Equity (Base Rate)	15.500%	15.500%
Tax Rate applicable	32.445%	32.445%
Rate of Return on Equity (Pre-Tax)	22.944%	22.944%
Return on Equity (Pre Tax) - annualised	**15240.44**	**16156.54**

Interest on loan

57. Regulation 16 of the 2009 Tariff Regulations provides that:

"(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.

58. Interest on loan has been worked out as under:

(a) The gross loan computed as per debt equity ratio as on COD of the unit works out to ₹148524.01 lakh as on 4.4.2012.

(b) Net loan opening as on 4.4.2012 is same as gross loan. Cumulative repayment of loan up to previous year/period being 'nil'.

(c) Depreciation allowed for the period under consideration has been considered as repayment.

(d) Average net loan is calculated as average of opening and closing.

(e) Weighted average rate of interest has been calculated as shown below:

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

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

(iii) Actual drawls and repayments up to COD of the generating station, as furnished by the petitioner, has been considered. However, in line with methodology followed by the Commission, the average repayment method has been considered in place of FIFO method, wherever adopted by the petitioner

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

(₹in lakh)

	2012-13 (4.4.2012 to 31.3.2013)	**2013-14**
Gross Opening Loan	148524.01	161457.00
Cumulative Repayment of Loan up to previous year	-	11201.73
Net Loan Opening	148524.01	150255.28
Addition of loan due to Additional Capital Expenditure	12932.99	5699.91
Repayment of loan (Normative)	11201.73	11973.47
Net Loan Closing	150255.28	143981.72
Average Loan	149389.64	147118.50
Weighted Average Rate of Interest on Loan	9.9652%	9.9098%
Interest on Loan	**14886.98**	**14579.15**

Depreciation

60. Regulation 17 of the 2009 Tariff Regulations provides that:

"(1) The value base for the purpose of depreciation shall be the capital cost of the asset admitted by the Commission.

(2) The salvage value of the asset shall be considered as 10% and depreciation shall be allowed up to maximum of 90% of the capital cost of the asset.

Provided that in case of hydro generating stations, the salvage value shall be as provided in the agreement signed by the developers with the State Government for creation of the site.

Provided further that the capital cost of the assets of the hydro generating station for the purpose of computation of depreciable value shall correspond to the percentage of sale of electricity under long-term power purchase agreement at regulated tariff.

(3) Land other than the land held under lease and the land for reservoir in case of hydro generating station shall not be a depreciable asset and its cost shall be excluded from the capital cost while computing depreciable value of the asset.

(4) Depreciation shall be calculated annually based on Straight Line Method and at rates specified in Appendix-III to these regulations for the assets of the generating station and transmission system.

Provided that, the remaining depreciable value as on 31st March of the year closing after a period of 12 years from date of commercial operation shall be spread over the balance useful life of the assets.

(5) In case of the existing projects, the balance depreciable value as on 1.4.2009 shall be worked out by deducting the cumulative depreciation including Advance against Depreciation] as admitted by the Commission upto 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."

61. The weighted average rate of depreciation of 5.1011% has been computed based on the gross block as on COD of the generating station and the same has been considered for the period from 4.4.2012 to 31.3.2013 and for the year 2013-14. Since, the petitioner has not shown any claim towards the freehold land in Form 5B, the land value is considered as 'nil' for the purpose of computing the depreciable value of the asset. Accordingly, depreciation has been calculated as under:

(₹in lakh)

	2012-13 (4.4.2012 to 31.3.2013)	**2013-14**
Opening capital cost	201366.81	219842.51
Add: Projected Additional Capital Expenditure	18475.70	8142.73
Closing capital cost	219842.51	227985.24
Average capital cost	210604.66	223913.88
Rate of depreciation	5.1011%	5.1011%
Depreciation	10654.81	11422.03
Depreciation (annualised)	**10743.11**	**11422.03**
Cumulative depreciation at the end of the period	10654.81	22076.84

62. The petitioner shall at the time of truing-up, furnish clarification as to whether any value of land has been allocated to Stage-III and also submit details of the land cost allocated between the individual units of Stage-I, II and III respectively.

O&M Expenses

63. O & M expenses claimed by the petitioner are as under:

(₹in lakh)

	2012-13	2013-14
O & M Expenses	**7680.00**	**8120.00**

64. The provisions of the 2009 Tariff Regulations, 2009, provides O & M expense norms for coal based thermal generating units as under:

(₹in lakh/MW)

	2012-13 (4.4.2012 to 31.3.2013)	2013-14
O & M expenses norm for 500 MW unit	**15.36**	**16.24**
Total O&M (Annualized)	**7680.00**	**8120.00**
Total O&M (Pro-rata)	**7616.88**	**8120.00**

65. The annualized O&M expenses as claimed by the petitioner based on above norms are found to be in order and are allowed.

Interest on Working Capital

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

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

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

> *"Rate of interest on working capital shall be on normative basis and shall be considered as follows:*
>
> *(i) SBI short-term Prime Lending Rate as on 01.04.2009 or on 1st April of the year in which the generating station or unit thereof or the transmission system, as the case may be, is declared under commercial operation, whichever is later, for the unit or station whose date of commercial operation falls on or before 30.06.2010.*

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

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

68. Working capital has been calculated considering the following elements as under:

Fuel Component in working capital

69. The petitioner has claimed the following cost for fuel component in working capital based on price and GCV of coal procured and fired for the preceding three months of January, 2012, February, 2012 and March, 2012 of the commercial operation (4.4.2012) and Secondary fuel oil (HFO) procured in March, 2012.

(₹ in lakh/MW)

	2012-13	2013-14
Cost of coal for 2 months	16539.19	16539.19
Cost of secondary fuel oil for 2 months	294.46	294.46

70. The fuel components in the working capital, based on the norms and the weighted average price & GCV of coal (which includes domestic coal through MGR & Railway and Imported coal) procured and fired during preceding three months of January, 2012, February, 2012 and March, 2012 of the COD and secondary fuel oil (HFO) procured in March, 2012, works out to as under and the same has been considered for the purpose of tariff.

(₹in lakh)

	2012-13 (4.4.2012 to 31.3.2013)	2013-14
Cost of coal for 2 months.	16280.84	16280.84
Cost of secondary fuel oil for 2 months.	294.46	294.46

Maintenance Spares in working capital

71. The petitioner has claimed the maintenance spares in the working capital, as under:

(₹in lakh)

	2012-13	2013-14
Maintenance Spares claimed	1536.00	1624.00

72. The 2009 Tariff Regulations provide for maintenance spares @ 20% of the operation and maintenance expenses as specified in Regulation 19. Accordingly, the maintenance spares allowed for the purpose of tariff is as under:

(₹in lakh)

	2012-13 (4.4.2012 to 31.3.2013)	2013-14
Maintenance Spares (annualized)	1536.00	1624.00
Maintenance Spares (Pro-rata)	1523.38	1624.00

Receivables

73**.** Receivables have been worked out on the basis of two months of fixed and energy charges (based on primary fuel only) on normative plant availability factor as under:

(₹in lakh)

	2012-13 (4.4.2012 to 31.3.2013)	2013-14
Variable Charges -2 months	16280.84	16280.84
Fixed Charges - 2 months	9479.64	9777.00
Total	**25760.48**	**26057.84**

O&M Expenses

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

(₹in lakh)

	2012-13	2013-14
O & M for 1 month	640.00	676.67

75. The Operation and Maintenance expenses for 1 month based on above norms are allowed as under:

(₹in lakh)

	2012-13 (4.4.2012 to 31.3.2013)	2013-14
O&M Expenses (1 month) (annualized)	640.00	676.67
O&M Expenses (1 month) (Pro-rata)	634.74	676.67

76. SBI Base rate of 13.50% has been considered in the computation of the interest on working capital. Necessary computations in support of calculation of interest on working capital are given as under:

(₹in lakh)

	2012-13 (4.4.2012 to 31.3.2013)	2013-14
Cost of coal – 2 months	16280.84	16280.84
Oil stock – 2 months	294.46	294.46
O&M expenses – 1 month	640.00	676.67
Maintenance Spares	1536.00	1624.00
Receivables – 2 months	25760.48	26057.84
Total working capital	**44511.78**	**44933.81**
Rate of interest	13.5000%	13.5000%
Interest on working capital *(annualized)*	**6009.09**	**6066.06**

Expenses on Secondary Fuel Oil

77. Clause (1) of Regulation 20 of the 2009 Tariff Regulations provides as under:

> *"20. Expenses on secondary fuel oil consumption for coal-based and lignite-fired generating station. (1) Expenses on secondary fuel oil in Rupees shall be computed corresponding to normative secondary fuel oil consumption (SFC) specified in clause (iii) of regulation 26, in accordance with the following formula:*
>
> *SFC – Normative Specific Fuel Oil consumption in ml/kWh*
>
> *= SFC x LPSFi x NAPAF x 24 x NDY x IC x 10*
>
> *Where,*
> *LPSFi – Weighted Average Landed Price of Secondary Fuel in `/ml considered initially.*
> *NAPAF – Normative Annual Plant Availability Factor in percentage*
> *NDY – Number of days in a year*
> *IC - Installed Capacity in MW.*

78. The expenses on Secondary Fuel Oil Consumption is worked out and allowed as under:

(₹in lakh)

	2012-13 (4.4.2012 to 31.3.2013)	2013-14
Secondary Fuel Oil Consumption (annualised)	1766.75	1766.75

Operational Norms

79. The following norms of operation for 500 MW units have been considered by the petitioner for the purpose of tariff:

Target Availability (%)	85
Heat rate (kcal/kwh)	2443.11
Auxiliary Power Consumption (%)	6.5
Specific Fuel Oil Consumption (ml/kWh)	1.0

80. The operational norms considered by the petitioner are in order. The petitioner has considered gross station heat rate as 2443.11 kCal/kWh as per the ceiling design heat rate and considering 6.5% deviation as per norms. The Gross Station Heat Rate based on the guaranteed design heat rate works out to 2483.255 kCal/kWh which is higher than the ceiling norms. Hence, the Gross Station Heat Rate as considered by the petitioner has been accepted.

Annual Fixed charges for 2009-14

81. The annual fixed charges for the period from 4.4.2012 to 31.3.2014 in respect of the generating station for the installed capacity of 500 MW is summarized as under:

(₹in lakh)

	2012-13 (4.4.2012 to 31.3.2013)	**2013-14**
Depreciation	11294.56	11973.47
Interest on Loan	14886.98	14579.15
Return on Equity	15240.44	16156.54
Interest on Working Capital	6009.09	6066.06
O&M Expenses	7680.00	8120.00
Cost of secondary fuel oil	1766.75	1766.75
Total	**56877.81**	**58661.97**

82. The annual fixed charges allowed as above are subject to truing up as per Regulation 6 of the 2009 Tariff Regulations.

Energy Charge Rate

83. The petitioner vide its affidavit dated 7.9.2012 had claimed Energy Charge Rate (ECR) of 285.076 paisa/kWh considering the weighted average price of ₹3549.71/ MT and GCV of 3240.67 kCal/kg of coal procured and burnt in preceding three months i.e. January to March, 2012 from the date of commercial operation. Further, in the energy charge calculations, the normative transit and handling losses of 0.8 % for domestic coal and 0.2% for imported coal

has also been considered. As the petitioner had received domestic coal through MGR also, the petitioner was directed to segregate the domestic coal received through MGR and Railway separately. The petitioner has accordingly recomputed the weighted average price of coal after considering the transit loss of 0.2% for domestic coal received through MGR and 0.8% for domestic received through Railway. The revised weighted price of coal has been furnished as ₹3494.27/MT. Based on the revised price of coal of ₹3494.27/MT and GCV of 3240.67 kCal/kg, Energy Charge Rate has been worked out as under:

		2012-13 (4.4.2012 to 31.3.2013)	**2013-14**
Description	Unit		
Capacity	MW	500.00	500.00
Gross Station Heat Rate	kCal/kWh	2443.11	2443.11
Aux. Energy Consumption	%	6.50	6.50
Weighted Average GCV of Oil	kCal/l	9710.00	9710.00
Weighted Average GCV of Coal	kCal/Kg	3240.67	3240.67
Weighted Average Price of Oil	₹/KL	47455.41	47455.41
Weighted Average Price of Coal	₹/MT	3494.27	3494.27
Rate of Energy Charge ex-bus per kWh sent	Paise/kWh	**280.623**	**280.623**

84. The petitioner shall be entitled to compute and recover the Annual Fixed Charges and Energy charges in accordance with Regulation 21 of the 2009 Tariff Regulations.

Application fee and the publication expenses

85. The petitioner has sought approval for the reimbursement of fee for the year 2012-13 and 2013-14 towards filing the petition and towards expenses incurred for publication of notices in connection with the petition. The petitioner by its affidavit dated 2.7.2013 has submitted an expenditure of ₹388982/- has been incurred by it for publication of notice in the newspapers.

86. In terms of Regulation 42 of the 2009 Tariff Regulations and based on our decision in order dated 11.1.2010 in Petition No.109/2009, the filing fees in respect of main petitions for determination of tariff and the expenses on publication of notices are to be reimbursed. Accordingly, the actual expenses incurred by the petitioner on application filing fees for each of

the years 2012-13 and 2013-14 and the expenses of ₹388982/- incurred towards publication of notices in connection with the present petition shall be directly recovered from the beneficiaries, on *pro rata* basis on production of documentary proof.

Increase in Water Charges

87. In addition to the above, the petitioner has prayed for consideration of expenses towards abnormal increase in Water Charges and has submitted that charges for water intake at the generating station are levied by the respective State government/State agencies. It has also submitted that various State governments have resorted to and would be resorting to manifold increase in water charges. It has further submitted that the O&M expense norms for 2009-14 are based on the actual expenditure for the period 2004-05 to 2007-08 and the provisions of the 2009 Tariff Regulations, provide only for an escalation of 5.72% per annum in O&M expenses during 2009-14. The petitioner has therefore submitted that any abnormal increase in water charges cannot be covered by the normal escalation rate. The petitioner has further submitted that in the recent past, the governments of the State of Odisha, Chhattisgarh and Madhya Pradesh respectively have resorted to abnormal increase in water charges through issuance of notifications and hence the same is beyond any control of the petitioner. The respondent GRIDCO has pointed out that the issue of increase in water charges as claimed by the petitioner in some of its other generating stations in Petition No.121/MP/2011 is pending for consideration before the Commission. It has also submitted that as tariff is a complete package, its reasonability has to be examined in its totality, as Section 61(d) of the Electricity Act, 2003 subscribe to this rationality. We have considered the submissions of the parties. The generating station is located in the State of West Bengal. It is noticed from the submissions of the petitioner that no such notification for any increase in the water charges has been issued by the State of West Bengal. In view of this, the issue raised by the petitioner is premature and there exists no reason for us to consider the claim of the petitioner on the presumption that there would be increase in water charges future. Hence, the prayer of the petitioner is rejected

88. The petitioner is already billing the respondent on provisional basis in accordance with the Commission's order dated 14.11.2011. The provisional billing of tariff shall be adjusted in terms of the proviso to Regulation 5(3) of the 2009 Tariff Regulations, amended on 21.6.2011.

89. Petition No. 204/GT/2011 is disposed of in terms of the above.

Sd/-	***Sd/-***
[M. Deena Dayalan]	**[V.S. Verma]**
Member	**Member**