

**CENTRAL ELECTRICITY REGULATORY COMMISSION
NEW DELHI**

Petition No.178/GT/2017

Coram:

Shri P.K.Pujari, Chairperson

Dr. M.K.Iyer, Member

Shri I.S. Jha, Member

Date of Order: 6th January, 2020

In the matter of

Petition for determination of tariff of Solapur Super Thermal Power Station (1320 MW) for the period from the actual date of commercial operation of Unit-I (25.9.2017) to 31.3.2019

And

In the matter of

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

....Petitioner

Vs

1. Madhya Pradesh Power Management Company Ltd
Shakti Bhawan, Vidyut Nagar,
Jabalpur 482008

2. Maharashtra State Electricity Distribution Company Ltd
Prakashgad, Bandra (East),
Mumbai 400051

4. Chattisgarh State Power Distribution Company Ltd
P.O. Sundar Nagar, Danganiya,
Raipur- 492013

5. Electricity Department,
Government of Goa, Vidyut Bhawan,
Panaji, Goa

6. Electricity Department,
Administration of Daman & Diu,
Daman- 396210

7. Electricity Department,
Administration of Dadra & Nagar Haveli,
Silvassa

...Respondents



Parties Present:

Shri Shyam Kumar, NTPC
Shri Sachin Jain, NTPC
Shri Ajay Mehta, NTPC
Shri R.K.Singh, NTPC
Shri Vinod Kumar Thota, NTPC
Shri Nishant Gupta, NTPC
Shri Anurag Naik, MPPMCL

ORDER

The Petitioner, NTPC has filed this Petition on 8.8.2017 for determination of tariff of Solapur Super Thermal Power Station (2 x 660 MW) ('the generating station/Project') for the period from the anticipated date of commercial operation of Unit-I (31.8.2017) to 31.3.2019, in terms of the Central Electricity Regulatory Commission (Terms and Condition of Tariff) Regulations, 2014 (hereinafter referred to as "the 2014 Tariff Regulations"). Thereafter, Unit-I of the generating station achieved COD on 25.9.2017 and the Petitioner vide its affidavit dated 20.9.2018 has amended the petition and revised the tariff from the date of actual COD of Unit-I (25.9.2017) till 31.3.2019, based on audited accounts up to 25.9.2017.

2. The Petitioner vide its affidavit dated 5.4.2019 has submitted that Unit-II of the generating station has achieved COD on 30.3.2019 and has filed the revised tariff forms. The Petitioner has also submitted that the capital cost as on anticipated COD of Unit/station shall be revised based on audited accounts at the time of truing-up. As the issue of time & cost overrun involved in the completion of Unit-II is also required to be examined based on the details to be furnished by the Petitioner, we are not inclined to consider the COD of Unit-II in this order. However, the Petitioner is granted liberty to approach the Commission by a separate Petition for approval of tariff from COD of Unit-II/generating station, along with relevant particulars.



3. The Investment Approval of the Project was accorded by the Board of the Petitioner Company, in its 379th meeting held on 19.3.2012, at a completed project cost of ₹10154.27 crore as of Price Level of 1st quarter 2012. The Petitioner had entered into PPAs with all the Respondent beneficiaries. The Ministry of Power, GOI vide its letter dated 23.5.2017 has allocated the power generated from this station, amongst the beneficiaries located in the Western Region as under:

State/Union Territory	Total Allocation in (MW)	Share in Installed Capacity (%)
Madhya Pradesh	295.88	22.42
Maharashtra (including home State share)	616.04	46.67
Chhattisgarh	158.89	12.04
Goa	15.09	1.14
Daman & Diu	14.53	1.10
D&N Haveli	21.57	1.63
Unallocated	198.00	15.00
Total	1320.00	100.00

4. The Petitioner has claimed tariff based on the actual expenditure incurred as on date of actual COD of Unit-I along with the projected additional capital expenditure from 26.9.2017 to 31.3.2019, in respect of the works which are within the original scope of work and to be incurred within the cut-off date. Accordingly, the Capital Cost and the Annual Fixed Charges claimed by the Petitioner vide its affidavit dated 5.4.2019 is as under:

Capital Cost

(₹ in lakh)

	2017-18	2018-19	
	25.9.2017 to 31.3.2018	1.4.2018 to 29.3.2019	30.3.2019 to 31.3.2019
Capital Cost as on COD	543150.70	-	968974.90
Add: Notional IDC	4092.08	-	4092.08
Add: FERV not taken to capital cost	(-) 3846.48	-	(-) 3846.48
Add: Unamortized bond issue expenses	332.57	-	*332.57
Opening Capital Cost	543728.86	547172.92	969553.06
Add: Additional Capital Expenditure	3444.06	7476.57	0.00
Closing Capital Cost	547172.92	554649.49	969553.06
Average Capital Cost	545450.89	550911.21	969553.06



5. The Petitioner has submitted that the claims with regard to Notional IDC, FERV and unamortized bond issue expenses above are the same as claimed as on COD of Unit-I and is subject to revision at the time of truing-up of tariff, based on the audited figures as on COD of Unit-II.

Annual Fixed Charges

(₹ in lakh)

	2017-18	2018-19	
	25.9.2017 to 31.3.2018	1.4.2018 to 29.3.2019	30.3.2019 to 31.3.2019
Depreciation	25470.37	25725.37	45274.29
Interest on Loan	26019.88	25261.08	44932.87
Return on Equity	32244.33	32654.71	57469.29
Interest on Working Capital	8101.61	8140.88	15224.80
O&M Expenses	13604.56	14317.36	26448.16
Total	105440.76	106099.42	189349.41

6. The Commission vide ROP of the hearing dated 18.12.2018 had sought certain additional information and the Petitioner has filed the same, with copy to the Respondents. Subsequently, the matter was heard on 13.3.2019 and the Commission after directing the Petitioner to file certain additional information, reserved its order in the Petition. The Respondent No.1 MPPMCL (vide affidavits dated 17.2.2018, 21.12.2018 and 11.3.2019), the Respondent No.2 MSEDCL (vide affidavits dated 6.10.2017 and 8.2.2019) and the Respondent No.4 CSPDCL (vide affidavits dated 20.12.2018) have filed their replies in the matter. The Petitioner has filed its rejoinder to the aforesaid replies. We now proceed to examine the submissions of the parties and on prudence check, determine the tariff of Unit-I of the generating station from COD till 31.3.2019, as stated in the subsequent paragraphs.

Commissioning Schedule and Additional Return on Equity

7. As stated, the Investment Approval (IA) of the Project was accorded by the Board of the Petitioner Company in its 379th meeting held on 19.3.2012, based on the current estimate cost of ₹9395.18 crore, including Interest during



Construction (IDC) and Financing Charges (FC) of ₹1623.16 crore and Working Capital Margin (WCM) of ₹215.16 crore, as of Price Level of 1st quarter 2012 and the corresponding estimated completed cost ₹10154.27 crore, including IDC & FC of ₹1747.47 crore and WCM ₹220.98 crore. The Project comprises of two Units of 660 MW each. The COD of Unit-I was 52 months from the date of IA and the COD of Unit-II after an interval of 6 months thereafter. The Petitioner has submitted that the SCOD as per IA is July, 2016 for Unit-I and January, 2017 for Unit-II/station. Accordingly, the details of actual COD of Unit-I vis-à-vis the SCOD as furnished by the Petitioner is as under:

	Investment approval (Zero date)	Scheduled Time period (months)	Schedule COD	Actual COD	Time overrun (days)
Unit-I	19.3.2012	52	19.7.2016	25.9.2017	433

8. The time schedule for completion of green field project with a unit size of 660/800 MW, as specified by the Commission in Appendix-I of the 2014 Tariff Regulations is 52 months for the first unit and subsequent units, at an interval of six months. There is a time overrun of 433 days with respect to SCOD of Unit-I as per IA accorded by the Board of the Petitioner Company. In case of Projects commissioned on or after 1.4.2014 and completed within the aforesaid time line, an additional Return on Equity (RoE) of 0.5% shall be allowed in terms of the said Regulations. As there is a time overrun of 433 days in the declaration of COD, the Petitioner is not entitled to the additional RoE of 0.5%, considered for timely completion of Project.

Time Overrun

9. As per original approved schedule, the COD of Unit-I was scheduled to be declared under commercial operation on 19.7.2016. The Petitioner vide its affidavit dated 20.9.2018 has submitted that due to reasons including delay in



Right of Use (RoU) for make-up water pipeline laying, non-availability of construction materials at site, works stoppage due to agitation by PAPs, severe drought in Solapur and certain other reasons like additional land acquisition for railway siding works, global merger of Hitachi Power Europe (HPE) etc., which were beyond the control of the Petitioner, have led to the delay of 14 months in the COD of Unit-I of the generating station. The reasons furnished by the Petitioner are as under:

- (a) Law and order and Right of Use (ROU) issue;
- (b) Work stoppage due to agitation by Project Affected Persons (PAP);
- (c) Non-availability of Sand and Moorum;
 - (i) Due to delay in mining permission.
 - (ii) Due to Strike by Stone Crushers
- (d) Reduced manpower on account of increase in minimum wages by Govt. of Maharashtra;
- (e) Severe Drought in Solapur;
- (f) Merger of Hitachi Power Europe (HPE), a JV venture partner for Execution of Boiler Package, with Mitsubishi; and
- (g) Additional Land Acquisition for Railway Siding works.

10. We now examine the submissions of the parties on the reasons of time overrun as below:

(A) Law and order and Right of Use (ROU) issue (1.8.2015 to 31.8.2016)

11. The Petitioner has submitted the following:

- (i) Makeup water requirement for the project is to be met from Ujjani reservoir on Bhima River which is at a distance of about 117 km from the project site. More than 90 % of the pipe line is passing through the private agricultural land along the length of Solapur through four different talukas. For laying the makeup water line the Right of Use (ROU) for the land was required from the State Government. As there was no ROU Act in place in State of Maharashtra, the Petitioner had to face a lot of problems in physical possession of land and laying the pipeline. The work got



delayed in view of the procedural delay, as permission of ROU kept on deferring due to heavy resistance by the farmers in laying of pipeline.

(ii) Subsequently, the work had been taken up after obtaining statutory orders by the respective tehsildars of concerned talukas, through which the pipeline is passing. Despite of having valid orders issued by the competent authorities, land owners have obstructed the work, unlawfully prevented the Petitioner and its contractors from carrying out their official duties. The matter was taken up with District Authorities on regular basis to expedite the work.

(iii) Further, the work of laying 132 kV transmission line from Solapur plant to Ujjani reservoir for makeup water pump house also got delayed on account of agitation for higher compensation by local people. The work was planned from March 2012 to June 2015, but the problem is still to be resolved. Keeping in view the readiness of the units and to avoid further delay, the unit was made operational by making contingency arrangement of power from outside.

(iv) The Makeup Water System is situated at 117 km from plant and power is planned to be fed through this arrangement from the station for uninterrupted and reliable supply, there is an additional burden of auxiliary power consumption and O&M. The delay on account of procedural delay in issuing permission on ROU by State Authority and forceful and illegal stoppage of works was beyond the control of the Petitioner and hence the delay may be condoned.

12. The Respondent MSEDCL has stated that the responsibility to acquire the land free from all encumbrances is on the Petitioner and such procedural delay and illegal stoppage of work might have been expected at the time of planning as due diligence might have been carried by them. It has also stated that the problems related to the procedural delays and illegal stoppage of works is a general problem and the Petitioner should have been well aware of such problems. The Respondent while stating that the delay may not be



allowed as force majeure has submitted that the delay as proposed by the Petitioner may not be allowed and proper due diligence is required to be undertaken to estimate the actual delay. The Petitioner has clarified that the occurrence and quantum of such delay cannot be ascertained before the happening of the event and hence not attributable to the Petitioner.

(B) Work stoppage due to agitation by Project Affected Persons (PAP)

13. The Petitioner has submitted that subsequent to starting the construction activities of this project, agitations and obstructions were faced from the local villagers who are mainly the PAP demanding higher compensation than the one which were earlier accepted by them and paid by the Petitioner. The Petitioner has also submitted that there were several events of protests, forceful stoppage of construction activity, threats to vehicles carrying materials and equipment's which caused the delay in the execution of the project. The Petitioner has further submitted that the issue was taken up at all possible level and the same persisted till the end of 2016, when the State Government has taken tough stand for its resolution after the issue was raised at PMO level. The Petitioner has submitted the documentary evidence pertaining to these protests, communication by the Petitioner to District/State Authorities.

14. The Respondent MSEDCL has stated that the responsibility to acquire the land free from all encumbrances is on the Petitioner and such procedural delay and illegal stoppage of work might have been expected at the time of planning as due diligence might have been carried by them. It has also stated that the problems related to the procedural delays and illegal stoppage of works is a general problem and the Petitioner should have been well aware of such problems. The Respondent while stating that the delay may not be



allowed as force majeure has submitted that the delay as proposed the Petitioner may not be allowed and proper due diligence is required to be undertaken to estimate the actual delay. The Petitioner has clarified that the occurrence and quantum of such delay cannot be ascertained before the happening of the event and hence not attributable to the Petitioner.

(C) Non-availability of Sand and Moorum

15. The Petitioner has submitted that the delay is due to the (i) delay in mining permission and Strike by Stone Crushers. Accordingly, the Petitioner has submitted the following:

(i) **Delay in Mining permission:** The Petitioner has submitted that the Department of Forest and Revenue, Govt of Maharashtra vide letter dated 21.1.2013 informed the Divisional Commissioner and District Collectors that approval of State Pollution Committee is necessary for obtaining the secondary mineral excavation permit as per order dated 27.2.2012 passed by the Hon'ble Supreme Court. It has submitted that in view of the above change in procedure for secondary mineral excavation following the Court Order, supplies of sand and Moorum, essential raw materials for civil construction, got affected, which delayed the civil works of SG and other associated works which in turn affected the erection works of SG & Auxiliaries. The Petitioner has further submitted that on account of the procedural delay in auctioning process, the window for clear season for sand extraction got narrowed down by 50%, which ultimately caused shortage of sand for the construction activity at site. The Petitioner has stated that the mining agencies as well as the Petitioner has followed up the matter with District Administration, on regular basis, for early resolution of the issue, but the procedural delay took more time. The process of auctioning for the year 2016-17 has also been initiated in January, 2017 and NIT for auctioning of sand area for 2016-17 was issued on 6.1.2017. The Petitioner has enclosed the Office Memorandum issued by MOEF, Govt. of India dated 18.5.2012 and the Letter from Dy.



Secretary, Revenue & Forest Department, Maharashtra dated 21.1.2013 and the correspondence made with the District administration.

- (ii) **Due to Strike by Stone Crushers:** The Petitioner has submitted that the Department of Forest and Revenue, Govt. of Maharashtra had increased the rate of Royalty for Gravel & Moorum from ₹200 per brass to ₹400 per brass vide its notification dated 11.5.2015. It has also submitted that against the above increase in rate of Royalty, the Stone Crushers Associations had called for strike from 31.10.2015 demanding the reduction of rate of Royalty. The Petitioner has further submitted that the said strike has resulted in non-availability of gravel and Moorum, which is essentially required for carrying out the civil works and the work, got delayed. Accordingly, the Petitioner has submitted that the strike resulted in complete stoppage of civil works, which was beyond the control of the Petitioner.

16. The Respondent MSEDCL has submitted that it is the responsibility of the Petitioner to explore the alternate market to procure the sand. It has also stated the delay on this count should not be allowed and details need to be provided highlighting the breakup of 14 months to assess the actual delay. The Petitioner has clarified that it had made sufficient efforts to arrange the construction materials of required technical specification for construction works at the project site and to minimize the impact of delay. It has also stated that ban on mining was enforced in many states of the country, resulting into limited availability of sand material.

(D) Reduced Manpower on account of increase in minimum wages by Govt. of Maharashtra

17. The Petitioner has submitted that during the implementation of the project, the State Govt. of Maharashtra in the month of July 2014 increased the Labour Minimum Wage from ₹278.79 to ₹391. It has submitted that the above wage hike of ₹112 was very steep in comparison to the regular hike of



₹7 to ₹8. The Petitioner has submitted that as the payment of minimum wages by agencies to the workers is a statutory requirement, the contracting agencies responded to this situation by reducing the manpower, and/or stopping wage payments, which was highly unprecedented event. This according to the Petitioner severely impaired the progress of work which was in full swing, hampering the momentum & pace of works.

18. The Respondent MSEDCL has submitted that engaging enough manpower for completion of work is the responsibility of the Petitioner and hence, the delay may not be allowed. The Petitioner has clarified that the cost of work package is envisaged on certain assumptions including manpower cost. It has submitted that the hike in minimum labour wage by 45% led to cash crunch with the contractor and posed threat to the execution of the package. The Petitioner has stated that the delay due to wage hike was not in the control of the Petitioner nor envisaged beforehand.

(E) Severe Drought in Solapur

19. The Petitioner has submitted that the average rainfall of Solapur is 545.4 mm. It has submitted that severe drought conditions prevailed in 3 (three) out of 4 years from 2012 to 2015 and this was the period when major construction activities had to be taken up. The Petitioner has also submitted that the State Govt. of Maharashtra had declared 'drought' in most of its villages (approx. 15000 villages in 2015 and 29000 villages in 2016), during the said period. The Petitioner has further stated that water required for construction activity had to be arranged through tankers and the limited water availability led to steady and continuous delay in the progress of civil works where large requirements of water exist. The Petitioner has stated that in view of this acute water shortage, approval for drawing water from



Lamboti branch canal during monsoon was sought and was sanctioned, however the same could not be utilized due to non-availability of water in the Lamboti Branch canal and negative water levels in Ujjani dam. The Petitioner has pointed out that the construction works suffered heavily during the period 2012-2015 on account of water shortage due to drought condition. The Petitioner has added that the water required for hydro test of the boiler had to be arranged through tankers & converted to RO water, which was time consuming and this led to delay in hydro test of Unit I Boiler.

20. The Respondent MSEDCL has submitted that the Commission may review the actual scenario and accordingly decide on its allowance/ disallowance on force majeure. The Petitioner has clarified that the delay may be condoned as the drought conditions were also notified by the Govt. of Maharashtra. It has added that the Respondent has acknowledged the non-availability of water in Lamboti branch Canal and negative water level in Ujjaini dam as force majeure events.

(F) Merger of Hitachi Power Europe (HPE), a JV venture partner for Execution of Boiler Package, with Mitsubishi

21. The Petitioner has submitted the following:

- (a) With a view to induct Supercritical technology and to create indigenous manufacturing facilities in India through transfer of technology in the Power Sector, Government of India had directed the Petitioner to invite Bulk Tenders for 11 Power units of 660 MW and 9 units of 800 MW for Steam Generator (SG) and Stream Turbine Generator (STG) packages. Under the above Bulk Tenders, the bidders were required to set up an Indian manufacturing facility with the Qualified Steam Generator Manufacturer (QSGM)/ Qualified Steam Turbine Generator Manufacturer (QTGM) or augment its existing facilities, as the case may be.



- (b) Accordingly, BGR Energy Systems Limited partnered with Hitachi Thermal Power Europe, Germany (HPE, 100% subsidiary of Hitachi for Europe) as QSGM for SG Package for the aforementioned bids. As per bid conditions, BGR Energy limited entered into Deed of Joint Undertaking (DJUs) with HPE to ensure the successful performance of contracts including successful implementation of phase manufacturing program.
- (c) Subsequent to the bid process, BGRE was awarded SG package for the Project in the year 2012. Meanwhile, the thermal power generation systems business involving Hitachi group (HL) and Mitsubishi group (MHI) were merged globally w.e.f. 1.2.2014 and all the assets of HPE (the employees, intellectual property etc.) have been transferred to newly incorporated company i.e. Mitsubishi Hitachi Power Systems (MHPS). As a result, HPE was rendered as mere shell company for Thermal Power Generation business and are completely dependent on MHPS (being the new technology provider) for execution of the contract, which was beyond the provisions of the Bid Documents, DJU and the Contract agreement.
- (d) The Petitioner insisted upon MHPS through HPE and BGRE to step into the share of HPE to execute the contract by executing Deeds of Joint Undertaking and other documents. Despite all out efforts, no steps have been taken by the entities to address the Petitioner's concerns. The issue had been taken up with the Government of Japan through Embassy of Japan at Delhi. The merger had posed many difficulties in execution of the works. Owing to this, even the manufacturing and supply of equipment/spares/materials were affected adversely and actual hydro test could be performed in December, 2015 vis-a-vis schedule of March, 2015.
- (e) All other subsequent activities also got delayed due to this occurrence of global merger of business entities. The system returned to normalcy when the issue was resolved after rigorous follow up by the Petitioner and intervention of Government of India, and signing of tripartite agreement among Hitachi ltd., Mitsubishi Hitachi Power System ltd.



(MHPS) and BGR Energy System Limited (BGRE) on 19.2.2016, wherein M/s Hitachi/HPE have been granted exclusive, royalty-encumbrance-hindrance free right to use technologies in India through BGR-Hitachi JV. The delay on account of inconclusiveness arose due to global merger of Hitachi Power with Mitsubishi Hitachi Power Systems Ltd. (MHPS) and its impact on execution of the works by BGR- HPE was not attributable to NTPC.

22. The Respondent MSEDCL has submitted that the Commission may review the actual scenario and accordingly decide on its allowance/disallowance on force majeure. The Petitioner has clarified that the merger of two entities was a global occurrence and neither the Petitioner nor its contractor had any control over the event and the after effects of the event. The Petitioner has stated the reason of delay was beyond the control of the Petitioner and hence cannot be made attributable to the Petitioner.

(G) Additional Land Acquisition for Railway Siding works

23. The Petitioner has made the following submissions:

(a) The Railway Siding works/ Coal Transportation system for the Project was awarded to M/s IRCON on 1.6.2012 from concept to commissioning including the preparation of DPR, Engineering and execution of works within 24 months. The draft DPR was submitted to Solapur division of Central Railways (CR/SUR) on 10.9.2012 and same was forwarded on 9.2.2013 by CR/SUR to Central Railways Headquarter, Mumbai. Land acquisition process was planned based on the Engineering Scale Plan (ESP) of draft DPR.

(b) However, CR/HQ/Mumbai advised to revise the ESP considering take-off point from Tilati station based on their observations. After a lot of deliberations by NTPC/IRCON, ST/HQ, Mumbai advised to resubmit the DPR and ESP on 22.4.2013 with take-off point from Hotgi station. Final DPR approved by CR/HQ, Mumbai on 14.1.2014. Additional land was required as per revised layout of railway siding works.



(c) The process of land acquisition started after revision of Engineering Scale Plan (ESP) resulting in the delay for completion of Railway Siding works. Further, clearance of Commissioner Railway Safety (CRS), Mumbai was also required. After the visit of CRS on 21.7.2015, modifications were suggested by CRS regarding design of Rail Under Rail Bridge (RURB) and the same were incorporated in the design of RURB and the construction of the same could be started after CRS clearance. This resulted in further delay in the completion of railway siding works. Due to modifications in ESP, approval from Central Railway and excessive lengthy process, the overall package got delayed by approximately 28 months.

24. The Respondent MSEDCL has submitted that delay of 28 months may not be allowed. The Petitioner has clarified that the delay in execution of railway siding works was beyond the control of the Petitioner as the implantation of the same was required to be approved at various/multiple levels in railways due to safety and other requirements. The Respondent, MPPMCL has submitted that IDC & IEDC shall not be allowed for the period beyond the scheduled timeline on account of any reason whatsoever and the prayer of the Petitioner for condonation of delay may be disallowed. The Respondent, CSPDCL vide its reply affidavit dated 20.12.2018, submitted that the various reasons furnished by the Petitioner for delay in COD of the projects are not tenable and the delay is only attributable to the Petitioner. It has also submitted that the Respondents are not at all responsible for the delay and hence IDC and IEDC on account of delay should not be allowed to be capitalised as the work got delayed due to poor planning and improper execution on the part of the Petitioner.



Time Overrun - Analysis and Decision

25. The reasons, as submitted by the Petitioner, which affected the project progress and caused the delay of 433 days in commissioning of the Unit - I from the original schedule, are analyzed as follows:

(A) Law and order and Right of Use (ROU) issue (1.8.2015 to 31.8.2016)

26. The Petitioner has submitted that the makeup water pipe line laying work was adversely affected, as ROU and ROW Act was not in place in State of Maharashtra. The Petitioner has also submitted that it had put a lot of efforts to get approval for ROU and ROW which in turn delayed the work of laying of pipe line and transmission line for makeup water system by almost a year. Matter was pursued by Petitioner with Distt Administration vide letter dated 29.6.2015, 8.10.2015, 27.11.2015, 4.4.2016 and FIR was filed against agitation on 9.6.2016. It has stated that the scheduled commissioning of makeup water pipeline was August 2015, however, the same was completed in August 2016. The Respondents in their replies have submitted that the delay due to above reason cannot be considered as force majeure and the Petitioner cannot be compensated for the same.

27. We have examined the matter. It is observed that ROU & ROW Act was not in place in the State of Maharashtra. The Petitioner had faced lot of resistance from the local population in getting the physical possession of the land. Moreover, the land owners obstructed the work, unlawfully and prevented the Petitioner and its contractors from carrying out their official duties. It is also observed that the Petitioner had taken up the matter with the District Authorities, on regular basis, to expedite the work. Accordingly, we are of the view that time elapsed in getting the statutory approval and therefore its impact on the project execution, in our view, was beyond the



control of the Petitioner. As such, we are inclined to condone the delay occurred in project commissioning due to above said issue.

(B) Work stoppage due to agitation by Project Affected Persons (PAP) [1.6.2013 to 31.7.2013, 1.7.2014 to 31.12.2014 and 1.9.2016 to 31.12.2016]

28. The Petitioner has claimed that project got delayed due to agitation by PAPs for want of higher compensation. The Petitioner has submitted that three incidents of PAPs agitation had mainly delayed the project execution work for approximately 12 months. It has stated that the agitation by PAPs was not only limited to blockades, threats etc., however, incidents of physical assault to the labourers also happened. According to the Petitioner, these incidents spread the fear among the workers and contractors and resulted in reduction of workforce deployed at site. Further, the reduction in manpower had delayed the project execution. The Respondents have submitted that dealing with PAPs is sole responsibility of the Petitioner and the Petitioner cannot be compensated for its inefficiencies.

29. The matter has been considered. It is observed from the submissions of the Petitioner that PAPs had threatened not only the contractual labourers but also the personnel of the Petitioner Company. Petitioner has pursued the matter with District Administration on regular basis for resolution. It is also noticed that the issue was pursued by the Petitioner at the level of Prime Minister's office for resolution. It is therefore evident that the Petitioner had taken all measures to mitigate the problems. In this background, we hold that the delay on this ground was for reasons which were beyond the control of the Petitioner.



(C) Non-availability of Sand and Moorum [1.12.2012 to 31.3.2013 and 1.1.2014 to 30.4.2014]

30. The Petitioner has submitted that the change in allocation procedure of secondary mineral mining and increase in royalty on gravel & Moorum affected the availability of sand & gravel. Accordingly, the Petitioner has submitted that for some period, sand, gravel and other raw material were not available for construction work, which retarded the project progress a number of times during the years 2013 to 2015. The Respondents in their replies have submitted that arrangement of construction material is responsibility of the Petitioner and for this reason, the Petitioner cannot be compensated.

31. The matter has been examined. It is noticed that the Petitioner along with Contractors had pursued the matter with the State Government in order to expedite the timely availability of the Sand & Moorum. However, the revised allocation process, based on the Court order, had taken some time, which in our view, was not within the control of the Petitioner. Accordingly, based on the above submissions, we hold that the delay due to allocation process was beyond the control of the Petitioner.

(D) Reduced Manpower on account of increase in minimum wages by Govt. of Maharashtra

32. The Petitioner has submitted that the project work was hampered due to steep increase in minimum wages by State Government in July 2014. It has also submitted that the project work was hampered as the contractors had reduced the manpower deployed at the site. The Respondents have submitted that there is no justification for the delay and the Petitioner may not be compensated for the same.



33. The matter has been considered. It is noticed that the contractors working at the project site had reduced the manpower and the Petitioner had pursued with the agencies for augmentation of manpower in order to expedite the project work. In our view, the sudden increase in minimum wages by the State Government and the consequent reduction in manpower by the contractors had caused delay in the project work and the same was beyond the control of the Petitioner.

(E) Severe Drought in Solapur [1.6.2012 to 31.7.2012, 1.7.2013 to 31.7.2013, 1.6.2014 to 31.7.2014 and 1.6.2015 to 31.7.2016]

34. The Petitioner has submitted that the rainfall in Solapur region was about 545 mm during project execution years which was less than the normal rainfall. It has also submitted that the drought in the region resulted into non-availability of water in the month of June & July during the years 2012 to 2015. The Petitioner has stated that it had pursued the matter with the concerned authorities for release of water from Lamboti Branch canal in the year 2015, but water could not be released due to negative water levels in Ujjani dam. The Respondents have submitted that the reason for the delay was not beyond the control of the Petitioner and the arrangement of water for construction is the responsibility of the Petitioner. The Respondents have also submitted that the Petitioner should have had prior information about the water availability in the region before setting up the plant.

35. The matter has been considered. It is observed that State Government had notified the drought condition in the State and the Petitioner had put in lot of efforts to arrange water for construction activities from available resources. In our view, the delay caused due to scarcity of water on account of drought was beyond the control of the Petitioner.



(F) Merger of Hitachi Power Europe (HPE), a JV venture partner for Execution of Boiler Package, with Mitsubishi [1.3.2015 to 31.12.2015]

36. The Petitioner has submitted that due to Global merger of Hitachi and Mitsubishi, design / manufacturing and supply of equipment / associated systems in the scope of BGRE got affected and boiler components / spares could not be supplied as per schedule. The Petitioner had raised the issue at the level of GOI, which in turn pursued the case with Govt. of Japan for resolution and expediting the supplies. According to the Petitioner, this issue could be resolved in a period of two years but impact of this on project execution is around 10 months. The Respondents have submitted that the delay due to the above reason is attributable to the Petitioner and cannot be considered as reason beyond control of the Petitioner.

37. The matter has been examined. We notice that the Petitioner had made correspondences with the Embassies of India and Japan, the Ministry of External Affairs, GOI and Ministry of Power, GOI and had actively pursued the matter with regard to the non-availability of boiler material due to the global merger of the Japanese companies. Delay in supply of material by the contractor due to merger and other issues are contractual issues among the Petitioner and its contractors. We are of the view that Petitioner had to keep sufficient provisions in their contracts to handle such issues which arose during execution of the project. Accordingly, we are not inclined to condone the delay on this count.

(G) Additional Land Acquisition for Railway Siding works [1.3.2016 to 31.8.2016]

38. The Petitioner has submitted that Engineering Scale Plan (ESP) was revised by the Railways and due to revision in ESP, additional requirement of land arose. It has also submitted that due to additional land acquisition as per



revised ESP it took more time to start the railway siding work. The Petitioner has stated that due to initial delay in approvals and land acquisition, delayed the completion of project by 28 months. The Respondents have submitted that the Petitioner may not be compensated for delay on this count.

39. In our view, the Railway siding work is an independent activity and the same could have been expedited by the Petitioner by taking more efforts. Accordingly, we are not inclined to condone the delay on this count.

40. We have in the above paras examined the grounds for time overrun. However, to work out the allowable delay due to the aforesaid reasons, there is a need to further analyse the major milestone activities, which got delayed due to the reasons furnished by the Petitioner.

41. We now analyse the progress of the project, based on the milestone activities identified by the Petitioner at the start of the project as under:

Sl. No.	Description	Scheduled	Actual	Delay (days)
1	Boiler Erection Start	19.5.2013	19.5.2013	-
2	Boiler Hydro Test	19.3.2015	20.12.2015	276
3	Boiler Light up	19.10.2015	19.8.2016	305
4	Synchronization	20.3.2016	26.3.2017	371
5	Full Load	19.5.2016	7.4.2017	323
6	COD	19.7.2016	25.9.2017	433

42. The Petitioner has submitted that due to delay in getting ROU approval by the State Government as the ROU / ROW Acts were not in place in the State of Maharashtra, makeup water pipe line & makeup water pump house transmission line work were adversely affected from August 2015 to August 2016 (ROU) and July 2015 to August 2016 (ROW). However, the effective delay claimed by the Petitioner due to delay in getting approval of ROU / ROW is from October 2015 to August 2016. The Petitioner has also submitted



that the delay due to above reason was not under the control of the Petitioner. We observe that delay in laying of makeup water pipe line and transmission line for makeup water pump house impacted the availability of water for synchronization / commissioning of the system. We observe that Boiler hydro test (2nd milestone of the project) was achieved by the Petitioner by arranging the water from other sources as limited water is required for the Hydro Test. After Boiler light up regular water availability is predominant requirement for successful commissioning of the system and to declare the commercial operation of the generating unit. Boiler light up could be achieved on 19.8.2016 instead of scheduled planned date of 19.10.2015 with a delay of 305 days. Considering the fact that Petitioner has taken all measures, including regular follow up with District authorities for normalizing the aggravated situation caused by farmers and villagers who were resisting the work of laying Makeup Water Line and transmission line, we are of the view that the delay which occurred in achieving the Boiler Light Up was beyond the control of the Petitioner, hence, the delay of 305 days up to the milestone activity is condoned. The revised schedule for Boiler Light Up, after condonation of the said delay is worked out as 19.8.2016. Consequent upon this, the adverse effect on project execution due to other reasons such as agitation by PAP's, non-availability of sand, Moorum, strike by stone crusher, effect of drought also gets subsumed in the condoned delay of 305 days.

43. The Petitioner has stated that additional land acquisition for Railway siding had affected the progress of the Project thereby causing delay for a period of six months (March 2016 to August 2016). It is noticed that the completion date of Railway siding is 31.8.2016 i.e. 12 days after the boiler light up. In our considered view, the requirement of additional land for



Railway siding, the changes/modification etc., in design are activities which are independent to the activities related to completion of the Project. Even otherwise, since the boiler light up was already achieved on 19.8.2016, there is no reason to condone any further delay due to the activities related to Railway siding works.

44. Though synchronization of Unit-I was scheduled after 153 days from BLU, the same could be achieved on 26.3.2017 after a period of 219 days. The Petitioner has attributed this to the agitation by PAPs which affected the work from September 2016 to December 2016. It is noticed that the Petitioner had pursued the matter with the State Authorities for resolution of the same. The Petitioner has pointed out that due to agitation by PAPs there were several events of protests, forceful stoppage of construction activity, threats to vehicles carrying materials and equipment's including the contractual labourers and the employees of the Petitioner, which caused the delay in the execution of the project. In view of this, we are of the view that the said delay was an uncontrollable factor and the Petitioner cannot be made responsible for the delay. Accordingly, we condone the further delay of 66 days in achieving the synchronization of Unit-I. As stated, the total time taken from BLU till synchronization of Unit-I is 219 days, as the synchronization was achieved on 26.3.2017. As such, the delay of 371 days up to the synchronization of Unit-I has been condoned.

45. As per milestone chart Full Load from the synchronization to be achieved within 60 days. This milestone was achieved by the Petitioner on 7.4.2017, i.e within 12 days from synchronization. By achieving the full load in 12 days as against the permitted time of 60 days, the condonation of delay till



synchronization gets reduced by 48 days and hence the delay condoned till full load achievement is 323 days (371 days - 48 days).

46. The time envisaged as per milestone activity chart for achieving COD of Unit - I from full load is 61 days. However, the actual time taken by the Petitioner is 171 days. It is evident from the milestone activity chart that there was no external reason which affected the progress of the work during that period. The Petitioner has also not furnished any reason for this delay. Therefore, in our view, the Petitioner had to achieve this milestone within the stipulated time of 61 days. Accordingly, this delay which had occurred in achieving the COD of Unit-I has not been condoned. Accordingly, the revised date of COD is 7.6.2017 (full load on 7.4.2017 *plus* 61 days).

47. Based on the above discussions, the delay in milestone-wise activity claimed by the Petitioner and the delay condoned are summarized as follows:

Description	Scheduled	Actual	Delay claimed (days)	Delay condoned (days)	Revised date of after condonation of delay
Boiler Erection Start	19.5.2013	19.5.2013	-	-	19.5.2013
Boiler Hydro Test	19.3.2015	20.12.2015	-	-	19.3.2015
Boiler Light Up	19.10.2015	19.8.2016	305	305	19.8.2016
Synchronization	20.3.2016	26.3.2017	371	371	26.3.2017
Full Load	19.5.2016	7.4.2017	323	323 (371-48)	7.4.2017
COD	19.7.2016	25.9.2017	433	323	7.6.2017

48. The Petitioner has submitted that Unit-I had achieved COD on 25.9.2017 with a delay of 433 days from the original schedule, as claimed by the Petitioner. However, the delay of 323 days has only been condoned for the reasons stated above. Accordingly, the revised SCOD /actual COD for the generating station is as under:



	SCOD	Time Overrun condoned (days)	Revised SCOD	Actual COD	Time Overrun disallowed (days)
Unit-I	19.7.2016	323	7.6.2017	25.9.2017	110

Cost Overrun

49. The Petitioner has submitted that it has incurred an expenditure of ₹612915.37 lakh, on accrual basis, for Unit-I, including common facilities and estimated expenditure of ₹991757 lakh till the cut-off date of generating station as against the IA for ₹1015426.40 lakh. As such, the Petitioner has submitted that considering the total estimated expenditure, no cost overrun is involved in the Project as compared to investment approval. It is observed that the expenditure till the COD of Unit-I (25.9.2017) works out to 61.80% of the estimated expenditure till the cut-off date of the station. Considering the fact that the expenditure till COD of the Unit-I includes the cost of common facilities, Land & R&R and Township etc., the percentage expenditure of 61.80% till Unit-I is considered reasonable. Considering the fact that the time overrun of 110 days has not been condoned, the cost impact with respect to IEDC/IDC for the period of 110 days is adjusted for working out the capital cost for the purpose of tariff.

Capital Cost

Actual Capital Cost as on COD of Unit-I (25.9.2017)

50. The details of the capital cost claimed by the Petitioner, as on COD of Unit-I is as under:

(₹ in lakh)	
Particulars	
Gross Block (as per IND AS) for the Project as on COD of Unit-I*	611686.85
Add: IND AS adjustment to the Gross Block as on COD of Unit-I	1228.52
Gross Block as per IGAAP (i.e. historical cost basis), pertaining to the Project, as on COD of Unit-I (on accrual basis)	612915.37
Less: Un-discharged liabilities included above	69764.67
Gross Block as per IGAAP pertaining to the Project, as on COD of Unit-I (on cash basis)	543150.70
Add: Notional IDC	4092.08



Less: FERV not taken to Capital Cost / charged to revenue	(-)3846.48
Add: Unamortized bond issue expenses	332.57
Capital cost claimed as on COD of Unit-I	543728.86

**Duly certified by the Auditor*

51. The auditor certified capital cost, on accrual, as well as cash basis, amounting to ₹612915.37 lakh and ₹543150.70 lakh as on COD of Unit-I, includes IDC & FC amounting to ₹79131.72 lakh and loan FERV amounting to ₹7747.63 lakh. Accordingly, the hard cost component of capital cost as on COD of Unit-I works out to ₹526036.02 lakh on accrual basis and ₹456271.35 lakh on cash basis. Further, the hard cost (on cash as well as accrual basis) includes IEDC amounting to ₹37778.93 lakh as on COD of Unit-I. However, considering the details of IEDC as furnished by the Petitioner, the allowable IEDC works out to ₹29072.69 lakh. On perusal of Form-5B, it is observed that the capital cost as on COD of Unit-I, includes expenditure towards Contingency amounting to ₹3625.55 lakh, on accrual basis and ₹3598.49 lakh on cash basis. The provisions of the 2014 Tariff Regulations do not provide for admissibility of any expenditure towards Contingency, the amount of ₹3598.49 lakh (₹3625.55 lakh on accrual basis *minus* corresponding un-discharged liabilities of ₹27.06 lakh) is not allowed, on cash basis. Accordingly, the hard cost considered for the purpose of tariff, as on the COD of Unit-I, works out to ₹443966.62 lakh (net of un-discharged liabilities amounting to ₹69737.61 lakh).

52. We now proceed to examine the Petitioner's claim for IDC & FC, FERV, Notional IDC, FERV charged to revenue and Un-amortized bond issue expenses as shown under:

(a) **IDC & FC**- The Petitioner has claimed IDC & FC amounting to ₹79131.72 lakh as on the COD of Unit-I. However, considering the details of draws, repayments and rate of interest applicable to each loan, the



allowable IDC and FC, as on the COD of Unit-I works out to ₹68392.87 lakh. Accordingly, the IDC & FC to be deducted as on COD of Unit-I works out to ₹10738.85 lakh.

(b) FERV-The Petitioner has claimed FERV on loan amounting to ₹7747.63 lakh as on COD of Unit-I. Considering the details of drawls, repayments and exchange rates, the same is found to be in order and has accordingly been allowed for the purpose of tariff.

(c) Notional IDC-The Petitioner has claimed Notional IDC amounting to ₹4092.08 lakh as on COD of Unit-I. There is no provision under the 2014 Tariff Regulations for allowing Notional IDC. However, Regulation 9(2)(b) of the 2014 Tariff Regulations provides for allowance of Normative IDC (over and above actual IDC). Accordingly, considering the quarterly debt-equity position corresponding to actual cash expenditure, the allowable Normative IDC (over and above actual IDC) works out to ₹843.63 lakh as on COD of Unit-I.

(d) FERV charged to revenue-The Petitioner has claimed an amount of (-) ₹3846.48 lakh towards FERV charged to revenue [₹932.46 lakh pertaining to loan FERV charged to revenue post 1.4.2016 and (-) ₹4778.94 lakh pertaining to short-term FERV charged to revenue pertaining to package FERV, as on COD of Unit-I]. On perusal of the statement showing details of FERV calculations, it is observed that FERV amounting to ₹932.46 lakh was charged to revenue prior to COD. As per consistent methodology adopted by the Commission, FERV charged to revenue upto COD is allowed as part of capital cost for the purpose of tariff. Accordingly, the Petitioner's claim under this head is found to be in order and is therefore allowed.

(e) Un-amortized Finance Cost-The Petitioner has claimed ₹332.57 lakh as the un-amortized bond issue expenses corresponding to loan drawn after 1.4.2015. The Petitioner has submitted that in the erstwhile IGAAP, loan issue expenses paid upfront were accounted as and when incurred and the same used to be claimed as part of IDC, however under IND AS the upfront bond issue expenses is to be amortized over the tenure of loan resulting in part capitalization of IDC. It appears



from the Petitioner's submission that the claim under this head is on account of differential treatment of upfront fees under IND AS and IGAAP. Further, the claim under this head is over and above the auditor certified (cash) capital cost (as per IGAAP) amounting to ₹543150.70 lakh. Since, the auditor certified cash capital cost of ₹543150.70 lakh is as per IGAAP, any further adjustment to the same on account of IND AS adjustment, without proper documentation/justification, is not justifiable. Hence, the Petitioner's claim under this head has been ignored for the purpose of tariff and the same will be considered at the time of truing up of tariff, based on the documents to be furnished by the Petitioner.

53. Based on the above discussions, the capital cost allowed as on COD of Unit-I works out to ₹517104.26 lakh.

Initial Spares

54. Regulation 13 of the 2014 Tariff Regulations provides as under:

"13. Initial Spares: Initial spares shall be capitalized as a percentage of the Plant and Machinery cost up to cut-off date, subject to following ceiling norms:

- (a) Coal-based/lignite-fired thermal generating stations - 4.0%*
- (b) Gas Turbine/Combined Cycle thermal generating stations - 4.0%*

Provided that

i. where the benchmark norms for initial spares have been published as part of the benchmark norms for capital cost by the Commission, such norms shall apply to the exclusion of the norms specified above:

ii. for the purpose of computing of initial the cost spares, plant and machinery cost shall be considered as project cost as on cut-off date excluding IDC, IEDC, Land Cost and cost of civil works. The transmission licensee shall submit the break-up of head wise IDC & IEDC in its tariff application."

55. The Respondent, CSPDCL has submitted that the Petitioner has claimed initial spares of ₹257.24 crore as on cut-off date as against the allowable initial spares of ₹254.35 crore as per the 2014 Tariff Regulations. We notice that Respondent No. 3 has considered the cut-off date cost of the Unit-II/station for the purpose of calculation of allowable spares, however, in the



instant order, we are dealing the claim of the Petitioner with regard to COD of Unit-I only. The submission of the Respondent, CSPDCL shall be considered while dealing with the tariff of the station.

56. The Respondent MPPMCL in its reply has submitted that as per Form-5B, the allowable initial spares work out to ₹6644.32 lakh as per cost of “Plant and Machinery” and the same works out to ₹182.03 crore as per cost of “Plant and Machinery” indicated at Form 11 (form related to depreciation). Petitioner in its rejoinder has filed that the cost of initial spares claimed is well below the allowable limit as per 2014 Tariff Regulation. Further, Petitioner has submitted that the water treatment plant and Coal handling plant are the integral part of the Plant & Machinery of the station and the capital cost of the same needs to be included while claiming the cost of initial spares allowable as per Regulation. In this regard, as deliberated in the following para, we observe that Petitioner’s claim of ₹62.69 crore with regard to cost of initial spares is well within the allowable cost of initial spares as per 2014 Tariff Regulations which has been calculated based on cost of “Plant and Machinery” as submitted by the Petitioner at Form-5B.

57. The cost of initial spares claimed by the Petitioner as on the actual COD of the Unit-I (25.9.2017) is ₹6269.50 lakh, which works out to 2.16% of the Plant & Machinery cost of ₹290196.24 lakh after excluding cost of land included by the Petitioner in cost of “Plant and Machinery”. As such, the cost of initial spares claimed by the Petitioner is within the ceiling limit specified under the 2014 Tariff Regulation, the same is allowed to be capitalized. Hence, the cost of initial spares as claimed by the Petitioner is allowed. The Petitioner is however directed to furnish the details of initial spares



capitalized up to the cut-off date, at the time of truing-up of tariff of the generating station.

Sale of infirm power from synchronization upto COD of Unit-I

58. The Petitioner in Form-5B to the amended petition has submitted that the net amount of ₹15289.24 lakh has been borne by the Petitioner towards pre-commissioning expenses and the same is after adjustment of revenue earned from sale of infirm power for ₹1666.95 lakh, as on the COD of Unit-I

59. The Respondent MPPMCL submitted that the startup fuel cost claimed by the Petitioner ₹152.89 crore is exorbitantly high which is sufficient for energy generation for 45 days from the instant unit at normative plant load factor. Petitioner in its rejoinder has submitted that for ensuring uninterrupted and reliable power supply to beneficiaries during operation, units require multiple start-ups during testing, commissioning and trail operation. Audited detailed breakup of the pre commissioning expenses has already been submitted to the Commission.

60. In this regard, the Commission is of the view that pre-commissioning expenses not only include the cost of fuel used for testing and commissioning but also for steam blowing and fuel used during multiple startups to weed out the initial technical problems and teething troubles at variable loads. Further, based on the fact that the figures related to cost incurred on pre-commissioning expenses including start up fuel and revenue earned from sale of infirm power have been audited by statutory auditor, we do not find any reason for further adjustment in capital cost on account of cost of startup fuel/ sale of infirm power.



Additional Capital Expenditure

61. Regulations 14 (1) of the 2014 Tariff Regulations provides as under:

“14. Additional Capitalization and De-capitalization:

(1) The capital expenditure in respect of the new project or an existing project 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 recognized to be payable at a future date;

(ii) Works deferred for execution;

(iii) Procurement of initial capital spares within the original scope of work, in accordance with the provisions of Regulation 13;

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

(v) Change in law or compliance of any existing law:

Provided that the details of works asset wise/work wise included in the original scope of work along with estimates of expenditure, liabilities recognized to be payable at a future date and the works deferred for execution shall be submitted along with the application for determination of tariff.”

62. The Petitioner has claimed additional capital expenditure for ₹3444.06 lakh for the period from 25.9.2017 to 31.3.2018 and ₹7476.57 lakh for the period from 1.4.2018 to 29.3.2019 on projected basis, in respect of assets/works which are within the original the scope of work under Regulation 14(1)(ii) of the 2014 Tariff Regulations such as Steam Generator Island, Turbine Generator Island, CW system, Ash handling system, Coal handling plant etc. The Respondent MPPMCL submitted that as per the MOFECC notification 100% ash utilization is mandatory by the power generating station. Petitioner has claimed additional capital expenditure of ₹1200 lakh during 2017-19 towards ash handling system, further, Respondent MPPMCL has submitted that the Petitioner has projected expenditure of ₹224.81 crore upto cut-off date for ash handling system. MPPMCL does not agree with the Petitioner's claim towards ash handling system. Petitioner has submitted that the projected capitalization upto cutoff date is ₹194.51 crore and not ₹224.81



crore as mentioned by the Respondent MPPMCL. Petitioner has submitted that the 2014 tariff regulation also recognize the expenditure towards ash handling / pond and have kept separate provision for claiming the expenditure under this head even after cutoff date with heading “ deferred works relating to ash pond or ash handling system in the original scope of work.”

63. It is observed that the projected additional expenditure claimed for ₹3444.06 lakh for the period from 25.9.2017 to 31.3.2018 and ₹7476.57 lakh for the period from 1.4.2018 to 29.3.2019 for unit-I is for works under the original scope of the project and is within the cut-off date of the generating station, accordingly, the same is allowed under Regulation 14 (1) (ii) of the 2014 Tariff Regulations. The Petitioner is however directed to furnish the asset-wise details of the actual capital expenditure incurred along with the liabilities discharged for items within the original scope of work, along with the documentary evidence, duly certified by Auditor, at the time of truing-up of tariff in terms of Regulation 8 of the 2014 Tariff Regulations. Submission of the Respondent, MPPMCL on additional capital expenditure till cut-off date shall be considered at the time of deciding the tariff of Unit-II/ station.

Actual Capital Cost as on COD of Unit-II (30.3.2019)

64. The Petitioner has claimed expenditure of ₹969553.06 lakh as on the COD of Unit-II (30.3.2019), on projected basis, and has stated that the same shall be revised at the time of truing up of tariff, based on actual audited accounts. We have in para 2 of this order decided that the COD of Unit-II/generating station is not being considered. Therefore, the Petitioner’s claim under this head has not been considered. The Petitioner is granted liberty to claim these amounts in the tariff Petition to be filed for approval of tariff from COD of Unit-II/generating station.



Projected additional capital expenditure from COD of Unit-II/Station to 31.3.2019

65. The Petitioner has not claimed any projected additional capital expenditure for the period from COD of Unit-II/station (30.3.2019) till 31.3.2019. Hence, not considered in this order

Reasonableness of Capital Cost

66. The Petitioner has submitted that it has incurred an expenditure of ₹612915.37 lakh, on accrual basis, for Unit-I, including common facilities and estimated expenditure of ₹991757 lakh till the cut-off date of generating station as against the IA for ₹10154426.40 lakh (₹7.69 crore/MW). As such, the Petitioner has submitted that considering the total estimated expenditure, no cost overrun is involved in the Project as compared to investment approval.

67. We now examine the reasonableness of the projected capital cost of the generating station as on cut-off date as claimed by the Petitioner at Form-5B. The comparison of the said capital cost with the benchmark capital cost specified by the Commission is as under:

	Units I & II
Hard cost as on cut-off date as per Form 5B without IDC, FC (₹ in crore)	8494.32
Hard cost (₹ in crore/MW)	6.44
Benchmark capital cost (December, 2011)	5.01

68. There is a gap of 7 years (approx.) between December, 2011 and March, 2019. Considering the gap, the yearly escalation in the hard cost works out to be 3.66% (approx.). Since, the hard cost of the generating station as on 2019 is being compared to the 2011 price level, the increase in the capital cost of the project appear very reasonable.



Capital Cost for the tariff period 2014-19

69. In view of above, the capital cost approved for the purpose of tariff, subject to true-up is as under:

(₹ in lakh)

	2017-18	2018-19	
	25.9.2017 to 31.3.2018	1.4.2018 to 29.3.2019	30.3.2019 to 31.3.2019
Opening Capital Cost	517104.26	520548.32	528024.89
Add: Projected additional capital expenditure	3444.06	7476.57	0.00
Closing Capital Cost	520548.32	528024.89	528024.89
Average Capital Cost	518826.29	524286.60	528024.89

*

Debt-Equity Ratio

70. Regulation 19 of the 2014 Tariff Regulations provides as under:

“19. Debt-Equity Ratio

(1) For a project declared under commercial operation on or after 1.4.2014, the debt-equity ratio would be considered as 70:30 as on COD. 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:

i. where equity actually deployed is less than 30% of the capital cost, actual equity shall be considered for determination of tariff:

ii. the equity invested in foreign currency shall be designated in Indian rupees on the date of each investment:

iii. any grant obtained for the execution of the project shall not be considered as a part of capital structure for the purpose of debt : equity ratio.”

71. Considering the details of cash expenditure as submitted at Form-14A and the net loan position as on COD of Units-I, the debt-equity ratio as on COD of Unit-I works out to **67.88:32.12**, which is within the normative norm of **70:30**. As such, the debt-equity ratio of 70:30 has been considered for the purpose of tariff as on COD of Unit-I. Further, for the purpose of funding of projected additional capital expenditure, the debt-equity ratio of 70:30 has been considered for the purpose of tariff. This subject to revision based on true-up exercise.



Return on Equity

72. Regulation 24 of the 2014 Tariff Regulations provides as under:

“24. Return on Equity:

(1) Return on equity shall be computed in rupee terms, on the equity base determined in accordance with regulation 19.

(2) Return on equity shall be computed at the base rate of 15.50% for thermal generating stations, transmission system including communication system and run of the river hydro generating station, and at the base rate of 16.50% for the storage type hydro generating stations including pumped storage hydro generating stations and run of river generating station with pondage:

Provided that:

i) in case of projects commissioned on or after 1st April, 2014, an additional return of 0.50 % shall be allowed, if such projects are completed within the timeline specified in Appendix-I:

ii) the additional return of 0.5% shall not be admissible if the project is not completed within the timeline specified above for reasons whatsoever:

iii) additional RoE of 0.50% may be allowed if any element of the transmission project is completed within the specified timeline and it is certified by the Regional Power Committee/National Power Committee that commissioning of the particular element will benefit the system operation in the regional/national grid:

iv). the rate of return of a new project shall be reduced by 1% for such period as may be decided by the Commission, if the generating station or transmission system is found to be declared under commercial operation without commissioning of any of the Restricted Governor Mode Operation (RGMO)/ Free Governor Mode Operation (FGMO), data telemetry, communication system up to load dispatch centre or protection system:

v) as and when any of the above requirements are found lacking in a generating station based on the report submitted by the respective RLDC, RoE shall be reduced by 1% for the period for which the deficiency continues:

vi) additional RoE shall not be admissible for transmission line having length of less than 50 kilometer”

73. Regulation 25 of the 2014 Tariff Regulations provides as under:

“25. Tax on Return on Equity:

(1) The base rate of return on equity as allowed by the Commission under Regulation 24 shall be grossed up with the effective tax rate of the respective financial year. For this purpose, the effective tax rate shall be considered on the basis of actual tax paid in the respect of the financial year in line with the provisions of the relevant Finance Acts by the concerned generating company or the transmission licensee, as the case may be. The actual tax income on other income stream (i.e., income of non-generation or non-transmission business, as the case may be) shall not be considered for the calculation of “effective tax rate”.

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

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



Where “t” is the effective tax rate in accordance with Clause (1) of this regulation and shall be calculated at the beginning of every financial year based on the estimated profit and tax to be paid estimated in line with the provisions of the relevant Finance Act applicable for that financial year to the company on pro-rata basis by excluding the income of non-generation or non-transmission business, as the case may be, and the corresponding tax thereon. In case of generating company or transmission licensee paying Minimum Alternate Tax (MAT), “t” shall be considered as MAT rate including surcharge and cess.”

74. The Petitioner has claimed Return on Equity considering the base rate of 15.5% and the effective tax rate of 21.3416% (MAT Rate @ 18.5% **plus** Surcharge @ 12% **plus** Education Cess @ 3%) for the year 2017-18 and effective tax rate of 21.5488% (MAT Rate @18.5% **plus** Surcharge @ 12% **plus** Education Cess @ 4%) for the year 2018-19. The same has been considered, subject to true-up. Return on equity has been computed as under:

(₹ in lakh)

	2017-18	2018-19	
	25.9.2017 to 31.3.2018	1.4.2018 to 29.3.2019	30.3.2019 to 31.3.2019
Normative Equity - Opening	155131.28	156164.50	158407.47
Addition due to additional capital expenditure	1033.22	2242.97	0.00
Normative Equity - Closing	156164.50	158407.47	158407.47
Normative Equity - Average	155647.89	157285.98	158407.47
Base Rate for return on equity	15.500%	15.500%	15.500%
Applicable Tax Rate	21.3416%	21.5488%	21.5488%
Rate of Return on Equity (Pre-tax)	19.705%	19.758%	19.758%
Return on Equity	30670.42	31076.56	31298.15

Interest on Loan

75. Regulation 26 of the 2014 Tariff Regulations provides as under:

“26. Interest on loan capital:

(1) The loans arrived at in the manner indicated in regulation 19 shall be considered as gross normative loan for calculation of interest on loan.

(2) The normative loan outstanding as on 1.4.2014 shall be worked out by deducting the cumulative repayment as admitted by the Commission up to 31.3.2014 from the gross normative loan.

(3) The repayment for each of the year of the tariff period 2014-19 shall be deemed to be equal to the depreciation allowed for the corresponding year/period. In case of de-capitalization of assets, the repayment shall be adjusted by taking into account cumulative repayment on a pro rata basis and



the adjustment should not exceed cumulative depreciation recovered upto the date of de-capitalisation of such asset.

(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 depreciation allowed for the year or part of the year.

(5) The rate of interest shall be the weighted average rate of interest calculated on the basis of the actual loan portfolio after providing appropriate accounting adjustment for interest capitalized:

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 beneficiaries or the long term transmission customers /DICs 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 the loan.”

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

i) Gross normative loan corresponding to admissible capital cost works out to ₹361972.98 lakh as on COD of Unit-I.

ii) The net opening loan (normative) as on COD of Unit-I is same as gross normative loan, the cumulative repayment of normative loan up to the previous year/period being nil.

iii) Depreciation allowed has been considered as (normative) repayments for respective periods.

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

v) Weighted average rate of interest has been computed considering details of actual loan portfolio as submitted by the Petitioner.



77. Necessary calculations for interest on loan are as under:

(₹ in lakh)

	2017-18	2018-19	
	25.9.2017 to 31.3.2018	1.4.2018 to 29.3.2019	30.3.2019 to 31.3.2019
Gross Normative Loan	361972.98	364383.82	369617.42
Cumulative Repayment	0.00	12478.63	36826.59
Net Normative Loan - Opening	361972.98	351905.19	332790.84
Addition due to additional capital expenditure	2410.84	5233.60	0.00
Repayment of Normative loan	12478.63	24347.96	135.11
Net Normative loan - Closing	351905.19	332790.84	332655.73
Average Normative loan	356939.09	342348.01	332723.28
Weighted Average Rate of Interest	6.9307%	7.0225%	7.0878%
Interest on Loan	24738.55	24041.33	23582.62

Depreciation

78. The Petitioner has claimed depreciation considering the weighted average rate of depreciation of 4.6696% for the period from COD of Unit-I to 31.3.2019. This is in accordance with the rates of depreciation specified as per Appendix-III to the 2014 Tariff Regulations. Accordingly, the same has been considered for the purpose of tariff. Depreciation has been calculated as under:

(₹ in lakh)

	2017-18	2018-19	
	25.9.2017 to 31.3.2018	1.4.2018 to 29.3.2019	30.3.2019 to 31.3.2019
Average Capital Cost	518826.29	524286.60	528024.89
Weighted Average Rate of Depreciation	4.6696%	4.6696%	4.6696%
Depreciable Value	417347.69	422261.98	425626.43
Remaining Depreciable Value	417347.69	409783.35	388799.85
Depreciation for the period	12478.63	24347.96	135.11
Depreciation for the year (annualised)	24227.13	24482.10	24656.67
Cumulative depreciation (at the end of the year/period)	12478.63	36826.59	36961.69

Operation & Maintenance Expenses

79. Regulation 29(1) (a) of the 2014 Tariff Regulations provides for the following O&M expense norms for coal based generating stations of 600 MW sets & above:



(₹ in lakh/MW)	
2017-18	2018-19
17.30	18.38

80. The Petitioner has claimed O&M expenses under Regulation 29(1) of the 2014 Tariff Regulations as under:

(₹ in lakh)	
2017-18	2018-19
25.9.2017 to 31.3.2018	1.4.2018 to 31.3.2019
11418.00	12130.80

81. The O&M Expenses claimed by the Petitioner as above are in order and hence allowed.

Water Charges

82. In addition to the above, the Petitioner has claimed Water charges under Regulation 29(2) of the 2014 Tariff Regulations, as stated below:

(₹ in lakh)	
2017-18 (25.9.2017 to 31.3.2018)	2018-19
2186.56	2186.56

83. As per Regulations 29(2) of the 2014 Tariff Regulations, Water charges shall be allowed based on water consumption depending upon the type of plant, type of cooling water system etc., subject to prudence check. The details in respect of water charges such as type of cooling water system, water consumption, rate of water charges, as applicable for the years 2017-18 and 2018-19 furnished by the Petitioner are as under:

Description	Remarks
Type of Plant	Coal
Type of cooling water system	Closed Circuit Cooling System
Allocation of Water for Project	68.33 MCM
Rate of Water Charges	₹3.2 per cubic meter
Yearly Water Charges as per allocation	₹21.86 crore

84. It is observed from the Water Agreement dated 1.11.2017 executed between the between Petitioner and the Irrigation Department, State



Government of Maharashtra that the allocation of water for the Project is 52.6 MCM per year (51.1 MCM for Industry + 1.5 MCM for Domestic). However, the Petitioner has, in response to the ROP of the hearing dated 18.12.2018, revised the annual water requirement for the period from 1.11.2017 to 31.10.2018 from 52.6 MCM to 27.82 MCM. Accordingly, the Water charges allowed for the purpose of tariff works out as follows:

Period	Water Requirement (annualized basis) (in MCM)	Rate of Water Charges (in lakh)
2017-18	27.82	890.24
2018-19	27.82	890.24

85. The Water charges claimed as above, has been provisionally allowed for the years 2017-18 and 2018-19, based on the water requirement of 27.82 MCM as furnished by the Petitioner. The Water charges allowed is subject to revision based on the actual expenditure at the time of truing-up exercise. The Petitioner is therefore directed to furnish the water bills for each financial year at the time of truing-up exercise or in the petition for tariff of COD of Unit-II.

86. Based on the above, the total O&M expenses, including Water charges (provisional) allowed for the period of 2017-18 and 2018-19 are as follows:

(₹ in lakh)

	2017-18	2018-19	
	25.9.2017 to 31.3.2018	1.4.2018 to 29.3.2019	30.3.2019 to 31.3.2019
O&M expenses	11418.00	12310.80	12310.80
Water charges	890.24	890.24	890.24

87. The Respondent MPPMCL has submitted that the prayer of the Petitioner for inclusion of water charges for purpose of computing Interest on Working Capital may be rejected being without any basis. The Respondent CSPDCL has submitted that water charges are not a part and



parcel of O&M expenses and has to be recovered separately. The Petitioner in its rejoinder has clarified that the Commission in various tariff petitions had approved the water charges in O&M expenses along with the normative O&M expenses. Accordingly it has submitted the submission of the Respondents the water charges do not form part of annual fixed charges and not to be included in the receivables for calculating the interest on working capital is liable to be rejected.

88. We have considered the matter. It is noticed that similar issue was considered by the Commission in Petition No. 186/GT/2014 wherein the Commission by its Order dated 6.10.2015 had allowed the consideration of water charges and the O&M expenses and for computation of interest on working capital and accordingly the same has been considered in this order.

Operational Norms

89. The following norms of operation have been considered by the Petitioner for the purpose of tariff:

Normative Annual Plant Availability Factor (%)	85
Gross Station Heat Rate (kcal/kWh)	2235.97
Auxiliary Power Consumption (%)	5.75
Specific Fuel Oil Consumption (ml/kWh)	0.5

Normative Annual Plant Availability Factor (NAPAF)

90. Regulation 36 of the 2014 Tariff Regulations provides as under:

“(A) Normative Annual Plant Availability Factor

(a) All Thermal generating stations, except those covered under clauses (b)(c),(d) &(e)- 85%.

Provided that in view of the shortage of coal and uncertainty of assured coal supply on sustained basis experienced by the generating stations, the NAPAF for recovery of fixed charges shall be 83% till the same is reviewed. The above provision shall be reviewed based on actual feedback after 3 years from 1.4.2014.



The above provision shall be reviewed based on actual feedback after 3 years from 1.4.2014.”

91. In terms of the above Regulation, the NAPAF of 85% as claimed by the Petitioner is allowed for the period from COD till 31.3.2019.

Gross Station Heat Rate (GSHR)

92. Regulation 36 (C) (b) of the 2014 Tariff Regulations provides as follows:

“New Thermal Generating Station achieving COD on or after 1.4.2014

(i) Coal based and lignite-fired Thermal Generating Stations

=1.045 × Design Heat Rate (kcal/kWh)

Where the Design Heat Rate of a generating unit means the unit heat rate guaranteed by the supplier at conditions of 100% MCR, zero percent make up, design coal and design cooling water temperature/back pressure.

Provided that the design heat rate shall not exceed the following maximum design unit heat rates depending upon the pressure and temperature ratings of the units:

xxxxx

Provided also that where unit heat rate has not been guaranteed but turbine cycle heat rate and boiler efficiency are guaranteed separately by the same supplier or different suppliers, the unit design heat rate shall be arrived at by using guaranteed turbine cycle heat rate and boiler efficiency:

Provided also that where the boiler efficiency is below 86% for Sub-bituminous Indian coal and 89% for bituminous imported coal, the same shall be considered as 86% and 89% respectively for Sub-bituminous Indian coal and bituminous imported coal for computation of station heat rate”

93. The Petitioner, in Form-2 of the Petition has furnished the design Turbine Cycle Heat Rate and Boiler efficiency as 1832 kcal/kWh (at 100% MCR and 0% make-up water) and 85.62% respectively. Accordingly, the Petitioner has claimed unit design heat rate of 2139.69 kcal/kWh (1832/0.8562). After applying the operating margin of 4.5%, Petitioner has claimed Gross station heat rate of 2235.97 kcal/kWh.

94. The Respondent MPPMCL in its reply has submitted that the allowable Gross Station Heat Rate works out to 2225.85 (1.045×2130) kcal/kWh considering Turbine heat rate & boiler efficiency as 1832 kcal/kWh 86% respectively (Design heat rate 1832/0.86=2130 kcal/kWh).



95. We have considered the claim of the Petitioner and the reply of the respondent as above. Considering the fact that third proviso to the aforesaid regulations, provides for minimum boiler efficiency of 86% for sub-bituminous Indian coal, the design unit heat rate has been worked out by considering the Turbine Cycle Heat Rate of 1832 kcal/kWh and Boiler efficiency as 86%. Accordingly, the design unit heat rate works out to 2130.23 kcal/kWh ($1832/0.86$). After allowing for the operating margin of 4.5%, Gross Station Heat Rate (GSHR) for the period from COD till 31.3.2019 works out as 2226.09 kcal/ kWh (1.045×2130.23) and the same has been considered for the purpose of tariff.

Auxiliary Energy Consumption (AEC)

96. Regulation 36(E)(a) of the 2014 Tariff Regulations provides AEC of 5.75% for coal based generating stations of 500 MW units with Induced Draft cooling tower and steam driven BFP. Accordingly, the AEC of 5.75% in terms of the aforesaid regulation is considered.

Specific Fuel Oil Consumption

97. Regulation 36(D)(a) of the 2014 Tariff Regulations provides for Secondary fuel oil Consumption of 0.50 ml/kWh for coal-based generating stations. The Petitioner has claimed the Specific Fuel Oil Consumption of 0.50 ml/kWh and the same has been allowed in terms of the aforesaid regulation.

98. Accordingly, the operational norms allowed for the generating station are as under:

Normative Annual Plant Availability Factor (%)	85
Gross Station Heat Rate (kcal/kWh)	2226.09
Auxiliary Power Consumption (%)	5.75
Specific Fuel Oil Consumption (ml/kWh)	0.5



Interest on Working Capital

99. Sub-section (a) of clause (1) of Regulation 28 of the 2014 Tariff Regulations provides as under:

“28. Interest on Working Capital: The working capital shall cover:

(a) Coal-based/lignite-fired thermal generating stations:

(i) Cost of coal or lignite and limestone towards stock, if applicable, for 15 days for pit-head generating stations and 30 days for non-pit-head generating stations for generation corresponding to the normative annual plant availability factor or the maximum coal/lignite stock storage capacity whichever is lower;

(ii) Cost of coal or lignite and limestone for 30 days for generation corresponding to the normative annual plant availability factor;

(iii) 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;

(iv) Maintenance spares @ 20% of operation and maintenance expenses specified in regulation 29;

(v) Receivables equivalent to two months of capacity charges and energy charges for sale of electricity calculated on the normative annual plant availability factor; and

(vi) Operation and maintenance expenses for one month.

100. Regulation 28(2) of the 2014 Tariff Regulations provides as under:

“(2) The cost of fuel in cases covered under sub-clauses (a) and (b) of clause (1) of this regulation shall be based on the landed cost incurred (taking into account normative transit and handling losses) by the generating company and gross calorific value of the fuel as per actual for the three months preceding the first month for which tariff is to be determined and no fuel price escalation shall be provided during the tariff period.’

Fuel components and Energy charges in Working Capital

101. The Petitioner has claimed the cost for fuel component in working capital based on the price and “as received” GCV of coal procured and burnt for the preceding three months i.e. June, 2017, July, 2017, and August, 2017 and secondary fuel oil for preceding three months before COD i.e. June, 2017, July, 2017, and August, 2017 as under:

	<i>(₹ in lakh)</i>	
	25.9.2017 to 31.3.2018	1.4.2018 to 31.3.2019
Cost of Coal for stock (30 days)	10583.26	10583.26
Cost of Coal for generation (30 days)	10583.26	10583.26
Cost of Secondary fuel oil 2 months	121.68	121.68



102. The cost for fuel components in working capital has been computed at 85% NAPAF for the year 2017-18 & 2018-19 based on 'as received GCV' of coal and price of coal procured and GCV and cost of secondary fuel oil procured for the months of June, 2017, July, 2017 and August, 2017 for Unit-I, allowed as under:

	(₹ in lakh)	
	25.9.2017 to 31.3.2018	1.4.2018 to 31.3.2019
Cost of Coal for stock (30 days)	10465.27	10465.27
Cost of Coal for generation (30 days)	10465.27	10465.27
Cost of Secondary fuel oil 2 months	121.68	121.68

103. It is pertinent to mention that the cost of coal towards stock and generation allowed during the years 2017-18 and 2018-19 are less than the cost claimed by the Petitioner. This is on account of the fact that, while the claim of the Petitioner is based on the coal supplied during the preceding three months from the COD *plus* the quantity of opening stock, the cost allowed in this order for the said years, is based on quantity and price of coal supplied during the previous three months from the COD only in terms of the provisions of the 2014 Tariff Regulations.

Energy Charge Rate

104. Regulation 30 (6)(a) of the 2014 Tariff Regulations provides for computation and payment of Capacity Charge and Energy Charge for thermal generating stations as under:

“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

$$ECR = \{(GHR - SFC \times CVSF) \times LPPF / CVPF + SFC \times LPSFi + LC \times LPL\} \times 100 / (100 - AUX)$$

Where,

AUX = Normative auxiliary energy consumption in percentage.

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



CVSF = Calorific value of secondary fuel, in kCal per ml.

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= Normative specific fuel oil consumption, in ml/ kWh

LPSFi= Weighted average landed price of secondary fuel in Rs/ ml during the month

105. The Petitioner has claimed Energy Charge Rate (ECR) of 279.575 paise/kWh based on the weighted average price, GCV of coal & Oil procured and burnt for the preceding three months June, 2017, July, 2017 and August, 2017. ECR, as worked out based on operational norms specified in 2014 Tariff Regulations and on “as received” GCV and price of coal & oil is worked out as under:

Sl. No	Description	Unit	Unit-I (25.9.2017 to 31.3.2018)	Station (1.4.2018 to 31.3.2019)
(1)	Capacity	MW	1x660	2x660
(2)	Gross Station Heat Rate	Kcal/kWh	2226.09	2226.09
(3)	Auxiliary Power Consumption	%	5.75	5.75
(4)	Weighted Average GCV of Oil	Kcal/L	10000.00	10000.00
(5)	Weighted Average GCV of Coal (as received)	Kcal/kg	3427.09	3427.09
(6)	Weighted Average price of oil	₹/KL	29711.84	29711.84
(7)	Weighted Average price of Coal	₹/MT	3997.75	3997.75
(8)	Rate of energy charge ex-bus	₹/kWh	2.765	2.765

106. The Energy Charges for two months is worked out as under:

(₹ in lakh)

25.9.2017 to 31.3.2018	1.4.2018 to 31.3.2019
21344.81	21344.81

Maintenance Spares

107. The Petitioner has claimed maintenance spares in the working capital as under:



(₹ in lakh)

25.9.2017 to 31.3.2018	1.4.2018 to 31.3.2019
2720.91	2863.47

108. Regulation 28(1)(a)(iv) of the 2014 Tariff Regulations provide for maintenance spares @ 20% of the O&M expenses as specified in Regulation 29. Accordingly, the maintenance spares @ 20% of O&M expenses are allowed as under:

(₹ in lakh)

25.9.2017 to 31.3.2018	1.4.2018 to 31.3.2019
2461.65	2604.21

O & M Expenses (1 month)

109. Regulation 28(a)(vi) of the 2014 Tariff Regulations provides for O&M expenses for one month for coal-based generating station. O&M expenses for 1 month claimed by the Petitioner for the purpose of working capital are as under:

(₹ in lakh)

25.9.2017 to 31.3.2018	1.4.2018 to 31.3.2019
1133.71	1193.11

110. Accordingly, in terms of the above regulations, the O&M expenses (one month) including water charges allowed are as under:

(₹ in lakh)

25.9.2017 to 31.3.2018	1.4.2018 to 31.3.2019
1025.69	1085.09

Receivables

111. Receivables equivalent to two months of capacity charge and energy charges has been worked out and allowed as under:

(₹ in lakh)

	2017-18 (25.9.2017 to 31.3.2018)	2018-19	
		1.4.2018 to 29.3.2019	30.3.2019 to 31.3.2019
Variable Charges - for two months	21344.81	21344.81	21344.81
Fixed Charges - for two months	16637.00	16756.54	16745.89
Total	37981.81	38101.34	38090.70



Rate of Interest on working capital

112. Clause (3) of Regulation 28 of the 2014 Tariff Regulations provides as under:

“Interest on working Capital: (3) Rate of interest on working capital shall be on normative basis and shall be considered as the bank rate as on 1.4.2014 or as on 1st April of the year during the tariff period 2014-15 to 2018-19 in which the generating station or a unit thereof or the transmission system including communication system or element thereof, as the case may be, is declared under commercial operation, whichever is later.”

113. In terms of the above regulations, Bank Rate of 12.60% (i.e. SBI base rate of 9.10% as on 1.4.2017 plus 350 bps) for the period from COD of Unit-I till 31.3.2019 has been considered for the purpose of calculating interest on working capital. Accordingly, Interest on working capital has been computed as under:

	2017-18 (25.9.2017 to 31.3.2018)	2018-19 (₹ in lakh)	
		1.4.2018 to 29.3.2019	30.3.2019 to 31.3.2019
Cost of coal for 30 days towards stock	10465.27	10465.27	10465.27
Cost of coal for 30 days towards generation	10465.27	10465.27	10465.27
Cost of secondary fuel oil for two months	121.68	121.68	121.68
Maintenance spares	2461.65	2604.21	2604.21
Receivables for two months	37981.81	38101.34	38090.70
O&M expenses for one month (annualized)	1025.69	1085.09	1085.09
Total Working Capital	62521.36	62842.86	62832.21
Rate of interest	12.6000%	12.6000%	12.6000%
Interest on working capital	7877.69	7918.20	7916.86

Annual Fixed Charges

114. Accordingly, the annual fixed charges approved for the generating station for the period from 2017-19 is summarized as under:

	2017-18 (25.9.2017 to 31.3.2018)	2018-19 (₹ in lakh)	
		1.4.2018 to 29.3.2019	30.3.2019 to 31.3.2019
Depreciation	24227.13	24482.10	24656.67
Interest on Loan	24738.55	24041.33	23582.62
Return on Equity	30670.42	31076.56	31298.15
Interest on Working Capital	7877.69	7918.20	7916.86
O&M Expenses	12308.24	13021.04	13021.04
Total	99822.03	100539.23	100475.33

Note: (1) All figures are on annualized basis. (2) All the figures under each head have been rounded. The figure in total column in each year is also rounded. Because of rounding of each figure the total may not be arithmetic sum of individual items in columns.



115. The pro rata tariff is to be calculated using the bases as shown below:

	2017-18 (25.9.2017 to 31.3.2018)	2018-19	
		1.4.2018 to 29.3.2019	30.3.2019 to 31.3.2019
Capacity Considered (MW)	660	660	660
No of days in year	365	365	365
No. of days for which tariff is to be calculated	188	363	2

Month to Month Energy Charges

116. The Petitioner shall compute and claim the energy charges on month to month basis from the beneficiaries based on the formulae given under Regulation 30(6)(a) of the 2014 Tariff Regulations read with Commission's order dated 25.1.2016 in Petition No. 283/GT/2014.

117. The Petitioner has been directed by the Commission in its order dated 19.2.2016 in Petition No. 33/MP/2014 to introduce help desk to attend to the queries of the beneficiaries with regard to the Energy Charges. Accordingly, contentious issues, if any, which arise regarding the Energy Charges, should be sorted out with the beneficiaries at the Senior Management level.

Approval of cost for Tertiary Treatment Plant

118. The Petitioner has submitted that the Ministry of Power, GOI on 28.1.2016 has notified the New Tariff Policy 2016, which inter alia mandates the usage of treated sewage water produced by the sewage treatment plant of Municipality/local bodies etc., and the associated cost on this account is allowed as a pass through in tariff. The relevant portion of the said policy is extracted hereunder:

“The thermal power plant(s) including the existing plants located within 50 km radius of sewage treatment plant of Municipality/local bodies/similar organization shall in the order of their closeness to the sewage treatment plant, mandatorily use treated sewage water produced by these bodies and the associated cost on this account be allowed as a pass through in the tariff. Such thermal plants may also ensure back-up



source of water to meet their requirement in the event of shortage of supply by the sewage treatment plant. The associated cost on this account shall be factored into the fixed cost so as not to disturb the merit order of such thermal plant. The shutdown of the sewage treatment plant will be taken in consultation with the developer of the power plant.”

119. The Petitioner has submitted that the Project is located within the 50 km from Sewerage Treatment Plant facility (STP) of the Solapur Municipal Corporation (SMC) and therefore in terms of the aforesaid policy, the generating station has to use the treated sewage water from the STP facility of SMC to meet the water requirement of the power plant. It has submitted that SMC has offered to supply 52 MLD of treated sewage water from its STP plant located at Degaon to the Project. The Petitioner has however submitted that as the water available at the outlet of STP is not suitable to use in the power plant (due to water parameters being beyond the permissible limit of the parameters of raw water allowed to use), the Petitioner has to install a Tertiary Treatment Plant (TTP) along with Pipeline and Booster Pump System, for re-treating the water received from the STP and to make the same usable for the generating station. The Petitioner has added that the scheme was approved by the Board of Directors of the Petitioner Company on 19.4.2017 and subsequently an agreement was signed between SMC and the Petitioner on 2.5.2017. The Petitioner has pointed out that as per terms of the agreement, SMC is mandated to supply Treated Sewage water for the next 25 years to the Project and SMC has offered ₹70 per m³ tentative cost for the treated sewage water. The Petitioner has submitted that since the use of Sewage Treated Water in Power Plant within a radius of 50 km is a statutory requirement, it is bound to use the sewage treated water from SMC for the generating station. Accordingly, it has submitted that in terms of the 2014 Tariff Regulations, the additional water charges may be allowed to the



Petitioner as and when the facility is put to use. The Petitioner has stated that the Commission vide its order dated 5.5.2017 in Petition 30/MP/2017 had directed the Petitioner to seek appropriate relief through separate petitions in accordance with law. In this background, the Petitioner in this Petition has sought in-principle approval of the Commission for taking the sewage water from SMC and allows the Petitioner to claim water charges for drawl of water from STP of SMC under Regulation 29(2) of the 2014 Tariff Regulations, after the above facilities are put to use.

120. The Respondent MPPMCL has objected to the expenditure claimed by the Petitioner for installation of Tertiary Treatment Plant and pipeline for retreating the water from STP. The Respondent has pointed out that it is the responsibility of the concerned Municipal Corporation to provide the water of permissible range for inlet raw water suitable for thermal power plants or else the thermal generating unit cannot be compelled to use substandard water discharge of STP by retreating it. The Respondent has prayed that the Commission may disallow the use of such substandard water discharge of STP at three times the rate of normal water. The Petitioner in its rejoinder has referred to the MOP, GOI notification dated 28.1.2016 and has reiterated its submissions made in the Petition. The Respondent MSEDCL has submitted that the claim for additional water charges for drawal of water from the STP of SMC may be considered on detailed prudence check.

121. We have considered the submissions. The Petitioner has prayed for approval for procurement and usage of sewage water from SMC and to allow the additional costs to be incurred with regard to the drawl of water from STP of SMC for the generating station. It is noticed that the Petitioner had filed Petition No. 30/MP/2017 before this Commission for considering the use of



Treated Sewage Water in Thermal Power Plants consequent to promulgation of clause 6.2 (5) of the Tariff Policy, 2016 dated 28.1.2016 as Change in Law event and to allow the recovery of additional expenditure to be incurred due to use of treated sewage water under Regulation 14 and Regulation 29(2) of the 2014 Tariff Regulations. However, based on the submissions of the Petitioner, the Commission disposed of the said Petition by order dated 5.5.2017 as under:

“4. The Petitioner is presently seeking in-principle approval for use of treated sewage water in some of its power plants. Learned senior counsel for the Petitioner agreed that there is no provision in the 2014 Tariff Regulations for in-principle approval of capital cost. However, learned senior counsel submitted that the Petitioner shall make out cases for each of its generating station where treated sewage water is proposed to be used and approach the Commission with cost and other relevant details and sought permission to withdraw the present petition. Noting the submission of the learned senior counsel for the Petitioner, the Petition is permitted to be withdrawn with liberty to the Petitioner to seek appropriate relief through separate petitions in accordance with law.”

122. As the 2014 Tariff Regulations do not contain any provision for grant of in-principle approval of the expenditure to be incurred by the Petitioner, the prayer of the Petitioner is not considered in this order. However, the Petitioner is at liberty to approach the Commission, with all relevant details, the agreements entered into by the Petitioner, the Board Approval of the scheme along with the costs involved, at the time of truing-up of tariff and the same would be considered in accordance with law.

Revised Environment Norms

123. The Petitioner has submitted that the Ministry of Environment, Forest and Climate Change (MOEF&CC) on 7.12.2015 has notified the Environment (Protection) Amendment Rules, 2015, wherein the emission norms relating to SPM, NO_x, SO_x etc., have been tightened. The Petitioner has submitted that in order to comply with the revised norms, it has to modify/install various



Emission Control Systems. It has further submitted that the Flue Gas Desulphurisation (FGD) installed as additional component in the layout of flue-gas path, shall consume more power, which will result in increase in the Auxiliary Power Consumption (APC) and will also result in additional operational expenses for the generating station. The Petitioner has stated that the Commission may grant liberty to claim the additional capital expenditure, additional APC and O&M expenses for modification/installation of ECS and other installations under Regulation 54 of the 2014 Tariff Regulations.

124. The Respondents MSEDCL has submitted that the claim of the Petitioner for additional capitalization of 330 cores in 2018-19 may not be considered since the Petitioner has not submitted adequate information with regard to the capital cost and the asset to be installed under FGD. It has further submitted that the additional investment on account of installation of FGD system would require prudence check of the reasonability of the proposed expenditure and technology used and should be commensurate with the requirement. The Respondent has added that the benefits of installation of this system should be made known to the procurers along with the possible impact in tariff. The Respondent has prayed that the Commission may consider this expenditure separately only on actual installation and expenditure. The Respondents MPPMCL & CSPDCL have submitted that the O&M expenses are allowed on normative basis based on the actual O&M expenses on previous control period and the same cannot be changed during the currency of this tariff period. Therefore, the prayer of the Petitioner separate O&M expenses for FGD is liable to be rejected. The Petitioner in its rejoinder has submitted the expenditure on account of ECS is admissible



under Regulation 14(1)(v) of the 2014 Tariff Regulations and has accordingly been indicated in Form 9A of the Petition as additional capitalization. The Petitioner has also submitted that the capitalization of ₹330 crore on account of FGD for one unit is kept on projection basis in 2018-19 and the details of the asset and the associated actual cost will be submitted at the time of truing up exercise. The Petitioner has pointed out that the expenditure on account of ECS are capital intensive investment and needs to be serviced as and when incurred in terms of the 2014 Tariff Regulations and hence the claim may be considered in this Petition.

125. We have considered the submissions of the Petitioner. The Petitioner has prayed for in-principle approval of the expenditure towards ECS and other installations in order to meet the new environmental norms notified by MOEF, GOI on 7.12.2015. The Petitioner has accordingly prayed that it may be permitted to claim the said expenditure under the change in law provisions of the 2014 Tariff Regulations, including the additional APC and O&M expenses on account of ECSs and other installations, as and when commissioned, in order to meet the new environmental norms. It is noticed that the expenditure towards installation of ECSs are to be incurred by the Petitioner during the control period of 2019-24. It is pertinent to mention that Petitioner in Petition No. 98/MP/2017 (NTPC vs UPPCL & ors) had made a similar prayer and the Commission vide its order dated 20.7.2018 had directed as under:

“48. Therefore, a mechanism needs to be devised for addressing the issues like identification of suitable technology for each plant for implementation of ECS, its impact on operational parameters and on tariff, and the recovery of additional capital and operational cost. The Commission in this regard directs the CEA to prepare guidelines specifying;

(a) Suitable technology with model specification for each plant, with regard to implementation of new norms;



(b) Operational parameters of the thermal power plants such as auxiliary consumption, O&M expenses, Station Heat Rate etc., consequent to the implementation of ECS.

(c) Norms of consumption of water, limestone, ammonia etc., required for operation of the plants after implementation of ECS.

(d) Any other detailed technical inputs.

49. Based on the guidelines and operational parameters decided by CEA, the Commission shall undertake prudence check and grant the tariff for the capital and operational expenditure on ECS in respect of the generating stations regulated by the Commission. The Commission may, if required, specify detailed guidelines in this regard.”

126. The aforesaid decision is made applicable in the present case. The Petitioner is therefore granted liberty to claim the expenditure towards ECS and other installations, including the additional APC and O&M expenses on account of ECS, with all relevant documents, and the same shall be considered in accordance with law.

Ash Transportation cost

127. The Petitioner has submitted that Ministry of Environment Forests & Climate Change (MOEFCC) on 25.1.2016 had issued an amendment to the Fly ash Notification which *inter alia* stipulates that the cost of transportation of ash for road construction projects/ other identified activities, within a radius of 100 km of the Power Plant shall be borne by such coal based thermal power plant. It also provides that the cost of transportation beyond the radius of 100 km and up to 300 km shall be equally shared between the user and the coal based thermal power plant. The Petitioner has submitted that the notification dated 25.1.2016 has put an additional financial burden on the generating companies, since such costs have not been envisaged at the time of formulating the norms for tariff for the period 2014-19. The Petitioner has stated that it has received some demands for transportation of fly ash in compliance with the Notification dated 25.1.2016. Accordingly, the Petitioner



has submitted that the costs involved may be allowed under O&M charges, based on actuals, at the time of truing up exercise.

128. The Respondent MSEDCL has submitted that it is the responsibility of the generator to transport the ash and dispose of the same. It has also stated that any additional cost due to transportation should be disallowed or else net-off of expenditure and income from sale of ash needs to be passed on proportionate basis after prudence check. The Respondent MPPMCL has stated that there is no provision in the 2014 Tariff Regulations for allowing the said expenditure. It has also submitted that the directives issued by the MOEF&CC clearly states that the expenditure has to be borne by the coal based thermal power plant. The Petitioner in its rejoinder has clarified that the MOEF&CC notification dated 25.1.2016 has put additional financial burden on generating companies. It has further submitted that such costs have not been envisaged at the time of formulating the O&M norms for the period 2014-19. The Petitioner has stated that the said notification comes under the ambit of change in law. It has added that the generation and disposal of ash is a continuous process and the expenditure against the transportation/disposal of ash is recurring expenditure to be recovered on regular basis like O&M expenses. The Petitioner has submitted that Commission may consider its prayer in exercise of the power to relax the provisions of the 2014 Tariff Regulations.

129. We have considered the submissions of the parties. The matter pertains to the recovery of additional expenditure incurred due to fly ash transportation, consequent upon the MoEFCC Notification dated 25.1.2016. It is observed that similar prayer of the Petitioner was dealt with by the Commission in Petition No. 172/MP/2016 (NTPC vs UPPCL & Ors.) wherein,



the Commission vide its order dated 5.11.2018 had granted liberty to the Petitioner to approach the Commission with all details / information, duly certified by auditor, at the time of revision of tariff of the generating stations based on truing -up exercise for the period 2014-19 in terms of Regulation 8 of the 2014 Tariff Regulations. The relevant portion of the order is extracted hereunder:

“31. Accordingly, we in exercise of the regulatory power hold that the actual additional expenditure incurred by the Petitioner towards transportation of ash in terms of the MOEFCC Notification is admissible under „Change in Law“ as additional O&M expenses. However, the admissibility of the claims is subject to prudence check of the following conditions on case to case basis for each station:

a) Award of fly ash transportation contract through a transparent competitive bidding procedure. Alternatively, the schedule rates of the respective State Governments, as applicable for transportation of fly ash.

b) Details of the actual additional expenditure incurred on Ash transportation after 25.1.2016, duly certified by auditors.

c) Details of the Revenue generated from sale of fly ash/ fly ash products and the expenditure incurred towards Ash utilization up to 25.1.2016 and from 25.1.2016 to till date, separately.

d) Revenue generated from fly Ash sales maintained in a separate account as per the MoEF notification.

32. The Petitioner is granted liberty to approach the Commission at the time of revision of tariff of the generating stations based on truing -up exercise for the period 2014-19 in terms of Regulation 8 of the 2014 Tariff Regulations along with all details / information, duly certified by auditor.”

130. In terms of the above decision, the Petitioner is granted liberty to approach the Commission with all the details/information, duly certified by auditor, at the time of truing-up exercise, in terms of Regulation 8 of the 2014 Tariff Regulations and the same will be considered in accordance with law.

Enhancement of O&M expenses

131. The Petitioner has submitted that the salary/wage revision of its employees of the Petitioner is due with effect from 1.1.2017. Accordingly, the Petitioner has sought the enhancement in O&M expenses, with effect



from 1.1.2017, towards the increased salary, on account of its revision from 1.1.2017, as per actual payments, whenever made by it. The Petitioner has submitted that the Commission may, in exercise of its power under Regulation 54 & 55 of the 2014 Tariff Regulations (Power to relax) allow the same.

Submission of Respondents

132. The Respondent MPPMCL in its reply affidavit has submitted that in view of the huge profit earned by the Petitioner, it should bear the burden of wage revision of its employees. It has stated that since the Commission has no control over the wage hike allowed by the Petitioner to its employees, no blanket approval may be accorded for enhancement of O&M expenses at later stage. The Respondent has further stated that in terms of the OM dated 26.11.2008 of the Ministry of Heavy Industries & Public Enterprises, the Petitioner has to bear the financial implications on its own and the Respondents are not liable to bear the burden on this count. The Respondent MSEDCL has submitted that the norms specified under the 2014 Tariff Regulations considers an escalation of 6.35% which includes any pay revision and pay hike and the O&M expenses are normative and any increase or decrease in the same is to the ease to the account of the Petitioner.

Rejoinder of Petitioner

133. In response to the above the Petitioner has submitted that the Commission has observed that the normative O&M expenses as provided in the 2014 Tariff Regulations may not be sufficient to cover the actual O&M expenses of the generating station after wage revision of the employees. The Petitioner has reiterated that in view of the scheduled wage revision of the employees from 1.1.2017, the relief prayed for may be allowed.



134. The matter has been examined. On this issue, the Commission in the Statement of Reasons to the 2014 Tariff Regulations has observed as under:

“29.26 Some of the generating stations have suggested that the impact of pay revision should be allowed on the basis of actual share of pay revision instead of normative 40% and one generating company suggested that the same should be considered as 60%. In the draft Regulations, the Commission had provided for a normative percentage of employee cost to total O&M expenses for different type of generating stations with an intention to provide a ceiling limit so that it does not lead to any exorbitant increase in the O&M expenses resulting in spike in tariff. The Commission would however, like to review the same considering the macro economics involved as these norms are also applicable for private generating stations. In order to ensure that such increase in employee expenses on account of pay revision in case of central generating stations and private generating stations are considered appropriately, the Commission is of the view that it shall be examined on case to case basis, balancing the interest of generating stations and consumers”

135. Accordingly, the prayer of the Petitioner for enhancement of O&M expenses, if any, due to pay revision, may be examined by the Commission on a case to case basis, subject to the implementation of pay revision as per DPE guidelines and the filing of an appropriate application by the Petitioner in this regard.

Application filing fee and Publication expenses

136. The Petitioner has sought the reimbursement of filing fees and also the expenses incurred towards publication of notices for application of tariff for the period 2017-19. The Petitioner has deposited the filing fees for the said years, in terms of the provisions of the Central Electricity Regulatory Commission (Payment of Fees) Regulations, 2012. The Petitioner has also submitted that it has incurred charges towards publication of the said tariff petition in the newspapers Accordingly, in terms of Regulation 52 of the 2014 Tariff Regulations and in line with the decision in Commission’s order dated 5.1.2016 in Petition No. 232/GT/2014, we direct that the Petitioner shall be entitled to recover, *pro rata*, the filing fees for the period 2017-19 and the expenses incurred towards the publication of notices, directly from the



respondents, on production of documentary proof. Excess amount, if any, deposited by the Petitioner for this Petition, shall be adjusted against any other Petition to be filed before this Commission, in future.

137. The annual fixed charges approved for the period 2017-19 as above are subject to revision based on the truing-up exercise in terms of Regulation 8 of the 2014 Tariff Regulations.

138. Petition No. 178/GT/2017 is disposed of in terms of the above.

Sd/-
(I.S.Jha)
Member

Sd/-
(Dr. M.K.Iyer)
Member

Sd/-
(P.K.Pujari)
Chairperson

