CENTRAL ELECTRICITY REGULATORY COMMISSION
NEW DELHI

Petition No.128/GT/2017

Coram:

Shri P.K.Pujari, Chairperson
Dr. M.K.Iyer, Member

Date of Order: 4th April, 2019

In the matter of

Petition for approval of tariff of Tripura Gas Based Power Plant 101 MW for the period from COD of its Gas Turbine unit to 31.3.2019.

And

In the matter of

North Eastern Electric Power Corporation Ltd,
Brookland Compound, Lower New Colony,
Shillong-793003 **…..Petitioner**

Vs

1. Tripura State Electricity Corporation Ltd.
Bidyut Bhawan, North Banamalipur,
Agartala, 799001, Tripura

2. North Eastern Regional Power Committee
NERPC Complex, Dong Parmaw, Lapalang,
Shillong- 793006, Meghalaya

3. North Eastern Regional Load Despatch Centre
Dongteih, Lower Nongrah, Lapalang,
Shillong- 793006, Meghalaya **.....Respondents**

Parties present:

Shri M.G.Ramachandran, Advocate, NEEPCO
Ms. Poorva Saigal, Advocate, NEEPCO
Shri S.Adhikari, NEEPCO
Ms. E.Pyrbot, NEEPCO

ORDER

This Petition has been filed by Petitioner, NEEPCO for approval of tariff of Tripura Gas based Power Plant (101 MW) (hereinafter 'the generating station/ Project') for the period from COD of Gas Turbine to 31.3.2019 in terms of the Central Electricity Regulatory Commission (Terms and Conditions of Tariff) Regulations, 2014 (hereinafter referred to as "the 2014 Tariff Regulations").

2. The Petitioner has set up a 101 MW (1 x 65.42 + 1 x 35.58) Tripura Gas based power plant at Monarchak, Sepahijala District, in the State of Tripura. The generating station comprises of one combined cycle module consisting of one Gas Turbine (GT) unit with capacity of 65.42 MW and Steam Turbine (ST) unit of capacity 35.58 MW. The Power Purchase Agreement (PPA) dated 19.3.2008 has been entered into with the Respondent, TSECL for off-take of the entire power from the generating station.

3. The date of commercial operation of GT and ST units of the generating station are as under:

Unit	COD
GT unit	24.12.2015
ST unit	31.3.2017
Station(101 MW)	31.3.2017

4. Petition No. 148/GT/2015 was filed by the Petitioner for approval of tariff of the generating station for the period from the anticipated COD of GT (30.6.2015) and ST (30.8.2015) upto 31.3.2019 in accordance with the 2014 Tariff Regulations. However, during the hearing, the Petitioner submitted that due to repeated interruptions in supply of gas by ONGC, the Petitioner was facing difficulties in declaration of COD of the units/ generating station and therefore the declaration under COD was not possible within six months from

filing of the said Petition in terms of the 2014 Tariff Regulations. Considering the submissions of the Petitioner, the Commission vide order dated 27.11.2015 disposed of Petition No. 148/GT/2015 as under:

> *"6. According to this, the generating company is permitted to make application for determination of tariff in respect of units/station which are expected to be declared under COD within 180 days from the making of the application. Considering the anticipated COD of the units' as 30.6.2015 (GT) and 30.8.2015 (ST), the Petitioner has filed this application for determination of tariff on 27.5.2015. However, from the submissions made above, it is clear that difficulties are being faced by the Petitioner in the declaration of COD and the units/station are not expected to be declared under commercial operation in the near future. Moreover, there will be revision of capital cost as on the COD of the generating station. In this background, we find no reason to keep this application pending. Accordingly, we dispose of this petition as infructuous with liberty to the Petitioner to approach the Commission with an appropriate application for determination of tariff of the generating station from its COD till 31.3.2019 in accordance with the provisions of the 2014 Tariff Regulations after the Petitioner starts the process of commissioning."*

5. Pursuant to the liberty granted by the Commission as above, the Petitioner has filed the present petition and has claimed capital cost (vide affidavit dated 6.9.2017) as under:

(₹ in lakh)

	As on COD of GT (24.12.2015)	As on COD of station (31.3.2017)
Capital Cost as per Form 5C	67644.51	105350.95
Less: Liabilities	4354.55	4974.35
Capital Cost on Cash Basis	**63289.96**	**100376.60**

6. Accordingly, the annual fixed charges claimed by the Petitioner are as under:

(₹ in lakh)

	24.12.2015 to 31.3.2016	**1.4.2016 to 30.3.2017**	**31.3.2017**	**2017-18**	**2018-19**
Return on Equity	1074.86	5123.78	17.25	6443.53	6641.62
Interest on Loan	771.40	3796.24	12.52	4642.60	4538.64
Depreciation	832.94	3970.55	13.37	4993.26	5146.76
Interest on Working Capital	124.26	711.56	1.04	845.08	860.14
O & M Expenses	501.85	1976.14	8.38	3267.35	3490.56
Total	**3305.31**	**15578.26**	**52.55**	**20191.82**	**20677.73**

7. The Petitioner in compliance with the directions of the Commission has filed the additional information and has served copies on the respondents. Reply has been filed by the Respondent, Tripura State Electricity Corporation Ltd. (TSECL) vide affidavit dated 31.12.2018. Thereafter, the matter was heard on 11.10.2018 and the Commission after hearing the submissions of the Petitioner reserved its order in the petition. None appeared on behalf of the Respondents.

8. Based on the submissions of the parties and the documents available on records, we now proceed to examine the claim of the Petitioner on prudence check, as stated in the subsequent paragraphs.

Commissioning schedule

9. The Investment approval for execution of the Project was accorded by MOP, GOI vide its letter dated 14.7.2009 at an approved cost of ₹421.01 crore including IDC of ₹27.47 crore. The Investment approval provides for a completion period of 26 months and 30 months from the zero date for GT and ST respectively. The MOP, GOI vide its letter dated 23.2.2011 along with RCE-I conveyed that the Project would be commissioned in 36 months from 23.7.2010 i.e. the date of issue of MoM of Public Investment Board (PIB). Accordingly, the scheduled vs actual commissioning and commercial operation date are as under:

Unit/Block	Scheduled COD as per Public Investment Board (Zero Date)	Actual COD	Time overrun (months)	Time overrun (days)
GT (65.42 MW)	22.3.2013	24.12.2015	33	1007
ST (35.58 MW)	22.7.2013	31.3.2017	44	1348

Thus, there is significant time overrun in commercial operation of Unit-I and Unit-II and the same is discussed in subsequent paragraphs.

Admissibility of Additional Return on Equity (ROE)

10. The date of original investment approval for the project is 23.7.2010. In order to avail the additional ROE of 0.5%, the completion time line specified under the 2014 Tariff Regulations for GT size up to 100 MW (ISO rating) from the date of investment approval is 30 months for first block of green field project with subsequent blocks at an interval of 4 months each. However, the actual COD of GT is 24.12.2015 and ST is 31.3.2017. Accordingly, the actual COD of Block-I is 31.3.2017 i.e. 81 months (approx.) from the date of investment approval. Since the generating station was declared under commercial operation on 31.3.2017 and is beyond the completion time line specified under the 2014 Tariff Regulations, the Petitioner is not entitled to additional 0.5% ROE, which is allowed for timely completion of the project.

Time Overrun

11. As stated, MOP vide its letter dated 23.2.2011 along with RCE-I conveyed that the Project will be commissioned in 36 months from 23.7.2010. However, the time overrun for declaration of commercial operation (COD) of GT is 33 months and ST/Block is 44 months. The Petitioner vide ROPs of hearing dated 25.7.2017 and 20.2.2018 was directed to furnish the details of time Over-run for ST/combined cycle along with reasons, period of delay due to such reasons, considering the scheduled start & completion date to the actual start & completion date, in a tabular format, with the help of PERT/Bar chart, indicating the critical activities/milestones which were affected due to delay along with reasons, and the parallel activities which were simultaneously affected due to one or more reasons with the effective days lost. In response, the Petitioner vide affidavit dated 14.09.2017, 5.4.2018 and 29.10.2018 has furnished the reasons for delay in commissioning of the Units.

12. The Project was scheduled to be completed by 31.7.2013 as per CCEA Sanction conveyed by MOP, GOI vide its letter dated 23.2.2011. The commissioning of the Project was affected due to delay in gas supply by ONGC. The schedule versus actual date of commercial operation is as under:

Unit	Scheduled Commissioning	Actual Synchronization	Actual COD
GT	31.3.2013	11.3.2015	24.12.2015
ST	31.7.2013	14.1.2016	31.3.2017

13. The Petitioner has submitted that in order to expedite the implementation, The Petitioner decided to execute the project through BHEL and accordingly LOI for execution of the project was awarded to BHEL on 23.7.2010 with commissioning period of 32 months for GT and 36 months for ST. The Petitioner has however submitted that the Project could not be completed as per the above schedule due to (i) delay by BHEL in commencement of work on the issue of transfer of part of EPC to NBPPL and (ii) delay by ONGC in commencing gas supply after readiness of GT in September, 2013. The Petitioner vide affidavit dated 5.4.2018 has summarized the delay on part of BHEL and delay by ONGC in commencing gas supply as under:

Sl. No	Description/ Activity/ Work	Original Schedule		Actual Schedule		Time Over-Run (Months)	Reasons for delay
		Start Date	Completion date	Actual Start Date	Actual Completion date		
	Time Overrun considering COD for 1) Gas Turbine 2) Combined Cycle mode		20.3.2013 20.7.2013		24.12.2015 31.3.2017	33 44	
1	Project Start (Zero date)	July, 2010		May, 2011			Delay by BHEL in commencement of work on the issue of transfer of part of EPC to NBPPL. A) After award of the EPC contract on 23.07.2010, BHEL came up with proposal for off-loading some of works to NBPPL on 19.08.2010.

							Repeated Requests by BHEL vide letters dated 22.09.2010 and 12.10.2010 were replied by NEEPCO stating that such transfer is not acceptable. B) As off-loading to NBPPL was a post contract deviation after PIB clearance and also in view of lack of credential in favour of NBPPL, the same could not be readily accepted. The pre-award negotiation with BHEL were conducted over a period of 6 (Six) months during which, BHEL never came up with the proposal for assigning part of contract to NBPPL. As the Proposal was forward to PIB/CCEA considering that the entire scope of work would be carried out by BHEL, the deviation to the extent of transfer of part of contract to NBPPL would mean change in basic proposal submitted to PIB & CCEA by The MoP, which was beyond the authority of the corporation. C) The Secretary, Ministry of heavy Industries & Public Enterprises vide letter No. 21(10)/2010-PE-XI dated January 11, 2011 addressed to the Secretary, MoP requested to take up the matter with NEEPCO to facilitate transfer of part of EPC order to NBPPL. D) The Joint Secretary, MoP vide DO letter dated 26.04.2011, conveyed the decision of both the ministries to off-load the work of Monarchak Project to NBPPL. E) The Matter was deliberated in NEEPCO's Board of Directors meeting on 20.05.2011 and thereafter BHEL was intimated about NEEPCO's

							acceptance for off-loading BOP works and Erection commissioning works to NBPPL vide letter dated 26.05.2011. F) This delay in commencement of work was beyond control of NEEPCO. All round acceleration was initiated at project level thereby covering up some of the lost time however, there was a residual delay of 6 months.
2.	Mechanical Erection	July, 2010	January, 2013	May, 2011	September, 2013	8	Though there was a substantial delay as explained above but some time lost was made up in execution process and the GT was made ready from erection point of view in September against schedule of March, 2013. The readiness of GT in September, 2013 was intimated to ONGC by the Chief Engineer, CEA vide his letter dated 11th July, 2013, 27th Dec., 2013. The readiness was informed to the CMD, ONGC by the Chief Secretary, Govt. of Tripura vide DO No. F.2-CS (Power) 2013 dated 7.9.2013. The Secretary, Power Dept. Govt. of Tripura vide DO No. 547 dated 14.8.2013 informed the Secretary, MoP&NG regarding readiness of NEEPCO and requested to impress upon ONGC to commence gas supply . The Secretary, MoP&NG was intimated of the readiness by the secretary, MoP, Govt. of India vide DO No. 7088 dated 27.11.2013 and DO No. 7/10/2013-H.I dated 24.12.2013.
3.	GTG Commissioning (Including Testing)	February, 2013	March, 2013	3.2.2015	11.3.2015	24	Delay by ONGC in commencing gas supply after readiness of the Gas Turbine in September,

							2013. A) The Gas supply Agreement was signed between NEEPCO and ONGC on 5.6.2008 and side letter to the Agreement was signed on 15.03.2011 with mutually agreed gas delivery commencement date on or before 23.3.2013. B) During the course of the project execution by the NEEPCO, regular interaction with ONGC was made, and was requested to expedite their gas pipeline works and other associated installations. Apprehending delay, D.O. Letters were issued from CMD, NEEPCO to CMD, ONGC dated 25.4.12, 8.8.12, 19.11.12, 8.2.13, 2.4.13, 30.10.13 requesting him to expedite the gas pipeline and terminal facility work. (C) The Additional Secretary, Ministry of Power had taken a meeting on 06.02.2014 wherein he observed that ONGC need to compensate the Project Developer for the financial losses incurred for non-commencement of gas supply (D)The Secretary, Power, Govt. of Tripura convened a meeting with all stake Holders on 16.11.2013, ONGC confirmed that gas supply to Monarchak would be started from 31st May, 2014. But ONGC failed to adhere to the commitment and express their doubt about complete readiness of NEEPCO in a site visit on 8.5.2014. The matter was immediately reported to MoP. The J.S.(H), MoP deputed chief Engineer CEA along with PPMP

							consultant to TGBPP, Monarchak to make an Independent assessment of NEEPCO and ONGC facilities. The visit was conducted from 19-20 May, 2014 and reported to Joint Secretary, MoP vide report dated 29-05-2014 with photographs of each Installations pertaining to each GT and ST. The report concludes that "the project facilities developed by NEEPCO is ready to receive gas from ONGC for commencing commissioning activities". E. As a result of unceasing intervention of MoP, the gas supply to the project could be commenced by ONGC through a temporary/adhoc arrangement on 3rd Feb. 2015. The Gas Turbine was synchronized on 11.3.2015.

14. The Respondent, TSECL vide affidavits dated 17.7.2017 and 31.12.2018 has filed its reply and has mainly submitted that the Respondent is not responsible for the cost overrun of the project due to delay in execution by the Petitioner. It has also submitted that BHEL and GAIL are the agents of the Petitioner and any act or omission of its agents is the responsibility of the Petitioner. The Respondent has further submitted that the capital cost as approved by the MOP, GOI in RCE-I shall be the basis for determination of tariff. The Respondent has stated that the cost variation is either due to under estimation or imprudence in selecting the contractor/ suppliers and in executing the contractual agreements including its terms and conditions. Accordingly, the Respondent is in no way liable to take the extra financial burden on account of the delay in the execution of the Project by the Petitioner as the same is attributable to the Petitioner. Accordingly, the Respondent has prayed that the issue of time

overrun may be considered in terms of the judgment of the Tribunal dated 27.4.2011 in Appeal No. 72 of 2010 (MSPGCL vs MERC & ors).

15. We have examined the matter. The Tribunal in its judgment dated 27.4.2011 in Appeal No. 72 of 2010 (MSPGCL Vs MERC & others) has laid down the principle for prudence check of time and cost overrun of a project as under:

> *"7.4. The delay in execution of a generating project could occur due to following reasons:*
>
> *i. Due to factors entirely attributable to the generating company, e.g., imprudence in selecting the contractors/suppliers and in executing contractual agreements including terms and conditions of the contracts, delay in award of contracts, delay in providing inputs like making land available to the contractors, delay in payments to contractors/suppliers as per the terms of contract, mismanagement of finances, slackness in project management like improper co-ordination between the various contractors, etc.*
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> *ii. Due to factors beyond the control of the generating company e.g. delay caused due to force majeure like natural calamity or any other reasons which clearly establish, beyond any doubt, that there has been no imprudence on the part of the generating company in executing the project.*
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> *iii. Situation not covered by (i) & (ii) above. In our opinion in the first case the entire cost due to time over run has to be borne by the generating company. However, the Liquidated damages (LDs) and insurance proceeds on account of delay, if any, received by the generating company could be retained by the generating company. In the second case the generating company could be given benefit of the additional cost incurred due to time over-run. However, the consumers should get full benefit of the LDs recovered from the contractors/supplied of the generating company and the insurance proceeds, if any, to reduce the capital cost. In the third case the additional cost due to time overrun including the LDs and insurance proceeds could be shared between the generating company and the consumer. It would also be prudent to consider the delay with respect to some benchmarks rather than depending on the provisions of the contract between the generating company and its contractors/suppliers. If the time schedule is taken as per the terms of the contract, this may result in imprudent time schedule not in accordance with good industry practices.*
>
> *7.5 in our opinion, the above principle will be in consonance with the provisions of Section 61(d) of the Act, safeguarding the consumers ' interest and at the same time, ensuring recovery of cost of electricity in a reasonable manner."*

16. In line with the decision of the Tribunal as above and considering the submissions of the parties, the issue of time overrun in the completion of the project (GTs / STs / Blocks) is examined as under:

Delay up to mechanical erection of the equipment attributed to M/s BHEL (8 months)

17. It is noticed that the zero date of the Project and the scheduled start date of mechanical erection is 23.7.2010 and the schedule date for completion of

mechanical erection work is January, 2013. However, the actual date of start of mechanical erection is 26.5.2011 and the actual date of completion of mechanical erection is September, 2013. The Petitioner has attributed the delay to BHEL and has stated that after awarding the work of EPC contract to BHEL on 23.7.2010, BHEL, on 19.8.2010, proposed to offload some of the works to NBPPL, which was a post contract deviation after PIB clearance, and the same was not accepted by the Petitioner. This issue was raised by Ministry of Heavy Industries & Public Enterprise (MoHI&PE) with MOP, GOI vide letter dated 11.1.2011 and the MOP in consultation with MoHI&PE vide letter dated 26.4.2011 conveyed the decision of both Ministries to the Petitioner to offload part of the work to NBPPL. The matter was then deliberated in the meeting of the Board of Directors of the Petitioner Company and finally offloading the work to NBPPL was accepted and the same was informed to BHEL on 26.5.2011. Though the schedule start of the work was 23.7.2010, the work was finally started only on 26.5.2011. Thus, there was a delay of 10 months (approx.) for start of the work on account of the offloading of part of EPC work from BHEL to NBPPL. However, some time lost was made up in the execution process, the work of mechanical erection was finally completed on September, 2013 as against the scheduled completion date of January, 2013. Consequent upon this, there has been a delay of 8 months in the completion of the mechanical erection work of the equipment.

18. It is evident from the above that there has been no imprudence in the selection of the EPC contractor (BHEL) and the work was commenced by BHEL on 23.7.2010. However, after signing of the contract, BHEL had proposed to offload some of the work to NBPPL which was refused by the Petitioner. Subsequently, after involvement of MoHI&PE and the MOP, GOI and long deliberations and

discussions, the Petitioner had agreed to offloading of some of the works to NBPPL from BHEL. Though there was a delay of 10 months in the scheduled start (23.7.2010) and the actual start (26.5.2011) of the mechanical erection work, the same was completed in September, 2013 instead of the completion schedule of January, 2013. The duration of schedule completion of mechanical erection work was 29 months whereas the Petitioner had taken 27 months to complete the work, covering some of the lost time. Thus, there has been a delay of 8 months in the actual completion of the mechanical erection work. In the above background, we are of the view that the delay of 8 months was beyond the control of the Petitioner and the same is condoned. Accordingly, we hold that the Petitioner is not responsible for the delay of 8 months in the completion of mechanical erection work and is therefore covered by the principle [(situation (ii)] laid down in the judgment of the Tribunal dated 27.4.2011 in Appeal No. 72/2010 and the generating company is given the benefit of additional cost incurred due to time overrun. However, the Liquidated Damages received from the contractor and Insurance proceeds received, if any, for the said period would be considered for reduction in capital cost.

Delay due to non-availability of Gas in commissioning of the GT (25 months)

19. The commissioning of GT including testing was scheduled to commence on February, 2013 and scheduled to be completed during March, 2013 i.e period of one month. However, the Petitioner has submitted that the work of GTG commissioning started from 3.2.2015 and was completed on 11.3.2015 and thereafter the COD of GT was declared on 24.12.2015. As per the original schedule, there is a time gap of one month from the schedule completion of mechanical erection work i.e. January 2013 to the scheduled start of GTG

commissioning i.e. February, 2013. Thus, there is a total delay of 33 months in declaration of COD of GTG i.e. 20.3.2013 to 24.12.2015. Out of these 33 months, the delay of 8 months up to September, 2013 on account of offloading of the work to NBPPL has been condoned as above. In view of this, the effective delay is 25 months, which has been attributed to the non-availability of gas by ONGC by the Petitioner.

20. It is observed that the Gas Supply Agreement (GSA) was executed between the Petitioner and ONGC on 5.6.2008 with mutually agreed gas delivery commencement date on or before 23.3.2013. The assurance schedule of ONGC spanning from March, 2013 to December, 2016 is tabulated as under:-

Sl. No.		**ONGC Committed dated**
(1)	As per Gas supply Agreement	23.3.2013
(2)	Minutes of meeting between Petitioner and ONGC dated 18.7.2012	31.3.2013
(3)	MOM taken by Secretary (Power), Govt. of Tripura held on 16.11.2013	31.5.2014
(4)	Meeting in office chamber of Minister (Power), Govt. of Tripura dated 16.6.2014	November, 2014
(5)	Letter from Director (Onshore), ONGC dated 29.11.2014 to CMD, NEEPCO	31.12.2014
(6)	MOM on 16.12.2014 taken by Joint Secretary (Hydro), Ministry of Power, Govt. of India	15.1.2015
(7)	Letter from Director (onshore), ONGC dated 23.9.2015 and 13.10.2015	March, 2015
(8)	MoM by Additional Secretary (Power) with MoP&G and ONGC dated 5.10.2015	March, 2016
(9)	DO letter from Secretary, MoP&NG to Secretary, MoP dated 25.05.2016 after meeting with MoP, ONGC and NEEPCO	End of December, 2016

21. The Petitioner has submitted that the GT was ready in September, 2013 and the same was informed to ONGC by CEA vide letter dated 11.7.2013 and 27.12.2013. Also, the readiness of GT was informed to ONGC by the Govt. of Tripura vide letter dated 7.9.2013. The Petitioner has placed on record the various correspondences made with ONGC for commencement of gas supply and

has also consistently taken up the matter with the Govt. of Tripura and the MoP&NG with regard to the readiness of GT and to persuade ONGC to commence gas supply. Despite the steps taken above by the Petitioner, gas supply had commenced by ONGC from 3.2.2015 and thereafter GT was synchronized on 11.3.2015.

22. It is evident from the above that after the completion of erection of the mechanical equipment of the GT in September, 2013 and up to the COD of GT in December, 2015, the delay was on account of the non-availability of the gas from ONGC. In our view, the GT was ready in September, 2013 and there has been no slackness on part of the Petitioner in coordinating with the various authorities for the commencement of gas supply by ONGC. Despite this, there has been delay in commencement of gas supply by ONGC which, in our view, is not attributable to the Petitioner. The Petitioner, for factors beyond its control, was not in a position to arrange the fuel/gas from any other alternative source as the plant is envisaged for the supply of gas from ONGC only as and when made available by the fuel supplier (ONGC). In the above background, the delay of 25 months in commissioning of GT is condoned. Accordingly, we hold that the Petitioner is not responsible for the delay of 25 months and is therefore covered by the principle [(situation (ii)] laid down in the judgment of the Tribunal dated 27.4.2011 in Appeal No. 72/2010 and the generating company is given the benefit of additional cost incurred due to time overrun. However, the Liquidated Damages and Insurance proceeds received, if any, for the said period would be considered for reduction in capital cost.

Delay up to actual COD of STG Combined Cycle mode (36 months)

23. The schedule completion date of STG combined cycle mode was 20.7.2013 and the actual completion date of STG combined cycle mode is 31.3.2017. Hence, there is total delay of 44 months from schedule completion to actual completion of declaration of COD of STG combined cycle mode. Out of these 44 months, the delay of 8 months up to September, 2013 on account of offloading of the work to NBPPL has been condoned as above. The Petitioner has attributed the balance delay of 36 months to ONGC due to non-supply of gas.

24. As stated above, the gas supply was commenced by ONGC from 3.2.2015. Subsequently, the GT was synchronized on 11.3.2015 and COD of the GT was declared on 24.12.2015. The Petitioner vide affidavit dated 29.10.2018 has submitted that the supply of gas by ONGC was inconsistent and inadequate and the same is evident from the letter of ONGC dated 3.9.2015, wherein ONGC had expressed its inability to supply full contracted quantity of gas and had further stated that the possibility to supply full quantum of gas was by March, 2016. It is observed that after the declaration of COD of GT on 24.12.2015, STG combined cycle was synchronized on 14.1.2016. Subsequently, the supply of gas by ONGC was further discontinued from 29.2.2016. After discussion of the Secretary, MoP&NG with the Secretary, MOP, GOI, ONGC and the Petitioner on 25.5.2016, it was informed that ONGC would be in a position to supply full contracted gas, on sustained basis, from the end of December, 2016. After the direction of Secretary, MoP&NG, supply of gas was started by ONGC on 25.11.2016. Pursuant to the request of MOP, GOI vide letter dated 9.3.2017 to MoP&NG to ensure full supply of gas, the supply of full quantum of gas commenced from mid-March and the COD of ST was declared on 31.3.2017. Though as per GSA, ONGC had

committed to supply the full contracted capacity of gas with effect from 23.3.2013, due to irregular supply of gas, the Petitioner could not declare the COD of ST. It is therefore evident that ONGC could not arrange the required gas to the generating station and the Petitioner did not have any alternate source of arrangement of gas supply. Considering these factors in totality, we are of the considered view that the delay of 36 months in the commissioning of ST, due to non-availability of gas is not attributable to the Petitioner. Accordingly, we hold that the Petitioner is not responsible for the delay of 36 months in the commission of ST and is therefore covered by the principle [(situation (ii)] laid down in the judgment of the Tribunal dated 27.4.2011 in Appeal No. 72/2010 and the generating company is given the benefit of additional cost incurred due to time overrun. However, the Liquidated Damages and Insurance proceeds received, if any, for the said period would be considered for reduction in capital cost.

25. Based on the above discussions, we conclude that the total delay of 33 months with respect to declaration of COD of GT (i.e. delay of 8 months due to offloading of contract to NBPPL and 25 months due to non-availability of gas) and 44 months in the declaration of COD of ST/ combined cycle mode (i.e. delay of 8 months due to offloading of contract to NBPPL and 36 months due to non-availability of gas) is not attributable to the Petitioner and is therefore condoned.

26. Accordingly, the time overrun allowed (against the actual time overrun) for the unit and the schedule COD (reset) for the purpose of computation IDC due to time overrun is summarized as under:

Unit	Schedule COD as per Investment Approval	Actual COD	Time Overrun considering SCOD (months)	Time overrun allowed (in months)	SCOD (reset) for IDC computation
GT	31.3.2013	24.12.2015	33	33	24.12.2015
ST	31.7.2013	31.3.2017	44	44	31.3.2017

Capital Cost

27. Regulation 9 (2) of the 2014 Tariff Regulations provides as under:

"The Capital cost of a new project shall include the following:

(a) The expenditure incurred or projected to be incurred up to the date of commercial operation of the project; (b) Interest during construction and financing charges, on the loans (i) being equal to 70% of the funds deployed, in the event of the actual equity in excess of 30% of the funds deployed, by treating the excess equity as normative loan, or (ii) being equal to the actual amount of loan in the event of the actual equity less than 30% of the funds deployed;

(c) Increase in cost in contract packages as approved by the Commission;

(d) Interest during construction and incidental expenditure during construction as computed in accordance with Regulation 11 of these regulations;

(e) Capitalised Initial spares subject to the ceiling rates specified in Regulation 13 of these regulations;

(f) Expenditure on account of additional capitalization and de-capitalisation determined in accordance with Regulation 14 of these regulations;

(g) Adjustment of revenue due to sale of infirm power in excess of fuel cost prior to the COD as specified under Regulation 18 of these regulations; and

(h) Adjustment of any revenue earned by the transmission licensee by using the assets before COD.

Approved Capital Cost

28. The total capital cost as per Investment approval as on December, 2008 Price level is ₹421.01 crore (as per MoP vide letter dated 14.7.2009) including hard cost ₹393.54 crore and IDC & FC ₹27.47 crore. The Petitioner on 25.9.2008 invited tender for EPC contract in ICB route. Only single bidder M/s Gammon-Sadelmi JV participated in the bid which was rejected as it did not fulfill the qualifying criteria. After detailed deliberation, it was decided to award the EPC contract to BHEL on nomination basis with the assistance of CEA. BHEL offered a technical offer of ₹729.77 crore for EPC contract and ₹878.85 crore for total

project cost as against the investment approval of ₹421.01 crore by CCEA at December, 2008 price level. The price offer submitted by BHEL was negotiated and the total project cost of ₹607.91 crore was agreed upon and the project cost was approved as ₹623.44 crore at November, 2009 price level by MoP vide letter dated 23.2.2011.

29. The Investment approval for the estimated project cost at November, 2009 price level for ₹623.44 crore (including IDC of ₹51.09 crore) has been conveyed by the MOP, GOI vide letter dated 23.02.2011. The cost was further revised and RCE-II of ₹1062.24 crore including the hard cost of ₹919.00 crore and IDC, FC & actual FERV amounting to ₹143.24 crore has been approved by CEA. The RCE-II of ₹1062.24 Crore was submitted to MoP on 27.2.2018 and approval is still awaited. However, the revised cost of ₹1062.24 crore has been vetted by CEA vide 7/14.6.2017. As the bid invited though the ICB route did not get finalize, the EPC contract to BHEL on nomination basis with negotiation was finally approved as ₹623.44 crore at November, 2009 price level. Accordingly, ₹623.44 crore may be considered as approved project cost as under:

(₹ in crore)

Original Investment approval by MoP vide letter dated 14.7.2009 (December, 2008 PL)	RCE-I approved by MoP vide letter dated 23.2.2011 (November, 2009 PL)	Completed Cost RCE-II (October, 2016)
421.01	623.44	1062.24

Capital Cost claimed

30. The capital cost claimed for tariff computation by the Petitioner as on 2018-19 in the original petition vide affidavit dated 8.5.2017 is as under:

(₹ in lakh)

	2015-16 (24.12.2015 to 31.03.2016)	2016-17 (1.4.2016 to 30.3.2017) for GT	2017-18 (31.3.2017 to 31.3.2017) ST / COD	2017-18	2018-19
(i) Opening Gross block	59931.83	60424.49	89061.91	100187.74	108033.26
(ii) Less: Un-discharged liability	4354.55	4972.65	4974.35	1876.09	0.00
(iii) Capital expenditure as on COD on cash basis (i-ii)	**55577.28**	**55451.84**	**84087.56**	**98311.65**	**108033.26**
(iv) Add: IDC	7728.17	15813.76	15857.20	0.00	0.00
(v) Capital expenditure as on COD including IDC on cash basis (iii + iv)	63305.45	71265.59	99944.76	98311.65	108033.26
(vi) Add: Additional capital expenditure claimed	492.66	28019.32	242.98	9721.61	0.00
(vii) Closing Capital Cost (v+vi)	**63798.11**	**99284.92**	**100187.74**	**108033.26**	**108033.26**
(viii) Average Capital Cost {(v+vii)/2}	63551.78	85275.25	100066.25	103172.46	108033.26

31. However, the Petitioner vide affidavit dated 5.4.2018 has furnished the audited capital cost up to COD as under:

(₹ in lakh)

	2015-16 Total Capital cost as on 24.12.2015 COD of GT	2016-17 Total Capital cost as on 31.3.2017 for ST/CC mode
Hard Cost	54044.57	78159.44
IDC	7712.68	15857.20
IEDC	4915.84	9820.96
Initial / Mandatory spares	971.42	1513.35
Total	**67655.51**	**105350.95**

32. The claimed capital cost in the original petition is less than the audited cost as furnished by the Petitioner vide affidavit dated 5.4.2018. Further, the Petitioner has not furnished the details of un-discharged liability in the audited

capital cost. Therefore, the capital cost of ₹63305.45 lakh as on 24.12.2015 (i.e. COD of Gas Turbine) and ₹99944.76 lakh as on 31.3.2017 (i.e. COD of Steam Turbine) has been considered as the opening capital cost as on respective COD dated for the purpose of the tariff.

Impact of time overrun on contract price, IDC and IEDC

33. The Petitioner vide ROP of the hearing dated 11.10.2018 was directed to furnish the break-up of original investment approval cost and corresponding increase in each package and capital cost as on COD, along with reasons/ justification for such increase. In response, the Petitioner vide affidavit dated 29.10.2018 has submitted as under:

(₹ in crore)

Sl. No	Items	Original Investment approval by MoP vide letter dated 14.7.2009 (Dec, 2008 PL)	RCE-I approved by MoP vide letter dated 23.2.2011 (Nov, 2009 PL)	Completed Cost RCE-II (October, 2016 PL)	Variation	%Variation
1	Land	5.40	2.00	8.74	6.74	337.00%
2	Preliminary Investigation	4.60	2.50	4.32	1.82	72.80%
3	Main Plant Equipment	208.42	375.93	444.05	68.12	18.12%
4	Freight and insurance	6.00	6.00	39.44	33.44	557.33%
5	Plant Civil work by BHEL	55.66	55.66	178.63	122.97	220.93%
6	Other Civil works	26.89	19.91	42.07	22.16	111.30%
7	Erection, test &comm.	14.82	46.79	62.59	15.80	33.77%
8	Taxes and Duties	45.47	43.41	28.49	(-)14.92	(-)34.37%
9	Special T&P	1.07	0.50	1.00	0.50	100%
10	Environment	2.38	2.38	1.88	(-)0.50	(-)21.00%
11	Contingency	0.98	0.98	0	(-)0.98	(-)100%

12	Establishments	14.27	10.00	103.08	93.08	930.8%
13	Start up fuel	2.30	1.00	0	(-)1.00	(-) 100%
14	Operator's training	0.25	0.25	0	(-)0.25	(-)100%
15	Legal Experts	0.25	0.25	0	(-)0.25	(-)100%
16	Consultancy	2.93	2.93	2.87	(-)0.06	(-)2.04%
17	Insurance	1.85	1.85	1.85	0	0.00%
18	IDC	27.47	51.09	143.24	92.15	180.37%
Total Project Cost		**421.01**	**623.44**	**1062.24**	**438.80**	**70.38%**

34. Considering the fact that time overrun has been condoned as above and the CEA had recommended the completion cost of ₹1062.24 crore, the same has been considered for the purpose of tariff.

IDC

35. The Petitioner has claimed IDC amounting to ₹12277.54 lakh. The Petitioner in the petition has furnished the details of amount, date of drawl, rate of interest etc. in respect of loans. Based on the above details, IDC claimed has been worked out and has been allowed.

FERV

36. The Petitioner has claimed FERV amounting to ₹2355.71 lakh. In support of this, the Petitioner has submitted detailed calculation with documentary proof duly certified by Chartered Accountant for the rates applied in the calculation of FERV. Accordingly, the same has been considered for capital cost.

Financial Charges

37. The Petitioner has claimed financial charges amounting to ₹1223.95 lakh. The Petitioner in support of this claim has submitted the certificate duly certified by Chartered Accountant and the same has been considered for capital cost.

Liquidated Damages and Insurance

38. The Petitioner has not submitted any details regarding the liquidated damage recovered and insurance received. The Petitioner at the time of truing-up exercise shall furnish the details of LD recovered and insurance received, if any.

Initial Spares

39. Regulation 13 of the 2014Tariff 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:*
>
> *iv. 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."*

40. The COD of the generating station is 31.3.2017 and accordingly the cutoff date of the generating station is 31.3.2020. The Petitioner in Form-5C and Form 5EI of the petition has not claimed Initial spares as on COD of the station. Further, the Petitioner vide affidavit dated 5.4.2018 has furnished the audited details of the initial/mandatory spares amounting to ₹1513.35 lakhs. The Petitioner in form-5C has furnished the total plant and machinery cost of ₹78684.21 lakh as on COD i.e. up to 31.03.2017. Therefore, the audited value of initial spares of ₹1359.00 lakh claimed by the Petitioner works out to 1.73 % of the Plant & Machinery cost and is within the limit, hence, may be allowed. The Petitioner is 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.

Infirm power

41. The Petitioner in Form-5C of the petition has only furnished the detail of startup fuel of ₹100 lakh. However, the Petitioner vide affidavit dated 5.4.2018 has furnished that the sale of infirm power adjusted in respect of the generating station is ₹1557.42 lakh as on 24.12.2015 (COD of Gas Turbine) and ₹284.36 lakh as on 31.3.2017 (COD of steam turbine/CC unit). However, the Petitioner has not furnished the bifurcation of total infirm power generated, the revenue earned thereof, cost of fuel used before & after the synchronization till COD. The Petitioner is directed to furnish the details of infirm power injected in the grid by the generating station till COD and revenue earned from sale of infirm power excluding fuel cost and the details of fuel used from synchronization till COD along with expenditure on fuel, for pre-commissioning activities at the time of truing up of tariff of the generating station.

Additional Capital Expenditure

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

> *"14.(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.*

43. The Petitioner in the original petition vide affidavit dated 8.5.2017 has only claimed total additional capital expenditure of ₹38476.57 lakh. The Petitioner in Form-9A has not furnished the details and bifurcation of additional capital expenditure. The Petitioner vide affidavit dated 8.5.2017 has claimed additional capital expenditure as under:

(₹in lakh)

2015-16 (24.12.2015 to 31.3.2016)	2016-17 (1.4.2016 to 30.3.2017) for GT	2017-18 (31.3.2017 to 31.3.2017) ST COD	2017-18	2018-19
492.66	28019.32	242.98	9721.61	0.00

44. Since, the Petitioner in Form-9A has not furnished the details and bifurcation of additional capital expenditure, the same is not allowed and not considered in the capital cost for the purpose of tariff. However, the additional capital expenditure may be considered at the time of truing up of tariff of the generating station, after furnishing the details and bifurcation based on the merit.

45. Considering the fact that the time overrun of 33 and 44 months for COD of Gas Turbine and Steam Turbine respectively has been condoned, the hard cost of GT and ST/Combined cycle mode allowed for tariff for the period 2014-19 is as under:

(₹in lakh)

	2015-16 Total Capital cost as on 24.12.2015 (COD of GT)	2016-17 Total Capital cost as on 31.3.2017 (ST/CC mode)
Opening capital cost (excluding un-discharged liability, IDC and Additional capital expenditure)	55577.28	84087.56

Undischarged liabilities

46. The projected discharge of un-discharged liabilities of ₹4974.35 lakh (3098.26 for 2017-18 and 1876.09 for 2018-19) claimed buy the Petitioner during the period 2017-19 has been considered.

47. Based on the above discussions, the capital cost considered for the purpose of tariff for the period 2014-19 is as under:

(₹ in lakh)

	24.12.2015 to 31.3.2016	1.4.2016 to 30.3.2017	31.3.2017	2017-18	2018-19
Opening Capital Cost	63289.96	63289.96	100376.60	100376.60	103474.86
Add: Discharge of liabilities	0.00	0.00	0.00	3098.26	1876.09
Capital Cost as on 31 March of the FY	63289.96	63289.96	100376.60	103474.86	105350.95

Debt-Equity Ratio

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

"(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.

Explanation - The premium, if any, raised by the generating company or the transmission licensee, as the case may be, while issuing share capital and investment of internal resources created out of its free reserve, for the funding of the project, shall be reckoned as paid up capital for the purpose of computing return on equity, only if such premium amount and internal resources are actually utilized for meeting the capital expenditure of the generating station or the transmission system.

(2) The generating Company or the transmission licensee shall submit the resolution of the Board of the company or approval from Cabinet Committee on Economic Affairs (CCEA) regarding infusion of fund from internal resources in support of the utilization made or proposed to be made to meet the capital

expenditure of the generating station or the transmission system including communication system, as the case may be.

(3) In case of the generating station and the transmission system including communication system declared under commercial operation prior to 1.4.2014, debt-equity ratio allowed by the Commission for determination of tariff for the period ending 31.3.2014 shall be considered.

(4) In case of generating station and the transmission system including communication system declared under commercial operation prior to 1.4.2014, but where debt-equity ratio has not been determined by the Commission for determination of tariff for the period ending 31.3.2014, the Commission shall approve the debt-equity ratio based on actual information provided by the generating company or the transmission licensee as the case may be.

(5) Any expenditure incurred or projected to be incurred on or after 1.4.2014 as may be admitted by the Commission as additional capital expenditure for determination of tariff, and renovation and modernization expenditure for life extension shall be serviced in the manner specified in clause (1) of this regulation.

49. Accordingly, the debt equity ratio has been considered as 70:30 in terms of the above regulation.

Return on Equity

50. 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 kilometers."

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

(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 nongeneration 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.

52. The Petitioner has claimed return on equity considering the base rate of 15.5% and effective tax rate of 25.6419% during the period 2015-19. In line with the decision of the Commission in earlier orders, the grossing up of base rate has been done with MAT rate of the year 2013-14. This is however subject to truing-up in terms of the 2014 Tariff Regulations. Accordingly, return on equity has been worked out as under:

(₹ in lakh)

	24.12.2015 to 31.3.2016	**1.4.2016 to 30.3.2017**	**31.3.2017**	**2017-18**	**2018-19**
Opening Equity	18986.99	18986.99	30112.98	30112.98	31042.46
Addition due to Additional	0.00	0.00	0.00	929.48	562.83

Capitalization					
Closing Equity	18986.99	18986.99	30112.98	31042.46	31605.29
Average Equity	18986.99	18986.99	30112.98	30577.72	31323.87
Return on Equity (Base Rate)	15.500%	15.500%	15.500%	15.500%	15.500%
Tax rate for the year	20.961%	20.961%	20.961%	20.961%	20.961%
Rate of Return on Equity (Pre Tax)	19.610%	19.610%	19.610%	19.610%	19.610%
Return on Equity (Pre Tax)	**1007.14**	**3713.15**	**16.18**	**5996.29**	**6142.61**

Interest on Loan

53. 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 decapitalization 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-capitalization 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 loan."

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

i) The weighted average rate of interest has been worked out on the basis of the actual loan portfolio of respective year applicable to the project.

ii) The repayment for the year of the period 2009-14 has been considered equal to the depreciation allowed for that year.

iii) The interest on loan has been calculated on the normative average loan of the year by applying the weighted average rate of interest.

55. Necessary calculation for interest on loan is as under:

(₹ in lakh)

	24.12.2015 to 31.3.2016	**1.4.2016 to 30.3.2017**	**31.3.2017**	**2017-18**	**2018-19**
Gross Normative Loan	44302.97	44302.97	44302.97	44302.97	46471.75
Cumulative Repayment up to Previous Year	0.00	829.61	3888.24	3901.56	8840.88
Net Loan-Opening	44302.97	43473.37	40414.74	40401.41	37630.87
Repayment during the year	0.00	0.00	0.00	2168.78	1313.26
Addition due to Additional Capitalization	829.61	3058.63	13.33	4939.32	5059.85
Net Loan-Closing	43473.37	40414.74	40401.41	37630.87	33884.28
Average Loan	43888.17	41944.05	40408.07	39016.14	35757.58
Weighted Average Rate of Interest on Loan	6.472%	6.960%	6.960%	7.163%	7.325%
Interest	**768.32**	**2911.31**	**7.71**	**2794.73**	**2619.24**

56. The Petitioner is however directed to submit the effective tax rates along with the tax audit report for the period 2015-19 at the time of truing-up of tariff of the generating station in terms of the 2014 Tariff Regulations.

Depreciation

57. Regulation 27 of the 2014 Tariff Regulations provides as under:

*"**27. Depreciation**: (1) Depreciation shall be computed from the date of commercial operation of a generating station or unit thereof or a transmission system including communication system or element thereof. In case of the tariff of all the units of a generating station or all elements of a transmission system including communication system for which a single tariff needs to be determined, the depreciation shall be computed from the effective date of commercial operation of the generating station or the transmission system taking into consideration the depreciation of individual units or elements thereof.*

Provided that effective date of commercial operation shall be worked out by considering the actual date of commercial operation and installed capacity of all the units of the generating station or capital cost of all elements of the transmission system, for which single tariff needs to be determined.

(2) The value base for the purpose of depreciation shall be the capital cost of the asset admitted by the Commission. In case of multiple units of a generating station or multiple elements of transmission system, weighted average life for the generating station of the transmission system shall be applied. Depreciation shall be chargeable from the first year of commercial operation. In case of commercial operation of the asset for part of the year, depreciation shall be charged on pro rata basis.

(3) The salvage value of the asset shall be considered as 10% and depreciation shall be allowed up to maximum of 90% of the capital cost of the asset: Provided that in case of hydro generating station, the salvage value shall be as provided in the agreement signed by the developers with the State Government for development of the Plant:

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

Provided also that any depreciation disallowed on account of lower availability of the generating station or generating unit or transmission system as the case may be, shall not be allowed to be recovered at a later stage during the useful life and the extended life.

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

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

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

(6) In case of the existing projects, the balance depreciable value as on1.4.2014 shall be worked out by deducting the cumulative depreciation as admitted by the Commission upto 31.3.2014 from the gross depreciable value of the assets.

(7) The generating company or the transmission license, as the case may be, shall submit the details of proposed capital expenditure during the fag end of the project (five years before the useful life) along with justification and proposed life extension. The Commission based on prudence check of such submissions shall approve the depreciation on capital expenditure during the fag end of the project.

(8) In case of de-capitalization of assets in respect of generating station or unit thereof or transmission system or element thereof, the cumulative depreciation shall be adjusted by taking into account the depreciation recovered in tariff by the de-capitalized asset during its useful services."

58. Depreciation has been calculated considering the weighted average rate of depreciation of 4.846% for the period from COD of GT unit till 2018- 19 in terms of the above regulation. Accordingly, depreciation has been computed as under:

(₹ in lakh)

	24.12.2015 to 31.3.2016	**1.4.2016 to 30.3.2017**	**31.3.2017**	**2017-18**	**2018-19**
Opening Gross Block	63289.96	63289.96	100376.60	100376.60	103474.86
Addition due to Projected Additional Capitalization	0.00	0.00	0.00	3098.26	1876.09
Closing Gross Block	63289.96	63289.96	100376.60	103474.86	105350.95
Average Gross Block	63289.96	63289.96	100376.60	101925.73	104412.91
Rate of Depreciation	4.846%	4.846%	4.846%	4.846%	4.846%
Depreciable Value	56760.96	56760.96	90138.93	91533.15	93771.61
Remaining Depreciable Value	56760.96	55931.35	86250.70	87631.59	84930.72
Depreciation	**829.61**	**3058.63**	**13.33**	**4939.32**	**5059.85**

O&M Expenses

59. Regulation 29 (1) (c) of the 2014 Tariff Regulations provides year-wise O & M expenses norms for the open cycle Gas Turbine/ Combined Cycle generating stations (Advance F Class Machines) as under:

(₹ in lakh /MW)

2015-16	**2016-17**	**2017-18**	**2018-19**
28.36	30.29	32.35	34.56

60. Based on the norms, the O&M expenses claimed by the Petitioner for the period 2015-19 is worked out and allowed as under:

(₹ in lakh)

24.12.2015 to 31.3.2016 (for GT)	1.4.2016 to 30.3.2017 (for GT)	31.3.2017 to 31.3.2017 (for CC)	2017-18	2018-19
501.85	1976.14	8.38	3267.35	3490.56

Water Charges

61. Regulation 29(2) of the 2014 Tariff Regulations provides as under:

> *"29(2) The Water Charges and capital spares for thermal generating stations shall be allowed separately:*
>
> *Provided that water charges shall be allowed based on water consumption depending upon type of plant, type of cooling water system etc., subject to prudence check. The details regarding the same shall be furnished along with the petition:*
>
> *Provided that the generating station shall submit the details of year wise actual capital spares consumed at the time of truing up with appropriate justification for incurring the same and substantiating that the same is not funded through compensatory allowance or special allowance or claimed as a part of additional capitalisation or consumption of stores and spares and renovation and modernization"*

62. In terms of the above regulation, water charges are to be allowed based on water consumption depending upon type of plant, type of cooling water system etc., subject to prudence check of the details furnished by the Petitioner. However, the Petitioner has not claimed any water charges on projection basis during the year 2015-19. Accordingly, the same has not been considered.

63. The total O&M expenses claimed by the Petitioner and allowed for the purpose of tariff is as under:

(₹ in lakh)

	24.12.2015 to 31.3.2016 (for GT)	1.4.2016 to 30.3.2017 (for GT)	31.3.2017 to 31.3.2017 (for CC)	2017-18	2018-19
O&M Expenses as claimed	501.85	1976.14	8.38	3267.35	3490.56
O&M Expenses as Allowed	501.85	1976.14	8.38	3267.35	3490.56
Water Charges as allowed	0.00	0.00	0.00	0.00	0.00
Total O&M Expenses allowed	**501.85**	**1976.14**	**8.38**	**3267.35**	**3490.56**

Operational Norms

64. The operational norms in respect of the generating station considered by the Petitioner are as under:

Normative Annual Plant Availability Factor (NAPAF) or Target Availability	85%
Gross Station Heat rate (Combined cycle)(kcal/kWh) based on Guaranteed heat rate plus 5%	1773.16
Gross Station Heat rate (open cycle)(kcal/kWh) based on Guaranteed heat rate plus 5%	2689.94
Auxiliary power consumption (Combined cycle) (%)	2.5

65. The operational norms claimed by the Petitioner are discussed as under:

Normative Annual Plant Availability Factor (NAPAF) or Target Availability

66. The Petitioner has considered the NAPAF of 85% for the purpose of annual fixed charges for the period 2014-19 in terms of the 2014 Tariff Regulations. The NAPAF of 85% claimed by the Petitioner is as per norms and is therefore allowed.

Gross Station Heat Rate

67. Regulation 36 (C)(d) of the 2014 Tariff Regulations provides as under:

> ***"(d) Gas-based / Liquid-based thermal generating unit(s)/ block(s) having COD on or after 01.04.2009.***
>
> *= 1.05 X Design Heat Rate of the unit/block for Natural Gas and RLNG (kCal/kWh)*
>
> *= 1.071 X Design Heat Rate of the unit/block for Liquid Fuel (kCal/kWh)*
>
> *Where the Design Heat Rate of a unit shall mean the guaranteed heat rate for a unit at 100% MCR and at site ambient conditions; and the Design Heat Rate of a block shall mean the guaranteed heat rate for a block at 100% MCR, site ambient conditions, zero percent make up, design cooling water temperature/back pressure:*
>
> *Provided that the heat rate norms computed as per above shall be limited to the heat rate norms approved during FY 2009-10 to FY 2013-14."*

68. The Petitioner has submitted that the Guaranteed Heat rate for open cycle and combined cycle is based on 100% net base output i.e. 61300 kW and 95400 kW respectively. Guaranteed Heat rate at gross base output is arrived as under:

$$= \frac{2734 \times 61300}{65429} = 2561.82 \quad \textit{(for open cycle)}$$

$$= \frac{1787.84 \times 95400}{101000} = 1688.72 \quad \textit{(for combined cycle)}$$

69. Further, the Petitioner vide affidavit dated 6.9.2018 has requested to consider and allow the Gross Station Heat Rate for the Tripura Gas Based Power Project, as 2083.030 Kcal/Kwh in combined cycle mode. In this regard, the Petitioner has submitted the following:

(A) The design heat rate guaranteed by the manufacturer M/s BHEL is as below:

a) Guaranteed heat rate

i. At 100% net based combined cycle module output for conditions as specified under relevant clause is 1787.84 kcal/kWh.

ii. At 100% net base output of gas turbine (open cycle mode) for conditions as specified under relevant clause, is 2734 kcal/kWh

b) Guaranteed Net Base Output

(i) At 100% net base combined cycle output at conditions specified under relevant clause is 95400 kW.

(ii) At 100% net based output of gas turbine (open cycle mode) for conditions as specified under relevant clause is 61300 KW.

70. The Petitioner in the affidavit dated 6.9.2018 has also furnished the actual achieved heat rates for the year 2015-16, 2016-17, 2017-18 and 2018-19 (up to July, 2018), considering the actual parameters as under:

Parameter	**Unit**	**2015-16**	**2016-17**	**2017-18**	**2018-19 (up to July)**
Average NCV of Fuel (Gas)	Kcal/SCUM	8290.647	8315.720	8289.565	8269.200
Average GCV of Fuel(Gas)	Kcal/SCUM	9198.727	9225.360	9197.593	9176.474
Energy Generated	MU	127.156	167.680	670.8320	210.4270
Gas Consumption	MMSCUM	41.195097	54.363818	147.206327	46.285406

Heat Rate based on NCV	Kcal/kWh	3082.77	2712.458	1819.05	1817.380
Heat Rate based on GCV	Kcal/kWh	3420.41	3009.167	2018.31	2016.778

71. The Petitioner on the above data has submitted that project was running in combined cycle mode (in full capacity) from the FY 2017-18 onwards, because stable Gas supply from ONGC was available w.e.f. 2017-18 only. Therefore, it is the parameters for these two years (i.e. 2017-18 & 2018-19 – up to July) which have been considered for calculating the actual Gross Station Heat Rate of the project, which is as under:

GCV of Fuel = 9197.593 Kcal/SCM (Ave for year 2017-18).
NCV of Fuel = 8289.565 Kcal/SCM (Ave for year 2017-18).
Guaranteed Design Heat Rate based on NCV = 1787.84 Kcal/kWh.
GCV based Design Heat Rate = 9197.593 X 1787.84/8289.565
= 1983.678 Kcal/kWh.
GSHR for tariff may be considered as = 1.05 X 1983.678 Kcal /kWh.
= 2082.862Kcal/ kWh.

72. Based on the above methodology, the actual Gross Station Heat Rate for the year 2018-19 (up to July, 2018) computed by the Petitioner is as under:

GCV of Fuel = 9197.593 Kcal/SCM (Ave for year 2018-19 upto Jul'2018).
NCV of Fuel = 8289.565 Kcal/SCM (Ave for year 2018-19 upto Jul'2018).
Guaranteed Design Heat Rate based on NCV = 1787.84 Kcal/Kwh.
GCV based Design Heat Rate = 9176.474 X 1787.84 / 8269.200
=1983.997 Kcal/kWh.
GSHR for tariff may be considered as = 1.05 X 1983.997 Kcal /kWh.
= 2083.197Kcal/ kWh.

Accordingly, the average GSHR at GCV for the year 2017-18 and 2018-19 (up to July, 2018) is 2083.030 Kcal/ kWh.

73. Regulation 36 (C)(d) of the 2014 Tariff Regulations provides for GSHR at 100% MCR. Moreover, for computation of GSHR, 1.05 X Design Heat Rate of the unit/block is applied. The Petitioner has considered the GSHR of 2083.030 kCal/kWh based on actual average GSHR for the year 2017-18 and 2018-19 (up to

July). However, the stable Gas supply from ONGC was available w.e.f. 2017-18 only and the Petitioner has only furnished the data up to July 2018 for the period 2018-19. The GSHR worked out considering the average of 4 years i.e. from 2015-16 to 2018-19 is higher than the GSHR for the year 2017-18, and also the data for the period 2018-19 is not complete. Hence, the data of 2017-18 is only considered for consideration of Gross Station Heat Rate. Further, the Petitioner in the computation has considered the heat rate of 1787.84 kcal/kWh and 2734 kcal/kWh at net based combined cycle mode and open cycle mode respectively. However, the heat rate as allowed shall be based on Gross output and GCV. Accordingly, the GSHR for combined cycle has been worked out as 1967.385 Kcal/ kWh (1.05 x 9197.593 x 1688.72/8289.565). Similarly, the GSHR for open cycle has been worked out as 2984.539 Kcal/ kWh (1.05 x 9198.727 x 2561.82/8290.647). Accordingly, the GSHR is considered as 2984.539 Kcal/ kWh for open cycle and 1967.385 Kcal/ kWh for combined cycle for the purpose of tariff.

Auxiliary Power Consumption

74. As per the 2014 Tariff Regulations, the norm for Auxiliary Energy Consumption (AEC) for Combined Cycle Gas based Projects is 2.5%. The Petitioner vide affidavit dated 6.9.2018 has requested the Commission to consider and allow the Auxiliary Power Consumption of 5.5% for the Project on the following grounds:

1. From the actual operational data, the auxiliary energy consumption is actually 4.51% for the FY 2015-16, 5.8 % for the FY 2016-17, 4.40% for the year 2017-18 and 4.54% for the year 2018-19 (up to July, 2018). This auxiliary consumption is for the station auxiliaries only and does not include the colony supply which is metered separately.

2. The primary reason for the high auxiliary consumption is the Gas Booster Station of the Plant which is run on heavy duty electric motors (800 KW). An electric motor driven GBC (Gas Booster Compressor) had been chosen over a gas engine driven GBC, as it has been proven to be more reliable. In addition to the electric motor driven GBC, Boiler Feed Pump (BFP), Cooling water pump and Static Frequency Converter (2.5 MVA Capacity) which is used for starting of Gas Turbine (i.e. 30 minutes for one start) also contributes to the high Auxiliary consumption. Apart from the above mentioned major equipment, there are a number of drives running at 415V level.

3. The gas supplied to the station is at 19-21 Kg/cm^2 pressure, which is below the required pressure of 30 Kg/cm^2 to be fed to the Gas Turbine. Therefore, two numbers of Motor Driven Centrifugal Compressors (GBC) are used to boost up the Gas supply pressure from 19 Kg/cm^2 to 30 Kg/cm^2 before being fed to the Gas Turbine.

75. The Petitioner has submitted that the AEC claimed for open & combined cycle is 1% & 2.5% respectively in the Petition. However, the the same may be considered and allowed as 5.5% for the generating station. The Petitioner has submitted the actual auxiliary energy consumption for the year 2016-17, 2017-18 and 2018-19 (up to July, 2008).

APC Data for Gas Turbine Thermal Power Stations for the year 2016-17

Sl. No.	Month	Energy Generated during the month	Energy Sent out during the month	Auxiliary Power consumption of the Plant	% Auxiliary Power Consumption [(5)*100/(3)]
		(GWh)	(GWh)	(GWh)	(%)
(1)	(2)	(3)	(4)	(5)	(6)
1	April	10.583	10.215	0.617	5.83
2	May	2.322 + 0.167	2.328	0.368	14.78
3	June	0		0.182	
4	July	0		0.132	
5	August	0		0.178	
6	September	0		0.188	
7	October	0		0.186	
8	November	8.395	8.233	0.39	4.64
9	December	46.049 + 2.2035	46.911	1.778	3.68
10	January	37.536	36.73	1.173	3.12
11	February	26.321 + 2.378	27.552	1.216	4.23
12	March	36.487 + 9.3825	44.057	1.975	4.33
	Total/Weighted average	181.824	176.026	8.383	5.80

Note: COD for GT Unit w.e.f. 24.12.2015 & ST Unit w.e.f 31.3.2017.

APC Data for Gas Turbine Thermal Power Stations for the year 2017-18

Sl. No.	Month	Energy generated during the month	Energy sent out during the month	Auxiliary Power consumption of the Plant	% Auxiliary Power Consumption [(5)*100/(3)J
		(GWh)	(GWh)	(GWh)	(%)
(1)	(2)	(3)	(4)	(5)	(6)
1	April	57.7940	55.555	2.5780	4.46
2	May	57.1495	54.963	2.5230	4.41
3	June	60.8020	58.571	2.5630	4.22
4	July	62.5180	60.157	2.7200	4.35
5	August	59.5050	57.254	2.6210	4.40
6	September	56.8860	54.697	2.4870	4.37
7	October	53.7330	51.554	2.5000	4.65
8	November	58.1480	56.008	2.5080	4.31
9	December	52.9070	50.905	2.3280	4.40
10	January	40.5020	38.982	1.8356	4.53
11	February	54.2020	52.217	2.2830	4.21
12	March	56.6850	54.430	2.5573	4.51
	Total/Weighted average	670.8315	645.293	29.5038	4.40

Note: 1. COD for GT Unit w.e.f: 24/12/2015 & ST Unit w.e.f: 31.3.2017.

2. Gas supply restricted to 0.4 MMSCMD w.e.f 17.10.2017.

APC Data for Gas Turbine Thermal Power Stations for the year 2018-19

Sl. No.	Month	Energy Generated during the month	Energy Sent out during the month	Auxiliary Power consumption of the Plant	% Auxiliary Power Consumption [(5)*l00/(3)]
		(GWh)	(GWh)	(GWh)	(%)
(1)	(2)	(3)	(4)	(5)	(6)
1	April	52.506	50.403	2.415	4.60
2	May	55.35	53.263	2.4707	4.46
3	June	55.864	53.585	2.5173	4.51
4	July	46.707	44.796	2.1398	4.58
5	August				
6	September				
7	October				
8	November				
9	December				
10	January				
11	February				
12	March				
	Total/Weighted average	210.427	202.047	9.5428	4.54

NOTE: 1. COD for GT Unit w.e.f: 24/12/2015 & ST Unit w.e.f: 31.3.2017.

2. Gas supply restricted to 0.4 MMSCMD by M/s ONGC.

76. Further, the Petitioner has submitted the component/ equipment-wise Auxiliary Energy Consumption of the generating station along with the power

rating. From the furnished data it could be seen that total weighted average of Auxiliary consumption is ranging around 5.8% for the year 2016-17, 4.40% for the 2017-18 and 4.54% for the year 2018-19 (up to July, 2018). However, from the submitted data the total power consumption of GBC could not be made out. The AEC of 2.5% specified under the 2014 Tariff Regulations for combined cycle gas turbine project was based on the auxiliary consumption pattern of the gas based generating stations of NTPC and NEEPCO. In case of NTPC Gas based stations, there is no Gas Booster Stations (GBS). The Petitioner has furnished the actual auxiliary energy consumption for April, 2016 to July, 2018 the average of which works out to 4.91% approx. Considering the fact that the Petitioner has not furnished the actual consumption of electric motor driven GBC (Gas Booster Compressor) separately, the actual difference due to application of electric driven GBC cannot be made out. However, the Commission, vide order dated 30.3.2017 in Petition No. 129/GT/2015 had allowed AEC of 3.5% considering the additional AEC of 1% due to GBC. Accordingly, we allow 2% of AEC for open cycle and 3.5% of AEC for combined cycle and Petitioner is directed to furnish the actual consumption of electric motor driven GBC (Gas Booster Compressor) separately from the COD of the station till date at the time of truing up.

77. Based on the above discussions, the operational norms considered for the purpose of tariff is as under:

	24.12.2015 to 31.3.2016	**1.4.2016 to 30.3.2017**	**31.3.2017 to 31.3.2017**	**2017-18**	**2018-19**
Normative Annual Plant Availability Factor for recovery of fixed charges and for incentive (%)	85				
Gross Station Heat rate (Open Cycle) based on guaranteed heat rate plus	2984.539	2984.539	-	-	-

5%(kcal/kWh)					
Gross Station Heat rate (Combined Cycle) based on guaranteed heat rate plus 5% (kcal/kWh)	-	-	1967.385	1967.385	1967.385
Auxiliary Energy Consumption (Open Cycle) (%)	2 (electric driven gas boosters)				
Auxiliary Energy Consumption (Combined Cycle) (%)	3.5 (electric driven gas boosters)				

<u>Interest on Working Capital</u>

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

> *"28. Interest on Working Capital: (1) The working capital shall cover*
>
> *(a)xxxxxx*
>
> *(b) Open-cycle Gas Turbine/Combined Cycle thermal generating stations*
>
> *(i) Fuel cost for 30 days corresponding to the normative annual plant availability factor, duly taking into account mode of operation of the generating station on gas fuel and liquid fuel;*
>
> *(ii) Maintenance spares @ 30% of operation and maintenance expense specified in regulation 29; and*
>
> *(iii) Liquid fuel stock for 15 days corresponding to the normative annual plant availability factor and in case of use of more than one liquid fuel, cost of main liquid fuel duly taking into account mode of operation of the generating stations of gas fuel and liquid fuel";*
>
> *(iv) Receivables equivalent to two months of capacity charge and energy charge for sale of electricity calculated on normative plant availability factor, duly taking into account mode of operation of the generating station on gas fuel and liquid fuel;*
>
> *(v) Operation and maintenance expenses for one month."*

Fuel Component and Energy Charges in working capital

79. The Petitioner has claimed the cost for fuel in working capital based on price and GCV of gas procured and burnt for the preceding three months of January, 2017, February, 2017 and March, 2017 for the period from the COD of Block-1/Station (31.03.2017) as under:

(₹ *in lakh*)

24.12.2015 to 31.3.2016	1.4.2016 to 30.3.2017	31.3.2017 to 31.3.2017	2017-18	2018-19
886.59	884.17	899.81	899.81	899.81

80. The Petitioner has not furnished the details of price and GCV of gas procured and burnt for the preceding three months prior to declaration of COD (24.12.2015) of Gas Turbine i.e. September, 2015, October, 2015 and November, 2015. Accordingly, the fuel component, based on the price and GCV of gas procured and burnt for preceding three months from January, 2017 to March, 2017 has been considered and computed as under:

(₹ *in lakh*)

24.12.2015 to 31.3.2016	1.4.2016 to 30.3.2017	31.3.2017 to 31.3.2017	2017-18	2018-19
970.45	967.80	984.94	984.94	984.94

It is however clarified that the allowed cost of gas for 30 days is more than the claim on account of adoption of GSHR on gross output and GCV basis.

Liquid fuel stock for ½ month

81. Since, the Petitioner has not used any liquid fuel in the generation of electricity, the same has not been considered in this order.

Energy Charge Rate

82. Based on the above norms of operation, the GCV & Price of Natural Gas for the preceding three months from COD of the combined cycle gas turbine, the Energy Charge Rate (ECR) in ₹/kWh on ex-power plant, is calculated and considered as under:

		24.12.2015 to 31.3.2016 (for GT)	1.4.2016 to 30.3.2017 (for GT)	31.3.2017 to 31.3.2017 (for CC)	2017-18	2018-19
Capacity	MW	65.42	65.42	101	101	101
Normative PLF	hours/kW/ year	85	85	85	85	85
Gross Station Heat Rate	kCal/kWh	2984.539	2984.539	1967.385	1967.385	1967.385
Aux. Energy Consumption	%	2	2	3.5	3.5	3.5
Weighted Average GCV of Gas	kCal/SCM	9221.34	9221.34	9221.34	9221.34	9221.34
Weighted Average Price of Gas	₹/1000 SCM	7468.64	7468.64	7468.64	7468.64	7468.64
Rate of energy charge ex-bus	Paise/kWh	246.660	246.660	165.124	165.124	165.124

83. The energy charge on month to month basis shall be billed by the Petitioner in terms of Regulation 30 (6) (b) of the 2014 Tariff Regulations.

Maintenance Spares in working capital

84. Regulation 28(1)(b)(iii) of the 2014 Tariff Regulations provides for Maintenance spares @ 30% of the O&M expenses. Accordingly, maintenance spares @ 30 % of the O&M expenses, including water charges, is allowed as under:

(₹ in lakh)

24.12.2015 to 31.3.2016 (for GT)	1.4.2016 to 30.3.2017 (for GT)	31.3.2017 to 31.3.2017 (for CC)	2017-18	2018-19
150.56	592.84	2.51	980.21	1047.17

O & M Expenses (1 month)

85. The O&M expenses for one month (on pro-rata basis) is considered and allowed as under:

(₹ in lakh)

24.12.2015 to 31.3.2016 (for GT)	1.4.2016 to 30.3.2017 (for GT)	31.3.2017 to 31.3.2017 (for CC)	2017-18	2018-19
41.82	164.68	0.70	272.28	290.88

86. In line with the Regulations, Interest on working capital has been calculated as under:

(₹ in lakh)

	24.12.2015 to 31.3.2016	1.4.2016 to 30.3.2017	31.3.2017	2017-18	2018-19
Fuel Cost	266.15	978.56	2.74	998.62	998.62
O & M expenses	41.82	164.68	0.70	272.28	290.88
Maintenance Spares	150.56	592.84	2.51	980.21	1047.17
Receivables	1084.83	4023.18	13.48	4984.55	5039.98
Total	1543.36	5759.25	19.43	7235.65	7376.65
Interest Rate	13.50%	12.80%	12.80%	12.80%	12.80%
Interest on Working Capital	208.35	737.18	2.49	926.16	944.21

Annual Fixed Charges

87. Accordingly, the annual fixed charges approved for the generating station for the period from 24.12.2015 to 31.3.2019 is summarized as under:

(₹in lakh)

	24.12.2015 to 31.3.2016	**1.4.2016 to 30.3.2017**	**31.3.2017**	**2017-18**	**2018-19**
Return on Equity	1007.14	3713.15	16.18	5996.29	6142.61
Interest on Loan	768.32	2911.31	7.71	2794.73	2619.24
Depreciation	829.61	3058.63	13.33	4939.32	5059.85
Interest on Working Capital	208.35	737.18	2.49	926.16	944.21
O & M Expenses	501.85	1976.14	8.38	3267.35	3490.56
Total	**3315.26**	**12396.41**	**48.08**	**17923.85**	**18256.47**

Month to Month Energy Charges

88. Clause 6 sub-clause (b) of Regulation 30 of the 2014 Tariff Regulations provides 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:*
>
> ***(b) For gas based and liquid fuel based stations***
>
> *ECR = GHR x LPPF x 100 / {CVPF x (100 – AUX))}*
>
> *Where,*
>
> *AUX = Normative auxiliary energy consumption in percentage.*

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

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

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

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

89. The Petitioner shall compute and claim the Energy Charges on month to month basis from the beneficiaries based on the above formulae.

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

Application Fee and Publication Expenses

91. The Petitioner has sought the reimbursement of filing fee and also the expenses incurred towards publication of notices for application of tariff for the period 2014-19. The Petitioner has deposited the requisite filing fees of ₹810537 for the period 2015-19 in terms of the provisions of the Central Electricity Regulatory Commission (Payment of Fees) Regulations, 2012. 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 and the expenses incurred on publication of notices for the period directly from the respondents on submission of documentary proof.

92. The annual fixed charges approved as above are subject to truing-up in terms of Regulation 8 of the 2014 Tariff Regulations.

93. Petition No. 128/GT/2017 is disposed of in terms of the above.

Sd/-	***Sd/-***
(Dr. M.K. Iyer)	**(P.K.Pujari)**
Member	**Chairperson**