OTPC Palatana Project – Comments on Draft CERC Tariff Regulations 2019-24

We congratulate Hon'ble CERC for coming up with the draft CERC Tariff Regulations 2019-24 and appreciate the tedious hours that the regulator has spent in shaping up the regulations for the coming control period in wake of the envisioned developments in the Indian Power Sector. We would also like to thank CERC for providing ample time to all the stakeholders to submit their comments on these draft regulations before finalizing the tariff regulations. We hereby submit our suggestions on the draft tariff regulations for kind consideration as below:

1. **O&M Expenses (Regulations 35(1)(3))**:

   In the draft tariff regulations, CERC has revised the normative O&M expenses for all thermal stations including those operating with advanced F-Class machines. We understand that CERC, owing to inadequacy of historical O&M data of the advanced class machines, has utilized a different criteria as explained in Explanatory Memorandum for arriving at normative O&M expenses. CERC has stated in the Explanatory Memorandum that:

   "For advance class gas power stations, actual normalised O&M expenses has not been considered as out of total three such generating stations, the average plant load factor during last five years of two generating stations, namely RGPPL and Sugen was 14% and 35% respectively, while the third generating station, namely OTPC has been operational for less than three years till FY 2016-17. Therefore, it would not be appropriate to determine the normative O&M expenses for the tariff period 2019-24, based on the actual data available from FY 2012-13 to FY 2016-17."

"For gas based advance F Class machines, the Commission has observed large variation between the actual expenses of three generating stations as against existing O&M expenses norms. The Commission has further noted that as there is significant difference in the average PLF levels of these three generating stations during the past 5 years, it would not be appropriate to consider the actual O&M expenses to determine the norm for the new tariff period. Therefore, the Commission has decided to consider the O&M expenses norms for FY 2018-19 as base figure, escalate the same by 3.20% (escalation factor for thermal generating stations) and take 70% of the same to arrive at the base figure for FY 2019-20. Thereafter, it is escalated by 3.20% for deriving the figures for the remaining years of the tariff period."

We would humbly submit to the Hon'ble Commission to consider the following facts:

a. **Separate Normative O&M Expenses for OTPC:**

   i. As brought out by the Commission in the Explanatory Memorandum, only three gas based power stations with Advanced F Class machines are operating in the country and there is large variation between actual expenses of these stations as against existing O&M expense norms. The Commission has also observed that there is a significant difference in the average PLF levels of these three generating stations during the past 5 years and it would not be appropriate to determine normative O&M expense based on actual data. In view of this, it is submitted that a single figure of normative O&M expense for all three gas based stations including OTPC may not reflect the actual operating and maintenance expenses.

ii. Further, it may be emphasized that the OTPC power plant operates on fuel supplied from isolated gas fields in Tripura. The remote location of the power plant also makes it impossible to procure fuel from the main gas grid.

iii. In view of acute shortage of natural gas, gas based power plants are running at very low PLFs. CEA, in National Electricity Plan 2018, has envisaged gas based capacity of around 406 MW that is ready for commissioning/under construction but stranded due to non-availability of natural gas. Therefore, it is very likely that only three gas stations with Advanced F Class machines remain in operation in the next control period.

iv. **It will hence be appropriate if the Hon'ble Commission considers framing separate normative O&M expenses for all three stations with Advanced F Class machine based on the likely O&M expenses to be incurred by each of them in the next control period.**

b. O&M Costs:

i. It is submitted that Long Term Service Agreements (LTSA) for Gas Turbines (GT) constitute majority of the O&M expenses of gas based stations. The other portion of the O&M expenditure is towards O&M of equipment and auxiliary other than Gas Turbines.

ii. **LTSA Costs:**

1. Advanced F Class Gas Turbines are highly sophisticated and it requires the Original Equipment Manufacturer (OEM) to undertake O&M of these turbines. Since, these OEMs are very limited in number and because the technology is proprietary in

nature, the generators do not have sufficient influence on the LTSA cost, more so after procuring the GTs. To maintain high availability of the station, generator has to heavily rely on the OEM.

2. With integration of more renewables, gas based power plants are likely to operate at further low PLFs. Due to operation at loads below 60%, GTs at Palatana have experienced mode changeover from Pre-Mix (PM) mode to Piloted Pre-Mix (PPM) mode. Operating in PPM mode increases the NOx emissions from the plant beyond allowed levels. Ratnagiri Gas and Power Private Limited (RGPPL) has also highlighted this concern to the Hon'ble Commission in their petition no. 8/MP/2019. The extract of the Record of Proceedings in the hearing dated 10th January 2019 in the petition is reproduced below for ease of reference:

   Learned counsel for the Petitioner submitted that the present Petition has been filed for seeking modification of technical minimum loading of the gas turbines of the Petitioner at 65% to 67% of the MCR/capacity in place of 55% provided in the Central Electricity Regulatory Commission (Indian Electricity Grid Code) (Fourth Amendment) Regulations, 2016. Learned counsel further submitted that when load is reduced below 120 MW, the combustion mode changes from the Premix Steady State to Piloted Premix mode and NOx levels in the Piloted Premix mode of combustion are more than 160 PPM (corrected) which is much higher than the permissible

limit under the Air (Prevention and Control of Pollution) Act, 1981. Learned counsel requested the Commission to pass ad-interim ex-parte order to allow the Petitioner to operate the gas turbine at a level not lower than 65% to 67% till the decision in the petition.

3. During mode changeover, the turbines are heavily prone to tripping. This mode changeover also has severe overall effects on the plant stability as our machines can only operate in Combined Cycle mode. Our Original Equipment Manufacturer M/s GE also does not recommend non-PM combustion mode of operation for extended period of time as it will accelerate combustion hardware degradation and lead to reduction in GT maintenance intervals. Further, the OEM has also clearly submitted that the annual LTSA cost will be 10 times the regular annual cost if the machines are operated in PPM mode (below 60%) and would sustain damages. Email from OEM dated 10th April 2015 and the extract from GE manual for Heavy Duty Gas Turbine Operating and Maintenance Considerations supporting this fact is enclosed at **Annexure-1** for ready reference.
4. During initial years of operation, the LTSA cost were on the lower side as the machines were under warranty period. Now that the machines are not covered under the warranty, the LTSA costs are likely to go up.

5. **The historical data of OTPC may not be reflective of the O&M costs likely to be incurred in the next control period. Therefore, the Commission may give due cognizance of projected LTSA costs for arriving at the normative O&M expenses separately for OTPC.**

iii. **O&M Costs other than LTSA cost:**

1. We would also like consideration of the Hon'ble Commission on the fact that Palatana station is situated in a very remote location in North East India. This is an added disadvantage w.r.t. the O&M costs as the location implies long distance transportation and boarding/lodging of manpower, material and high civil/maintenance costs to maintain the availability of the plant. The impact of high civil cost on the OTPC project cost was also submitted to the Hon'ble Commission for tariff determination of OTPC power station.
2. The Commission may kindly consider that the normative O&M expenses for stations located in North Eastern region will be higher as compared to the stations located in mainland India.
3. **The Commission may allow extending this special dispensation of higher O&M cost to OTPC also considering that O&M in remote location in North East is higher.**

c. Escalation of O&M Costs:

i. The LTSA contract of OTPC has escalation rate of 5% and this payment is in USD thereby prone to exchange rate

fluctuations. The annual forex escalation is more than 3% since commissioning of the OTPC station in March 2015. Therefore, the aggregate annual escalation for OTPC LTSA contract since COD of the station is more than 8%. OTPC with discussions with experts understands that hedging of forex may not be advisable due to high hedging costs of 7-8% per annum.

ii. The present levels of WPI and CPI (3.2%) as mentioned in the Explanatory Memorandum may not be sufficient for escalation leaving very little margin for contingency. Additionally, gas based stations with Advanced F Class machines may not be treated at par with coal based power stations. Similar to hydro power plants for which escalation has been proposed as 4.7%, the Commission may consider allowing separate escalation for gas based plants.

iii. Considering LTSA expenditure to be more than 50% of the total O&M cost, the Commission may allow annual escalation of normative O&M Expenses in the range of 6-7%.

In view of the above, the Commission may consider the following:

i. (a) Separate normative O&M expenses for all three stations with Advanced F Class machine based on the likely O&M expenses to be incurred by each of them in the next control period

(b) Higher normative O&M expense to OTPC for the next control period considering the location of OTPC plant

(c) Annual escalation of normative O&M Expenses in the range of 6-7%

OR

ii. **(a) Retaining the normative O&M expenses for Advanced F Class machines at the level of FY 2018-19 as mentioned in Tariff Regulations of 2014-19 with 6.83% escalation for FY 2019-20**

(b) Annual escalation of normative O&M Expenses at the present levels of 2014-19 Tariff Regulations for arriving at yearly normative expenses from FY 2020-21

2. Fixed Cost Recovery (Regulations 51(1) and (2)):

In the draft tariff regulations, CERC has suggested a new approach based on recovery of AFC in two parts based on Peak and Off-Peak hours. Stations will be allowed to recover 125% AFC in Peak hours as compared to Off-Peak hours, subject to the ceiling of monthly AFC. Further, the NAPAF will be calculated quarterly and AFC loss in that quarter cannot be recovered by operating at higher PAF in the ensuing quarters. While appreciating the farsightedness of CERC to encourage large scale renewables integration in the grid, we think such an approach would be better applicable to stations who are already operating at profitable levels of PAF or have ready access to fuel to escalate their generation during peak hours. For gas based stations who are already facing uncertain fuel gas supplies and have been incurring AFC losses by operating at lower PAFs, such an operating scenario would not be equitable for all.

We request Hon'ble Commission to consider the following comments:

a. Stations like Palatana are sourcing gas from isolated gas fields in Tripura with no gas storage facilities. The gas wells are in remote areas. It is not possible to alter gas supplies from such remote locations. Therefore, escalation of fuel supply during peak hours will itself remain a challenge.

b. In the wake of these draft regulations, OTPC had explored the possibility of operating at higher availability during peak hours and had accordingly requested its fuel supplier to supply gas at variable rates during the 24 hours. The fuel supplier had examined our request and had replied that it was not possible to supply gas at variable rates. The reply letter from the fuel supplier is enclosed at **Annexure-2** for ready reference.

c. The proposed regulations by CERC is forward-looking and is praiseworthy for integration of renewables. The regulations are a good initiative by CERC and OTPC would have availed the benefits had it been connected to the gas grid or if the fuel supplier would have agreed to supply the fuel at variable rates. However, OTPC is technically dependent only on isolated gas fields therefore it is not in a position to operate the machines at variable loads during peak and off peak hours.

d. The proposed regulations, due to technical constraint of OTPC, can potentially lead to under recovery of AFC for Palatana plant.

e. The Commission may consider excluding OTPC station at Palatana to operate at variable loads during Peak and Non-Peak hours due to inability of fuel supplier to supply gas at variable rates.

3. <u>Additional Capitalization (Regulations 30 (2) i)</u>:

a) We appreciate that the efforts of CERC to bring in discipline in additional capital expenditure. However, the Commission may consider modifying the proposed regulations due to the following issues that are faced by a generator and specially by projects like OTPC:

i. If such funding is recovered at weighted average rate of interest on actual loan portfolio, it would lead to heavy under recovery and may discourage generator from investing in the genuine requirement of additional capitalisation.

ii. The equity infusion by OTPC (25.74%) is already less than normative equity of 30% due which, OTPC is already foregoing some return on the normative equity allowed by the Commission.

iii. Hon'ble Commission may remove the applicability of these regulations from retrospective effect i.e. it should not be applicable for already commissioned plants but only for plants being commissioned after 1st April 2019.

iv. Further, as the funding is recovered at weighted average rate of interest on actual loan portfolio, there will be no incentive for the generator to reduce the debt rate as the debt rate is being passed on for recovery of the AFC.

v. In view of the above, the Commission may consider the following:

i. To bring discipline in Additional Capital Expenditure, the Commission instead of allowing recovery at weighted average rate of interest on actual loan portfolio may allow Return on Equity at some basis points below 15.5%, i.e. about 14.5%.

ii. **Due to uncontrollable factors leading to additional capitalization, the Commission may consider recovery at lower return for new projects which are yet to be commissioned.**

4. **<u>Normative Quarterly Plant Availability Factor (NQPAF) (Regulation 59 A (a)):</u>**

a. We appreciate proposed regulations for reducing the NQPAF from 85% to 83%. While maintaining this high level of NQPAF may be possible for coal based thermal power plants, the gas based plants due to shortage of fuel may not be able to maintain this higher level of PAF.

b. OTPC power plant, located in remote area of North Eastern region, secures fuel supplies from isolated gas fields and cannot secure fuel from any gas grid. Therefore, it may not be possible to maintain 83% availability. This is also reflected from the past data of PAF of OTPC as shown below.

Years	FY 15-16	FY 16-17	FY 17-18	FY 18-19 (Till Dec'18)
PAF (%)	56.03	66.76	64.05	72.29

c. The Commission has proposed an allowance of 5% in NQPAF for hydro generators for difficulties in North Eastern region. The Commission has also proposed a lower NQPAF of 72% for one of the gas based generators in the North Eastern region.

d. The Commission was gracious to allow lower NQPAF of 76% to OTPC till September 2018. OTPC has filed a petition for extending this period beyond September 2018.

e. **In view of remote location of OTPC, it being dependent on fuel from isolated gas fields and due to difficulties in securing fuel from any other source, the Commission may consider giving special dispensation to OTPC by reducing its NQPAF to 76% in view of difficulty in operating power plant in remote location.**

5. **<u>Working Capital (Regulations 34(b) iv): Limiting Working Capital to Receivables for 45 Days from 60 Days and Late Payment Surcharge Amount (Regulations 69)</u>**:

CERC has suggested in the draft tariff regulations to limit Receivables equivalent to 45 days of capacity charges and energy charges for sale of electricity calculated on the normative annual plant availability factor. While it is good to improve efficiency in the tariff structure we request CERC to ponder at the below points:

a. REA is generally published by RPC between the 5^{th} to 10^{th} Day of a month. The generator then takes 2-3 days to issue the energy bills. So generally 10-15 days of working capital is already stuck in the pipeline for the generators.

b. Reducing the receivable from 60 to 45 days would have been welcome had the beneficiaries been liquidating the outstanding dues within 60 days regularly. But when beneficiaries are not able to liquidate dues within 60 days, it would not be prudent to increase the amount of outstanding dues in the books of the generators by reducing the receivables to 45 days. There have been many instances wherein the beneficiaries of OTPC have not liquidated outstanding payments for even 10 months. Therefore, such a step of reducing the receivables timeline to 45 days would

only increase the outstanding receivables in the books of the generators.

c. Unlike central sector generators, revenues of OTPC are not protected under schemes like Tri-Partite Agreement. The economic condition of some of the beneficiary states is such that they are even unable to provide the required payment security in form of Letter of Credit (LC). Further, the late payment surcharge under the Tri-partite agreement is charged on Cumulative basis as compared to the simple interest in CERC regulations.

d. The draft regulations propose to reduce the Late Payment surcharge from 1.5% to 1.25%. This reduction in surcharge may not give appropriate signal to the beneficiaries in making the timely payment.

e. Therefore, the Commission may consider retaining late payment surcharge of 1.5% but on cumulative interest basis. After 6 months, a higher penal surcharge may be levied on defaulting beneficiaries.

f. In view of the above, we request Hon'ble Commission to maintain the working capital at 60 days of receivables. The Commission may consider retaining late payment surcharge of 1.5% but on cumulative interest basis. After 6 months, a higher penal surcharge may be levied on defaulting beneficiaries. This may also augment the efforts of the Government to bring in discipline in payments by the discoms and to improve the cash cycle in the sector.

6. <u>Sharing of gains due to variation in norms (Regulations 70(2)):</u>

The Commission in the draft regulations has proposed sharing of the following in 50:50 ratio

i) Station Heat Rate

ii) Secondary Fuel Oil Consumption

iii) Auxiliary Energy Consumption

iv) Re-financing, Re-structuring of Loans or otherwise change in Interest Rate of Loan.

a) The improvement in operational parameters of Station Heat Rate and Auxiliary Energy consumption is due to prudent O&M practices of the operator.

b) The Commission may consider incentivizing the generator for carrying out these good O&M practices by sharing gains between the generator and the beneficiaries in the ratio of 60:40.

c) The Commission may also clarify the calculation of refinancing gains through an illustration.

7. <u>Sharing of Non-Tariff Income (Regulations 72)</u>:

In the draft regulations, CERC has included Non-tariff income to be shared in the ratio of 50:50. We would like to submit also that Non-tariff income is already not very substantial amount for generators and it is only good financial practices of the company that allow them to make this minimal income. **As such, we request Hon'ble Commission to keep the sharing the Non-tariff income out of the ambit of the tariff regulations for 2019-24 and let it be retained by generators.**

8. <u>Auxiliary Power Consumption (Regulations 59 E (c))</u>:

In the draft tariff regulations, CERC has increased the AUX consumption for combined cycle gas stations to 2.75%. However, Palatana station has already given a detailed submission to CERC regarding the high auxiliary power consumption due to use of Electric motor driven Gas Booster Compressors. CERC had taken a note of the same and allowed an AUX consumption of 3.5% during 2014-19, higher than 2.5% AUX allowed to

other CCGT stations in the 2014-19 regulations. CEA too has recommended higher AUX consumption for OTPC at 3.5%. CEA has also recommended higher normative auxiliary consumption at part loads. We would like to submit to CERC that OTPC had anticipated 3.5% AUX consumption at installed capacity but Palatana station is already experiencing much higher AUX of upto 4.30% as per historical data.

Hon'ble Commission may kindly consider the fact that as compared to Gas Motor Driven GBC the Electric Motor Driven GBC consume significant more amount of power, in excess of more than 1% of the total generation, and are main reason for high auxiliary consumption of such stations. So station using electric motor driven GBC do need to be accorded AEC nearly 1.5 % more AEC than the other stations using gas motor driven GBC. This fact is evident from the actual historical data of Palatana station as below:

	Annual Average Auxiliary Consumption (%)	Consumption of GBC (% of Total Generation)
FY 15-16	4.11	1.43
FY 16-17	4.23	1.42
FY 17-18	4.51	1.44
FY 18-19 (Till Nov'18)	4.32	1.39
Average	4.29	1.42

In view of the above, we request CERC to allow a higher AUX consumption for Palatana station of 4.3% and include the reasoning

for allowing a higher AUX for Electric motor driven Gas Booster Compressors in the regulations itself.