CENTRAL ELECTRICITY REGULATORY COMMISSION
NEW DELHI

Petition No. 555/MP/2020

Coram:
Shri P.K.Pujari, Chairperson
Shri I.S.Jha, Member
Shri Arun Goyal, Member
Shri P.K.Singh, Member

Date of Order: 14.06.2021

In the matter of

Petition under Section 79 OF The Electricity ACT, 2003 read with the Regulations 49, 76 and 77 of the Central Electricity Regulatory Commission (terms and conditions for determination of tariff) Regulations, 2019 and Regulations 111-115 of the Central Electricity Regulatory Commission (conduct of business) Regulations, 1999 for relaxation of the Normative Station Heat Rate

Ratnagiri Gas and Power Private Ltd,
Through its Dy.General Manager
The Landmark building, 2nd Floor, A-35, Sector-2
Noida-201301 **……..Petitioner**

Vs

1. Maharashtra State Electricity Distribution Company Ltd (MSEDCL)
Through its Managing Director
5th Floor, Prakashgad, G-9, Prof. Anant Kanekar Marg,
Bandra (East),
Mumbai - 400051

2. Indian Railways
Through its Secretary,
256-A, Raisina Road,
Rajpath Area, Central Secretariat,
New Delhi -110001

3. Electricity Department, Govt. of Goa
Through its Secretary,3rd floor,
Vidyut Bhawan, Panaji,

Goa - 403 001

4. Electricity Department
Through its Secretary, Administration of Daman & Diu,
Plot No. 35, Somnath

5. Dadra & Nagar Haveli Power Distribution Corporation Ltd.
Through its Secretary,
Opposite Secretariat, Amli,
Silvasa – 396230, Dadra & Nagar Haveli **…….Respondents**

The following were present:

Shri M. G. Ramachandran, Sr. Advocate, RGPPL
Ms. Poorva Saigal, Advocate, RGPPL
Shri Arvind Jhalani, RGPPL
Shri Arshad Jilani, RGPPL

ORDER

The Petitioner, Ratnagiri Gas and Power Private Ltd (RGPPL), has filed the present petition with the following prayers:

"(a) admit the present petition;

*(b) exercise the powers to relax and/or the power to remove difficulties and provide for the **modified Station Heat Rate parameters for operation of the Petitioner's Project, namely, to maintain it at 1850 Kcal/ kWh** as was in existence under the Tariff Regulations, 2014 to be applicable for the control period from 1.4.2019 to 31.3.2024 in modification of the Regulation 49 insofar it is applicable to the Petitioner's Project;*

*(c) pass ad **interim ex-parte Orders** to allow the Petitioner to raise invoices on the procurers of electricity, considering the Station Heat Rate to **be 1850 Kcal/kWh instead of 1820 Kcal/kWh;***

(d) pass such further order or orders as may be deemed just and proper in the circumstances of the case."

Submissions of the Petitioner

2. In support of the above prayers, the Petitioner has submitted as under:

a) Ratnagiri Gas and Power Private Limited is a Company incorporated under the provisions of the Companies Act, 1956. It is a joint venture company of NTPC Ltd., GAIL (India) Ltd, both Government of India undertakings, MSEB Holding Company Limited (a Government of Maharashtra undertaking) and Indian Financial Institutions. The Petitioner has been established as a Special Purpose Vehicle to take over the generating station and related assets at Ratnagiri, Maharashtra which were earlier owned by Dabhol Power Company Limited, a private company promoted and established by erstwhile Enron Group.

b) The assets of the Dabhol Power Company Limited included a gas-based combined cycle power project (hereinafter referred to as 'the Generating Station') with an estimated net capacity of 2150 MW consisting of three Power Blocks, namely, Power Block-I (670 MW), Power Block-II (740 MW) and Power Block-III (740 MW), each of them having two gas turbines and one steam turbine along with an integrated Liquefied Natural Gas (LNG) terminal of estimated capacity of 5 million metric ton per annum (MMTPA) and associated infrastructure facilities at Ratnagiri. Installed capacity of the Generating Station was de-rated to 1967.08 MW from erstwhile 2150 MW after takeover of the Generating Station by RGPPL.

c) The Power Block-I of the Generating Station was established by Dabhol Power Company Limited by the year 1999 and the works on Power Block-II, Power Block-III and LNG terminal was in progress in May 2001. The then Maharashtra State Electricity Board (MSEB) was the beneficiary procurer of the entire power generated from the Generating Station as per the Power Purchase Agreement and related agreements entered into between Dabhol Power Company Limited and MSEB.

d) Dabhol Power Company Limited and its promoter, Enron, an international group in the power sector, ran into serious financial and other difficulties and they could not continue to operate the Generating Station. Dabhol Power Company Limited and MSEB went into litigation. The Generating Station was eventually closed down in May 2001. Upon its closure, the Generating Station and all its

assets were placed under the control of a Receiver appointed by the Hon'ble High Court of Bombay in Suit No. 875 of 2002. The Generating Station was not in operation for almost 5 years during which time the assets were under the control of the Receiver as aforesaid.

e) The Government of India and the Government of Maharashtra were desirous of reviving the Generating Station, considering the huge investments which had already been made in the project; on account of the possibility of generating 2150 MW power from the Generating Station in the context of shortage of electricity in India as a whole and the State of Maharashtra, in particular; and for other reasons in larger public interest. The Government of India explored several possibilities in regard to the revival of the Generating Station. Finally, the Petitioner was formed as a special Purpose Vehicle to take over the assets of the Generating Station. The assets of the Generating Station were taken over by the Petitioner for a lump sum consideration of Rs. 8485.45 crore.

f) At the time of takeover and during the preliminary assessment for repair and rehabilitation of the generating station, the exact status of the various machines and their working condition etc. could not be fully ascertained. The plant and equipment of the generating station were amongst the first few advanced class machines and their repair, revival and operation and maintenance were unpredictable with no guarantee or warranty existing at the time of takeover. The Petitioner did not have support of the original contract with M/s GE Energy, the Original Equipment Manufacturer (OEM) to restart operation and maintenance as OEM along with its principal agency, namely, M/s Bechtel who were responsible for balance work of the generating station (i.e. excluding scope of M/s GE Energy) had already been released from their contractual obligations with regard to the supply of gas turbines and steam turbines. The OEM was also not willing to provide any guarantee for ensuring the reliability and performance of the machines and equipment, despite efforts made by the Government of India.

g) After the takeover of the Generating Station, the Petitioner proceeded to

undertake the repairs and connected works of the generating station in order to commence generation of electricity.

h) During the course of the operation of the generating station, the Petitioner faced various disruptions/ issues, such as failure of one of the gas turbines (CTG-2B) forming part of the Power Block-II on 05.01.2007; failure of second gas turbine of Power Block-II (CTG-2A) on 19.01.2008 as a result of compressor distress; shutting down of steam turbine forming part of Power Block-III from 18.06.2008 to 01.10.2008 due to unusual failure of a Stelite Seal in HP control valve leading to turbine diaphragm damage; failure of one of the gas turbine of Power Block-III as a result of compressor distress on 08.11.2008; and cracks in compressor blades in turbine 3B resulting in outage of Power Block-III from 19.11.2008 to 16.3.2009.

i) The gas turbines having been supplied by OEM with specification, namely, '9FA' Advanced Class or F-Class were not comparable to other gas turbines functioning in the country and consequently, the Petitioner had no other alternative except to approach the OEM afresh for various support activities for the revival and operation and maintenance (O&M) of the Generating Station. Other than the Petitioner, there are only two other power plants in India where the similar type of 9FA machine are installed.

j) On 20.6.2009, the Petitioner has signed an availability guarantee-based long term contractual supply and service agreement with the OEM. The agreement with the OEM was considered absolutely necessary for the revival and sustained operation and maintenance of the generating station. Pursuant to the agreement, the Petitioner has entrusted the restoration and rehabilitation of the failed gas turbine to the OEM.

k) Various aspects related to the Generating Station have been considered by the Commission in its Order dated 18.08.2010 in Petition No. 283/2009, including with regard to the Gross Station Heat Rate. The relevant extracts of the Order dated 18.08.2010 reads as under:

"Gross Station Heat Rate

88. The petitioner had considered Gross Station Heat Rate (GSHR) on gas as 1850 Kcal/kWh for blocks II and III during the tariff period 2004- 09. The petitioner has submitted that power block-I was originally completed and run by the erstwhile Dabhol Power Company in 1999 and same was being revived by the petitioner. The petitioner has considered the Gross Station Heat Rate on gas as 1850 Kcal/kWh, for all the three power blocks. However, the petitioner has sought GSHR for Naphtha fuel as 2000Kcal/kWh.

89. The 2009 regulations do not specify the GSHR norms for existing blocks II and III. The date of commercial operation of block-I is 19.5.2009, and accordingly in terms of the 2009 regulations, the GSHR for new units, shall be as under:

GSHR=1. 05 X Design Heat Rate of the unit/ block for Natural gas.

90. The petitioner has submitted that no guarantee was available for the revived gas turbines. Since, all the three blocks consists of advanced class machines, the heat rate of these machines were more or less equal due to turbo-machinery and metallurgical similarity. ***In view of this, we consider the same Station Heat Rate for of 1850 kcal/kWh, as considered by the Commission in its order dated 4.6.2009 in Petition No. 96/2007, for all the three blocks, for the period 2009-14****.*

(emphasis supplied)"

l) The Ministry of Power, vide its Order dated 29.03.2010 allocated 1% (19.67 MW), 2% (39.34 MW) and 2% (39.34MW) of capacity of the Generating Station to Goa, Daman & Diu and Dadra & Nagar Haveli respectively. The remaining 95% (1868.73 MW) capacity in the Generating Station is the share of the State of Maharashtra. Subsequently, the Ministry of Power has allocated 540 MW power to Railways out of the share of the State of Maharashtra on temporarily basis i.e. from 01.04.2017 to 31.03.2022. The Petitioner entered into Power Purchase Agreements with Goa on 29.04.2011, with Dadra and Nagar Haveli on 10.05.2011 and with Daman & Diu on 10.05.2011. During the ensuing period, the domestic gas was available from the allocations from KG-D6 basin and ONGC C-Series to RGPPL.

m) There has been low requisitioning/ scheduling of power by the Respondent - procurers and not to the extent of normative availability which the Petitioner is in a position to declare. The schedule given by the Procurers during

last four years is given as under:

Sr. No.	Financial Year	Declared Availability (%)	Schedule given (%)
1	2016-17	33.41	26.13
2	2017-18	28.68	25.89
3	2018-19	29.38	26.17
4	2019-20	33.64	25.90

n) Due to non-scheduling of electricity by the Procurers to the full extent, since 2013, the Petitioner has been able to operate only one power block (663.54 MW) and that too at part load not exceeding 500 MW. Further, there have been frequent backing-down instructions from the Western Regional Load Despatch Centre affecting the Station Heat Rate of the Generating Station.

o) The units of the Generating Station have crossed 50,000 hours of cumulative running and despite all prudent utility practices being undertaken by the Petitioner including periodic inspection and off-line/ online washing, there has been non-recoverable heat rate of nearly 2% due to ageing of the machines and HRSG (Heat Recovery Steam Generator). During plant operation, the combustion gas turbine discharges a high volume of exhaust flue gas containing considerable amount of thermal energy. HRSG recovers the thermal energy for the purpose of generating superheated gas for use in the steam turbine generator. The recovery of heat from the combustion gas turbine exhaust reduces wasted energy, resulting in a significant increase of overall plant efficiency. Installation of HRSG gives the Generating Station its “combined cycle” status in that it represents a major component of the Rankine Cycle portion of the Generating Station. Split Block Operation, wherever resorted to, leads to a further reduction of heat rate by 15 – 20 Kcal/kWh.

p) All the three power blocks of the Generating Station consist of advanced class machines. The heat rate of these machines were more or less equal due to turbo-machinery and metallurgical similarity. This Commission in its order dated

04.06.2009 in Petition No. 96/2007 and order dated 18.08.2010 in Petition No. 283/2009 has considered the heat Rate of 1850 Kcal/Kwh for the period 2007-2009 and 2009-2014, the details of which are provided as below:

Period	Approved heat rate	Remarks	Auxiliary Power consumption (%)
2007-08	1850	1.05 of design Heat Rate	3.0
2008-09	1850	1.05 of design Heat Rate	3.0
2009-14	1850	1.05 of design Heat Rate	3.0
2014-19	1850	1.045 of design Heat Rate	2.5
2019-24	1820	1.05 of design Heat Rate	2.75

q) Vide Regulation 36 of the Central Electricity Regulatory Commission (Terms and Conditions of Tariff) Regulations, 2014, the Station Heat Rate of 1850 kCal/kWh continued to be considered in respect of the Generating Station.

r) However, vide Regulation 49 of the Central Electricity Regulatory Commission (Terms and Conditions of Tariff) Regulations, 2019 (hereinafter referred to as the 2019 Tariff Regulations), the Station Heat Rate which was earlier determined as 1850 kCal/kWh has been reduced to 1820 kCal/kWh for the Combined Cycle Operation (i.e. for the Steam Turbine and Gas Turbine).

s) The year-wise details of the Station Heat rate achieved by the Generating Station is as under:

Sr. No.	Financial Year	Station Heat Rate (Kcal/Kwh)
1	2016-17	1842.81
2	2017-18	1839.91
3	2018-19	1832.84
4	2019-20	1840.17

t) The Petitioner has not been in a position to operate the power blocks of the Generating Station within the normative parameters of 1820 kCal/kWh for the past many years for the reasons such as the vintage of the machines (the power blocks having already run on a continuous basis for more than 50,000 hours); the schedule available for running the generating station is much below the normative

plant load availability; frequent backing down/ change of signage to be undertaken in terms of the Deviation Settlement Mechanism; and backing down directions of WRLDC etc. These reasons are beyond control of the Petitioner.

u) The Petitioner is unable to operate the Generating Station at the Station Heat Rate stipulated in Regulation 49 of the 2019 Tariff Regulations without there being any act of omission or commission on the part of the Petitioner but only on account of the facts and circumstances beyond its control. The Petitioner has been continuously operating the Generating Station since 2013 and has been able to operate only with the Station Heat Rate of 1850 kCal/kWh.

v) Regulation 49 of the 2019 Tariff Regulations provide for SHR to be computed by multiplying the Design heat Rate by 1.05 (in place of multiplying by 1.045 in the earlier 2014 Tariff Regulations) in respect of new generating stations. Such increase from multiplication factor of 1.05 over and above the Design Heat Rate may also be considered in the case of the Generating Station of the Petitioner.

w) The Commission has, in the Grid Code, already recognized that certain adjustments/ compensation have to be granted for Station Heat Rate when a generating station is required to operate at technical minimum. Such adjustment in Station Heat Rate is premised on the fact that the Station Heat Rate cannot be at the level specified in the Tariff Regulations when the plant is required to operate at a level much below the normative availability. Same rationale should apply when the Generating Station is forced to operate at a lower plant load factor on account of low requisition by the procurers or the schedule being given is less as compared to the normative availability. In both the cases, the physical characteristics of the Generating Station operating at a reduced level results in higher heat value being required to consume the same and, therefore, necessitates a Station Heat Rate higher than 1820 kCal/kWh specified in the 2019 Tariff Regulations.

x) There is valid and proper justification for the Commission to exercise

powers under Regulation 76 (Power to Relax) and Regulation 77 (Power to remove difficulty) of the 2019 Tariff Regulations to provide relief to the Petitioner considering peculiar circumstances faced by it else it will suffer irreparable loss and injury.

y) Reference is placed upon the judgment passed by APTEL in the case of Indraprastha Power Generation Co. Ltd. v. Delhi Electricity Regulatory Commission, 2008 SCC On Line APTEL 4 : [2008] APTEL 4, wherein APTEL had directed that the Station Heat Rate should be re-fixed for the Indraprastha Gas Thermal Power Station.

Hearing on 06.04.2021

3. The matter was heard on 06.04.2021 on admissibility. During the hearing, learned counsel for the Petitioner reiterated the submissions made in the petition and prayed that the relief sought for may be granted. None of the respondents appeared on 06.04.2021. The Respondents have also not filed their reply. The Commission, after hearing the Petitioner, reserved order on the issue of "maintainability".

Analysis and Decisions

4. We have considered the submissions of the Petitioner and perused the documents on record. The Petitioner has prayed for relaxation in Station Heat Rate norms for the Generating Station from 1820 kCal/kWh to 1850 kCal/ kWh for the tariff period 2019-24. In justification of its prayer, the Petitioner has submitted that factors for claiming higher station heat rate are that (i) the generating blocks of the Generating Station have already run on a continuous basis for more than 50,000 hours; (ii) the schedule available for running the Generating Station is much below the normative annual plant availability factor; (iii) frequent backing down/ change of signage to be undertaken in terms of the Deviation Settlement Mechanism; and (iv) the backing down directions of WRLDC etc. The Petitioner has submitted that the Commission may grant

relief to the Petitioner under Regulation 76 (Power to Relax) and Regulation 77 (Power to Remove Difficulty) of the 2019 Tariff Regulations by allowing the relaxed station heat rate norms of 1850 kCal/kWh in place of currently allowed norms of 1820 kCal/kWh.

5. Regulation 49(C)(a)(vi) of the 2019 Tariff Regulations deals with the Heat Rate norms in respect of the Open Cycle Gas Turbine/ Combined Cycle generating stations. The said regulation is extracted as under:

> ***"Norms of operation for thermal generating station***
> *49. The norms of operation as given hereunder shall apply to thermal generating stations:*
> *……..*
> *(C) Gross Station Heat Rate*
> *(a) Existing Thermal Generating Station……*
> *(vi) Open Cycle Gas Turbine/Combined Cycle generating stations:*

Name of generating Station	***Combined cycle (kcal/kWh)***	***Open Cycle (kcal/kWh)***
Ratnagiri	*1820*	*2641*

> *(c) For Gas-based/ Liquid-based Thermal Generating Unit(s)/ Block(s) having COD on or after 1.4.2009:*
>
> *For Natural Gas = 1.050 X Design Heat Rate of the unit/block (kcal/kWh)*
>
> *For RLNG =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."*

6. SHR of 1820 kCal/kWh for the tariff period 2019-14 has been provided in the 2019 Tariff Regulations based on the actual performance of the Generating Station for the period from 2012-13 to 2016-17. The Petitioner has submitted that during the period from 2012-13 and 2013-14, the Petitioner was able to achieve lower SHR owing to the higher declared availability on the basis of allocation of gas from KG-D6 basin.

However, subsequent thereto, the actual SHR of the Generating Station has increased considerably.

7. During stakeholders' consultation held before finalizing the 2019 Tariff Regulations, the Petitioner in its comments on the Draft 2019 Tariff Regulations had prayed for considering SHR as 1850 kCal/kWh instead of 1820 kCal/kWh citing the same reasons as submitted in the instant petition. The Commission, in paragraph 14.3.2 of SOR (Statement of Objects and Reasons) to the 2019 Tariff Regulations, has discussed the rationale for considering the actual performance data for fixing the operational norms as under:

> ***"14.3 Gross Station Heat Rate [Regulation 49 (c)]***
>
> *14.3.2 Some of the stakeholders submitted to include the data for FY 2017-18 for computation of operation norms. Further, they also suggested to compute the loading factor by taking into consideration the reserve shutdown period, to calculate the revised station heat rate with impact of the compensation factor in accordance with Grid Code.* ***After carefully considering the suggestions of the stakeholders, the Commission has decided to take into consideration the actual data from FY 2013-14 to FY 2017-18*** *and also corrected the loading factor by taking into consideration the reserve shutdown period."*

8. It is, therefore, evident that the Commission after considering the comments/ suggestions of the stakeholders, including the Petitioner, had specified the operational norms, applicable for the period from 01.04.2019.

9. It is worth mentioning that considering the operational difficulty being faced by the Petitioner, the Commission, vide order dated 21.01.2020 in 8/MP/2019 has already relaxed the Technical Minimum loading of the Gas Turbines of the Petitioner at 62% of the MCR/capacity in place of 55% provided in the Grid Code, exercising its powers to relax under Part 7(4) of the Grid Code for the reason of avoiding higher NOx emissions at lower loading.

10. The Petitioner has submitted that one of the reasons for claiming relaxation in station heat rate is lower PLF (plant load factor) being achieved by it during last 4-5 years that has resulted in degradation of station heat rate. The Petitioner has submitted that DC (declared capacity) for FY 2019-20 was only 33.64% while scheduled PLF was only 25.90%. It is noted that under normal circumstances, ISGSs (inter-State generating stations) are entitled to get compensation for degradation in station heat rate and increase in Auxiliary Energy Consumption (%) due to part load operation on account of low schedule by the beneficiaries. As per the Grid Code, compensation for part load operation is payable by the beneficiaries.

11. The Petitioner has also submitted that it is facing difficulty in achieving station heat rate norms in terms of Regulation 49(C)(a)(vi) of the 2019 Tariff Regulations because of frequent backing down/ change of signage to be undertaken in terms of the Deviation Settlement Mechanism and the backing down directions of WRLDC. We are of the view that these are routine requirements to be met by all ISGSs connected to the grid.

12. Regulations 76 and 77 of the 2019 Tariff Regulations provides as under:

> ***"76. Power to Relax:*** *The Commission, for reasons to be recorded in writing, may relax any of the provisions of these regulations on its own motion or on an application made before it by an interested person.*
>
> ***77. Power to Remove Difficulty:*** *If any difficulty arises in giving effect to the provisions of these regulations, the Commission may, by order, make such provision not inconsistent with the provisions of the Act or provisions of other regulations specified by the Commission, as may appear to be necessary for removing the difficulty in giving effect to the objectives of these regulations."*

13. The power to relax and power to remove difficulty under the 2019 Tariff Regulations are in general terms and their exercise is discretionary. It is settled law that

exercise of discretion must not be arbitrary, must be exercised reasonably and with circumspection, consistent with justice, equity and good conscience, always in keeping with the given facts and circumstances of a case. In the instant case, we do not find a compelling reason to exercise these powers.

14. Based on the above discussions, we are of considered view that the Petition is not maintainable for exercise of power to remove difficulties and relax. Consequently, the prayers of the Petitioner for relaxation in SHR norms and permission to provisionally bill the beneficiaries based on relaxed SHR norms stand rejected.

15. Accordingly, Petition No. 555/MP/2020 is dismissed being not maintainable at the admission stage itself.

Sd/	**Sd/**	**Sd/**	**Sd/**
(P.K.Singh)	**(Arun Goyal)**	**(I.S.Jha)**	**(P.K.Pujari)**
Member	**Member**	**Member**	**Chairperson**