



ORDER
OF THE
WEST BENGAL ELECTRICITY REGULATORY COMMISSION

IN CASE NO. OA-441/22-23

IN REGARD TO THE APPLICATION SUBMITTED BY HALDIA ENERGY LIMITED (HEL) FOR IN-PRINCIPLE APPROVAL OF CAPITAL EXPENDITURE ON ACCOUNT OF MEETING EMISSION STANDARDS OF OXIDES OF NITROGEN IN COMPLIANCE WITH THE ENVIRONMENT (PROTECTION) RULES, 1986 AND AMENDMENTS THEREOF NOTIFIED BY THE MINISTRY OF ENVIRONMENT, FOREST AND CLIMATE CHANGE UNDER THE ENVIRONMENT (PROTECTION) ACT, 1986 FOR 2 X 300 MW COAL BASED THERMAL POWER PROJECT AT HALDIA

PRESENT:

DR. MALLELA VENKATESWARA RAO, CHAIRPERSON

SRI PULAK KUMAR TEWARI, MEMBER

DATE: 03.05.2023



FACTS IN BRIEF

- 1.0 The present petition has been filed by Haldia Energy Limited ("**Petitioner / HEL**") on 29th December, 2022 under the West Bengal Electricity Regulatory Commission (Terms and Conditions of Tariff) Regulations, 2011 (in short "Tariff Regulations"), seeking in-principal approval for incurring the capital expenditure for installation of equipment and system to comply with the new norms of emission of Oxides of Nitrogen (NO_x), which has been notified by the Government of India through subsequent amendments of the Environment (Protection) Rules, 1986. The petition has been admitted by the Commission on 10th January, 2023.
- 2.0 The Petitioner (HEL) is a generating company within the meaning of Section 2(28) of the Electricity Act, 2003 ("Act"), which has set up a 600 (2 x 300) MW coal based thermal power plant (hereinafter referred to as the "Power Station") at Haldia, Midnapore (East), West Bengal and supplies its entire power to CESC Limited, a distribution licensee in the state of West Bengal, under long-term Power Purchase Agreement ("**PPA**") duly approved by the Commission vide Order dated 30.04.2013 in Case No. WBERC/PPA-65/12-13.
- 3.0 In the present petition, the petitioner (HEL) has inter alia stated the following with regard to amendment of pollution control norms in respect of thermal power plants and compliance timelines:
- 3.1 In exercise of the powers conferred on it by Sections 6 and 25 of the Environment (Protection) Act, 1986, the Ministry of Environment, Forest and Climate Change ("MoEFCC"), notified certain amendments to the Environment (Protection) Rules, 1986. In amendment dated 07.12.2015 (Amendment Rules, 2015), new standards of compliance for the thermal power plants ("TPP") were specified in respect of water consumption and emission of pollutants into the atmosphere (Particulate Matters, Sulphur and Nitrogen Oxides and Mercury). Summary of Environment Norms applicable to HEL based on installed capacity of the plants and COD are as below:

SI No	Parameters	Standards
1	Water Consumption	Maximum of 3.5m ³ /MWh
2	Particulate Matters	50 mg / Nm ³
3	Sulphur Dioxide (SO ₂)	600 mg / Nm ³
4	Oxides of Nitrogen (NO _x)	300 mg / Nm ³
5	Mercury (Hg)	0.03 mg / Nm ³



- 3.2 Since notification of the Amendment Rules, 2015 MoEFCC has carried out several modifications / amendments modifying the standards and timeline for compliance. In Amendment Rules, 2020 the NO_x standard was revised to 400 mg / NM³ in place of 300 mg/ NM³. Subsequently, vide Amendment Rules, 2021 CPCB was directed to constitute a task force comprising of representatives from MoEFCC, MoP and CEA to categorize the thermal power plants in category of A, B, or C depending on the geographic location of the plant to identify the timeline for compliance of standards. In Amendment Rules, 2022 the timelines for each category was fixed.
- 3.3 The Task Force constituted by CPCB in terms of Amendment Rules, 2021 has categorized the thermal power plants and communicated its minutes vide reference No. B-33104/7/2021/IPC-II/TPP dated 23.06.22. According to this final categorization, both the units of the Power Station of the petitioner (HEL) have been placed under Category B. The said communication of the CPCB enlisting the final category for all the thermal power plants is placed before the Commission as Annexure-1 to the petition. According to this communication, read with the Amendment Rules, 2022, the petitioner (HEL) inter alia is required to meet the new NO_x emission norms by December 2023.
- 4.0 The petitioner (HEL) has submitted that specific water consumption of its Power Station is within the limits specified in the Amendment Rules, 2015. It is further submitted that, emission levels of Particulate Matter and Mercury for the Power Station at present are also within the limits specified in Amendment Rules, 2015, which is dependent on the coal being used. Petitioner has already filed a petition seeking investment approval for installation of Flue Gas Desulphurization (FGD) system to control SO₂ emission upto the limit specified in the Amendment Rules, 2015.
- 5.0 In the present petition, it is stated that boilers of HEL's Power Station have low NO_x burners, and over fire air dampers which can control NO_x emissions to a certain extent. However, the existing equipment are not designed to meet the level of NO_x emission norms specified through the Amendment Rules, 2020, which has set a limit of 450 mg/Nm³. Therefore, in terms of the Amendment Rules, 2021 the Petitioner (HEL) is required to modify the existing emission control system with requisite technology of NO_x abatement system within the deadline of 31.12.2023 for adhering to the prescribed limits of NO_x emissions without being subjected to pay Environmental Compensation. Therefore, the Petitioner will be required to incur capital expenditure for installation / modifications of such NO_x abatement system and associated equipment.



- 6.0 The petitioner (HEL) has accordingly engaged M/s Tata Consulting Engineers Ltd (TCEL) to carryout a feasibility study for De-NO_x system implementation for HEL Power Station. TCEL report observed that the required reduction in NO_x emission level is possible to be achieved through primary NO_x reduction by combustion modification without any further requirement of post combustion interventions. Hence, based on the above observations, TCEL proposed that the necessary step to control the NO_x emissions is to restrict the uncontrolled NO_x generation at the combustion zone of the boiler by adoption of combustion control technologies (primary NO_x reduction system) comprising of the following:
- Modification of the existing burners (LNB)
 - Supply of less excess air (LEA Method)
 - Adoption of new separated over-firing air (SOFA) to facilitate multi-stage control of excess air
 - Modification and automation of Secondary Air Damper, Actuator and Control (SADC control)
- 7.0 TCEL in its feasibility report has also carried out a detailed estimation of the Base Capital Cost towards the proposed NO_x abatement system implementation amounting to Rs. 36.24 Crore including cost of initial Spares, Taxes and Duties, and Cost of Transportation and Insurance, which is subject to finalization upon completion of the NO_x abatement system based on actual incurred costs.

Break-up of estimate of Capital Cost for NO_x abatement system

Figures in Rs. Lakh

Sl. No.	Description	Base Cost	Transportation and Insurance cost @7% of Base cost	Taxes and Duties	Total Cost
1	Equipment & Material supply and other related cost for DENOX modifications per unit	810	57	232	1100
2	Cost of IO card including cabling and DCS modification and Automation shall be included.	30	2	9	41
3	Total cost for Dismantling, Removal, Installation, Erection, Commissioning, Performance Guarantee Test and Reliability Run test per unit	400	28	72	500
4	Cost of Spares at 4% on Items 1 & 2 per unit	34	2.4	9.6	46
5	Total Cost of Supplies & Services per unit [Sum(1:4)]	1274	89	322	1685
6	Total cost of supplies & Services for two units [(5)x2]	2547	178	644	3370
7	Contingency at 5% of total works cost	127	0	0	127
8	Engineering and Project Management cost @ 5% of Total works	127	NA	NA	127
9	Total Cost of Works including Contingency, Engineering & Project Management (Base Cost)	2802	178	644	3624



The petitioner also mentioned that the above cost estimate is only for the Base Cost of the proposed modification and does not include any cost for pre-operative expenses (which may include cost overheads, manpower costs and administrative, security & general expenses during construction and commissioning, consultancy charges, cost of power and water required for construction), Statutory Fees for approval from Directorate of Boilers, Interest during Construction (IDC) costs, Cost of Working Capital, Cost of OEM services regarding interconnection with existing facilities, and any other technical costs necessary for implementation of the proposed system.

8.0 In view of above, the petitioner (HEL) submitted that, due to amendment of the Environment (Protection) Act, 1986 (29 of 1986), it has to incur the above Capital Expenditure in order to ensure the compliance under the Environment (Protection) Act with the revised standards. Accordingly, petitioner proposed to consider this under "Change in law" and in terms of regulation 2.8.4.1 read with regulation 5.2.2 of the Tariff Regulations inter-alia prayed for the followings:

- a) accord in-principle approval to the Capital Cost of the Primary NOX reduction system for Rs. 36.24 Crore towards supply and erection cost including Taxes and Duties, and Insurance, subject to finalization of the same based on actual cost incurred by the Applicant;
- b) allow pre-operative expenses (which may include cost overheads, manpower costs and administrative, security & general expenses during construction and commissioning, consultancy charges, cost of power and water required for construction), Statutory Fees for approval from Directorate of Boilers, Cost of OEM services regarding interconnection with existing facilities, and any other technical costs necessary for implementation of the proposed system as will be incurred at actual,
- c) allow appropriate Financing Charges and Interest During Construction at a later stage.

9.0 Subsequently, the petition on 20.04.2023 submitted further clarification regarding adoption of proposed NOx reduction technology by other generating plants in the country including NTPC and confirmed that total expected capital expenditure in small schemes will be within the limits of regulation 2.8.4.1(iii) of the Tariff Regulations.



OBSERVATION OF THE COMMISSION

- 10.0 The Commission observes that the Capital Expenditure proposed by the petitioner to install NO_x abatement system and associated equipment in order to limit its NO_x emission within the revised standard set in terms of the Environment (Protection) Amendment Rules, 2021 notified by MoEFCC. Thus, the proposed Capital Expenditure comes under clause (iii) i.e. "liabilities on account of change in law" and clause (vi) i.e. "Works related to Pollution Control Measures" of regulation 5.2.2 of the Tariff Regulations.
- 11.0 Further, in a communication to CERC dated 30.05.2018, the MoP clarified that the Amendment Rules, 2015 qualifies as an event under 'Change in Law' in respect of the PPAs between generating companies and distribution licensees as well as it was advised that affected thermal power plants may approach the Appropriate Commission for approval of additional capital expenditure on account of such Change in Law.
- 12.0 From the submission, it is observed that petitioner has prayed for investment approval under section 2.8.4.1 of the Tariff Regulations. In terms of regulation 2.8.4.1 prior approval of Capital Expenditure is required in small schemes, where such capital expenditure in a year exceeds Rs. 300 Crore or 5% of the gross fixed asset. Petitioner through subsequent affidavit dated 20.04.2023 submitted that, their proposed total capital expenditure during 2023-24 under small scheme is likely to be within the threshold limit specified in regulation 2.8.4.1.
- 13.0 However, in view of statutory requirement of the project, the Commission decides to accord investment approval of the base cost of Rs. 36.24 Crore. Petitioner has to submit detailed documents along with audited report after completion of the contracts for finalizing the project cost. Other overheads including finance cost and IDC are to be determined during final project cost approval. Though no specific funding arrangement has been proposed by the petitioner, for tariff determination purpose, equity should be limited to 30% of the total approved Capital expenditure for the scheme.
- 14.0 The Commission noted that, the petitioner has proposed to develop a combined system with coordinated operation of existing burners with Closed- Coupled Over-Fire Air (COFA) considering further optimization through adoption of Separated Over-Fire Air (SOFA)



arrangement with automated SADC system. In this regard, the Commission takes note of the following remarks made by TCEL in its feasibility report at the end of paragraph 1.7 also takes note of the following remarks made by TCEL in its feasibility report at the end of paragraph 1.7:

“Primary NO_x reduction system (by incorporating SOFA) is the most cost-effective option available to meet the stipulated limit for NO_x abatement applicable for this plant as prescribed by MOEF&CC. The primary NO_x reduction system has lowest CAPEX and very minimal OPEX impact with respect to the other prevalent Post Combustion NO_x reduction technologies available in the market, which makes it most cost optimal solution.”

Petitioner vide their submission dated 20.04.2023 under affidavit mentioned that, the proposed technology of NO_x reduction is also being adopted by many other generating stations in the country, including several generating stations of NTPC.

ORDER

- 15.0 While taking cognizance of the various aspects of the submission made in the instant petition, the Commission accords investment approval of Rs. 36.24 Crore for NO_x abatement work excluding overheads and directs the petitioner to initiate immediate action following due procedure so that the project is completed by 31st December 2023 vide minutes of the meeting of the Task Force dated 23.06.2022 bearing reference No. B-33104/7/2021/IPC-II/TPP read with the Amendment Rules, 2022.
- 16.0 On completion of the NO_x abatement work, the necessary details along with all documentary evidences including selection of bidders through competitive bidding process, test reports of finally achieved standards, audited accounts of expenditures, details clarifications regarding allowable overhead expenses needs to be submitted before the Commission for approval of the final project cost.
- 17.0 The petition is disposed of in terms of the above.
- 18.0 A copy of the order shall be posted in the website of the Commission.



Approval of capital expenditure on account of meeting emission standards of oxides of nitrogen in compliance with the Environment (Protection) Rules, 1986 and amendments thereof notified by the Ministry of Environment, Forest, and Climate Change under the Environment (Protection) Act, 1986 for 2 x 300 mw coal based thermal power project at Haldia



- 19.0 HEL shall download the copy of the order from the website of the Commission and act on it. Certified copy of the order, if applied for, be given on completion of formalities laid down in the West Bengal Electricity Regulatory Commission (Conduct of Business) Regulations, 2013, as amended and on submission of necessary fees.

**Sd/-
(PULAK KUMAR TEWARI)
MEMBER**

**Sd/-
(DR. MALLELA VENKATESWARA RAO)
CHAIRPERSON**

DATED: 03.05.2023

**Sd/-
SECRETARY**