

In regard to the application submitted by for In-principle clearance for installation of Flue Gas Desulphurization (FGD) in the 3 x 150 MW Power Station of Hiranmaye Energy Limited

- j) Common PLC based control system in a common Control Room is envisaged for FGD, NOx and PM Emission reduction system having interface with existing plant DCS through soft and hard link. Uninterrupted Power Supply to PLC will be provided from existing UPS system.

4.9 The completion period for implementation of abatement methods for the Petitioner's plant on EPC basis would be 26-30 months excluding the downtime of 4 weeks/boiler for flue gas duct modification in the existing plant. The said timeline for the Petitioner's project is within the target date specified by the MOEF&CC for Category-B Power Plants.

4.10 The total Capital Cost towards the proposed Emission Reduction Plant including FGD, for 2 x 150 MW TPP, is estimated to be Rs. 61140.40 lakh including Initial Spares, civil costs, Taxes & Duties, Insurance, Erection, testing and commissioning, Overheads including Preoperative expenses, Contingency, Interest During Construction and Financing Charges. The Capital Cost has been envisaged based on the prevailing market price and in house data with break up as follows:

Sl. No	Particulars	Rs. lakh
1	Limestone based FGD System and its auxiliaries	21000.00
2	SCR system and its auxiliaries	9000.00
3	ESP upgradation	4000.00
4	UF-RO Plant	4500.00
5	Total Emission Reduction Plant Cost (1+2+3+4)	38500.00
6	Taxes & Duties @18.0% GST	6930.00
7	Transit Insurance @1%	454.30
8	Total Plant & Equipment including Tax & Duties (5+6+7)	45884.30
9	Erection, testing and commissioning	5506.10
10	Total EPC cost (8+9)	51390.40
11	Total Overheads	513.90
12	Contingency	1541.70
13	Hard Cost or Capital cost excluding IDC & FC (10+11+12)	53446.00
14	Interest During Construction (IDC)	7480.40
15	Finance Charges (FC)	214.00
16	Capital Cost including IDC & FC (13+14+15)	61140.40

- 4.11 The levelised impact of emission reduction system on Tariff comes out to be Rs.0.68/kWh for the balance design life of 18 years considering increase in Auxiliary Energy Consumption, water consumption, ammonia and Limestone consumption, O&M cost. There will be a separate expense on account of Gypsum disposal as well as there may be some income on account of gypsum sale. The disruption in generation of power during the installation phase of various emission control systems will lead to loss of fixed cost recovery during the shutdown period. The aforesaid expected changes in various parameters of the Thermal Power Plant will be required to be considered while APR / tariff determination for ensuing years.
- 4.12 APTEL in the Order dated 28.08.2020 in Appeal Nos. 21 & 73 of 2019 and Appeal no. 153 of 2019 has allowed Capital Cost of the FGD project; wherein it is held that the MoEF&CC notification dated 07.12.2015 is a **"Change in Law event"** and directed Punjab State Electricity Regulatory Commission to devise mechanism for its recovery i.e. to formulate tariff determination principles for recovery of FGD project cost. Article 9 of the PPA dated 28.12.2010 between WBSEDCL and the Petitioner, has a provision to deal with Change in Law scenario. The Petitioner has relied upon the MOEF&CC notification, regulations of the Commission and provision under PPA for filing this petition to consider it under the Change in Law scenario and investment approval be granted.
- 4.12 HMEL has now prayed before the Commission to:
- Admit the Petition as submitted herewith;
 - Grant 'in-principle clearance' for Rs 61140.4 Lakhs towards capital cost for installation of FGD and other associated system in compliance of MoEF&CC notification dated 07.12.2015;
 - Allow the Petitioner to file such additional information, explanation and documents as may be required under the guidelines of the Commission;
 - Consider the revised parameters (such as increase in Auxiliary consumption, O&M expenses, water charges etc.) expected due to installation of FGD system while APR / Tariff determination for ensuing years;
 - Allow procurement cost of limestone and ammonia for operation of FGD System as part of Energy charges;
 - Allow normative availability (85%) for the period of installation and commissioning of FGD as deemed availability for payment of capacity charges during shutdown period;
 - Allow any other relief, order or direction, which the Hon'ble Commission deems fit to be issued;
 - Condone any inadvertent errors / inconsistencies / omissions / rounding off differences, etc. as may be there in the Petition.

OBSERVATION OF THE COMMISSION

- 5.0 In its communication to the CERC dated 30.05.2018, containing the said directions, 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 advised that affected thermal power plants may approach the Appropriate Commission for approval of additional capital expenditure on account of such Change in Law
- 6.0 The indicative CAPEX or "Base Cost" of Central Electricity Authority (CEA) for FGD is 45.0 lakh /MW for 195/210/250 MW units discovered through open competitive bidding for the projects already awarded. CEA has clarified that CAPEX is "Base Cost" only with new Chimney and without Gas to Gas Heater (GGH) and does not include Taxes-Duties and Opportunity cost for interconnection. The above Base cost may further vary as per no. of units, chimney layout, range of SO₂ removal, Choice of Corrosion protection lining in chimney, absorber and other sections.
- 7.0 Central Electricity Authority (CEA) vide its communication dated 24.02.2021 has also advised the generators that CEA is in the process of reviewing its guidelines on Project Cost and Technology considering that present bid out prices of such FGD systems are generally higher compared to its guidelines issued three years ago.
- 8.0 However, no further guideline on indicative hard cost has been issued by CEA.
- 9.0 HMEL has submitted petition for 'in-principle clearance' for installation of Flue Gas Desulphurization (FGD) in its 3 x 150 MW thermal power station at Haldia. But from the enclosed Detailed Project Report (DPR), based on which the petitioner has estimated cost, this is noticed that the Emission Reduction Plant is for 2 x 150 MW units at 3 x 150 MW generating station at Haldia of HMEL. However, the envisaged new wet chimney for FGD shall be tri-flue, common to all three units of 3 x 150 MW generating station. Therefore, the Commission considers 2 x 150 MW or 300 MW for per MW cost analysis.
- 10.0 The proposal includes FGD as well as NO_x, PM and SWC reduction plant.
- 11.0 HMEL has considered hard cost of Rs 53446 lakh excluding Interest During Construction (IDC) & Finance Charge (FC) but including Rs 6930 lakh on Tax & Duties for the total Emission Reduction Plant. Thus, the hard cost excluding Tax & Duties come to Rs 46516 lakh (Rs 53446 lakh – Rs 6930 lakh). In respect of cost of Plant & Equipment, FGD along with associated UF-RO Plant is 66.23% of the total Emission Reduction Plant {(210 Crore + 45 Crore) ÷ 385 Crore}.

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Therefore, proportionate hard cost of FGD alone comes to Rs 30809.30 lakh (66.23% of Rs 46516 lakh) i.e Rs 102.70 lakh /MW (Rs 30809.30 lakh + 300 MW).

- 12.0 It is also observed that the projected hard cost of FGD in lakh/MW is much more than the hard cost of Rs 72.45 lakh/MW for 2 x 250 MW NTPC-SAIL Power Company Limited, Bhilai for which 'in principle approval' have been accorded by CERC Order in Petition No. 597/MP/2020. Further, ₹14 crore (without IDC) towards the Combustion Modification System to meet emission control norms for NOx was approved in the same order whereas the projection HMEL towards De-NOX system works out to be Rs 108.73 Crore (Rs 465.16 Crore x Rs 90 Crore / Rs 385 Crore).
- 13.0 Installation of Emission Control Systems (ECS) is required to be established by HMEL in compliance with the Environment (Protection) Amendment Rules, 2015 notified by the Ministry of Environment, Forest and Climate Change (MoEFCC), specifying new standards of compliance for the thermal power plants with respect to emission of pollutants into the atmosphere.

ORDER

- 14.0 In view of above HMEL is directed to review the entire process towards optimization of cost keeping in mind the timeline target set by the Honourable Supreme Court and communicated and monitored by MoEF.
- 15.0 Let a copy of this order be served upon HMEL.

Sd/-
SRI PULAK KUMAR TEWARI
(MEMBER)

Sd/-
SRI DURGADAS GOSWAMI,
(MEMBER)

Sd/-
SRI SUTIRTHA BHATTACHARYA
(CHAIRPERSON)

Dated : 02.02.2022

sd/-
SECRETARY