

Comments and Suggestions on

Central Electricity
Regulatory Commission
(Terms and Conditions of
Tariff) (First Amendment)
Regulations, 2020

CESC Limited, Kolkata

1. Amendment to Regulation 9 of the Principal Regulations - Application for determination of tariff

1.1. Proposed amendment

A new fourth proviso has been proposed to be added to Clause (1) of Regulation 9 of the Principal Regulations as under:

“Provided also that the generating company shall file an application for determination of supplementary tariff for the emission control system installed in the coal or lignite based thermal generating station in accordance with these regulations not later than 60 days from the date of operation of such emission control system.”

1.2. Our comments

We request the Hon'ble Commission to consider the following and make necessary provisions in the Regulation.

- (a) In order to allow the generators to recover the fixed and variable costs associated with installation of FGD, immediately after commissioning, filing of application for determination of supplementary tariff may be allowed before 180 days from Scheduled Commissioning Date as per the project schedule of the entrusted Contractor for the job. Hon'ble CERC may kindly dispose of such petition and fix a provisional tariff within the next 4 months. Such a provision will help generating company to recover cost incurred immediately on commissioning of the system.
- (b) In case there is difficulty in approving the final Tariff, Hon'ble Commission may allow a provisional supplementary tariff of 95 % of the reasonable costs after prudence check.

2. Amendment of Regulation 18 of the Principal Regulations - Debt-Equity Ratio

2.1. Proposed amendment

A new clause, namely Clause (6) has been proposed to be added after Clause (5) of Regulation 18 of the Principal Regulations as under:

“(6) Any expenditure incurred for the emission control system during the tariff period as may be admitted by the Commission as additional capital expenditure for determination of supplementary tariff, shall be serviced in the manner specified in clause (1) of this Regulation.”

2.2. Our comments

We request the Hon’ble Commission to consider the following and make necessary provisions in the Regulation:

- (a) Taking into consideration the prevailing volatile financial market in India including stress in the banking sector, developers / IPPs are finding it difficult to raise finance from the banks.
- (b) Therefore, in case a developer is forced to put incremental equity above normative level for installation of emission control system, the additional equity should not be considered as normative loan (as per Regulation 18 (1) of the Tariff Regulations and RoE on the actual may be provided to the developer.

3. Amendment of Regulation 21 of the Principal Regulations - Interest During Construction (IDC) and Incidental Expenditure during Construction (IEDC)

3.1. Proposed amendment

A new clause, namely, Clause (6) has been proposed to be added after Clause (5) of Regulation 21 of the Principal Regulations as under:

“(6) For the purpose of Clauses (4) and (5) of this Regulation, IDC on actual loan and normative loan infused shall be considered.”

3.2. Our comments

We request the Hon’ble Commission to consider the following and make necessary provisions in the Regulation:

(a) The Hon’ble Commission may include that IDC on normative loan would be provided from the zero date of investment. Such incorporation would be in line with the terms of the Judgment passed by the Hon’ble Appellate Tribunal for Electricity dated 03.10.2019 in Appeal No. 231 of 2017.

(b) Accordingly, we propose the amendment as under:

“(6) For the purpose of Clauses (1) to (5) of this Regulation, IDC on actual loan and normative loan infused shall be considered.”

4. Amendment of Regulation 23 of the Principal Regulations - Initial Spares

4.1. Proposed amendment

A new Proviso, namely, Proviso (iii) has been proposed to be added after Proviso (ii) to Regulation 23 of the Principal Regulations as under:

“(iii) Where the emission control system is installed, the norms of initial spares specified in this regulation for coal or lignite based thermal generating station as the case may be, shall apply.”

4.2. Our comments

The Hon’ble Commission may kindly clarify whether initial spares shall also be allowed in case emission control system is allowed by the Hon’ble Commission for an existing project.

5. Amendment of Regulation 30 of the Principal Regulation - Return on Equity

5.1. Proposed amendment

(a) In the first proviso under Clause (2) of Regulation 30 of the Principal Regulations:

(i) The words "excluding additional capitalization due to Change in Law," has been proposed to be deleted;

(ii) Also, at the end of the first proviso, the words and expressions "or in the absence of actual loan portfolio of the generating station or the transmission system, the weighted average rate of interest of the generating company or the transmission licensee, as the case may be, as a whole, shall be considered;" has been proposed to be added.

(b) A new clause, namely, Clause (3) has been proposed to be added after Clause (2) of Regulation 30 of the Principal Regulations, as under:

"(3) The return on equity in respect of additional capitalization due to emission control system shall be computed at the weighted average rate of interest on actual loan portfolio of the generating station or in the absence of actual loan portfolio of the generating station, the weighted average rate of interest of the generating company as a whole shall be considered;"

5.2. Our comments

We request the Hon'ble Commission to consider the following and make necessary provisions in the Regulation

(a) In the extant regulations, to discourage continuous capital expenditure outside the original scope of work, after the cut-off date, return on equity has been specified at weighted average interest rate. However, it has been clearly spelt out in regulation 30 (2) of the extant Tariff Regulations that such reduced return will not be applicable for additional capitalization arising due to change in law. The present amendment to the Tariff Regulation proposes to treat the return on equity on additional expenditure due to change in law events at par with other additional expenditure incurred. In the statement of reasons the Hon'ble Commission has only stated that it felt such a treatment

as reasonable, without offering any explanation for such reasonableness. It is requested to keep the provisions of the extant regulations intact, where return on equity on additional expenditure arising out of change in law events is treated at par with the equity of the original scope of work (i.e. RoE of 15.5% or 16.5%, as the case may be). The distinction of capital expenditure which is forced on the generator due to change in law must be retained. Such investment is akin to a new Greenfield project necessitated by law. It would be unfair that while new projects being approved shall get the higher rate of return 15.5% (including the equity required to meet the expenses for environmental systems), the existing projects – undergoing retrofitting of FGD/SCR/SNCR shall be fetching lower returns.

- (b) In fact, we request the Hon'ble Commission to recognize that the risks of equity investment in the emission control equipment are far higher for the existing generating plants as the original OEM of BTG package will not take any responsibility for deterioration of plant performance and the entire risk of system integration is completely on the original developer. We suggest the Hon'ble Commission may be pleased to consider that existing plants shall be allowed an additional 1% return on equity investments for environmental systems.

6. Amendment of Regulation 32 of the Principal Regulations - Interest on loan capital

6.1. Proposed amendment

A new clause, namely, Clause (5a) has been proposed to be inserted after Clause (5) of Regulation 32 of the Principal Regulations as under:

“(5a) The rate of interest on loan for emission control system shall be the weighted average rate of interest of actual loan portfolio of the emission control system or in the absence of actual loan portfolio, the weighted average rate of interest of the generating company as a whole shall be considered.”

6.2. Our comments

We request the Hon'ble Commission to consider the weighted average rate of interest of the generating company or the transmission licensee, as the case may be, as a whole or the weighted average rate of interest on last outstanding actual loan portfolio of the generating station, as applicable, in absence of actual loan portfolio of the generating station.

7. Amendment of Regulation 33 of the Principal Regulations – Depreciation

7.1. Proposed amendment

A new clause, namely, Clause (9) has been proposed to be added after Clause (8) of Regulation 33 of the Principal Regulations as under:

“(9) The depreciation of the emission control system shall be computed from its date of operation for the balance useful life or extended life of the generating station, as the case may be.”

7.2. Our comments

We welcome this amendment based on the following understanding:

- (a) Based on the reading of the proposed amendment and the statement of reasons, we understand that the amended provision ensures that recoverable depreciation (i.e. 90% of capital cost) with respect to emission control system is fully recovered in the balance useful life or balance extended life of the generating station.
- (b) This provision may kindly be retained without any further modification to ensure full recovery of depreciation.

8. Amendment of Regulation 34 of the Principal Regulations - Interest on Working Capital

8.1. Proposed amendment

A new clause, namely, Clause (aa) has been proposed to be inserted after Clause (a) of Regulation 34 of the Principal Regulations as under:

“(aa) For emission control system of coal or lignite based thermal generating stations:

- (i) Cost of limestone or reagent towards stock for 20 days corresponding to the normative annual plant availability factor.*
- (ii) Receivables equivalent to 45 days of supplementary capacity charge and supplementary energy charge for sale of electricity calculated on the normative annual plant availability factor.*
- (iii) Operation and maintenance expenses in respect of emission control system for one month.*
- (iv) Maintenance spares @ 20% of operation and maintenance expenses in respect of emission control system.”*

8.2. Our comments

We request the Hon’ble Commission to consider the following and make necessary provisions in the Regulation.

- (a) While calculating interest on working capital, cost of lime stone or reagent stock may be allowed for 30 days corresponding to the normative annual plant availability factor.
- (b) Justification for above: For a typical unit size of 210/250/300 MW, one rake of limestone will be sufficient to meet 60 days of consumption. Limestone procurement and transport by partial rake loading to meet consumption for less than 60 days will not be economical as it shall increase transportation expenses. Hence an average 30 days working capital for limestone may be considered.

9. Amendment of Regulation 35 of the Principal Regulations- Operation and Maintenance Expenses

9.1. Proposed amendment

Sub-Clause(7) of Clause (1) of Regulation 35 of the Principal Regulations along with its proviso has been proposed to be substituted by the following text:

“(7) The operation and maintenance expenses on account of emission control system in coal or lignite based thermal generating station shall be 2% of the admitted capital expenditure (excluding IDC & IEDC) as on the date of its operation, which shall be escalated annually at the rate of 3.5% during the tariff period ending on 31st March 2024:

Provided that income generated from sale of gypsum or other by-products shall be reduced from the operation & maintenance expenses.”

9.2. Our comments

- (a) Increment of O&M expenses on account of operation and maintenance of emission control system may be allowed at 3% of the admitted capital expenditure (including IDC & IEDC) as on the date of its operation. O&M expenses of emission control system may require additional cost involvement due to following reasons:
- (i) Degradation of equipment as the whole system operates in corrosive environment. This may pose major challenges for the generators to ensure availability of emission control system.
 - (ii) Higher maintenance cost as a sizeable number of equipment installed for the emission control system is likely to be imported and imported spares are sensitive to forex fluctuations.
 - (iii) Implementation of emission control system at existing plants setup may require additional infrastructural support to facilitate smooth operation (for example installation of a dedicated road and gate for trucks carrying gypsum - similar to separate dedicated gates with security personnel that have to be maintained in power plants for ash movement.

- (iv) Insurance cost in the tune of 0.5% of admitted capital cost.
- (b) We request the Hon'ble Commission to allow the generating companies to offset any actual additional O&M expenses over the normative from the income on account of sale of gypsum and other by-products before reducing the income from normative O&M expenses. The reasons for our submission are as below:
- (i) In case the actual expenditure made by the generating company cannot be contained within the normative O&M Expenses set by the Hon'ble Commission for each year of the period FY 2019-24, the losses would be borne by the generating company.
 - (ii) It is therefore submitted that the generating companies may be allowed to offset such losses from the income generated, if any, from sale of gypsum and other by-products before passing on the benefits to the consumers. Such provision would provide impetus for sale of gypsum for the initial period.
- (c) Also, considering the present epidemic in the country due to COVID-19, the cement industry is in the red, and it will take a long time for them to recover. Therefore, it is not expected that there will be any real market for selling the gypsum in the open market as cement industry is expected to be the primary buyer of gypsum. We request the Hon'ble Commission to consider the disposal cost of by-product of emission control system if required, as an allowable expense for the following reasons:
- (i) Simultaneous commissioning of similar limestone based emission control systems by majority Generators in 2022 may pose a challenge for marketability of Gypsum as a by-product. Presently the production and demand of industrial gypsum is limited. However once the FGD of the thermal power plants are commissioned it would change the supply chain of gypsum due to sudden high availability of gypsum.
 - (ii) In absence of marketability of the entire gypsum produced, disposal of byproduct will be required through filling of abandoned mines or such other method as maybe approved by CPCB. Disposal of by-product will require additional transportation costs, which may be allowed to be recovered through operation and maintenance expenses.

(iii) The same may be reviewed in the next control period depending on the experience gathered on marketability of gypsum.

10. Amendment of Regulation 42 of the Principal Regulations- Computation and Payment of Capacity Charge for Thermal Generating stations:

10.1. Proposed amendment

Clause (5) of Regulation 42 of the Principal Regulations along with the proviso of the said clause has been proposed to be substituted by the following twxt:

“(5) The Plant Availability Factor for a Month („PAFM”) shall be computed in accordance with the following formula:

$$PAFM = 10000 \times \sum_{i=1}^N \frac{DC_i}{[N \times IC_x (100 - AUX_n - AUX_{en})]} \%$$

Where,

AUX_n = Normative auxiliary energy consumption in percentage;

AUX_{en} = Normative auxiliary energy consumption for pollution control system as a percentage of gross energy generation, wherever applicable;

DC_i = Average declared capacity (in ex-bus MW), for the ith day of the period i.e. the month or the year as the case may be, as certified by the concerned load dispatch centre after the day is over;

IC = Installed Capacity or (MW) of the generating station;

N = Number of days during the period;

10.2. Our comments

We request the Hon’ble Commission to incorporate the following provisions in the regulation.

- (a) Existing Generators retrofitting FGD/SNCR may lose capacity charge during the year when interconnection of emission control system is done with the flue gas system of the plant as a prolonged shutdown is required. Hence the availability condition for full fixed charge recovery during that particular year of interconnection may be relaxed by 5% from the normative requirement of 85%.

(b) Further the availability of the unit may suffer during stabilization period post commissioning of FGD as the plant O&M engineers have no experience of running FGD plant. In view of the above, during the first year of operation of FGD, the unit's normative availability requirement of 85% maybe also relaxed by 5%, for generators to tide over the initial teething problems.

11. Amendment of Regulation 43 of the Principal Regulations- Computation and Payment of Energy Charge and Supplementary Energy Charge for Coal or Lignite based Thermal Generating Stations

11.1. Proposed amendment

A new sub-clause, namely, sub-clause (aa) has been proposed to be inserted after sub-clause(a) of clause (2) of Regulation 43 of the Principal Regulations as under:

“(aa) Supplementary ECR for coal and lignite based thermal generating stations:

$$\text{Supplementary ECR} = (\Delta \text{ ECR}) + (\text{SRC} \times \text{LPR} / 1000)$$

Where,

(Δ ECR) =Difference between ECR with revised auxiliary consumption with emission control system equivalent to (AUXn + AUXen) and ECR with normative auxiliary consumption as specified in these regulations and revised;

SRC = Specific reagent consumption on account of revised emission standard (in gm /kWh);

LPR = Weighted average landed price of reagent for emission control system (in Rs/kg)”.

11.2. Our comments

As the available data on actual consumption of limestone/other reagents in Indian conditions is limited, the normative values may be arrived after 5 years of operation by generators and during that period the actual consumption values needs to be considered during the stabilization of the systems. Similarly, the NOx control system is still at the pilot stage and as such fixing guidelines for specific consumptions of reagent at this stage would be premature.

12. Amendments of Regulation 49 of the Principal Regulations - Norms of operation for thermal generating station

12.1. Proposed amendment (1)

A new sub-clause, namely, sub-clause (bb) has been proposed to be inserted after sub-clause (b) of Clause (E) of Regulation 49 of the Principal Regulations as under:

“(bb) Auxiliary Energy Consumption (AUX_e) on account of emission control system of thermal generating stations:

.....

.....

Wet Limestone based FGD system (without Gas to Gas heater) – 1.0 % AUX_e (as % of gross generation)

.....

Provided that where the technology is installed with Gas to Gas heater, AEC specified as above shall be increased by 0.3% of gross generation”

12.2. Our comments (1)

We request the Hon’ble Commission consider the following and make necessary provisions in the Regulation

- (a) Increment in Auxiliary Energy Consumption of wet limestone based FGD system (without Gas to Gas heater) may be allowed to 1.5 % (as % of gross generation).

Justification: In addition to the auxiliary power consumed by the newly installed emission control systems (whose power consumption shall be guaranteed by the supplier), auxiliary energy consumption of the main plant will increase due to the following reasons:

- (i) Additional power consumption required on account of cooling water sourced from existing plant system for the new equipment.

- (ii) Additional power consumption required on account of pumping and treatment of makeup water to emission control system from the existing plant water system.
 - (iii) Existing plants will require additional auxiliary consumption on account of various common services for emission control system.
 - (iv) Due to acute scarcity of water at various locations, emission control system will entail installation of RO plant / ZLD Crystallizer system. Operation of such system will require additional auxiliary consumption.
 - (v) Additional transformer losses of existing transformers on account of the additional load of the emission control systems.
 - (vi) Uncertainty over purity of lime stone and sulphur content of coal - while the auxiliary power increase will be dependent on the quality of limestone actually received as well as the coal quality and both are uncontrollable factors for generators. Additional energy consumption may be required to meet the statutory emission limit based on actual operating conditions and plant PLF.
 - (vii) Economy of scale plays a key factor on account of consumption of common facility for emission control system.
 - (viii) Auxiliary consumption of emission control system will depend of operating plant load factor of units, hence we request Hon'ble commission to allow a suitable compensation on account of degradation of auxiliary power consumption (APC) if PLF is reduced below normative PLF.
- (b) Units of smaller sizes consume more auxiliary power in comparison to higher size units. We request Hon'ble Commission to allow additional 0.5% auxiliary consumption for unit size of 210/250/300 MW or lower.

12.3. Proposed amendment (2)

A new clause, namely Clause (F) has been proposed to be added after Clause (E) of Regulation 49 of the Principal Regulations as under:

“(F) Norms for consumption of reagent: (1)The normative consumption of specific reagent for various technologies for reduction of emission of sulphur dioxide shall be as below:

(a) For Wet Limestone based Flue Gas De-sulphurisation (FGD) system: The specific limestone consumption (g/kWh) shall be worked out by following formula:

$$[0.85 \times K \times SHR \times S] / [CVPF \times LP]$$

Where,

S = Sulphur content in percentage,

LP = Limestone Purity in percentage,

SHR= Gross station heat rate, in kCal per kWh;

CVPF = (a) Weighted Average Gross calorific value of coal as received, in kCal per kg for coal based stations less 85 Kcal/Kg on account of variation during storage at generating station;

Provided that value of K shall be equivalent to (35.2 x Design SO₂ Removal Efficiency/96%) for units to comply with SO₂ emission norm of 100/200 mg/Nm₃ or (26.8xDesign SO₂ Removal Efficiency/73%) for units to comply with SO₂ emission norm of 600 mg/Nm₃;

Provided further that the limestone purity shall not be less than 85%.”

12.4. Our comments (2)

We request the Hon’ble Commission to consider the following and make necessary provisions in the Regulation

- (a) We appreciate that the Hon’ble Commission has already allowed the landed price of such reagents applying applicable statutory charges and transportation cost. However, the Hon’ble Commission kindly may consider to allow the consumption / quantity of limestone at actual. There is a dearth of actual limestone consumption data for wet limestone FGDs specifically for Indian conditions and we feel that normative values may have to be arrived at after 5 years of operation and during that period the actual consumption

values need to be considered. Moreover, the specific limestone consumption may vary with other factors like the particular limestone FGD technology adopted, the reactivity of limestone and PLF of the unit.

- (b) Purity of limestone will not be in control of the generators. Major portion of the domestic limestone is having purity less than 85%. Availability of the quality limestone is limited for plants in the eastern region. Generators may have to opt for low quality limestone – based on local availability. Hence ceiling of limestone purity at a minimum of 85% may not be practical to accommodate such huge requirement of limestone for emission control systems in India.

13. Amendment of Annexure –I, PART 1, - Introduction of Form 16A - Details of Reagent for Computation of Supplementary Energy Charge Rate

13.1. Our comments

We request the Hon'ble Commission to consider the following and make necessary provisions in the Regulation

- (a) Transit and handling loss of limestone may be allowed as Rail transportation of limestone will entail transit losses similar to coal.
- (b) Handling cost, charges for third party sampling and applicable statutory charges for lime stone may be allowed.
- (c) Limestone sampling, Testing and Analysis charges may be allowed as a pass through item in limestone procurement.

14. Other Comments

In addition to the comments and observations provided above, we also submit the following for the kind consideration of the Hon'ble Commission

- (a) Lime stone / reagent consumption during an estimated 3 month trial operation of emission control systems prior to declaration of date of commissioning.
- (b) Actual additional auxiliary consumption of the unit during the trial operation period of emission control systems prior to declaration of date of commissioning.
- (c) The project execution phase from date of placement of order till commissioning of FGD may be considered as 30 months. Suitable incentive clauses of 70%:30% sharing of cost savings between generators and beneficiaries for achieving plant commissioning before the above period on account of savings from IDC.
- (d) During the declared implementation period till 2022, projects with FGD installed will have to sell power at a higher cost than the projects without FGD. This would lead to a situation where these projects with FGD would not get cleared on power exchanges or on DEEP portal. To address this issue, the following may be introduced:
 - (i) For capacity being sold on power exchange or through DEEP portal, the bidding may be conducted without considering FGD costs. An additional reimbursement of cost for FGD installation may be allowed to the winning sellers on per unit basis, who will be selling power from projects with FGD installed. Such reimbursement may be notified by CERC on a normative basis based on the benchmark costs for FGD by CEA.
 - (ii) In case of medium-term contracts through DEEP portal, the generator who commissions the FGD during the tenure of the contract - may be reimbursed on and from the date of compliance to SO_x norms. The total tariff on account of FGD – fixed and variable costs per unit, as determined for similar capacity units under Section 62 may be allowed.