CENTRAL ELECTRICITY REGULATORY COMMISSION

NEW DELHI

Coram:

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

No. L-1/236/2018/CERC **Dated 2nd February, 2021**

In the matter of

Central Electricity Regulatory Commission (Terms and Conditions of Tariff) (First Amendment) Regulations, 2020 - Statement of Objects & Reasons thereof.

Statement of Objects & Reasons

1. Introduction

1.1 The Central Electricity Regulatory Commission (hereinafter referred to as the 'CERC' or 'the Commission') had notified the Central Electricity Regulatory Commission (Terms and Conditions of Tariff) Regulations, 2019 (hereinafter referred to as "the 2019 Tariff Regulations" or "the Principal Regulations") exercising powers conferred under Section 178 read with Section 61 of the Electricity Act, 2003 (hereinafter referred to as the 'the Act'). The Act provides that the Commission shall specify the terms and conditions for determination of tariff of the generating companies and inter-State transmission systems covered under its jurisdiction.

1.2 In the Principal Regulations, the Commission has specified regulatory framework for supplementary tariff incorporating in-principle approval, admissibility of additional capital expenditure and tariff structure

(supplementary capacity charges and supplementary energy charges) in respect of emission control system. However, as regards financial parameters, operational parameters and recovery mechanism, it was mentioned in the Principal Regulations that provisions would be specified separately[1].

1.3 The Commission initiated the process of amendment of the Principal Regulations to specify the regulatory framework for determination of supplementary tariff for emission control system. On 20.2.2019, the Central Electricity Authority (CEA) submitted its recommendations on additional operational norms for the generating stations undertaking installation of emission control systems to comply with revised emission standards notified by Ministry of Environment, Forests and Climate Change. On 25.6.2019, the Central Electricity Authority submitted detailed back-up calculations in support of operation norms in respect of reagent consumption and additional auxiliary consumption for emission control systems. In addition, the Commission also identified certain amendments considered necessary for smooth operation of the Principal Regulations.

1.4 On 1.4.2020, the Commission issued draft of the Central Electricity Regulatory Commission (Terms and Conditions of Tariff) (First Amendment) Regulations, 2020 (hereinafter referred to as "the draft Amendment Regulations") exercising the powers vested under Section 61 and Clause(s) of sub-section (2) of Section 178 of the Act and all other enabling powers and in compliance of the requirement under sub-section (3) of Section 178 of the Act. The draft Amendment Regulations were issued after considering CEA's recommendations on additional operational norms and analysis of current financial scenario in the power sector. The Commission had also issued an

[1] *Ibid Sub-Clause (7) of Clause (1) of Regulation 35, Clause (2) of Regulation 41 and Para 2.2 and Para 12.4.2 of the Statement of Reason of the Principal Regulations*

Explanatory Memorandum accompanying the draft Amendment Regulations explaining the philosophy, necessity and reasons for the proposed amendment to the Principal Regulations. Apart from issuing the draft Amendment Regulations, a public notice was also issued by the Commission on 1.4.2020 soliciting views/ suggestions/ objections of the stakeholders on the draft Amendment Regulations by 30.4.2020. The date for submission of views/ suggestions/ objections was subsequently extended to 15.05.2020. In response to the said public notice, the Commission received a number of submissions from the stakeholders, including Central Electricity Authority, which were hosted on the website of the Commission for information of all the interested stakeholders.

1.5 Subsequently, public hearing on the draft Amendment Regulations was held through video conferencing on 13.07.2020 to solicit the views, suggestions and objections of stakeholders and other interested persons including those representing consumer interests. List of the participants in the public hearing and presentations submitted during the hearing have also been hosted on the website of the Commission.

1.6 The Commission, in compliance with the provisions of the Act and the Electricity (Procedure for Previous Publication) Rules, 2005, and after due considerations of the recommendations of the Central Electricity Authority and the views/ suggestions/ objections of the stakeholders, finalized the CERC (Terms and Conditions of Tariff) (First Amendment) Regulations, 2020 (hereinafter referred to as "the 1st Amendment Regulations") and notified the same on 25.08.2020.

1.7 Analysis of various provisions of the draft Amendment Regulations in the light of the recommendations of the Central Electricity Authority and the comments/suggestions/objections of the stakeholders including the persons

representing consumer interests along with findings of the Commission thereon are discussed in the subsequent paragraphs. This Statement of Objects and Reasons (SOR) has been issued with the intent of explaining rationale for the various provisions included in the 1st Amendment Regulations.

2. Scope of the 1st Amendment Regulations

2.1 The draft Amendment Regulations provided for the regulatory framework to determine supplementary tariff on account of the additional expenditure incurred for meeting the revised emission standards by generating companies covered under jurisdiction of the Commission. In the 2019 Tariff Regulations, the Commission had introduced regulatory framework for supplementary tariff which *inter-alia* included in-principle approval of additional capital expenditure, admissibility of additional capital expenditure and tariff structure in respect of emission control system, but had not provided the financial parameters, operational parameters and recovery mechanism which have now been specified in the 1st Amendment Regulations.

2.2 The regulatory framework for supplementary tariff will be applicable to those generating stations where the expenditure incurred for meeting revised emission standards forms part of additional capital expenditure, and not covered under the original project cost. This is in view of the fact that the generating stations commissioned after 01.04.2019 have to comply with revised emission standards and the expenditure on emission control systems is expected to be covered under original project cost. However, there may be some exceptions during the transition period. Some of the generating stations under construction and with commissioning date on or after 01.04.2019 may be able to commission the emission control system only subsequent to the commercial operation of the generating station. Accordingly, the regulatory framework specified in the 1st Amendment Regulations for supplementary tariff will also

be applicable to such generating stations. The new generating stations (those commissioned on or after 01.04.2019) where the expenditure of emission control system are covered in the scope of the original project, the cost of such expenditure will be serviced through consolidated tariff and the provisions related to supplementary tariff will not be applicable in their case.

3. Chapter 1 – Preliminary

3.1 Auxiliary Energy Consumption for emission control system [Regulation 3(6a)]

3.1.1 The draft Amendment Regulations defined 'Auxiliary Energy Consumption of emission control system' of coal or lignite based thermal generating station. The auxiliary energy consumption of emission control system is in addition to the auxiliary energy consumption of the existing generating stations where the emission control system is being or will be implemented. In case of the new generating stations where the emission control systems are being installed within the scope of original project, the norms of auxiliary energy consumption is the aggregate of the auxiliary energy consumption of the generating station or unit thereof and that of the emission control systems installed in the generating station or unit thereof, as the case may be. However, in case of existing generating stations where the tariff stream of emission control system is to be determined separately, the auxiliary energy consumption needs to be measured separately with apportioning of energy consumption by common equipment for future use. Accordingly, words and expression "in addition to the auxiliary energy consumption under Clause (5) above" have been added to this effect for clarity.

3.2 Date of Operation [Regulation 3 (15a)]

3.2.1 The draft Amendment Regulations defined 'Date of Operation' in relation to emission control system to provide a reference date for facilitating the

recovery of supplementary tariff for emission control system. The stakeholders have by and large supported this provision. The Commission has decided to retain requirement of Management certificate as proposed in the draft Amendment Regulations to ensure that emission control system meets all the applicable technical and environmental standards. This is considered to be adequate by the Commission for exercising its regulatory oversight. The Commission can always call for certification of the concerned Authority or any Independent Authority in specific cases, if required, for prudence check. Accordingly, proposed definition has been retained.

3.3 Emission control system [Regulation 3 (20a)]

3.3.1 The draft Amendment Regulations defined 'Emission control system' to refer the plant and machinery installed for the purpose. The word "implemented" has been replaced by the word "installed" and the word "unit thereof" has been added after the word "generating station" for clarity.

3.4 Plant Availability Factor or "PAF" [Regulation 3 (47)]

3.4.1 The availability declaration after operation of emission control system will be net of auxiliary energy consumption of emission control system and auxiliary energy consumption of the generating station. Accordingly, the definition of plant availability factor has been modified to exclude auxiliary energy consumption for emission control system.

3.5 Plant Load Factor or "PLF" [Regulation 3 (48)]

3.5.1 The draft Amendment Regulations defined Plant Load Factor by taking into account auxiliary energy consumption of emission control system. The proposed definition has been retained. In formula, the auxiliary energy consumption of emission control system (AUXe) is suffixed by "n" which refers to normative auxiliary energy consumption of emission control system. This provides clear distinction between general definition of auxiliary energy

consumption of emission control system and its normative number specified in the regulations. The actual auxiliary energy consumption of emission control system may vary from normative value specified in this regulation. The plant load factor is intended to be computed by considering normative auxiliary energy consumption.

4. Chapter 3 – Procedure for Tariff Determination

4.1 Tariff Determination (Regulation 8(1))

4.1.1 The proposed modification in Clause (1) of Regulation 8 in order to expand the scope of tariff determination to include tariff of emission control system has been retained. Further, Clause (4) of Regulation 8 originally provided for tariff determination on submission of completion certificate from the Board of the generating company. The said provision has been deleted and it has been provided that tariff determination of emission control system shall be done in accordance with application to be filed under 4th proviso to Clause (1) of Regulation 9, which has been added for filing of application with regard to tariff of emission control system.

4.2 Application for determination of tariff (Regulation 9)

4.2.1 The manner of filing application for determination of supplementary tariff of emission control system proposed in the 4th proviso under Clause (1) of Regulation 9 has been retained. The expenditure incurred due to emission control system is in the nature of additional capital expenditure in case of generating station or unit under operation and, therefore, filing of application for determination of tariff after actual operation of emission control system is unlikely to result in cash flow issues, as the generating station is already getting tariff for all its assets except the emission control system. The generating company can always reduce the delay by filing the application immediately

without waiting till the end of 60 days and may request the Commission for interim supplementary tariff for emission control system. Further, where the emission control system is installed at more than one unit of the generating station, same will be combined in the same manner as followed for generating units of a generating station. However, as regards the issue of availability declaration of the emission control system for a unit, it is an operational issue which may be encountered during transition period only. This operational issue of certification of availability declaration needs to be addressed by Regional Power Committee in consultation with Regional Load Despatch Centre and the beneficiaries of the generating station.

5. Chapter 4 –Tariff Structure

5.1 Components of Tariff (Regulation 14)

5.1.1 The proposed change in Clause (*2*) of Regulation *14* by including word "supplementary tariff" has been retained. Proposed new Clause (2) in Regulation 15 with regard to supplementary capacity charges has also been retained with modification. The words "based on capital cost" have been omitted since all components of tariff namely O & M expenses and interest on working Capital are not determined on the basis of capital cost.

6. Chapter 5 – Capital Structure

6.1 Debt-Equity Ratio (Regulation 18)

6.1.1 Some of the stakeholders have suggested to allow equity in excess of 30% in the capital investment made for emission control system as the generating companies are sometimes required to invest more than 30% through equity in order to meet the conditions of the lending institutions. The Commission is of the view that a generating company based on its credit rating and performance may be asked by the lending institutions to infuse equity more than 30%, but

such exceptional cases cannot be the benchmark. Enhancing the ceiling of equity beyond 30% would result in higher tariff and burden the consumers. Accordingly, proposed debt-equity ratio (70:30) of emission control system at par with the generating stations has been retained and a new Clause (6) has been added to Regulation 18 for clarity.

7. Chapter 6 – Computation of Capital Cost

7.1 Interest During Construction (IDC) and Incidental Expenditure during Construction (IEDC) (Regulation 21)

7.1.1 Proposed amendment to the existing Clause (5) and the proposed new Clause (6) to the Regulation 21 to bring clarity in computation of Interest During Construction (IDC) has been supported by many stakeholders. Clause (5) deals with computation of IDC and IEDC beyond SCOD on pro-rata basis corresponding to the period of delay not condoned. In this framework, pro-rata is applicable for the period beyond SCOD only, excluding the construction period prior to SCOD. Further, it is to clarify that the principle of treatment of capital expenditure between debt and equity for the purpose of tariff determination flows from Clause (2) of Regulation 19.

Illustration:

If capital cost of project is Rs 1000 Cr and is financed through Rs 500 Cr of equity and Rs 500 Cr of debt, in line with clause (2) of Regulation 19, actual loan would be Rs 500 Cr and normative loan would be Rs 200 Cr based on debt:equity ratio of 70:30. If there is a total delay of 10 months and delay of 4 months is condoned, the allowable IDC shall be worked out on pro-rata basis (4/10) of IDC corresponding to actual loan and normative loan together of delayed period. If IDC on actual loan during delayed period is say Rs. 50 Cr and on normative loan is Rs. 20 Cr, allowable IDC shall be worked out on pro-rata basis (4/10) of Rs. 70 Cr i.e. 28 Cr.

7.1.2 Some of the stakeholders have suggested to link applicability of Clause (6) to Clauses (1) and (2) of Regulation 21 which deal with treatment of IDC and IEDC till SCOD of the generating station. It is clarified that the computation of normative loan in Clauses (1) and (2) of Regulation 21 flows from Clause (2) of Regulation 19, which deals with the principle of treatment of capital expenditure between debt and equity for the purpose of tariff determination. Hence, the suggestion has not been agreed to. However, in order to bring clarity in consideration of normative loan under Clause (6) of Regulation 21, same has been linked with Clause (2) of Regulation 19.

7.2 Initial Spares (Regulation 23)

7.2.1 Proposed Clause (iii) to proviso to Regulation 23 was intended to extend the percentage of initial spares of the generating station for the emission control system. There is no objection from the stakeholders to the proposed amendment and hence, the same has been retained.

8. Chapter 7 – Computation of Additional Expenditure

8.1 Additional Capitalization on account of Revised Emission Standards (Regulation 29)

8.1.1 Proposed new Clause (5) to Regulation 29 to include a provision of undischarged liability in additional capital expenditure has been retained with minor modification.

9. Chapter 8 – Computation of Annual Fixed Cost

9.1 Return on Equity (Regulation 30)

9.1.1 The proposed amendment in Clause (2) to Regulation 30 relates to servicing of equity infused for additional capitalization at the weighted average rate of interest on loan. Some of the stakeholders have expressed their concern that linking of return on equity with average rate of interest on loan may give

perverse incentive to generating companies to increase the cost of debt for higher returns on equity. It has, therefore, been provided that while servicing of equity infused for additional capitalisation shall be at the rate of weighted average rate of interest, the same shall be subject to ceiling of 14%. Accordingly, first proviso under Clause (2) of Regulation 30 of the Principal Regulations is substituted by revised formulation. However, a separate formulation has been provided for return on equity for additional capital expenditure on account of installation of emission control system under Clause (3) of Regulation 30.

9.1.2 The proposed amendment in Clause (3) to Regulation 30 relates to servicing of equity infused for additional capital expenditure to comply with revised emission standards. The Commission has considered the suggestions of the stakeholders and adopted the principle of cost of fund for servicing of equity fund. This will induce the generating companies to look for economical funding, with optimal debt-equity ratio However, some of the stakeholders have pointed out that linking of servicing of equity with the cost of fund may lead to increase in the cost of debt. In order to address the issue, they have suggested to specify a normative rate for servicing of equity fund.

9.1.3 Based on the comments and suggestions of the stakeholders, the Commission has decided that instead of linking with borrowing cost of fund of generating station, it is appropriate to link the servicing of equity fund with Marginal Cost of Lending Rate with suitable risk premium as below: -

a) The risk premium needs to factor in relevant risks. The construction risk and return on equity during construction period are the major risks contributing to the risk premium in case of emission control system. As the existing plants are already under operation, the operational risk may not be significant. It is observed that the installation of emission control system involves a construction period of about 24-28 months, which is about half of the construction period of a generating station (about 60

months). In case of construction of a generating station, premium over and above the risk free return of G-sec works to about 750 basis points. Accordingly, the risk premium for emission control system can be assumed at 50% of 750 basis points i.e. about 350 basis points.

b) Further, the servicing of working capital has been linked with risk premium of 350 basis points, which is the ceiling. Though the long-term financing and short-term financing may not be comparable, however, since construction risk is the only risk in the financing of emission control system, the risk premium of 350 basis points would address the construction risk adequately.

9.1.4 Accordingly, the Commission has decided to allow a risk premium of 350 basis points as margin over and above the Marginal Cost of Lending Rate of State Bank of India for servicing of equity fund deployed for emission control system, subject to a ceiling of 14%.

9.2 Interest on Loan Capital (Regulation 32)

9.2.1 New Clause (5a) to Regulation 32 was proposed to adopt the interest on loan at the rate of 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, for servicing loan on account of emission control system. The same has been retained. No ceiling of borrowing cost linked to the Marginal cost of Lending rate is prescribed, as the Commission undertakes prudence check at the time of tariff determination.

9.3 Depreciation (Regulation 33)

9.3.1 Proposed new Clause (9) of Regulation 33 provides for recovery of depreciation during the balance useful life of the generating station or unit thereof where emission control system is or will be installed. The Commission

recognised that there could be tariff spikes for the generating stations having few years of balance useful life. Further, for many of the generating stations which have completed their useful life and are still in operation, the period of extended life are not known. The Commission, therefore, has recognized the need to spread depreciation on account of the installation of emission control system over a maximum number of years to avoid tariff shocks to the consumers, which would depend on the age of generating station or unit thereof.

9.3.2 In case of new generating stations where emission control system is part of the original project, treatment of depreciation will be applicable in line with the assets of the generating stations. As there could be exceptions in new generating stations where the emission control system may be commissioned subsequent to commissioning of the generating stations during transition period, the depreciation of emission control system in such cases needs to be considered in line with the additional capital expenditure. Therefore, treatment of depreciation of emission control system in line with the assets of generating stations needs to be limited to the cases where the date of commercial operation of the generating station or unit thereof and the date of operation of the emission control system are same. Accordingly, Clause (9) to Regulation 33 has been incorporated to extend the treatment of depreciation of assets of generating station to emission control system commissioned with generating unit concurrently.

9.3.3 In case of the emission control system of an existing or a new generating station or unit thereof where the date of commissioning of the emission control system is subsequent to the date of commercial operation of the generating station or unit thereof, the Commission has considered the recovery of depreciation of emission control system under different scenarios. The Commission is of the view that while it is necessary to ensure recovery of

depreciation at reasonable rate to ensure repayment of debt by generating companies, it is also important to ensure that there are no tariff shocks to the consumers. This is important for balancing the interests of the beneficiaries and generating companies consistent with the sub-Clause (d) of Clause (1) of Section 61 of the Act. In this backdrop, for the purpose of recovery of depreciation, the useful life has been considered as (a) 25 years for generating stations or units thereof under operation for less than 15 years, (b) balance useful life plus 15 years where generating stations or units thereof are under operation for more than 15 years, and (c) higher of 10 years or mutually agreed period between the generating company and beneficiaries where the generating stations or units thereof have completed their useful life. Accordingly, the Clause (10) to Regulation 33 has been incorporated for recovery of depreciation component in supplementary tariff in cases where the commissioning of the emission control system of an existing or a new generating station or unit thereof is subsequent to the date of commercial operation of the generating station or unit thereof.

9.4 Interest on Working Capital (Regulation 34)

9.4.1 The proposed working capital for emission control system has been modified to include advance payment for 30 days towards cost of reagent for generation corresponding to the normative annual plant availability factor. The water charges are excluded from operation & maintenance expenses of emission control system to avoid overlapping with operation & maintenance expenses of generating station.

9.5 Operation and Maintenance Expenses (Regulation 35)

9.5.1 The proposed modification in Clause (6) to Regulation 35 which provides for recovery of the water expenses taking into the norms of specific water

consumption notified by the Ministry of Environment, Forest and Climate Change, has been retained.

9.5.2 Suggestions have been received to increase the O&M expenses by advancing arguments of higher requirement of operating emission control system during initial period, higher handling expenses of chemical components, frequent maintenance and replacement of rubber linings and higher operational expenses in sub-critical units. At the same time, suggestions have also been received to reduce the O&M expenses on the premises of common manpower expenses, utilization of common facilities and corporate expenses. The Commission finds merit in these suggestions. However, the Commission is of the view that it is difficult to quantify the impact of each factor till sufficient operational data become available. As regards suggestions of some stakeholders to allow the O&M expenses based on actuals, the Commission is of the view that normative parameters are required to promote efficiency and economical use of resources. Hence, the suggestion to allow actual O & M expenses has not been agreed to.

9.5.3 In view of above, the proposed O&M expenses @2% of admitted capital cost, till adequate data is available, is considered reasonable and accordingly, proposed Clause (7) of Regulation 35 has been retained. The requirement of true up of O&M expenses has not been considered. However, the generating companies are directed to maintain the O&M expenses of emission control system separately and submit at the time of true up for information of the Commission.

10. Chapter 10 - Components of Energy Charge

10.1 Title

10.1.1 Proposed modification in the title of Chapter-10 to include Supplementary Energy Charges has been retained.

10.2 Energy Charge (Regulation 37)

10.2.1 Proposed modification in Regulation 37 to include Supplementary Energy Charges has been retained.

10.3 Landed Cost of Reagent (Regulation 41)

10.3.1 Proposed modification in Clause (2) to Regulation 41 to include the reagent consumption in supplementary energy charges have been retained.

11. Chapter 11 – Computation of Capacity Charges and Energy Charges

11.1 Title

11.1.1 Proposed modification in the title of Chapter-11 to include Supplementary Capacity Charges and Supplementary Energy Charges has been retained.

11.2 Computation and Payment of Capacity Charge for Thermal Generating Stations (Regulation 42)

11.2.1 Proviso to Clause (*2*) of Regulation *42* was proposed to be modified to extend the treatment of tariff during shutdown in the case of installation of emission control system in the same manner as is being followed during shut down of the generating stations or units thereof during Renovation & Modernisation. Suggestions have been received that for the treatment of tariff during outage period, the comparison with Renovation & Modernisation is not appropriate. Unlike in the case of Renovation & Modernisation, outage period in case of installation of emission control system is before the completion of useful life of the generating station or unit thereof. During the shutdown period, the tariff is allowed for the actual expenses incurred on account of O&M

expenses and interest on loan. As depreciation are non-cash expenses, return on equity is admissible only when the plant is operative and major components of working capital are related with energy charges which is not there during shutdown, the treatment proposed under proviso to Clause (2) of Regulation 42 is appropriate.

11.2.2 Clause (5) of Regulation 42 has been modified to carry out a few drafting corrections.

11.3 Computation and Payment of Supplementary Capacity Charge for Coal or Lignite based Thermal Generating Stations (Regulation 42A)

11.3.1 The computation of supplementary capacity charges for coal or lignite based thermal generating station is proposed to be aligned with the recovery of capacity charges, with month-wise formula for clarity. Since the recovery of capacity charges was specified with low demand and high demand season and peak and off-peak period, the recovery of supplementary capacity charges are also proposed on similar lines. Some of the stakeholders have suggested to de-link the recovery of supplementary capacity charges from the peak and off-peak period.

11.3.2 The Commission has duly considered the above suggestion. The peak and off-peak period formulation is intended to incentivise prudent declaration of availability of the generating station and penalise any gaming. This is squarely applicable for supplementary capacity charges also. We are of the view that there cannot be two different principles for recovery of capacity charges and supplementary capacity charges. Therefore, the supplementary capacity charges shall also be recovered in the same manner as capacity charges. Accordingly, proposed Regulation 42A has been retained with some editorial corrections.

11.4 Computation and Payment of Energy Charge for Thermal Generating Stations (Regulation 43)

11.4.1 In the heading of Regulation 43, "and Supplementary Energy Charge for Coal or Lignite based Thermal Generating Stations" has been added as proposed in the draft Amendment Regulations.

11.4.2 The formula for supplementary energy charges is proposed to be added by inserting the new sub-Clause (aa) to Clause (2) of Regulation 43 which takes into account the incremental energy charges on account of additional auxiliary energy consumption due to emission control system and cost of reagent consumption. Some of the stakeholders have suggested to gross up the reagent consumption by auxiliary energy consumption in the formula of energy charge rate and have sought clarity on recovery of energy charges based on energy charge rate. Since the reagent consumption will increase due to auxiliary energy consumption, new sub-Clause (aa) to Clause (2) of Regulation 43 has been modified. In order to bring clarity on recovery of supplementary energy charge rate, Clause (1a) to Regulation 43 has been added.

12. Chapter 12 – Norms of Operation

12.1 Recovery of Tariff and Incentive (Regulation 48)

12.1.1 Regulation 48 provides for the recovery of various charges covered under the tariff of generating station. Proposed modification in Regulation 48 to include supplementary capacity charges and supplementary energy charges as part of tariff has been retained.

12.2 Norms of Operation for Thermal Generating Station – Auxiliary Energy Consumption [Regulation 49(E)]

12.2.1 The norms of auxiliary energy consumption of emission control system were proposed vide sub-Clause (bb) of Clause (E) of Regulation 49 in line with

recommendations of the Central Electricity Authority. Several suggestions have been received with regard to values specified as norms of auxiliary energy consumption. There are suggestions to consider norms of auxiliary consumption based on unit size, auxiliary consumption of 0.1-0.2% in case of SNCR, auxiliary energy consumption in the range of 1.35% to 2% for wet limestone FGD, degradation of gross station heat rate, increase in auxiliary energy consumption to 1.5% from 1.0% in case of wet limestone and sea-water based FGD system. Some of the stakeholders have suggested that parameters guaranteed by the OEMs, instead of any other value, may be considered and efficiency gain, if any, may be entirely passed on to the beneficiaries.

12.2.2 The Commission has carefully examined the suggestions of the stakeholders. The Commission notes that some of the generating companies are in the process of awarding contracts for procurement of plant and machinery. Further, emission control systems have been installed in very few units. Therefore, actual impact on auxiliary energy consumption will be available only after sufficient number of emission control systems for DeSOx, DeNOx and others are installed. The Central Electricity Authority has assessed the norms of auxiliary energy consumption based on specifications available and considering all the available data to the extent possible. In the absence of sufficient information and data, it would not be appropriate to specify the norms with precision. Therefore, the Commission has taken a view that review of the norms and further classification will be undertaken only after sufficient data becomes available.

12.2.3 The Central Electricity Authority vide letter 04.05.2020 has suggested that norms of auxiliary energy consumption due to emission control system may be specified after specific norms for the generating stations as these are applicable to all the generating stations. Further, limestone consumption for generating stations using CFBC technology needs to be omitted considering the

amendment proposed in sub-Clause (d) of Clause (F) of Regulation 49. Accordingly, norms of auxiliary energy consumption are inserted as sub Clause (f) of Clause (E) of Regulation 49 and sub Clause (d) of Clause (E) of Regulation 49 is deleted. It is clarified that the auxiliary energy consumption of emission control system specified herein are in addition to the norms of auxiliary energy consumption specified in this Regulation.

12.3 Norms of Operation for Thermal Generating Station - Norms for Consumption of Reagent [Regulation 49(F)]

12.3.1 The norms for consumption of reagent were proposed based on recommendations of the Central Electricity Authority. The recommendations were based on certain assumptions such as typical purity of reagent, SO_2 or NOx removal efficiency, SO_2 conversion factor etc. In the proposed formula, purity of reagent was factored in instead of normative number due to variability at various sites. Some of the stakeholders have suggested that instead of specifying reagent consumption based on assumptions, generic formulation may be adopted so that it can fit in all cases obviating requirement of assumptions.

12.3.2 We have considered the suggestions of the stakeholders. The assumptions derived by the Central Electricity Authority are based on data collected for some of the generating stations. Adoption of generic formulation may allow the pass through of the reagent consumption without taking into account optimum parameters and efficiency. The Commission is not averse to adopting generic formulation. However, before adopting the generic formulation as suggested by the stakeholders, the Commission would like to validate the formulation with various cases to satisfy that it represents the most efficient parameters. Therefore, at present, the Commission has adopted the recommendations of the Central Electricity Authority, which will be reviewed after availability of sufficient details and operational data.

12.3.3 The Central Electricity Authority in its letter dated 04.05.2020 has suggested certain corrections in the formula proposed for computation of reagent consumption for Wet Limestone based Flue Gas De-sulphurisation (FGD) system, for Lime Spray Dryer or Semi-dry Flue Gas Desulphurisation (FGD) system and for CFBC Technology (furnace injection) based generating station. These corrections have been incorporated in the formula.

13. Annexure–I

13.1 Form 15 and Form 16A

13.1.1 Proposed modification in the Form 15 of Part I of Annexure I and new Form 16A for reagent consumption of emission control system have been retained with few editorial corrections. Some of the stakeholders have suggested to allow transit and handling loss of limestone similar to that of coal. However, this suggestion needs to be substantiated with sufficient data and analysis. Accordingly, the suggestion has not been agreed to.

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