Issues with compensation of costs arising from installation of Emission Control System in TPPs

CERC has formulated a mechanism vide its order dated 13.08.2021 in Sou-Moto Petition No. 6/SM/2021 to determine Compensation on account of installation of Emission Control System by the generating companies whose tariffs were determined through competitive bidding under Section 63 of the Electricity Act, 2003, in compliance with the Revised Emission Standards issued by MoEF&CC.

The industry's key concern with the CERC order on compensation mechanism for FGD installation is that CERC has provided a mechanism wherein the generating companies would suffer huge under-recovery and lower returns on capital employed.

Subsequent to this, Ministry of Power vide notification dated 22.10.2021 has notified Electricity (Timely Recovery of Costs due to Change in Law) Rules, 2021 to facilitate timely recovery of financial impact of change in law events. **This has created confusion with regard to whether compensation under change in law for installation of FGD would be governed under CERC's order or MoP's Rules.**

The confusion regarding the applicability has been further accentuated by the fact that the formula prescribed in MoP's Rules is essentially designed to cover the impact that is non-recurring in nature and is also based on annuity concept. The combined reading of both these aspects reveals that **only the impact of change in law in terms of capital expenditure (capex) is covered by the formula,** whereas the installation of environment equipment including FGD has financial impact in terms of both (i) additional capital expenditure and (ii) substantial increase in operating expenditure on account of additional O&M expense, auxiliary consumption, cost relating to procurement of lime-stone, disposal of gypsum and additional working capital requirement – **these aspects are not covered under the formula prescribed under MoP's Rules.**

Notwithstanding the question of which mechanism (either CERC's Order or MoP's Rules) would be applicable for installation of Emission Control Systems, the following points raised by APP with regard to CERC's Order would need to be addressed in whichever mechanism is made applicable for compensation of costs due to installation of Emission Control Systems:

1. Under-recovery of Depreciation

Provision in the CERC Order	***…irrespective of balance useful life of the generating plant, 90% of additional capital expenditure on account of installation of ECS (considering salvage value of 10%) shall be recovered by the generating company in 25 years as depreciation (straight line method @3.6% per year).***
Concerns with the above provision	• Not all plants will be able to operate for 40 years, and there is huge risk of under recovery if the actual plant life remains less than the proposed 40 years.

	• Further as loan repayment is around 12 years (amounting to 7.5%@90/12) considering depreciation of 3.6% on SLM basis for the loan repayment period is also against principle of Restitution • many projects have PPA tenures less or equal to remaining useful life of 25 years. Essentially, CERC has erroneously envisaged the recovery of compensation beyond the term of the Model PPAs. This is highly misconceived as the recovery on account of change in law can only happen through monthly tariff payments as per the terms of the Model PPAs i.e. within its original tenure.
Suggestion made by APP	The recoverable depreciation of the emission control system (to be computed at 90% of the capital cost from its date of operation) **should be fully recovered in the balance useful life or balance extended life of the generating station or the balance long term PPA tenure, whichever is lower.**

2. Treatment of equity

Provision in the CERC Order	***Any compensation for change in law cannot be a mechanism to improve their financial position****. Accordingly,* ***we hold that the suggested approach of servicing investment through cost of capital employed approach is appropriate, being consistent with the principle of economic restitution****.* *The servicing of capital employed during each year of the contract period shall be worked out* ***based on net fixed asset*** *(derived by adjusting cumulative depreciation of emission control system) and interest rate of fund. The* ***interest rate will be weighted average rate of interest on loans*** *of the generating station* ***including ECS*** *or at the rate of* ***Marginal Cost of Lending Rate of State Bank of India*** *(for one year tenor) as on 1st April of the year under consideration* ***plus 350 basis points****,* ***whichever is lower****.*
Concerns with the above provision	The proposed servicing of capital employed treats Return on equity same as cost of debt capped at SBI MCLR +350. In practice, cost of equity is always and substantially higher than cost of debt.

	Further, the proposed treatment for Section 63 projects is in variance with the "Terms and Conditions of Tariff) (First Amendment) Regulations, 2020" which provides methodology for recovery of additional cost of emission control system for projects under section 62 of the Electricity Act 2003. In these Regulations the treatment of cost of debt and return on equity for such plants is given as follows: *"(3) The return on equity in respect of additional capitalization on account of emission control system shall be computed at the base rate of one year marginal cost of lending rate (MCLR) of the State Bank of India as on 1st April of the year in which the date of operation (ODe) occurs plus 350 basis point, subject to ceiling of 14%;"*
Suggestion made by APP	**a. Servicing of capital employed should be estimated considering 70:30 debt equity ratio on gross capital.** **b. RoE should be allowed on the equity component @ 15.5% post-tax on the lower of actual or normative equity.**

3. Rate of Interest for Debt

Provision in the CERC Order	*The servicing of capital employed during each year of the contract period shall be worked out* ***based on net fixed asset*** *(derived by adjusting cumulative depreciation of emission control system) and interest rate of fund. The* ***interest rate will be weighted average rate of interest on loans*** *of the generating station* ***including ECS*** *or at the rate of* ***Marginal Cost of Lending Rate of State Bank of India*** *(for one year tenor) as on 1st April of the year under consideration* ***plus 350 basis points, whichever is lower****.*
Concerns with the above provision	Rate of interest on debt has been capped at SBI MCLR + 350. On the other hand, in the "Terms and Conditions of Tariff) (First Amendment) Regulations, 2020", CERC has allowed rate of interest on debt as the weighted average rate of the actual loan portfolio of the ECS. The financial principles for additional cost recovery for emission control system cannot be applied differently

	depending upon the tariff determination methodology (u/s 62 or 63) for the plants.
Suggestion made by APP	**Rate of interest for debt may be considered as the weighted average rate of interest of actual loan portfolio of the emission control system (as provided for projects under Section 62),**

4. Inadequacy of O&M Expenses

Provision in the CERC Order	*the additional revenue expenses for operation and maintenance (O&Me) for the first two years of operation (including part financial year), shall be based on **2.5% of the additional capital expenditure (ACEe)** for installation of ECS (excluding IDC and FERV) as admitted by the Commission, to be escalated at the rate of 3.5% per annum for the second year. The O&M expenses from the third year onward shall be as per norms and escalation rate determined separately by the Commission.*
Concerns with the above provision	The proposal to consider additional O&M expenses for the first 2 years of operation at 2.5% of the additional capital expenditure for installation of ECS is very low and is likely to lead to under-recovery of expenses in the first two years
Suggestion made by APP	**Members of APP feel that the present formulation would lead to under-recovery of expenses in the first two years and have therefore suggested the following:** **a. Additional O&M expenses should be allowed at 5% of ECS capitalization (excluding IDC and FERV) for the first two years, to be escalated at the rate of 3.5% per annum for the second year.** **b. Normative handling, storage and disposal charges of Gypsum (say Rs 150/tonne) may be allowed to the generating companies.** **c. Additional cost towards desalination for coastal plants which use seawater, may be considered while finalizing the norms for O&M expenses**

5. Payment of Fixed Charges during Shutdown Period

Provision in the CERC Order	*the parties to the PPAs shall coordinate and plan the interconnection of emission control system with main plant by synchronizing it with the annual overhaul. The Commission is of the view that if the period of shut down exceeds beyond annual shutdown period factored in the normative availability under PPA, either on account of delay in timely completion of activities for interconnecting emission control system or lack of coordination, the* ***consequential cost for the same cannot not be passed on to the consumers****.*
Concerns with the above provision	The time and duration of annual shutdown / overhaul is governed by various factors such as demand-supply scenario, grid security etc. and is regulated by the LDCs. The overhauling plan is staggered basis the OEM recommendations and as per the agreed overhaul plan with Load Dispatchers. While the generating companies shall make earnest endeavors to synchronize ECS integration with project annual overhaul, however such a synchronous integration may not be always possible on account of various external factors beyond control of generating companies like delivery and commissioning schedule of ECS, Force Majeure factors affecting transportation and commissioning of ECS, unplanned shut-down of the project compelling revision of its scheduled annual overhaul etc.
Suggestion made by APP	**The present formulation is very inequitable as during the plant shut down period, the generators would need to meet the fixed charges (debt service, O&M and other statutory responsibilities). Accordingly, we propose that the plant/unit should be considered as "Deemed Available" during the extent of actual number of days of shutdown (subject to prudence check by the Hon'ble Commission), during which the plant/unit may be compensated for the following:** • **Complete defrayment of Fixed Capacity Charges** • **Waiver/reimbursement of penalty under PPA, if any, for lower availability** • **Waiver/reimbursement of any additional charges for short / non- lifting of coal under the FSA with coal companies.**

6. Timelines for tariff determination

Provision in the CERC Order	***No provision***
Concerns with the above provision	Compensation determination may span across 6-12 months after commissioning of FGD and therefore generator would not be able to recover the additional tariff during these 6-12 months while debt servicing obligations would start immediately.
Suggestion made by APP	**In order to ensure recovery of additional tariff at the earliest, we suggest that:** **a. Based on the estimated/ projected CAPEX to be incurred towards installation of ECS, CERC may grant Projected Compensation (@ say 90% of the estimated Compensation on the basis of benchmark costs approved by CEA) 2-3 months before commissioning of the ECS which may subsequently be trued up on the basis of actual ECS CAPEX.** **OR** **The petition for determination of tariff may be allowed to be filed six months prior to scheduled commissioning of ECS so that the additional tariff is paid from the month in which ECS is commissioned.** b. **For the purpose of Projected Compensation, norms for IDC / Pre-ops expenses / Contingency / Taxes etc., may be specified for calculating the project capex on a normative basis.**

7. Norms of Operation – Degradation of Gross Station Heat Rate due to ECS operation

Provision in the CERC Order	***(not covered)***
Concerns with the above provision	As per the discussions held with various technical experts and OEMs, due to installation of De-NOx System, the combustion pattern of Boiler will change which will invariably result in increase in combustibles in the fly ash as well as bottom ash. Such an increase in unburnt combustibles shall consequently reduce the

	Boiler Efficiency thereby increasing the existing GSHR of the thermal generation projects by more than 1%.
Suggestion made by APP	**1% increase in the existing normative GSHR on account of installation of De-NOx System may be allowed.**

8. Additional Interest on Working Capital

Provision in the CERC Order	*The Working Capital (WCe) shall include following components:* *(i)* ***Cost of lime stone or reagent for stock of 20 days*** *corresponding to the normative annual plant availability factor;* ……
Concerns with the above provision	Currently, there is uncertainty about the availability, quality and location (international / domestic) of limestone. The lead time for reagents sourced internationally will be substantially higher. Further, there are also constraints in transportation/ logistics since the limestone is essentially transported by road within the country. Therefore, for all plants in general and remotely located plants in particular, in order to meet the availability commitments, the generator will have to keep stock of limestone/reagent to last at least for a month considering the higher lead time of transportation and to protect against supply disruptions, quality issues etc.
Suggestion made by APP	**Cost of lime stone or reagent should be considered for stock of 30 days corresponding to the normative annual plant availability factor.**

9. Additional Auxiliary Energy Consumption

Provision in the CERC Order	*(no separate treatment for coastal plants)*
Concerns with the above provision	In case of coastal plants there would be additional auxiliary power consumption to operate desalination plant for water to be supplied to ECS.
Suggestion made by APP	**An additional 0.2% auxiliary consumption over and above proposed by CEA should be allowed in case of coastal plants.**

10. Expenses towards consumption of reagents

Provision in the CERC Order	*(formula provided for computation of expense towards consumption of reagents)* ***Provided further that the limestone purity shall not be less than 85%.***
Concerns with the above provision	The proposed norms for Lime-stone consumption as specified by CEA does not consider the fact that in addition to Sulphur in the flue gas, hydrogen fluorides and chlorides are also present which also react with limestone. This would result in higher limestone consumption in case of Limestone based FGD is being used. Further, restricting the limestone purity at 85% may not be in control of the developer and would depend on its availability in the market, especially when there will be sudden increase in demand with significant FGD installations.
Suggestion made by APP	**a. An additional 3-5% consumption may be added over and above the proposed formula to compensate for consumption of limestone by hydrogen chlorides and fluorides.** **b. Condition of minimum purity of 85% of limestone may be removed. At least in the initial years till the limestone market and norms are established.**

11. Cost recovery mechanism for untied capacity

Provision in the CERC Order	***Draft order:*** *We are of the view that the risk associated with open capacity needs to be addressed by the concerned market player and therefore, we do not find need for any regulatory intervention for open capacity at this stage* ***Final order:*** *The Commission is of the view that this issue is beyond the scope of this order.*
Concerns with the above provision	Implementation of new emission standards post commissioning of the project does not fall under the category of a business call taken by the generator prior to setting up the project and is therefore a genuine concern which needs to be addressed.
Suggestion made by APP	**The issue of open capacity ignored by CERC is a genuine concern as the business decision regarding these projects were**

	taken prior to the notification of the new emission norms. Therefore, now leaving them to market mechanism would be inequitable as the change in law impacts these projects as much as the projects who have PPAs. Accordingly, additional cost recovery mechanism would need to be developed for projects with open capacity which are selling power on exchange or on DEEP portal.

12. Capex for environment protection equipment in cases of Augmentation

Provision in the CERC Order	*(not covered)*
Concerns with the above provision	The current Tariff Regulations and principles do not allow recovery of additional capex spent in cases of augmentation of existing equipment. For instance, installation of higher capacity ECS to comply with MoEFCC notification will result in allowance of capex only till the approved capex of existing ECS. This is unfair to the developer in case augmentation of existing ECS system is necessitated by the new and stringent emission norms, as this augmentation is also pursuant to 'change in law' and the replacement of the ECS system is happening much before completion of useful life.
Suggestion made by APP	**For plants with existing ECS equipment which need to be augmented to meet the new norms,** installation of higher capacity ECS to comply with MoEFCC notification will result in allowance of capex only till the approved capex of existing ECS. This is unfair to the developer and **CERC needs to address this anomaly in a pragmatic way to ensure that the developers are not penalized unnecessarily and that all relief granted pursuant to change in law follows the restitution principle in its true spirit.**

To conclude, whether the compensation is to be paid through CERC order or MoP Rules, the above issues raised would need consideration to avoid under recovery of costs and return on capital employed. If these concerns are not addressed, many bankers may not come forward to extend loans for FGD to IPPs.

In order to soften the additional tariff burden on consumers, we have proposed soft loan for FGD installation through IREDA (Green Energy Funds) as mentioned in the Budget 2022-23, as it would

open up more channels/sources of funds apart from PFC & REC @ lower interest cost vis-à-vis conventional banks.