

**Comments on draft Amendment in CERC Tariff Regulation 2019 to factor implementation of New Environmental norms****Submitted by- Reliance Power Limited**

Sn	Description of Provision	Proposed amendment	Comments/Suggestions of Reliance Power Ltd.
1	<b>Regulation 23</b>  Initial Spares	Proviso (iii) of Regulation 23 “(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.”	Since wet limestone based FGD is highly abrasive, wear and tear of the equipments would be much more compared to main plant equipments. Hence the initial spares may be allowed at 6% of plant and Machinery cost.
2	<b>Regulation 30</b>  Return on equity	In the first proviso under Clause (2) of Regulation 30 of the Principal Regulations, the words “excluding additional capitalization due to Change in Law,” shall be deleted	<p>Unlike routine additional capex, FGD implementation involves significant capex and would require promoters / equity holders to inject additional capital. It will be impossible to attract this additional capital unless broad sector rate of return is provided.</p> <p>Even where, equity is funded by internal accruals, the proposed regulation would mean that the return to the existing equity investors will be less than the cost of such equity capital and amounts he is already promised by virtue of CERC regulations.</p> <p>It would not be a prudent regulatory practice to introduce such regulations</p>

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			<p>impacting the investors in the sector. As such, coal fired power sector is not able to attract international investors for environmental reasons, if it becomes unattractive for even domestic investors, then power companies will find it very difficult to raise the equity required for FGD implementation and thereby delaying the FGD implementations.</p> <p>Above all, regulatory certainty is of utmost important for stakeholders and the proposed amendment will also mean that it will be impossible to finance with 70:30 debt equity ratio as proposed equity return will not enable requisite DSCRs required for achieving financial closure for FGD Projects on a standalone basis.</p> <p>Hence, the proposed deletion of “excluding additional capitalization due to Change in Law,” may please be withdrawn.</p> <p>As such, power sector is already facing severe stress. Under the current circumstances arrangement of equity for meeting new environmental norms itself is a challenge. Hence Return on Equity may be computed at the base rate of 15.50% similar to the provision for thermal generating station provided under</p>

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			Regulation 30 (2).
3	<b>Regulation 33</b>  Depreciation	A new clause, namely, Clause (9) shall 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.”	Rate at which the depreciation should be charged may be clarified. Whether it should be calculated at the average rate calculated based on the balance life of the project or it will be calculated as per the provisions applicable for main generating plant. Please note that PPA extension is dependent on several factors and there is no certainty of the same, hence the depreciation computation should be based on the residual period of PPA for projects under long-term PPA.
4	<b>Regulation 34</b>  Interest on working capital	A new clause, namely, Clause (aa) shall 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;	In addition to the proposed components of working capital interest following additional components may please be included; 1. Advance payment for 30 days towards cost of limestone in case wet limestone based FGD, for generation corresponding to the normative annual plant availability factor;  2. Operation and maintenance expenses in respect of emission control system, including water charges for one month.

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		(iv) Maintenance spares @ 20% of operation and maintenance expenses in respect of emission control system.”	
5	<p><b>Regulation 35</b></p> <p>Operation &amp; Maintenance expenses</p>	<p>Sub-Clause(7) of Clause (1) of Regulation 35 of the Principal Regulations along with its proviso shall be substituted as under:</p> <p>“(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 &amp; 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:</p> <p>Provided that income generated from sale of gypsum or other by-products shall be reduced from the operation &amp; maintenance expenses.”</p>	<p>CEA has recommended following additional O&amp;M expenses in respect of wet limestone based FGD emission control system as mentioned in the order dated 11<sup>th</sup> November 2019 by Hon’ble CERC in the petition no 152/MP/2019 (Maithon Power Limited)</p> <ol style="list-style-type: none"> <li>1. Additional clarified water requirement in respect of environment control system alongwith its waste water treatment cost.</li> <li>2. Byproduct (gypsum) handling cost</li> </ol> <p>Therefore it is proposed that the above mentioned costs are also added to the O&amp;M expenses. Alternatively, same may be considered under Supplementary Energy Charge.</p> <p>The annual escalation of 5% may be provided which is representative of actual escalation.</p>

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			Moreover there is no clarity on the availability of market for Gypsum. Hence any income generated from sale of byproduct should be factored only at the time of true up.
6	<b>New Regulation 42A</b>	A new regulation, namely, Regulation 42A shall be added after Regulation 42 of the Principal Regulations as under:  "42A. Computation and Payment of Supplementary Capacity Charge for Coal or Lignite based Thermal Generating Stations:	Annual supplementary capacity charge should be paid in equal monthly installments without linking it to Generating station availability, as the vintage of main generating plant and emission control system would be different and accordingly availability of main generating plant and emission control system would be different. Hence under recovery of supplementary capacity charge would create stress on the economics of the project.
7	<b>New Regulation 42A</b>	Provided that in case of generating station or unit thereof under shutdown due to Renovation and Modernization, the generating company shall be allowed to recover O&M expenses and interest on loan due to emission control system only.	Since a separate financing is required for FGD projects, it is essential that the recovery of these investments are delinked from the operations of the main power plant and capital cost recovery should be based on availability of these equipments, where as that for operating costs can be part of the energy costs as already proposed. This will enable financing from new consortium as many of existing consortium lenders are under prompt corrective measures under RBI and are not able extend loan required for FGD. The generating company should

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			be allowed to recover Return on Equity, O&M expenses, interest on loan, depreciation related to emission control system.
8	<b>Regulation 43</b>	<p><b>Supplementary Energy Charge for Coal or Lignite based Thermal Generating Stations</b></p> <p>A new sub-clause, namely, sub-clause (aa) shall be inserted after sub-clause(a) of clause (2) of Regulation 43 of the Principal Regulations as under:  <b>“(aa) Supplementary ECR for coal and lignite based thermal generating stations:</b>  Supplementary ECR = ( ▲ ECR ) + ( SRC x LPR / 1000)</p>	<p>Supplementary Energy charge should also include the following</p> <ol style="list-style-type: none"> <li>1. cost of additional water required for emission control system</li> <li>2. Water treatment cost and waste water disposal cost</li> <li>3. Byproduct disposal cost</li> </ol>
9	<b>Regulation 49</b>  Auxiliary Energy Consumption (as % of gross generation)	<p>A new sub-clause, namely, sub-clause (bb) shall be inserted after sub-clause (b) of Clause (E) of Regulation 49 of the Principal Regulations as under:</p> <p>“(bb) Auxiliary Energy Consumption (AUXe) on account of emission control system of thermal generating stations:  <b>(1) For reduction of emission of sulphur dioxide:</b></p> <p>a) Wet Limestone based FGD system (without Gas to Gas heater ) - 1.0%</p>	<p>The power consumption of the desulfurization system is closely related to the parameters such as the amount of flue gas, the concentration of sulfur dioxide, the purity of limestone and the desulfurization efficiency, each unit is different and cannot be calculated according to the same standard. The calculation method followed by the designers for power consumption is to estimate and sum the power consumption of all the equipment. It is relatively accurate and reliable.</p> <p>Hence, the proposed auxiliary consumption of 1% for wet limestone FGD system irrespective to generating unit size may not be appropriate.</p>

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			<p>So it is necessary that the auxiliary consumption may please be specified for different generating unit size.</p> <p>Moreover, majority of wet limestone based FGD suppliers are quoting minimum auxiliary consumption of 1.2% for unit size of 660 MW and it is in the range of 1.3% to 1.4 % for unit size Of 300 MW and below. Hence it is proposed to specify separate auxiliary energy consumption norms for emission control system for different unit sizes as per the percentage mentioned above.</p>
10	<b>Regulation 49</b>	<p>A new clause, namely Clause (F) shall be added after Clause (E) of Regulation 49 of the Principal Regulations as under:</p> <p><b>“(F) Norms for consumption of reagent:</b> (1)The normative consumption of specific reagent for various technologies for reduction of emission of sulphur dioxide shall be as below:</p> <p><b>(a) For Wet Limestone based Flue Gas De-sulphurisation (FGD) system:</b> The specific limestone consumption (g/kWh) shall be worked out by following formula:  <math display="block">[ 0.85 \times K \times SHR \times S ] / [ CVPF \times LP ]</math></p>	<p>Formula proposed for consumption of reagent for wet limestone based FGD needs review as the calculated normative consumption of reagent using the said formula comes to a very low value as compared the guaranteed reagent consumption offered by majority of vendors of wet limestone based FGD.</p> <p>For example the Guaranteed limestone consumption offered by our finalized vendor is based on following formula.</p> <p>Limestone consumption= flue gas volume (Normal, dry, 6% oxygen)(Nm<sup>3</sup>/hr)× SO<sub>2</sub></p>

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		<p><b>Provided further that the limestone purity shall not be less than 85%.</b></p>	<p>concentration (Normal, dry, 6% oxygen)(mg/Nm<sup>3</sup>)<math>\times</math>SO<sub>2</sub> Removal efficiency/(64<math>\times</math>100/106)/ (limestone purity<math>\times</math>1.03.</p> <p>The limestone quantity calculated based on above formula is substantially higher compared to quantity derived using the proposed formula by Hon'ble CERC.</p> <p>Minimum normative reagent limestone norm may be specified as 15 g/kWh (Hon'ble CERC had proposed the same in the draft CERC (Terms and Conditions for determination of tariff) Regulations 2019).</p> <p>Also provision should be made for transportation loss, yard losses, losses due to moisture for limestone similar to the norms specified for coal.</p> <p>Similarly, norms for sampling point, measurement method for purity of limestone may be specified similar to the norms specified for the coal.</p> <p>Proposed provision for Minimum purity of limestone not less than 85% may be withdrawn as the purity of the limestone will depend upon its availability in the vicinity of</p>



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			the plant which is beyond the control of the generator. Provision may be made to recover the landed cost of the limestone even if the purity of the limestone is less than 85%.
11	<b>Regulation 49</b>	<p>A new sub-clause, namely, sub-clause (bb) shall be inserted after sub-clause (b) of Clause (E) of Regulation 49 of the Principal Regulations as under:</p> <p>“(bb) Auxiliary Energy Consumption (AUXe) on account of emission control system of thermal generating stations:</p> <p><b>(2) For reduction of emission of oxide of nitrogen :</b></p> <p>a) Selective Non-Catalytic Reduction system <b>NIL</b></p>	<p>SNCR requires additional equipments to be installed which inter alia include</p> <ul style="list-style-type: none"> <li>a) Ammonia storage and handling system</li> <li>b) Ammonia vaporization system</li> <li>c) Ammonia Dilution system</li> <li>d) Ammonia injection system</li> <li>e) Waste ammonia dilution system</li> <li>f) Steam and condensate system</li> <li>g) Air Blowing System</li> <li>h) Nitrogen purging system</li> <li>i) Electricals</li> <li>j) Control &amp; Instrumentation</li> </ul> <p>These equipments would be consuming electrical power and hence additional auxiliary power consumption would be there if SNCR in installed.</p> <p>There is no experience in the country regarding SNCR and hence instead of notifying norms for auxiliary consumption without having the actual feedback, it would be prudent if actual additional auxiliary consumption due to SNCR is monitored and allowed as pass through cost for initial period of 3-4 years and based on the data, norms for the same can be notified</p>

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12	<b>Regulation 49</b>	<p>A new clause, namely Clause (F) shall be added after Clause (E) of Regulation 49 of the Principal Regulations as under:</p> <p><b>“(F) Norms for consumption of reagent:</b></p> <p>(2) The normative consumption of specific reagent for various technologies for reduction of emission of oxide of nitrogen shall be as below:</p> <p><b>(a) For Selective Non Catalytic Reduction (SNCR) System:</b> The specific urea Consumption of SNCR system shall be 1.2 gm per kWh at 100% purity of urea.</p> <p><b>(b) For Selective Catalytic Reduction (SCR) System:</b> The specific ammonia consumption of SCR system shall be 0.6 gm per kWh at 100% purity of ammonia.”</p>	<p>subsequently.</p> <p>There is no experience in the country regarding SNCR/SCR and hence instead of notifying norms for reagent consumption without having the actual feedback, it would be prudent if actual consumption of reagent due to SNCR/SCR is monitored and allowed as pass through cost for initial period of 3-4 years and based on the historical data, norms for the same can be notified subsequently.</p>
13	<b>Additional comments</b>		
1		Delay in commissioning due to Covid, Delay due to financing due lack of clarity regarding tariff.	While we have approaching Lenders for more than two years now, no lender is ready to appraise the project and disburse funds without complete clarity on the tariffs. Lenders are asking for firm tariffs before even initiating the appraisal process. Hence we would request CERC to allow for the delay in computation of IDC and other allowed expenses till the date of actual completion rather than limiting to the schedule proposed by MoEFCC.
2		Recovery of Deemed Fixed Charges during shutdown period for interconnection of FGD with power plant	Regulation is silent on the recovery of Fixed Charges of the main project during

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			the period the plant is under shutdown on account of implementation of FGD and other equipments. Hence, it is requested that additional provision shall be incorporated to provide the recovery of fixed charges during the shutdown period.
14	<b>PART I of Annexure I of the Principal Regulations</b>	A new form namely, Form 16A shall be inserted after Form 16 of Annexure-I of Part I of the Principal Regulations	<p>Provision should be made for transit loss of limestone, yard losses of limestone.</p> <p>All taxes and duties required to paid towards limestone should be included in the cost of limestone.</p> <p>Accordingly the Form 16 A may please be modified incorporating the above mentioned factors.</p>

Thanking you.

Yours sincerely,  
For **Reliance Power Limited**



**Authorized Signatory**