

SR. No	Ref. in the amendment regulations	Ref. Existing Regulations	Proposed Amendment	GMRs Suggestion(Draft)	Rationale
1	N/A	N/A	Not considered	To include Ammonia and other efficient technologies CEA has already approved in principle for some of the projects	 There are more cost efficient technologies available which CEA has already approved in principle in some of the projects. Hence all parameters for such technologies to also be considered in addition to Limestone technology stated under the regulation.
2	6.3.	15. Capacity Charges: The capacity charges shall be derived on the basis of annual fixed cost	Supplementary Capacity Charges: "15. (2) Supplementary Capacity Charges: Supplementary capacity charges shall be derived on the basis of the Annual Fixed Cost for emission control system (AFCe). The Annual Fixed Cost for the emission control system based on capital cost shall consist of the components as listed at (a) to (e) of Clause (1) of this Regulation."	"(2) Supplementary Capacity Charges: Supplementary capacity charges shall be derived on the basis of the Annual Fixed Cost for emission control system (AFCe). The Annual Fixed Cost for the emission control system based on capital cost shall consist of the components as listed at (a) to (e) of Clause (1) of this Regulation." Further provided the compensation of incidental charges including but not limited to loss of Capacity Charges due to shut down during Construction, loss of incentives, penalty payable under PPA (if any), Loss of Ex-Bus Saleable Capacity, LTOA charges for reduced despatachable capacity. & Capacity not despatched during shutdown period etc. shall be compensated at actuals by way of a) adding the same losses as additional capital cost and shall be used in computation of tariff. Generators are free to approach the Commission for the same post Commercial Operation of the Emission Control System (FGD system).	 There are no provisions in the existing regulations that address the incidental expenses associated with installation and operation of emission control System. i.e. Loss of capacity charges during Shut down, Loss of Revenue due to reduced Capacity on account of Increased Aux. etc. Therefore, as separate provisions are added to capture the same. Such loss of capacity charge, LTOA charges, etc. may be allowed to be recovered in either of the three methodology: Lump sum Compensation to be paid in one go. equal instalments over a period of 6/12 months after COD of FGD. Through monthly tariff payment.



3	0		IDC.	The allowed incidental expenses along with the applicable Carrying Cost would be recoverable from the beneficiaries based on the methodology as specified by the commission on case to case basis.	Congretors are not making outre are fit
	9	Construction (IEDC) (4) If the delay in achieving the COD is not attributable to the generating company or the transmission licensee, IDC and IEDC beyond SCOD may be allowed after prudence (5) If the delay in achieving the COD is attributable either in entirety on in part to the generating company or the transmission licensee or its contractor or supplier or agency, in such cases, IDC and IEDC beyond SCOD may be disallowed after prudence check either in entirety or on pro-rata basis corresponding to the period of delay not	IDC: 21. Interest During Construction (IDC) and Incidental Expenditure during Construction (IEDC) "(6) For the purpose of Clauses (4) and (5) of this Regulation, IDC on actual loan and normative loan infused shall be considered."	"(6) For the purpose of Clauses (4) and (5) of this Regulation, IDC on actual loan and Equity normative loan infused shall be considered."	Generators are not making extra profit than actual equity infused. Limiting the equity to 30% may hinder implementation. Because in the current scenario where maximum lending could be an issue, sometime generators would be forced to infuse more equity than normative to complete the installation. Therefore, actual loan and equity to be considered for tariff purpose in place of Normative.



4	11	condoned and the liquidated damages, if any, recovered from the contractor or supplier or agency shall be retained by the generating company or the transmission licensee, as the case may be. 29. Additional Capitalization on	Undischarged Liability: "29. Additional	-29. Additional Capitalization on account of Revised Emission Standards:	Provision 24 , 25 and 26 should be applicable to such undischarged
		account of Revised Emission Standards:	Capitalization on account of Revised Emission Standards: (5) Un-discharged liability, if any, on account of emission control system shall be allowed as additional capitalization during the year it is discharged, subject to prudence check."	(5) Un-discharged liability, if any, on account of emission control system shall be allowed as additional capitalization during the year it is discharged either before cut off date or after cut off date, subject to prudence check." Provided that: Liabilities arising out of award of arbitration or for compliance of the directions or order of any statutory authority or order or decree of any court of law; with-in or after the Cut-off date shall be allowed on case to case basis subject to prudence check.	liability, as some time payments will be released to the contractors/vendors late because of various other reasons like disputes etc.
5	12	30. Return on Equity: (2) Return on equity shall be computed at the base rate of 15.50% for thermal generating station, transmission system including communication system and run-of river hydro generating station, and	Return on Equity: "30. Return on Equity: (2) Provided that return on equity in respect of additional capitalization after cut-off date beyond the original scope shall be computed at the weighted average rate of interest on actual loan	""30. Return on Equity: (2) Provided that return on equity in respect of additional capitalization after cut-off date beyond the original scope shall be computed at 15.5%:	 In line with the existing regulations, RoE should be allowed at 15.5% on the lower of actual or normative equity in the capital structure even after the cut- off date Many a time generator cannot complete some of the balance works because of reason beyond their control for which they should not be penalised.



			at the base rate of	portfolio of the generating	(3) The return on equity in respect of additional	15.5% is the industry benchmark and
			16.50% for the storage	station or the transmission	capitalization due to emission control system shall be	CERC has been allowing similar RoE in
			type hydro generating	system;	computed at 15.5%.	all its Tariff Regulations even for such
			stations including			additional capitalisation.
			pumped storage hydro	or in the absence of actual		
			generating stations and	loan portfolio of the		
			run-ofriver generating	generating station or the		
			station with pondage:	transmission system, the		
				weighted average rate of		
			Provided that return on	interest of the generating		
			equity in respect of	company or the transmission		
			additional capitalization	licensee, as the case may be, as		
			after cut-off date beyond	a whole, shall be considered		
			the original scope			
			excluding additional	(3) The return on equity in		
			capitalization due to	respect of additional		
			Change in Law, shall be	capitalization due to emission		
			computed at the	control system shall be		
			weighted average rate of	computed at the weighted		
			interest on actual loan	average rate of interest on		
			portfolio of the	actual loan portfolio of the		
			generating station or the	generating station or in the		
			transmission system;	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;		
6	,	14	33. Depreciation:			Since most of the plants are already
						operational for more than 5-10 years
				,(9) The depreciation of the	,(9) The depreciation of the emission control	and balance life is significantly less.
				emission control system shall	system shall be computed from its date of operation	Lenders shall expect that total loan to
				be computed from its date of	for the balance useful life or extended life or the long	be recovered during the remunerative
				operation for the balance	term PPA term whichever is lower	



			useful life or extended life of the generating station, as the case may be."	Provided that project life for thermal plants is fixed at 25 years in the tariff regulations, depreciation after the 12 years of COD of emission Capex may be spread in the balance life of the plant from 25 years /PPA duration which-ever is lower.	period of the plant. Depreciation amount is used to repay the loan amount. Else loan repaying ability of the generators shall be affected and funding will be a constraint for installing such emission control system. Therefore it is important that depreciation allowed is higher during the balance PPA term so that the entire depreciation is recovered within the PPA validity duration.
7	15	34. Interest on Working Capital: (1) The working capital shall cover: (a) For Coal- based/lignite-fired thermal generating stations:	Interest on Working Capital: "(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	Interest on Working Capital: "(aa) For emission control system of coal or lignite based thermal generating stations: (i) Cost of limestone or any reagent like ammonia which is approved by CEA to be used by the generators towards stock for 30 days corresponding to the normative annual plant availability factor; also Advance payment of 30 days towards cost of reagent 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;	 Request Hon'ble Commission to consider Efficient Ammonia-Based Desulfurization Technology (EADS) to be included in this amendment as also one of the efficient technologies available for emission control. Necessary changes in the norms like 20 days stocks etc. also to be reviewed for such technologies. Instead 20 days stock need to consider 30 days as the availability of required quality of Reagent may not be near vicinity of Power Plant



			respect of emission control system for one month;	(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."	(iv) Maintenance spares @ 20% of operation and maintenance expenses in respect of emission control system."	
8	16	35. Operation and Maintenance Expenses: (7) The additional operation and maintenance expenses on account of implementation of revised emission standards shall be notified separately: Provided that till the norms are notified, the Commission shall decide the additional O&M expenses on case to case basis.	Operation and maintenance expenses: "35. Operation and Maintenance Expenses: (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."	"(7) The operation and maintenance expenses on account of emission control system in coal or lignite based thermal generating station shall be 2 ~ 4 % of the admitted capital expenditure (excluding including IDC & IEDC) as on the date of its operation, which shall be escalated annually at the rate of 3.5%. Provided that 0&M amount spent actually shall be considered for payment by way of truing up at the end of the tariff period i.e 2019-24. Provided that income generated from sale of gypsum or other by products shall be reduced from the operation & maintenance expenses." Provided the net income after netting-off all the expenses of Disposal of By-products would be shared between the beneficiaries and the Generator in the ratio of 20:80. A different account shall be maintained by Generating Companies for the Purpose.	 CERC has awarded Additional O&M cost to Adani Mundra @ 2% of the project cost including IDC. In its order in Petition No. 214/MP/2018 & To Sasan Power Ltd. (446MP2019) the Same should also be extended to others. Further, there should be no capping in O&M expenses as generators are not making any profit on this account, similarly they should not be loosing any additional amount because limits set by CERC. Generators should be compensated/paid on actuals. SASAN power Ltd. in case 446MP2019 have been directed to present the actual data of O&M petition for, the same arrangement should also be extended to others. Reason being the expenses on account of Emission Control Systems are mandated by a Change in law and expenses are reimbursement in nature and generators are to be put in the same economic position.



8.1	N/A	35. Operation & Maintenance Expenses: Water Charges	No provision	New Insertion: water charges shall be allowed based on increase water consumption, and associated expenditure subject to prudence check. The details regarding the same shall be furnished along with the petition.	 The income generated from Sale proceeds of by-products should not be passed on to procurers completely as this would be needed by generators to maintain the infrastructure necessary for storage and handling of the by-product. Also it would incentivize the generators to innovate and dispose/sell the by-product in efficient and timely manner without causing any damage to the environment. O&M Cost cannot be fixed 1t 2%, to be based on unit size and capacity. In the Principal Regulations Water charges are allowed separately under clause 35. FGD system would increase the Water Consumption of the plant, therefore generators would have to shell out extra money towards increase water requirement of the plant. The expenditure must be reimbursed to the
9	22	42. Computation and Payment of Capacity Charge for Thermal Generating	New clause after clause 42 "42A. Computation and Payment of Supplementary Conseity Charge for Coal or	"42A. Computation and Payment of Supplementary Capacity Charge for Coal or Lignite based Thermal Generating Stations: (1) The fixed cost of emission control system shall be	 The Supplementary Capacity Charges are basically reimbursements in nature on account of Change in Law and the Generator is not earning any profit out
		Stations:	Capacity Charge for Coal or Lignite based Thermal Generating Stations: (1) The fixed cost of emission control system shall be	computed on annual basis based on the norms specified under these regulations and recovered on monthly basis the supplementary capacity charge shall be recovered under two segments of the year, i.e.	of it and generators are to be put in the same economic position as that of before installation of such emission control system. Therefore, they should



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computed on annual basis based on the norms specified under these regulations and recovered on monthly basis... The supplementary capacity charge shall be recovered under two segments of the vear, i.e. High Demand Season (period of three months) and Low Demand Season (period of remaining nine months), and within each season in two parts viz., Supplementary **Capacity Charge for Peak** Hours of the month and **Supplementary Capacity Charge for Off-Peak Hours of** the month as follows: Provided that within a Season. the shortfall in recovery of Supplementary Capacity Charge for cumulative Off-Peak Hours derived based on NAPAF, shall be allowed to be off-set by over-achievement of PAF, if any, and consequent notional over-recovery of Capacity Charge for cumulative Peak Hours in that Season:

Provided further that within a Season, the shortfall in

High Demand Season (period of three months) and Low Demand Season (period of remaining nine months), and within each season in two parts viz., Supplementary Capacity Charge for Peak Hours of the month and Supplementary Capacity Charge for Off-Peak Hours of the month as follows:

Provided that within a Season, the shortfall in recovery of Supplementary Capacity Charge for cumulative Off-Peak Hours derived based on NAPAF, shall be allowed to be off-set by over-achievement of PAF, if any, and consequent notional over-recovery of Capacity Charge for cumulative Peak Hours in that Season:

Provided further that within a Season, the shortfall in recovery of Supplementary Capacity Charge for cumulative Peak Hours derived based on NAPAF, shall not be allowed to be off-set by over-achievement of PAF, if any, and consequent notional over-recovery of Supplementary Capacity Charge for cumulative Off-Peak Hours in that Season.

- not be treated in similar manner as of Normal Capacity charges.
- In addition, it may affect the sourcing of funds from Lenders and other stake holders to implement the project.
- Capacity charges towards emission control system should be uniform through-out the year (without any bifurcation of Peak & Off-Peak) based on the cumulative availability as on Date, the reason being is that the Loan Instalments are uniform and there is no peak or Off peak EMI.
- The emission control system will anyways operate irrespective of the high demand or low demand period and therefore linking recovery of capacity charges to high or low demand period is not reasonable.

 If a Generator is not able to recover the Supplementary Capacity Charges due to the factors out of its control the same may be allowable adjusted in the last payment of the respective Financial Year.



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recovery of Supplementary
Capacity Charge for
cumulative Peak Hours
derived based on NAPAF, shall
not be allowed to be off-set by
over-achievement of PAF, if
any, and consequent notional
over-recovery of
Supplementary Capacity
Charge for cumulative OffPeak Hours in that Season.

(3) Any under-recovery or over-recovery of Supplementary Capacity Charge as a result of underachievement or overachievement, vis-à-vis the NAPAF in Peak and Off-Peak Hours of a Season (High Demand Season or Low Demand Season, as the case may be) shall not be adjusted with under-achievement or over-achievement, vis-à-vis the NAPAF in Peak and Off-Peak Hours of the other Season:

New Suggested clause→

(3.1) Further, in case if the generator is not able to Despatch its capacity due to the reasons not attributable to it or in case of Force majeure affecting the DISCOMS/Beneficiaries, then Beneficiaries would be liable to pay the Capacity charges equivalent to Monthly Loan instalments payable by Generator for such period.

In particular scenario of Forced and extended Shutdown like (situation prevailing due to COVID-19 crisis), the Generators may not be available fully or Discoms may invoke Force majeure Clauses of their respective PPAs to avoid the payments. It would further detoriate the already poor financial condition of Generators. Therefore, Generators should be eligible to be paid at-least equal to 85% of the amount payable to Banks and other fixed costs which are not avoidable by the Generators for such period. While balance amount if any can be deferred for payment during the later months after such events is ceased to exist.



Norms of operation for

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GMR Energy Ltd.

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"(bb) Auxiliary Energy Consumption (AUXe) on

• As there is no sufficient actual data

 			(22)	(110110) 011	The difference of the sufficient decides duties
	thermal generating	Auxiliary Consumption:	account of emission control		available to establish what would be the
	<u>station</u>		system of thermal generating sta		normative additional APC, considering
		New sub-clause in 49 (E)		AUXen (as %	that such emission control system is not
	49. The norms of		Name of Technology	of gross	operational in sufficient number of
	operation as given	"49. (E)		generation)	plants and for a sizable period of time.
	hereunder shall apply	(bb) Auxiliary Energy		<u>, </u>	Therefore, it would not be appropriate
	to thermal generating	Consumption (AUXe) on	(1) For reduction of emission	of sulphur	to go ahead with the numbers specified
	stations:	account of emission control	dioxide:		by CEA at this stage. CERC must allow
	<u></u>	system of thermal generating			on actuals or OEM whichever is lower at
	(E) Auxiliary Energy	stations:	a) Wet Limestone based FGD		least for the period 2019-24., however
	Consumption:	Name of AUXen (as	system (without Gas to Gas	1.0%	APC also depends on unit capacity size
	r.	Name of 06 of gross	heater)	1.0 /0	and different operating loads
		Technology generation)	b) Lime Spray Dryer or Semi		 During the period 2024-29, it may be
		generation	dry FGD System	1.0%	reviewed again, as by the time many of
		(1) For reduction of	c) Dry Sorbent Injection		the systems would already be in place
		emission of sulphur	11	NIII	and sufficient data points are available
		dioxide:	System (using Sodium	NIL	to justify such norms.
		uioxiue.	bicarbonate)		 The Tariff for Emission Control System
		a) Wet Limestone	D. F. GERGE		should be compensative in nature to put
		based FGD	d) For CFBC Power plant	NIL	generators in the same economic
		system (without 1.0%	(furnace injection)		position as before and any
			e) Sea Water based FGD		
		Gas to Gas heater	system (without Gas to Gas	0.7%	standardization of Aux or any other
		b) Live a Course	heater)		operating parameter may lead to under
		b) Lime Spray			recovery for the generating station.
		Dryer or Semi 1.0%	Provided that where the technological	ogy is installed with	Therefore, it would be prudent to use
		dry FGD System	Gas to Gas heater,		the Actuals or OEM specified Values or
		c) Dry Sorbent	auxiliary energy consumption sp	ecified as above shall	Aux (whichever is lower).
		Injection System NIL	be increased by 0.3% of gross		CERC has not considered
		(using Sodium	generation."		Efficient Ammonia-Based
		bicarbonate)			Desulfurization Technology (EADS)
			Note: Norms mentioned above	are only indicative	as one of the efficient technologies
			and based on current estimate	s of CEA. However	available for emission control.



			d) For CFBC Power plant (furnace injection) e) Sea Water based FGD system (without Gas to Gas heater) Provided that where the technology is installed with Gas to Gas heater, auxiliary energy consumption specified as above shall be increased by 0.3% of gross generation."	for the calculation of Tariff, actuals or as specified by OEM (whichever is lower) shall be considered.	Request Hon'ble CERC to consider the same for inclusion in this amendment and provide Norms for all the technologies being explored by the Generators at present.
11	25	49. The norms of operation as given hereunder shall apply to thermal generating stations:	25.2 (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 Desulphurisation (FGD) system: (b) (C)	25.2 (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: (b) (c) (d) (To be deleted)	 It is suggested that Cost of reagent must be reimbursed on actuals. CERC has tried to standardize the Reagent consumption on the similar lines of OIL Consumption. It is suggested that Reagent for FGD may not be treated at Par with Oil consumption that is required periodically not continuously. Standardizing Reagent Consumption would lead to under recovery. Alternatively, without prejudice to our views it is stated that if CERC is firm on its stand and wants to go ahead with the standardization of the Norms of



(d) (e)	(c) For Dry Sorbent Injection System (using sodium bicarbonate): The specific consumption of sodium bicarbonate shall be 12 gm per kWh at 100% purity. (2) The normative consumption of specific reagent for various technologies for reduction of emission of oxide of nitrogen shall be as below: (a) For Selective Non Catalytic Reduction (SNCR) System: The specific urea Consumption of SNCR system shall be 1.2 gm per kWh at 100% purity of urea.	Consumption of reagent then following points must be addressed/taken into account: 1. Quality/Purity of Reagent. Any formula prescribed by CERC must take into account the quality of reagent supplied and value of K need to be floating 2. REAGENT/limestone purity should be considered in decimal and not in percentage for arriving at the right specific limestone consumption.
Other Aspects & Costs not covered in The regulations: 1) Treatment of Cost corresponding to By-product handling & Disposal 2) Pre-operating Expenses 3) Provisional tariff provision: Till the tariff is determined by the Commission 4) Loss of Revenue due to Shut Down 5) Permanent loss of revenue due to		 CERC in its order 446MP2019 (Sasan Power) & 152MP2019 (Maiton Power) has recognized the opportunity costs and has ruled to consider the same on actuals, the same treatment should also be extended to others. CERC must also address these aspects as a considerable amount involved with these aspects. CERC in its order 446/MP/2019 (Sasan Power Ltd.) & 152MP2019 (maithon Power Ltd.) has allowed IDC, taxes & duties, FERV (if any), Pre-operating Expenses and expenditure towards



		reduced Ex-Bus Capacity due to increased Aux 6) LTOA charges for reduced Ex-Bus capacity. 7) Effect of Reagent Quality		 project management & engineering services at actuals. CERC may allow these expenses on case to basis on actuals to other parties also
12	68 & 69 Recovery of cost of hedging or Foreign Exchange Rate Variation (FERV); 1) Every generating company and the transmission licensee shall recover the cost of hedging and foreign exchange rate variation on year-to-year basis as income or expense in the period in which it arises.	No provision	69. Recovery of cost of hedging or Foreign Exchange Rate Variation (FERV); (1) (2) New Insertion: (3) For avoidance of doubt it is clarified that provisions of clause 69 of the Principal regulations will also be applicable for cost towards emission control systems.	 It sis suggested that clause pertaining to FERV must be incorporated, for abundant clarity. The commission in its order 446/MP/2019(Sasan Power Ltd.) has allowed FERV and other expenses at actuals same benefit must be extended to others.