

## **GRIDCO LIMITED**

(A Govt. of Odisha Undertaking) (Formerly Grid Corporation of Orissa Limited) Regd. Office: Janpath, Bhubaneswar-751022 CIN:L40109OR1995SGC003960

Ref .No. Sr.GM (PP)-27/2018/1503(6)

Date: 15.05.2020

То

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Sub: Draft Central Electricity Regulatory Commission (Terms and Conditions of Tariff) (First Amendment) Regulations, 2020 – Reg.

Ref: Public Notice No.L-1/236/2018/CERC Dtd.01.04.2020 & Dtd.30.04.2020 of CERC on the subject cited above

Sir,

With reference to the subject cited above vide public notices under reference, please find herewith attached the Views/Suggestions/Comments on Proposed Draft Central Electricity Regulatory Commission (Terms and Conditions of Tariff) (First Amendment) Regulations, 2020.

This for favour of your information and necessary action.

Encl: Views of GRIDCO on Proposed Draft Central Electricity Regulatory Commission (Terms and Conditions of Tariff) (First Amendment) Regulations, 2020 in 14 pages.

Yours faithfully

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C.C.: i) The Commissioner-cum-Secretary, Govt. of Odisha, Dept. of Energy for kind appraisal.

- ii) Director (Trading), GRIDCO/Director (Finance), GRIDCO for kind appraisal.
- iii) E.A. to CMD, GRIDCO for kind appraisal of CMD.
- iv) L.O., GRIDCO, New Delhi for submission of GRIDCO's request before the Hon'ble Commission.

## Views of GRIDCO on 1<sup>st</sup> Amendment to CERC Tariff Regulations, 2019

- 1. As per Cl.5.10 of National Electricity Plan (Generation), January, 2018 [Table-5.14(c)], the PLF of Coal based Plants will hover around 56.5% in 2021-22 to 60.5% in the year 2026-27. Therefore, use of Coal for Power Generation will come down drastically during the Control Period (2019-24).
- 2. Further, as per Cl.6.3.1 of Explanatory Memorandum to CERC Tariff Regulations, 2019 "CEA has estimated that in view of present demand growth rate and availability of commissioned and under construction capacity, no new coal based capacity may be required till 2027"
- 3. Due to heavy upcoming infusion of Renewable Energy Sources as a result of the target addition of RE Capacity of 175GW by 2022 set by MNRE, GoI, Thermal Power Plants are expected to back down. Influx of Energy saving Equipment and LED Bulbs has also a downward effect on Energy Demand.

Due to the above reasons many of the above TPPs may not require installation of ECS for compliance with the new Environmental Norms.

4. Vide letter dated 20.02.2019, CEA has stated that "Presently, no relevant operational data is available on DeSox and DeNOx systems in the country. The DeSOx systems are under implementation and pilot studies are underway for suitability of DeNOx system for high ash Indian coals."

As huge investment is required for installation of Emission Control Systems, which is ultimately to be passed on to the consumers through Tariff, selection of Technology for installation of DeSox and DeNOx systems should be carried out only with sufficient data from pilot projects for Indian Conditions and Indian Coal and should not be experimented on all the Generators with any assumed data.

- 5. Range of SO<sub>2</sub> Removal, which will vary from Plant to Plant, as envisaged in CEA's 'Norms for installation of FGD for New Environmental Regulations 7<sup>th</sup> December 2015 (From 21<sup>st</sup> February, 2019 onwards)', may be determined and certified by the Central/State Pollution Control Board prior to installation of Emission Control System in order to arrive at the Range of SO<sub>2</sub> Removal required for the individual plant(s).
- 6. Hon'ble Commission on 1st Apr 2020 has come out with an amendment i.e. CERC (Terms and Conditions of Tariff) (First Amendment) Regulations, 2020 in which the norms for emission has been prescribed. As per the amendment, the said Regulation would come into force w.e.f. 01.06.2020 except amendment to Regulation-21 of the Principal Regulations.

- 7. In this connection it is humbly submitted that the country is faced with severe pandemic for which there are lockdowns, shutdowns, containments and the economic activity has come to a grind halt. In this scenario, even if, the DISCOMs are maintaining uninterrupted power supply but are not able to collect the revenue from the consumers.
- 8. It is not known, when the economy of the country will revive, so that the common people will be able to live with minimum requirements, out of which electricity is one of the most basic needs of day-to-day life.
- 9. Under these circumstances, if the Public will be loaded with the additional tariff arising out of the cost to be incurred towards installation of Emission Control System, they will not be able to pay their bills to the DISCOMs, as a result the DISCOMs will not only be unable to pay the enhanced tariff, in this process they will also lose the normal tariff which is exclusive of cost towards ECS.

For the reasons stated above in Points 1 to 9, it is submitted before the Hon'ble Commission to defer the installation of Emission Control Systems by a period of at least 2 years and for the plants having more than 15 Years of balance life, so that the same can be taken up after revival of economic condition and sufficient operational data for DeSOx and DeNOx systems are made available from the Pilot Projects.

Regulation	Proposed Amendment	Suggested Modification	Views/Justification/Rationale
3(15a)	'Date of Operation' or 'ODe'	<b>'Date of <u>Commercial</u></b> i)	Since the emission control system is put to
	in respect of an emission control	<b>Operation'</b> or ' <u>CODe</u> ' in respect	commercial use after such date, the term
	system means the date of	of an emission control system	should be modified as <b>'Date of <u>Commercial</u></b>
	putting the emission control	means the date of putting the	<b>Operation'</b> or ' <u>CODe</u> ' in line with
	system into use after meeting all	emission control system into use	Regulation 3(15): 'Date of Commercial
	applicable technical and	after meeting all applicable	Operation'.
	environmental standards,	technical and environmental ii)	) Compliance is mandatory to the revised
	certified through the	standards, certified through the	Emission Standards notified by MoEFCC vide
	Management Certificate duly	Management Certificate duly	notification dated 07.12.2015, therefore, the
	signed by an authorised person,	signed by an authorised person,	amended Regulations need to have provisions
	not below the level of Director	not below the level of Director of	for certification from Central/State Pollution
	of the generating company;	the generating company and	Control Board, which is the competent
	[New Insertion]	obtaining due certification	authority to ascertain and certify the
		from the State Pollution	compliance to the Environmental Norms.
		Control Board towards iii	i) In line with the provision for witnessing of

However, without prejudice to the above stand, GRIDCO submits its views on the Draft Regulations as given hereunder:

		compliance to all applicable	COD tests of TPPs, provision should also be
		<mark>environmental norms</mark> ;	there in case of Emission Control Systems for
		Provided that, the	Beneficiary(ies)
		Benficiary(ies) reserve the	iv) The amended Tariff Regulations should
		right to witness the	have provision for detailed procedure for
		Commercial Operation Test	Commercial Operation Test of Emission
		for Emission Control Systems.	Control Systems.
3(73)(aa)	'Useful Life' in relation to a	'Useful Life' in relation to a unit	As there will be new asset addition incurring
	unit of a generating station,	of a generating station, integrated	capital expenditure, useful life for the same should
	integrated mines, transmission	mines, transmission system and	be defined in the amended Regulations.
	system and communication	communication system from the	
	system from the date of	date of commercial operation	
	commercial operation shall	shall mean the following:	
	mean the following:	(aa) Emission Control System	
		<u>for a Coal/Lignite based</u>	
		thermal generating station : 35	
		Years	
		[Suggested New Insertion]	
9(1)	Provided also that the	Provided also that the generating	Since the emission control system is put to
4 <sup>th</sup> Proviso	generating company shall file an	company shall file an application	commercial use after such date, the term should
	application for determination of	for determination of	be modified as <b>'Date of <u>Commercial</u> Operation'</b>
	supplementary tariff for the	supplementary tariff for the	or ' <u>CODe</u> ' in line with Regulation 3(15): 'Date of
	emission control system	emission control system installed	Commercial Operation'.
	installed in the coal or lignite	in the coal or lignite based	
	based thermal generating station	thermal generating station in	
	in accordance with these	accordance with these	
	regulations not later than 60	regulations not later than 60 days	
	days from the date of operation	from the date of commercial	
	of such emission control system.	operation of such emission	
		control system.	
15(1)	Capacity Charges:	Capacity Charges:	
	The capacity charges shall be	The capacity charges shall be	
	derived on the basis of annual	derived on the basis of annual	
	fixed cost. The Annual Fixed	fixed cost. The Annual Fixed	
	Cost (AFC) of a generating	Cost (AFC) of a generating	

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	station or a transmission system	station or a transmission system	
	including communication	including communication system	
	system based on capital cost	based on capital cost <mark>, as</mark>	
	shall consist of the following	<u>determined by the</u>	
	components:	Commission, shall consist of the	
	(a) Return on equity;	following components:	
	(b) Interest on loan capital;	(a) Return on equity;	
	(c) Depreciation;	(b) Interest on loan capital;	
	(d) Interest on working capital;	(c) Depreciation;	
	and	(d) Interest on working capital;	
	(e) Operation and maintenance	and	
	expenses:	(e) Operation and maintenance	
	[New Insertion]	expenses:	
15(2)	Supplementary Capacity	Supplementary Capacity	
	Charges: Supplementary	Charges: Supplementary	
	capacity charges shall be	capacity charges shall be derived	
	derived on the basis of the	on the basis of the Annual Fixed	
	Annual Fixed Cost for emission	Cost for emission control system	
	control system $(AFC_e)$ . The	(AFC <sub>e</sub> ). The Annual Fixed Cost	
	Annual Fixed Cost for the	for the emission control system	
	emission control system based	based on capital cost <mark>, as</mark>	
	on capital cost shall consist of	<u>determined by the</u>	
	the components as listed at (a)	Commission, shall consist of the	
	to (e) of Clause (1) of this	components as listed at (a) to (e)	
	Regulation.	of Clause (1) of this Regulation.	
	[New Insertion]		
23(iii)	Where the emission control	Reg23: Initial Spares: Initial	i). As per Reg23, ceiling norms for Initial
	system is installed, the norms of	spares shall be capitalised as a	spares for capitalisation for Coal-
	initial spares specified in this	percentage of the Plant and	based/lignite-fired thermal generating stations
	regulation for coal or lignite	Machinery cost, subject to	is set at 4% of the Plant and Machinery cost.
	based thermal generating station	following ceiling norms:	ii). The above ceiling limit is set at a higher
	as the case may be, shall apply.	(aa) Emission Control System -	percentage due to large no of dynamic
	[New Insertion]	<u>1.0%</u>	(rotating) equipments/parts in case of Coal-
			based/lignite-fired thermal generating station,
			which is expected to be much lower in case of

			Emission Control System due to its limited
			machinery.
			111). Moreover, no recommendation by OEMs on
			Initial Spares has reflected in the Draft
			Regulations.
			iv). Therefore, the above ceiling norms should be
			limited to a realistic figure of 1%.
30(2)	Return on equity shall be	<b>Provided that return on equity</b>	i). The additional expenses have no risk of
1 <sup>st</sup> Proviso	computed at the base rate of	<u>in respect of capital cost on</u>	getting return as the PPAs are already in place
	15.50% for thermal generating	<u>account of installation of</u>	and the plants are in operation. Rather, it is a
	station, transmission system	Emission Control System, shall	help in disguise, due to the fact that the
	including communication	be computed at the weighted	recovery of revenue is assured.
	system and run-of river hydro	average rate of interest on	ii). The Generator has to mandatorily comply to
	generating station, and at the	<mark>actual loan portfolio of the</mark>	the revised Norms for Emission notified by
	base rate of 16.50% for the	generating station or in the	MoEFCC, therefore it's the obligation of the
	storage type hydro generating	absence of actual loan portfolio	Generator and not an additional business for
	stations including pumped	of the generating station, the	the Generator for which it should be allowed
	storage hydro generating	weighted average rate of	any profit in lieu of its obligations.
	stations and run-of river	interest of the generating	iii). Further, as per Regulation 63 of the principal
	generating station with pondage:	company as a whole or MCLR	Regulations, the Generator is allowed the
	6 6 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7	of SBL, whichever is minimum.	proceeds of carbon credit from approved
		shall be considered:	emission reduction projects under Clean
		[Suggested New Insertion]	Development Mechanism This credit amount
			may be adjusted for reduction in Fixed Cost of
			the Environment Control System
			iv) Lending rates of financial institutions/banks
			are decreasing day by day. Therefore in order
			to sofoguard the interest of the consumers DoF
			should have an unner compine limit of MCLP
			should have an upper capping mint of WCLK
			of SBI, which is a proven identifier of the
20(2)	Durani da dala da ant	Durani da di dhati nat	current market lending rate.
30(2)	Provided that return on equity in	Provided that return on equity in	Justification: As provided above against $1^{34}$
$\frac{1}{2}$	respect of additional	respect of additional	Proviso to Regulation 30(2).
Proviso	capitalization after cut-off date	capitalization after cut-off date	
	beyond the original scope	beyond the original scope shall	

	excluding additional	be computed at the weighted	
	capitalization due to Change in	average rate of interest on actual	
	Law shall be computed at the	loan portfolio of the generating	
	weighted average rate of interest	station or the transmission	
	on actual loan portfolio of the	system or in the absence of actual	
	generating station or the	loan portfolio of the generating	
	transmission system or in the	station or the transmission	
	absence of actual loan	system, the weighted average	
	portfolio of the generating	rate of interest of the generating	
	station or the transmission	company or the transmission	
	system, the weighted average	licensee, as the case may be, as a	
	rate of interest of the	whole or MCLR of SBI,	
	generating company or the	whichever is minimum, shall be	
	transmission licensee, as the	considered;	
	case may be, as a whole, shall		
	be considered;		
	[Proposed Modification]		
30(3)	The return on equity in respect	The return on equity in respect of	Justification: As provided above against 1 <sup>st</sup>
	of additional capitalization due	additional capitalization due to	Proviso to Regulation 30(2).
	to emission control system shall	emission control system shall be	
	be computed at the weighted	computed at the weighted	
	average rate of interest on actual	average rate of interest on actual	
	loan portfolio of the generating	loan portfolio of the generating	
	station or in the absence of	station or in the absence of actual	
	actual loan portfolio of the	loan portfolio of the generating	
	generating station, the weighted	station, the weighted average rate	
	average rate of interest of the	of interest of the generating	
	generating company as a whole	company as a whole or MCLR	
	shall be considered;	<u>of SBI, whichever is minimum,</u>	
	[New Insertion]	shall be considered;	at
32(5)(a)	The rate of interest on loan for	The rate of interest on loan for	Justification: As provided under 1 <sup>st</sup> Proviso to
	emission control system shall be	emission control system shall be	Regulation 30(2)
	the weighted average rate of	the weighted average rate of	
	interest of actual loan portfolio	interest of actual loan portfolio of	
	of the emission control system	the emission control system or in	

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	or in the absence of actual loan portfolio, the weighted average rate of interest of the generating company as a whole shall be considered.	the absence of actual loan portfolio, the weighted average rate of interest of the generating company as a whole <u>or MCLR</u> of SBI, whichever is minimum, shall be appreciated	
33(9)	The depreciation of the emission	The depreciation of the emission	In this connection, the consultation paper of
55(7)	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. [New Insertion]	control system shall be computed from its date of <u>commercial</u> operation for the balance useful life or extended life of the generating station, as the case may be, <u>considering the useful</u> <u>life of such Coal/Lignite based</u> <u>Thermal Power Generating</u> <u>Station as 35 (Thirty Five)</u> <u>Years, with due consent from</u> <u>the Beneficiary(ies)</u> <u>Provided that in case</u> <u>Beneficiary(ies) do not agree to</u> <u>continue for the additional 10</u> <u>years, then the Generator may</u>	CERC on 'Terms and Conditions of Tariff Regulations for Tariff Period 2019-24' may be referred, as per which it has been recommended that the life of the Thermal Generating Station should be specified as 35 Years. The life period of some existing Thermal Power Stations is on the verge of completion and it is also uncertain that same will be extended for further period. Therefore, if the Emission Control Systems will be installed in those Coal/Lignite based Thermal Generating Stations, it will be a loss of national property as the Emission Control Systems has also to be retired prematurely. Further, the Consumers will be heavily loaded due to recovery of the cost of the Emission Control System within
		<u>sell it in Power Market as</u> <u>Merchant Power.</u>	a very short period through recovery of depreciation cost. It is therefore, submitted that Hon'ble CERC may consider the life period of such Coal/Lignite based Thermal Power Plants as 35 Years, with acceptance of the Beneficiaries, so that at least 10 years of balance life period can be made available for utilization of the Emission Control System with reasonable burdening of the annual fixed cost on the consumers. In case, the Beneficiary(ies) do not agree to continue for the additional 10 years, then the Generator should sell

			it in Power Market as Merchant Power.
			Further, only the plants having more than 15
			years of balance life should be allowed for
			installation of Emission Control System.
34(aa)	Interest on Working Capital:	Interest on Working Capital:	i) Cost of limestone or reagent towards
	For emission control system of	For emission control system of	determination of Interest on Working Capital
	coal or lignite based thermal	coal or lignite based thermal	should be limited to stock for 20 days
	generating stations:	generating stations:	corresponding to the normative annual plant
	(i) Cost of limestone or	(i) Cost of limestone or reagent	availability factor or the maximum limestone/
	reagent towards stock for	towards stock for 20 days	reagent stock storage capacity of the
	20 days corresponding to	corresponding to the	generating station whichever is lower.
	the normative annual plant	normative annual plant	ii) Due to large no of dynamic (rotating)
	availability factor;	availability factor <mark>or the</mark>	equipment/parts in case of Coal-based/lignite-
	(ii) Receivables equivalent to	<u>maximum limestone/</u>	fired thermal generating stations, calculation
	45 days of supplementary	<u>reagent stock storage</u>	of Interest on Working Capital on account of
	capacity charge and	<u>capacity of the generating</u>	maintenance spares to the extent of 20% of
	supplementary energy	<mark>station whichever is lower</mark> ;	operation and maintenance expenses for coal/
	charge for sale of electricity	(ii) Receivables equivalent to 45	lignite based thermal generating stations
	calculated on the normative	days of supplementary	should not be applicable to Emission Control
	annual plant availability	capacity charge and	System.
	factor;	supplementary energy	iii) Therefore, Maintenance spares should be
	(iii) Operation and maintenance	charge for sale of electricity	realistically considered @ 5% of operation
	expenses in respect of	calculated on the normative	and maintenance expenses in respect of
	emission control system for	annual plant availability	emission control system for the purpose of
	one month;	factor;	Interest on Working Capital.
	(iv) Maintenance spares @ 20%	(iii) Operation and maintenance	
	of operation and	expenses in respect of	
	maintenance expenses in	emission control system for	
	respect of emission control	one month;	
	system.	(iv) Maintenance spares @ 20%	
	[New Insertion]	5% of operation and	
		maintenance expenses in	
		respect of emission control	
		system.	
35(1)(7)	The additional operation and	The operation and maintenance	i) No genesis has been provided for fixing

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	maintenance expenses on	expenses on account of emission	operation and maintenance expenses on
	account of implementation of	control system in coal or lignite	account of emission control system in coal or
	revised emission standards shall	based thermal generating station	lignite based thermal generating station to the
	be notified separately:	shall be $\frac{21}{8}$ % of the admitted	extent of 2% of the admitted capital
	Provided that till the norms are	capital expenditure (excluding	expenditure.
	notified, the Commission shall	IDC & IEDC) as on the date of	ii) Further, as per the Explanatory Memorandum,
	decide the additional O&M	its operation, which shall be	Hon'ble Commission is of the view that due to
	expenses on case to case basis.	escalated annually at the rate of	utilization of common facilities, the increase
	The operation and	3.5% during the tariff period	in Operation and Maintenance Expense may
	maintenance expenses on	ending on 31st March 2024:	not be significant.
	account of emission control	Provided that income generated	iii) Therefore, operation and maintenance
	system in coal or lignite based	from sale of gypsum or other by-	expenses on account of emission control
	thermal generating station	products shall be reduced from	system in coal or lignite based thermal
	shall be 2% of the admitted	the operation & maintenance	generating station should be limited to 1% of
	capital expenditure (excluding	expenses.	the admitted capital expenditure
	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.		
41(2)	The normative consumption of		No genesis has been provided for fixing
	specific reagent for the various		normative consumption of specific reagent for the
	technologies installed for		various technologies installed for meeting revised
	meeting revised emission		emission standards. The same should be obtained
	standards shall be notified		from actual data from Pilot Projects which are
	separately as specified in		specific to Indian conditions rather than on any
	Regulations 49 of these		assumed data.
42(2)	regulations.		
42(2)	Provided that in case of	Provided that in case of	I ne existing proviso should remain unaltered

Proviso	generating station or unit thereof under shutdown due to Renovation and Modernisation <b>or installation of emission</b> <b>control system</b> , as the case may be, the generating company shall be allowed to recover O&M expenses and interest on loan only.	generating station or unit thereof under shutdown due to Renovation and Modernisation or installation of emission control system, as the case may be, the generating company shall be allowed to recover O&M expenses and interest on loan only.	<ul> <li>because:</li> <li>i) In order to fulfill the shortfall in supply by the Generator(s) on account of installation of emission control system, the Beneficiary(ies) may also have to procure the same from the market or other sources even at a higher price, which also need to be taken care of.</li> <li>ii) In order to take care of this, the Generator(s) may provide the same quantum of power to the Discoms by arranging it from other sources.</li> </ul>
49(E)(bb)	Auxiliary Energy Consumption (AUX <sub>e</sub> ) on account of emission control system of thermal generating stations: [New Insertion]		No genesis is provided for fixing the quantum of Auxiliary Energy Consumption as percentage of gross Generation. It is practicable and feasible to adopt the rated consumption parameter of the Emission Control System, as specified/guaranteed by the OEMs instead of the values provided by some plants towards fixing the norm of Auxiliary Consumption for Emission Control System
49(F)	Norms for consumption of reagent: (1)The normative consumption of specific reagent for various technologies for reduction of emission of sulphur dioxide shall be as below: (a) For Wet Limestone based Flue Gas De-sulphurisation (FGD) system: The specific limestone consumption (g/kWh) shall be worked out by following formula: [ 0.85 x K x SHR x S]/[CVPF x LP ] Where,	Norms for consumption of reagent: (1)The normative consumption of specific reagent for various technologies for reduction of emission of sulphur dioxide shall be as below: (a) For Wet Limestone based Flue Gas De-sulphurisation (FGD) system: The specific limestone consumption (g/kWh) shall be worked out by following formula: [ 0.85 x K x SHR x S]/[CVPF x LP ] Where, S = Sulphur content in	<ol> <li>Vide letter dated 20.02.2019, CEA has stated that "Presently, no relevant operational data is available on DeSox and DeNOx systems in the country. The DeSOx systems are under implementation and pilot studies are underway for suitability of DeNOx system for high ash Indian coals."</li> <li>As heavy investment is required on account of installation of Emission Control Systems, which is ultimately to be passed on to the consumers through Tariff, selection of Technology for installation of DeSox and DeNOx systems should be carried out only</li> </ol>

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S = Sulphur content	in percentage,	with sufficient data from pilot projects for
percentage,	LP = Limestone Purity in	Indian Conditions and Indian Coal and should
LP = Limestone Purity	in percentage,	not be experimented on all the Generators
percentage,	SHR= Gross station heat rate, in	with any assumed data
SHR= Gross station heat rate	in kCal per kWh;	with any assumed data.
kCal per kWh;	CVPF = (a) Weighted Average	3. As per recommendation of CEA, GCV is one
CVPF = (a) Weighted Avera	ge Gross calorific value of coal as	of the parameters in the following empirical
Gross calorific value of coal	as received at colliery end, in kCal	formula for calculation of specific
received, in kCal per kg for c	bal per kg for coal based stations	consumption of limestone
based stations less 85 Kcal/	Kg <mark>l<del>ess 85 Kcal/Kg on account of</del></mark>	consumption of ninestone.
on account of variation dur	ng <mark>variation during storage at</mark>	As per Cl. No. A(1) of Annexure-1 of CEA
storage at generating station;	<del>generating station</del> ;	recommendations on additional operation
(b) Weighted Average Gr	oss (b) Weighted Average Gross	norms on implementation of new
calorific value of primary f	el calorific value of primary fuel as	environmental emission control measures,
as received, in kCal per kg,	per received, in kCal per kg, per litre	Specific consumption of limestone =
litre or per standard cubic me	er, or per standard cubic meter, as	<u>K x Normative heat rate(kcal/kWh) x Sulphur content of coal (%)</u> g/kWh
as applicable for lignite, ba	ed applicable for lignite, based	As per Regulation 49(F) of Draft CERC
stations;	stations;	(Terms and Conditions of Tariff) (First
Provided that value of K sh	all Provided that value of K shall be	Amendment) Regulations 2020 the stage of
be equivalent to (35.2 x Des	gn equivalent to (35.2 x Design	'As received GCV' CVPF = Weighted
SO2 Removal Efficiency/96	%) SO2 Removal Efficiency/96%)	Average Gross calorific value of coal as
for units to comply with S	D2 for units to comply with SO2	received in kCal per kg for coal based
emission norm of 100/2	00 emission norm of 100/200	stations less 85 Kcal/Kg on account of
mg/Nm3 or (26.8xDesign S	D2 mg/Nm3 or (26.8xDesign SO2	variation during storage at generating station
Removal Efficiency/73%)	for Removal Efficiency/73%) for	
units to comply with S	D2 units to comply with SO2	Therefore, as per CERC Tariff Regulations.
emission norm of 600 mg/Nn	3; emission norm of 600 mg/Nm3;	2019. Energy Charge Rate (ECR) has to be
Provided further that	he Provided further that the	computed on the basis of Weighted Average
limestone purity shall not	be limestone purity shall not be less	Gross Calorific Value or GCV of coal as
less than 85%.	than 85%.	received, in kCal per kg for Coal based
(b) For Lime Spray Dryer	or (b) For Lime Spray Dryer or	Stations less 85 Kcal/Kg on account of
Semi-dry Flue (	as Semi-dry Flue Gas	variation during storage at generating station.
Desulphurisation (FG	D) Desulphurisation (FGD)	In the said regulation, GCV 'as received' has
system: The specific li	ne system: The specific lime	been defined as the GCV of coal as measured
consumption shall be work	ed   consumption shall be worked out	

out based on minimum purity of	based on minimum purity of	at the unloading point of the thermal
lime (PL) as at 90% or more by	lime (PL) as at 90% or more by	generating station.
applying formula [0.90x6	applying formula [0.90x6	a) In this connection, it is to submit that
/PL(%)] gm/kWh;	/PL(%)] gm/kWh;	GRIDCO has filed an Appeal no. 238 of
(c) For Dry Sorbent Injection	(c) For Dry Sorbent Injection	2017 in APTEL, where it has been argued
System (using sodium	System (using sodium	that the "as received" stage is at the
bicarbonate): The specific	<b>bicarbonate</b> ): The specific	Colliery end as per the terms and
consumption of sodium	consumption of sodium	conditions of the Eucl supply Agreement
bicarbonate shall be 12 gm per	bicarbonate shall be 12 gm per	between Coal Supplier and Generator. The
kWh at 100% purity.	kWh at 100% purity.	appeal has already been admitted by
(d) For CFBC Technology	(d) For CFBC Technology	APTEL on Dt. 2010 2017 and is nonding
(furnace injection) based	(furnace injection) based	APTEL on Dt. 30.10.2017 and is pending
generating station: The	generating station: The specific	for nearing.
specific limestone consumption	limestone consumption for	b) Further, GRIDCO in its views on the Draft
for CFBC based generating	CFBC based generating station	CERC Tariff Regulations, 2019 had taken
station (furnace injection) at	(furnace injection) at 85% purity	the above stand that GCV 'as received' is
85% purity limestone (kg/kWh)	limestone (kg/kWh) shall be	at colliery end and ECR should be
shall be computed with the	computed with the following	computed on the basis of GCV computed
following formula:	formula:	at colliery end. However, Hon'ble CERC
$\begin{bmatrix} 62.9 \times 5 \times 5 \text{HK} / \text{CVPF} \end{bmatrix} \times$	$\begin{bmatrix} 62.9 & X & X & SHK / CVPF \end{bmatrix} X$	has stipulated the stage of "As received"
[U.85/LP] Where	[U.83/LP] Whore	GCV as determined at Generating station
S = Sulphur content in	$S_{-}$ Sulphur content in	end less 85 kcal/kg on account of variation
percentage	S- Supriur Content III	during storage at generating station. The
I P – Limestone Purity in	IP – Limestone Purity in	same stipulation has also been mentioned
nercentage	nercentage	for calculation of specific consumption of
SHR= Gross station heat rate, in	SHR= Gross station heat rate, in	limestone at Regulation 49(F) of Draft
kCal per kWh.	kCal per kWh.	CERC (Terms and Conditions of Tariff)
CVPF = (a) Weighted Average	CVPF = (a) Weighted Average	(First Amendment) Regulations, 2020,
Gross calorific value of coal as	Gross calorific value of coal as	c) After publication of the CERC Tariff
received, in kCal per kg for coal	received at colliery end, in kCal	Regulations, on Dt. 08.05.2019, CERC has
based stations less 85 Kcal/Kg	per kg for coal based stations	come out with 'A Terms of Reference' for
on account of variation during	l <del>ess 85 Kcal/Kg on account of</del>	"Engagement of Consultant", in which it is
storage at generating station;	variation during storage at	inter-alia stated to ascertain for risk
(b) Weighted Average Gross	generating station;	

	calorific value of primary fuel	(b) Weighted Average Gross	allocation between the Coal Company,
	as received, in kCal per kg, per	calorific value of primary fuel as	Railways, and the Generating stations for
	litre or per standard cubic	received, in kCal per kg, per litre	loss of GCV from colliery end to
	meter, as applicable for lignite,	or per standard cubic meter, as	Generating station end. The outcome on
	based stations;	applicable for lignite, based	the decision of such risk allocation is yet to
	(e) For Sea Water based Flue	stations;	be published by Hon'ble CERC.
	Gas Desulphurisation (FGD)	(e) For Sea Water based Flue	d) GRIDCO has also challenged the CERC
	system: The reagent used is sea	Gas Desulphurisation (FGD)	Tariff Regulations 2019 in Hon'hle High
	water, therefore there is no	system: The reagent used is sea	Court of Orissa with a prayer that the stage
	requirement for any normative	water, therefore there is no	of 'CCV as received' should be as
	formulae for consumption of	requirement for any normative	determined at colliers and for computation
	reagent.	formulae for consumption of	acternmed at comery end for computation
	(2) The normative consumption	reagent.	of ECR. The writ Petition has been
	of specific reagent for various	(2) The normative consumption	admitted by the Hon'ble High Court on
	technologies for reduction of	of specific reagent for various	Dt.19.12.2019 and pending for hearing.
	emission of oxide of nitrogen	technologies for reduction of	In view of the pendency of the GRIDCO's
	shall be as below:	emission of oxide of nitrogen	Appeal/Writ Petition in Hon'ble APTEL and
	(a) For Selective Non	shall be as below:	Hon'ble High Court of Odisha & decision of
	Catalytic Reduction (SNCR)	(a) For Selective Non Catalytic	CERC on risk allocation towards loss of GCV
	System: The specific urea	Reduction (SNCR) System:	from Colliery end to Generating Station end, it
	consumption of SNCR system	of SNCP system shall be 1.2 cm	is submitted that the GCV for computation of
	shall be 1.2 gill per kwil at	of SINCK system shan be 1.2 gm	consumption of limestone may be specified as
	(b) For Selective Catalytic	(b) For Selective Catalytic	GCV as received at colliery end'.
	(D) FOF Selective Catalytic Deduction (SCD) System: The	(D) FOF Selective Catalytic Deduction (SCD) System: The	
	specific ammonia consumption	specific ammonia consumption	
	of SCR system shall be 0.6 gm	of SCR system shall be 0.6 gm	
	per kWh at 100% purity of	per kWh at 100% purity of	
	ammonia	ammonia	
Appendix_1	Depreciation Schedule	Depreciation Schedule of Assets	Depreciation Schedule for Emission Control
Appendix-1	Depreciation Schedule	needs to be modified in order to	System need to be specified to determine schedule
		accommodate Emission Control	of repayment of loans and return on equity
1			or repayment of tours and totall of equity.

GRIDCO reserves it right to make any further submissions at the time of Public Hearing by Hon'ble CERC.

## Annexure-I PART-1 FORM-16A

## <u>Details of Reagent for</u> <u>Computation of Supplementary Energy Charge Rate</u>

Name of the Petitioner:\_\_\_\_\_

Name of the Generating Station:

			For preceding	For preceding	For preceding
Sl.No.	Details	Unit	3rd Month	2nd Month	1st Month
			(from COD <sub>e</sub> )	(from COD <sub>e</sub> )	(from COD <sub>e</sub> )
Α.	<b>OPENING QUANTITY:</b>				
1	Opening Quantity of Reagent	Tonne			
2	Value of Stock	(Rs.)			
<b>B.</b>	QUANTITY:				
3	Quantity of Reagent supplied by Limestone				
	supply Company				
4	Adjustment (+/-) in quantity supplied made by				
	Limestone or Reagent supply Company				
5	Net quantity of Reagent Received (3±4)				
C.	PRICE:				
6	Amount charged for Reagent supply Company	(Rs.)			
7	Adjustment (+/-) in amount charged made for				
	Reagent supply by the Company	(Rs.)			
8	Total amount Charged (6±7)	(Rs.)			
D.	TRANSPORTATION:				
9	Transportation charges by rail/ship/road	$(\mathbf{D}_{\mathbf{z}})$			
	transport	(KS.)			
10	Adjustment (+/-) in amount charged made by	$(\mathbf{D}_{\alpha})$			
	Railways/Transport Company	(KS.)			
11	Demurrage Charges, if any	(Rs.)			
12	Total Transportation Charges (9±10-11)	(Rs.)			
E.	TOTAL COST:				
13	Total amount Charged for Reagent supplied	$(\mathbf{D}_{\alpha})$			
	including Transportation (8+12)	(KS.)			
14	Weighted Average Cost of Reagent during the	(Da/Tanna)			
	month	(Ks/1onne)			
F.	QUALITY:				
15	Purity of Reagent received during the month	(%)			