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भारत सरकार
Government of India
विद्युत मंत्रालय
Ministry of Power
केंद्रीय विद्युत प्राधिकरण
Central Electricity Authority
विद्युत प्रणाली योजना एवं मूल्यांकन प्रभाग-II
Power System Planning & Appraisal Division-II

To,

All Stakeholders in power sector (through website of CEA)

Subject:- Verification Mechanism for export of power from eligible fuel by generating stations under Import/Export (Cross Border) of Electricity {IECBE} Guidelines 2018 – reg.

Ministry of Power, Govt. of India have issued the "Guidelines for Import/Export (Cross Border of Electricity – 2018" vide Office Memorandum No.14/1/2017-Trans dated 18th December,2018. The Ministry of Power had also appointed Member (Power System), Central Electricity Authority(CEA) as Designated Authority under these guidelines on 24th December,2018. The Procedure for Approval and Facilitating Import/Export (Cross Border) of Electricity by the Designated Authority has also been issued on 26th February,2021.

There may be cases where a Generating Station exporting power, would be using domestic or other categories of coal, in addition to imported coal/spot e-auction coal/coal obtained from commercial mining which are only eligible fuel for export of electricity. For such cases, the Ministry of Power has also approved the "Verification Mechanism for export of power from eligible fuel by generating stations under Import/Export (Cross Border) of Electricity – Guidelines 2018".

Accordingly, this Verification Mechanism, as approved by the Competent Authority in Ministry of Power, is enclosed herewith.

Yours faithfully,

(Signature)
 19/03/2021
 (Pardeep Jindal)

Nodal Officer to the Designated Authority
 & Chief Engineer(PSPA-II)

Copy to:-

1. Additional Secretary(IC/Trans/Th), Ministry of Power, New Delhi.
2. Joint Secretary(Trans)/Joint Secretary(Hydro), Ministry of Power, New Delhi.
3. Secretary, CERC, New Delhi.
4. CMD, POWERGRID, Gurugram.
5. CMD, POSOCO, New Delhi.
6. COO, CTU, Gurugram.
7. CEO, NVVN, New Delhi.

Verification Mechanism for Export of Power from eligible fuel by Generating Stations

A. Introduction:

1. Ministry of Power, Govt. of India have issued the "Guidelines for Import/Export (Cross Border) of Electricity-2018" on 18th December, 2018. As per clause 5.2 of the guidelines, the eligibility and conditions for participation in the Export of Electricity are:

"5.2 (a) Generating Companies/ Distribution Companies of India may export electricity generated by coal or gas or renewable energy or hydropower, to Entities of neighbouring country(ies) directly or through trading licensee(s) of India, after taking approval of the Designated Authority.

However, in case of electricity generated from coal based generating plants, export of electricity from India by a generating company/ distribution licensee directly or through trading licensee shall be allowed only where such electricity is generated utilizing imported coal or spot e-auction coal or coal obtained from commercial mining.

Further, in case of electricity generated from gas based generating plants, export of electricity from India by a generating company/ distribution licensee directly or through trading licensee shall be allowed only where such electricity is generated utilizing imported gas.

(b) In case of export through bilateral agreement between two countries, the Government of India may designate an Entity for export of power."

2. Further, Ministry of Power, Govt. of India vide its OM dated 24th December, 2018, had appointed Member (Power System), Central Electricity Authority as Designated Authority for carrying out the functions prescribed under the Guidelines.
3. There may be cases where a Generating Stations exporting power, would be using domestic or other categories of coal, in addition to imported coal/ spot e-auction coal/coal obtained from commercial mining which are only eligible fuel for export of electricity. For such cases, Ministry of Power (MoP) vide letter no 14/1/2017-Trans-Pt(4) dated 31.07.2020 has requested the Designated Authority (DA) to ensure that there is no mix up of domestic coal for quantum to be exported. As such, MoP has asked DA to prepare a verification mechanism to ensure that only the approved category of coal mentioned under clause 5.2 of the Guidelines for Import/Export (Cross Border) of Electricity-2018 gets utilized to generate power for exporting outside the country.
4. Accordingly, a Verification Mechanism has been prepared.

B. Information required from applicants/ participating entity:

5. At the time of making application to the Designated Authority for approval of the transaction, the applicant need to furnish additional information regarding the generators like, Installed Capacity, Normative Auxiliary Consumption, Station Heat Rate, Coal types, grade, GCV_{ARB} and their stock at the end of previous month in the format enclosed at Annex-I.
6. Similarly, the participating entity would require to submit the information with documentary proof, regarding coal type, grade, coal GCV_{ARB} , opening stock, receipts in the month and closing stock in format enclosed at Annex-II. GCV_{ARB} need to be calculated for each coal type should be calculated as per provisions mentioned at Annex-III. Further, weighted average GCV_{ARB} for the month can be considered for same category of coal. The participating entity also need to submit scheduled energy of the generator to the buyers in the format enclosed at Annex-IV. All the data need to be furnished on monthly basis, to be reconciled on quarterly basis and certified by the generator. The information of the completed month shall be furnished by 15th day of following month.
7. Further, following information would be obtained every month from Regional Power Committee Secretariats (RPCs)/Regional Load Despatch Centers (RLDCs/State Load Despatch Centers (SLDCs), who are responsible for accounting of energy of the generator.
 - (a) Actual Generation in the month, in the format enclosed at Annex-V.
 - (b) Ex- bus schedule of the generator to various buyers, in the format enclosed at Annex-VI.

C. Methodology:

8. After receipt of data as mentioned in Section-B, following steps would be carried out:
 - (i) Using Gross Calorific Value (GCV_{ARB}) (kcal/kg) of the different type of coals and Station Heat Rate (SHR) (kcal/kwh), specific coal consumption (SCC) (kg/kwh) will be calculated($SCC = SHR/GCV$).
 - (ii) Fuel consumption (FC) in the month for each category of fuel will be calculated by adding opening stock of the fuel on first day of the month and receipt of fuel in the month, then subtracting closing stock of the fuel on last day of the month.
 - (iii) Gross Generation (GG) will be calculated by dividing the fuel consumption per month by the Specific coal consumption for each type of fuel. ($GG = FC/SCC$).
 - (iv) Ex bus scheduled energy to buyers (SCH) including schedule of cross border export (SCE) and Actual Generation (AG), both in million units (MUs) provided by the generators would be verified from the data provided by the

RPCs/RLDCs/SLDCs. In case of mismatch in the data provided by the generator and RPCs, data provided by RPCs/RLDCs/SLDCs would be considered as final.

- (v) Actual generation from each category of fuel (ACF) will be calculated by apportioning total actual generation(AG) into the ratio of fuel wise gross generation as obtained in step (iii) above (i.e. $ACF_i = (GG_i / \sum GG_i) \times AG$). Actual Cross-border export (ACE) will be sum of ACF from the categories of fuel which are eligible for export.
- (vi) The ACE will be compared with the scheduled cross-border export (SCE). The difference between ACE and SCE will be termed as Deviation ($D = ACE - SCE$).
- (vii) Percentage deviation will be the Deviation divided by SCE and multiply by 100. For compliance of the Guidelines, the value of D should not be negative.

D. Treatment of deviations:

- 9. Deviations calculated at para 8(vii) will be treated as follows:
 - (a) Considering errors in measurements/ normative values of various parameters etc., the deviation percentage in the range of $\pm 2\%$ will not be treated as violation.
 - (b) If the D is negative i.e. generator has generated less energy from eligible fuels for export by more than 2%, the generator has to compensate the excess energy from the export eligible fuel within next 3 months. If there is standing deviation at the end of the term of export, then the generator should demonstrate use of eligible fuel by submitting the information as per Annex-II and Annex-III, for a maximum of 3 months beyond the term of export.
 - (c) In case of non-compliance of the export from eligible fuel source, the generator shall be debarred for export for 3 years.

Additional information to be furnished by the applicant to the Designated Authority, if the generating station also uses the fuel not eligible for power export

(A) Name of generator:

(B) Installed Capacity (Unit wise) (IC):

(C) Normative Auxiliary Consumption (AUX %):

(D) Station Heat Rate (kcal/kwh) (SHR):

(E) Fuel information at the end of recent month:

S.No.	Fuel	Grade	Gross Calorific Value (GCV _{ARB}) (kCal/kg)	Export eligibility	Closing stock as on last day of the month (MT)
(a)	(b)	(c)	(d)	(e)	(f)
1.	Imported			YES	
2.	Spot e- auction				
3.	Commercial Mining				
4.	Linkage			NO	
5.	Captive				
6.	Special forward e-auction				
7.	Others				
8.	.				
9.	.				

Annex-II

Monthly information to be furnished by the participating entity to the Designated Authority for the generating stations using the fuel not eligible for power export

(A) Month:

(B) Installed Capacity (Unit wise) (in MW) :

(C) Normative Auxiliary Consumption (AUX %):

(D) Station Heat Rate (kcal/kwh) (SHR):

(E) Total generation schedule in the month (MUs) (SCH):

(F) Ex-bus Actual generation in the month (MUs) (AG):

(G) Fuel information :

S.No	Fuel	Grade	Export eligibility	Gross Calorific Value (GCV _{ARB}) (kCal/kg)	Opening Stock as on 1 st day of the month (MT)	Receipt in the month (MT)	Closing stock as on last day of the month (MT)	Specific Coal Consumption (SCC) (kg/kwh)
(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)
1.	Imported		YES					
2.	Spot e-auction							
3.	Commercial Mining							
4.	Linkage		NO					
5.	Captive							
6.	Special forward e-auction							
7.	Others							
8.	.							
	.							

Note :

1.Relevant documents as proof of the figures in column (e) to (h) need to be furnished by the participating entity duly certified by the generator.

Provisions for calculation of GCV_{ARB}

1. The GCV of domestic coal at loading end (mine end) is determined on equilibrated basis (60% RH and 40° C). Therefore, the actual GCV received & fired in boiler (GCV_{ARB}) is different than the equilibrated GCV (GCV_{EM}) determined at the loading point. Hence, the GCV of coal may be considered after allowing an adjustment for total moisture as per the formula given as under:

$$GCV_{ARB} = [GCV_{EM} \times (100 - TM)] / (100 - EM)$$

Where:

GCV_{ARB} = Gross Calorific Value of coal after moisture correction (kcal/kg),

GCV_{EM} = Gross Calorific Value of coal on Equilibrated basis (60% RH & 40° C) (kcal/kg),

TM = Total moisture (in%),

EM = Equilibrated moisture (in%).

2. Further, in accordance with the provisions of Central Electricity Regulatory Commission (Terms and Conditions of Tariff) Regulations, 2019, the Transit and Handling loss of coal for pithead thermal power station as 0.2 % of the coal quantity and that of non-pit head station as 0.8 % of the coal quantity can be considered. However, these losses are pertaining to the quantity of the coal and do not have any impact on the GCV of the coal.
3. GCV of the coal is decreased over a period as a result of the storage in the coal yard. Consequently, CERC Tariff Regulation 2019 has stipulated that GCV of the coal as received in kCal per kg is reduced by 85 Kcal/Kg on account of variation during storage at generating station.

Accordingly, GCV_{ARB} calculated at point (1) above may be adjusted in line with above referred provisions of CERC regulation.

Annex-IV

Ex bus Scheduled energy of the generator(s) to be submitted by the participating entity for the month:

Buyer	Domestic/Export	Energy Scheduled (MU)
(a)	(b)	(c)
Buyer 1		
Buyer 2		
Buyer 3		
.		
.		
Buyer N		
Total scheduled energy (SCH)		

Note : The information need to be furnished by the participating entity duly certified by the generator.

