



ग्रिड कंट्रोलर ऑफ इंडिया लिमिटेड
(भारत सरकार का उद्यम)
GRID CONTROLLER OF INDIA LIMITED
(A Government of India Enterprise)



[formerly Power System Operation Corporation Limited (POSOCO)]

राष्ट्रीय भार प्रेषण केन्द्र / National Load Despatch Centre

कार्यालय : बी-9, प्रथम एवं द्वितीय तल, कुतुब इंस्टीट्यूशनल एरिया, कटवारिया सराय, नई दिल्ली - 110016
Office : 1st and 2nd Floor, B-9, Qutab Institutional Area, Katwaria Sarai, New Delhi -110016
CIN : U40105DL2009GOI188682, Website : www.grid-india.in, E-mail : gridindiacc@grid-india.in, Tel.: 011- 42785855

संदर्भ: NLDC/CERC/Sept-24/

दिनांक: 30th Sept 2024

सेवा में,

All the Stakeholders

विषय: Stakeholder Consultation on Draft Procedure for Mechanism of Compensation for Degradation of Heat Rate, Auxiliary Consumption and Secondary Fuel Oil Consumption due to Part Load Operation and Multiple Start/Stop Of Units – Regarding

संदर्भ: Central Electricity Regulatory Commission (Terms and Conditions of Tariff) (First Amendment) Regulations, 2024

महोदय/महोदया,

Hon'ble commission vide notification dated 02.08.2024 has published Central Electricity Regulatory Commission (Terms and Conditions of Tariff) (First Amendment) Regulations, 2024. As per the Clause-10.4.(10) of draft regulation NLDC is required to prepare a procedure on the mechanism to work out the compensation for degradation of heat rate, auxiliary consumption and secondary fuel oil consumption due to part load operation and multiple start and stop of units of the generating station.

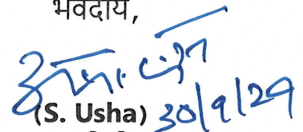
Accordingly a draft procedure is uploaded on website (<https://grid-india.in/notices/>) for wider stakeholder consultation.

The Hon'ble Commission has desired that the procedures under the regulations be issued expeditiously and hence, this consultation is being carried out ahead of the notification of the final regulations.

Stakeholders are invited to submit their suggestions/feedback to marketopsnlcdc@grid-india.in at the earliest but not later than 10th October 2024.

सधन्यवाद,

भवदीय,


(S. Usha) 30/9/24

मुख्य महाप्रबंधक, (प्रभारी), रांभांप्रेकें

Copy for kind information:

1. Director – Market Operation/System Operation, GRID-INDIA
2. All RLDC Heads

**CENTRAL ELECTRICITY REGULATORY COMMISSION
NEW DELHI**

Dated

**DRAFT PROCEDURE FOR MECHANISM OF COMPENSATION FOR
DEGRADATION OF HEAT RATE, AUXILIARY CONSUMPTION, AND
SECONDARY FUEL OIL CONSUMPTION DUE TO PART LOAD OPERATION AND
MULTIPLE START/STOP OF UNITS**

1. Definitions and abbreviations:

1. In this Compensation Mechanism, unless the context otherwise requires:

(i) "Average Unit Loading (AUL) of the Station" (in %) means loading of the station during the Calculation Period determined as follows:

$$\text{AUL(\%)} = \left\{ \frac{\text{Effective Generation of Station (in MWhr)}}{\text{Effective Capacity (in MWhr)}} \times (1 - \text{Normative Auxiliary Energy Consumption}) \right\} \times 100$$

(ii) "Calculation Period" means the month for which compensation calculation shall be carried out.

(iii) "Comp (F)" means reconciled final compensation in rupees to be received by a generator during the calculation period based on actual and normative parameters, including degraded SHR and AEC based on average unit loading.

(iv) "Comp (P)" means provisional compensation in rupees computed for the calculation period based on the normative parameters and degraded SHR and AEC based on average unit loading.

(v) "EC (A)" means total energy charges in rupees computed for a designated generating station during the calculation period on actual parameters of SHR and AEC.

(vi) "EC (N)" means total energy charges in rupees computed for a designated generating station during the calculation period on normative parameters considering degraded SHR and AEC based on average unit loading.

(vii) "Effective Capacity" in MWhr means the maximum possible generation from a station during the calculation period and shall be calculated as:

Total Installed Capacity of the designated generating station (in MWhr) is minus Installed Capacity (MW) of the Unit(s) of the said station under outage (planned or forced outage) and under reserve shut down during the calculation period X outage time.

(viii) "ECR (Comp)" means an increase in the normative Energy Charge Rate in Rs/kWh for the calculation period considering degraded SHR and AEC based on average unit loading.

(ix) "ECR (DC)" means Energy Charge Rate in Rs/kWh based on degraded SHR and AEC considering the average Declared Capacity (DC) as average unit loading during the calculation period.

(x) "ECR (SE)" means Energy Charge Rate in rupees/kWh based on degraded SHR and AEC considering average unit loading of the generating station during the calculation period.

(xi) "Effective Generation" in MWhr means the actual generation ex- bus of the designated station or the Schedule generation excluding the schedule under TRAS, SRAS and bilateral sale/ collective sale under open access during the calculation period whichever is higher.

(xii) "Ancillary Regulations" means Central Electricity Regulatory Commission (Ancillary Services Operations) Regulations, 2022.

(xiii) "Tariff Regulations" means Central Electricity Regulatory Commission (Terms and Conditions of Tariff) Regulations, 2024, as amended from time to time or any subsequent enactment thereof.

2. Terms and abbreviations used in this Compensation Mechanism but not defined herein shall have the meaning as assigned to them in the Electricity Act, 2003 or the Grid Code or other Regulations of the Commission as notified from time to time.

2. Mechanism for working out Compensation

1) Compensation for degradation of Heat Rate (SHR) and Auxiliary Energy Consumption (AEC)

- (i) The Compensation shall be worked out for a month on a cumulative basis considering degradation in SHR and AEC based on Average Unit Loading, subject to reconciliation at the end of the year.
- (ii) Energy scheduled under Ancillary Regulations shall be taken as +ve for up-regulation and -ve for down regulation. Similarly, energy scheduled under SCED shall be taken as +ve for increase and -ve for decrease.
- (iii) Based on the values of increased SHR and AEC arrived above, Energy Charge Rate (ECR) for Average Unit Loading %, i.e. ECR (SE) for the station shall be calculated using the formula specified in Tariff Regulations of the Commission.
- (iv) ECR corresponding to Declared Capacity (DC), i.e., ECR (DC) shall also be calculated using the formula specified in the Tariff Regulations of the Commission and used as a reference for calculating compensation. This is because the effect of less declaration (with respect to normative ex-bus Installed capacity), if any, on the SHR and AEC should be to the account of the regional entity generating station/ISGS:
- (v) The compensation to be paid to designated stations for the calculation period ending the nth month shall be the difference in the ECR (SE) and ECR (DC) for that period. ECR (Comp) for the calculation period ending nth month shall be calculated as:

$$ECR_n (\text{Comp}) = ECR_n (\text{SE}) - ECR_n (\text{DC})$$

- (vi) The compensation $Comp_n (P)$ payable to CGS/ISGS for the calculation period ending nth month shall be calculated as below:

$$Comp_n (P) = (Total\ Generation\ Schedule\ (Energy)\ to\ its\ original\ beneficiaries\ excluding\ schedule\ under\ TRAS,\ SRAS\ \&\ bilateral\ sale/\ collective\ sale\ under\ open\ access) * ECR_n (Comp)$$

$ECR_n (A)$ for the calculation period shall be calculated using actual values of SHR and Aux Consumption furnished by CGS/ISGS at the end of the calculation period and normative secondary fuel oil consumption as per CERC Tariff Regulation for which the requisite information shall be submitted by the generating station to the concerned RPCs Secretariat.

Similarly, $ECR_n(N)$ shall be calculated using normative values of SHR and Aux Consumption and normative secondary fuel oil consumption as per CERC Tariff Regulation furnished by CGS/ISGS.

- (vii) Now, the following values shall be calculated:

- (a) Total Energy Charges for the station computed on actual parameters

$$EC_n(A) = ECR_n(A) \times (Total\ Generation\ Schedule\ (Energy)\ to\ its\ beneficiary\ excluding\ schedule\ under\ TRAS,\ SRAS\ \&\ bilateral\ sale/\ collective\ sale\ under\ open\ access\ during\ the\ calculation\ period\ ending\ n^{th}\ month)$$

- (b) Total Energy Charges payable to the station based on Normative parameters

$$EC_n(N) = ECR_n(N) \times (Total\ Generation\ Schedule\ (Energy)\ to\ its\ beneficiary\ excluding\ schedule\ under\ TRAS,\ SRAS,\ bilateral\ sale/\ collective\ sale\ under\ open\ access\ during\ the\ calculation\ period\ ending\ nth\ month)$$

- (viii) Compensation payable for the calculation period ending the nth month to CGS/ISGS would be decided based on the following criteria:

- (a) If $EC_n (A)$ is less than or equal to the sum of $EC_n (N)$ and $Comp_n (P)$:

The gain, i.e., the difference between the sum of {EC_n(N) and Comp_n(P)} and EC_n(A) amount restricted to Comp_n(P), shall be shared between the generating station and beneficiaries in the ratio of 60:40.

Comp_n(F) = Comp_n(P) less the amount of gain to be shared with the beneficiary.

(b) If EC_n(A) is more than EC_n(N) and Comp_n(P):

there shall be no sharing of compensation between the generating station and the beneficiary, and Comp_n(P) shall be Comp_n(F) for the calculation period ending the nth month

$$\text{Comp}_n(\text{F}) = \text{Comp}_n(\text{P})$$

(ix) Compensation payable for the calculation period to Final Compensation payable by kth beneficiary for the calculation period:

(a) No compensation shall be payable by beneficiaries if it has requisitioned at least 85% of its entitlement during the calculation period.

(b) The compensation amongst other beneficiaries shall be shared in the ratio of un-requisitioned energy below 85% of their entitlement, i.e., the compensation payable by the kth beneficiary for the calculation period entitlement during the calculation period.

$$\text{FCB}_{kn} = \text{Comp}_n(\text{F}) \times \left\{ \frac{\text{UE}_{kn}}{\sum_k \text{UE}_{kn}} \right\}$$

Where UE_{kn} is un-requisitioned energy of kth beneficiary below 85% of its entitlement during the calculation period.

(x) However, adjustments shall be carried out for compensation already paid for the calculation period ending (n-1)th month

Net compensation payable/ receivable by kth beneficiary for the nth month

$$NCB_{kn}=FCB_{kn} - FCB_{k(n-1)}$$

If NCB_{kn} is negative, this is the amount payable by ISGS to the beneficiary and vice versa. This way, reconciliation would automatically take place at the end of the Financial Year.

2) Calculation for Secondary Fuel Oil consumption:

- (i) No compensation for degradation of Secondary Fuel oil consumption is payable for the year if a total number of start-ups is equal to or less than 7 x the number . of units in the generating station or the Actual Secondary Fuel Oil consumption is less than Normative Fuel Oil Consumption.
- (ii) Compensation (in terms of KL of Secondary Oil) shall be payable to CGS/ISGS for the year due to degradation of Secondary Fuel Oil Consumption shall be calculated by multiplying the number of start-ups exceeding 7 per unit and solely attributable to reserve shut-downs with the appropriate value of additional secondary oil consumption specified in Regulation.
- (iii) Compensation in terms of Rupees shall be calculated by multiplying compensation in terms of KL as calculated in step (ii) and the average landed price of Secondary fuel oil for the year.
- (iv) Compensation payable to ISGS shall be restricted such that Oil Consumption based on Norms plus Compensation calculated in step (iii) above does not exceed actual Secondary Fuel oil consumption for the year.
- (v) Each start-up due to unit shutdown shall be attributed to the beneficiaries who had requisitioned below the minimum turndown level of their entitlement.

- (vi) Compensation (in terms of Rupees) shall be shared amongst the beneficiaries in the following manner:-

Compensation payable by beneficiary i

$$= (N_i \times \frac{A_i}{\sum(N_i \times A_i)}) \times \text{Compensation payable to ISGS}$$

Where

N_i = Number of start-ups attributable to the beneficiary i.

A_i = Weightage Average Percentage share of the beneficiary in the generating station

- (vii) The CGS/ISGS is to take all due care to keep a check on secondary oil use during part operations and during start-ups to the extent possible. The respective RPC Secretariat shall review the secondary oil consumption of plants on a quarterly basis along with concerned RLDC and CGS/ISGS to find out high consuming plants and reasons for high consumption and for suggesting measures to mitigate excess use of secondary oil to the extent possible.

3. Calculation of Compensation, Billing, and Submission of Data by the Generator

- (i) The generating station shall calculate the compensation as specified in these procedures and bill the same to beneficiaries along with its monthly bill, which shall be subject to adjustment based on the compensation statement issued by the RPC Secretariat subsequently.
- (ii) The generating station shall submit the requisite data along with compensation calculation to the RPC secretariat as prescribed in Annexure-I to this procedure for a month by the 15th day of the following month. The data to be submitted are for the month and reconciled up to the month.

4. Issuance of compensation statement

- (i) The RPC secretariat will issue the compensation statement along with the final REA for the month.

- (ii) In case any anomaly or discrepancy is noticed by any Utility, the same may be brought to the notice of Member Secretary of the concerned RPC within 15 days of issuance of Compensation Statement.

-// Annexure-I //

Information to be submitted by ISGS to the RPC Secretariat by 15st of each month (say in April) for the previous month (say of March)

Sr. No (a)	Particulars (b)	Unit No 1 (c)	Unit No 2 (d)	Unit No 3 (e)	Unit No 4 (f)	Total (g)
1	Installed capacity/MCR					
2	Planned outage/Tripped (Hrs)					
3	On bar hrs					
4	Normative SHR or Net SHR as the case may be					
5	Normative SFC					
6	CVSF					
7	LPPF					
8	LPSFi					
9	Normative LC					
10	LPL					
11	Normative Aux. Cons					
12	Actual GHR/SHR					
13	Actual SFC					

14	Actual LC					
15	Actual Aux. Cons					
16	USD start /stop in the month					
17	USD start/stop cumulative					
18	Total no. of Start /stop during year					
19	CVPF					