Dated:24.1.2019

Secretary,
Central Electricity Regulatory Commission,
3rd & 4th Floor, Chandralok Building,
36 Janpath, NEW DELHI-110001.

Ref: No. L-1/236/2018/CERC dated 07.1.2019

Sir,

The kind attention of the Hon'ble Commission is drawn to the following two aspects of Draft Tariff Regulations 2019:

1. **Sharing of gains due to variation in norms (Chapter 14, Rule 70)**

The proposed rule reads as under

".....

70. Sharing of gains due to variation in norms: (1) The generating company or the transmission licensee shall workout gains based on the actual performance of applicable Controllable parameters as under:

*i) **Station Heat Rate**;*
ii) Secondary Fuel Oil Consumption;
*iii) **Auxiliary Energy Consumption**; and*
iv) Re-financing, Re-structuring of Loans or otherwise change in Interest Rate of Loan.

*(2) The financial gains by the generating company or the transmission licensee, as the case may be, on account of controllable parameters shall be shared between generating company or transmission licensee and the beneficiaries or long term transmission customers, as the case may be, **on monthly basis** with annual reconciliation. The financial gains computed as per the following formulae in case of generating station other than hydro generating stations on account of operational parameters as shown in Clause 1 of this Regulation shall be shared **in the ratio of 50:50** between the generating stations and beneficiaries.*

Net Gain = (ECRN– ECRA) x Scheduled Generation

....." (Emphasis supplied)

Comments:

The sharing as envisaged above, if done on a monthly basis, will be at variance with the DOP on Reserve Shutdown and Compensation Mechanism as issued by the Hon'ble Commission vide

order dated 5th may 2017 consequent to IEGC 4th amendment dated 06.4.2016 which provides for the following definition of calculation-period in Rule 3.1(ii) under Appendix-II:

> *".....*
>
> ***3. Definitions and abbreviations:***
> *3.1 In this Compensation Mechanism, unless the context otherwise requires:*
> *(i) .....*
> *(ii)* ***"Calculation Period"*** *means the period for which compensation calculation shall be carried out. Generally, there shall be twelve calculations during a financial year. The first calculation shall be done for one month (i.e. month of April) at the beginning of the financial year. The second calculation shall be done by considering cumulative of two months (i.e. months of April and May) and so on. After coming into effect of this procedure, the first Calculation period will cover from 15.5.2017 to 31.5.2017.*
> *(iii)* ***"Comp (F)"****means reconciled 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.*
>
> *....." (Emphasis supplied)*

It is evident that **any gain in SHR & APC is getting shared fully** due to the same getting adjusted against any increase due to degradation in SHR & APC due to part-load operation as the Calculation-period envisages cumulative performance parameters. So, sharing it 50:50 with the beneficiaries on a monthly basis needs to be done away with. The same could be prescribed on an annual basis whenever the actual energy charges are found to be lower than the normative energy charges for the entire year through adjustment in tariff for subsequent year.

2. Computation and Payment of energy charges (Chapter 11, Rule 52)

The proposed rule reads as under

> *".....*
>
> ***52. Computation and Payment of Energy Charge for Thermal Generating Stations:***
> *(1) The energy charge shall cover the primary and secondary fuel cost and limestone consumption cost (where applicable), and shall be payable by every beneficiary for the total energy scheduled to be supplied to such beneficiary during the calendar month on ex-power plant basis, at the energy charge rate of the month (with fuel and limestone price adjustment). Total Energy charge payable to the generating company for a month shall be:*
> *Energy Charges = (Energy charge rate in Rs./kWh) x {Scheduled energy (ex-bus) for the month in kWh}*
> *(2) Energy charge rate (ECR) in Rupees per kWh on ex-power plant basis shall be determined to three decimal places in accordance with the following formulae:*

(a) For coal based and lignite fired stations:

ECR = {(SHR – SFC x CVSF) x LPPF / (CVPF + SFC x LPSFi + LC x LPL} x 100 /(100 – AUX)

(b) For gas and liquid fuel based stations

ECR = SHR x LPPF x 100 / {(CVPF) x (100 – AUX)}

Where,

AUX =Normative auxiliary energy consumption in percentage.

CVPF = (a) Weighted Average Gross calorific value of coal as received, in kCal per kg for coal based stations less 85 Kcal/Kg on account of variation during storage at generating station;

(b) Weighted Average Gross calorific value of primary fuel as received, in kCal per kg, per litre or per standard cubic meter, as applicable for lignite, gas and liquid fuel based stations.

(c) In case of blending of fuel from different sources, the weighted average Gross calorific value of primary fuel shall be arrived in proportion to blending ratio.

CVSF = Calorific value of secondary fuel, in kCal per ml.

ECR = Energy charge rate, in Rupees per kWh sent out.

SHR = Gross station heat rate, in kCal per kWh.

LC = Normative limestone consumption in kg per kWh.

LPL = Weighted average landed price of limestone in Rupees per kg.

***LPPF** = Weighted average landed price of primary fuel, in Rupees per kg, per litre or per standard cubic metre, as applicable, **during the month**. (In case of blending of fuel from different sources, the weighted average landed price of primary fuel shall be arrived in proportion to blending ratio)*

SFC = Normative Specific fuel oil consumption, in ml per kWh.

LPSFi = Weighted Average Landed Price of Secondary Fuel in Rs./ml during the month

Provided that energy charge rate for a gas or liquid fuel based station shall be adjusted for open cycle operation based on certification of Member Secretary of respective Regional Power Committee for the open cycle operation during the month.

....." (emphasis supplied)

Comments:

The calculation of energy charges revolves around the landed price of primary fuel i.e. LPPF. One LPPF is calculated for the entire station based on the fuel cost incurred, and the same is used with GHR, CVPF & AUX to arrive at one single ECR for the entire station. The application of one single ECR for all the beneficiaries of the station leads to some beneficiary (ies) paying higher and other(s) paying lower energy charges than they should be, and a defeat of Merit-order-despatch in the following manner:

A gas-based station has some quantity of a cheaper gas (say Rs 14 per SCM) and some quantity of a costly gas (say Rs 30 per SCM). Some beneficiary(ies) requisition only the quantum of cheaper power corresponding to only the cheaper gas, whereas others

requisition a larger quantum of power that consumes cheaper as well as costly gas. Each beneficiary has its own PPAs / sources of power and is expected to requisition power as per its own Merit-order. The same has been envisaged in Clause 53 of these Draft regulations as under:

"……

> ***53. Declaration of Availability and Dispatch in case of thermal generating station****: The generating company shall declare day ahead availability or any revision thereof in respect of generating station for each fuel source which may be differentiated in terms of their price and calorific value and the beneficiaries shall have an option to schedule the power based on their merit order dispatch.*

……"*(Emphasis supplied)*

So, the LPPF and consequently the ECR increases in accordance with the extent of usage of costly gas. **By calculating one single LPPF and ECR for all the beneficiaries, the ones drawing only cheaper power get penalized by way of higher LPPF & ECR whereas the ones drawing costlier power tend to benefit.** One may have drawn power based on its MOD at Rs 2.8/kWh but the same gets billed to Rs 3.5/kWh when one single LPPF and ECR is calculated. **The impact of this anomaly has been explained at Annexure-1 (linked excel file also attached)** taking the case of PPCL-Bawana for Dec 2018. The effect of open-cycle generation (only 0.18%) has been neglected for simplicity in understanding.

The following is suggested as a logical and justified solution to this anomaly:

a) SLDC/RLDC publishes Regional Energy Account (REA) in usual manner with details of energy scheduled by each beneficiary of the station.
b) Distribute/allocate each differently priced fuel-gas consumed by the station among all the beneficiaries on a pro-rata basis in accordance with the energy scheduled by them.
c) Calculate LPPF for each beneficiary based on above distribution of fuel gas.
d) Calculate ECR for each beneficiary based on above LPPF.
e) Calculate energy charges for each beneficiary based on above ECR.

Regards,

Pratima

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Annexure-I

PPCL-III Bawana		
GHR	1845	kCal/kWh
CVPF	9464.720	kCal/SCm
AUX	2.50%	
Specific fuel consumption	0.199932768	SCM/kWh

SG for Dec 2019

On APM-PMT-NAPM	236.876	MU
On RLNG-SpotRLNG	84.069	MU
Total SG	320.946	MU
CC share in total SG	99.82%	
OC share in total SG	0.18%	

Beneficiaries	BRPL	BYPL	MES	NDMC	TPDDL	HYN	PUNJAB
Entitlements	31.13%	18.00%	1.82%	7.30%	21.75%	10.00%	10.00%

SG distribution								
cheaper	APM-PMT-NAPM	Mus	74.568	43.006	4.291	17.432	51.517	23.120	22.943
		% share	31.48%	18.16%	1.81%	7.36%	21.75%	9.76%	9.69%
costlier	RLNG-SpotRLNG	Mus	32.225	14.925	2.368	5.595	20.953	4.012	3.991
		% share	38.33%	17.75%	2.82%	6.65%	24.92%	4.77%	4.75%
		Total SG	106.793	57.931	6.659	23.027	72.470	27.132	26.934

Gas distribution		consumed Qty							
cheaper	APM-PMT-NAPM	51384000	SCM		16175462	9328920	930721	3781466	11175191	5015311	4976930
costlier	RLNG-SpotRLNG	16024928	SCM		6142600	2844939	451453	1066403	3994041	764769	760722
	Total gas used	67408928	SCM	Total gas used	22318062	12173859	1382174	4847869	15169232	5780080	5737652

	Unit rate	
APM-PMT-NAPM	13.938	Rs/SCM
RLNG-SpotRLNG	29.515	Rs/SCM

fuel-cost distribution		fuel cost incurred								
	APM-PMT-NAPM	716185512	SCM		225452113	130025641	12972303	52705731	155758790	69902943	69367990
	RLNG-SpotRLNG	472975303	Rs		181298664	83968300	13324635	31474864	117884009	22572139	22452693
	Total	1189160815	Rs	Total fuel cost	406750777	213993941	26296938	84180595	273642799	92475082	91820683

LPPF old way	Rs/SCM	17.641	17.641	17.641	17.641	17.641	17.641	17.641
LPPF new way	Rs/SCM	18.225	17.578	19.026	17.364	18.039	15.999	16.003
ECR old way	Rs/kWh	3.527	3.527	3.527	3.527	3.527	3.527	3.527
ECR new way	Rs/kWh	3.644	3.514	3.804	3.472	3.607	3.199	3.200

Energy charges

EC old way	Rs (Crores)	37.67	20.43	2.35	8.12	25.56	9.57	9.50
EC new way	Rs (Crores)	38.91	20.36	2.53	7.99	26.14	8.68	8.62

Impact of Anomaly (Rs Lacs)								
	Rs (Lacs)	-124.73	7.28	-18.44	12.73	-57.72	89.08	88.20
		-3.31%	0.36%	-7.85%	1.57%	-2.26%	9.31%	9.28%
		BRPL	BYPL	MES	NDMC	TPDDL	HYN	PUNJAB