सत्यमेव जयते

भारत सरकार
Government of India
विद्युत मंत्रालय
Ministry of Power
उत्तर क्षेत्रीय विद्युत समिति
Northern Regional Power Committee

सं. उक्षेविस/वाणिज्यिक/210/वाउस(37)/2018/11753 - 11774 दिनांक: 10 अक्टूबर, 2018
No. NRPC/ Comml/210/CSC(37)/2018/ Dated : 10th October, 2018

सेवा में / To,

Members of Commercial Sub-Committee (As per List)
वाणिज्यिक उप समिति के सभी सदस्य (संलग्न सूचीनुसार)

विषय: वाणिज्यिक उप-समिति की 37 वीं बैठक का कार्यवृत्त ।
Subject: 37th meeting of Commercial Sub-Committee – Minutes.

महोदय ,
Sir,

उत्तर क्षेत्रीय विद्युत समिति वाणिज्यिक की उप-समिति की 37 वीं बैठक दिनांक 31 अगस्त, 2018 को उक्षेविस, नई दिल्ली में आयोजित की गई थी । इस बैठक के कार्यवृत की एक प्रति आपकी सूचना व आवश्यक कार्यवाही हेतु इस पत्र के साथ संलग्न है।

37th Commercial Sub-Committee meeting of NRPC was held on 31th August, 2018 at NRPC, New Delhi. A copy of the minutes of the meeting is enclosed herewith for favour of information and necessary action.

भवदीय
Yours faithfully,

(आर.पी.प्रधान)
(R.P.Pradhan)
अधीक्षण अभियंता
Superintending Engineer

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43. Prayagraj Power Generation Co. Ltd.

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MINUTES

FOR

37th MEETING OF COMMERCIAL SUB-COMMITTEE OF NRPC

The 37th meeting of Commercial Sub-Committee of NRPC was held at NRPC, New Delhi on 31st August 2018. The list of participants is enclosed as **Annexure-I**. Member Secretary, NRPC welcomed the participants of 37th Commercial Sub- Committee meeting. While giving an outline of agenda, he stated that several important issues viz. Timely issuance of REA, Calculation of DC w.r.t. Hydro Stations, Metering and AMR related issues were to be discussed. He requested the Members to make the conclusive deliberations, so that the outcome of this meeting can be put up before TCC & NRPC for concurrence. With these remarks, he requested Superintending Engineer(C), NRPC to take up the agenda for deliberation.

ITEM-1 CONFIRMATION OF MINUTES OF 37th MEETING OF COMMERCIAL SUB COMMITTEE OF NRPC

1.1. The minutes of 36th meeting of Commercial Sub-committee held on 11th June 2018 issued vide letter No. NRPC/Comml/210/CSC (36)/ 2018/ 8311-54 dated 18th July 2018 were confirmed with the replacement of second last para of ITEM No.14 as follows:

1.2. "He suggested that MUNPL and PuVVNL may sort out issue as proposed by *MUNPL representative for taking values of meter on 400 kV side of ICT. Billing of the disputed period may also be revised based on comparison as suggested by PuVVNL representative."*

ITEM-2 Recent CERC Orders/draft Regulations

A. Draft Central Electricity Regulatory Commission (Deviation Settlement Mechanism and related matters) (Fourth Amendment) Regulations, 2018

A.1. NRLDC and NRPC Secretariat, giving brief of salient features of the proposed draft regulation, made a presentation. A sample calculation was also presented comparing prevailing regulation and proposed draft regulation. Copies of presentations are enclosed at **Annexure-2.1**

B. Draft Central Electricity Regulatory Commission (Open access in inter-State Transmission) (Fifth Amendment) Regulations, 2018

B.1. A presentation was made by NRLDC on the Draft Central Electricity Regulatory Commission (Open access in inter-State Transmission) (Fifth Amendment) Regulations, 2018. Copy of presentation is enclosed at **Annexure- 2.2**

C. Discussion Paper on "Re-Designing Real Time Electricity Market in India"

C.1. A presentation was made by NRLDC on the Discussion Paper on "Re-Designing Real Time Electricity Market in India". . Copy of presentation is enclosed at **Annexure-2.3**

D. CERC Order in suo-moto Petition No. 07/SM/2018 dated 16th July, 2018 in the matter of Pilot Project on 05 minute scheduling, Metering, Accounting and Settlement for Thermal/Hydro and on Hydro as Fast Response Ancillary Services(FRAS)

D.1. A presentation was made by NRLDC on Pilot Project on 05 minute scheduling, Metering, Accounting and Settlement for Thermal/Hydro and on Hydro as Fast Response Ancillary Services(FRAS). Copy of presentation is enclosed at **Annexure-2.4**

ITEM-3 Payment of Interest due to delay in payment of RRAS Charges to the RRAS Provider by RLDC

3.1. Representative of APCPL outlined the issue relating to the delay in payment of RRAS Charges to APCPL IGSTPS-Jhajjar.

3.2. Member Secretary, NRPC stated that NRPC secretariat would develop a software module for the calculation of delay payment interest of RRAS based on the data provided by NRLDC. He assured that there would be no delay once data is provided by NRLDC.

The Sub-Committee noted the information.

ITEM-4 Discrepancy in computation of PAFM for Hydro Plants

4.1. BRPL representative informed that there was substantial difference in PAFM of some hydro stations between their computation and the figures mentioned in REA. He also stated that there was a substantial variation in declared capacity (DCs) & PAFM of some of the hydro plants for the month of April-18, May-18 & June-18.

4.2. He mentioned that as per CERC Tariff Regulations, 2014-19 , Declared capacity (in ex-bus MW) for the ith day of the month is the MW , which the station can deliver for at least three (3) hours, as certified by the nodal load dispatch centre after the day is over . He added that BRPL had computed the DC of hydro plants for ith day of month on the basis of DC declared by them for continuous 3 hrs. and PAFM was computed considering this DC for the month of April-18 & May-18. Substantial difference was noted in few power plants like Bairasul, Parbati 3, Salal and Tanakpur HEP, accordingly their where BRPL had observed some mismatches in PAFM as per REA

issued by NRPC.

4.3. He further mentioned that as per Regulation 6.4 (17) of the Grid Code, except in case of Run of the River (with up to three hour pondage) hydro stations, the ISGS shall ensure that the declared capability during peak hours is not less than that during other hours. Considering this provision BRPL had computed the DC of hydro plants for ith day of month based on DC decaled by them during continuous 3 peak hours as specified by NRLDC. With this DC, PAFM was computed for the month of April-18, May-18 & June-18, where BRPL had observed some mismatches in PAFM as per REA specially for Parbati 3, Salal and Tanakpur HEP.

4.4. NRLDC representative stated that in the Regulations there is no mention of continuous hours for calculating DC. He further informed that NRLDC determines DC based on average of MW during peak hours. It was also informed this practice is being used by other RLDCs also. It was suggested that this issue be brought to notice of the Commission so that there would be clarity in the Regulations for 2019-24.

4.5. Discom representatives opined that DC should not be taken as average. It was suggested that since the word “at least” is mentioned while defining DC in CERC Tariff Regulations, the minimum MW during peak hours should be taken as DC.

4.6. NHPC representative stated that the methodology for DC determination by RLDCs is in line with provisions of CERC Regulations and adopting methodology suggested by some Discoms would result in loss to Hydro generators. He also stated that agenda by BRPL did not cover the averaging issue, therefore it is not a point of discussion under present agenda. Representatives of other hydro generators endorsed views of NHPC.

4.7. Member Secretary, NRPC suggested that clarification from CERC regarding computation of DC of Hydro Generating Stations, whether it should be taken as minimum MW in the peak hours or average DC in peak hours may be taken.

Members of sub-committee agreed that NRPC/NRLDC will seek clarification from CERC on the computation of DC of hydro generating station.

ITEM-5 Request for review of need for Compensation Mechanism.

5.1. BRPL representative informed that as per regulation 8 of CERC tariff regulation FY 2014-19, generating companies have been conducting true-up of controllable operational parameters for sharing gains. BRPL had observed that despite the fact that plants were operating below 85% PLF they had managed to achieve GHR, AUX & SFC considerably better than the normative values. However, he added that there had been a drastic reduction in credits provided by generating companies on account of

true-up of controllable parameters in FY17-18.

5.2. SE(C), NRPC stated that comparison of parameters by BRPL was done based on Plant Load Factor (PLF). However, compensation is calculated on Average Unit loading (AUL), and therefore there are chances of obvious mismatch in parameters.

5.3. Representative of NTPC stated that PLF is not the correct indicator for deciding the compensation due to part load of the unit. The Controllable parameters such as Heat Rate, APC etc. are primarily dependent upon Machine Loading. While formulating the procedure for Compensation Mechanism, CERC has also considered Average Unit Loading Factor i.e. machine loading instead of PLF.

5.4. Explaining the examples given in the agenda he stated that in its example, BRPL has compared the performance of Dadri-1 with PLF.

- Though the PLF of Dadri-I was 56.28% in FY 15-16 and 58.34% in FY 17-18, but machine loading was 80.55 % & 69.9% respectively.

- The better unit loading in FY 15-16 has resulted into sharing of the gains. The lower unit loading in 17-18 has resulted into degradation of SHR & APC leading to compensation in accordance with the Compensation Mechanism as per IEGC 4th amendment, dtd 29.04.16.

5.5. He further added that NTPC had been sharing the calculations of Compensation to all its beneficiaries including BRPL, wherein Avg. Unit Loading factor is also given.

5.6. Sub-Committee noted the submission made by the representative of NTPC. If further clarification is required, members may take up the matter directly with generator.

ITEM-6 Capping of operational parameters at their normative values while truing of controllable parameters

6.1. BRPL representative stated that as per regulation 35 of CERC tariff regulation 2014-19 generating companies are mandated to recover energy cost as per operational norms specified in CERC tariff regulation FY 2014-19. He added that it needs to be clarified that whether generating companies can use value of GHR, Aux & SFC higher than normative value while truing up of operational controllable parameters. He mentioned that while calculating the actual ECR for true-up of controllable parameters, the generating companies should not be allowed to consider GHR, AUX & SFC values higher than normative values.

6.2. SE(C), NRPC stated that actual ECR and normative ECR are clearly defined in CERC Tariff Regulation 2014-19. Generating company need to share gain of ECR(N)-ECR(A) amongst the company and beneficiaries in 60:40 respectively as per Regulation 8 of Tariff Regulation.

6.3. Representative of NTPC stated that Regulation 35 of CERC Tariff Regulations as quoted by BRPL comes under the heading "Norms of Operation" wherein certain Norms have been specified for Recovery of Capacity Charges, Energy Charges etc. It may be noted that the sharing of gains by generating company is covered under Regulation-8 (6) of CERC Tariff Regulations 2014 which mentions that the financial gains on account of controllable parameters are to be shared in the ratio of 60:40 between generating station and beneficiaries.

6.4. The relevant portion of the clause provides as below:

Quote

(6) The financial gains by a generating company or the transmission licensee, as the case may be on account of controllable parameters shall be shared between generating company/transmission licensee and the beneficiaries on monthly basis with annual reconciliation. The financial gains computed as per following formulae in case of generating station on account of operational parameters as shown in Clause 2(a) (i) to (iii) of this Regulation shall be shared in the ratio of 60:40 between generating station and beneficiaries*:*

Net Gain = (ECRN– ECRA) x Scheduled Generation, Where,

ECRN – Normative Energy Charge Rate computed on the basis of norms specified for Station Heat Rate, Auxiliary Consumption and Secondary Fuel Oil Consumption.

ECRA – Actual Energy Charge Rate computed on the basis of actual SHR, Auxiliary Consumption and Secondary Fuel Oil Consumption for the month.

Unquote

6.5. Regulations have clearly specified that Actual ECR is to be computed on the basis of Actual SHR, APC and SFOC and there is no ambiguity in the provisions.

6.6. Sub-Committee advised BRPL representative to bring to the notice of NRPC/CERC specific case of violation of Regulations , if any, with all the details and relevant data for further discussion.

ITEM-7 Default in payment of outstanding dues and surcharge by beneficiaries

7.1. The details of outstanding dues are as under:

Utility	Beneficiary	Total Dues including Surcharge (in Rs Cr.)	Deliberations in the meeting / Updated status
NHPC	PDD, J&K	858.35	The updated status could not be ascertained as representative from PDD-J&K, UPPCL,PSPCL and JdVVNL was not present in the meeting.
	UPPCL, UP	615.09	
	PSPCL, Punjab	262.39	
	JdVVNL (Wind Power), Jodhpur	14.58	
SJVNL	PSPCL	9.76	Representative of HPSEBL stated that current outstanding is 294 Cr. and would be liquidated at the earliest. Since the representative from PSPCL,PDD-J&K and UPPCL were not present updated status could not be ascertained
	Govt. of HP & a/c HPSEB	348.94	
	J&K	117.71	
	UPPCL	187.77	
THDCIL	BRPL, Delhi	252.04	Representative of THDCIL requested beneficiaries to submit their liquidation plan at the earliest and priority basis.
	BYPL, Delhi	283.95	
	PDD, J&K	120.88	Since the representative from PDD-J&K and UPPCL were not present therefore updated status could not be ascertained
	UPPCL, Uttar Pradesh	827.79	
PGCIL	PDD-J&K	169	Representative of PGCIL stated that Jodhpur, Punjab and Uttrakhand have released the outstanding amount. Representative from PDD-J&K and UPPCL were not present therefore updated status could not be ascertained
	UPPCL	300	
	Jodhpur	32	
	Punjab	79	
	Uttrakhand	47	

7.2. Member Secretary (NRPC) stated that the payment related issues mentioned above are very serious in nature and recurring type in most of the meetings. He requested all members to resolve these issues mutually and intimate to NRPC in due course.

7.3. The sub-committee expressed concern about non-representation of some utilities having substantial outstanding dues. The sub-committee advised NRPC Sectt. to take up the matter with higher management of these utilities specially UPPCL and PDD J&K.

ITEM-8 Opening of Letter of Credit (LC)

8.1. SE(C), NRPC stated that as per PPA/CERC Regulations, beneficiaries have to submit a confirmed, revolving, irrevocable Letter of Credit for an amount equivalent to 105% of average monthly billing of preceding 12 months with appropriate bank as mutually acceptable to parties. The LC has to be kept valid at all the time during the validity of the Power Purchase Agreement. This matter had been discussed regularly in various commercial sub-committee meeting as well as TCC and NRPC meetings but still there are several cases of defaults.

8.2. He emphasised that non-opening and non-maintaining LC of requisite amount is non-compliance of CERC regulations.

The detailed status as updated in the meeting is given below:

Utility/Account	Beneficiary	LC Amount (in Rs Cr.)	Deliberations in the meeting / Updated status
NHPC	PDD, J&K	LC amount already intimated to the beneficiaries	The updated status could not be ascertained as representative from PDD-J&K, was not present in the meeting. Representative of BRPL stated that matter is under process with their finance department.
	BRPL, Delhi		
SJVNL	PDD, J&K		Representative from PDD J&K was not present in the meeting.
	HPSEBL		Representative of HPSEBL stated that matter is under process with their higher management.
	BRPL, Delhi		Representative of BRPL and BYPL stated that matter is under process with their finance department.
	BYPL, Delhi		
	UPCL		Representative from UPCL was not present in the meeting.
THDCIL	BRPL, Delhi	7.34	Representative of BRPL stated that matter is under process with their finance department.
	PDD, J&K	13.50	Representative from PDD J&K was not present in the meeting.
POWERGRID	BYPL, Delhi	51	Representative of BRPL and BYPL stated that matter is under process with their finance department.
	BRPL, Delhi	103	
	PDD, J&K		Representative from PDD J&K was not present in the meeting.

ITEM-9 Outstanding dues of Rs. 97 Lakh against MPPMCL

9.1. Representative of NHPC stated that with reference to allocation of Power by Ministry of Power vide letter no. 1/16/2014-OM Dated 27.10.2014 against surrendered share by Himachal Pradesh, NHPC Ltd started supplying Power to MPPMCL from 27.10.2014 from Chamera-III (7.76 MW) and Parbati-III (17.47MW) Projects. Subsequently in reference to letter no. WRPC/Comml-I/Alloc/2014/ dated 5.12.2014 based on MOP letter no. 3/4/2014-OM dated 24.12.2014, the allocation was withdrawn. Payment for the monthly bill raised in the months from Oct'14 to Dec'14 was made by MPPMCL, however revised bills based on annual cumulative PAF of the above stations were not cleared by MPPMCL. As on date, an amount of about Rs.97 Lakhs including late payment surcharge (Rs.37 Lakhs) is outstanding against MPPMCL (MP Power Management Corporation Ltd.) in the books of NHPC Ltd. He further explained that the outstanding amount against MPPMCL has 2 parts, one on account of revision of AFC and the other (major part of the principal amount of outstanding) for PAF. During the discussion at MPPMCL, Jabalpur, MPPMCL had in principle agreed to pay for revision of AFC, but declined the liability on account of PAF.

9.2. Representative of MPPMCL stated that in the months in which MP was beneficiary bills were raised and payment was made by them based on the monthly PAF as per the provisions of Tariff Regulation 2014-19.

9.3. Member Secretary, NRPC requested to the members of the subcommittee to present their views on billing methodology followed by NHPC w.r.t. revised annual PAF.

9.4. Representative of THDCIL and SJVNL stated that billing should be monthly basis as per the Tariff Regulation 2014-19.

9.5. Representative of BYPL and Rajasthan stated that billing should be on monthly basis as incentive is inbuilt in PAF of Hydro Stations.

9.6. Representative of NHPC stated that as the NHPC is revenue neutral and capacity charges are to be recovered from beneficiaries. He suggested that the balance capacity charges because of PAF revision may be recovered from beneficiaries in Northern Region, who had allocation throughout the year. He emphasized that as the liability of payment is from 2014, interest @SBI MCLR plus 35 basis points may be paid by beneficiaries.

9.7. SE (C) highlighted CERC in its order in Petition No. 143/MP/2015 has stated that sharing of capacity charge of the generation station by the beneficiaries shall be strictly restricted on the basis percentage allocation of share for the month.

9.8. MPPMCL agreed to make payment due on account of AFC revision, while the other part pertaining to PAF shall be billed to other beneficiaries (plant wise).

9.9. Members of the sub-committee agreed to bear the charges towards revised PAF (cumulative for the FY) without any late surcharge.

ITEM-10 Status and procurement of SEM and DCD in NR-2

10.1. Representative of POWERGRID stated that SEMs (Type – A & B) and DCDs were procured in 2015 for all utilities in the region as per the communication received from NRLDC. The detail of procured SEM & DCD with present status is tabulated below:

Sl. No.	Item Description	Qty. Procured	Qty. Available at present
1	SEM (Type – A)	358	187
2	SEM (Type – B)	46	44
3	DCD	96	01

10.2. The availability of SEMs is sufficient to cater the need in the region for next two years but stock of DCD has depleted and need to be procured.

10.3. Members of the sub-committee advised NRLDC to provide SEM and DCD requirement to POWERGRID under intimation to NRPC Sectt.

ITEM-11 Execution of Tri-partite Agreement (TPA) as proposed by Ministry of Power, Govt. of India.

11.1. Representative of SJVNL stated that Ministry of Power, Govt. of India in its letter dtd. 22.11.2016 and further reminders dtd. 19.12.16, 17.1.2017, 16.3.2017, 30.05.17, 21.07.18 requested the State Governments / UT Administrators to sign / executive the TPA and return the same to Ministry of Power, GOI for further necessary action at their end. The Ministry of Power informed that Punjab state is yet to sign / execute the TPA.

11.2. Since representative of Punjab were not present in the meeting therefore latest status could not be ascertained.

ITEM-12 Status of DSM Charges

12.1. Representative of NRLDC informed that Deviation Pool Account Fund of NR is being maintained & operated by NRLDC, in accordance with the CERC Regulations. As per Regulations 10 (1) of "Deviation Charges Related matters" the payment of charges for Deviation shall have a high priority and the concerned constituents shall pay the indicated amounts within 10 days of issue of statement of Charges for Deviation including Additional Charges for Deviation by the Secretariat of the respective Regional Power Committee in to the "Regional Deviation Pool Account Fund" of the concern region.

12.2. DSM Charges payable to pool, status as on 16' Aug-2018 considering week no-17 (due dated of which is 06th Aug 2018) is indicated here in below:-

All figures in Rs. Lakhs

S. No	Constituents	DSM Charges Payable / Receivable	Deviation Delay Payment Interest up to 2017-18	Total Outstanding	Remarks (Outstanding More than 90 days)
1	ER-NR	16004.02		16004.02	
2	JAMMU AND KASHMIR	3876.88		3876.88	Since 14.08.2017
3	UTTAR PRADESH	379.19		379.19	
4	NER-NR	0.00	268.74	268.74	
5	WR-NR	0.00	152.16	152.16	
6	RAJASTHAN	11.48		11.48	
7	HIMACHAL SORANG	1.20	0.32	1.52	Since 27.02.2016

12.3. NRLDC is regularly taking up the matter with all defaulting constituents.

12.4. The sub-committee advised all payable utilities to clear the outstanding dues at the earliest to avoid further increase of delay payment Interest and to avoid any action under the CERC Regulations.

ITEM-13 Status of Letter of Credit (LC) against Deviation Charges delayed payment

13.1. Representative of NRLDC stated that NRLDC vide letter dated 30th April 2018 has intimated all concerned constituents regarding the amount for which LC is to be opened in accordance with CERC (Deviation Settlement Mechanism and related matters) Regulations, 2014. The matter was also discussed in the last commercial sub-committee meeting as well in TCC/NRPC meeting. Committee noted the TCC deliberations and advised all defaulting entities to open LC.

13.2. Despite deliberations in various Commercial Sub-Committee and TCC/NRPC meeting most of the defaulting constituents have still not opened the LC of the required amount. The status is as below:

Sl. No	Name of NR Pool members	LC Amount (Rs. in Lakh.)	Status	No of defaults in Deviation Payment	
				2017-18	2018-19 (upto W-16)
1	UPPCL,UP	1258.79	LC not opened	47	16
2	UPCL, UTTARAKHAND	128.22	LC not opened	1	-
3	HPSEB, Himachal	246.61	LC not opened (LC for Rs. 78.55 Lakhs expired on 30.06.2018)	23	-
4	PDD,J&K	1722.64	LC not opened	34	11
5	EPPL	2.47731	LC not opened	25	8
6	Greenko, Budhil	14.14	LC not opened	10	3
7	Punjab	228.39	LC not opened (LC for Rs. 154 Lakhs expired on 08.07.2018)	29	8
8	PGCIL	2.06	LC not opened	15	2
9	HPPCL	3.19	LC not opened	1	-
10	DTL, Delhi	75.61	LC not opened	3	-
11	NFL	1.58	LC not opened	2	1

13.3. NRLDC vide its letter dated 6th August 2018 has informed to CERC regarding violation of Regulation 10(4) of the CERC (Deviation Settlement Mechanism & related matters) Regulations, 2014 regarding opening of credit.

13.4. Member Secretary, NRPC requested to defaulting entities to open the LC against Deviation Charges as per the Regulations of CERC.

ITEM-14 Reactive Energy charges status as on 16.08.2018, considering week-17

14.1. The status of payment of Reactive Energy (RE) charges payable/Receivable by utilities as on 16.08.2018, as per the information received from NRLDC was shared. It was noted that Delhi and PDD J&K had net outstanding dues more than 90 days.

14.2. The Sub-committee advised the payable entities to release outstanding RE charges at the earliest so that receivable parties could be paid.

ITEM-15 Congestion Charges

15.1. Representative of NRLDC informed that the amount received in the congestion charges account was disbursed to the receivable parties. The details of outstanding amount against the entities (as on 16th August 2018) were displayed in the meeting.

15.2. The Sub-committee advised the payable constituents to release outstanding Congestion Charges payments at the earliest so that, receivable parties will be paid and to avoid further increase of Delay payment Interest.

ITEM-16 NRLDC Fee & Charges

16.1. Representative of NRLDC informed that NRLDC was raising the monthly bills in line CERC Regulations 2015, considering May-2018 bills (due date of which is 30.07.2018) amount of Rs. 33,89,754/- is outstanding against PDD J&K for Feb-18 (part payment), Mar-18, Apr-18 and May-18 towards NRLDC Fee & Charges.

16.2. He further informed that NRLDC is sending the hard copies of bills to all the users regularly on monthly basis. The bills are also being mailed to all users on the day of billing and soft copies of bills are also available to the link "https://nrldc.in/commercial/bill-details".

NRLDC Fee & Charges Format for Payment made /TDS Deduction.

While making the payment please provide the payment details in the prescribed format.

USER Name									
BILLING DETAILS			SETTLEMENT DETAILS						
BILL MONTH AND YEAR -	DATE of Bill issue	Billed AMOUNT	Date of Bill Receipt by Users	Mode of Payment RTGS/NEFT/Others	Date of Clearing of Payment from Users Bank A/c	Amount Paid into POSOCO Fee & Charge A/c by Users	TDS-deducted by Users if any	Rebate-deducted by Users if any	Amount-Admitted (Paid+TDS +Rebate) by Users
			(1)	(2)	(3)	(4)	(5)	(6)	(7)=(4)+(5)+(6)

16.3. Representative of NRLDC is not receiving the information in the prescribed format except from ADHPL, SAINJ HEP, NJHPS, BBMB, Railways, Adani Transmission Ltd., EPPL, Lanco Anapara C.

16.4. The Sub-committee advised the concerned utilities to clear outstanding at the earliest.

ITEM-17 Inter State Transmission losses in NR

17.1. Representative of NRLDC informed that the list of points being used for injections / drawl along with their CT/PT ratios were uploaded in NRLDC website. The constituents were requested to check their drawl / injection points and CT/PT ratios being used. Comments/discrepancies, if any, on the same may please be communicated to NRLDC at the earliest.

17.2. The Sub-committee advised all the concerned utilities to check the drawl points and CT/PT ratios to avoid any discrepancy in data, as inter-state transmission losses have substantial commercial implications.

ITEM-18 Status of AGC & Ancillary Services

18.1. Representative of NRLDC informed the updated Status from week 01 to 18 of financial year 2018-19.

18.2. He further informed that all dues have been settled against RRAS and AGC from pool account up to week -17.

Members noted the information.

ITEM-19 Reconciliation of NRLDC Fee and charges

19.1. Representative of NRLDC intimated that they had sent the reconciliation statements of NRLDC Fee and Charges vide letter dated 27-07-2018 for the quarter -I, 2018-19 to all the users. The users were requested to send the duly signed and verified copy of reconciliation statement as a token of acceptance by 24.08.18. He further intimated that reconciliation from ADHPL and NTPC had been received only.

19.2. Entities were requested to verify the Reconciliation statements and send the duly signed copy as a normal practice. In case non receipt of any communication till 07.09.2018, it will be presumed that statement stands reconciled.

Members of the sub- committee noted the information.

ITEM-20 Reconciliation of Deviation Account

20.1. Representative of NRLDC intimated that they had sent the reconciliation statement of Deviation Charges for the period Apr-18 to Jun-18, on 10.07.2018 and uploaded the same in its website on 10.07.2018. The constituents were requested to verify /check the same & comments if any on

the same were to be reported to NRLDC by 31.07.2018. Till date, signed reconciliation statement of NTPC & ADHPL has been received only.

20.2. Entities were requested to verify the Reconciliation statements and send the duly signed copy as a normal practice. In case non-receipt of any communication till 07.09.2018, it would be presumed that statement stands reconciled.

20.3. Members of the sub- committee noted the information.

ITEM-21 Reconciliation of RE Account

21.1. Representative of NRLDC intimated that they had sent the reconciliation statement of RE accounts for the period Apr-18 to Jun-18, on 10.07.2018 and uploaded the same in its website on 10.07.2018. The constituents were requested to verify /check the same & comments, if any, on the same were to be reported to NRLDC by 31.07.2018. Till date signed reconciliation statement of Rajasthan has been received only.

21.2. Entities were requested to verify the Reconciliation statements and send the duly signed copy as a normal practice. In case non-receipt of any communication until 07.09.2018, it would be presumed that statement stands reconciled.

Members noted the information.

ITEM-22 Reconciliation of STOA Charges disbursement

22.1. Representative of NRLDC intimated that they had sent the reconciliation statement of open access disbursement for the Quarter- 1of financial year 2018-19 on 19th July 2018. The applicants/STU/SLDCs were requested to verify /check the reconciliation statement & comment if any on the same by 16th Aug 2018. Till now signed reconciliation statement of all the parties has not received.

22.2. Entities were requested to verify the Reconciliation statements and send the duly signed copy as a normal practice. In case non receipt of any communication till 16.08.2018, it would be presumed that statement stands reconciled.

22.3. Members of the sub- committee noted the information.

ITEM-23 STOA Rates of State Network in Northern Region

23.1. Representative of NRLDC intimated that as on date STU charges being applied for STOA, transactions are:-

S No.	Name Of Constituents	Rates in Rs / MWh
1	Punjab	1540
2	Haryana	360

3	Delhi	258.73
4	Rajasthan	287.80
5	Uttar Pradesh	237.5
6	Himachal Pradesh	17
7	Uttrakhand	125.95
8	Jammu & Kashmir *	80
9	UT Chandigarh *	80
*ST Rates not intimated to NRLDC		

23.2. Representative of NRLDC requested all the members to take a note of the same and intimate NRLDC in case any discrepancy is observed.

23.3. In case there is a revision/change in STU/SLDC rates, it was requested that the respective State should intimate immediately to NRLDC about such revised rate and effective date for implementation of such revised rate also via e-mail and Phone (in addition to signed letter through hard copy).

Members of the sub- committee noted the information.

ITEM-24 TDS Certificates against STOA Charges

24.1. Representative of NRLDC intimated that STOA charges are being deposited by the applicants in the STOA account maintained by the Nodal RLDCs. Applicants are deducting TDS in the PAN of POWERGRID for PoC Charges and in the PAN of POSOCO for STU/ SLDC/ RLDC charges. The major portion of bilateral transaction charges pertains to CTU (POWERGRID), STUs & SLDCs as compared to RLDCs operating charges.

24.2. He further intimated that applicants had been requested vide letter ref no: POSOCO/NRLDC/2017/1084-1131 dt: 21.09.17 to deduct TDS in PAN of concerned PoC Charges (POWERGRID PAN), STU/SLDC Charges (concerned STU/SLDC PAN) & operating charges / application fee (POSOCO PAN) for approvals issued on and after 1st October-2017. Applicants have started deducting the TDS accordingly. Applicants were also requested to submit the TDS details Monthly & Quarterly as per formats which are available on NRLDC website.

24.3. Members of the sub- committee noted the information.

ITEM-25 TDS Reconciliation

25.1. Representative of NRLDC intimated that TDS verification for FY 2010-11 to FY 2016-17 have been done by NRLDC. After Verification of TDS from Form-26AS, following applicants have been requested to pay the short-deposited TDS amount in NRLDC STOA account:

Sl. No.	FY	Name of Applicant	Amount to be Deposited (Rs)	Action Taken by NRLDC

1	2013-14	HNGIL	3,25,136	Letters regarding TDS Default were issued on dt: 20.03.17 and dt:01.08.17
2	2015-16	Provestment	6,318	Letters regarding TDS Default were issued on dt: 20.03.17 and dt:01.08.17

25.2. The Sub-Committee advised concerned entities to make payment at the earliest.

ITEM-26 Status of Outstanding STOA Delay Payment Interest

26.1. Representative of NRLDC intimated that as per Regulations 19(2) of Open Access Inter State Regulations 2008, the person committing default in payment shall pay simple interest @ of 0.04% for each day of default. The applicant wise the outstanding interest amount (computed till 31.03.2018) was shared in the meeting. The details were given in the agenda for the meeting.

26.2. It was noted that utilities viz. Provestment and RDPPC had outstanding due to which the portal for punching STOA applications was blocked for these utilities.

26.3. It was deliberated that since the name of RDPPC has been changed to RUVNL hence the same may be incorporated in NRLDC database.

26.4. The sub-committee advised all the utilities to make timely payments to avoid blocking of STOA, which may make adverse financial implications to the utilities.

ITEM-27 Information of Deviation/Reactive payment in NR pool account

27.1. Representative of NRLDC intimated that the matter regarding furnishing of information of Deviation/reactive payment in NR pool account is being deliberated in commercial committee Meeting. UPPCL, Railways, & AD Hydro are regularly informing the details. Remaining of the NR pool members (payable) are again requested to intimate the details of payment being made by them in the format given below:

Email account:

nrpool2010@gmail.com

S. No	Name of Utility	Amount	Deviation/Reactive account Week No	Date	Transaction ID	Mode of Payment

27.2. He further requested all the members to submit the information as per above mentioned format.

ITEM-28 Status of AMR

28.1. Representative of NRLDC stated that LOA for installation and commissioning of AMR system for Northern Region was awarded by POWERGRID to M/s Kalkitech in February 2012. The issues related to AMR are regularly being updated in every OCC Meeting and Commercial Sub-committee meeting of NRPC.

Present Status as updated by M/s Kalkitech & POWERGRID is as below:

AMR Status	Total No. of Meters/Locations Awarded	Total No. of Meters/Locations Completed	Balance
Phase-1 LoA No.: N1/C&M/11-12/AMR/193(A) (Supply portion) & N1/C&M/11-12/AMR/193(B) (Erection portion) dated 15.02.2012	1250 SEMs/220 locations	1250 SEMs	NIL
Phase-2 LOA No.: N1/C&M/11-12/AMR/193(B)/Amend-III dtd 21.12.2016	575 SEMS/90 locations	122 SEMs	453
Total	**1825 SEMs**	**1372 SEMS**	**453**

28.2. Representative of M/s Kalkitech informed that all 1372 meters commissioned are of L&T make only for which software was developed as per L&T protocol. Kalkitech also informed that they were planning to complete AMR commissioning work of all L&T meters by 31st Oct 2018.

28.3. Regarding ELSTER make meters, M/s Kalkitech representative informed that they had completed all the activities for integration of these meters through AMR and were ready for testing the same. It was decided that POWERGRID and NRLDC will test the integration of these meters by 31st August,2018 and formally intimate M/s Kalkitech for implementation of AMR in all the existing ELSTER make. M/s Kalkitech representative stated that they would complete the AMR integration of all the ELSTER make meters by Dec., 2018.

28.4. It was informed by NRLDC that presently there are approx.. 2050 SEMs in NR. To cover all the SEMs amendment of LoA may be issued by POWERGRID.

28.5. Representative of POWERGRID requested NRLDC to inform exact requirement of SEMs and DCDs, keeping in view future requirements also, to issue contract amendment to M/s Kalkitech to complete the integration of AMR in NR . NRLDC agreed to provide details of requirement SEMs and DCMs by 10th Sept 2018. Representative of POWERGRID agreed to issue contract amendment in two weeks after receiving requirement details from NRLDC.

28.6. Regarding the non-receipt of data from many locations, where AMR has been commissioned following issues were noted:

a) Replacement/addition of meters with Elster makes.

b) Communication issues (at present using 2G SIM services, which is not reliable)

c) Sometime Optical Reading Unit (ORU) of the SEMs was found removed /not placed properly.

d) Data Collecting Unit (DCU) not working

28.7. Following action plan for ensuring the receipt of AMR data was agreed:

a) M/s Kalkitech will analyse the data of last few weeks for finding out exact reason behind non-receipt of data in NRLDC and provide the individual meter wise details to NRLDC and NRPC Sectt. by 30th Aug,2018, so that the same were discussed with concerned utilities in the CSC meeting.

b) The sites from where the data is not being received consistently from last few weeks (say 4 weeks) will be taken first to diagnose the exact issue and resolve them at the earliest.

c) The sites, where there is GSM communication issue and OPGW is available, will be taken on priority for shifting AMR data to fiber optic channel.

d) The utilities /sites having frequent ORU removal issue will be identified and the matter will be taken up by NRLDC & NRPC Sectt. with higher management of the concerned utilities.

e) For DCU and other issues M/s Kalkitech will take immediate action for resolving the issues with increased manpower and support of concerned utilities.

f) POWERGRID, NR-1 will coordinate with other two regions for smooth implementation of AMR and getting the data timely.

ITEM-29 Integration of AMR System with Elster Meters

Covered under ITEM 28

ITEM-30 AMR data through Fibre Optic Network

30.1. Representative of POWERGRID informed that AMR data communications have been successfully shifted on Optical Fibre Communications at 16 locations of POWERGRID stations and work was in progress to connect 70 stations of POWERGRID where minimal cost is required. He agreed to provide the details of action plan for AMR shifting on optical fiber for each location & meter at POWERGRID premises, where the AMR data can be

shifted easily with minimal cost. POWERGRID will provide the details by 05.09.2018.

30.2. It was also decided that data in prescribed format for making estimate of work and expenditure for shifting of AMR data to fiber optic channel would be collected from utilities, in whose premises meters are installed. For this purpose format was shared in the meeting. All the concerned utilities were requested to submit the data to POWERGRID with a copy to NRPC Sectt. , so that POWERGRID can estimate the cost. POWERGRID was advised to submit the estimated cost at the earliest so that it can be put up before TCC and NRPC for approval.

ITEM-31 Time drift Correction in SEMs

31.1. Representative of Kalkitech informed that it is possible for time drift correction on all L&T meters except 7000/8000 series and same was demonstrated to POWERGRID. However, they have limitations to get the time drift data directly from the meter through remote control. Following decisions were taken:

31.2. The data for time drift for each meter will be collected from utilities in whose premises the SEM is installed. This work will be completed by 15.09.2018.

31.3. POWERGRID NR-1 will coordinate with other regions for getting data from all POWERGRID locations.

31.4. The data already received by NRLDC from NTPC, NHPC, NPCIL etc. will be forwarded to M/s Kalkitech for cross checking the time drift, if any and time correction through AMR system. A report in this regard including meter wise time drift and action taken/planned for time drift correction will be sent by M/s Kalkitech to POWERGRID, NRLDC and NRPC Sectt..

31.5. To resolve issues of time drift correction of 9000 series L&T meters, a meeting will be held among L&T, POWERGRID and M/s Kalkitech. The outcome along with action plan will be submitted to NRLDC and NRPC Sectt. by 20th Sep., 2018.

ITEM-32 Replacement/Rectification of SEM meters

32.1. Representative of NRLDC stated that NRLDC is regularly uploading the discrepancy report of meters on weekly basis on NRLDC website. The discrepancy report also contains the details where replacement/rectification of energy meter is required. POWERGRID in its capacity as CTU is to ensure that such rectification/replacement is carried out at the earliest to ensure proper energy account. The matter related to delay in replacement of faulty meters was also conveyed in last meeting. However, It has been observed that CTU is some time taking more than 03 weeks for meter replacement because of which NRLDC has to face problem during data

validation and energy accounting. Other than this it has been seen that meters have been replaced but software/DCD has not been provided so the site are not able to send the data. e.g. in MIA-RVPN, Sahibabad-UPPCL and Hissar-BBMB

32.2. Updated list of Defective/Faulty SEM meters in Northern Region was enclosed at **Annexure-32.1. of Agenda.**

32.3. The sub-committee expressed concern over the number of faulty meters and advised POWERGRID to take necessary action for rectification/replacement of meters and submit report to NRPC Sectt. and NRLDC within one month.

32.4. It was emphasized that healthiness of meters must be ensured, as fault in meter may result in huge commercial impact. All the utilities, in whose premises the meters are installed, were requested to report, immediately, any fault in meter may be brought in notice of NRLDC and NRPC Sectt. for effective follow up.

ITEM-33 Installation of SEM at HV side of 66/11KV transformers at NFL Plant.

33.1. Representative of NRLDC stated that on metering related issues at NFL end, it was decided that Special Energy Meter (SEM) at BBMB load point would be installed by CTU for which the installation of CT/CVT will be done by NFL and it is possible during Annual Maintenance of Plant during March/April-2019. Till the SEM is installed at BBMB load point, as an interim arrangement, it was decided that SEM at HV side of 66/11kV transforms at NFL Expansion Plant would be installed by CTU. However, the meter has not been installed till date.

33.2 The Sub-Committee advised all the concerned to take action for early resolution of the issue.

ITEM-34 Nomination of nodal officer:

34.1. Representative of NRLDC informed that in Northern Region, there are around 2030 SEMs and 300 sites including substations and generation stations. For metering related issues; it was requested that all State utilities/generating stations to nominate 01 nodal officer with contact no. and email id. This issue was raised in 36th Commercial Sub-Committee Meeting and it was advised by the sub-committee to submit the name of nodal officer within 15 days; however many of the stations have not intimated about its nodal officer except BBMB,NHPC,NTPC & Rajasthan.

34.2. The sub-committee advised that the requisite information may be provided latest by first week of September'18.

ITEM-AA1 Draft concept note on 'Merit Order Operation- Flexibility in Generation and Scheduling of Thermal Power Stations to reduce the cost of power to the consumer'-regarding

AA1.1. Ministry of Power vide its letter dated 17th July 2018 issued a draft concept note on 'Merit Order Operation-Flexibility in Generation and Scheduling of Thermal Power Stations to reduce the cost of power to the consumer'. Comments/Suggestions/objections from all stakeholders were invited till 17th August 2018 and the final scheme was notified on 30th August, 2018.

A presentation was made by NRPC on above notified scheme.

ITEM-AA2 Availability of at least One DCD at each Substation

AA2.1. Representative of NRLDC stated that for timely of energy accounts, SEM data for a particular week should reach NRLDC by Tuesday of the next week from each site. In case meters from that site are not integrated with AMR, a DCD is required to ensure that the data can be made available to NRLDC. Even if all meters at a particular site have been integrated with AMR, DCD should be available at the site to act as a backup in case of any exigency as it has been observed that SEM data through AMR is sometimes not available from sites due to network issue. However, there are a few sites where DCD is not available or not in working condition.

AA2.2 Representative of NRLDC proposed that each station must have at least one DCD in working condition.

AA2.3 SE(C), NRPC requested that information regarding non-availability or non-functional DCD may be provided latest by 15th September, 2018 through Nodal Officers.

AA2.4 Members of the sub- committee agreed to provide the information.

ITEM-AA3 Input data for cost estimation of migration of AMR from GPRS to OPGW

AA3.1. Representative of POWERGRID intimated that in the 39th TCC/42nd NRPC meeting held on 27th and 28th June 2018, POWERGRID had been advised to submit the cost for shifting of AMR data on OPGW network to NRPC Secretariat by August 2018. He further stated that in the above meeting all utilities were advised to send details of the coordinators for each site for AMR to GM(AM), NR-1, POWERGRID and NRPC Secretariat within 15 days. However, no such details have been received till date.

AA3.2. POWERGRID requested to utilities to provide the following inputs to estimate the cost and feasibility for migration of AMR system from GPRS to Fiber Optic.

Details required to Migrate the Automatic Meter Reading System (AMR) from GRPS to Fibre Optic

S. No.	Name of Utility	Name of Station	AMR Commissioned (Yes/No)	Make of Communication Panel	Distance between Communication panel to Data Concentrator Unit (DCU) (Cable laying distance in Meter)	Remarks

AA3.3. SE(C), NRPC requested to utilities to send the details of coordinators and the input data for each site as requested by POWERGRID in the requisite format by 15th September 2018.

AA3.4. Members of the sub- committee agreed to provide the information.

ITEM-AA4 Timely issuance of Regional Energy Account

AA4.1. Representative of NTPC brought the Table Agenda with the permission of the chair. The agenda item is enclosed as **Annexure-AA4**.

AA4.2. Representative of NTPC proposed to issued provisional REA by NRPC for the previous month by 2nd of every month along with bifurcation of energy within Discoms.

AA4.3. SE(C) stated that as per present regulatory provisions NRPC prepares REA only in respect of regional entities and bifurcation of energy among the discoms based on REA can be provided by respective SLDCs. He assured that all the steps would be taken to timely issue the accounts as per Regulatory provisions.

AA4.4. MS, NRPC stated requested all the concerned viz. NRLDC and SLDCs to take action to expedite the process for issuance of REA.

DATE AND TIME OF THE NEXT MEETING

The date and venue of next (38th) meeting of the Commercial Sub-committee will be intimated later.

Annexure-I

List of Participants of 37th Commercial Sub-Committee

S.No.	Name of Officer	Designation	Organisation	E-mail
1	**BBMB**			
	Shri Ashwani Kumar	Asst.Dir.Comml.	BBMB	bbmbcomml@gmail.com
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11	**APCPL**			
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12	**LANCO ANPARA**			
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16	**NRPC**			
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	Shri Sovaran Singh	EE	NRPC	
	Shri Bhanwar Singh Meena	EE	NRPC	
	Shri Vikrant S. Dhillon	AEE	NRPC	
	Shri Manish Maurya	AE	NRPC	

Annexure-2.1

Draft
Central Electricity Regulatory Commission
(Deviation Settlement Mechanism and related matters)
(4th Amendment)
Regulations,2018

Draft CERC (Deviation Settlement Mechanism and related matter (fourth Amendment), Regulations,2018

- Public Notice - 29th June 2018
- Comments invited from all stakeholders - 31st July 2018
- Public hearing - 21st August 2018

1

Principal Regulation	Amendment Proposed in the Regulation
2. Definitions and Interpretation (1) In these regulations, unless the context otherwise requires,- (c) 'actual injection'in a time-block means electricity generated or supplied by the seller, as the case may be, measured by the Interface meters; (g) 'Commission' means the Central Electricity Regulatory Commission referred to in sub-section (1) of section 76 of the Act;	2. Amendment to Regulation 2 of the Principal Regulations: **"(ca)"Area Clearing Price (ACP)"** means the price of 15-minute time block electricity contract established on the Exchange arrived at after considering all valid purchase and sale bids in particular area(s) determined after market splitting, i.e. dividing the market across constrained transmission corridor(s)." **"(ga)"Day Ahead Market (DAM)"** means a market where physical delivery of electricity occurs on the next day (T+1) of the date of transaction (T) and is governed by the Central Electricity Regulatory Commission (Power Market) Regulations, 2010 (as amended from time to time), Rules, Bye-Laws as approved by the Commission."

Principal Regulation			Amendment Proposed in the Regulation		
5. Charges for Deviations:			Amendment of Regulation 5 (Charges for Deviations) of the Principal Regulations: The table along with the note in parenthesis below the table in clause (1) of Regulation 5 of the Principal Regulations shall be substituted by the following;		
Average Frequency of the time block(Hz)		**Charges for Deviation**	**Average Frequency of the time block(Hz)**		**Charges for Deviation**
Below	**Not Below**	**Paise/kWh**	**Below**	**Not Below**	**Paise/kWh**
	50.05	0		50.05	0
50.05	50.04	~~35.6~~	50.05	50.04	**Slope determined by joining the price at Not Below 50.05 Hz and identified price at 50.00 Hz, and as detailed in the note below this Regulation**
50.04	50.03	~~71.2~~	50.04	50.03	
50.03	50.02	~~106.8~~	50.03	50.02	
50.02	50.01	~~142.4~~	50.02	50.01	
50.01	50	~~178~~	50.01	50	**Daily average Area Clearing Price discovered in the Day Ahead Market segment of power exchange**

Principal Regulation			Amendment Proposed in the Regulation		
Average Frequency of the time block(Hz)		Charges for Deviation	Average Frequency of the time block(Hz)		Charges for Deviation
Below	Not Below	Paise/kWh	Below	Not Below	Paise/kWh
50	49.99	~~198.84~~	50	49.99	Slope determined by joining the price identified at 50.00 Hz and price at below 49.85 Hz, and as detailed in the note below this Regulation
49.99	49.98	~~219.68~~	49.99	49.98	
49.98	49.97	~~240.52~~	49.98	49.97	
49.97	49.96	~~261.36~~	49.97	49.96	
49.96	49.95	~~282.2~~	49.96	49.95	
49.95	49.94	~~303.04~~	49.95	49.94	
49.94	49.93	~~323.88~~	49.94	49.93	
49.93	49.92	~~344.72~~	49.93	49.92	
49.92	49.91	~~365.56~~	49.92	49.91	
49.91	49.9	~~386.4~~	49.91	49.9	
49.9	49.89	~~407.24~~	49.9	49.89	
49.89	49.88	~~428.08~~	49.89	49.88	
49.88	49.87	~~448.92~~	49.88	49.87	
49.87	49.86	~~469.76~~	49.87	49.86	
49.86	49.85	~~490.6~~	49.86	49.85	

Principal Regulation			Amendment Proposed in the Regulation		
Average Frequency of the time block(Hz)		Charges for Deviation	Average Frequency of the time block(Hz)		Charges for Deviation
Below	Not Below	Paise/kWh	Below	Not Below	Paise/kWh
49.85	~~49.84~~	~~511.44~~	49.85		800
~~49.84~~	~~49.83~~	~~532.28~~	*Note.*		
~~49.83~~	~~49.82~~	~~553.12~~	*i. The Deviation Settlement Mechanism (DSM) rate vector will have a dynamic slope determined by joining the identified price points at 50 Hz. (daily average ACP), frequency of 49.85 Hz (Rs. 8 per unit) and 50.05 Hz (zero) on a daily basis.*		
~~49.82~~	~~49.81~~	~~573.96~~	*ii.The maximum ceiling limit applicable for average Daily ACP discovered in the DAM segment of Power Exchange at 50.00 Hz shall be 800 Paise/kWh.*		
~~49.81~~	~~49.8~~	~~594.8~~	*iii.Charges for deviation for each 0.01 Hz step shall be equivalent to the Slope determined by joining the price at 'Not below 50.05 Hz' and 'identified price at 50.00 Hz' in the frequency range of 50.05-50.00 Hz, and to the Slope determined by joining the 'price identified at 50.00 Hz' and price at 'below 49.85 Hz' in frequency range 'below 50 Hz' to 'below 49.85 Hz'.*		
~~49.8~~	~~49.79~~	~~615.64~~			
~~49.79~~	~~49.78~~	~~636.48~~			
~~49.78~~	~~49.77~~	~~657.32~~			
~~49.77~~	~~49.76~~	~~678.16~~			
~~49.76~~	~~49.75~~	~~699~~	*iv.The Day-ahead market price of the Power Exchange having a market share of 80% or more in energy terms on a daily basis shall be taken into consideration for linking to the DSM price vector. If there is no single Power Exchange having a market share 80% or more, the weighted average day-ahead price shall be used for linking to the DSM price.*		
~~49.75~~	~~49.74~~	~~719.84~~			
~~49.74~~	~~49.73~~	~~740.68~~			
~~49.73~~	~~49.72~~	~~761.52~~			
~~49.72~~	~~49.71~~	~~782.36~~			
~~49.71~~	~~49.7~~	~~803.2~~			
~~49.7~~		~~824.04~~			
~~(Charges for deviation for each 0.01 Hz step is equivalent to 35.60 Paise/kWh in the frequency range of 50.05-50.00 Hz, and 20.84 Paise/kWh in frequency range 'below 50 Hz' to 'below 49.70 Hz')~~			*v.Daily average Area Clearing Prices (ACP) in the day-ahead market shall be used as the basis for market linked DSM price at 50 Hz.*		
			vi. Deviation price shall be rounded off to nearest two decimal places."		

Principal Regulation	Amendment Proposed in the Regulation
5. Charges for Deviations: Provided that– (i) the charges for the Deviation for the generating stations regulated by Commission using coal or lignite or gas supplied under Administered Price Mechanism (APM) as fuel, when actual injection is higher or lower than the scheduled generation, shall not exceed the Cap Rate ~~of 303.04 Paise/kWh~~ as per the methodology specified in clause (3) of this regulation:	Provided that– (i) the charges for the Deviation for the generating stations regulated by Commission using coal or lignite or gas supplied under Administered Price Mechanism (APM) as fuel, when actual injection is higher or lower than the scheduled generation, shall not exceed the **Cap Rate as per the methodology** specified in clause (3) of this regulation:

Principal Regulation	Amendment Proposed in the Regulation
5. Charges for Deviations: **(2) The Charge for Deviation shall be determined in accordance with the following methodology:** (b) ~~The Charge for Deviation corresponding to grid frequency interval of „below 50.01 Hz and not below 50.0 Hz shall be based on the median value of the average energy charge of coal/lignite based generating stations regulated by the Commission for any six month period preferably from July to December of previous year or from January to June for the year or any other six month period if deemed necessary and suitably adjusted upward to coincide with the Deviation Price Vector.~~	"(b) The Charge for Deviation corresponding to grid frequency interval of 'below 50.01 Hz and not below 50.0 Hz' shall be daily average Area Clearing Price discovered in the Day-Ahead Market (DAM) segment of Power Exchange. The day-ahead market price of the Power Exchange having a market share of 80% or more in energy terms on a daily basis shall be used for linking to the DSM price. If there is no single Power Exchange having a market share of 80% or more, the weighted average day-ahead price shall be considered".

Principal Regulation	Amendment Proposed in the Regulation
5. Charges for Deviations:	
(c) The Deviation Price Vectors shall accordingly, be in steps for a frequency interval of 0.01 Hz between grid frequency of (i) 50.05 Hz and below 50.01 Hz and not below 50.0 Hz and (ii) below 50.01 Hz and not below 50.0 Hz and below ~~49.70~~ **Hz.**	(c) The Deviation Price Vectors shall accordingly, be in steps for a frequency interval of 0.01 Hz between grid frequency of (i) 50.05 Hz and below 50.01 Hz and not below 50.0 Hz and (ii) below 50.01 Hz and not below 50.0 Hz and below **49.85 Hz.**
(d) ~~The Charge for Deviation at grid frequency "below 49.70 Hz" shall be based on the highest of the average energy charges of generating stations regulated by Commission on RLNG for any six month period preferably from July to December of previous year or from January to June for the year or any other six month period if deemed necessary and suitably adjusted upward to coincide with the Deviation Price Vector.~~	**"(d) The Charge for Deviation at grid frequency 'below 49.85 Hz' shall be 800 Paisa/KWh."**

Principal Regulation	Amendment Proposed in the Regulation
5. Charges for Deviations:	
(3) The Cap rate for the charges for the Deviation for the generating stations regulated by CERC using coal/lignite or gas supplied under Administered Price Mechanism (APM) as the fuel, ~~shall be the value coinciding with the energy charges on imported coal on Deviation Price Vector.~~	(3) The Cap rate for the charges for the Deviation for the generating stations regulated by CERC using coal/lignite or gas supplied under Administered Price Mechanism (APM) as the fuel, **"shall be equal to its energy charges as billed for the previous month".**
(4) ~~The Charges for Deviation may be reviewed by the Commission from time to time and shall be re-notified accordingly.~~	(4) **"The charges for deviation linked to Day Ahead Market prices shall be reviewed by the Commission after six months from the date of notification of these amendments".**
(5) RLNG **Rs.~~8.24~~ / kWh sent out**	(5) RLNG **Rs. 8.00** / kWh sent out

Principal Regulation	Amendment Proposed in the Regulation
7. Limits on Deviation volume and consequences of crossing limits	7. **Limits on Deviation volume and consequences of crossing limits**
(1) The over-drawals / under drawals of electricity by any buyer during a time block shall not exceed 12% of its scheduled drawal or 150 MW, whichever is lower, when grid frequency is ~~49.70~~ Hz and above and below ~~50.10~~ Hz	(1) The over-drawals / under drawals of electricity by any buyer during a time block shall not exceed 12% of its scheduled drawal or 150 MW, whichever is lower, when grid frequency is **49.85 Hz** and above and below **50.05 Hz**
Provided that	Provided that
i) over-drawal/under-drawal of electricity by any Renewable Rich State during the time block shall not exceed limits as specified in Annexure-III, when grid frequency is ~~49.70~~ Hz and above and below ~~50.10~~ Hz"	i) over-drawal/under-drawal of electricity by any Renewable Rich State during the time block shall not exceed limits as specified in Annexure-III, when grid frequency is **49.85 Hz** and above and below **50.05 Hz**

Principal Regulation	Amendment Proposed in the Regulation
7. Limits on Deviation volume and consequences of crossing limits	7. **Limits on Deviation volume and consequences of crossing limits**
ii) Provided that no overdrawal of electricity by any buyer shall be permissible when grid frequency is below ~~49.70~~ Hz and no underdrawal of electricity by any buyer shall be permissible when grid frequency is ~~50.10~~ Hz and above	ii) Provided that no overdrawal of electricity by any buyer shall be permissible when grid frequency is below **49.85 Hz** and no underdrawal of electricity by any buyer shall be permissible when grid frequency is **50.05 Hz** and above
	iii) **"Provided also that the total deviation from schedule in energy terms during a day shall not be in excess of 3% of the total schedule for the drawee entities and 1% for the generators and additional charge of 20% of the daily base DSM payable / receivable shall be applicable in case of said violation."**

Principal Regulation	Amendment Proposed in the Regulation
7. Limits on Deviation volume and consequences of crossing limits	**7. Limits on Deviation volume and consequences of crossing limits**
(2) The under-injection / over-injection of electricity shall not exceed following when grid frequency is ~~49.70~~ Hz or above and below ~~50.10~~ Hz:	(2) The under-injection / over-injection of electricity shall not exceed following when grid frequency is **49.85** Hz or above and below **50.05** Hz:
(b) Limits as specified in Annexure-III for Renewable Rich State.	(b) Limits as specified in Annexure-III for Renewable Rich State.
Provided that:	Provided that:
(i) In case schedule of a seller, in a time block, is less than or equal to 400 MW, under-injection / over-injection in a time-block shall not exceed 48 MW, when grid frequency is ~~49.70~~ Hz or above and below ~~50.10~~ Hz.	(i) In case schedule of a seller, in a time block, is less than or equal to 400 MW, under-injection / over-injection in a time-block shall not exceed 48 MW, when grid frequency is **49.85** Hz or above and below **50.05** Hz.

Principal Regulation	Amendment Proposed in the Regulation
7. Limits on Deviation volume and consequences of crossing limits	**7. Limits on Deviation volume and consequences of crossing limits**
(iii) No under injection of electricity by a seller shall be permissible when grid frequency is below ~~49,70~~ Hz and no over injection of electricity by a seller shall be permissible when grid frequency is ~~50.10~~ Hz and above.	(iii) No under injection of electricity by a seller shall be permissible when grid frequency is below **49.85** Hz and no over injection of electricity by a seller shall be permissible when grid frequency is **50.05** Hz and above.
(v) Any drawal of power by a generating station prior to COD of a unit for the start up activities shall be exempted from the volume limit specified above when grid frequency is ~~49.70~~ Hz and above.	(v) Any drawal of power by a generating station prior to COD of a unit for the start up activities shall be exempted from the volume limit specified above when grid frequency is **49.85** Hz and above.

Principal Regulation	Amendment Proposed in the Regulation
7. Limits on Deviation volume and consequences of crossing limits (3) In addition to Charges for Deviation as stipulated under Regulation 5 of these regulations, Additional Charge for Deviation shall be applicable for over-drawal as well as under-injection of electricity for each time block in excess of the volume limit specified in Clause (1) and (2) of this regulation when average grid frequency of the time block is ~~49.70~~ Hz and above at the rates specified in the table A & B below in accordance with the methodology specified in clause (7) of this regulation.	**7. Limits on Deviation volume and consequences of crossing limits** (3) In addition to Charges for Deviation as stipulated under Regulation 5 of these regulations, Additional Charge for Deviation shall be applicable for over-drawal as well as under-injection of electricity for each time block in excess of the volume limit specified in Clause (1) and (2) of this regulation when average grid frequency of the time block is **49.85** Hz and above at the rates specified in the table A & B below in accordance with the methodology specified in clause (7) of this regulation.

Principal Regulation	Amendment Proposed in the Regulation
7. Limits on Deviation volume and consequences of crossing limits **Provided that –** (i) Additional Charge for Deviation for under-injection of electricity, during a time-block in excess of the volume limit specified in clause (1) and (2) of this regulation when grid frequency is ~~49.70~~ **Hz** and above, by the generating stations regulated by the CERC using coal or lignite or gas supplied under Administered Price Mechanism (APM) as the fuel shall be at the rates specified below in accordance with the methodology specified in clause (9) of this regulation.	**7. Limits on Deviation volume and consequences of crossing limits** Provided that – (i) Additional Charge for Deviation for under-injection of electricity, during a time-block in excess of the volume limit specified in clause (1) and (2) of this regulation when grid frequency is **49.85 Hz** and above, by the generating stations regulated by 9 the CERC using coal or lignite or gas supplied under Administered Price Mechanism (APM) as the fuel shall be at the rates specified below in accordance with the methodology specified in clause (9) of this regulation.

Principal Regulation			Amendment Proposed in the Regulation		
7. Limits on Deviation volume and consequences of crossing limits			7. Limits on Deviation volume and consequences of crossing limits		
Table -II			Table -II		
	When 12% of Schedule is less than or equal to 150 MW			When 12% of Schedule is less than or equal to 150 MW	
(i)	For under injection of electricity by any seller in excess of 12% and up to 15% of the schedule	Equivalent to 20% of the ~~Cap Rate for Deviations of 203.01 Paise /kWh~~ or the Charge for Deviation corresponding to average grid frequency of the time block, whichever is less.	(i)	For under injection of electricity by any seller in excess of 12% and up to 15% of the schedule	Equivalent to 20% of the **Cap Rate being equivalent to the energy charges as billed for the previous month** or the Charge for Deviation corresponding to average grid frequency of the time block, whichever is less.
(ii)	For under injection of electricity by any seller in excess of 15 % and up to 20% of the schedule	Equivalent to 40% of the ~~Cap Rate for Deviations of 203.01 Paise /kWh~~ or the Charge for Deviation corresponding to average grid frequency of the time block, whichever is less	(ii)	For under injection of electricity by any seller in excess of 15 % and up to 20% of the schedule	Equivalent to 40% of the **Cap Rate being equivalent to the energy charges as billed for the previous month** or the Charge for Deviation corresponding to average grid frequency of the time block, whichever is less
(iii)	For under injection of electricity by any seller in excess of 20 % of the schedule	Equivalent to 100% of the ~~Cap Rate for Deviations of 203.01 Paise /kWh~~ or the Charge for Deviation corresponding to average grid frequency of the time block, whichever is less.	(iii)	For under injection of electricity by any seller in excess of 20 % of the schedule	Equivalent to 100% of the **Cap Rate being equivalent to the energy charges as billed for the previous month** or the Charge for Deviation corresponding to average grid frequency of the time block, whichever is less.
B	When 12% of Schedule is more than 150 MW		B	When 12% of Schedule is more than 150 MW	
(i)	For under injection of electricity by any seller is above 150 MW and up to 200 MW in a time block	Equivalent to 20% of the ~~Cap Rate for Deviations of 203.01 Paise /kWh~~ or the Charge for Deviation corresponding to average grid frequency of the time block, whichever is less.	(i)	For under injection of electricity by any seller is above 150 MW and up to 200 MW in a time block	Equivalent to 20% of the **Cap Rate being equivalent to the energy charges as billed for the previous month** or the Charge for Deviation corresponding to average grid frequency of the time block, whichever is less.
(ii)	For under injection of electricity by any seller is above 200 MW and up to 250 MW in a time block	Equivalent to 40% of the ~~Cap Rate for Deviations of 203.01 Paise /kWh~~ or the Charge for Deviation corresponding to average grid frequency of the time block, whichever is less.	(ii)	For under injection of electricity by any seller is above 200 MW and up to 250 MW in a time block	Equivalent to 40% of the **Cap Rate being equivalent to the energy charges as billed for the previous month** or the Charge for Deviation corresponding to average grid frequency of the time block, whichever is less.
(iii)	For under injection of electricity by any seller is above 250 MW in a time block	Equivalent to 100% of the ~~Cap Rate for Deviations of 203.01 Paise /kWh~~ or the Charge for Deviation corresponding to average grid frequency of the time block, whichever is less.	(iii)	For under injection of electricity by any seller is above 250 MW in a time block	Equivalent to 100% of the **Cap Rate being equivalent to the energy charges as billed for the previous month** or the Charge for Deviation corresponding to average grid frequency of the time block, whichever is less.

Principal Regulation	Amendment Proposed in the Regulation
7. Limits on Deviation volume and consequences of crossing limits	7. **Limits on Deviation volume and consequences of crossing limits**
(4) In addition to Charges for Deviation as stipulated under Regulation 5 of these regulations, Additional Charge for Deviation shall be applicable for over-injection/under drawal of electricity for each time block by a seller/buyer as the case may be when grid frequency is ~~50.10~~ Hz and above at the rates equivalent to charges of deviation corresponding to the grid frequency of below 50.01 Hz but not below 50.0 Hz.	(4) In addition to Charges for Deviation as stipulated under Regulation 5 of these regulations, Additional Charge for Deviation shall be applicable for over-injection/under drawal of electricity for each time block by a seller/buyer as the case may be when grid frequency is **50.05 Hz** and above at the rates equivalent to charges of deviation corresponding to the grid frequency of below 50.01 Hz but not below 50.0 Hz.

Principal Regulation	Amendment Proposed in the Regulation
7. Limits on Deviation volume and consequences of crossing limits **(6)** In addition to Charges for Deviation as stipulated under Regulation 5 of these Regulations, Additional Charge for Deviation shall be applicable for over-drawal or under-injection of electricity when grid frequency is ~~**below 49.70 Hz in accordance with the methodology specified in clause (8) of this regulation and the same shall be equivalent to 100% of the Charge for Deviation of 824.04 Paise/kWh corresponding to the grid frequency of below 49.70 Hz**~~.	**7. Limits on Deviation volume and consequences of crossing limits** (6) In addition to Charges for Deviation as stipulated under Regulation 5 of these Regulations, Additional Charge for Deviation shall be applicable for over-drawal or under-injection of electricity when grid frequency is **"below 49.85 Hz in accordance with the methodology specified in clause (8) of this regulation and the same shall be equivalent to 100% of the Charge for Deviation of 800 Paise / kWh corresponding to the grid frequency of below 49.85 Hz".**

Principal Regulation	Amendment Proposed in the Regulation
7. Limits on Deviation volume and consequences of crossing limits Provided further that Additional Charge for Deviation for under-injection of electricity by a seller, during the time-block when grid frequency is below ~~**49.70**~~ Hz, by the generating stations regulated by CERC using coal or lignite or gas supplied under Administered Price Mechanism (APM) as the fuel in accordance with the methodology specified in clause 8 of this regulation shall be equivalent to 100% of the ~~**Cap Rate for Deviations of 303.04 Paise/kWh.**~~	**7. Limits on Deviation volume and consequences of crossing limits** Provided further that Additional Charge for Deviation for under-injection of electricity by a seller, during the time-block when grid frequency is below **49.85 Hz**, by the generating stations regulated by CERC using coal or lignite or gas supplied under Administered Price Mechanism (APM) as the fuel in accordance with the methodology specified in clause 8 of this regulation shall be equivalent to 100% of the **"Cap Rate being equivalent to the energy charges as billed for the previous month"**

Principal Regulation	Amendment Proposed in the Regulation
7. Limits on Deviation volume and consequences of crossing limits	**7. Limits on Deviation volume and consequences of crossing limits**
(7) The Additional Charge for Deviation for over-drawal and under-injection of electricity for each time block in excess of the volume limit specified in clause (1) and (2) of this Regulation when grid frequency is ~~49.70~~ Hz and above shall be as specified by the Commission as a percentage of the charges for the Deviation corresponding to average grid frequency of the time block with due consideration to the behavior of the buyers and sellers towards grid discipline:	(7) The Additional Charge for Deviation for over-drawal and under-injection of electricity for each time block in excess of the volume limit specified in clause (1) and (2) of this Regulation when grid frequency is **49.85** Hz and above shall be as specified by the Commission as a percentage of the charges for the Deviation corresponding to average grid frequency of the time block with due consideration to the behavior of the buyers and sellers towards grid discipline:

Principal Regulation	Amendment Proposed in the Regulation
7. Limits on Deviation volume and consequences of crossing limits	**7. Limits on Deviation volume and consequences of crossing limits**
(8) The additional Charge for Deviation for over-drawals and under-injection of electricity for each time block when grid frequency is below ~~49.70~~ Hz shall be as specified by the Commission as a percentage of the charges for the Deviation 10 corresponding to average grid frequency of the time block with due consideration to the behavior of the buyers and sellers towards grid discipline:	(8) The additional Charge for Deviation for over-drawals and under-injection of electricity for each time block when grid frequency is below **49.85** Hz shall be as specified by the Commission as a percentage of the charges for the Deviation 10 corresponding to average grid frequency of the time block with due consideration to the behavior of the buyers and sellers towards grid discipline:
Provided that the Commission may specify different rates for Additional Charges for Deviation for over drawls and under injections and for different ranges of frequencies below ~~49.70~~ Hz.	Provided that the Commission may specify different rates for Additional Charges for Deviation for over drawls and under injections and for different ranges of frequencies below **49.85** Hz.

Principal Regulation	Amendment Proposed in the Regulation
7. Limits on Deviation volume and consequences of crossing limits	**7. Limits on Deviation volume and consequences of crossing limits**
(9) The Additional Charge for Deviation for under-injection of electricity during the time-block in excess of the volume limit specified in Clause (2) of this regulation when grid frequency is ~~49.70~~ Hz and above, by the generating stations regulated by CERC using coal/ lignite or gas supplied under Administered Price Mechanism (APM) as the fuel shall be as specified by the Commission as a percentage of the Cap Rate or the Charges for Deviation corresponding to the grid frequency of the time block, or both with due consideration to the behavior of the generating stations regulated by CERC towards grid discipline:	(9) The Additional Charge for Deviation for under-injection of electricity during the time-block in excess of the volume limit specified in Clause (2) of this regulation when grid frequency is **49.85** Hz and above, by the generating stations regulated by CERC using coal/ lignite or gas supplied under Administered Price Mechanism (APM) as the fuel shall be as specified by the Commission as a percentage of the Cap Rate or the Charges for Deviation corresponding to the grid frequency of the time block, or both with due consideration to the behavior of the generating stations regulated by CERC towards grid discipline:

Principal Regulation	Amendment Proposed in the Regulation
7. Limits on Deviation volume and consequences of crossing limits	**7. Limits on Deviation volume and consequences of crossing limits**
(10) In the event of sustained deviation from schedule in one direction (positive or negative) by any regional entity, such regional entity (buyer or seller) shall have to make sign of their deviation from schedule changed, at least once, after every ~~12 time blocks~~. To illustrate, if a regional entity has positive deviation from schedule from 07.30 hrs to ~~10.30~~ hrs, sign of its deviation from schedule shall be changed in the ~~13~~th time block i.e. ~~10.30 to 10.45~~ hrs from positive to negative or negative to positive as the case may be.	"In the event of sustained deviation from schedule in one direction (positive or negative) by any regional entity, such regional entity (buyer or seller) shall have to make sign of their deviation from schedule changed, at least once, after every **6 time blocks**. To illustrate, if a regional entity has positive deviation from schedule from 07.30 hrs to **09.00 hrs**, sign of its deviation from schedule shall be changed in the **7th** time block i.e. **09.00 hrs to 09.15** hrs from positive to negative or negative to positive as the case may be. **Provided that violation of the requirement under this clause shall attract an additional surcharge of 20% on the daily base DSM payable/receivable as the case may be.**"

13

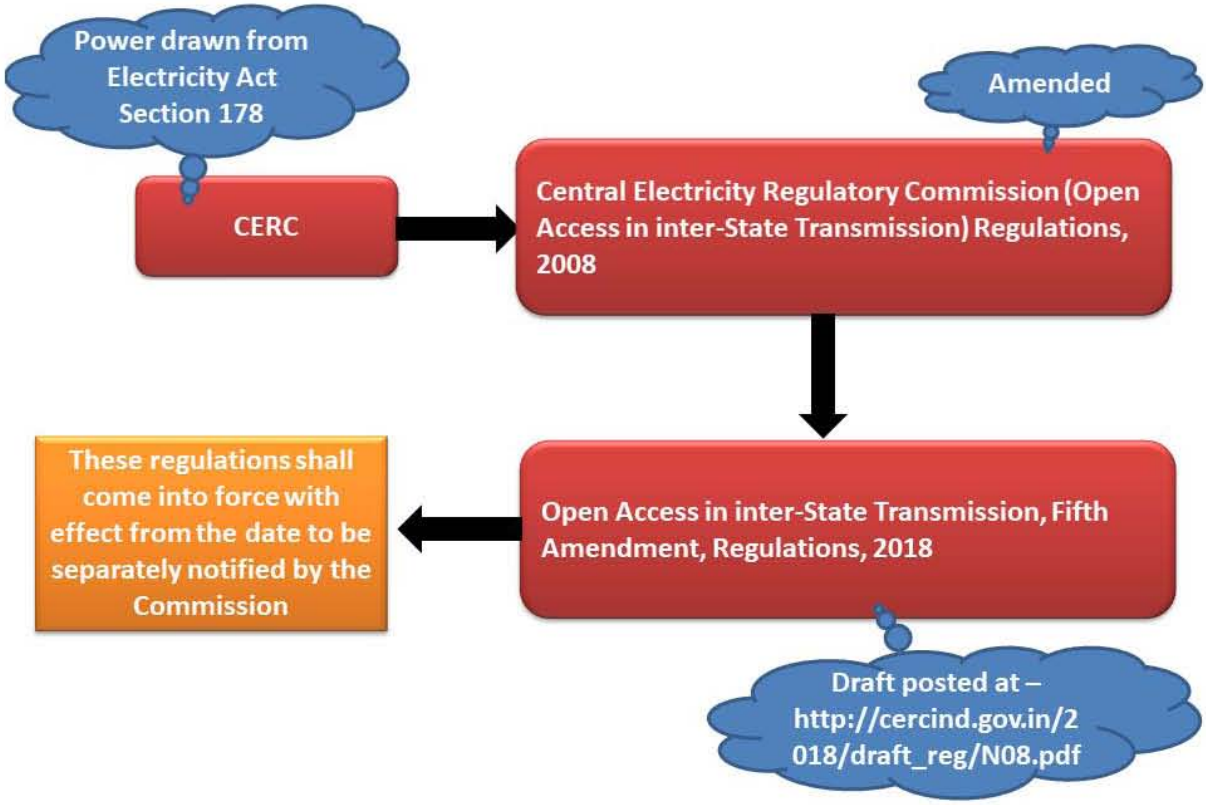
Annexure-2.2

Central Electricity Regulatory Commission

(Open Access in inter-State Transmission)
(Fifth Amendment)
Regulations, 2018

National Open Access Registry (NOAR)

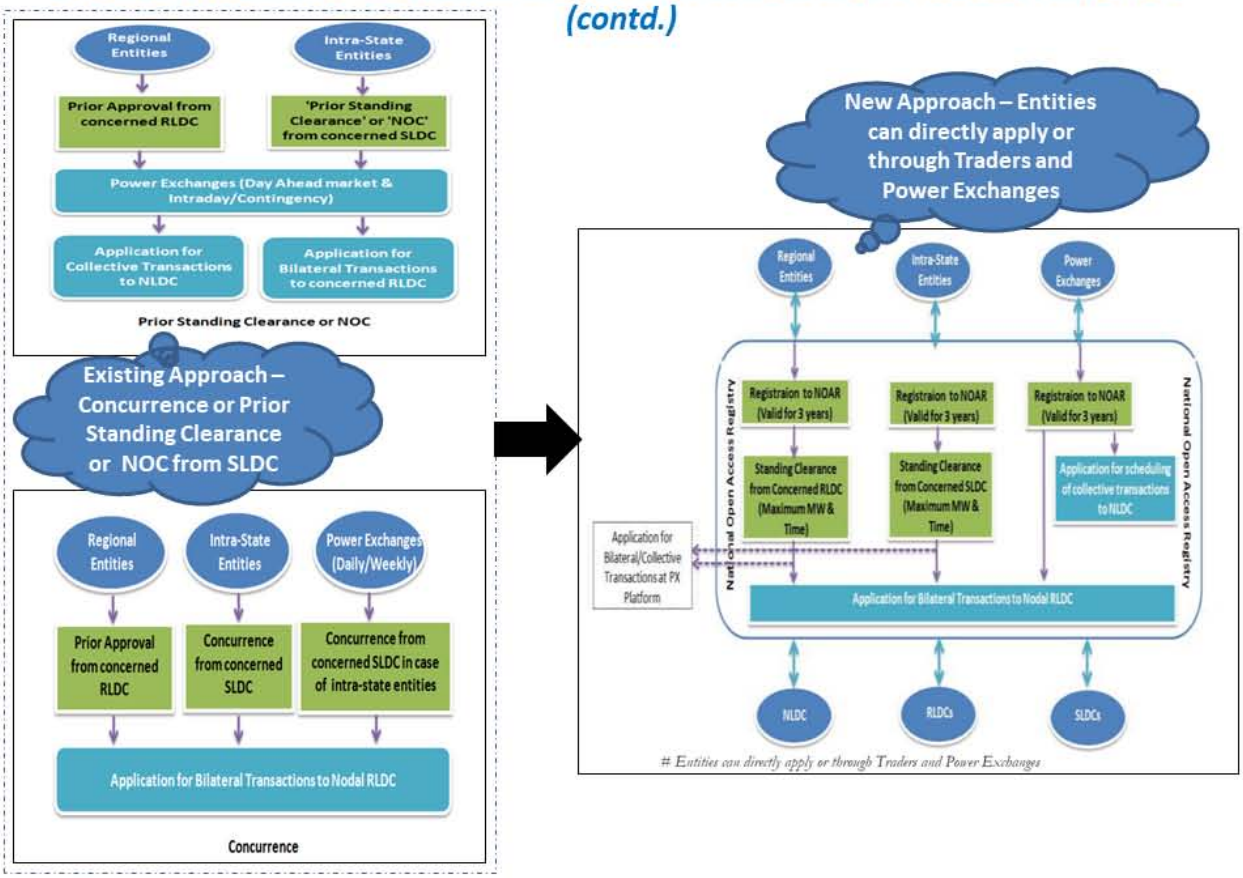
Open Access in inter-State Transmission, Fifth Amendment, Regulations, 2018



Draft CERC *(Open Access in inter-State Transmission) (Fifth Amendment) Regulations, 2018*

- **Public Notice - 8th August 2018**
- **Comments invited from all stakeholders - 7th September 2018**

Open Access in inter-State Transmission, Fifth Amendment, Regulations, 2018 (contd.)



Open Access in inter-State Transmission, Fifth Amendment, Regulations, 2018 (contd.)

S. No.	Description	Draft Regulation	Remarks
1	Regulation 2 of Principal Regulations	"(j-b) 'National Open Access Registry (NOAR)' means the Registry as provided under Regulation 3A;"	Clause added
2	New Regulation 3A - National Open Access Registry (NOAR)	"National Open Access Registry (NOAR) 3A (1). NOAR shall be a **centralized electronic platform** with the following functions:	Clause added
	*i) Provide **single point electronic interface** for all the stakeholders, including open access participant, trading licensees, Power Exchanges, NLDC/RLDCs/SLDCs and Regional Power Committees* ***ii) Automate the administration** of the short term open access in inter-state transmission system.* *iii) Provide **audit trail of the applications and dash board facility** summarizing at any point of time the details of the short term open applications made, approvals/rejections accorded by RLDC/SLDC's, applications pending etc.* *iv) Act as a **repository of information** related to short term open access in interstate transmission system* ***v) Interface with the scheduling software** applications of the RLDCs/SLDCs for processing short-term open access bilateral transactions* ***vi) Interface with the Power Exchange(s)** for verification of standing clearance and processing of term-ahead and day-ahead transactions* *vii) Provide a **payment gateway for making payments** related to short term open access transactions and facilitate financial accounting and tracking of short term open access transactions* *viii) Facilitate in **generating periodic reports** for market monitoring and surveillance related activities* *ix) Any other functions, as assigned by the Commission from time to time after assessment of the functioning of the Registry*		
		(2). The **short term open access applications shall be processed through NOAR** and information related to approvals, rejections, revisions, curtailment, payment schedules, etc. shall be made available through the NOAR to the respective market participants including providing alerts through email/SMS.	Clause added
		(3). NOAR shall be **owned and operated by NLDC (POSOCO).** Provided that:	Clause added
	*i. NLDC shall take all steps necessary to **ensure cyber security compliance of NOAR,** and report the compliance to the Commission on annual basis;* *ii. NLDC shall **review the operations of NOAR** from time to time and suggest changes required if any;* *iii. **Additional expenses** incurred on account of implementing and operating the NOAR shall be **allowed to be recovered** under the provisions of CERC (Fees and Charges of RLDC and other related matters) Regulations, 2009."*		

Open Access in inter-State Transmission, Fifth Amendment, Regulations, 2018 (contd.)

S. No.	Description	Draft Regulation	Remarks
3	Amendment to Regulation 4 (Detailed Procedure) of Principal Regulations	"4. Subject to the provisions of these regulations, POSOCO shall after conducting the stakeholder consultation, **issue the detailed procedure with prior approval of the Commission to operationalise open access through National Open Access Registry** and on any residual matter not covered under these regulations."	Substituted Regulation 4 of Principle Regulation
4	New Regulation 5A	"5A. The **processing of the short term open access applications for bilateral transactions by the nodal RLDC and for collective transactions through Power Exchange(s) by NLDC** shall be carried out through the NOAR."	New regulation added
5	New Regulation 5B – Registration in NOAR	"Registration in NOAR 5B. The short term open access **applicant shall initially apply for registration in the NOAR** with the information/document(s) as specified under the detailed procedure. Provided that: *i. The **application for registration** shall be accompanied by **Rs. 2000/-** to be completed within 7 working days from the date of receipt of application for registration.* *ii. The **registration shall be valid for a period of 3 years** and may be renewed thereafter with the payment of **renewal charges of Rs. 1000/-**."*	New regulation added
6	Amendment to Regulation 6 (Submission of Short-Term Open Access Application) of Principal Regulations	In the Clause (1) of Regulation 6 of the Principal Regulations the words **"shall make an application to the nodal agency"** shall be substituted with **"shall make an application to the nodal agency through NOAR".**	Some substitution done in regulation 6
7	Amendment to Regulation 7 (Application Fee) of Principal Regulations	Proviso to Regulation 7 shall be deleted	Deletion.

Open Access in inter-State Transmission, Fifth Amendment, Regulations, 2018 (contd.)

S. No.	Description	Draft Regulation	Remarks
8	Amendment to Regulation 8 (Concurrence of State Load Despatch Centre for bilateral and collective transactions) of Principal Regulations	Regulation 8 of the Principal Regulations shall be substituted as follows: ***"Standing Clearance by Load Despatch Centre for Short Term Transactions***	Regulation substituted.
	8. (1) An **online application, through the NOAR, shall be made by the short term open access applicant to the concerned SLDC/RLDC for issuance of a 'standing clearance'** for availing short term open access in interstate transmission for a pre-specified quantum and time period in accordance with the detailed procedures. Provided that while making application a declaration in the format prescribed in the detailed procedure shall be submitted along with the application declaring that there is no other contract for sale or purchase, as the case may be, of the same power for which standing clearance has been applied for. (2) While processing the application for standing clearance the SLDC/RLDC as the case may be, shall verify the following, namely- (i) **Existence of infrastructure necessary for time-block wise energy metering** and accounting in accordance with the provisions of the Grid code in force; (ii) **Availability of surplus transmission capacity** in the intra-State/inter- State network, as the case may be; (iii) Submission of declaration according to the proviso to clause (1) of this regulation. (3) Where the existence of necessary infrastructure, availability of surplus transmission capacity in the intra-state/inter-state transmission network as the case may be, and submission of declaration as required under proviso to clause (1) of this regulation have been established, the concerned SLDC/RLDC shall issue a standing clearance up to a maximum period of 3 months to the open access customer. Provided that i. The concerned SLDC/RLDC shall **issue the standing clearance within 3 working days** of receipt of such application. ii. The standing clearance may be issued by the concerned SLDC/RLDC for a **maximum period of three months** at a time after which a fresh application for issuance of standing clearance shall have to be made by the open access customer. iii. When short-term open access has been **applied for the first time by any person**, the buyer or the seller, the concerned SLDC/RLDC shall issue to the applicant **standing clearance, within seven (7) working days** of receipt of the application. (4) In case the concerned SLDC/RLDC finds that the application for standing clearance is incomplete or defective in any respect, it shall **communicate the deficiency or defect to the applicant through NOAR within two (2) working days** of receipt of application: Provided that in cases where the concerned SLDC/RLDC has communicated any deficiency or defect in the application, the date of receipt of application shall be the date on which the application has been received duly completed after removing the deficiency or rectifying the defects, as the case may be.		

Open Access in inter-State Transmission, Fifth Amendment, Regulations, 2018 (contd.)

S. No.	Description	Draft Regulation	Remarks
	(5) In case the application has been found to be in order but the **concerned SLDC/RLDC refuses to give the standing clearance** on the grounds of nonexistence of necessary infrastructure or unavailability of surplus transmission capacity in intra-state/inter-state network as the case may be, or non-submission of the declaration in accordance with proviso to clause (1) of this regulation then **such refusal shall be communicated to the applicant through NOAR within the period of three (3) working days or seven (7) working days** as the case may be, from the date of receipt of the application along with reasons for such refusal. Provided that where the concerned SLDC/RLDC has not communicated any deficiency or defect in the application within two (2) days from the receipt of the application or refusal or standing clearance, as the case may be, within the specified period of three (3) working days or seven (7) working days, as applicable, from the date of receipt of the application, the **NOAR shall issue a reminder message to the concerned SLDC/RLDC to respond to the application for refusal or issuance of standing clearance**, as the case may be, within the next two working days. Provided further that if the concerned SLDC/RLDC fails to respond to the reminder message sent through NOAR, then the standing clearance shall be deemed to have been granted. (6) The **open access customer to whom the standing clearance has been issued or deemed to have been issued, may schedule transactions under any of the categories of short term bilateral or collective transactions in OTC market and/or Power Exchange(s) market** provided that the total trade under all types of short-term inter-state transactions does not exceed the quantum of standing clearance issued by the concerned SLDC/RLDC. (7) **Violation of the quantum of the standing clearance may lead to withdrawal of the standing clearance by the concerned SLDC/RLDC under intimation to the NOAR.** Provided that persistent default (more than 3 such events) shall lead to debarring of the open access customer from NOAR for a minimum period of one month. Provided further that NOAR shall also display a list of such defaulters on the website. (8) The concerned **SLDC/RLDC may revise the quantum (MW) or period of the standing clearance issued in respect of any open access customer in case of transmission constraint or in the interest of secure grid operation** or if the allocated transmission corridor is observed to be under-utilized giving reasons for the same.''		

Open Access in inter-State Transmission, Fifth Amendment, Regulations, 2018 (contd.)

S. No.	Description	Draft Regulation	Remarks
9	Amendment to Regulation 9 (Procedure for Advance Scheduling for bilateral transactions) of Principal Regulations	10.1. In the Clause (1) of Regulation 9 of the Principal Regulations the words **"application for advance scheduling for a bilateral transaction may be submitted to the nodal agency up to the fourth month"** shall be substituted with **'application for advance scheduling for a bilateral transaction may be submitted to the nodal agency through NOAR up to the fourth month".** 10.2. In the Sub-Clause (c) of Clause (2), (3) & (4) of Regulation 9 of the Principal Regulations the words **"nodal agency shall convey its acceptance or otherwise to the applicant"** shall be substituted with **"nodal agency shall convey its acceptance or otherwise to the applicant through NOAR".** 10.3. In the Clause (5) of Regulation 9 of the Principal Regulations the words *"it shall convey its reasons to the applicant in writing"* shall be substituted with ***"it shall convey its reasons to the applicant through NOAR".***	Clauses modified/substituted.
10	Amendment to Regulation 10 (Congestion management) of Principal Regulations	In the Regulation 10 of the Principal Regulations the words **"it shall conduct electronic bidding"** shall be substituted with **"it shall conduct electronic bidding through NOAR".**	Clauses modified/substituted.
11	Amendment to Regulation 12 (Procedure for scheduling day ahead transactions) of Principal Regulations	*In the Regulation 12 of the Principal Regulations the heading* ***"Procedure for scheduling day ahead transactions"*** *shall be substituted with* ***"Procedure for scheduling day ahead bilateral transactions".***	Clauses modified/substituted.
12	Amendment to Regulation 13 (Procedure for scheduling of transactions in a contingency) of Principal Regulations	13.1. In the Regulation 13 of the Principal Regulations the heading **"Procedure for scheduling of transactions in a contingency"** shall be substituted with **"Procedure for scheduling contingency bilateral transactions".** 13.2. In the Regulation 13 of the Principal Regulations the words **"apply to the nodal agency for short-term open access and scheduling"** shall be substituted with **"apply to the nodal agency for short-term open access and scheduling through NOAR".**	Clauses modified/substituted.

Open Access in inter-State Transmission, Fifth Amendment, Regulations, 2018 (contd.)

S. No.	Description	Draft Regulation	Remarks
13	New Regulation 13A – Procedure for scheduling collective transactions	14.1. New Regulation ''13A'' shall be added after Regulation 13 of the Principal Regulations as provided below: ***''Procedure for scheduling collective transactions*** 13A.The **Power Exchange shall make an application to the nodal agency through the NOAR for scheduling of the collective transactions discovered on its platform.** The **nodal agency shall approve or advise the Power Exchange to revise the application** for scheduling of collective transactions based on the transmission corridor availability in accordance with the detailed procedures.''	New regulation added.
14	Amendment to Regulation 14 (Revision of Schedule) of Principal Regulations	15.1. In the Regulation 14 of the Principal Regulations the words **"made to the nodal agency by the short term customer"** shall be substituted with **"made to the nodal agency by the short term customer through NOAR''.**	Clauses modified/substituted.
15	Amendment to Regulation 15 (Curtailment in case of transmission constraints) of Principal Regulations	*16.1. In the clause (2) of Regulation 15 of the Principal Regulations the words **"be conveyed to the affected short-term customers"** shall be substituted with **"be conveyed to the affected short-term customers through NOAR''.***	Clauses modified/substituted.
16	New Regulation 18A	17.1. New Regulation ''18A'' shall be added after Regulation 18 of the Principal Regulations as provided below: ***''18A. All charges payable under these regulations shall be paid online through the payment gateway made available in the NOAR.''***	New regulation added.
17	New Proviso to Regulation 25A	18.1. New proviso to Regulation 25A of the Principal Regulations shall be added as provided below: *"Provided that **if the default in payment exceeds 90 days from the due date of payment of the charges as mentioned above, the NLDC or RLDC, as the case may be, may deny short term open access to the defaulting entity without approaching the Commission** for specific directions in this regard."*	New regulation added.

Open Access in inter-State Transmission, Fifth Amendment, Regulations, 2018 (contd.)

S. No.	Description	Draft Regulation	Remarks
18	Amendment to Regulation 27 (Information System-National Load Despatch Centre and Regional Load Despatch Centre) of Principal Regulations	19.1. In the Regulation 27 of the Principal Regulations the heading **'Information System- National Load Despatch Centre and Regional Load Despatch Centre"** shall be substituted with **"Information System-NOAR".** 19.2. In the Regulations 27 of the Principal Regulations the words **"National Load Despatch Centre and each Regional Load Despatch Centre shall post the following information on their website in a separate web page titled 'Open access information'"** shall be substituted with **"NOAR shall give information regarding open access in interstate transmission including but not limited to the following:"** 19.3. In the clause (a) of Regulations 27A of the Principal Regulations the words **"List of bilateral transactions for which concurrence has been granted and list of entities to whom concurrence or no objection or prior standing clearance, as the case may be, has been granted till the end of the month in which such concurrence or no objection or prior standing clearance has been granted, indicating:"** shall be substituted with **"List of entities to whom standing clearance, has been granted till the end of the month indicating:"** 19.4. In the sub-clause (ii) of clause (a) of Regulations 27A of the Principal Regulations the words **"Period of concurrence or no objection or prior standing clearance, as the case may be "**shall be substituted by **"Period of standing clearance"** 19.5. In the clause (d) of Regulations 27A of the Principal Regulations the words **"concurrence or no objection or prior standing clearance, as the case may be "** shall be substituted by **"standing clearance"**	Clauses modified/substituted.

THANK YOU

Annexure-2.3

Re-designing Real Time Electricity Markets in India

पावर सिस्टम ऑपरेशन
POSOCO

Market Operation, NRLDC New Delhi

Brief

Central Electricity Regulatory Commission vide it's public notice No.RA/14026(11)/2/2018-CERC dated 25th July, 2018 published a draft discussion paper on "Re-Designing Real Time Electricity Market in India" .

The commission has shown concern about the integration of targeted 175 GW Renewable energy in Indian grid. It is felt that adequate framework is required in terms of improvements in market operations closer to real time for better harnessing of intermittent RE and for optimal utilization of resources in the intra-day time horizon.

The comments / suggestion on same are solicited by the commission latest by 31st August, 2018, through post or email.

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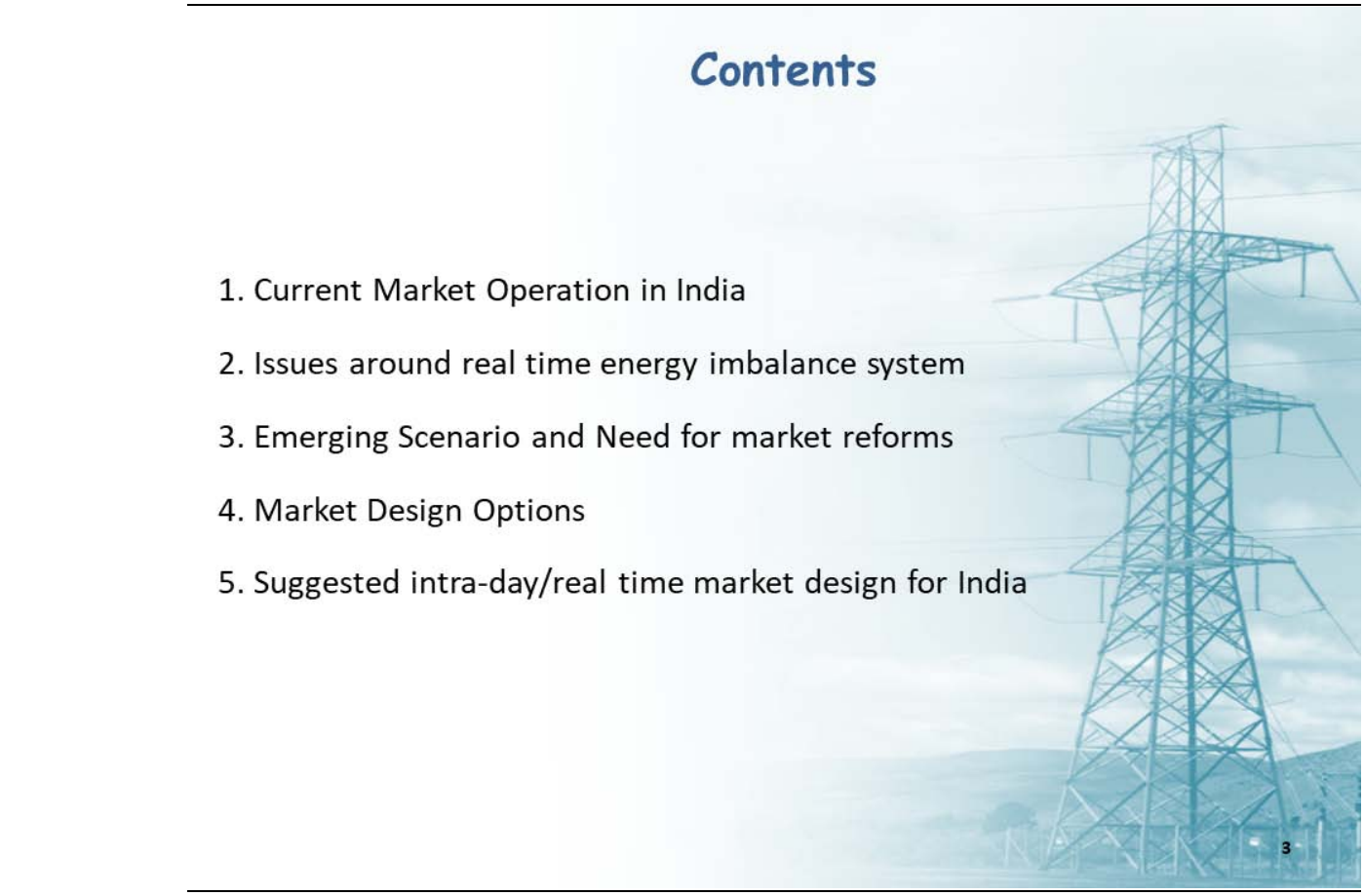
Contents



1. Current Market Operation in India
2. Issues around real time energy imbalance system
3. Emerging Scenario and Need for market reforms
4. Market Design Options
5. Suggested intra-day/real time market design for India

3

1. Current Market Operation in India

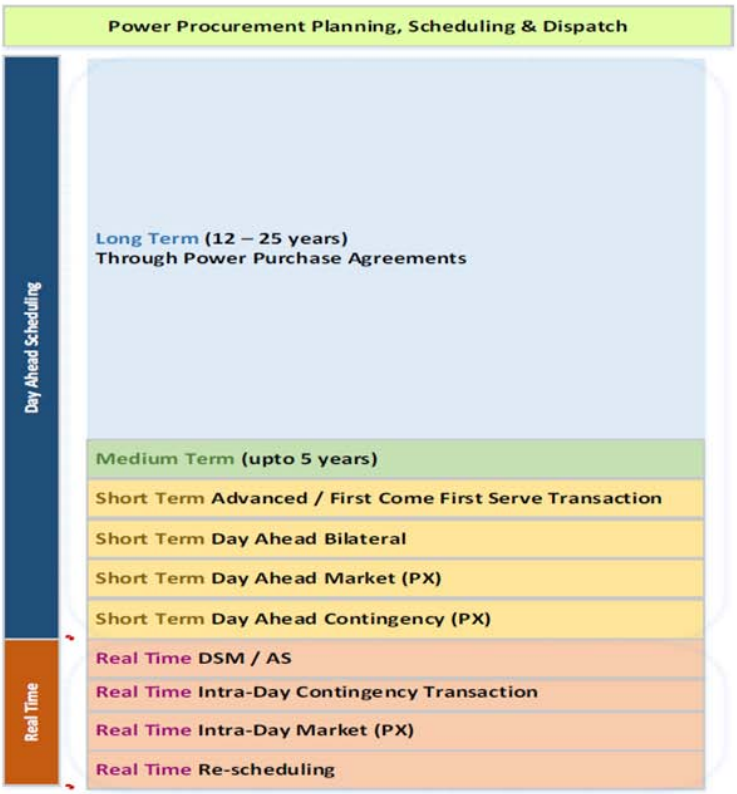
- *In India, the **Long-term contracts** are entered through PPAs for duration more than 7 years and it constitute **90%** share of demand.*

- *The remaining **10%**, are traded through traders, direct bilateral between the discoms and through power exchanges.*

- *After the day ahead scheduling , the* real time energy imbalance is managed by -
  a. Deviation Settlement Mechanism (DSM)
  b. Ancillary Services (RRAS) Mechanism
  c. Intra-day bilateral contingency transactions
  d. Intra-day market segment of the power exchanges
  e. Re-scheduling / Revision of Schedule four time blocks ahead (Right to recall)

4

Power Procurement Planning in India



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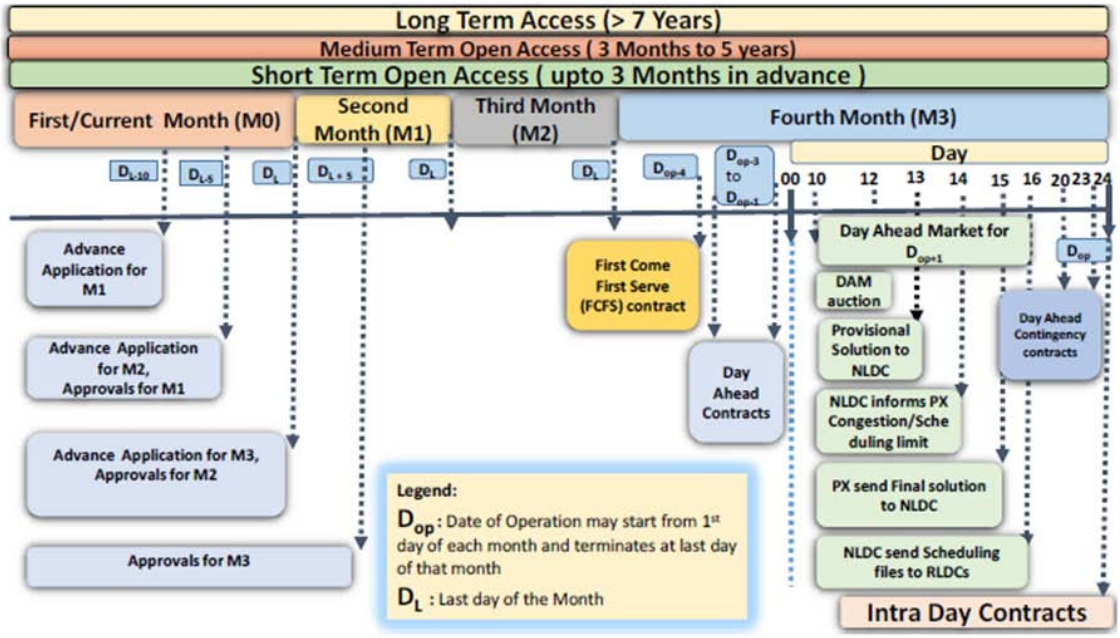
Transmission Access and Scheduling window in India



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2. Issues around real time energy imbalance system 1/2

• Use of DSM as an avenue for real time energy procurement and sale by the discoms and the generators.

•To reduce the same, the Commission has recently proposed amendments to DSM Regulations seeking to link DSM price vector to DAM price and proposed penalty on zero crossing (deviation sign change) in six time blocks.

•As experienced & reported by POSOCO, there are many of instances when RRAS has been used for longer period to managed the system imbalance.

•But this Use of regulation down or up services for such a long duration induces passive dependence of the discoms on this mechanism for their real time energy need. Such passivity is further accentuated as the AS costs are not “directly” incident on the utilities that were responsible for causing deviation.

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2. Issues around real time energy imbalance system 2/2

•The states whose demand is increasing in real time should ideally buy power in the Intraday Market. ***Ancillary services or DSM/UI cannot and should not act as substitute for energy trade at intra-day time horizon***.

•Intra-day market in the power exchange was specifically introduced to address the need for meeting energy requirements closer to real time.

•However, the performance of this segment of the market is not so encouraging so far and has remained static over the period and at a very miniscule level of less than 1%. A number of factors are responsible for such low response to this market segment –

a. Inertia of discoms
b. Absence of delegation of decision making power at operators' level
c. Price discovery methodology
d. Absence of Gate closure

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3. Emerging Scenario and Need for market reforms

• Integration of huge Uncertain and variable Renewable energy generation

•Growing adoption of distributed energy resources by end customers including roof top solar, RE sources connected at distribution and sub-transmission voltage levels.

•These resources are largely 'uncontrollable' by system operators even at the state level.

•Novel uses of electricity (e.g., for electric vehicles, battery charging), can also increase demand uncertainty.

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4. Market Design Options

(i) US type integrated system and market operation with auction based on uniform clearing price and gate closure

(ii) Europe type exchange based continuous trade with pay as you bid principle and gate closure

(iii) various options tried/contemplated in India, viz., banking, administered bilateral/multi-lateral transactions, market based intra-day auctions.

The Forum of Regulators deliberated upon all the above options and recommended implementation of ***Pool based auction for intra-day on hourly basis***.

In order to operationalize this option, appropriate regulatory interventions through amendments to the existing electricity market framework, are required to be considered.
And the concept of gate closure can also be introduced for guaranteeing firmness and sanctity of schedules in intra-day trades.

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5. Suggested intra-day/real time market design for India

Intra-day Load Generation Management

Market Operation – Framework			
Categories of Market	**Day Ahead Market (DAM)**	**Real Time Market (RTM)**	**System Imbalance/Ancillary Services Market**
Purpose	Energy Trade	Energy Trade	Inadvertent deviation management
Market Operation – India			
Current	DA (self-scheduling + Power Exchange (PX))	Deviation settlement Mechanism (DSM) + Ancillary Services (AS) + Intra-Day (PX) + Re-Scheduling (4 time blocks prior to dispatch)+ Intra-day contingency	
Desirable	DA (self-scheduling + PX)	Real Time Market (Hourly), with gate closure	DSM + AS

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Proposed Real-time Market design:

Commission has proposed to re-design the intraday market mechanisms as follows:-

➢The markets shall be based on double sided closed auctions with uniform market clearing price.

➢The real time market shall be conducted once in every hour for delivery in four fifteen minute blocks in each hour.

➢Timelines for Real Time Markets (RTM): RTM will involve double sided closed auctions with Uniform Market Clearing Price, with timelines as shown in next slide.

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Timeline for Proposed Real Time Market

RTM Auction Start Time	RTM Auction End Time	RTM Clearing Interval	Communication with RLDC/SLDC and Schedule Preparation	Delivery Period (Delivery on the Same Day, MCP and MCV will be discovered for each 15 minute block)
22:30 Hrs (of the previous day)	23:00 Hrs (of the previous day)	23:00 Hrs – 23:30 Hrs (of the previous day)	23:30 Hrs – 24:00 Hrs	00:00:00 - 01:00:00
23:30 Hrs (of the previous day)	00:00 Hrs (of the delivery day)	00:00 Hrs - 00:30 Hrs	00:30 Hrs – 01:00 Hrs	01:00:00 – 02:00:00
…				
07:30 Hrs	08:00 Hrs	08:00 Hrs - 08:30 Hrs)	08:30 Hrs – 09:00 Hrs	09:00:00 – 10:00:00
…				
21:30Hrs	22:00Hrs	22:00 Hrs – 22:30 Hrs	22:30 Hrs – 23:00 Hrs	23:00:00 – 00:00:00

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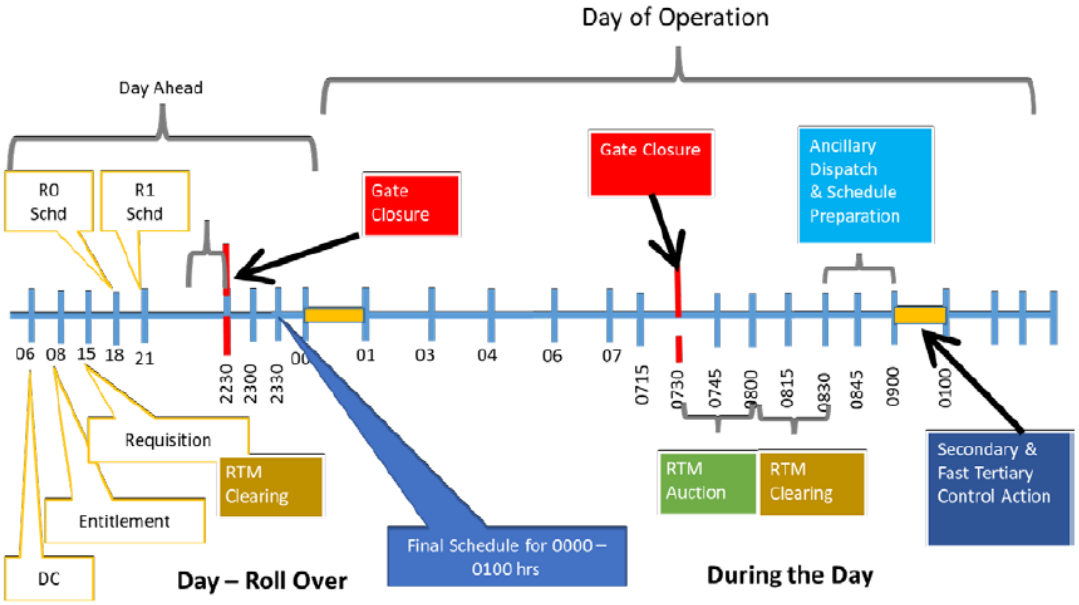
Pictorially, the above schedule is reflected as:-



As it is evident, the energy trade for the first hour (00.00 Hrs. to 01.00 Hrs.) of the day starts at 22.30 Hrs. of the previous day and is repeated every hour thereafter.

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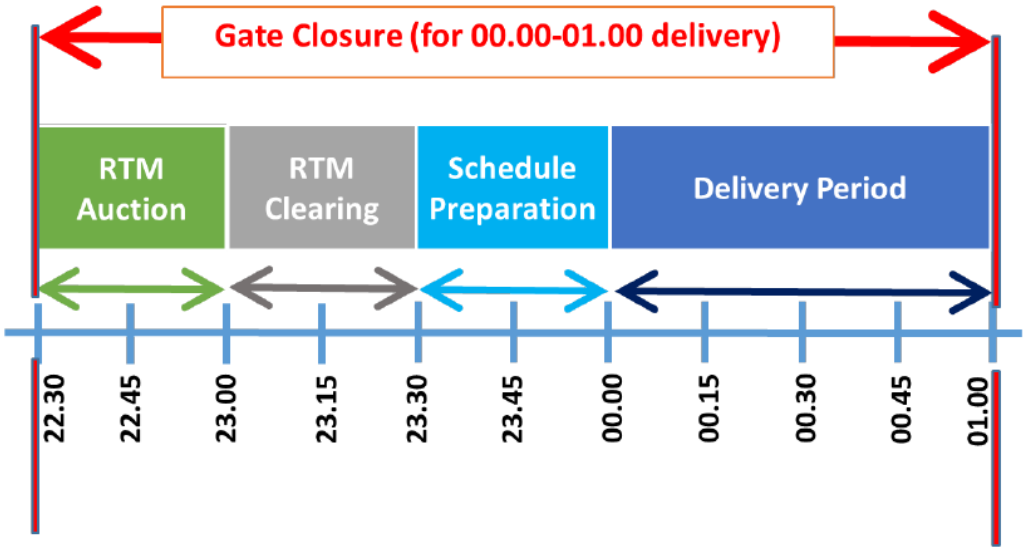
For operationalizing real time markets, the schedules decided at the end of RTM clearing have to be both financially and physically binding. For this, the concept of Gate Closure is to be introduced.



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Settlement in the proposed Real Time Market

All day-ahead schedules (as a matter of principle) are "firm financial commitments". Firm financial commitment means that a supplier (generator or trader) receives revenue from day ahead schedules regardless of real time output of its generation unit.

➢If a supplier is scheduled 40 MWh on day ahead at a price of INR 2500 / MWh, it receives INR 1,00,000 for sales. Any shortfall or surplus from day ahead generation schedule shall be rebalanced in real time market (unlike in the existing system where such deviations are settled through DSM). If a supplier produces only 30 MWh in real time, it must purchase 10 MWh (to match day ahead commitment) from real time market at real time price. This "purchase" by the generator is not for sale to the discom – this must be construed as generator making up for shortfall from its day-ahead commitment (day ahead schedule).

➢Same logic applies to a discom / buying entity. If it is scheduled (day ahead) to draw 100 MWh for INR 4000/MWh (contract price) it pays INR 4,00,000 regardless of real time consumption. If the discom / buying entity consumes 110 MWh, it must buy additional 10 MWh in real time market at real time price.

➢If the load serving entity consumes 90 MWh, it sells 10 MWh not consumed in realtime market at real time price.

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➢Real Time Markets must, therefore, be such that they allow generators / discoms to correct their positions in the real time markets, but with financial commitment for each such transaction.

➢RTM is an energy only market and as such the play in this market is around the variable or marginal cost. The fixed cost liability will be borne / settled as per the existing contract. In the event of such generator earning revenue over and above the regulated variable cost, the gain shall be shared in the ratio of 50: 50 with the beneficiary as per the stipulation in the tariff policy.

➢Illustrations of various scenarios to explain the concept of RTM have been provided in next slides.

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Scenario 1: Case with significant intermittent resources

Suppose a thermal unit is scheduled 100 MWh at price of INR 5000/MWh in dayahead and wind resource is scheduled 80 MWh in day ahead at same price.

- In real time, significantly less wind is produced than was scheduled
- Wind produces 50 MWh, so must purchase 30 MWh from realtime market at INR 9000/MWh
- Thermal unit must maintain supply and demand balance, which explains high realtime price - Sells 30 MWh at realtime of INR 9000/MWh
- Average price paid to thermal and intermittent units
  - **INR 5923.08/ MWh= (100 MWh*INR 5000/MWh + 30 MWh* INR 9000/MWh)/130 MWh)**
  - **INR 2600/MWh = (80 MWh* INR 5000/MWh – 30 MWh*INR 9000/MWh)/50 MWh**
- Dispatchable unit rewarded with higher average price than nondispatchable intermittent unit.

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Scenario 2: Case of unexpectedly high intermittent resource output

- Wind resource is scheduled 50 MWh in dayahead market and thermal unit is scheduled 130 MWh. Both have a contract price of INR 5000/MWh

- Intermittent resource produces 80 MWh, which implies that it sells 30 MWh in realtime market at INR 2000/MWh
  - Low realtime price because of unexpectedly large wind output

- Thermal resource buys back 30 MWh in realtime at INR 2000/MWh

- Average prices paid to thermal and intermittent units
  - INR 5900 / MWh = (130 MWh*INR 5000/MWh – 30MWh*INR2000/MWh)/100/MWh
  - INR 3875 / MWh = (50 MWh *INR5000/MWh + 30 MWh*INR2000/MWh) /80 MWh

- In this case, dispatchable unit is rewarded with higher average price than intermittent unit because it can reduce its output

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Scenario 3: Case of generators and discoms tied up in a long term PPA:

A discom does not requisition / schedule power on day-ahead and until the gate closure, from a generator (with whom it has entered into a long term contract and has committed to pay fixed cost), such generator can sell the un-requisitioned surplus in the Real Time Market.

- The net revenue earned by such generator, over and above its variable cost, shall be shared with the discom in the ratio of 50:50. However, the fixed cost liability in respect of such generator shall continue to be borne by the discom as per the existing contract.
- Before the Gate Closure for any hourly transactions, the discom itself could also choose to sell in the RTM, the un-requisitioned power from the generator, and earn the entire revenue accruing from the sale of such power.
- In case, the discom has not, on day–ahead / until the gate closure, requisitioned / scheduled power from the generator and the generator has already sold such un-requisitioned power in the RTM, and the discom needs power closer to real time, then the discom, instead of schedule revision or exercising right to recall the generator, need to go to the RTM to meet its contingency requirement.

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Way forward:

Given the constraints in existing market operation and system operation and the challenges facing energy imbalance in real time, it is high time the country brought about changes in the market design in the real time segment as suggested in previous slides.

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Thank you for attention
पावर सिस्टम ऑपरेशन
POSOCO

Annexure-2.4

"Implementation of 5-Minute Scheduling, Metering, Accounting and Settlement" & FRAS

CERC ORDER DATED 16-07-2018

- *CERC has issued order dated 16-July-2018 in Suo Motu Petition No. 07/SM/2018 regarding pilot Project on 05-Minute Scheduling, Metering, Accounting and Settlement for Thermal/Hydro,and on Hydro as Fast Response Ancillary Services (FRAS).*

2

BACKGROUND

- *The GOI has set a target of achieving RE capacity of 175 GW by 2022.*
- *The framework for forecasting, scheduling and deviation settlement for wind and solar has been put in place.*
- *To enable thermal generators to provide balancing support, necessary regulatory framework has been provided defining technical minimum for such plants and commensurate compensation for flexing such (thermal) generation up to technical minimum.*
- *The Commission has also issued Suo Motu order delineating the road map for operationalizing reserves.*
  - *The primary reserves - mandatory*
  - *secondary control -a pilot project on Automatic Generation Control (AGC).*
  - *Tertiary control - regulations on Reserves Regulation Ancillary Services(RRAS)*
- *FOR has constituted a Technical Committee to develop complementary intra-State level regulatory framework for RE integration*

3

Extracts from 63rd FOR Minutes of Meeting

"Sub-group for implementation of 5 minute Scheduling, Metering, Accounting and Settlement ……

- Need to move to 5-minute scheduling and settlement in view of the increasing RE penetration.
- The international experience evinces that shorter dispatch and settlement period such as 5-minutes offers a lot of advantages, particularly in terms of reduction in the requirement of reserve, robust price discovery and bringing out the value of flexibility.
- In advanced markets like in Australia and USA, the framework of 5-minute scheduling, dispatch and settlement has already been introduced.
- A sub-Group constituted by the Committee has also examined the proposal and suggested that, on a pilot basis, 5-minute capable meters may be installed at say, 4-5 locations in each Region to gain practical experience in 5-minute metering, interfacing requirements/ file interchange formats and develop data analytics/ tools for 5-minute metering, data validation, reporting, etc.
- It was recognized that pilot project would help in formulation/ refinements of Technical specifications and Software Requirement Specifications (SRS) for Metering Software at RLDCs and Accounting Software at RPCs for 5-minute metering.
- Forum requested CERC and CEA to take initiative forward with pilot studies as suggested at the earliest. Results may be shared with forum to enable SERCs to take similar action at State level.

4

Extracts from 63rd FOR Minutes of Meeting

Introduction of Fast Response Ancillary Services (FRAS) From Hydro Generating Stations

- *The marginal cost for hydro generation is almost zero and the segregation of fixed and variable charges in case of hydro is only notional. Thus, the present model of ancillary services, which relies on payment of fixed charges, variable charges and incentive is incompatible for hydro stations.* ***Therefore, in order to harness the flexibility and fast response provided by storage and pondge hydro, a framework of Fast Response Ancillary Services for providing frequency regulation services was proposed.***
- *The Forum endorsed the recommendation of the Technical Committee for pilot studies on FRAS for Hydro (along with pilot studies on 5-Minute Scheduling, Metering, Accounting and Settlement) in the States of Andhra Pradesh, Rajasthan, Telangana, Uttar Pradesh and West Bengal."*
- *POSOCO in May 2018 has also proposed to implement pilot on FRAS through Hydro projects along with 5-MinutesScheduling, Metering, Accounting and Settlement and has requested for suitable directions from the Commission.*

5

Observations in the NITI Aayog Report of the Expert Group on 175GW by 2022

"Scheduling and Dispatch: Through both practice and theory, it is evident that grids that are operated in a manner where scheduling and dispatch are implemented over short time durations(e.g.; as low as five minutes) have significantly lower overall costs to consumers as the need for ancillary resources decreases.

Currently, in Inida, scheduling occurs on a day ahead basis while dispatch occurs on a 15 minute basis. System operations technologies and protocols need to be updated to eanable five minute scheduling and dispatch of all resources connected to the grid and automated incorporation of the RE forecasts.

It should be noted that the accuracy of RE forecasts is significantly higher the closer they get to dispatch. Consequently, the ancillary service requirements will also be lower."

Fast Response Ancillary Services (FRAS) From Hydro Generating Stations

- *Present Reserves Regulation Ancillary Services (RRAS) Mechanism*
  - *This is primarily a framework for slow tertiary reserves at the ISTS level*
  - *actions at the power plant happen after 16-30 minutes*
  - *The Commission recognizes the need for introduction of Fast Response Ancillary Services.*
  - *predominantly utilizes the thermal power stations which have ramping limitations and as such there is a need for a fast response ancillary service.*
  - *Hydro stations are "energy limited resources" unlike the thermal stations (coal based) which are "ramp limited resources".*
  - *Hydro stations are also subject to limitations/constraints in terms of water inflows as well as the quantum of water that can be released based on reasons other than power generation requirements.*

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Fast Response Ancillary Services (FRAS) From Hydro Generating Stations

- *The CEA (Technical Standards for Connectivity to the Grid) Regulations, 2007 and CEA(Technical Standards for Connectivity to the Grid) Regulations, 2013 mention the following:-*

  "All generating machines irrespective of capacity shall have electronically controlled governing system with appropriate speed/load characteristics to regulate frequency. The governors of thermal generating units shall have a droop of 3 to 6% and those of hydro generating units 0 to 10%."

- *Hydro stations Characterstics*
  - *respond very quickly and much faster than thermal/gas stations.*
  - *more suitable for handling sharp fluctuations such as those observed at the hour boundary.*
  - *Thus, fast responding ancillary service from hydro stations may be used primarily for* ***regulation service*** *from storage/pondage based hydro stations for example to handle the hour boundary frequency spikes.*
  - *With increasing quantum of renewable penetration, fast response ancillary can also act as a mechanism to handle the intermittency.*

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Features of Fast Response Ancillary Services (FRAS) From Hydro Generating Stations

- All constraints and commitments declared by the Hydro stations to be honoured
- Total energy delivered over the day shall be maintained as declared by the hydro stations
- The total energy dispatched under FRAS shall be squared off by the end of the day.
- Triggering of FRAS will be based on the balance energy available in the hydro station
- Schedule of Beneficiary will not be disturbed
- Payment for FRAS will be on 'mileage'basis.
- The mileage shall be computed as follows:

  (a) Net Energy Enet = $\sum$ Eup - $\sum$ Edown(in MWh) (should be zero over the day)

  (b) Mileage Em = $\sum$ |Eup |+ $\sum$ |Edown|(in MWh)
- No additional fixed charge or variable charge
- Existing fixed charge and variable charge continue to be paid by the beneficiary

Cost Implication

Cost Estimate for Implementation of Pilot Project on Fast Response Ancillary Service and 05-Minute Metering

Pilot Project for Fast Response Ancillary Service (FRAS) with Hydro Scheduling and Ancillary Services Co-optimization		
At NLDC Control Centre		
S.No.	**Title**	**Approximate Cost (in ₹)**
1.	Annual License for Open source, object-oriented web application development platform (Eg. Zend Software)	65,000
2.	Enterprise License for High-level Modeling System for Mathematical Optimization with Solver (Eg. GAMS Optimization Software with CPLEX Solver)	22,75,000
3.	Two Server(s) (Main and Hot Standby) to install all the desired software	24,00,000
4.	Two Workstations	1,70,000
5.	Rack	65,000
	Total	**49,75,000**

Pilot Project for 05-Minute Metering		
5-Minute Main and Check Meters (with AMR feature) to be installed at NTPC Dadri (15 Nos.), THDC Tehri (2 Nos.), NTPC Mouda (14 Nos.), NTPC Simhadri (6 Nos.), NTPC Bongaigaon (4 Nos.), NTPC Barh (4 Nos.), NHPC Teesta (2 Nos.), NHPC Loktak (4 Nos.) generating stations.		
S.No.	**Title**	**Approximate Cost (in ₹)**
1.	51x2=102 Meter Nos. (~ **₹ 50,000 /meter)**	51,00,000
2.	Spare Meters (20 % of total nos.) = 20 Meter Nos.	10,00,000
3.	Additional costs for installation, upgradation (h/w & s/w) and commissioning (@ 50 %)	26,00,000
	Total	**87,00,000**

Notes:

1. *The pilot project for FRAS would cover all the central sector hydro generating stations.*
2. *The pilot project for 05-Minute metering would cover hydro stations in NR, ER and NER as well as thermal stations in all five regions (identified for AGC installation too).*
3. *The cost of the 05-Minute Pilot Metering (Tendering to Commissioning) to be borne by CTU. The cost may be recovered through filing of tariff petition before CERC.*
4. *At present, AGC is implemented only in Dadri. Hence, pilot project will include NTPC Dadri initially, though the project cost includes five stations of NTPC. For NTPC Mouda & Simhadri, orders have been placed for AGC implementation. For NTPC Bongaigaon & Barh AGC implementation is yet to be initiated. Therefore, for NTPC Mouda & Simhadri, Bongaigaon and Barh, the pilot study will be done along with AGC implementation subsequently.*

- Technical specifications for pilot project could be same as Technical Specifications for interface Energy meters , Automated Meter Reading system and Meter data processing for inter-state system in Western Region as approved in 34th TCC/WRPC meeting held on 27-28 July 2017 in Mumbai
- For this pilot project an incentive at the rate of 10 paise per kWh both for Regulation Up and Regulation Down shall be provided to hydro stations

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SUMMARY OF DECISION

A. 5 – minute Scheduling, metering, accounting and settlement

- POSOCO shall implement 5-minute metering pilot project
  - covering hydro stations in NR, ER and NER as well as thermal stations with AGC installations in all five regions
  - to gain experience which would help in formulation/refinements of Technical specifications and Software Requirement Specifications (SRS) for Metering Software at RLDCs and Accounting Software at RPCs for 5-minute metering.Software Requirement Specifications (SRS) for Metering Software at RLDCs and Accounting Software at RPCs for 5-minute metering.
- As a pilot, 5-minute metering can be in parallel with 15-minute metering.
- All future procurements of Interface Energy Meters should ideally have recording at 5-min interval and frequency resolution of 0.01 Hz. They should be capable of recording voltage and Reactive Energy at every 5-min and should have feature of auto-time synchronization through GPS.
- "Technical Specification for Interface Energy Meters, Automated Meter Reading System and Meter Data Processing for Inter State System in Western Region", approved in the 34thTCC/WRPC meeting held on 27-28 July 2017 in Mumbai may be used for the pilot projects.
- CEA to expedite the notification of amended Metering Standards for interface metering with 05-minute capability
- CTU to procure and install 5 minute meters in the pilot by August 2018
- The cost of such procurement shall be reimbursed to CTU.

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SUMMARY OF DECISION

***B.* Fast Response Ancillary Services (FRAS) from Hydro Generating Stations**

- POSOCO shall implement pilot project for FRAS covering all Central sector hydro generating stations.
- All constraints declared by the hydro stations shall be honored and the total energy delivered over the day shall be maintained as declared by the hydro station.
- The total energy dispatched under FRAS shall be squared off by the end of the day.
- FRAS shall be triggered based on a stack prepared based on the balance energy available in the hydro station. The Schedules of the beneficiaries shall not be disturbed in the despatch of FRAS.
- The RPCs shall issue weekly FRAS accounts along with the RRAS accounts
- Incentive shall be paid from the DSM Pool on mileage basis at the rate of 10 paise per kWh both for „up" and „down" regulation provided by the hydro station.
- All Central sector hydro generators are directed to cooperate and assist POSOCO in successfully conducting the pilot project.
- The Central sector hydro stations shall follow the FRAS instructions issued by NLDC and the performance would be monitored by RLDCs/NLDC

The Pilot Studies is to be completed within 6 months of issue of this order. 14

Annexure-32.1

List of Defective/Faulty SEM meters in Northern Region as on 11.09.2018

S. N.	Meter No.	Element Name	Station /Utility	Issue	Remarks(if any)	Updated status
1	NR-4532-A	400kV Chittorgarh PG-2 at Chittorgarh-RVPNL	RVPNL	Read 1/3rd	Meter to be rectified/ replaced by NR-1	Jan-18
2	NP-1240-A	GT-6-Stage-2 (400kV) at Dadri-NTPC	NTPC	Read less	Meter to be replaced by NR-1	Meter replaced
3	NP-1129-A	33kV Delhi-3 at Rohtak Road-BBMB	BBMB	Meter Faulty	Meter to be checked/replaced by NR-1	Meter replaced
4	NP-1192-A	220/132kV ICT-1(220kV)-100MVA,BHEL at S'madhopr-RVPNL	RVPNL	Meter faulty	Meter to be replaced by NR-1	Meter replaced
5	NP-1585-A	220kV NAPS-1 at Khurja-UPPCL	UPPCL	Meter Reading Less	To be checked and rectified by NR-1	Meter replaced
6	NP-3062-A	220kV NAPS at Simbhauli-UPPCL	UPPCL	Meter 2/3	To be checked and rectified by NR-1	23.04.18
7	NP-1349-A	220/132kV ICT-2(220kV) at Hissar-BBMB	BBMB	Data not received	DCD to be provided at Site by NR-1	Meter replaced but DCD and software not provided for downloading of data
8	NR-4482-A	220kV CBGunj-1 at Tanakpur HPS	NHPC	Data not received due to CMRI issue	To be resolved by NR-1	06.08.18
9	NP-5440-A	GT-3(132 kV) at Kotla HPS	BBMB	Meter reading less	Meter to be checked/replaced by NR-2	04.12.2017
10	NP-1861-A	ICT-1 (132 kV) at Udhampur-PDD	PDD, J&K	Meter is reading zero	Meter to be checked/replaced by NR-2	19.06.2017
11	NP-5478-A	400 kV Kishenpur-PG-2 at Baglihar	PDD, J&K	Meter data not received	Software to be provided for downloading of data by NR-2	24.06.2014
12	NP-1333-A	220 kV Bhiwani -1 at Bhiwani-HVPN	HVPN	Meter defective/no display in meter	Meter to be replaced by NR-2	Meter replaced
13	NP-1695-A	66kV UT Chd-2 Sec28 at Dhulkote-BBMB	BBMB	Time delay in meter	Meter to be replaced by NR-2	Meter replaced
14	NR-3291-A	GT-3 (220kV) at Kishenganga HEP	NHPC	Read half	Meter to be rectified/replaced by NR-2	Rectified
15	NP-1899-A	ICT-1(400 kV) at Panipat-BBMB	BBMB	Read 0	Meter to be rectified/replaced by NR-2	Meter replaced

S. N.	Meter No.	Element Name	Station /Utility	Issue	Remarks(if any)	Updated status
16	NP-5425-A	220 kV Hissar(BBMB) at Hissar IA-1-HVPN	HVPN	Read 0	Meter to be rectified/replaced by NR-2	18.06.18
17	NP-1430-A	66 kV Mohali-1 at Chandigarh UT-Sec.56	BBMB	Meter Display problem	Meter to be replaced by NR-2	10.07.2018
18	NP-1841-A	400kV URI-II at Uri HPS	NHPC	Read Less	Meter to be rectified/replaced by NR-2	Meter rectified (Also 01 check meter to be installed)
19	NP-1647-A	220/132kV ICT-3(220kV) at Jamalpur-BBMB	BBMB	Meter Faulty	Meter to be rectified/replaced by NR-2	07.08.18
20	NR-3328-A	220kV Barnala(BBMB) at Sangrur-BBMB	BBMB	Showing advance date by 02 days	Meter to be rectified/replaced by NR-2	13.08.18
21	NP-6960-A	220 KV Chamera-3 at Lanco Budhil HEP	HEP	Meter Faulty	Meter to be rectified/replaced by NR-2	Meter replaced
22	NP-1548-A	GT-4 (400kV) at Singrauli STPS	NTPC	Meter Faulty	Meter to be rectified/replaced by NR-3	15.08.18
23	NR-4607-A	220 kV Allahabad-I at Railways(Naini)	Naini	Read Less	Meter to be rectified/replaced by NR-3	April-18
24	NR-4608-A	220 kV Allahabad-II at Railways(Naini)	Naini	Read Less	Meter to be rectified/replaced by NR-3	April-18

Annexure-AA.4

एनटीपीसी लिमिटेड
(भारत सरकार का उद्यम)
NTPC Limited
(A Govt. of India Enterprise)

केन्द्रीय कार्यालय/ Corporate Centre

28.08.2018

Superintending Engineer (Commercial Circle)
Northern Regional Power Committee (NRPC)
18-A, Shaheed Jeet Singh Marg
Katwaria Sarai, New Delhi - 110016

Sub: Agenda for 37th CSC meeting scheduled on 31st Aug 2018

Sir,

This has reference to the notice dtd 23.07.2018 regarding Agenda items for 37th Commercial Sub-Committee(CSC) meeting which is scheduled to be held on 31st Aug 2018. The following Agenda may be included for the meeting :

Agenda for 37th NRPC CSC meeting scheduled on 31st Aug 2018

Timely issuance of Regional Energy Account

Northern Region Power Committee (NRPC) issues Regional Energy Accounts (REA's) for NR region every month. Subsequently SLDC Delhi issues Intra State provisional energy account for discoms of Delhi detailing various allocation, scheduled energy and other components. It is observed that NRPC REA is generally issued on 3rd or 4th of every month followed by issuance of Delhi SLDC Energy Account on the next working day. In cases where date of NRPC REA falls on Friday, Delhi Energy Account is issued on the next Monday, i.e. after a gap of two days. This results in substantial delay for NTPC to raise their monthly bills to its beneficiaries. Nowadays quantum of NTPC power through regional linkages are significantly increasing and delay in issuance of NRPC REA delays the raising of bills for NR and other regions also.

In view of the above, it is proposed to issue provisional REA by NRPC incorporating the shares of Delhi Discoms based on Scheduled drawal of previous month by 2nd of every month. For issuing final REA, it is proposed to adopt methodology as decided in 33rd Commercial Committee meeting.

Thanking you,

Yours sincerely,

AGM(Commercial)

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