

North Eastern Regional Power Committee

MINUTES OF THE 137th OPERATION COORDINATION

SUB-COMMITTEE MEETING OF NERPC

Date : 27/10/2017 (Friday)
Time : 10:00 hrs
Venue : "Hotel Nandan", Guwahati.

The List of Participants in the 137th OCC Meeting is attached at **Annexure – I**

Shri P.K. Mishra, Member Secretary, NERPC welcomed all the participants to the 137th OCC meeting. He informed the members regarding the successful conclusion of RPC meeting. Further he apprised the members of following developments pertaining to RPC meeting:

- Concerns regarding below-par attendance in Sub-Committee meetings by some constituents of NERPC were raised with Power Ministers of NER.
- Funds disbursed from PSDF are to be utilized in time bound manner by states.
- Shortage of staff at SLDCs particularly that of Arunachal Pradesh, Nagaland & Tripura.
- Requirement of Capacitor banks are to be studied in detail and the progress would be monitored in OCC.

Thereafter, Member Secretary requested Shri B. Lyngkhoi, Director/SE(C&O) to take up the agenda for discussion. SE(C&O), NERPC welcomed representative from M/s CDAC, and requested him to give a detailed presentation on the progress of "Real Time Energy Assessment for Effective Grid Management".

A. CONFIRMATION OF MINUTES

CONFIRMATION OF MINUTES OF 136th MEETING OF OPERATION SUB-COMMITTEE OF NERPC.

The minutes of 136th meeting of Operation Sub-committee held on 13th September, 2017 at Guwahati were circulated vide letter No. NERPC/SE (O)/OCC/2016/4556-4591 dated 28th September, 2017.

The Sub-committee confirmed the minutes of 136th OCCM of NERPC with no modifications as no comments/observations were received from the constituents.

ITEMS FOR DISCUSSION

B.1. ACTION TAKEN:**1. IMPLEMENTATION OF PROJECTS FUNDED FROM PSDF:**The status as informed in 137th OCC:

State	Protection System	ADMS	Capacitor Installation	SAMAST**
Arunachal Pradesh	Tendering in process.	DPR preparation stage.	-	SLDC to apprise SERC of the project.
Nagaland	Work under execution. Completion by 31.12.17.	Under scrutiny of Techno-Economic Sub-group.	Under process of approval. To submit undertaking and other required documents.	Documents and relevant papers have been furnished to Nagaland SERC as desired by Chairperson, SERC. SERC has requested for a presentation at Kohima/Nagaland by the SAMAST group
Mizoram	Main Equipment and Diagnostic Tools LOA issued. Remaining LOAs by Nov'17.	To be further examined by Techno-Economic Sub-group after interaction with consultant.	Proposal on hold. To be considered upon funds being available.	To furnish action plan.
Manipur	By Sept'17 all tenders to be completed. By Sept-Oct'17 all LOAs' to be issued.	Pilot project under scrutiny of Techno-Economic Sub-group. To submit clarification.	-	NERPC/NERLDC members to meet SERC /MSPCL higher officials to enable take-off of the project.
Tripura	LOAs' completed. MI going on.	Submitted to NPC/NLDC.	Under Study stage**	NERPC/NERLDC members to meet TSERC /TSECL higher officials to enable take-off of the project.
Assam	By Oct'17 all LOAs would be	Under scrutiny of Techno-	-	Joint meeting of Assam, Meghalaya, NERLDC & NERPC to

	issued. Remaining tenders by Sept'17.	Economic Sub-group.		be held at Kahelipara on 22.09.17 for finalisation of DPR.
Meghalaya	MePTCL – Remaining 7% LOAs by first week of November. MePGCL – all LOAs complete	DPR submitted to CEA & NLDC	-	To initiate activity for identification of Metering points.

Deliberation of the sub-Committee:

SE(C&O), NERPC informed that for ADMS all DPRs' are under scrutiny of the Appraisal Committee and would be approved after interaction with concerned utilities, DPR preparing agencies at RPC level in next OCC meeting. Regarding Capacitor Bank he intimated that certain discriminatory points have been raised by NLDC/NPC, which will be taken up by NERPC in due course of time.

DGM(AM),NERTS opined that Capacitor bank may be installed in places where there is voltage drop due to high inductive drawal. After detailed deliberation the forum decided that concerned utilities would conduct system studies at 33/11kV level and revert back to the forum as soon as possible. SE(C&O) also informed that pending payment issue for Nagaland, Assam & Meghalaya would be resolved soon and thanked CE, NPC for the support.

DGM(MO),NERLDC apprised members of the status of SAMAST project for Assam:

He informed that Assam draft DPR has been made ready and as decided in 4th SAMAST group meeting, draft DPR have been shared with Meghalaya. In case of Assam, there would be 100 Metering locations and about 1200 Meters.

Regarding software and database requirement (enterprise version vs. standard version), it was explained that the cost would vary and a decision would have to be taken by the SAMAST group.

Meghalaya was advised to finalise their DPR based on Assam draft. The forum also decided that a meeting of the SAMAST group with MeECL officials would be convened at Shillong to finalise DPR for Meghalaya. **It was also agreed to share the drafts with other States to enable them to proceed with DPR preparation.**

States requested for visit of SAMAST group to the States. S.E(C&O),NERPC stated that same would be done at the earliest.

S.E(C&O), NERPC informed that as per discussions in 18th TCC/RPC Transmission Line Lightning Arrestors are to be installed by state utilities with funding from PSDF. He suggested that this may be included as a separate column and reviewed regularly in OCC. Members concurred.

The Sub-Committee noted as above.

Action: All state utilities/NERPC.

2. Outage of Important Grid Elements:

Name of the Element	Name of Utility	Status as informed in 137th OCC
63MVAR Reactor at Byrnihat to replaced with 80MVAR Reactor	MePTCL	DPR complete. Board approval awaited.
400KV 80MVAR Bus Reactor at Palatana	OTPC	04 Nos bushing to be replaced. Work would be completed by OTPC itself. Tentative completion 31.12.2017.
132 kV Jiribam – Rengpang S/C	MSPCL	Line charged from Rengpang. The 132/33kV, 20MVA transformer at Jiribam (MA) charged on 25.10.2017.
132 kV Mariani (AEGCL) – Mokokchung (DoP, Nagaland) S/C	DoP Nagaland & AEGCL	Line cannot be charged due to low insulation. RCE of ₹ 43 lakhs to be sanctioned by Nov'17.
132 kV P K Bari – Silchar I & II	NERTS	Nov'17-One circuit (subject to weather condition, if water recedes then within 10 days on ERS). By Dec'17 permanent restoration.
132 kV Dimapur - Dimapur I	NERTS	Bay work at Dimapur(PG) completed by NERTS. Nagaland has to charge from their end. To be dropped.
132 kV Hailakandi – Dullavcherra	AEGCL	By Dec'17.
250MW Unit#II BgTPP	NTPC	1 st week of Nov'17.

The Sub-Committee noted as above.

Action: AEGCL, MePTCL, OTPC, NERTS, NERLDC/NERPC.

3. Furnishing of various data for reliable grid operation:

Data regarding	Status as of 137 th OCC	
UFR Operation Report	SLDCs of Arunachal Pradesh, Assam, Meghalaya, Mizoram, Nagaland and Tripura submitted for September'17. Agenda may be dropped	
DAS output for FRC calculation	BgTPP, Palatana, RHEP, AGTCCPP STGs, Monarchak to submit data as and when asked by NERLDC. NEEPCO informed that Tuirial HEP has DAS.	
Furnishing Geographic co-ordinates of nodes	MSPCL, MePTCL, P&ED, Mizoram and POWERGRID submitted the data. DoP, Arunachal Pradesh, AEGCL, DoP, Nagaland and TSECL yet to submit the data.	
Report on VDI/FDI	Submitted by SLDC of Assam (Daily Basis) and Meghalaya (Monthly Basis). Other SLDCs not yet submitted.	
DG healthiness report	OTPC, AGTCCPP, AGBPP, Khandong, Kopili, AEGCL, MePGCL, P&E, Mizoram, DoP, Nagaland and TSECL submitted for September'17.	
Auxiliary Supply details	To be reviewed after Third Party Protection Audit.	
Technical & Commercial data for PoC (Q4 2017-18)	NTPC, NEEPCO, OTPC, NHPC, DoP, Arunachal Pradesh, MSPCL, AEGCL, MePTCL, DoP, Nagaland, TSECL submitted the data. P&E, Mizoram yet to submit. TSECL & MePTCL to submit YTC data	
Operating Procedures.	Items	Data submitted by
	OP of States	Submitted only by AEGCL and MePTCL only
	OP of HVDC	Not Submitted
	OP of Transmission System	Not submitted by any constituents
	OP of Generating Stations	Not submitted by any generators
	OP of GIS	Not submitted by any constituents
Data related to Power Map	Items	Data submitted by
	Communication (PLCC/OPGW/ GPRS/VSAT/ Satellite)	Not submitted by any constituents
Data related to Single Line Diagram.	SEM Location of States	Not submitted by any constituents
Data for monthly PSP	NTPC, P&ED Mizoram & DoP Arunachal Pradesh not submitting on time.	

NERLDC has also requested that Water level, inflow details, discharge quantity & Number of Gate opening (in case of spillage) of Hydro Plants be recorded on a 12 hour basis (2 entries in a day) and to be submitted to NERPC & NERLDC on a monthly basis for proper operational planning.

Status on submission of Data during 137th OCC

SI no	Station	Water level (12 hours basis)	Inflow	Discharge	Gate Opening
1	Kopili	Daily Basis	Not giving	Daily Basis	Daily Basis
2	Khandong	Daily Basis	Not giving	Daily Basis	Daily Basis
3	Ranganadi	Not giving	Daily Basis	Daily Basis	Not giving
4	Doyang	Not giving	Not giving	Monthly Basis upto Sep'17	Monthly Basis upto Sep'17
5	Loktak	Monthly Basis upto July'17	Not giving	Monthly Basis upto July'17	Monthly Basis upto July'17
6	Nagaland	Monthly Basis upto Aug'17	Monthly Basis upto Aug'17	Monthly Basis upto Aug'17	Not giving
7	Meghalaya	Monthly Basis upto Sep'17	Not giving	Not giving	Monthly Basis upto Sep'17
8	Assam	Not giving	Not giving	Not giving	Not giving
9	Tripura	Not giving	Not giving	Not giving	Not giving

The Sub-committee noted as above.

Action: All utilities as above.

B.2. OPERATIONAL PERFORMANCE AND GRID DISCIPLINE DURING SEPTEMBER, 2017

As per the data made available by NERLDC, the grid performance parameters for September, 2017 are given below:

NER PERFORMANCE DURING SEPTEMBER, 2017

States	Energy Met (MU)		w.r.t. Aug,17 % inc (+) /dec (-)	Energy Reqr. (MU)		w.r.t. July,17 % inc (+) /dec (-)	% inc (+) /dec (-) of energy reqr vs met. In Sept,17
	September-17	August-17		September-17	August-17		
Ar. Pradesh	64.90	64.99	-0.14	66.13	66.25	-0.18	-1.86
Assam	876.70	919.39	-4.64	920.44	958.86	-4.01	-4.75
Manipur	65.39	65.62	-0.35	66.72	67.13	-0.61	-1.99
Meghalaya	116.62	123.02	-5.20	116.62	123.02	-5.20	0.00
Mizoram	36.05	36.01	0.11	37.04	37.04	0.00	-2.67
Nagaland	69.26	71.88	-3.64	70.38	73.25	-3.92	-1.59
Tripura	127.55	124.32	2.60	129.75	127.11	2.08	-1.70
Region	1356.47	1405.24	-3.47	1407.07	1452.66	-3.14	-3.60

States	Demand Met (MW)		w.r.t. July, 17 % inc (+) /dec (-)	Demand in (MW)		w.r.t. July, 17 % inc (+) /dec (-)	% inc (+) /dec (-) of Demand vs met. In Aug, 17
	Sept-17	Aug-17		Sept-17	Aug-17		
Ar. Pradesh	128	130	-1.54	135	132	2.27	-5.19
Assam	1718	1684	2.02	1770	1735	2.02	-2.94
Manipur	165	163	1.23	166	164	1.22	-0.60
Meghalaya	326	297	9.76	325	297	9.43	0.31
Mizoram	85	81	4.94	87	84	3.57	-2.30
Nagaland	141	137	2.92	147	138	6.52	-4.08
Tripura	306	271	12.92	306	276	10.87	0.00
Region	2520	2442	3.19	2629	2529	3.95	-4.15

REGIONAL GENERATION & INTER-REGIONAL EXCHANGE IN MU

AVERAGE FREQUENCY (Hz)

Month---->	Sept-17	August-17	Month---->	Sept-17	August-17
Total Generation in NER (Gross)	1473.211	1409.517		% of Time	% of Time
Total Central Sector Generation (Gross)	1052.596	960.812	Below 49.9 Hz	11.85	7.12
Total State Sector Generation (Gross)	420.615	448.705	Between 49.9 to 50.05 Hz	78.73	76.99
Inter-Regional Energy Exchange			Above 50.05 Hz	9.57	15.88
(a) NER-ER	2.83	0.00	Average	49.97	49.99
(b) ER-NER	465.76	554.91	Maximum	50.32	50.20
(c) NER-NR	438.76	404.26	Minimum	49.62	49.65
(d) NR-NER	0.00	0.00			
© Net Import	24.17	150.65			

Deliberation of the sub-Committee:

GM, NERLDC informed that in the recent past during disturbances AGTCCPP was not able to restore their system quickly despite the fact that power was extended to them from Kumarghat S/S through 132 kV Kumarghat - AGTCCPP S/C line immediately after the disturbances. They were citing either voltage or frequency issues for these delays. He also told that earlier AGTCCPP used to be very fast in restoring their system and extending power to Agartala and Kumarghat as per requirement for grid restoration purposes. During those periods early restorations of grid after many disturbances were possible with their active support. Due to present problems at AGTCCPP restoration process getting delayed. He requested NEEPCO to look into the matter urgently and take corrective measures so that such delays in

restoration can be avoided in future. Sr. Manager, NEEPCO stated that he will take up the issue with concerned authorities for suitable action.

NERLDC gave a presentation on the grid performance for the month of September 2017. NERLDC also highlighted that Daily, Weekly and Monthly Voltage Deviation Report, Frequency Deviation Report and System Reliability Report for September'17 are already mailed to all the constituents for necessary actions. Further it was informed that members may access these reports from NERLDC website under the tab CERC KPI Reports.

The Sub-Committee noted as above.

ITEMS FOR DISCUSSION

C. OLD ITEMS

1. Status of Generating Units, Transmission Lines in NER:

During 137th OCC meeting, the status as informed by different beneficiaries is as follows:

SN	Items	Status as given in 137 th OCC Meeting	Status as given in 136 th OCC Meeting
a. New Projects			
1	CoD of Unit -II of Bongaigoan TPS of NTPC	CoD by Nov'17	CoD by Oct'17
2	400/220kV, 315 MVA ICT-1 of NTPC at Bongaigaon	ICT-1 - Nov'17	ICT-1 - Nov'17
3	Kameng HEP of NEEPCO two units (2 x 150 MW) Next two units (2x150 MW)	Delay in dam construction. First unit by early 2018.	Delay in dam construction. First unit by early 2018.
4	Pare HEP of NEEPCO (2 x 55 MW)	Delay in dam construction. First unit by early 2018.	Delay in dam construction. First unit by early 2018.
5	400 kV D/C Silchar - Melriat line of PGCIL	March, 2018.	December, 2017.

6	220kV Rangia - Salakati of AEGCL	Delayed. Termination of agreement due to bankruptcy of construction agency.	By Mar'18 to be completed.
7	132kV Monarchak – Surjamaninagar D/C of TSECL	March'18.	Compensation issue. Target March'18
8	132kV Surjamaninagar Bay at OTPC	Referred to SCM Agenda to be dropped	Referred to SCM
9	400kV D/C Balipara – Kameng	To be matched with Kameng HEP.	To be matched with Kameng HEP.
10	RHEP 80 MVAR Bus Reactor	Studies to be conducted in detail.	NEEPCO internal approval by Sept'17***
11	SLDCs (Ar. Pradesh, Manipur, Mizoram, Nagaland)	All SLDCs'by Mar'18 full fledged operation.	Manipur – Completed, Mizoram- Completed, Nagaland-SAT going on, AP-SAT going on.
12	400/220 kV 315 MVA ICT-II at Bongaigaon	Manufacturing stage	Manufacturing stage
13	220/132 kV, 2x160 MVA ICTs at Balipara	ICT-I: DoCO 31.09.17. ICT-II: delayed	ICT -I - Sept'17 ICT-II delayed.
14	220/132 kV, 1x160 MVA ICT with GIS Bay at Kopili	Delayed.	Delayed.
15	400/132 kV, 1x315 MVA ICT-III at Silchar	Delayed.	Delayed.
16	Replacement of 2x315 MVA ICTs with 2x500 MVA ICTs at Misa (PG)	Delayed.	Delayed.
17	400 kV Silchar – Misa D/C	2019	2019
18	1x125 MVAR Bus Reactor at 400 kV at Balipara	December, 2017(LOA date).	December, 2017(LOA date).
19	1x125 MVAR Bus Reactor at 400 kV Bongaigaon	December, 2017(LOA date).	December, 2017(LOA date).
20	Bays at Hailakandi & 132V Silchar-Hailakandi	Nov'17	Oct'17
21	Tuirial HEP of NEEPCO	Unit #I -Trial run completed Unit #II -	Unit #I -Sept'2017 Unit #II - Oct'2017

		Dec'2017	
22	400 kV, 63 MVAR Bus Reactor #II at Biswanath Chariali	Oct'17	Sept'17
23	220 kV, 1x31.5 MVAR Bus Reactor at Mokochung	Reactor not at site. To be dropped and reviewed later on.	December'2017
24	33kV bay at 220kV Mariani(AS) S/Sn	Formalities to be completed by NERTS with AEGCL.	Oct'17
25	HS Trip Relay at 400kV Byrnihat & Azara	Not required.	-
26	33kV Tezu-Tezu(AP)	Dec'17	-
27	33kV bay for 132kV Badarpur(PG) S/Sn	APDCL to revert back with status.	-
b. Elements under breakdown/ upgradation			
28	Up-gradation of 132 kV Lumshnong-Panchgram line	Tendering in process.	EE (SP),MePTCL - DPR approved.
29	Switchable line Reactors at 400kV Balipara & Bongaigoan	CSD to be procured. Bongaigaon-Dec'17	CSD to be procured. Bongaigaon-Nov'17
30	PLCC Panels at Loktak end of Loktak - Ningthoukhong 132 kV feeder and Loktak - Rengpang 132 kV feeder	May'2018	May'2018
31	LILO of 132kV Ranganadi - Nirjuli at Pare of NEEPCO by PGCIL	Completion to be confirmed in writing by NERTS.	LILO completed. Line yet to be charged
32	LILO of 132kV Ranganadi - Itanagar (Chimpu) at Pare of Ar. Pradesh	Bay 1 at RHEP for Pare: Dec'17 Bay 2 at RHEP for Itanagar: Mar'18	Bay 1 at RHEP for Pare: Sept'17 Bay 2 at RHEP for Itanagar: Mar'18
33	LILO portion of 132kV Ranganadi - Nirjuli(diversion work) at Lekhi by DoP Ar. Pradesh	Dec'17	-
34	Replacement of Main-I relay for 400kV Silchar-Byrnihat at Byrnihat S/Sn	Nov'17	Procurement process started. NERTS informed that spare relay is available and may be configured through SCADA. By Dec'17.
35	Re-conductoring of 132kV Umiam Stg#III - Umtru	DPR preparation stage.	-

Deliberation of the sub-Committee:

Sr. Manager, NEEPCO informed that telemetry from Turial HEP upto Zuangtui is not yet complete. Hence CoD cannot be declared by NEEPCO. He requested P&ED Mizoram to accelerate work on completion of link from Zuangtui upto SLDC Mizoram.

NERLDC highlighted the issue of temporary arrangement by AEGCL of Sonabil S/S for overloading of 220/132 kV ICTs at Balipara. The 220/132 kV 50 MVA ICT -I was replaced with 160 MVA and charged on 29.09.17. NERLDC requested AEGCL to restore their temporary configuration to the actual configuration in order to use the new ICT for drawing power.

The Sub-Committee noted as above.

Action: All state utilities/central utilities/NERPC.

D. NEW ITEMS

D.1 Generation Planning (ongoing and planned outages)

NEEPCO/NHPC may kindly intimate the availability for hydro stations:

Generating Station	Units running	MW	MU	Reservoir
Khandong	2		39.75	724.1
Kopili-II	1			
Kopili	4		257.2	609.44
Ranganadi	3		Subject to inflow	
Doyang	3		33.0	323.05
Loktak	3		250.00	768.94
AGBPP	-	-	-	-
AGTPP	-	-	-	-

Hydro planning

The outage of other generating stations may be approved considering the present level water level in reservoirs.

Deliberation of the sub-Committee:

The Committee discussed and approved the proposed shutdown by Generating Stations and the same has already been uploaded in the website of NERPC.

D.2 Outage Planning Transmission elements

It was agreed in the 99th OCC meeting that shutdown will be availed only after approval is given by the OCC forum. It was also agreed that deferment/revision of

outages elements other than already approved in OCC will be henceforth put/displayed in the website of NERPC (under Operational Activities/OCC Approved shutdown) as per CERC regulations/ CEA guidelines etc for ensuring smooth & secure grid operation.

Furnishing request of shut down of the element, which was approved by NERPC, by Indenting Agency (ISTS licensees/STUs/Generating Companies) to NERLDC: Planned shutdown approved by NERPC shall be considered for implementation by NERLDC on D-3 basis. If an outage is to be availed on say 10th of the month, the shutdown availing agency would reconfirm to NERLDC on 7th of the month by 10:00 Hr. This practice is necessary to ensure optimal capacity utilization and the time required for associated system study/coordination by/amongst RLDC/NLDC.

In 124th OCCM, SE(C&O) strongly opined that constituents should inform to NERPC/NERLDC in case shutdown is not avail as approved in the OCC meeting and should mention clearly the reason for not availing the shutdown. The full list of shutdown would be placed in the next OCC by NERLDC so that proper record can be made in future for generating units as well as transmission lines. All constituents endorsed the view of SE(C&O).

In 130th OCCM, Member Secretary opined strongly about non commitments of earlier decision by the constituents and stated that all proposed plan shutdowns and agenda for the next OCC meeting should be sent to NERPC Secretariat latest by 5th day of next month. He directed SE(C&O) that the decision should be strictly adhere to and no shutdowns or agenda will be entertained after that stipulated date.

In 134th OCCM, it was decided that all communication related shutdown be approved in OCC forum only.

Deliberation in the Meeting:

Member Secretary again advised the forum that all proposed plan shutdowns for the next OCC meeting should be sent to NERPC Secretariat latest by 5th day of next month.

The details of shutdowns availed during 14th September to 26th October, 2017 are mentioned below:

Total no. of Approved Shutdown	Applied on D-3	Not Applied on D-3	Shutdown availed	Shutdown not availed
114	44	70	54	60

S.E(C&O), NERPC informed that as decided in previous OCC meetings approved shutdowns need to be applied on D-3 basis only.

The sub-Committee discussed and approved the proposals received from the constituents regarding transmission elements and generating units for October, 2017 - November, 2017 and the same has already been uploaded in website of NERPC.

D.3 Estimated Transmission Availability Certificate (TAC) for the month of May 2017 & June, 2017:

NETC and POWERGRID have submitted the outage data for the month of May & June, 2017. So the attributability of outage of the said elements may please be finalized.

The forum once again advised NETC & POWERGRID to submit data in a time bound manner as decided previously.

Deliberation in the Meeting:

Sr. Manager, TSECL informed that though 132kV Silchar-P.K. Bari-I&II and 132kV Durlavcherra-Dharmanagar have been under long outage. He raised question about availability calculation of these lines and recovery of YTC through PoC mechanism.

S.E. (C&O), NERPC agreed to revert back on the matter.

The Sub-Committee noted as above.

Action: NERPC

D.4 Assessment of Total Transfer Capability (TTC), Transmission Reliability Margin (TRM) and Available Transfer Capability (ATC) by SLDC on respective Inter-State Transmission Corridor

Updated PSS/E Base Cases had been mailed to all the SLDCs on 03.10.17. All SLDCs are requested to assess the Total Transfer Capability (TTC), Transmission Reliability Margin (TRM) and Available Transfer Capability (ATC) for the month of Nov'17 using these cases, and submit the study cases and results to NERLDC by 31.10.17.

NERLDC has assessed the state control area wise, state subsystem wise and group of control-area wise TTCs for NER Grid, on behalf of SLDCs of NER. The study results will be presented in the meeting. SLDCs are requested to check the TTC of their control areas as computed by NERLDC and give comments, if any, by 31.10.17.

If no comments received from any SLDCs of NER, TTC, ATC & TRM figures of State control area and group of control areas as assessed by NERLDC will be considered as final and may be uploaded on website.

As per discussions in 122nd OCC meeting of NERPC, all SLDCs of NER may host the assessed TTC / ATC / TRM figures on their website for information dissemination.

Deliberation in the meeting

SLDC Meghalaya gave a presentation on their ATC/TTC calculations for Nov'17. Members appreciated the efforts and requested SLDC Tripura to give presentation in next OCC.

NERLDC has assessed TTC of each state control area of NER, each state subsystem on behalf of SLDCs of NER and group of control-area wise TTCs for NER Grid:

States	Off-peak		Peak	
	N-0	N-1	N-0	N-1
Arunachal	212	185	204	177
Assam	1751	1607	1715	1572
Manipur	338	259	338	261
Meghalaya	358	201	327	181
Mizoram	129	118	129	117
Nagaland	175	78	171	74
Tripura (including Bangladesh)	272	88	309	115

The Sub-Committee noted as above.

Action: All SLDCs.

D.5. Implementation of SPS for transfer of 160 MW power to Bangladesh through Tripura-Bangladesh link and modifications suggested for other SPSs in NER:

In Special Meeting on SPS, UFR etc. held on 23.06.17, Chief Manager, NERTS, POWERGRID presented the draft scheme to implement the suggested SPS for transfer of 160 MW power to Bangladesh through Tripura-Bangladesh link. The Sub-Committee discussed the suggested schemes in detail and agreed in principle to implement the schemes.

The forum requested NERPC to take up the matter with CEA/CTU/NLDC for implementation at the earliest after vetting in OCC forum.

It was also decided to implement the modifications finalized by the forum for already installed SPSs in NER at the earliest. For implementation of the modifications, high speed trip relays are to be put in place. POWERGRID was requested to install High Speed Trip Relays at Azara, Byrnihat and Silchar so that the modified SPS-2, 3 & 4 will be in service at the earliest.

Mock test of SPS-2 & SPS-3 was done on 27th Jul'17. As per report submitted by OTPC, during the mock test on 27th Jul'17, it took 147 milliseconds to reach DT signal from Silchar to Palatana. However, as per discussions in Special Meeting on SPS, UFR etc held on 23rd Jun 2017, total operational time for SPS-2 & 3 should be less than 100 millisecond to save the Tripura system/ Southern Part of NER system. During the mock test on 27th Jul'17, 400 kV Silchar – Palatana I line tripped. Detailed report from POWERGRID is yet to be submitted.

In 136th OCCM, S.E(C&O), NERPC informed that due to various engagements a meeting could not be organised at Bangladesh for implementation of SPS. He requested TSECL to make necessary arrangements for the meeting slated to be held tentatively in October, 2017.

Sr. Consultant, NETC informed that of late 400kV Silchar- Byrnihat is frequently tripping due to severe lightning problem. These outages are severely affecting OTPC. He further informed that SPS-3 testing was done on 27th July but timing was observed to be 147ms much greater than the 100ms decided in SPS scheme. He requested MeECL/AEGCL to accelerate procurement of HS trip relay at Byrnihat & Azara as decided previously. The forum requested POWERGRID to procure HS trip relay on behalf of MePTCL & AEGCL as this will accelerate the process. The forum advised OTPC not to implement SPS through DCS but through hard wiring as decided in SPS meeting on 23.06.17. The forum decided that Mock testing would be conducted once procurement and installation related to modified schemes are in place.

Deliberation in the meeting

S.E.(C&O),NERPC informed that a meeting in Bangladesh would be convened around second week of Dec'17 to finalize SPS implementation.

NERPC informed the forum that a special meeting on SPS was held on 11.10.17 at in Convention Centre, Shillong after the NERPC board meeting which was attended by

NERPC, NERLDC, OTPC and NERTS. The decision of the meeting is given in Agenda No. D.9.

DGM(AM),NERTS informed that a team of NERTS,NERPC/NERLDC had visited Azara on 18.10.17 and checked the DT send logic, which was found to be correct. Similar logic is to be made at 400kV Byrnihat and both DTs (Azara & Byrnihat) are to be combined at Silchar for SPS-3. He further opined that similar scheme for DT combination is to be done at Palatana for SPS-2. Members requested MeECL, OTPC and NERTS to expedite remaining works as above and also modifications suggested in Special Meeting on SPS held on 23.06.17 at the earliest.

The Sub-Committee noted as above.

Action: OTPC/MeECL/NERTS/NERPC.

D.6. Submission of the Annual Load Generation Balance Report (LGBR) for Peak as well as Off-peak scenarios and the Annual outage plan for 2018-19 by 31.10.17 as per IEGC

- a) As per IEGC, each SLDC shall submit LGBR for its control area, for peak as well as off-peak scenario, **by 31st October for the next financial year**, to respective RPC Secretariat. The annual plans for managing deficits/surpluses in respective control areas shall clearly be indicated in the LGBR submitted by SLDCs.

- b) As per IEGC, all SEBs/STUs, Transmission Licensees, CTU, ISGS, IPPs, MPPs and other generating stations shall provide to the respective RPC Secretariat their proposed outage plan in writing for **the next financial year by 31st October of each year**. These shall contain identification of each generating unit/transmission line/ICT etc., the preferred date for each outage and its duration and where there is flexibility, the earliest start date and latest finishing date.

NERLDC informed that delay in Submission of data results in delay of preparation of LGBR by NERPC and subsequently national LGBR prepared by CEA. The forum requested all utilities to submit projected load, generation and outage planning data forthwith.

Deliberation in the meeting

SE(C&O), NERPC requested all the utilities to submit data by 31.10.2017 so that LGBR may be prepared and finalized by Nov-Dec'17.

AEGCL & P&E, Mizoram already submitted the data.

The Sub-Committee noted as above.

Action: All utilities

D.7. Low voltage in Tripura-Mizoram:

It is seen that everyday during peak hours voltage in 132 kV Tripura –Mizoram sub-system comes down to around 122-124 kV. During this time the MW drawal of Bangladesh remains at 140-160MW while their VAR drawal remains to around 44-50 MVAR. Tripura drawal from grid also remains high. The system voltage in the sub-system comes down to 122-124 kV level [in RC Nagar (122), Agartala (123), Aizawl (124)] and this part of grid remains very vulnerable. In spite of opening of all line/bus reactors at Silchar, voltage condition remains grim. MVAR support from Monarchak, Rokhia, Baramura remains low or no support as per the MVAR capability curve of the machines.

As highlighted above whenever system voltage comes down to 124 kV during peak hours, R.C. Nagar machines trip aggravating the situation. R.C. Nagar generation comes down to around 15-20 MWs.

In 136th OCCM, Sr. Manager, TSECL opined that AGTCCPP and Monarchak GBPP are not providing reactive power support as per capability curve.

Sr. Manager, NEEPCO countered that is not the case and generators are supplying reactive power according to grid conditions.

DGM(MO),NERLDC stated that as a practice, generators are not supposed to provide reactive power support to beneficiaries, rather Tripura should have its own Capacitor banks in place to support the grid. He further opined that generators are rated to operate under normal circumstances at around 0.8/0.9 pf lag and inject accordingly.

The forum requested TSECL to regulate Bangladesh MVAR drawal and conduct meeting at appropriate level in this regard.

Member Secretary, NERPC concluded that Tripura should conduct studies and submit DPR of scheme for installation of Capacitor banks at the earliest.

As per deliberations in 17th TCC/RPC it was decided that System Studies for reactive compensation would be conducted by Tripura & Mizoram. Elements like 400kV

Silchar-Melriat and other about to be commissioned elements are to be considered while conducting the studies

Deliberation in the meeting

After detailed deliberation the forum requested SLDC Tripura & Mizoram to conduct detailed studies in association with respective distribution utilities at the earliest.

The Sub-Committee noted as above.

Action: TSECL, P&ED Mizoram.

D.8. Non-returning of shutdowns in a timely manner:

Availing of shutdown of vary important link lines namely 400 KV Silchar – Palatana L-I & II, 132 KV Badarpur – Kumarghat, 400 KV S M Nagar- Palatana (Charged at 132 KV) etc. as per 135th OCCM approval and in many cases delay-return of those lines, Tripura system suffered a lot particularly with very low voltage issues initiating de-synchronization of other generators which put the system in very vulnerable conditions. Forum may take such matters more cautiously in future while allowing s/d and may study case to case basis about the impact of such shutdown to mitigate the severity.

The 136th OCC Sub-Committee viewed non-returning of shutdowns timely as serious issue. After detailed deliberation it was decided that NERLDC would conduct cause analysis on a case to case basis and revert back to the forum.

Deliberation in the meeting

SE(C&O) requested NERLDC to present a report on non-returning of shutdowns, highlighting the reasons and duration from next OCC meeting. NERLDC acquiesced.

The Sub-Committee noted as above.

Action: NERLDC

D.9. Implementation of SPS-2 & 3 at the earliest:

In view of problems faced by OTPC Palatana as well as NETC for maintenance of 400kV D/C Palatana-Silchar-Byrnihat-Azara-Bongaiaogan link, an urgent meeting to review & finalize SPS 2 & 3 immediately was proposed by NERPC on **12.10.2017 at 10:30 Hrs at NERLDC Conference Hall, Shillong**, which was subsequently preponed on 11.10.17 at 14-00 hrs after the NERPC board meeting and was held in Convention Centre, Shillong to take advantages of the availability Senior Officers from OTPC, POWERGRID, NETC, Assam and Tripura.

Following are the decisions of the meeting:

- a. Spurious operation of SPS-3 on 21st September'17 will be investigated by POWERGRID and come out with reports within 1 week.
- b. POWERGRID will complete the modification of SPS-2 scheme within 1 week however to match the execution at Palatana, OTPC has to confirm the availability of SAS engineer.
- c. As informed by OTPC, even in the absence of modification of SPS-2, in the event of outage of one of the 400kV Silchar-Palatana D/C line, SPS 2 will be operating for the other circuits. However, based on actual operational condition, NERLDC will decide the generation level.
- d. Till implementation of modified SPS-3 scheme, the auto-reclosure will be kept at non-auto mode at both ends of 400kV Silchar-Azara S/C & 400kV Silchar-Byrnihat S/C lines.
- e. Implementation of modified SPS-3 scheme by Assam, Meghalaya & NERTS will be coordinated by SE, Protection, NERPC.
- f. In case of outage of any one of 400kV Silchar-Byrnihat & 400kV Silchar-Azara, generation reduction will be done by NERLDC as per grid conditions

Deliberation in the meeting

Pls refer to discussion in item **D.5**.

The Sub-Committee noted as above.

D.10. SCADA & Communication Issues:

A. Non-availability of CB status - Numbers of CB status of ISTS , ISGS as well as STUs are out or wrong since long and due to this Sequence of Events reports are not indicating correct pictures of events of the Grid. In case of any tripping/disturbance SOE is one of the main report through which we can analyze any event but as CB status are not updating correctly, SOE is not giving correct picture of chronological events. So all the concerned utilities are requested to look into matter so that all CB statuses are logged correctly.

MW and MVAR data validation:

For correctness of real time data i.e. MW/MVAR/KV/FREQUENCY validation is required between the real time system data available at control centres and actual status at site in every quarter and report has to be maintained for verification. But in absence of this validation process, numbers of MW/ MVAR / Voltage data are not reporting correctly and ultimately misleading the real time system operators.

Deliberation in the meeting:

The forum felt that loss of data and telemetry at NERLDC is a serious issue. This has been a subject of intense discussion in NETeST forum. After detailed deliberation it was decided that commitments w.r.t. RTU/SCADA/Communication would be reviewed in a tabular form in every OCC meetings.

The Sub-Committee noted as above.

Action: NERLDC/NERPC

D.11. Dedicated voice communication:

- a. Dedicated voice communication links and its availability is one of the key requirements for efficient grid management. But it is observed that non-availability of adequate communication links with many stations affecting grid operation seriously.
- b. Most of the POWERGRID stations are connected through only one dedicated voice communication. Minimum two no of dedicated links need to be established at the earliest.

Moreover important 400 kV stations, HVDC station, SLDCs need 4 nos of dedicated voice communication.

a) Following S/S /SLDCs either does not have link or links are not working.

1. PALATANA (Biggest Gen in NER)-No dedicated voice link.
2. 400kV SILCHAR PG Station.-Only one dedicated voice link.
3. SM Nagar (International link)- No dedicated voice communication with RLDC.
4. MONARCHAK Gen: No dedicated voice link with RLDC.
5. SALAKATI (Inter Regional PG station) No dedicated voice link.

6. 400kV BYRNIHAT: No dedicated voice link with RLDC/SLDC.
7. 400kV Azara: No dedicated voice link with RLDC.
8. SLDC Imphal
9. SLDC Aizawl
10. SLDC Itanagar.

d) Following S/S links are not working.

1. Kathalguri-23640154
2. Ranganadi-23640119
3. Kolasib- 23640111

E. Following Important RTUs are not working----

1. MELRIAT (New RTU):Not reporting since inception.
2. 132kV ITANAGAR: Effect: Real time drawal of AP is not coming. Visibility of AP grid lost. Communication link problem.
3. RANGANADI: Completely un-stable. Communication problem. Team needs to be formed involving PG and RHEP and solve the problem within fixed time.
4. KOLASIB
5. ROING: Newly installed but not coming.
6. TEZU: Newly installed but not coming.
7. Ziro (Unstable)
8. Kathalguri: Out from 21st august'2017.No visibility.
9. Dimapur_PG: ICT 1 and 2 data not available.

Deliberation in the meeting

Pls refer to discussion in item **D.10**.

The Sub-Committee noted as above.

Action: NERLDC/NERPC

D.12. Brownout in Southern Part of NER power system:

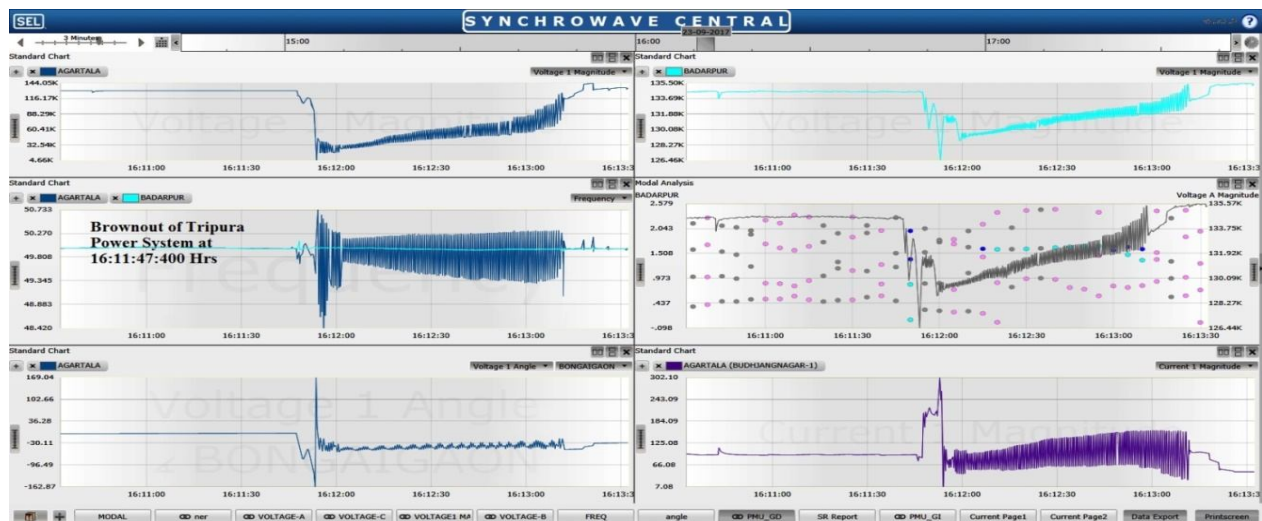
AGTCCPP Power Station, Tripura Power System and South Comilla (Bangladesh) Power System were connected with rest of NER Grid through 400/132 kV, 125 MVA ICT- 2 at Palatana, 132 kV AGTCCPP - Kumarghat line and 132 kV P K Bari - Kumarghat line (400/132 kV, 125 MVA ICT-1 at Palatana was under planned shutdown since 07:20 Hrs on 23.09.17 for Lightning Arrester replacement).

At 16:11:46.000 Hrs on 23.09.17, while charging HV side breakers of 400/132 kV, 125 MVA ICT-1 at Palatana, B-phase CB failed to close due to unhealthy operating mechanism resulted in unbalanced neutral current (53-55 A) in 400/132 kV, 125 MVA ICT-2 at Palatana. Before operation of Pole Discrepancy of ICT-1, HVCB; ICT-2 tripped on Sensitive Earth fault Protection at HV side at 16:11:47.523 Hrs. Later, ICT-1 tripped at 16:11:47.706 Hrs on Pole Discrepancy Protection. After tripping of both ICTs at Palatana, Voltage Collapse was observed in Tripura Power System. At 16:11:53:000 Hrs, sharp decline in voltage observed at Agartala PMU (92 kV to 5 kV).

At 16:11:58 Hrs, 132 kV AGTCCPP - Kumarghat (PG) 1 Line tripped on DPR, Z-I, R-Y-B due to low system voltage. At 16:12 Hrs, 132 kV Agartala – AGTCCPP I and II lines was hand tripped due to low system voltage. At 16:13 Hrs, Monarchak (61 MW), Rokhia (36 MW), Baramura (21 MW) and Gumti (6 MW) Units were de-synchronized due to low voltage in power system of Tripura as informed by TSECL. Tripura Power System was connected to the power system of NER through 132 kV Agartala - Budhjangnagar – Jirania – Baramura – Gamaitilla – Ambassa – P K Bari - Kumarghat(PG) link. Due to Voltage instability problem, voltage dependant load was stalled in Tripura Power System and Bangladesh Power System.

132 kV Surajmani Nagar - South Comilla (Bangladesh) D/C was also hand tripped from Surajmani Nagar at 16:46 Hrs for Voltage Control in Tripura power system.

Total Load Loss in Tripura Power System was around 163 MW and Generation Loss in Tripura power system was 124 MW (Monarchak – 61 MW, Rokhia - 36 MW, Baramura - 21 MW, Gumti - 6 MW). Central sector generation loss was 445 MW (AGTCCPP - 71 MW, Palatana - 374 MW)



PMU plots of brownout incident dated 23-Sep-17

Power was extended to AGTCCPP Power Station through 132 kV AGTCCPP - Agartala I line at 16:24 Hrs. Power was extended to Palatana Power System through 132 kV Palatana - Udaipur line at 17:10 Hrs. Power was extended to South Comilla (Bangladesh) Power System through 132 kV Surajmaninagar – South Comilla(Bangladesh) I line at 17:03 Hrs on 23.06.2017.

Oscillation was observed in all PMUs in Voltage and in Agartala PMU in Frequency. Oscillation started at 16:11:50:00 Hrs and stopped at 16:13:12:080 Hrs. Negative damping is observed with dominant mode of frequency as 1.363 Hz and damping factor as 0.0804 %. Mode of oscillation is Inter-Plant.

Deliberation in the meeting

NERLDC gave a presentation (**Annexure D.12**) on the step-by-step occurrence of the event alongwith the restoration procedure followed. Members took note of the gravity of the event and requested Sub-group to revert back to OCC forum with the exact cause and remedial measures to prevent future occurrence.

The Sub-Committee noted as above.

Action: NERLDC/NERPC

ADDITIONAL AGENDA ITEM:

D.13. CERC Order in petition 16/SM/2015 dated 17.10.2017:

NERLDC gave a brief presentation (attached at **Annexure-D.13**) on the ramifications of the recent order regarding Ease of URS power scheduling. The following are the chief features of the order:-

- In case of standing consent by beneficiary and ISGS URS power can be scheduled by RLDC subject to grid conditions.
- Regulated power may be scheduled by RLDC under URS power.

The Sub-Committee noted as above.

D.14. Inclusion of Metering agenda in OCC:

Member Secretary informed the members that though Metering Meeting is not a proper Sub-Committee of NERPC it was necessitated to give focus on metering issues of NER. However since now most issues have been resolved and follow-up actions are being initiated through Whatsapp groups, the Metering Sub-Committee may be disbanded and agenda items be absorbed as part of OCC. SE(C&O) highlighted the following achievements of Metering meetings:-

1. Lowering of pool loss due to continuous replacement of defective meters, reduction of time drift etc. since 2014.
2. Effective measures for collection of meter data by distribution of DCD, Laptops etc. to site officials.
3. Initiation of AMR, a first of its kind scheme for automated meter data collection, real time viewing at SLDC/RLDC.

DGM(MO),NERLDC acknowledged the contribution made by Metering Sub-Committee in the improvement of Commercial scenario of NER and wished that the trend would continue hereafter.

The Sub-Committee noted as above.

D.15. Update on Real Time Energy Assessment for Effective Grid Management:

CDAC representative gave a detailed presentation on the status of works. He confirmed that funds for hardware have been received by CDAC and work would commence soon. Members requested CDAC to visit SLDC and apprise them of the Works Schedule at the earliest. CDAC representative stated that once backend development is complete CDAC would start to visit each SLDC.

DGM(MO), NERLDC stated that CDAC should visit NERLDC/NERPC to get the details of SEMs required by them to go ahead with the project. CDAC agreed to visit at the earliest.

The Sub-Committee noted as above.

D.16. Updated Power Maps of NER & States of NER:

NERLDC informed that updated Power Maps of NER and States of NER for October 2017 has been updated and e-mailed to all regional entities of NER for their comments or views. The document is also available in NERLDC website. Password may be obtained from SO-II Department, NERLDC. NERLDC also informed that the documents also cover information about the elements under execution.

NERLDC requested all regional utilities to give their feedback so that the same can be included in next updated document.

The Sub-Committee noted as above.

Date & Venue of next OCC meeting

It is proposed to hold the 138th OCC meeting of NERPC on second week of November, 2017. However, the exact date and venue will be intimated in due course.

The meeting ended with thanks to the Chair.

Annexure-I**List of Participants in the 137th OCC Meetings held on 27.10.2017**

SN	Name & Designation	Organization	Contact No.
1.	Sh. N. Perme, EE(E), SLDC	Ar. Pradesh	09436288643
2.	Sh. Bikrammaditya Das, DGM	Assam	09859074773
3.	Sh. Dipesh Ch. Das, AGM (LDC)	Assam	09954110254
4.	Sh. R. Choudhury, DGM, APDCL	Assam	-
5.	Sh. I. Tahbildar, DM (TRC),APDCL	Assam	09864799857
6.	Sh. B. C. Borah, AGM (SLDC)	Assam	09435119248
7.	Sh. Bonita Das, AM (Com), APDCL	Assam	09435301799
8.	Sh. Z.A. Choudhury, CGM (SLDC), AEGCL	Assam	09435371734
	No Representatives	Manipur	
9.	Sh. H.F. Shangpliang, SE(Gen)	Meghalaya	09863315562
10.	Sh. W. Khyriem, EE, GSPD, MePGCL	Meghalaya	09856007107
11.	Sh. A.G. Tham, AEE, MRT	Meghalaya	09774664034
12.	Sh. T. Gidon, EE, SLDC	Meghalaya	09774479956
13.	Sh. A. Koch, AEE, SLDC	Meghalaya	08257060202
14.	Sh. C.W. Chen, AEE	Meghalaya	-
15.	Sh. D.J. Lyngdoh, EE (SM), SLDC	Meghalaya	09863063375
16.	Sh. Benjamin L. Thumtea, Sr. EE,SLDC	Mizoram	09436151424
17.	Sh. Kristine V.L. Sailo, AE, SLDC	Mizoram	08414881357
18.	Sh. B. Tiameren Ao, EE (MIS)	Nagaland	09436260852
19.	Sh. Debabrata Pal, Sr. Manager (Comml.)	Tripura	09436500244
20.	Sh. Mrinal Paul, Mgr, TSECL	Tripura	09436137022
21.	Sh. Jayanta Deb, Sr. Manager	NEEPCO	-
22.	Sh. D.C. Manta, DM (E/M)	NEEPCO	08729901470
23.	Sh. Joypal Roy, Sr. Mgr.	NEEPCO	09435577726
24.	Sh. N.R. Paul, GM	NERLDC	09436302723
25.	Sh. R. Sutradhar , DGM (MO)	NERLDC	09436302714
26.	Sh. B.L. Blah, JE	NERLDC	09436306820
27.	Sh. Ankit Jain, Sr. Engineer (SO-I)	NERLDC	09436335381
28.	Smt. Momai Dey, Sr. Engineer	NERLDC	09436302716

29.	Sh. Deboshish Mondal, Engineer	NERLDC	09402120101
30.	Sh. P. Kanungo, DGM (AM)	PGCIL	09436302823
31.	Sh. C.L. Khayuingam, DM (E)	NHPC	09402667740
32.	Sh. Narendra Kr Gupta, Sr. Executive (O&M)	OTPC	09774253426
33.	Sh. J. Bhattacharyya, AGM (EMD)	NTPC	09435720036
34.	Sh. Kangkan Paul, Asst. Manager (EEMG)	NTPC	09435029230
35.	Sh. K. Jagan Mohan, PTO	C-DAC	09779109842
36.	Sh. P.K. Mishra, MS	NERPC	09968380242
37.	Sh. B. Lyngkhoi, Director/S.E (C&O)	NERPC	09436163419
38.	Sh. S. Mukherjee, AEE	NERPC	08794277306



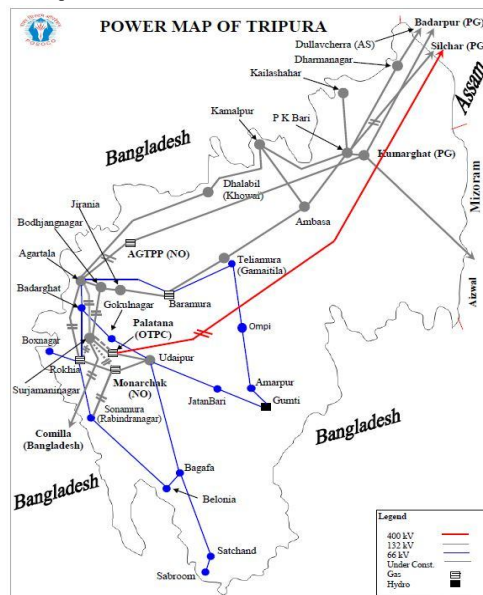
Brownout in Southern Part of NER Power System on 23rd Sep 17 at 16:11 Hrs

Presented by
Momai Dey,
NERLDC

Summary



- **AGTCCPP Power Station, Tripura Power System and South Comilla (Bangladesh) Power System** were connected with rest of NER Grid through **400/132 kV, 125 MVA ICT-2 at Palatana, 132 kV AGTCCPP - Kumarghat line and 132 kV P K Bari - Kumarghat line.**
- **400/132 kV, 125 MVA ICT-1 at Palatana** was under planned shutdown since 07:20 Hrs on 23.09.17 for Lightning Arrester replacement.





Antecedent Conditions

S.No	Area / Region	Before	After
1	Frequency(HZ)	50.11	50.03
2	Regional Demand(MW)	1819	1666
3	NR-NER Flow (MW)	700	702
4	NER-ER Flow (MW)	-549	-630
5	NET NER (MW)	-26	-106



Major Lines Under Outage:

Sl No.	Lines	Reasons
1	220 kV Balipara-Sonabil	Planned S/D w.e.f 10:55 Hrs
2	132 kV Silchar Panchgram	Planned S/D w.e.f 09:45 Hrs
3	400/132 kV, 125 MVA ICT -1 at Palatana	Planned S/D w.e.f 07:20 Hrs



Summary

- **Sudden Voltage Collapse observed at Agartala PMU starting from 16:11:47.720 Hrs and voltage touched 4.66 kV at 16:11:53.680 Hrs.**
- **Soon after the voltage collapse, low frequency oscillations were observed in all PMUs of NER Grid, and most prominently in 132 kV Agartala (TSECL) bus PMU w.e.f 16:11:53.880 Hrs to 16:13:12.280 Hrs. (1.2 Min)**
- **Oscillation was observed in Voltage as well as in frequency.**
- **The mode of Low Frequency oscillation observed was around 1.508 Hz.**



Event Analysis

- **At 16:10:42.270 Hrs, LV side CB of ICT-1 closed as seen from voltage plots of Agartala PMU.**
- **At 16:11:46.000 Hrs, OTPC tried to close HV side breakers of ICT-1 as observed from PMU plots (voltage rise at Agartala PMU)**
- **B-phase CB of ICT-I failed to close due to unhealthy operating mechanism resulted in unbalanced neutral current (53-55 A) in ICT-II at Palatana.**
- **Before operation of Pole Discrepancy of ICT-I HVCB, ICT-II tripped on Back up Earth fault Protection at HV side at 16:11:47.523 Hrs.**



- **Later, ICT-1 tripped at 16:11:47.706 Hrs on Pole Discrepancy Protection.**
- **After tripping of both ICTs at Palatana , Voltage Collapse was observed in Tripura System.**
- **At 16:11:53:000 Hrs, sharp decline in voltage observed at Agartala PMU (92 kV to 4 kV).**
- **At 16:11:58 Hrs, 132 kV AGTCCPP - Kumarghat (PG) 1 Line tripped on DPR, Z-I, R-Y-B.**
- **At 16:12 Hrs, 132 kV Agartala – AGTCCPP I and II lines Hand Tripped due to low system voltage.**
- **At 16:13 Hrs, Monarchak (61 MW), Rokhia (36 MW), Baramura (21 MW) and Gumti (6 MW) Units were de-synchronized due to low voltage in power system of Tripura as informed by TSECL.**



- **Tripura was connected to the Grid through 132 kV Agartala-Budhjanganagar- Jirania- Baramura-Gamaitilla- Ambassa-Kamalpur- P.K Bari-Kumarghat(PG) link.**
- **132 kV SurajmaniNagar-South Comilla(Bangladesh) D/C hand tripped from SM Nagar at 16:46 Hrs for Voltage Control in Tripura System.**
- **Due to Voltage instability problem, voltage dependent load was stalled in Tripura Power System and Bangladesh Power System.**

S. No	Description	Before (MW)	After (MW)
1	Tripura Demand	163	32
2	132 kV SM Nagar-Comilla D/C flow	135	19



Restoration

- Power was extended to AGTCCPP Power Station through 132 kV AGTCCPP - Agartala I line at 16:24 Hrs.
- Power was extended to Palatana Power System through 132 kV Palatana - Udaipur line at 17:10 Hrs.
- Power was extended to South Comilla (Bangladesh) Power System through 132 kV Surajmaninagar – South Comilla(Bangladesh) I line at 17:03 Hrs on 23.06.2017



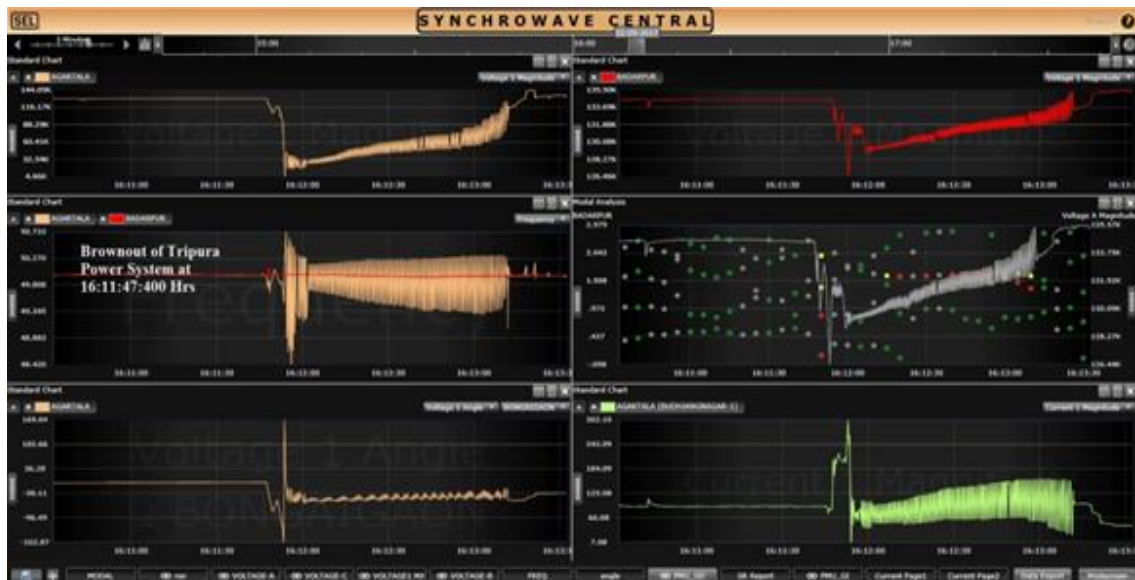
Oscillations

- Oscillation was observed in all PMUs in Voltage and in Agartala PMU in Frequency.
- Oscillation started at 16:11:50:00 Hrs and stopped at 16:13:12:080 Hrs.
- Negative damping is observed with dominant mode of frequency as 1.363 Hz and damping factor as 0.0804 %.
- Mode of oscillation is Inter-Plant.



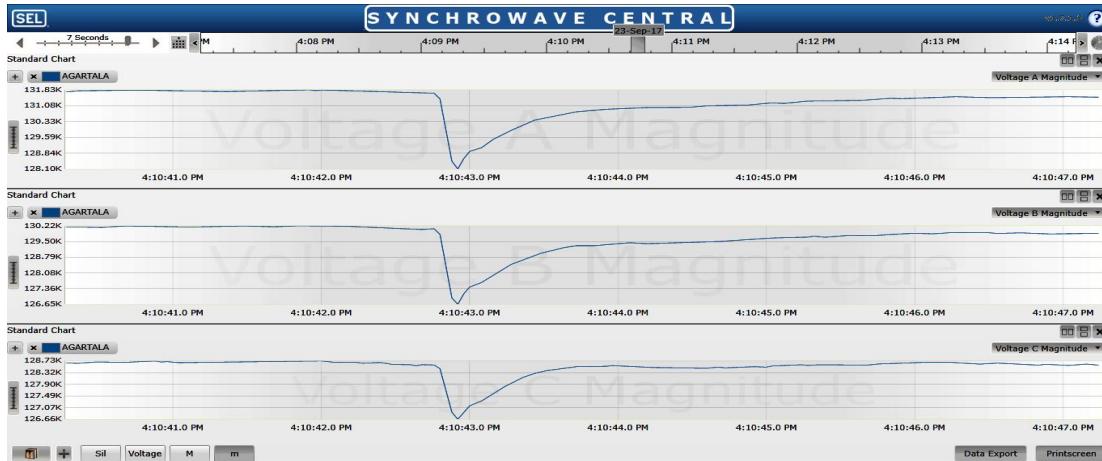
PMU Plots

Oscillations

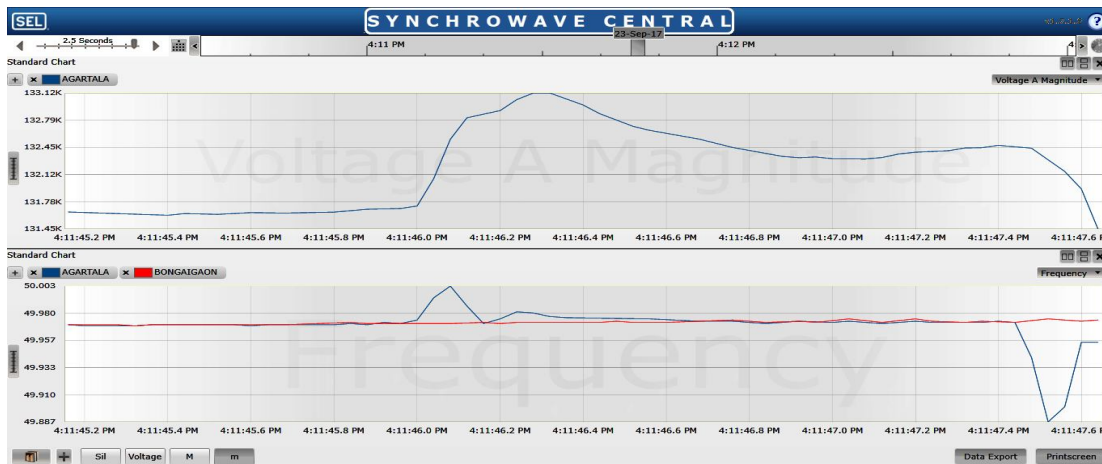




LV side charging of ICT-1

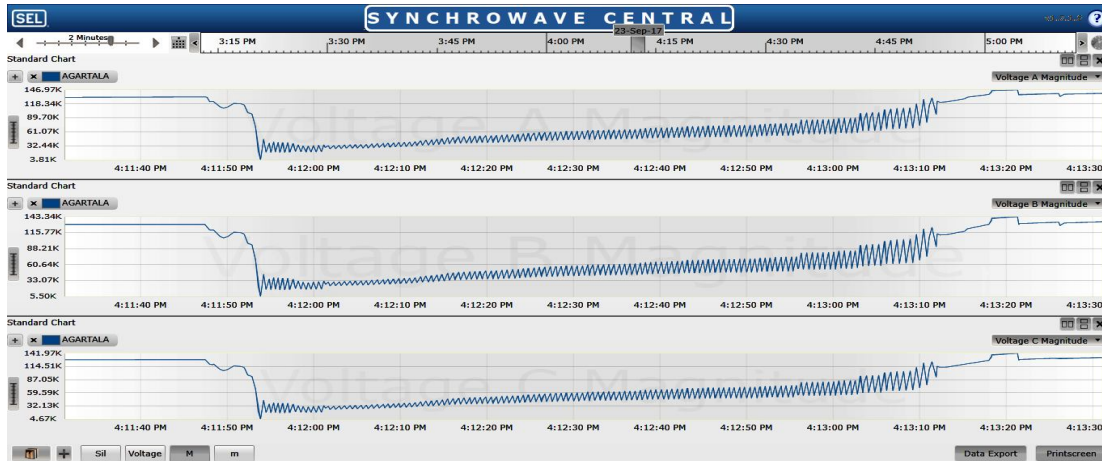


HV side Charging of ICT-1

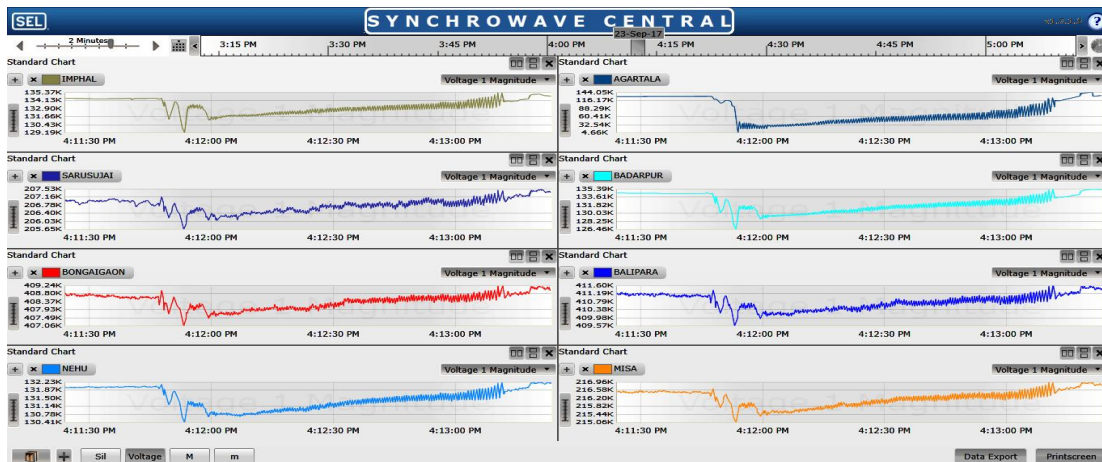




Voltage Plot of Agartala PMU

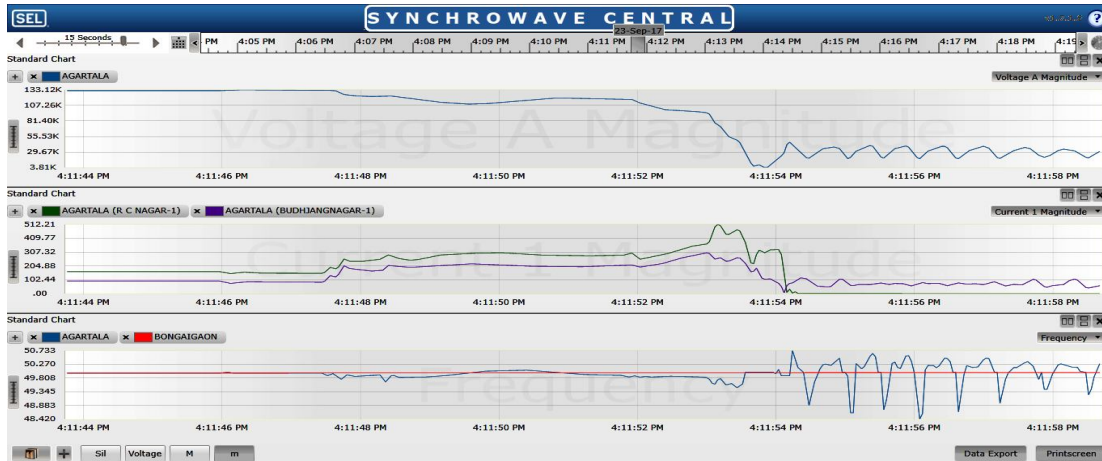


Voltage 1 Magnitude

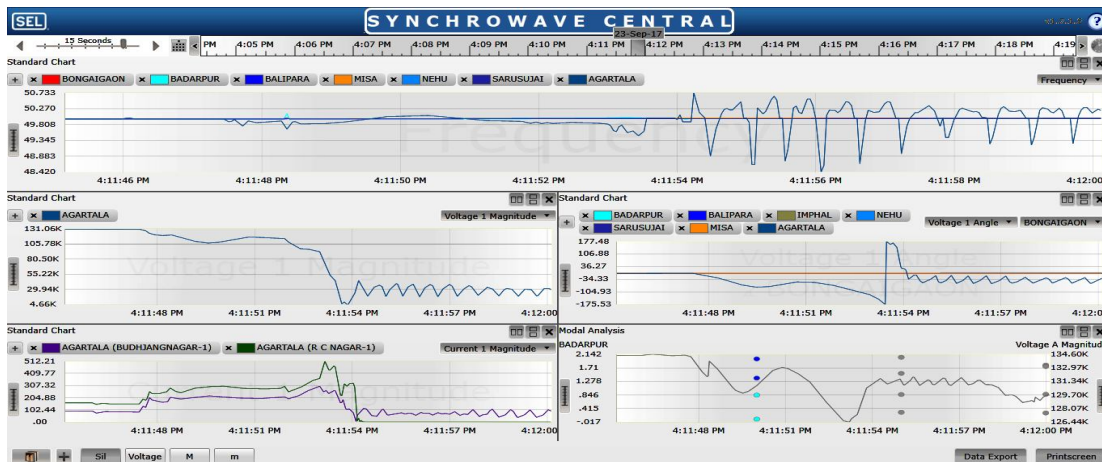




Current Plot



Entire Event





**Thank
You!!!**

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New URS Regulation and Procedure

POWER SYSTEM OPERATION CORPORATION LTD


(A Government of India Enterprise)

NORTH EASTERN REGIONAL LOAD DISPATCH CENTRE, Shillong-793006




NEW URS PROCEDURE

- URS POWER WILL BE IMPLEMENTED IN THE SCHEDULE IN THE FOLLOWING TWO WAYS.
- WITH STANDING CONSENT
- WITHOUT STANDING CONSENT.



STANDING CONSENT BY ISGS AND BENEFICIARY

- Both the generating station and its beneficiary give their standing consent in writing to RLDC that the decision of concerned RLDC will be binding on them with regard to scheduling and despatch of URS power, the concerned RLDC shall schedule such URS power to the requesting beneficiary in relative proportion to the quantum requested by them.
- Standing consent to be signed by authorised representative. Representative to be authorised by Board of Directors or CMD or head of ISGS/ beneficiary distribution companies
- RLDCs shall be indemnified against all consequences for loss or damage suffered by any party arising out of the scheduling of URS power.



SCHEDULING OF URS POWER WITH STANDING CONSENT AVAILABLE FROM ALL

If standing consent is available from both the generating station and beneficiary (surrendering and requesting beneficiary).

- Decision of the concerned RLDC will be binding on them with regard to scheduling of power.
- RLDC will schedule such power to the requesting beneficiary in relative proportion to the quantum requested by them.
- As real-time consent is not necessary for this case , Fast and effective utilization of URS power is possible.

SCHEDULING OF URS POWER WITHOUT STANDING CONSENT AVAILABLE FROM ALL



If standing consent either from generating station or from beneficiary (surrendering or requesting) is not available, then the following steps will be followed for scheduling of URS power.

- Requesting beneficiary have to request to the concerned ISGS for allocating that power to the requesting beneficiary.
- Concerned ISGS have to collect the consent of Original beneficiary and have to request to RLDC by mail with his consent .
- RLDC will implement the URS power in schedule within 4th time block .

RECALLING BACK OF QUANTUM BY ORIGINAL BENEFICIARY



- ▶ If standing consent is available at RLDC, Original beneficiary can directly request RLDC to revise the schedule and recall back his quantum of power within 4th time block.
- ▶ If standing consent is not available either from generating station or beneficiary then Original beneficiary have to recall back quantum through generating station.
- ▶ NOTE: Same logic will be implemented for URS power withdraw.



MISCELLANEOUS POINTS IN URS SCHEDULING



- ISGS can sell regulated power as URS power and for this consent from regulated beneficiary are not required.
- URS Re-allocation will be on first come first serve basis, however the request received on same time block will be treated at par and shared on proportional basis.
- Again in case of revision of DC by ISGS or Recall of quantum by original beneficiary curtailment will be done on pro-rata basis.