

North Eastern Regional Power Committee

MINUTES OF THE 136th OPERATION COORDINATION

SUB-COMMITTEE MEETING OF NERPC

Date : 13/09/2017 (Wednesday)

Time : 10:00 hrs

Venue : "Hotel Nandan", Guwahati.

The List of Participants in the 136th OCC Meeting is attached at **Annexure – I**

Shri P.K. Mishra, Member Secretary, NERPC welcomed all the participants to the 136th OCC meeting. He noted the presence of participants from all the utilities except Arunachal Pradesh. He expressed satisfaction about the maximum participants from all the utilities and requested to continue the same in future so that matters can be resolved during the meeting. He further requested all members to adhere to commitments given regarding deadlines.

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 Quenext, and requested him to give a detailed presentation on their load forecasting software. He informed that a Sub-Group meeting on CERC Communication Regulation would be held on 3rd week of September, 2017 at Shillong and requested all nominated members to attend the same. Further, he stated that the next TCC/NERPC Meetings will be held on 10th & 11th October, 2017 and hence requested all the constituents to update their status and bring out any relevant agenda for putting forth in the TCC/NERPC Meetings.

A. CONFIRMATION OF MINUTES

CONFIRMATION OF MINUTES OF 135th MEETING OF OPERATION SUB-COMMITTEE OF NERPC.

The minutes of 135th meeting of Operation Sub-committee held on 18th August, 2017 at Guwahati were circulated vide letter No. NERPC/SE (O)/OCC/2016/4556-4591 dated 31st August, 2017.

The Sub-committee confirmed the minutes of 135th 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 136th 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	By Sept'17 all LOAs would be issued. First installment has been received.	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 to be issued by Sept'17.	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	Under scrutiny of	-	Joint meeting of Assam, Meghalaya,

	would be issued. Remaining tenders by Sept'17.	Techno-Economic Sub-group.		NERLDC & NERPC to be held at Kahelipara on 22.09.17 for finalisation of DPR.
Meghalaya	MePTCL – Remaining 10% LOAs by Oct'17. Execution 7% completed. MePGCL – by Sept, 2017 all LOAs	DPR submitted to CEA & NLDC	-	To initiate activity for identification of Metering points.

Deliberation of the sub-Committee:

SE(C&O), NERPC informed that due to tight schedule of NERPC/NERLDC visit of SAMAST group to different states could not be organised. He suggested a tentative schedule as following:

- 4th SAMAST meeting at Kahelipara on 22.09.17 with Assam & Meghalaya.
- Visit to Imphal before 26.09.17.
- Visit to Tripura after 30.09.17.

NERLDC informed the forum that during 47th PCC Meeting it was informed that funding for installation of Line Differential Protection & OPGW can be awarded from PSDF. The states have to identify short lines for installation of Line Differential Protection and prepare DPR for submission to NPC. NERLDC proposed to monitor the preparation of DPR by states as a separate column.

Member Secretary, NERPC expressed concern regarding the tardy progress of PSDF funded works. He requested utilities to set a strict deadline of October, 2017 for issuing all LOAs related to Upgradation of Protection System.

Regarding SAMAST, it was decided that a uniform DPR would be prepared by NERPC Secretariat (through Core Group Members of NERPC, NERLDC, POWERGRID, Assam & Meghalaya) and this would act as a model to the remaining States of NER and only the quantities have to be intimated by the States. The Combined DPRs of 2-3 NER States would be sent by NERPC to NPC, CEA and NLDC so that the work scheme can be completed on time. The OCC requested NERPC to get it endorse during the 18th TCC/NERPC Meetings.

Members agreed.

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 136th OCC
63MVAR Reactor at Byrnihat to replaced with 80MVAR Reactor	MePTCL	EE (SP),MePTCL informed that DPR is in the final preparation stages. The rates are remaining to be finalized. DPR on completion will be submitted to NERPC.
400KV 80MVAR Bus Reactor at Palatana	OTPC	04 Nos bushing to be replaced. Work would be completed by OTPC itself. Tentative completion 31.10.2017.
132 kV Jiribam – Rengpang S/C	MSPCL	Line charged from Rengpang. The 132/33kV, 20MVA transformer at Jiribam (MA) to be commissioned by Oct'17.
132 kV Mariani (AEGCL) – Mokochung (DoP, Nagaland) S/C	DoP Nagaland & AEGCL	Line cannot be charged due to low insulation. RCE of ₹ 43 lakhs to be sanctioned by 08.10.17.
132 kV P K Bari – Silchar I & II	NERTS	Nov'17-One circuit (subject to weather condition)
132 kV Dimapur - Dimapur I	NERTS	132kV Dimapur- Kohima GIS breaker rectified but still some work to be done then can be put in service. 132kV Dimapur-Dimapur I CB to be free by Oct'17. Will be charged in Oct'17 subject to weather condition.
132 kV Hailakandi – Dullavcherra	AEGCL	Restoration work to be started by Oct'17.
250MW Unit#II BgTPP	NTPC	Oct'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 136 th OCC
UFR Operation Report	SLDCs of Arunachal Pradesh, Assam, Manipur, Meghalaya, Mizoram, Nagaland and Tripura submitted for August'17.
Reporting of Commissioned Elements for Tarang App	SLDCs of Assam, Manipur, Meghalaya, Mizoram, Nagaland & Tripura submitted for Aug'17. SLDC of Arunachal Pradesh to submit from next month. 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	SLDC of Assam on Daily Basis, SLDC Nagaland, Meghalaya on Monthly Basis. Other SLDCs not yet submitted.	
DG healthiness report	Kopili, Khandong, RHEP, AGBPP, SLDC, Nagaland & OTPC has only submitted for August'17. Others yet to submit.	
Auxiliary Supply details	NERTS (for few S/S), NHPC, NEEPCO, OTPC, MePTCL and DoP Nagaland has submitted details. NERTS (Rest), NTPC, DoP, Arunachal Pradesh, AEGCL, MSPCL, P&ED Mizoram & TSECL yet to submit details.	
Technical & Commercial data for PoC (Q4 2017-18)	All utilities to submit data by 25th October'17	
Operating Procedures.	Items	Data submitted by
	OP of States	Not submitted by any SLDCs
	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/GPRSVSAT/Satellite)	Not submitted by any constituents
Data related to Single Line Diagram.	SEM Location	Not submitted by any constituents

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 136th OCC

Sl 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 July'17	Monthly Basis upto July'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 July'17	Not giving	Not giving	Monthly Basis upto July'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 AUGUST, 2017

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

NER PERFORMANCE DURING AUGUST, 2017

States	Energy Met (MU)		w.r.t. July,17 % inc (+) /dec (-)	Energy Reqr. (MU)		w.r.t. July,17 % inc (+) /dec (-)	% inc (+) /dec (-) of energy reqr vs met. In Aug,17
	August-17	July-17		August-17	July-17		
Ar. Pradesh	64.99	60.32	7.74	66.25	61.42	7.86	-1.90
Assam	919.39	889.84	3.32	958.86	928.77	3.24	-4.12
Manipur	65.62	60.95	7.66	67.13	62.35	7.67	-2.25
Meghalaya	123.02	117.29	4.89	123.02	117.29	4.89	0.00
Mizoram	36.01	36.70	-1.88	37.04	37.70	-1.75	-2.78
Nagaland	71.88	65.70	9.41	73.25	66.82	9.62	-1.87
Tripura	124.32	120.59	3.09	127.11	122.21	4.01	-2.19
Region	1405.24	1351.39	3.98	1452.66	1396.57	4.02	-3.26

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
	Aug-17	July-17		Aug-17	July-17		
Ar. Pradesh	130	131	-0.76	132	132	0.00	-1.52

Assam	1684	1645	2.37	1735	1675	3.58	-2.94
Manipur	163	158	3.16	164	161	1.86	-0.61
Meghalaya	297	303	-1.98	297	305	-2.62	0.00
Mizoram	81	82	-1.22	84	84	0.00	-3.57
Nagaland	137	136	0.74	138	140	-1.43	-0.72
Tripura	271	266	1.88	276	271	1.85	-1.81
Region	2442	2429	0.54	2529	2507	0.88	-3.44

REGIONAL GENERATION & INTER-REGIONAL EXCHANGE IN MU

AVERAGE FREQUENCY (Hz)

Month---->	August-17	July-17	Month---->	August-17	July-17
Total Generation in NER (Gross)	1409.517	1529.262		% of Time	% of Time
Total Central Sector Generation (Gross)	960.812	1119.030	Below 49.9 Hz	7.12	6.56
Total State Sector Generation (Gross)	448.705	410.232	Between 49.9 to 50.05 Hz	76.99	76.15
Inter-Regional Energy Exchange			Above 50.05 Hz	15.88	17.29
(a) NER-ER	0.00	0.00	Average	49.99	50.00
(b) ER-NER	554.91	555.41	Maximum	50.20	50.23
(c) NER-NR	404.26	592.49	Minimum	49.65	49.69
(d) NR-NER	0.00	0.00			
© Net Import	150.65	-37.08			

Deliberation of the sub-Committee:

GM, NERLDC highlighted about the recent coal shortage condition on pan India which resulted in less generation from coal thermal stations leading to Low frequency condition in the system. He requested all the states to refrain from over drawal from the grid. He also requested NTPC to inform about their coal storage on daily basis to NERLDC.

DGM(MO), NERLDC gave a detailed presentation on recent power exchange transactions. He highlighted the following:

- Power is being purchased at the exchange mainly by Assam & Tripura at exorbitant rates of • 8-9/unit.
- This is highly undesirable since much cheaper avenues are available viz. DEEP portal, URS market etc.
- Particularly in case of Tripura it has been observed that purchase at high rates during peak period and sold at nominal rates during off-peak period.

Sr. Manager, TSECL clarified that during Palatana shutdown period such extreme measures were taken.

DGM(MO),NERLDC clarified that since shutdown was planned avenues like DEEP should be used where average purchase cost was much lower to the tune of • 4.5/unit.

NERLDC also highlighted that Daily, Weekly and Monthly Voltage Deviation Report, Frequency Deviation Report and System Reliability Report for August'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 136th OCC meeting, the status as informed by different beneficiaries is as follows:

SN	Items	Status as given in 136 th OCC Meeting	Status as given in 135 th OCC Meeting
a. New Projects			
1	CoD of Unit -II of Bongaigoan TPS of NTPC	CoD by Oct'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	December, 2017.	December, 2017.

6	220kV Rangia - Salakati of AEGCL	By Mar'18 to be completed.	Remaining Piling work to be completed by 2 months. By Mar'18 to be completed.
7	132kV Monarchak – Surjamaninagar D/C of TSECL	Compensation issue. Target March'18	Compensation issue. Target March'18
8	132kV Surjamaninagar Bay at OTPC	Referred to SCM	SCM amendment not required.
9	400kV D/C Balipara – Kameng	To be matched with Kameng HEP.	To be matched with Kameng HEP.
10	RHEP 80 MVAR Bus Reactor	NEEPCO internal approval by Sept'17***	By Aug'17 TS to be finalized after financial clearance and approval of CMD.
11	SLDCs (Ar. Pradesh, Manipur, Mizoram, Nagaland)	Manipur – Completed, Mizoram- Completed, Nagaland-SAT going on, AP- SAT going on.	Manipur – Completed, Mizoram- Completed, Nagaland-Building ready and handed over, 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 - Sept'17 ICT-II delayed.	ICT -I - Aug'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 Bongaigoan	December, 2017(LOA date).	December, 2017(LOA date).
20	Bays at Hailakandi & 132V Silchar-Hailakandi	Oct'17	Oct'17
21	Tuirial HEP of NEEPCO	Unit #I -Sept'2017 Unit #II - Oct'2017	Unit #I - Sept'2017 Unit #II - Oct'2017

22	400 kV, 63 MVAR Bus Reactor #II at Biswanath Chariali	Sept'17	Reactor #I - 17.07.17 doco Reactor #II - Aug'17
23	220 kV, 1x31.5 MVAR Bus Reactor at Mokokchung	December'2017	December'2017
24	33kV bay at 220kV Mariani(AS) S/Sn	Oct'17	Equipment erection to be completed by Aug'17
b. Elements under breakdown/ upgradation			
25	Up-gradation of 132 kV Lumshnong-Panchgram line	EE (SP), MePTCL - DPR approved.	S.E.(C&O) requested that since NPC has agreed for PSDF funding DPR be finalized at the earliest.
26	Switchable line Reactors at 400kV Balipara & Bongaigaon	CSD to be procured. Bongaigaon-Nov'17	Bongaigaon-Oct'17
27	PLCC Panels at Loktak end of Loktak - Ningthoukhong 132 kV feeder and Loktak - Rengpang 132 kV feeder	May'2018	May'2018
28	LILO of 132kV Ranganadi - Nirjuli at Pare of NEEPCO by PGCIL	LILO completed. Line yet to be charged	LILO completed. Line yet to be charged
29	LILO of 132kV Ranganadi - Itanagar (Chimpu) at Pare of Ar. Pradesh	Bay 1 at RHEP for Pare: Sept'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
30	LILO portion of 132kV Ranganadi - Nirjuli(diversion work) at Lekhi by DoP Ar. Pradesh	-	December'2017
31	Replacement of Main-I relay for 400kV Silchar-Byrnihat at Byrnihat S/Sn	Procurement process started. NERTS informed that spare relay is available and may be configured through SCADA. By Dec'17.	MeECL to intimate in next OCC.

Deliberation of the sub-Committee:

After detailed deliberation the Sub-Committee decided to monitor henceforth the status of the following under item **C.1.** :

- Procurement of HS Trip relay at Byrnihat & Azara.
- Re-conductoring of 132kV Umiam Stg#III - Umtru D/C from Panther to Zebra to be funded from PSDF.

- Construction of downstream Transmission system at 132/33 kV Tezu(PG) substation by DoP, Arunachal Pradesh

The Sub-Committee noted as above.

Action: All state 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	723.7
Kopili-II	1			
Kopili	4		257.2	609.55
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 18th August, 2017 to 12th September, 2017 are mentioned below:

Total no. of Approved Shutdown	Applied on D-3	Not Applied on D-3	Shutdown availed	Shutdown not availed
155	61	94	132	23

NERLDC informed the forum that w.e.f 1st October, 2017, if any indenting agency is not applying the shutdown on D-3 basis, the shutdown shall not be allowed by NERLDC even if the shutdowns are already approved in OCC Meetings.

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

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

NETC and POWERGRID have submitted the outage data for the month of April & May, 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.

The Sub-Committee noted as above.

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 have been mailed to all the SLDCs on 04.09.17. All SLDCs are requested to assess the Total Transfer Capability (TTC), Transmission Reliability Margin (TRM) and Available Transfer Capability (ATC) for the month of Oct'17 using these cases, and submit the study cases and results to NERLDC by 18.09.17.

NERLDC has assessed the state control area wise, state sub-system wise and group of control-area wise TTCs for NER Grid, on behalf of SLDCs of NER. The study results conducted by NERLDC mailed to all SLDCs on 08.09.17. SLDCs are requested to check the TTC of their control areas as computed by NERLDC and give comments, if any, by 18.09.17.

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.

2 Days Training program on Power System Study using PSS/E Software w.e.f 24.08.17 to 25.08.17 organized by NERLDC for the participants of SLDC, Assam at NERLDC Conference Room, Shillong.

Deliberation in the meeting

NERLDC informed the forum about the TTC figures for October'17 which are as follows:

Name of States	Off Peak TTC in MW		Peak TTC in MW	
	N-0	N-1	N-0	N-1
Arunachal Pradesh	213	175	187	160
Assam	1599	1282	1665	1500
Manipur	334	252	334	250
Meghalaya	294	269	284	233
Mizoram	103	92	127	89
Nagaland	170	66	160	63
Tripura	260	85	295	91

SLDC Assam gave a presentation (attached at **Annexure-D.4**) on ATC/TTC calculated by them for Assam grid for Q3(17-18). Members appreciated the initiative of SLDC Assam and requested SLDC Meghalaya to give presentation in the next OCC meeting.

The forum appreciated NERLDC for providing training to AEGCL Executives.

The Sub-Committee noted as above.

Action: All SLDCs.

D.5. Reduction of OTPC load up to 320 MW (Ex Bus) by NERLDC:

During S/D of 400 KV Silchar- Byrnihat line on 03/08/2017 OTPC load was reduced up to 320 MW. The S/D was approved in OCC and it was discussed that S/D will be approved in real time situation, with no reduction of OTPC generation, but on real time NERLDC was directed to OTPC for load reduction.

In 135th OCCM, OTPC representative stated that mode changeover for Palatana modules is difficult and advance intimation of 2 time blocks is at least required. GM, NERLDC informed that OTPC was informed the previous day evening. OTPC representative also stated that generation reduction of OTPC is required due to SPS - 3 modification not being completed and OTPC is being deprived commercially due to generation reduction. He requested NERTS to do the needful at 400kV Silchar S/S at the earliest. NERTS agreed.

Deliberation in the meeting

Pls refer to discussion in Agenda item **C.1**.

The Sub-Committee noted as above.

D.6. 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.

Deliberation in the meeting

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.

NERLDC presented the modified schemes for SPS-2,3 attached at **Annexure- D.6.**

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.

The Sub-Committee noted as above.

Action: AEGCL/MeECL/POWERGRID

D.7. Restricted Governor Mode of Operation for Open Cycle Gas Turbine/Combined Cycle Generating Stations

As per amended section 5.2.f of IEGC by CERC dated 12.04.2017, Open Cycle Gas Turbine/Combined Cycle generating stations having gas turbines of capacity **more than 50 MW each**, which are synchronized with the grid, irrespective of their ownership, shall have their governors in operation at all times and these generating units shall be operated under RGMO with effect from **01.10.2017**.

Deliberation in the meeting

NERLDC informed the forum about latest IEGC Amendment by CERC dated 12.04.2017, according to which Open Cycle Gas Turbine/Combined Cycle generating stations having gas turbines of capacity more than 50 MW each, which are synchronized with the grid, irrespective of their ownership, shall have their governors in operation at all times and these generating units shall be operated under RGMO with effect from 01.10.2017. NERLDC also informed that Monarchak & Palatana will come under RGMO w.e.f 01.10.2017.

The Sub-Committee noted as above.

D.8. Delayed submission of data for preparation of CEA monthly PSP Report

CEA Monthly PSP report is to be prepared by NERLDC on 1st working day of every month. It is observed that few utilities (**NTPC, P&ED Mizoram & DoP Arunachal Pradesh**) are not submitting the data required for preparation of this report on time. Due to this delay in submission or non-submission of data by Power Utilities, preparation of monthly PSP as well as submission of the report to CEA is getting delayed.

Deliberation in the meeting

NERLDC informed the forum NTPC, P&ED Mizoram & DoP Arunachal Pradesh are not submitting the data required for preparation of CEA Monthly PSP report on time.

The forum requested all the utilities to submit PSP related data within 1st working day of the month and also decided to monitor the status under item **B.1(3)**.

The Sub-Committee noted as above.

D.9. Data required for Calculation of Energy Loss on Account of Silt

The Ministry of Power has set up a committee headed by Chairman BBMB to study the impact of silt on the hydro reservoirs in the country. A review of this committee's progress was taken by Joint Secretary Hydro on 28th Aug 2017. In this meeting, it was decided to compile the monthly plant wise energy loss figure due to siltation issue for last 4-5 years.

Energy loss due to siltation occurs on account of the closing down of plant when silt level exceeds a prescribed level as well as outages required on account of flushing of the reservoir.

NEEPCO, NHPC, AEGCL, MePGCL, TPGCL, DoP Nagaland, P&ED Mizoram are requested to kindly share the details in desired format for hydro plants within a week.

Desired format is attached as **Annexure-D.9**

Deliberation in the meeting

NERLDC informed the forum that Ministry of Power has set up a committee headed by Chairman BBMB to study the impact of silt on the hydro reservoirs in the country. Format was circulated among the utilities to share details of Energy loss due to siltation. NERLDC informed that NEEPCO, NHPC, AEGCL, MePGCL, TPGCL, DoP Nagaland, P&ED Mizoram have submitted the data as per format. The forum decided to drop the agenda.

The Sub-Committee noted as above.

D.10. Ratification of projected demand and generation for Q3 of 2017-18 (July to Sep'17)

In the 3rd Validation Committee meeting for PoC application period Oct'15- Dec'15, held on 30th September 2015, at NLDC conference Hall, CERC had proposed a methodology for ratification of projected data at RPC forum.

In the 3rd validation committee meeting held on 29th Aug'17, Implementing Agency presented the comparison of projected and actual peak demand met for Q1 of 2017-18. It was observed that for some of the states, the difference was more than 2%. Chief Engg., CERC suggested that the difference should not be more than 2%. All the states are requested to provide projected demand near to actual. Comparison of projected and actual peak demand met of NER States for Q1 of 2017-18 is attached as **Annexure D.10**.

Deliberation in the meeting

NERLDC informed the forum that during the 3rd validation committee meeting held on 29th Aug'17, Implementing Agency presented the comparison of projected and actual peak demand met for Q1 of 2017-18. Chief Engg., CERC suggested that the difference should not be more than 2%. The forum requested all the SLDCs to project their demand with reasonable accuracy.

The Sub-Committee noted as above.

D.11. 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.

Deliberation in the meeting

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.

The Sub-Committee noted as above.

Action: All utilities

D.12. 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.

Deliberation in the meeting

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.

The Sub-Committee noted as above.

Action: All utilities

D.13. Telemetry problems at various important locations :

Monarchak Station Telemetry		Latest status
	STG MW/MVAR data out. Monarchak-SM Nagar line data suspect. Realtime MW/MVAR monitoring and Tripura System voltage control problem..	Intermittent data, NEEPCO will revert back by next OCC.
LIKHIMRO gen data not available.	Monitoring of generation and Nagaland demand computation problem.	Work in progress.
MELRIAT (charged on 30.08.17) data not available	132 kV BUS at Melriat and 2 nos of lines charged and Mizoram draw power from those lines but no telemetry data available. Mizoram drawal computation problem.	Work in progress.
Balipara RTU out	Very Important RTU but telemetry not available at NERLDC. Regional system frequency reference taken from Balipara. Balipara is connected to Bongaigaon, BNC/HVDC, Misa & Samaguri. Non-availability of data creates lot of operational problems	NERTS informed Balipara RTU working but NERLDC informed Balipara not reporting correctly. NERTS will check the matter and revert back at the earliest.
Ranganadi Telemetry out	Biggest hydro generating station but data not available. Real time operational problem	Work in progress.
Nirjuli Telemetry out	Arunachal system visualisation problem. Arunachal and Assam drawal computation problem.	NERTS requested NERLDC to check at their end
Ziro RTU out	Arunachal drawal computation problem.	NERTS requested NERLDC to check at their end
Roing and Pasighat telemetry out	Newly commissioned sub-station. Arunachal system visualization problem.	Ar. Pradesh No representative.

The Sub-Committee noted as above.

Action: All utilities

D.14. Outage of Important RTUs in Assam:

Even after up-gradation of SCADA/EMS system in Assam it is observed that around 2/3 rd numbers of RTUs are not reporting (Against 66 only 18 reporting). Assam occupies major portions of NER Grid and outage of such large no of RTUs results in problem for real time grid Management and proper assessment of grid condition. Data from 220 kV stations like BTPS, AGIA, BOKO and some other inter connecting stations are available.

Deliberation in the meeting

DGM, SLDC, AEGCL informed that poor visibility of Assam grid is mainly due to MW Vacation project not being handed over in time. The forum requested NERTS to complete the project as early as possible

The Sub-Committee noted as above.

Action: NERTS

D.15. Supply of Peak Demand during Puja:

Estimated peak demand of the state during Durga Puja will be about 315 MW & Bangladesh will be about 165 MW. Availability from own generation will be about 80MW. The balance 400 MW has to be drawn from the grid. Like previous year TSECL needs support from all NER states, NERLDC, NERPC, PGCIL, NEEPCO, and NHPC. Open access arrangement is being done apart from bilateral drawal from MIZORAM.

Deliberation in the meeting

NERLDC informed that studies have been conducted as per the node-wise data provide by TSECL. The study results are attached in **Annexure D.15**.

The maximum allowable load of Tripura under N-0 is 440MW while it is 236MW under N-1 of 132kV Palatana-SMNagar. TSECL requested NERLDC to conduct studies considering maximum allowable line flow in 132 kV Monarchak-Rokhia S/C as 65 MW. The forum requested Tripura to follow the studies conducted by NERLDC.

NERLDC conducted studies after OCC Meeting and informed that after considering line flow in 132 kV Monarchak-Rokhia S/C as 65 MW, the maximum allowable load of Tripura under N-0 is 410MW.

NERLDC also informed that maximum allowable load of Tripura is 440 MW in case 132 kV Palatana- Udaipur line kept open, and in such case the system will be highly insecure.

The Sub-Committee noted as above.

D.16. Non-functioning of SCADA:

SCADA is not functioning properly as a result drawal & injection is being left unknown to the beneficiaries. Because of the outage of many important lines among the connectivity of Tripura system SCADA data availability of 132 KV Kumarghat – Badarpur & 132 KV Kumarghat – Aizwal and along with Palatana & its outgoing feeder's data particularly must be displayed at SLDC which are very vital for real time operation. Central sector/CTU has to ensure undisruptive availability of the same.

Deliberation in the meeting

Sr. Manager, TSECL informed that Badarpur data is intermittent and all locations data should be ensured during Puja. The Sub-Committee noted the difficulties faced by SLDC Tripura and requested NERLDC/NERTS to take urgent action with regards to making CGS data available at SLDCs through ICCP.

The Sub-Committee noted as above.

Action: NERLDC/NERTS

D.17. Outage of 132kV P.K.Bari-Silchar I&II:

400 KV P.K. BARI – SILCHAR line-I & II (Charged at 132 KV) are out of circuit for a long. During Puja period at least restoration of one line is utmost necessary for stability of the system.

Deliberation in the meeting

Sr. Manager, TSECL requested that at least one circuit be made available through ERS during Puja time for 4 days. DGM(AM),NERTS cited the safety issue and informed that various possibility would be explored impromptu.

The Sub-Committee noted as above.

Action: NERTS

D.18. 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.

Deliberation in the meeting

The 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.

The Sub-Committee noted as above.
Action: NERLDC

D.19. No Coordination for SPS Mock Test:

Based upon Group reliable meeting held on 05.05.2017 at Shillong it was decided to carry out SPS mock test in region for system reliability and the same was Minute on various 133 OCC meeting, a SPECIAL MEETING ON SPS was conducted on 23/06/2017 and the same was minute in MOM.

One Mock Test was conducted on dated 27/07/2017 for SPS-2 and SPS-3, subsequently mock test of SPS-2 and SPS-3 was planned by PGCIL Silchar and agreed by OTPC was requested from NERLDC/NERPC on 04/09/2017 and 06/09/2017 after but same was not granted due to communication gap and lack of coordination.

It is request from forum to discuss and approve such important activities in OCC with defined date in coordination with NERLDC and NERLDC must take lead on reliability related activities, so the mock test can be conducted on schedule date.

Deliberation in the meeting

Manager, OTPC stated that inspite of repeated communications on 04/09/17 & 06/09/17 the mock testing could not be conducted. He requested that a modus operandi for SPS mock testing be finalised by the forum.

GM, NERLDC informed that SPS-2 &3 are not in place as per modified scheme, so there is no question of testing at the moment. After the scheme is in place the implementing agencies may please discuss the details in OCC meeting for the knowledge of the members of the forum so that consensus decision can be taken regarding testing and activation. Members concurred

The Sub-Committee noted as above.

D.20. Suspension of approved S/D by TSECL:

132 KV line-2 Palatana –S.M Nagar line S/D which was asked by OTPC and same was approved in 135th OCC for date 04 to 06 Sept 2017, but the same was requested

for suspension by TSECL for ensuring Bangladesh Supply. It is requested to forum that once S/D is approved, it must be granted until unless there is any critical reliability or Safety issue.

Deliberation in the meeting

After detailed deliberation the forum decided that shutdowns would henceforth be granted only on D-3 basis. OCC approved shutdowns may be suspended or kept in abeyance only in case of system constraints.

The Sub-Committee noted as above.

D.21. Hosting of OCC by OTPC:

OTPC informed that they would be delighted to host the next OCC in month of November/December, 2017. They requested NERPC forum to convey the same.

Deliberation in the meeting

The forum decided to host OCC meeting tentatively in the month of December, 2017 at Palatana GBPP.

The Sub-Committee noted as above.

Action: NERPC/OTPC.

D.22. Finalization of number of licenses regarding PSCT of PDMS:

It is envisaged to implement Protection Database Management System for NER Grid as already commissioned in other RPCs. As per discussion in previous OCC meetings a Sub-Group was formed and in its meeting on 11.09.17 at Shillong the DPR was finalised. However the number of licenses to operate Protection Setting Calculation Tool remains to be finalised. A notional list is given below for consideration:

SI. No.	Utility	Quantity of licenses
1.	Arunachal Pradesh	2
2.	Assam	4
3.	Manipur	3
4.	Meghalaya	4
5.	Mizoram	2
6.	Nagaland	2
7.	Tripura	3
8.	NERTS	2
9	NEEPCO	2

10.	NTPC	1
11.	OTPC	1
12.	NHPC	1
12.	NERLDC	2
10.	NERPC	2
TOTAL		31

Deliberation in the meeting

The Sub-Committee finalized the number of licenses as above and the DPR. Members referred the DPR for approval of Chairman, NERPC.

The Sub-Committee noted as above.

Action: NERPC.

ADDITIONAL AGENDA ITEM:

D.23. Technical Presentation on Load Forecasting by M/s Quenext:

Representative from M/s Quenext gave a live demo presentation on load forecasting developed by them. Members appreciated the products. SLDCs agreed to revert back to M/s Quenext with their requirements.

The Sub-Committee noted as above.

Date & Venue of next OCC meeting

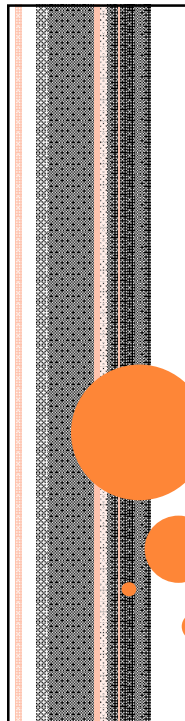
It is proposed to hold the 137th OCC meeting of NERPC on second week of October, 2017. However, the exact date and venue will be intimated in due course.

The meeting ended with thanks to the Chair.

Annexure-I**List of Participants in the 136th OCC Meetings held on 13 .09.2017**

SN	Name & Designation	Organization	Contact No.
	No Reprmentative	Ar. Pradesh	-
1.	Sh. Manoranjan kalita, DGM (SLDC)	Assam	07002949272
2.	Sh. Dipesh Ch. Das, AGM (LDC)	Assam	09954110254
3.	Sh. A.N. Dev Choudhury, AGM, APDCL	Assam	09854120791
4.	Sh. G.K. Bhuyan, AGM,AEGCL	Assam	-
5.	Sh. B. C. Borah, AGM (SLDC)	Assam	09435119248
6.	Sh. Bonita Das, AM (Com), APDCL	Assam	09435301799
7.	Ms. Toushita Jigdung, Dy. Manager	Assam	09707134351
8.	Sh. A. Sujata Devi, AM, SLDC	Manipur	09615028232
9.	Smti. Khoisnam Steela, Manager, SLDC	Manipur	08730831103
10.	Sh. H.F. Shangpliang, SE(Gen)	Meghalaya	09863315562
11.	Sh. B. Wankhar, EE (MO), SLDC	Meghalaya	09436105914
12.	Sh. T.Gidon, EE, SLDC	Meghalaya	09774479956
13.	Sh. B. Nikhla, EE, System Protection, MePTCL	Meghalaya	09436314163
14.	Sh. Lalbiaksanga, SE (SLDC)	Mizoram	09436140932
15.	Sh. Wabangmeren Jamir, EE (Trans.)	Nagaland	09856052256
16.	Sh. Debabrata Pal, Sr. Manager (Comml.)	Tripura	09436500244
17.	Sh. Mrinal Paul, Manager	Tripura	09436137022
18.	Sh. Joypal Roy, Sr. Manager (E/M)	NEEPCO	09435577726
19.	Sh. N.R. Paul, GM	NERLDC	09436302723
20.	Sh. R. Sutradhar , DGM (MO)	NERLDC	09436302714
21.	Sh. Koshab Borah, AET	NERLDC	07399276312
22.	Sh. Ankit Jain, Sr. Engineer (SO-I)	NERLDC	09436335381
23.	Smt. Momai Dey, Sr. Engineer	NERLDC	09436302716
24.	Smt. Tanaya Rakshit, AET	NERLDC	08822852878
25.	Sh. P. Kanungo, DGM (AM)	PGCIL	09436302823
26.	Sh. C.L. Khayuingan, DM (E)	NHPC	09402880207
27.	Sh. N.K. Gupta, Manager	OTPC	09774233426
28.	Sh. B. Choudhury, AGM (EEMG)/BgTPP	NTPC	09435503167

29.	Sh. R.V. Patnaik, AGM (OS)	NTPC	09438233243
30.	Sh. P.K. Mishra, MS	NERPC	09968380242
31.	Sh. B. Lyngkhai, Director/S.E (C&O)	NERPC	09436163419
32.	Sh. S. Mukherjee, AEE	NERPC	08794277306




**ATC / TTC CALCULATION FOR ASSAM
FOR MONTH OF OCTOBER 2017**

BY
SLDC, AEGCL

**TTC/ATC CALCULATION (ASSAM) FOR THE
MONTH OF OCTOBER 2017**

- AS PER THE LATEST BASECASE, ASSAM NETWORK IS DIVIDED INTO SEVEN ZONES.
 - 1.BTPS
 - 2.CAPITAL
 - 3.SAMAGURI
 - 4.SONABIL
 - 5.UPPER ASSAM
 - 6.SOUTH ASSAM
 - 7.MISCELLANEOUS.



ZONE: BTPS

- FULL LOAD IS 335.70
- THE TTC OF BTPS ZONE AT
 - 1. N-0 IS 218.0
 - 2. N-1 IS 73, WHEN 220/132 KV 160 MVA TX IS SWITCHED AT BTPS SS.

ZONE: CAPITAL (INCLUDING BHUTAN IMPORT)

FULL LOAD OF THIS ZONE IS 613.80

- THE TTC OF CAPITAL ZONE (SISHUGRAM-KAMALPUR LINE OPEN) AT
 - 1. N-0 IS 323.8, WHEN BHUTAN IMPORT IS 59MW.
 - 2. N-1 IS 230.80 (BHUTAN IMPORT IS 52MW.), WHEN 220/132 KV 100 MVA TRANSFORMER IS SWITCHED AT SSJI SS.

ZONE: SAMAGURI

FULL LOAD IN THIS ZONE IS 201.3

- THE TTC OF SAMAGURI ZONE AT:

1. N-0 IS 135.3, WHEN CALCOM DRAWS 15 MW.
2. N-1 IS 47.3, WHEN 220/132 KV 100MVA TX AT SAMAGURI IS SWITCHED.



ZONE: UPPER ASSAM

FULL LOAD IN THIS ZONE IS 882.9,
GENERATION=110MW.

- THE TTC OF THIS ZONE AT:

1. N-0 IS $582.9 - 110 = 472.9$, G=110
2. N-1 IS $405 - 110 = 295$, WHEN 220/132 KV 100MVA TX AT MARIANI IS SWITCHED, G=110.



ZONE: SONABIL

FULL LOAD IN THIS ZONE IS 293.

- THE TTC OF THIS ZONE AT:
 1. N-0 IS 228.4
 2. N-1 IS 94.4 , WHEN 1 CKT OF BNC(PG)-PAVOI LINE IS SWITCHED.

ZONE: SOUTH ASSAM

FULL LOAD IN THIS ZONE IS 234.5

- THE TTC OF THIS ZONE AT:
 1. N-0 IS 234.5 BECAUSE THERE IS NO CONSTRAINT IN UPPER SIDE TX OR LINE, THEREFORE NO SCALING IS REQUIRED.
 2. N-1 CASE COULD NOT BE CALCULATED AS THE LOAD IS LUMPED AT 132KV BUS. THE 132/33 KV TRANSFORMER AT PANCHGRAM OR SRIKONA HAS TO BE CONSIDERED FOR N-1 CASE. BUT SINCE THE 33KV BUS IS NOT DEFINED IN THE BASECASE, THEREFORE, SWITCHING OF THE SENSITIVE TRANSFORMER AT THE ABOVE MENTIONED SS COULDN'T BE DONE.

ZONE: MISCELLANEOUS

FULL LOAD IN THIS ZONE IS 235.9

1. THE SLD IS A COMPLEX NETWORK AS IT IS GROWING TILL OTHER REGIONS LIKE SAMAGURI, SONABIL, CAPITAL.

2. FOR THIS AMOUNT OF LOAD, THERE ARE MAXIMUM NO. OF 220 KV LINES, SO WHICH ELEMENT HAS TO BE CONSIDERED IN N-1 CASE.



THANK YOU



S.No.	Station	Location	Owner	Capacity in MW	2017							Remarks	
					Forced outage due to Silt		Energy Loss	Planned outage due to Reservoir flushing		Energy Loss	Total Energy Loss		
					Outage Month	*Outage hrs (Summation of outage hrs based on revival of last machine)	MUs	Outage Month	*Outage hrs (Summation of outage hrs based on revival of last machine)	MUs	MUs		
1					Jan								
2					Feb								
3					Mar								
4					Apr								
5					May								
6					Jun								
7					July								
8					Aug								
9					Sep								
10					Oct								
11					Nov								
12					Dec								

**For Calculation of outage hrs one example: Plant -A have three units, all three units went into forced outage at 08:00hrs due to high silt, Revival time of unit-1,2,3 is 09:00hrs, Outage hrs would be considered as 03:30hrs and for total in a month summation of these maximum outage hrs would be considered.*

2016							
Forced outage due to Silt		Energy Loss	Planned outage due to Reservoir flushing		Energy Loss	Total Energy Loss	Remarks
Outage Month	*Outage hrs (Summation of outage hrs based on revival of last machine)	MUs	Outage Month	*Outage hrs (Summation of outage hrs based on revival of last machine)	MUs	MUs	
Jan							
Feb							
Mar							
Apr							
May							
Jun							
July							
Aug							
Sep							
Oct							
Nov							
Dec							

10:00hrs and 11:30hrs respectively.

2015							
Forced outage due to Silt		Energy Loss	Planned outage due to Reservoir flushing		Energy Loss	Total Energy Loss	Remarks
Outage Month	*Outage hrs (Summation of outage hrs based on revival of last machine)	MUs	Outage Month	*Outage hrs (Summation of outage hrs based on revival of last machine)	MUs	MUs	
Jan							
Feb							
Mar							
Apr							
May							
Jun							
July							
Aug							
Sep							
Oct							
Nov							
Dec							

2014							
Forced outage due to Silt		Energy Loss	Planned outage due to Reservoir flushing		Energy Loss	Total Energy Loss	Remarks
Outage Month	*Outage hrs (Summation of outage hrs based on revival of last machine)	MUs	Outage Month	*Outage hrs (Summation of outage hrs based on revival of last machine)	MUs	MUs	
Jan							
Feb							
Mar							
Apr							
May							
Jun							
July							
Aug							
Sep							
Oct							
Nov							
Dec							

2013							
Forced outage due to Silt		Energy Loss	Planned outage due to Reservoir flushing		Energy Loss	Total Energy Loss	Remarks
Outage Month	*Outage hrs (Summation of outage hrs based on revival of last machine)	MUs	Outage Month	*Outage hrs (Summation of outage hrs based on revival of last machine)	MUs	MUs	
Jan							
Feb							
Mar							
Apr							
May							
Jun							
July							
Aug							
Sep							
Oct							
Nov							
Dec							



North Eastern Region

Arunachal Pradesh	132	138	-4%
Assam	1534	1415	8%
Manipur	157	161	-3%
Meghalaya	289	319	-9%
Mizoram	82	93	-11%
Nagaland	132	126	5%
Tripura	265	285	-7%

Annexure D.15

Puja Load Study for Tripura for 2017 (Revision 1)

Sl No	Case Description	Tripura Demand with Bangladesh	AGTCCPP Generation	Tripura Own Generation	Monarchak	Limits	Grid Voltage
1	As per Demand Required by Tripura	480	90	82	100	High Loading of 132 Monarchak- Rokhia (~87 MW) and 132/66 kV ICTs at Udaipur Ss	Low Voltage at AGTCCPP = 121 kV, Agartala= 120 kV, Surajmaninagar= 119 kV, PK Bari= 117 kV, Kumarghat = 118 kV
2	N-0 with All elements	410	90	82	63	132 kV Monarchak - Rokhia Line (65 MW)	Low Voltage at AGTCCPP = 124 kV, Agartala= 123 kV, Surajmaninagar= 122 kV, PK Bari= 120 kV, Kumarghat = 120 kV
3	N-1 (132 kV Palatana - Surajmaninagar)	216	90	82	36	132 kV Monarchak - Rokhia Line (65 MW)	Low Voltage at AGTCCPP = 125 kV, Agartala= 124 kV, Surajmaninagar= 121 kV, PK Bari= 125 kV, Kumarghat = 125 kV
4	N-1 (Monarchak Generation)	312	90	82	0	132 kV Palatana-Udaipur (65 MW)	Low Voltage at AGTCCPP = 128 kV, Agartala= 127 kV, Surajmaninagar= 126 kV, PK Bari= 126 kV, Kumarghat = 128 kV
5	N-1 (Rokhia Generation)	320	90	27	36	132 kV Monarchak - Rokhia (65 MW)	Low Voltage at AGTCCPP = 126 kV, Agartala= 125 kV, Surajmaninagar= 125 kV, PK Bari= 124 kV, Kumarghat = 124 kV
6	N- 1 (Monarchak + Rokhia Generation)	230	90	27	0	132 kV Palatana Udaipur (65 MW)	Low Voltage at AGTCCPP = 129 kV, Agartala= 129 kV, Surajmaninagar= 128 kV, PK Bari= 128 kV, Kumarghat = 128 kV
7	N- 1 (Monarchak + Rokhia + AGTCCPP)	200	0	27	0	132 kV Palatana Udaipur (65 MW)	Low Voltage at AGTCCPP = 127 kV, Agartala= 127 kV, Surajmaninagar= 126 kV, PK Bari= 127 kV, Kumarghat = 127 kV
8	N-0 (132 kV Palatana- Udaipur out)	440	90	82	100	132 kV Palatana Surajmaninagar (180 MW)	Low Voltage at AGTCCPP = 127 kV, Agartala= 127 kV, Surajmaninagar= 126 kV, PK Bari= 127 kV, Kumarghat = 127 kV

Note: For Case 8 (N-0 [132 kV Palatana- Udaipur out]), the system is highly insecure.

Annexure D.15

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Sl No	Case Description	Tripura Demand with Bangladesh	AGTCCPP Generation	Tripura Own Generation	Monarchak	Limits	Grid Voltage
1	As per Demand Required by Tripura	480	90	82	100	High Loading of 132 Monarchak- Rokhia (~87 MW) and 132/66 kV ICTs at Udaipur Ss	Low Voltage at AGTCCPP = 121 kV, Agartala= 120 kV, Surajmaninagar= 119 kV, PK Bari= 117 kV, Kumarghat = 118 kV
2	N-0 with All elements	440	90	82	63	132 kV Monarchak - Rokhia Line (72 MW)	Low Voltage at AGTCCPP = 124 kV, Agartala= 123 kV, Surajmaninagar= 122 kV, PK Bari= 120 kV, Kumarghat = 120 kV
3	N-1 (132 kV Palatana - Surajmaninagar)	236	90	82	63	132 kV Monarchak - Rokhia Line (78 MW)	Low Voltage at AGTCCPP = 125 kV, Agartala= 124 kV, Surajmaninagar= 121 kV, PK Bari= 125 kV, Kumarghat = 125 kV
4	N-1 (Monarchak Generation)	344	90	82	0	132 kV Palatana-Udaipur (80 MW)	Low Voltage at AGTCCPP = 126 kV, Agartala= 125 kV, Surajmaninagar= 124 kV, PK Bari= 124 kV, Kumarghat = 124 kV
5	N-1 (Rokhia Generation)	373	90	27	63	132 kV Monarchak - Rokhia (80 MW)	Low Voltage at AGTCCPP = 122 kV, Agartala= 122 kV, Surajmaninagar= 121 kV, PK Bari= 120 kV, Kumarghat = 121 kV
6	N- 1 (Monarchak + Rokhia Generation)	259	90	27	0	132 kV Palatana Udaipur (80 MW)	Low Voltage at AGTCCPP = 128 kV, Agartala= 127 kV, Surajmaninagar= 126 kV, PK Bari= 127 kV, Kumarghat = 127 kV
7	N- 1 (Monarchak + Rokhia + AGTCCPP)	212	0	27	0	132 kV Palatana Udaipur (80 MW)	Low Voltage at AGTCCPP = 127 kV, Agartala= 127 kV, Surajmaninagar= 126 kV, PK Bari= 127 kV, Kumarghat = 127 kV