

North Eastern Regional Power Committee

Agenda For

158th OCC Sub-Committee Meeting

Time of meeting : 10:00 Hrs.

Date of meeting : 12th July, 2019 (Friday)

Venue : "Hotel Nandan", Guwahati.

A. CONFIRMATION OF MINUTES

CONFIRMATION OF MINUTES OF 157th MEETING OF OPERATION SUB-COMMITTEE OF NERPC.

The minutes of 157th meeting of Operation Sub-committee held on 4th June, 2019 at Guwahati were circulated vide letter No. NERPC/SE (O)/OCC/2016/4556-4591 dated 14th June, 2019.

The Sub-committee may confirm the minutes of 157th OCCM of NERPC as no comments/observations were received from the constituents.

ACTION TAKEN -ITEMS

B.1. ACTION TAKEN:

1. IMPLEMENTATION OF PROJECTS FUNDED FROM PSDF:

The status as informed in 157th OCC:

State	R&U scheme	ADMS	Capacitor Installation	SAMAST **	Line Differential Protection
Ar. Pradesh	Pkg#I award by June'19 for diagnostic tools Pkg# II&III award in July'19	Tender published. LOA by May'19.	-	Not approved by TESG.	-
Nagaland	Could not be updated due to absence of DoP Nagaland representative		-	Not approved by TESG.	Lines identified. Under DPR preparation stage.
Mizoram	Could not be updated due to absence of P&ED Mizoram representative		To reply to TESG queries.	Not approved by TESG.	Lines not yet identified. To be taken up in Sub-group.
Manipur	LOAs issued. Completion by Jun'19.		To reply to TESG queries.	Not approved by TESG.	Lines not yet identified. To be taken up in Sub-group.

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Tripura	90% completed. Remaining by May'19		Study to be carried out in consultation with NERLDC.	Not approved by TESG.	Lines not yet identified. To be taken up in Sub-group.
Assam	LOAs issued. Completion by Jun'19.		-	Appraisal Committee approved.	Lines identified. Under DPR preparation stage.
Meghalaya	MePTCL LOAs Completed Related Works target for completion by Jun'19. MePGCL - Erection complete by Mar'19		-	Appraisal Committee approved.	DPR already submitted and awaited approval.

Meghalaya has submitted the station-wise status. The other state utilities are requested to furnish status in similar format, station-wise as per format by first week of every month on regular basis to Member Convener, PSDF Project Monitoring Group (AGM, NLDC, POSOCO) with a copy to NPC & NERPC. The LOAs of R&M Scheme are to be furnished to NERLDC/NERPC regularly. As per deliberation in the previous meetings all the utilities were requested to submit station-wise status of R&U schemes.

States may please intimate the latest status.

2. Long Outage of Important Grid Elements:

Name of the Element	Name of Utility	Status as informed in 156 th OCC	Latest status
63MVAR Reactor at Byrnihat to replace with 80MVAR Reactor	MePTCL	To be taken up with CEA	
132kV Dimapur - Imphal (out since 25.07.18)	NERTS	Completion tied to clearing of RoW issues for Kohima section.	
220kV Sonabil-Samaguri-I	AEGCL	Tender in May'19. specific issues may be highlighted	

Utilities may please intimate the latest status.

3. Follow up of recommendations of PCC/Sub-group:

SN	Name of element	Actions to be taken	Concerned Utilities	Current status	Status as informed in the 158 th OCC Meeting
1	132 kV AGTCCPP - Agartala D/C on 31.03.18	Installation of Line Differential in 132 kV AGTCCPP - 79 Tilla D/C & Review of impedance setting of both ends as a temporary measure.	NERTS/NEEPCO	LDP installation by Jun'19	
2	132kV AGTCCPP-Kumarghat	GPS to be procured and time synchronization of relay to be done	NEEPCO	By Aug'19	
3	132kV BNC-Pavoi	Provision of alarm, anunciation at Pavoi S/Sn	AEGCL	July'19	

Utilities may please intimate the latest status.

4. Submission of various data pertaining to reliable operation of the grid:

Details of the data required	Name of Utility	Status of submission as per 156 th OCC	Latest status
Data for Wind Turbine Generator	All SLDCs	CERC matter. Not received reply. NERLDC to circulate formats again.	

NERLDC may please intimate the latest status.

B.2. OPERATIONAL PERFORMANCE AND GRID DISCIPLINE DURING JUNE, 2019

As per the data made available by NERLDC, the grid performance parameters for June, 2019 are given below:

NER PERFORMANCE DURING JUNE, 2019

States	Energy Met (MU)		w.r.t. May, 19 % inc (+) /dec (-)	Energy Reqr. (MU)		w.r.t. May, 19 % inc (+) /dec (-)	% inc (+) /dec (-) of energy reqr vs met. In June, 19
	June-19	May-19		June-19	May-19		
Ar. Pradesh	66.30	63.86	3.82	66.67	64.24	3.78	-0.55
Assam	923.50	738.39	25.07	970.97	819.22	18.52	-4.89
Manipur	72.13	72.19	-0.08	72.65	72.70	-0.07	-0.72
Meghalaya	168.51	159.02	5.97	168.84	167.32	0.91	-0.20
Mizoram	55.41	54.80	1.11	55.74	55.16	1.05	-0.59
Nagaland	64.97	64.40	0.89	65.42	64.94	0.74	-0.69
Tripura	149.23	170.42	-12.43	159.49	172.78	-7.69	-6.43
Region	1500.05	1323.08	13.38	1559.78	1416.36	10.13	-3.83

States	Demand Met (MW)		w.r.t. May, 19 % inc (+) /dec (-)	Demand in (MW)		w.r.t. May, 19 % inc (+) /dec (-)	% inc (+) /dec (-) of energy reqr vs met. In June, 19
	June-19	May-19		June-19	May-19		
Ar. Pradesh	144	138	4.35	146	140	4.29	-1.37
Assam	1791	1673	7.05	1844	1753	5.19	-2.87
Manipur	182	181	0.55	188	183	2.73	-3.19
Meghalaya	367	325	12.92	367	329	11.55	0.00
Mizoram	99	100	-1.00	101	102	-0.98	-1.98
Nagaland	140	128	9.38	144	130	10.77	-2.78
Tripura	311	295	5.42	320	297	7.74	-2.81
Region	2861	2674	6.99	2922	2758	5.95	-2.09

REGIONAL GENERATION & INTER-REGIONAL EXCHANGE IN MU

Month---->	June-19	May-19
Total Generation in NER (Gross)	1725.726	1822.984
Total Central Sector Generation (Gross)	1348.785	1464.987
Total State Sector Generation (Gross)	376.941	357.997
Inter-Regional Energy Exchange		
(a) NER-ER	5.06	257.68
(b) ER-NER	337.23	103.77
(c) NER-NR	370.47	174.76
(d) NR-NER	0.00	0.00
© Net Import	-38.3	-328.67

AVERAGE FREQUENCY (Hz)

Month---->	June-19	May-19
	% of Time	% of Time
Below 49.9 Hz	10.08	8.43
Between 49.9 to 50.05 Hz	71.83	74.15
Above 50.05 Hz	20.21	19.55
Average	50.00	50.00
Maximum	50.31	50.33
Minimum	49.63	49.65

C. ITEMS- STATUS REVIEW

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

During 157th OCC meeting, the status as informed by different beneficiaries is as follows:

SN	Items	Status as given in 157 th OCC Meeting		Status as given in 158 th OCC Meeting	
		Timeline for completion	Furnishing of detail parameters	Timeline for completion	Furnishing of detail parameters
a. New elements					
1	400/220kV, 315 MVA ICT-1 of NTPC at Bongaigaon	By May,2019	Application will be submitted immediately		
2	Kameng HEP of NEEPCO two units (2 x 150 MW) Next two units (2x150 MW)	July'19** detailed breakup for targets to be given	CEA clearance available		
3	132kV Monarchak – Surjamaninagar D/C of TSECL	Jun'19	To be submitted to NERLDC.		
4	220/132 kV, 160MVA ICT-II at Balipara	Uncertain due to transportation issues i.r.o. damaged ICT. PG to revert back with exact schedule	To be submitted to NERLDC.		
5	220/132 kV, 1x160 MVA ICT with GIS Bay at Kopili	ICT July'19 Connected in GIS by Dec'19	To be submitted to NERLDC.		
6	Dedicated 33kV feeder at Khliehriat Substation from Lumshnong.	A date will be fixed NERPC, MeECL and NERTS will visit	Not applicable.		
7	Replacement of 315 MVA ICT-II with 500 MVA ICT at Misa (PG)	June'19	To be submitted to NERLDC.		
8	220kV Balipara-Sonabil-2	Estimate under process tendering after MCC removed	To be submitted to NERLDC.		

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9	Bay at Agia S/S for 132kV Agia-Nangalbibra Ckt#II by AEGCL	LOA by June'19	To be submitted to NERLDC.		
10	132kV BTPS-Rangia T/L	By June'19	-		
b. Elements under breakdown/upgradation					
11	Up-gradation of 132 kV Lumshnong-Panchgram line	Queries to be submitted by AEGCL and MeECL	Not applicable.		
12	PLCC Panels at Loktak end of Loktak - Ningthoukhong 132 kV feeder and Loktak - Rengpang 132 kV feeder	Aug'19.	Not applicable.		
13	Replacement of CTs and installation of Bus Bar Protection at 220 kV Misa	CTs replaced. Bus bar protection by June'19	Not applicable		
13	Upgradation of 132 kV Bus Bar at Umiam Stg- III to ACSR Zebra	DPR submitted. Other upgradation works to be included in DPR	Not applicable		
14	220/132 kV 30 MVA ICT at Mokochung	ICT by Sep'19. DoCO after GIS commissioning in 2020.	To be submitted to NERLDC		
15	Upgradation of 132kV Imphal - Karong by MSPCL	July'19	-		
16	Upgradation of 132kV Lekhi-Chimpu and Lekhi bus by DoP Ar.Pradesh	Mar'2020	-		
17	Upgradation of CT at Lekhi for 132kV Lekhi-Chimpu by DoP Ar.Pradesh	Mar'2020	-		

Concerned constituents may kindly intimate the status.

C.2. Update on Real Time Energy Assessment for Effective Grid Management:

The status as updated till the 157th OCC meeting are:

- CDAC to complete installation of TARA devices for replaced SEMs by 30.04.2019. *Already completed*
- Integration of WBES schedule & SMS alert app to be deployed by CDAC by April'19
- Installation & commissioning certificate for Server and associated systems in NERLDC issued and final 10% to be disbursed.

NERPC/CDAC may please update the status.

C.3. Ensuring proper functioning of Under Frequency Relays(UFR) & df/dt Relays:

In 7th NPC meeting held on 08.09.17 it was agreed that mock test is good enough to test the healthiness of the UFR & df/dt relays. The frequency of site inspection was proposed to be upto six months. RPC may carry out periodic inspection, in line with provisions of IEGC and furnish inspection reports to NPC.

Deliberations in the previous meetings:-

- Inspection for Mawphlang completed.
- Inspection for Sankardevnagar, Rangia and Rowta under Assam was completed in April'2019.
- UFR Inspection and Testing for TSECL Stations as well as UFRs under Islanding Scheme No.2, would be carried out for TSECL Stations from 24.06.19 to 28.06.19.

NERPC may please inform the status.

C.4. Extended C Band VSAT for power system communications in NER:

In 156th OCCM CGM, NERLDC informed that KPTCL has committed to go ahead with the Pilot Project. The readiness for immediate execution of the same will be communicated.

MePTCL raised apprehensions regarding the possibility of Cyber Security breach at Killing as fallout of this pilot. NERLDC informed that the same has already been taken care of, which will be addressed by GM(SL), NERLDC. In 157th OCCM, CGM, NERLDC informed that the queries have already been addressed by NERLDC. He also informed that Cyber Security aspects are taken care by the firewall. MePTCL requested that the same may be intimated to EE, Killing.

NERPC/NERLDC may please intimate the status.

C.5. DIMAPUR PG telemetry out since Feb'18.

In 156th OCCM NERTS informed that the work has been awarded and target completion is Aug'19 as LOA.

NERTS may please update the latest status.

C.6 Update on PDMS:

As per deliberation in the previous meeting(s) the following status/decisions:-

- SAT for Assam system completed. Data collection for Meghalaya underway.
- One representative from each of the states and NEEPCO, NERTS, NERLDC and NERPC.
- NERLDC & all SLDCs to submit Operational Load flow feedback by 1st week of Jun'19

NERPC/PRDC may please update the status.

C.7 Non-availability/ Non-functioning of synchronization facility at numerous stations

As per deliberations in the previous meetings the following is the status for synchronization facility at stations of different utilities:

- AEGCL –Report has been sought from MRT wing regarding availability of synchronizing facility. AEGCL would revert back with the exact status in 15 days.
- DoP Ar. Pradesh –Lekhi S/S no Sync check relay is available while for Chimpu relay is available. The procurement for trolley/synchroscope is being initiated and exact date for implementation would be intimated later on. But, they will have Synchronization facility latest by Oct 2019.

NERLDC/AEGCL/DoP Ar. Pradesh may please update the status

C.8 Phase shift errors in PMU:

In 156th OCCM it was decided that within 22.05.2019 the data w.r.t. connection changes will be collected by NERTS in conjunction with AEGCL and rectification would be completed by May'19 for substations with +/- 120 degree and planning of activities to correct the phase shift of -90 or +150 degree group shall be made by May 2019.

In 157th OCCM Sr.GM(AM), NERTS assured that the complete schedule of works would be prepared by 14th June,2019. The forum requested AEGCL to do likewise.

NERTS/AEGCL may please update the status.

C.9 Compensation for Heat Rate degradation and Auxiliary Energy Consumption in case of gas based power plants:

In 156th OCCM Director, NERPC informed that prevalent practice for compensation calculation i.r.o Gas Power Plants in other RPCs has been sought and a meeting in this regard would be convened prior to the next OCCM.

NERPC may please intimate the status.

C.10 Operation of RHEP units in Synchronous condenser mode

In 156th OCCM, it was informed that Member Secretary has requested CEA to intervene. Sr. Manager, NEEPCO informed that ED(O&M), NEEPCO has discussed with ED, BHEL, Bhopal, who had assured that offer would be sent. However, till now no such offer has

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been received. Director, NERPC requested NEEPCO to intimate the details of appropriate authority of BHEL so that the matter may be pursued at the highest level.

NEEPCO/NERPC may please intimate the status.

C. 11 Tentative schedule for Black Start & Restoration Procedure Mock exercise in NER during the year 2019

In 156th OCCM the mock black start schedule was agreed as below:

AGTCCPP completed

LOKTAK After commissioning of 132kV Bus-A

Khandong completed

KOPILI completed

RHEP to be done in lean season

DOYANG 12th of June'19

AGBPP – NEEPCO to revert back on Black Start using DG.

NEEPCO/NHPC/NERLDC may please intimate the status.

C. 12 DVAR and PSS at AGTCCPP:

In 156th OCCM Sr. Manager, NEEPCO informed that installation and commissioning would be complete by July'19.

NEEPCO may please intimate the status.

C. 13 Bus Configuration issues for various sub-stations:

Status as on 156th OCC Meeting:

- 132kV Transfer Bus at Loktak HEP - CEA Inspection Applied For.
- 400kV Bus A at RHEP - Letter sent to NEEPCO. A Committee would be formed by NERPC to visit RHEP and decide the reasons for non-commissioning of Bus A prior to next OCCM.
- 132kV Bus-2 at Surjamaninagar - Charged on 17.05.2019. Feeders divided amongst the two buses as: (i) 132kV Main Bus-I =>Palatana feeder, Bangladesh Feeder-1, 79Tilla Grid Feeder-1, Bodhjungnagar Feeder-1, 62.5MVA, 132/33kV ICT-1, (ii) 132kV Main Bus-II => Bangladesh Feeder-2, 79Tilla Feeder-2, Bodhjungnagar Feeder-2, 62.5MVA, 132/33kV ICT-2.

TSECL/ NEEPCO/NHPC/NERPC may please inform the status.

C.14 Status review of upcoming projects by Sterlite Grid 4 for strengthening of Southern part of NER Grid by July'19

1. 400 kV Misa – Silchar D/C by KEC
2. 400 kV P K Bari(Sterlite) - Surjamaninagar(Sterlite) D/C
3. 400/132 kV, 2x315 MVA ICTs at P K Bari (Sterlite)
- 4.400/132 kV, 2x315 MVA ICTs at Surjamaninagar (Sterlite)
- 5.132 kV AGTPCCPP – P K Bari(TSECL) D/C

Also, review of upcoming projects by TSECL for strengthening of Southern part of NER Grid:-

- 1.132 kV P K Bari (TSECL) - P K Bari (Sterlite)
- 2.132 kV Surajmaninagar(TSECL) - Surajmaninagar(Sterlite)

Scope of work under POWERGRID(CTU):

For 400kV Silchar-Misa D/C line:

- CTU to provide 2 no. of 400kV line bays each at Silchar (PGCIL) and Misa (PGCIL)
- CTU to provide 80 MVAR bus reactor at Misa (PG) along with GIS bay
- CTU to provide Switchable line reactors, 1x80 MVAR at Misa ends of the each circuit of the Silchar– Misa 400kV D/C line

M/s KEC, M/s STERLITE, TSECL, NERTS may please update the status.

C.15 Review of relay settings at Karong:

In 156th OCCM it was brought to notice that the flow in the 132kV karong-Kohima is being limited (at 20MW from Karong to Kohima) via relay settings at Karong. The forum noted that this would lead to unwanted trippings of the line and requested MSPCL to review the same.

MSPCL may please intimate the status.

C.16 Restoration of SCADA for control and annunciation:

The SCADA for control and annunciation of 132 kV Kopili Khandong Feeder II and 220/132 kV, 160 MVA ICT is not in operation since a long period of time leading to difficulty in monitoring and operation. POWERGRID may be requested to restore the same or separate control and monitoring panel for the feeder at the earliest.

In 157th OCCM Sr.GM(AM), NERTS informed that due to miscommunication the target was wrongly given as May'19. He stated that temporary arrangement for Annunciation would be done by June'19 while the full-scale SCADA integration is linked to GIS. target for full-scale SCADA integration would be informed later on.

NEEPCO/NERTS may please intimate the status.

C.17 Shutdown related to upgradation of 132kV Motonga Sub-station in Bhutan:

Deliberations in the 156th OCCM	Status as informed in the 157th OCCM	Latest status
1) <u>Protection settings at Rangia</u> Line parameters are already available with NERTS/POWERGRID for the 132kV Rangia-Deothang. The parameters for the line from Tee point to Silicon factory has to be	NERTS to visit Rangia on 05.06.19. DR standardization & settings to be revised.	

provided by Bhutan. During shutdown NERTS would visit and revise the settings.		
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NERTS may please intimate the latest status.

C. 18 Status of recommendations reg GD-Vs on 03rd & 20th April,2019:

Recommendations	Status as informed in the 157th OCCM
Review of negative phase sequence relay settings for GBC motor at Monarchak (Scope of NEEPCO)	Settings send to BHEL. No reply yet. Expected by June'19
Identification of weak joints for 400kV Palatana-Silchar D/C (Scope NERTS)	Sample of failed conductor to be sent to the manufacturer by NETC for RCA as the conductor suffered mechanical breakage. There was no issue with joints.
Study for reactive compensation in Tripura System(scope of TSECL)	NERLDC informed that node wise MVAR data of 33 kV system is required to carry out the studies. TSECL informed that MVAR data at 33 kV level is not available at SLDC. Forum requested TSECL to monitor & record MVAR data at 33 kV nodes for 1 month and submit the data for study.
Identification of feeders for additional UFR based load shedding under Islanding Scheme-II(Scope of TSECL)	List attached at Annexure-C.18
Standalone EL for integration of relay at AGTCCPP by Oct'19(Scope of NEEPCO)	AGTCCPP - Oct'19. Standalone EL at RHEP completed in June'19
All stations to confirm DR downloading facility and it's healthiness at respective stations. A consolidated undertaking by the respective utility in this regard is to be submitted prior to each OCCM.	To be made into permanent agenda item wherein compliance from all utilities to be recorded. It was decided that all utilities to submit the declaration by 2nd of the month to NERPC & NERLDC.
NHPC to procure standalone EL for Loktak HEP	Dec'2020 because no budget provisions
NERTS would explore options in consultation with OEM regarding time synchronization issues at Silchar	Undergoing. Referred the case to OEM
Upon SPS-2 activation 132kV Bus Coupler Breaker to be opened at Palatana. Old scheme of opening of HV side CBs of ICTs to be disabled/removed (Scope of OTPC)	Not implemented. OTPC informed that By Opening of Bus Coupler would will lead to blackout of Palatana. To be discussed during visit of UFR Inspection team to Palatana.
Revised SPS-3 scheme offer sought from GE by NERTS	Technical offer Received from GE. Once technical clearance is given to GE, they will submit the commercial offer.

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Line defects in 400kV Silchar - Azara & 400kV Silchar-Byrnihat T/L to be attended(Scope of NETC)	To be executed in the next shutdown
Impedance measurement for 400kV Paltana-Silchar D/C, 400kV Silchar-Azara, 400kV Silchar – Byrnihat	On opportunity
Line parameters to be matched at Silchar, Azara and Byrnihat.	To be informed
Spare relay REL 670 to be installed at Byrnihat for 400kV Silchar-Byrnihat(Scope of MePTCL)	S/d postponed. By June'19
NERTS and AEGCL to jointly visit Azara and check exact cause for delay in appearance of voltage input to relay when charged via Tie Breaker	To be informed

Concerned utilities may please update the status.

C.19 Installation of Anemometer:

As per CERC Order in Petition number 9/SM/2014 dated 14.06.16, Hon'ble CERC has directed PGCIL to install Anemometer in all its sub-stations to record wind speed. In 132nd OCCM, DGM (AM), NERTS informed that installation of anemometers is being carried out in SR-1. After satisfactory performance, anemometers will be installed in other regions. In 142nd OCCM, NERTS was requested to present Action Taken Report for installation of anemometers.

In 157th OCCM CGM, NERLDC informed that IMD would install 150 nos AWS in NER. IMD proposed to set up AWS in substations of NER which will require around 10x10 space and they are ready to share data with NERLDC & SLDCs which will be beneficial for load forecast.

The forum agreed in-principle and requested IMD to give presentation in the next OCCM.

NERTS may please intimate the status.

C.20 Status review of upcoming projects for strengthening of Southern part of NER Grid:

Kalparatu by July'20:

- a. 400 kV Imphal – New Kohima D/C
- b. 400 kV New Kohima – Mariani (PG) D/C
- c. 400/220 kV, 2x500 MVA ICTs at New Kohima (Kalpataru)

POWERGRID

- d. 400/220 kV, 2x 500 MVA ICTs at Mariani
- e. Upgradation of Misa – Mariani D/C at 400 kV
- f. Upgradation of S M Nagar (TBCB) – Palatana D/C at 400 kV
- g. Upgradation of P K Bari (TBCB) – Silchar D/C at 400 kV
- h. LILO of S M Nagar (TSECL) – Palatana D/C at S M Nagar (TBCB)
- i. LILO of P K Bari (TSECL) - Silchar D/C at P K Bari (TBCB)

Kalpataru/POWERGRID may please intimate the latest status.

C. 21 Metering Status Review:

Agenda Description	Completed	Remarks
Distribution of 70 Laptops	NERTS informed in 157th OCC Meeting that Laptops under distribution to all identified locations.	Status of Distribution and progress may be discussed.
Correction of Meter error at Pare, Ningthoukhong, Kohima , Jiribam(MN), Dimapur(s).	YET TO BE CORRECTED.	Status and progress may be discussed.

NERLDC/NERTS/All STUs may please intimate the status.

D. I T E M S FOR DISCUSSION

D.1 Generation Planning (ongoing and planned outages)

- a. Present per day MU and projected number of days of operation.

Plants	Reservoirs level in meter	MU content	Present DC (in MU)	No of days as per current generation
Khandong + Kopili stg II			1.578	
Kopili			4.07	
Doyang			0.1096	
Loktak			1.0005	

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

The Committee may discuss and approve the proposed shutdown by Generating Stations as given in Annexure – D.2 which is available in NERPC website.

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.

It was decided in the previous OCCM that no shutdown would be granted to utilities not submitting DR/EL regularly.

The sub-Committee may kindly discuss and approve the transmission line outages proposed by Constituents for July,2019-August,2019 which is available in the website of NERPC.

D.3 Estimated Transmission Availability Certificate (TAC) for the month of April,2019-May,2019:

NETC and POWERGRID have submitted the outage data for the month of March, 2019 - April, 2019. So the attributability of outage of the said elements may please be finalized.

Members may please discuss.

D.4 Assessment of TTC, TRM & ATC by SLDC on respective Inter-State Transmission Corridor

The forum requested all the SLDCs to carry out the TTC/ATC calculations and decided that SLDC Ar. Pradesh would give presentation in the next OCC.

Members may please discuss.

D.5 RGMO performance analysis of events

Decisions in the previous meetings:

- NERLDC to scan PMU records for any event prior to 11:55hrs on 05.02.2019 resulting in droop of frequency by more than 0.03 Hz.
- BgTPP Unit #II mechanical problem in Turbine to be rectified.
- NERLDC may highlight any additional events.

Members may please discuss.

D. 6 Reactive power capability/injection of generating stations:

As per discussion in previous meeting(s) the following needs to be updated:

- PG Test Reports of Pare - NERLDC to confirm sufficiency.

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- Procedure for reactive capability testing to be discussed and finalised.
- OTPC has informed that the procedure for reactive capability testing is feasible as corroborated by BHEL.

Members may please discuss.

D.7 Accurate Load forecasting by SLDCs as per IEGC c1.5.3 for better system operation

In 156th OCCM NERLDC presented the RMSE for Mar'19:

% Error with Actual Data (Forecasted by States)							
	Ar Pradesh	Assam	Manipur	Meghalaya	Mizoram	Nagaland	Tripura
Median	11	12	11	11	14	11	10

Forum decided that load forecast error will be monitored in OCC Meeting till the RMSE comes below 5%

Members may please discuss.

D.8 Patrolling protocols/guidelines:

Finalization of patrolling protocols/guidelines for NER as per CERC order No 146/MP/2013 with I.A. 36/2013.

In 157th OCCM members were requested to submit their comments by June'19.

Members may please discuss.

D.9 Better weather forecasting for power sector by IMD:

During the interaction of NERLDC with IMD, Guwahati, they requested to set up observatories in appropriate substations covering all important locations of NER states, which will be beneficial for power utilities of NER.

Also, NERLDC in coordination with IMD, Guwahati proposes to conduct one-hour knowledge sharing session on "Meteorological requirements of Power System Operation" in next OCC Meeting.

In 157th OCCM it was decided that IMD would present their offering for the power sector in the next OCCM.

Members may please discuss.

D.10 Islanding Formation of Monarchak:

Island formation of Monarchak in case of tripping of both lines (132 kV Monarchak-Udaipur & 132 kV Monarchak- Rokhia) affecting the evacuation of generation at TGBPP & scheme for safe evacuation of Monarchak generation in case of tripping of any one line (132 kV Monarchak-Udaipur or 132 kV Monarchak- Rokhia).

A team from NERLDC, NERTS & NERPC visited Monarchak/Rabindranagar on 27.06.19 to understand the practical feasibility of the Islanding Scheme. The salient observed points are:

Agenda for 158th OCC Meeting to be held on 12th July, 2019

- Island formation with Rabindranagar load is possible. However the average loading pattern is around 3-8MW.
- Sufficient isolation at Rabindranagar is present between 66kV/33kV/11kV loads and the 132/11kV loads. There is no chance of back feeding and tripping of the Monarchak generation.

Members may please discuss.

AGENDA ITEMS FROM NERLDC:

D.11 Tripping of all units of BgTPP:

On 23/05/2019 Units I, II, III of BgTPP tripped at 03:06 hrs, 03:37 hrs, 03:56 hrs respectively. This caused a generation loss of around 615 MW. Also, 29 nos. of trippings of BgTPP units occurred due to various reasons since April 2018. NERLDC had requested BgTPP to send a root-cause analysis report of event dated 23/05/2019 vide letter no. NERLDC/SO-I/NTPC/2019/20/396 dated 23/05/2019, but no such report has been received from BgTPP even after reminder from NERLDC vide letter no. NERLDC/SO-I/NTPC/2019/39/544 dated 17/06/2019. Letters are attached in Annexure **D.11.a** and Annexure **D.11.b**

NERLDC may please deliberate.

D.12 Delay in Restoration after Grid Disturbance on 11-06-2019 at 17:21 Hrs by Pare HEP:

There was a significant delay in dead bus charging by Pare HEP during restoration. Further, communication issue and SCADA data issue at Pare HEP escalated the problem. NERLDC vide letter no. NERLDC/S.O-1/Pare/2019/33/531 dated 12/06/2019 and NERLDC/S.O-1/Pare/2019/38/536 dated 14/06/2019 had asked Pare for reason of delays, but no reply has been received so far. Letters are attached in Annexure **D.12.a** and Annexure **D.12.b**

NERLDC may please deliberate.

D.13 Non-functioning of synchronization trolley at Dimapur S/S:

On 12/06/2019, during the mock black start exercise at Doyang HEP, due to non-availability of the synchronization facility at Dimapur S/S, the 132 kV Doyang – Dimapur -1 line was reportedly closed without any synch. Check, causing tripping of Doyang Unit # 3. Letters are attached in Annexure **D.13**.

NERLDC may please deliberate.

D.14 Blackout of Agartala (79 Tilla) sub-station at 08:21 hrs on 02-06-2019:

Blackout was subsequent to a fire incident that took place in 132/33 kV transformer 6 at Agartala (79 Tilla) sub-station. All lines connected to Agartala sub-station were hand tripped. NERLDC had requested SLDC Tripura to furnish the reason of hand tripping vide letter no. NERLDC/SO-1/Tripura/2019/40/543 dated 17/06/2019, but no reply has been received. Letter is attached in Annexure **D.14**.

NERLDC may please deliberate.

D.15 Non Compliance of NERLDC instructions by SLDC Tripura:

Following are the summary of instances when the instructions of NERLDC were not complied with by TSECL/SLDC Tripura. Separate letters indicating individual non compliances are also attached in **Annexure D.15.a, D.15.b:**

- a. On 22-06-2019, 132 kV Agartala- Rokhia-II and 132 kV Monarchak-Rokhia lines were closed at 13:44 Hrs. and 13:30 Hrs. respectively without intimation to NERLDC.
- b. On 27-06-2019, NERLDC had advised SLDC at 08:01 Hrs. to close Agartala – S.M.Nagar –II after patrolling and declaring healthiness. SLDC closed the line at 09:30 Hrs. without intimation to NERLDC.
- c. On 28-06-2019, after the incident of dead bus at Rokhia at 05:29 Hrs. NERLDC had advised SLDC to ensure through checking of 132 kV Rokhia- Monarchak line before closing as it tripped on DPR, Z-I. SLDC closed the line at 05:55 Hrs
Also, during restoration on 22-06-2019, Surajmaninagar S/S was restored after delay of around 20 minutes which caused delay in the whole restoration process of Tripura System with Bangladesh load.

NERLDC may please deliberate.

D.16 SPS for RHEP:

Proposal to design and implement SPS (System Protection Scheme) related to safe and reliable evacuation of generation from RHEP. NERLDC vide its letter to NERPC (attached as **Annexure-D.16**) dated 20.06.19 requested to form a committee comprising of members from NERPC, NERLDC, POWERGRID and NEEPCO to design & implement an SPS.

NERLDC may please deliberate.

D.17 Requirement of additional ICT at RHEP:

Requirement of additional 400/132 kV ICT at Ranganadi Power Station to prevent interruption of power supply to the State of Arunachal Pradesh as well as tripping of multiple units at Ranganadi – Pare Complex.

NERLDC may please deliberate.

D.18 Frequent Disturbances in Tripura System:

Frequent instances of Grid Disturbance occurred in the month of Jun'19 in Tripura Power System resulting in tripping of major generating units and interruption of power supply to Comilla load of Bangladesh Power System, state capital as well as other parts of the state. NERLDC vide its letter to TSECL dated 21.06.19 requested to look into the matter on urgent basis and ensure strict compliance of mandated O&M practices, protection relay setting / co-ordination.

NERLDC may please deliberate.

D.19 Transformer Tap Optimization Study:

NERLDC has conducted Transformer Tap Optimization studies considering High Hydro Scenario in North Eastern Region. Suggested taps position of important transformers in NER for maintaining bus voltages within permissible limit as well as to minimize system losses is attached as **Annexure-D.19.a, Annexure-D.19.b**

NERLDC may please deliberate.

Metering Agenda

D.20 METER ERRORS:

Pair check error observed in following location, CT / PT error suspected.

I) Sign Reversal observed at Deothang end of 132 kV Rangia Feeder as well as in Silicon Factory end. (Shut down proposed by Bhutan on 9th july for polarity correction).

II) Dimapur end of 132 KV bokajan, Dimapur end reading erratic.

NERLDC may please deliberate.

D.21 High SEM Time Drift:

Time drift in SEMs may result in computational errors in Regional energy accounts & Weekly Loss. All constituents in whose premises the meters are installed are required to take corrective action for time correction whenever meter time drift > 1minute and submit weekly compliance report of the same to NERLDC.

The compliance report of many locations as detailed in **Annexure D.21.a**, are not received by NERLDC and **Annexure D.21.b** provides location details of Drift correction action not being done / weekly SEM data not sent.

NERLDC may please deliberate.

D.22 SEMs to be repaired:

List of SEM requirement for the next two years has been prepared considering precarious stock position of Spare SEMs. It has been assessed that 178 SEMs would be required for the next two years. Accordingly, in 156th OCC Meeting, it was proposed to procure 100 SEMs and 20 DCDs and in the 157th OCC Meeting, a list of 78 SEMs were proposed to be repaired.

NERLDC may please deliberate.

AGENDA ITEMS FROM NTPC:

D.23 RSD of Units for short duration

On 26-6-2019, BgTPP unit # 1 was taken under RSD at 0940 hrs as per communication received from NERLDC. Unit was again put on bar at 1025 hrs after withdrawal of RSD. However available DC was reduced to 472.5 MW (for two units) in NERLDC site from 1900 hrs of the same day. Also on 29-6-19 one unit has been put under RSD from 8 am for short duration.

Such short duration shutdowns puts unnecessary stress on the machine because frequent start ups / shut downs are not good for the health of a thermal power unit. Considering a RSD of 8 hours duration, the boiler fire is killed for 4 hours only since it takes around 4 hours from Boiler light up to synchronizing the machine back with the grid.

Asking for reserve shut down of a coal based unit for demand management by constituents for such a short duration may not be in the true spirit of CERC regulation clause of reserve shutdown as it may affect the life of the plant. NTPC BgTPP always comes forward to help the grid in case of any emergency and does not hesitate in taking out units as directed by NERLDC. But for demand management of the constituents by putting one unit of coal based plant under reserve shut down for a short duration of 8 hours (4 hours only for Boiler) is not desirable. Frequent start up/ shutdown is possible only in gas based or hydro power plants.

In view of the above, the duration of reserve shutdown may please be reviewed in OCC forum.

NTPC may please deliberate.

Any other item:

Date and Venue of next OCC

It is proposed to hold the 159th OCC meeting of NERPC on second week of August, 2019. The date & exact venue will be intimated in due course.

Summary of UFR Inspection & identification of additional feeders for UFR of Tripura Power System - 24.06.19 to 27.06.19

Background:

Grid Disturbance of category GD-V occurred in NER grid on 20.04.19 affecting the power System of Manipur, Mizoram, South Assam, Part of Meghalaya, Tripura including Bangladesh (along with South Comilla load). Simultaneous tripping of 400 kV Silchar – Byrnihat line & 400 kV Silchar – Azara line occurred at 11:50 Hrs. Subsequently, SPS-3 operated at Palatana which in turn tripped HV side CB of GT-1 at 11:50:55.241 Hrs and GT-2 at 11:50:55.236 Hrs. GT-1 went to house load at 11:50:55.241 Hrs and finally tripped on Gas purge fault trip at 11:51:18.356 Hrs. Similarly, GT-2 went to house load at 11:50:55.246 Hrs. These tripping resulted in overloading of 132 kV Byrnihat-EPIP -II D/C lines of Meghalaya and tripped on operation of overcurrent at 11:50:56.729 Hrs.

Due to tripping of these lines, power System of Manipur, Mizoram, South Assam, Part of Meghalaya, Tripura including Bangladesh (along with South Comilla load) separated from the main grid and sudden dip in frequency was observed at 132 kV Agartala PMU.

132 kV Agartala frequency dropped from 50.07 Hz to 48.16 Hz within 1 sec & touched 45.30 Hz from 48.16 Hz within 3 seconds (Fig-1).

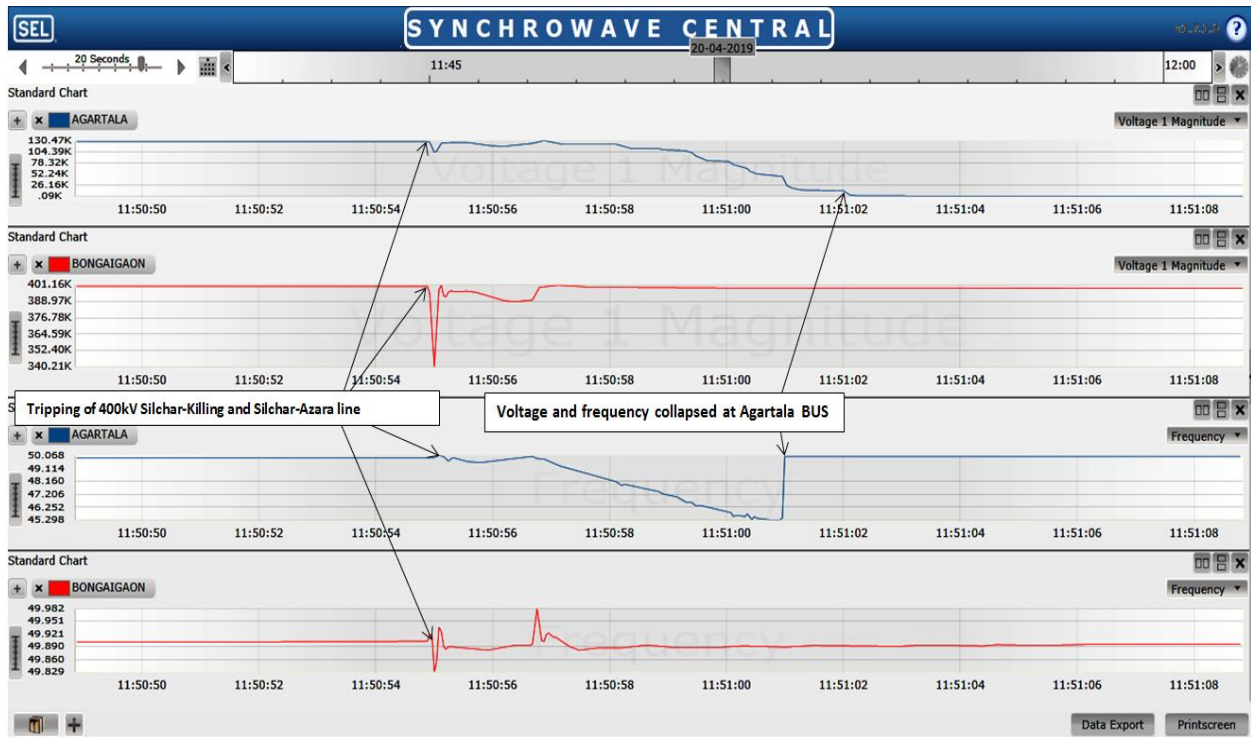


Fig 1: PMU Plot of 132 kV Agartala frequency for the grid disturbance on 20.04.19

It was reported that 132 kV Palatana-Udaipur line and 132 kV Palatana-SM Nagar line tripped at Palatana on operation of under frequency relay for island-2 formation. Operation of other UFRs for island scheme-2 formation was not reported.

No UFR operation was reported by SLDC, Tripura. As decided in OCC meeting, team comprising of members from NERTS, TSECL, NERLDC & NERPC carried UFR inspection from **24th Jun'19 to 27th Jun'19**.

Summary of testing of existing UFR is given below:

Date of Testing	Name of Substation	Name of feeder	Existing Setting	Summary of testing	Load relief at Peak(MW)	Recommendations if any
24.06.19	132/33 kV 79 Tilla	1. 33 kV Mohanpur	49.0 Hz, 300 msec	UFR operated. However, relay operating time is on the higher side (60-90 msec). Also, upon reducing time delay beyond 150 msec results in undesired & abnormal tripping of the feeder	9	Relay operating time should be minimum & time delay should be 0 msec (instantaneous). Matter to be taken up with OEM at the earliest.
		2. 33 kV Durjoynagar	49.0 Hz, 300 msec		7.5	
		3. 33 kV College Tilla	48.8 Hz, 300 msec		11.5	
		4. 33 kV Banamalipur	48.6 Hz, 300 msec		18	
26.06.19	66/33/11 kV Badarghat Substation	1. 33 kV Bishalgarh	49.2 Hz, 150 msec	UFR test operation unsuccessful. Tripping not issued by relay	6	Relay to be replaced
		2. 33 kV Stadium	48.8 Hz, 200 msec		12	
26.06.19	132/33 kV Surjamaninagar	1. 33 kV Jungalia (Bishalgarh)	49.2 Hz, 150 msec	UFR test operation unsuccessful. Tripping not issued by relay	16.4	Relay to be replaced
27.06.19	132/66/33/11 kV Rabindranagar	1. 33 kV Melaghar	49.2 Hz, 150 msec	UFR operated. However, relay operating time is on the higher side (60-90 msec). Also, upon reducing time delay beyond 150 msec results in undesired & abnormal tripping of the feeder	3.65	Relay operating time should be minimum & time delay should be 0 msec (instantaneous). Matter to be taken up with OEM at the earliest.

Summary of testing of UFR for islanding scheme-2 is given below:

Date of Testing	Name of Substation	Name of feeder	Existing Setting	Summary of testing	Recommendations if any	
26.06.19	400/132 kV Palatana	1. 132 kV Udaipur	48.8 Hz, 500 msec	Relay operated correctly.	-	
		2. 132 kV SMNagar		Testing could not be done as shutdown was not accorded	Testing shall be done on next opportunity S/D & report to be submitted to NERPC by OTPC	
25.06.19	132 kV Kumarghat	1. 132 kV AGTCCPP		-	-	Testing shall be done on next opportunity S/D & report to be submitted to NERPC by NERTS
		2. 132 kV P.K Bari				
-	400/132 kV Silchar	1. 132 kV P.K Bari 1 Line		-	-	
		2. 132 kV P.K Bari 2 Line		-	-	

Summary of inspection & identification of additional feeders for installation of UFR for islanding scheme

Date of inspection	Name of Substation	Feeders identified	Load Relief		Recommended UFR settings
			Peak	Off Peak	
25.06.19	132/33/11 kV Ambassa	1. 33 kV Gandacherra	3.48	3	48.8 Hz, 500 msec
		2. 33 kV Salema	2.2	1.7	
		3. 33 kV Manu	6.2	5.5	
		4. 7.5 MVA, 132/33/11 kV Transformer	3	2	
25.06.19	132/33/11 kV P.K Bari	1. 132 kV Silchar(PG) - P.K Bari D/C at Silchar(PG)			
		2. 33 kV Kanchanpur	3.1	2.1	
		3. 11 kV Darchawi	2.3	1.1	
		4. 11 kV Fatikroy	1.3	1.1	
		5. 11 kV kanchanbari	1.1	0.89	
25.06.19	132/33/11 kV Dhalabil	1. 33 kV kalyanpur	2.6	0.13	
		2. 33 kV Tulashikar	2.6	2.3	
		3. 33 kV Ampura	1.09	1.35	
		4. 15 MVA, 132/11 kV Transformer	5.9	2.3	

26.06.19	132/66/33/11 kV Udaipur	1. 66 kV Bagafa	9.1	6
		2. 33 kV Udaipur Town	4	3.6
		3. 33 kV Rani	7.1	4.8
		4. 33 kV Killa	0.95	0.5
27.06.19	132/66/11 kV Rokhia	1. 66 kV Badarghat	5.8	4
		2. 66 kV Rabindranagar	20.5	13.5
		3. 66 kV Boxanagar	3.8	2
Total identified load			86.12	57.87
Total Load to be identified as decided in PCC			100	70

Sd/-

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(भारत सरकार का उद्यम)
POWER SYSTEM OPERATION CORPORATION LIMITED
(A Government of India Enterprise)



उत्तर पूर्वी क्षेत्रीय भार प्रेषण केंद्र : लोअर नंगरा, लापालांग, शिलांग-793006, (मेघालय)
North Eastern Regional Load Despatch Centre: Lower Nongrah, Lapalang, Shillong - 793006, (Meghalaya)
Ph : 0364-2537470, 2537427, Fax - 2537486 Website : www.nerldc.org, Email - nerldc@posoco.in, CIN : U40105DL2009GOI188682

संदर्भ/Ref: NERLDC/SO-I/NTPC/2019/24/ 396

दिनांक/Date :23-05-2019

To,
Chief General Manager,
BgTPP NTPC,
Distt. Kokrajhar,
Salakati, Assam -783369

विषय/Sub.: Tripping of Units I, II, III of BgTPP on 23/05/2019.

Sir,

On 23/05/2019 Units I, II, III of BgTPP tripped at 03:06 hrs, 03:37 hrs, 03:56 hrs respectively. The unit wise generation of BgTPP prior to the trippings was:

Unit I = 208 MW

Unit II = 209 MW

Unit III = 198 MW

It may be noted that the generation loss of around 615 MW substantially reduced the generation availability and caused wide load – generation imbalance in the region. BgTPP is the largest generating plant in NER system and loss of all its units reduced the reliability of the grid.

Also, it has been noticed that 29 nos. of trippings of BgTPP units occurred due to various reasons since April 2018. The list of all the tripping is enclosed in Annexure I. Such a large number of trippings of BgTPP units is a matter of concern.

It is requested to analyse the root cause of the tripping of BgTPP units and send the analysis report showing the following (but not limited to):

- Root cause of the trippings
- Corrective Action required
- Preventive action required

Thanking you.

Yours sincerely,

अमरेश 23.05.19

(अमरेश मल्लिक / Amaresh Mallick)

व. महाप्रबंधक (एस.ओ-II)/Sr. GM (S.O-II)

उ.पू.क्षे.भा.प्रे.के/NERLDC.

Copy To:

1) सदस्य सचिव, उपक्षेविस/ MS, NERPC

Annexure I

Sl No	BgTPP Unit No	Capacity	Outage Date	Outage Time	Revival Date	Revival Time	Reason
1	2	250	06-Apr-18	16:05	06-Apr-18	20:43	PA fan header pressure loss.
2	2	250	09-Apr-18	12:40	09-Apr-18	15:03	PA header pressure low.
3	2	250	17-Apr-18	13:27	21-Apr-18	01:21	Primary header loss.
4	1	250	19-Apr-18	02:31	19-Apr-18	04:50	TG Protection Trip.
5	2	250	21-Apr-18	20:33	21-Apr-18	23:54	Boiler feed pump drum level low.
6	2	250	22-Apr-18	01:52	22-Apr-18	03:52	Condenser Vacuum problem
7	1	250	01-May-18	08:31	02-May-18	01:58	Boiler flame failure
8	1	250	02-May-18	03:30	02-May-18	04:49	Flame Failure
9	1	250	14-May-18	20:17	15-May-18	08:44	Flashover observed at Unit I/C Breaker
10	1	250	16-May-18	00:18	24-May-18	12:42	Turbine protection operated
11	1	250	27-May-18	11:23	27-May-18	14:09	High turbine vibration
12	2	250	18-Jun-18	17:15	18-Jun-18	20:43	Drum level low
13	1	250	19-Jun-18	23:04	20-Jun-18	04:03	Loss of all fuel
14	1	250	03-Jul-18	03:36	03-Jul-18	07:13	Boiler flame failure
15	1	250	19-Jul-18	08:05	19-Jul-18	13:42	Auxiliary Dc supply failure
16	2	250	26-Jul-18	15:50	27-Jul-18	03:42	Generator electrical protection operated.
17	1	250	12-Sep-18	10:21	13-Sep-18	04:06	Generator protection operated due to earth quake
18	2	250	20-Oct-18	08:11	20-Oct-18	12:57	Tripped due to Boiler furnace high temperature
19	2	250	20-Oct-18	13:57	20-Oct-18	20:59	Tripped due to main steam temperature low
20	1	250	01-Nov-18	18:35	06-Nov-18	23:38	Due to shortage of coal supply
21	2	250	09-Dec-18	06:01	09-Dec-18	13:26	Condenser Vacuum Pressure low
22	2	250	22-Dec-18	16:54	08-Jan-19	15:56	LT electric switchgear failure & thereafter outage due to coal shortage from 27/12/18
23	2	250	17-Jan-19	10:55	18-Jan-19	13:10	Due to negative sequence protection operation
24	1	250	08-Mar-19	17:48	08-Mar-19	20:06	Flame failure
25	3	250	31-Mar-19	15:31	31-Mar-19	22:07	Tripped due to Flame failure
26	3	250	24-Apr-19	11:26	26-Apr-19	00:35	Problem in Governor control valve.
27	3	250	27-Apr-19	00:11	27-Apr-19	07:16	Load Fluctuation, Throttling Valve problem
28	1	250	27-Apr-19	16:03	27-Apr-19	18:59	Tripped due to Flame failure
29	1	250	08-May-19	06:59	08-May-19	08:58	Boiler Flame failure

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संदर्भ/Ref: NERLDC/SO-I/NTPC/2019/39/544

दिनांक/Date : 17-06-2019

To,
Chief General Manager,
BgTPP NTPC,
Distt. Kokrajhar,
Salakati, Assam -783369

विषय/Sub.: Tripping of Units I, II, III of BgTPP on 23/05/2019.

Ref: NERLDC Letter No.: NERLDC/SO-I/NTPC/2019/20/396 dated 25/05/2019

Sir,

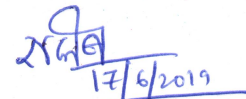
It is requested to kindly refer letter from NERLDC mentioned above.

On 23/05/2019, Units I, II, III of BgTPP tripped at 03:06 hrs, 03:37 hrs, 03:56 hrs respectively. This resulted in generation loss of around 615 MW. The generation availability was substantially reduced and caused wide load – generation imbalance in the region. BgTPP is the largest generating plant in NER system and loss of all its units reduced reliability of the grid.

In the letter from NERLDC mentioned above, it was requested to furnish the analysis report regarding above mentioned event. However, no such analysis has been received by NERLDC. Thus, it is requested to furnish the analysis at the earliest.

Thanking you.

Yours sincerely,


17/6/2019

Copy To:

1) सदस्य सचिव, उपक्षेपिस/ MS, NERPC

(आर. सूत्रधार /R. Sutradhar)
व. महाप्रबंधक (एस.ओ-1)/Sr. GM (S.O-I)
उ.पू.क्षे.भा.प्रे.के/NERLDC

पावर सिस्टम ऑपरेशन करपोरेशन लिमिटेड

(भारत सरकार का उद्यम)

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संदर्भ/Ref: NERLDC/S.O-1/Pare/2019/33/531

दिनांक/Date :12-06-2019

To,
The Head of Project,
Pare HEP, NEEPCO
Doimukh, Papum Pare District
Arunachal Pradesh-791112

विषय/SUB: Delay in Restoration after Grid Disturbance on 11-06-2019 at 17:21 Hrs

Sir,

As you are aware that Grid Disturbance occurred in Capital Area of Arunachal Pradesh at 17:21 Hrs on 11-06-2019 due to tripping of 400/132 kV ICT II at Ranganadi, 132 kV Bus Coupler breaker at Ranganadi, 132 kV Pare- Ranganadi line II & 132 kV Pare- Itanagar line. During the restoration process after the Grid Disturbance, which took around 2 hours, the following issues were faced pertaining to Pare HEP:

1. After the 132 kV Ranganadi – Pare II transmission line was extended from Ranganadi end at 17:35 Hrs, the line was closed at 18:39 Hrs. There was a significant delay in dead bus charging by Pare which caused delay in extension of power to Arunachal Pradesh via 132 kV Pare- Lekhi transmission line.
2. The telephonic communication with Pare Control Room via mobile nos. 9436688614 & 8257016450 was very poor. The mobile nos. could not be connected most of the times. At other times the mobile nos. were either out of network or busy. Even after repeated information about the inability to contact Pare Control Room, given via “NER Grid Operation” WhatsApp Group, very few times the communication could be established with Pare Control Room.
3. Unavailability of VOIP phone at Pare HEP further escalated the communication issue.
4. SCADA SOE data pertaining to Pare HEP was not correctly reporting at NERLDC.

It is requested to kindly look into the above mentioned issues very seriously as the delay in restoration of Arunachal Pradesh Grid due to delay in restoration of 132 kV Pare Bus and inform us the reason for such delay.

This is for your kind information and necessary action at your end please.

Yours sincerely,

अमरेश 12.06.19

(अमरेश मल्लिक / Amaresh Mallick)

Copy To:

1) सदस्य सचिव, उपक्षेत्रीय/ MS, NERPC

2) E.D.(O&M), NEEPCO, Shillong

व. महाप्रबंधक (एस.ओ-II)/Sr. GM (S.O-II)

उ.पू.क्षे.भा.प्रे.के/NERLDC

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North Eastern Regional Load Despatch Centre: Lower Nongrah, Lapalang, Shillong - 793006, (Meghalaya)
Ph : 0364-2537470, 2537427, Fax - 2537486 Website : www.nerlhc.org, Email - nerlhc@posoco.in, CIN : U40105DL2009GOI188682

संदर्भ/Ref: NERLDC/S.O-1/Pare/2019/38/536

दिनांक/Date :14-06-2019

To,
Head of Project,
Pare HEP, NEEPCO
Doimukh, Papum Pare District
Arunachal Pradesh-791112

विषय/SUB: Protocol to be followed by generating station during restoration process

Sir,

Kindly refer our earlier correspondence dated 12/06/2019 regarding delay in restoration after Grid Disturbance in Arunachal Pradesh system on 11/06/2019 at 17:21 Hrs.

Observations based on our own report as well as reports submitted by RHEP and Pare HEP are as below:

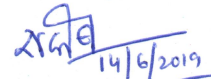
1. Disturbance occurred at 17:21 Hrs.
2. Restoration of Pare Unit -1 at 19:59 Hrs.
3. Between 17:21 Hrs and 19:59 Hrs, there were several attempts by Pare HEP to synchronize its units with Lekhi/Itanagar, but could not succeed.
4. Little or no communication between Pare HEP and NERLDC during the period.
5. Pare HEP did not contact NERLDC and kept on taking decision on its own resulting in multiple trippings.

Suggested Protocol:

1. Subsequent to any grid incident, the Generating Station should be in touch with NERLDC and ask for further course of action.
2. NERLDC has bigger picture of the grid with it and is in best position to take appropriate decision.
3. Any action on restoration should be taken only on receipt of advice from NERLDC.

This is for your kind information and necessary advice to all operation personnel.

Yours sincerely,



(आर. सूत्रधार /R. Sutrathar)

व. महाप्रबंधक (एस.ओ-1)/Sr. GM (S.O-1)

उ.पू.क्षे.भा.प्रे.के/NERLDC

Copy To:

- 1) सदस्य सचिव, उपक्षेविस/ MS, NERPC
- 2) E.D.(O&M), NEEPCO, Shillong

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North Eastern Regional Load Despatch Centre: Lower Nongrah, Lapalang, Shillong - 793006, (Meghalaya)

Ph : 0364-2537470, 2537427, Fax - 2537486 Website : www.nerldc.org, Email - nerldc@posoco.in, CIN : U40105DL2009GOI188682

संदर्भ/Ref: NERLDC/SO-I/NERTS/2019/37/534.

दिनांक/Date : 14-06-2019

To,
Senior General Manager
NERTS (AM)
POWERGRID
Shillong-793006

विषय/SUB: Non-functioning of synchronization trolley at Dimapur S/S during Mock Black Start exercise at Doyang HEP.

Sir,

As discussed in 155th OCC Meeting and other subsequent OCC Meetings, the Mock Black Start exercise at Doyang HEP was conducted on 12/06/2019. In line with procedure followed during previous Mock Black Start exercises at other generating stations in NER, a procedure for the exercise was prepared in consultation with Doyang HEP and RTAMC, NERTS (POWERGRID) and circulated by email on 09/06/2019.

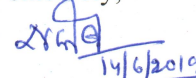
On 12/06/2019, during the mock black start exercise at Doyang HEP, the following events occurred:

- 1) 132 kV Bus A at Doyang was charged by black starting Unit # 3 and 132 kV Doyang – Dimapur -1 Line was extended from Doyang.
- 2) As, Doyang Unit # 3 and 132 kV Doyang – Dimapur -1 Line was in Islanded condition, Dimapur S/S was advised to synchronize 132 kV Doyang – Dimapur -1 Line using synchronization facility.
- 3) But, due to non-availability of the synchronization facility at Dimapur S/S, the line was reportedly closed without any synch. check.
- 4) This caused tripping of Doyang Unit # 3.

The matter has been viewed seriously as it has nullified all the efforts made to carry out the mock black start process. Also, non- availability of synchronization facility at Dimapur was not intimated to NERLDC.

In view of the above, POWERGRID, NERTS is advised to make sure the availability of Synchronization Facility at Dimapur S/S immediately as availability of Synchronization Facility is very important from grid operation perspective.

Yours sincerely,



(आर. सूत्रधार /R. Sutradhar)

वरिष्ठ महाप्रबंधक (एस.ओ-1)/ Sr. G.M. (S.O.-I)

उ.पू.क्षे.भा.प्रे.के/NERLDC.

Copy To:

- 1) MS, NERPC
- 2) Executive Director, NERTS

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North Eastern Regional Load Despatch Centre: Lower Nongrah, Lapalang, Shillong - 793006, (Meghalaya)
Ph : 0364-2537470, 2537427, Fax - 2537486 Website : www.nerldc.org, Email - nerldc@posoco.in, CIN : U40105DL2009GOI188682

संदर्भ/Ref: NERLDC/SO-1/Tripura/2019/40/543 .

दिनांक/Date :17-06-2019

To,
The Dy. General Manager,
System Operation Division
SLDC
79 Tilla, Agartala,
Tripura 799006

विषय/SUB: Furnishing details regarding the Blackout of Agartala (79 Tilla) sub-station at 08:21hrs on 02-06-2019

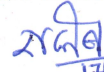
Sir,

On 02-06-2019, at 08:21 hrs it was reported by SLDC that all lines connected to Agartala sub-station were hand tripped resulting in blackout of the substation. This reduced the security and reliability of NER Grid and also affected the capital load of Tripura power system. The incident caused a load loss of around 100 MW in Tripura power system. The list of all the tripping is given in Annexure I.

As per the preliminary information received from your end, the above blackout was subsequent to a fire incident that took place in 132/33 kV transformer 6 at Agartala (79 Tilla) sub-station It is thus, requested to furnish a detailed report mentioning the reason behind opening of all lines.

Necessary action may please be taken in this regard.

Yours sincerely,


17/6/2019

(आर. सूत्रधार /R. Sutradhar)

व. महाप्रबंधक (एस.ओ-1)/Sr. GM (S.O-I)
उ.पू.क्षे.भा.प्रे.के/NERLDC.

Copy To:

1) सदस्य सचिव, उपक्षेविस/ MS, NERPC

Annexure I

Sl No	Element	Outage Date	Outage Time	Revival Date	Revival Time	Reason
1	Agartala – AGTPP 1	02-Jun-19	08:21	02-Jun-19	19:15	HAND TRIP
2	Agartala – AGTPP 2	02-Jun-19	08:21	02-Jun-19	10:51	HAND TRIP
3	Agartala – Rokhia 1	02-Jun-19	08:21	02-Jun-19	11:12	HAND TRIP
4	Agartala – Rokhia 2	02-Jun-19	08:21	02-Jun-19	09:30	HAND TRIP
5	Agartala – Surajmaninagar 1	02-Jun-19	08:21	02-Jun-19	11:08	HAND TRIP
6	Agartala – Surajmaninagar 2	02-Jun-19	08:21	02-Jun-19	11:08	HAND TRIP
7	Agartala – Bodhjannagar 1	02-Jun-19	08:21	02-Jun-19	11:13	HAND TRIP

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Ph : 0364-2537470, 2537427, Fax - 2537486 Website : www.nerldc.org, Email - nerldc@posoco.in, CIN : U40105DL2009GOI188682

संदर्भ/Ref: NERLDC/SO-1/Tripura/2019/

दिनांक/Date :27-06-2019

To,
Dy. General Manager,
System Operation Division
SLDC
79 Tilla, Agartala,
Tripura 799006

विषय/SUB: एन ई आर एल डी सी को बिना सूचना दिये 132 k.V. अगरतला-सुरजमानीनगर- II लाइन का समापन/Closing of 132 kV Agartala – S.M.Nagar II line without intimation to NERLDC on 27-06-2019 at 09:30 Hrs

Sir,

On 27-06-2019 a Grid Disturbance occurred in Tripura System at 03:01 hrs which resulted in blackout of Surajmaninagar sub-station, Rokhia sub-station and Agartala sub-station of Tripura.

NERLDC had advised SLDC Tripura to close 132 kV Agartala- S.M.Nagar II only after declaring healthiness as it tripped on DPR, Z-I through email at 08:01 Hrs.

Whereas, TSECL closed the line at 09:30 Hrs without any intimation to NERLDC and intimated verbally afterwards. Even after reminder email from NERLDC at 10:51 Hrs, requesting to provide root cause analysis of the same, no response from SLDC Tripura has been received yet.

It is requested to take up the event seriously as it is a violation of NERLDC instruction. Necessary response may please be furnished at the earliest and avoid repeat of the same in future.

Yours sincerely,

(आर. सूत्रधार/ R. Sutradhar)

व. महाप्रबंधक (एस.ओ-1)/Sr. GM (S.O-I)
उ.पू.क्षे.भा.प्रे.के/NERLDC.

Copy To:

- 1) सदस्य सचिव, उपक्षेपि/ MS, NERPC
- 2) अध्यक्ष और प्रबंध निदेशक /CMD, TSECL

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संदर्भ/Ref: NERLDC/SO-1/Tripura/2019/

दिनांक/Date :22-06-2019

To,
The Dy. General Manager,
System Operation Division
SLDC
79 Tilla, Agartala,
Tripura 799006

विषय/Subject: **Delay in restoration of Surajmaninagar sub-station and closing of 132 kV Agartala – Rokhia II line and 132 kV Monarchak – Rokhia Line without intimation to NERLDC during restoration process after Grid Disturbance on 22-06-2019 at 13:03 Hrs**

Sir,

On 22-06-2019 a Grid Disturbance occurred in Tripura Power System at 13:03 Hrs which caused blackout of Surajmaninagar sub-station, Rokhia sub-station and Agartala sub-station of Tripura. During the restoration process, the following issues were faced:

1) Delayed restoration of of Surajmaninagar sub-station:

Power supply was extended to Surajmaninagar from Palatana at 13:28 Hrs. But it was learned that Surajmaninagar was not ready as outgoing feeders from Surajmaninagar were not opened after Grid Disturbance. 132 kV Surajmaninagar – Palatana line was closed at Surajmaninagar after delay of around 20 minutes which caused delay in restoration of Tripura Power System and South Comilla of Bangladesh.

2) Closing of 132 kV Agartala – Rokhia II line and 132 kV Monarchak – Rokhia Line

132 kV Agartala – Rokhia II line and 132 kV Monarchak – Rokhia Line were closed at 13:44 Hrs & 13:30 Hrs respectively without intimation to NERLDC. During the time of restoration process, NERLDC has bigger picture of the grid and is in best position to take appropriate decision. Thus, any action on restoration should be taken only on receipt of advice from NERLDC.

It is requested to take up the matter seriously so that affected part of NER Grid may be restored quickly.

Yours sincerely,

अमरेश
22.06.19

(अमरेश मल्लिक / Amaresh Mallick)

व. महाप्रबंधक (एस.ओ-II)/Sr. GM (S.O-II)

उ.पू.क्ष.भा.प्रे.के/NERLDC

Copy To:

1) सदस्य सचिव, उपक्षेत्रीय/ MS, NERPC

2) अध्यक्ष और प्रबंध निदेशक /CMD, TSECL

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संदर्भ: उपक्षेत्रीय/एस.ओ-II/ 592

दिनांक/Date: 20.06.19

सेवा में/To:

1. Member Secretary, NERPC, Shillong- 793006

बिषय/Subject: Reliable Operation of Ranganadi Generation (RHEP) & Avert frequent power supply interruption to the State of Arunachal Pradesh – Constitution of committee - Requested

महोदया / महोदय,

Power supply to entire state of Arunachal Pradesh (except Khupi & Deomali Area that were radially fed) got affected on 11th June 2019 due to partial grid disturbance in Ranganadi – Pare Generation complex. It is learnt that the root cause of this Grid Disturbance was tripping of ICT-2 at Ranganadi on operation of NVD (Neutral Voltage Displacement) protection & subsequent tripping of 132 kV Pare- Itanagar line and 132 kV Ranganadi – Pare line and 132 kV Bus Coupler CB on Over Current protection. Because of this grid disturbance, there was a loss of generation of about 500 MW at Ranganadi-Pare Generation complex and load loss of about 80 MW in the State of Arunachal Pradesh.

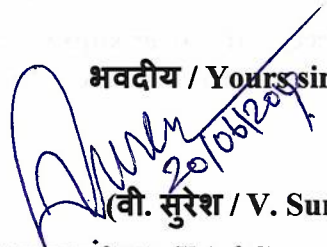
It is also bring to your kind notice that similar type of tripping on NVD (Neutral Voltage Displacement) protection of ICT-2 at Ranganadi were reported on 06.04.19 & 13.04.19 also and NERLDC / NERPC requested for keeping NVD protection with “Alarm” status instead of “Tripping” but yet to be implemented.

From the analysis, it is observed that whenever ICT at Ranganadi trip, that may lead to interruption of power supply to the State of Arunachal Pradesh as well as tripping of multiple units at Ranganadi – Pare Complex. To avert such a situation in future, it is felt that an SPS (System Protection Scheme) linking tripping of ICT and detailed checking of relay settings / co-ordination at Ranganadi – Pare complex is a critical requirement.

In view of repeated occurrences, it is requested to form a committee comprising of members from NERPC, NERLDC, POWERGRID and NEEPCO to design & implement an SPS (System Protection Scheme) at the earliest.

Co-operation requested for ensuring safe and reliable evacuation of Ranganadi generation & operation of Arunachal Pradesh Power System.

धन्यवाद एवं सादर सहित |

भवदीय / Yours sincerely

(वी. सुरेश / V. Suresh)

मुख्य महाप्रबंधक/ Chief General Manager
उपक्षेत्रांप्रेके, शिलांग / NERLDC

- Copy to:
1. ED, NLDC
 2. ED, NERTS
 3. ED, NEEPCO

Transformer Tap Optimisation Study

17/Jun/19

Sl. No.	Substation	Voltage Ratio (kV)	Transformer No.	Capacity in MVA	Controlled Bus	Tap Step (%)	Total Tap Positions	Nominal Tap	Present Tap	Voltage Profile				Optimised Tap Changer Position
										Off-Peak		Peak		
										Nominal Taps	Present Tap setting	After Optimisaton	After Optimisaton	
1	Balipara	400/220	1	315	400kV	1.25	17	9	9	399	421	417	404	NO+8 (17)
		400/220	2	315	400kV	1.25	17	9	9					NO+8 (17)
		220/132	1	50	132kV	1.25	17	9	9	134	142	129	132	NO+5 (14)
		220/132	2	50	132kV	1.25	17	9	9					NO+5 (14)
2	Bongaigaon	400/220	1	315	400kV	1.25	17	9	12	404	417	412	404	NO+5 (14)
		400/220	2	315	400kV	1.25	17	9	12					NO+5 (14)
3	Salakati	220/132	1	50	132 kV	1.25	17	9	13	135	128	124	133	NO+7 (16)
		220/132	2	50	132 kV	1.25	17	9	16					NO+7 (16)
4	Misa	400/220	1	315	400kV	1.25	17	9	5	401	421	420	406	NO+4 (13)
		400/220	2	315	400kV	1.25	17	9	5					NO+4 (13)
5	Ranganadi HEP	400/132	1	360	400 kV	2.5	17	9	9	399	422	417	404	NO+2 (11)
		400/132	2	360	400 kV	2.5	17	9	9					NO+2 (11)
6	Azara	400/220	1	315	400kV	1.25	17	9	8	405	420	412	405	NO (9)
		400/220	2	315	400kV	1.25	17	9	8					NO (9)
7	Biswanath Chariali (PG)	400/132	1	200	400 kV	1.25	17	9	8	401	423	417	407	NO-2 (7)
		400/132	2	200	400 kV	1.25	17	9	8					NO-2 (7)
8	Silchar	400/132	1	200	400 kV	1.25	17	9	9	409	424	414	407	NO-2 (7)
		400/132	2	200	400 kV	1.25	17	9	9					NO-2 (7)
		400/132	2	200	400 kV	1.25	17	9	9					NO-2 (7)
9	Byrnihat	400/220	1	315	400 kV	1.25	17	9	9	413	430	412	411	NO-3 (6)
		400/220	2	315	400 kV	1.25	17	9	9					NO-3 (6)
		220/132	5083/1	160	132 kV	1.25	17	9	9	139	140	137	137	NO + 1 (10)
		220/133	5083/1	160	132 kV	1.25	17	9	9					NO + 1 (10)
10	Palatana	400/132	1	125	400 kV	1.25	17	9	9	408	408	408	408	NO + 1 (10)
		400/132	2	125	400 kV	1.25	17	9	9					NO + 1 (10)
11	BgTPP	400/220	2	125	220 kV	1.25	17	9	9	404	417	412	403	NO + 5 (14)
10	Imphal (PG)	400/132	1	315	400 kV	1.25	17	9	9	409	425	414	408	NO-3 (6)
		400/132	2	315	400 kV	1.25	17	9	9	409				NO-3 (6)

Note : a) NO indicates Nominal Tap position, b) NO-1 when HV bus is controlled bus, indicates transferring MVAR from HV bus to LV bus to reduce voltage of the HV bus and increase voltage of LV bus

Transformer Tap Optimisation Study

17-Jun-19

Sl. No.	Substation	Voltage Ratio (kV)	Transformer No.	Capacity in MVA	Controlled Bus	Tap Step (%)	Total Tap Positions	Nominal Tap	Present Tap	Voltage Profile				Optimised Tap Changer Position
										Off-Peak			Peak	
										Nominal Taps	Present Tap setting	After Optimisation	After Optimisation	
1	Balipara	400/220	1	315	400kV	1.25	17	9	9	399	421	417	404	NO+8 (17)
		400/220	2	315	400kV	1.25	17	9	9					NO+8 (17)
		220/132	1	50	132kV	1.25	17	9	9	134	142	129	132	NO+5 (14)
		220/132	2	50	132kV	1.25	17	9	9					NO+5 (14)
2	Bongaigaon	400/220	1	315	400kV	1.25	17	9	12	404	417	412	404	NO+5 (14)
		400/220	2	315	400kV	1.25	17	9	12					NO+5 (14)
3	Salakati	220/132	1	50	132 kV	1.25	17	9	13	135	128	124	133	NO+7 (16)
		220/132	2	50	132 kV	1.25	17	9	16					NO+7 (16)
4	Misa	400/220	1	315	400kV	1.25	17	9	5	401	421	420	406	NO+4 (13)
		400/220	2	315	400kV	1.25	17	9	5					NO+4 (13)
5	Ranganadi HEP	400/132	1	360	400 kV	2.5	17	9	9	399	422	417	404	NO+2 (11)
		400/132	2	360	400 kV	2.5	17	9	9					NO+2 (11)
6	Azara	400/220	1	315	400kV	1.25	17	9	8	405	420	412	405	NO (9)
		400/220	2	315	400kV	1.25	17	9	8					NO (9)
7	Biswanath Chariali (PG)	400/132	1	200	400 kV	1.25	17	9	8	401	423	417	407	NO-2 (7)
		400/132	2	200	400 kV	1.25	17	9	8					NO-2 (7)
8	Silchar	400/132	1	200	400 kV	1.25	17	9	9	409	424	414	407	NO-2 (7)
		400/132	2	200	400 kV	1.25	17	9	9					NO-2 (7)
		400/132	2	200	400 kV	1.25	17	9	9					NO-2 (7)
9	Byrnihat	400/220	1	315	400 kV	1.25	17	9	9	413	430	412	411	NO-3 (6)
		400/220	2	315	400 kV	1.25	17	9	9					NO-3 (6)
		220/132	5083/1	160	132 kV	1.25	17	9	9	139	140	137	137	NO + 1 (10)
10	Palatana	220/133	5083/1	160	132 kV	1.25	17	9	9					NO + 1 (10)
		400/132	1	125	400 kV	1.25	17	9	9	408	408	408	408	NO + 1 (10)
		400/132	2	125	400 kV	1.25	17	9	9					NO + 1 (10)
11	BgTPP	400/220	2	125	220 kV	1.25	17	9	9	404	417	412	403	NO + 5 (14)
10	Imphal (PG)	400/132	1	315	400 kV	1.25	17	9	9	409	425	414	408	NO-3 (6)
		400/132	2	315	400 kV	1.25	17	9	9	409				NO-3 (6)

Note : a) NO indicates Nominal Tap position, b) NO-1 when HV bus is controlled bus, indicates transferring MVAR from HV bus to LV bus to reduce voltage of the HV bus and increase voltage of LV bus

Time Drift Report status

SL NO	PGCIL	STATUS
1	PGCIL SALAKATI	REPORT NOT SENT/ACTION NONE
2	PGCIL NIRJULI	REPORT SENT BUT ACTION NONE
3	PGCIL BONGAIGAON	IRREGULAR REPORTING
4	PGCIL BADARPUR	REPORT NOT SENT/ACTION NONE
5	PGCIL AIZAWL	REPORT NOT SENT/ACTION NONE
6	PGCIL SILCHAR	REPORT NOT SENT/ACTION NONE
7	PGCIL BNC	REPORT NOT SENT/ACTION NONE
8	PGCIL HAFLONG	REPORT NOT SENT/ACTION NONE
9	PGCIL MARIANI	REPORT NOT SENT/ACTION NONE
10	PGCIL MOKOKCHANG	REPORT NOT SENT/ACTION NONE
	ASSAM	
11	AZARA-BONG	ACTION NONE
12	AZARA-SIL	ACTION NONE
13	132 KV AGIA FEEDER	ACTION TAKEN
14	SAMAGURI END OF MISA-I FDR	ACTION TAKEN
15	SARUSAJAI S/S	NO ACTION/REPORT NOT SENT
16	TINSHUKIA S/S	NO ACTION/REPORT NOT SENT
17	UMRANGSOO S/S	NO ACTION/REPORT NOT SENT
18	SONABIL S/S	NO ACTION/REPORT NOT SENT
19	KAHELIPARA S/S	NO ACTION/REPORT NOT SENT
20	DULLAVCHERRA	REPORT SENT BUT ACTION NONE
	ARUNACHAL	
21	CHIMPU S/S	NO ACTION/REPORT NOT SENT
	TRIPURA	
22	79 TILLA S/S	NO ACTION/REPORT NOT SENT
23	SURJAMANI NAGAR S/S	NO ACTION/REPORT NOT SENT
24	UDAIPUR	NO ACTION/REPORT NOT SENT
	MIZORAM	
25	Kolasib s/s	NO ACTION/REPORT NOT SENT
	NAGALAND	
26	KOHIMA S/S	NO ACTION/REPORT NOT SENT
	GENERATORS	
27	DOYANG	REPORT NOT SENT
28	RHEP	REPORT NOT SENT
29	NTPC	REPORT SENT BUT ACTION NONE

Time Drift Corrective Action Not taken

SL NO	ENTITY	LOCATION	TIME DRIFT STATUS(MIN)	REMARKS
1	ASSAM	AZARA-BONG	-3:55	Meter replaced due to high time drift but due to inaction drift >3
2	ASSAM	AZARA-SIL	-4:24	Meter replaced due to high time drift but due to inaction drift >4
3	ASSAM	DULLAVCHERRA	+2:20	No action taken

Locations not sending weekly SEM data

SL NO	LOCATION NOT REPORTING	STATUS
1	UDAIPUR (TR)	DATA NOT SENT
2	MOKOKCHANG (NG) - DOYANG FDR	DATA NOT SENT
3	SONABIL(AS)	DATA NOT SENT