

Minutes of the Sub-group Meeting on 11.08.2020

Date: 11th August 2020

Time: 10:30 Hrs onwards

Venue: NERPC Conference Hall Shillong

ITEM NO. 1 : STATUS OF AUTO-RECLOSURE FOR 132kV Dimapur-Kohima

For 132kV Dimapur-Kohima; decision as per previous meeting:

3-ph A/R is to be implemented for 132kV Dimapur-Kohima, with dead line charging at Kohima and check sync at Dimapur. In Sub-group meeting on 12.06.2020 it was informed that PLCC work is yet to be completed at 132kV Kohima. Subsequent to completion of the same, A/R shall be implemented for 132kV Dimapur-Kohima.

Deliberation in the Sub-group:

EE, SLDC, DoP Nagaland informed that Auto-Reclosure for 132kV Dimapur-Kohima would be implemented by Sep'20.

The Sub-Group noted as above.

Action: DoP Nagaland.

ITEM NO. 4 : STATUS OF RECOMMENDATIONS

Sl. No	Details of the event	Remedial Actions suggested	Name of the utility	Status as per last Sub-group	Latest Status
1	Tripping of all Main CBs connected to 400kV Bus-1 at Bongaigaon on 20.11.2019	Z-I of B/U Impedance relay restart to be investigated.	NERTS	By Jul '20	Any pole dead logic implemented in B/U impedance relay on 30.07.2020
2	Frequent tripping of NETC lines	DEF time co-ordination to be done for Bongaigaon and Azara by Dec'19	NERTS/AEGCL	Settings to be implemented and uploaded in PDMS.	In reviewing stage. By 14.08.2020
3	Tripping of 132kV AGTCCPP-Kumarghat and AGTCCPP Unit#6 at AGTCCPP end on 01.06.2019	I>1 trip configured in DR output of Units at AGTCCPP to be checked since Breaker did not open for I>1 trip command.	NEEPCO	By Jul '20	Completed

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4	Tripping of 400kV Balipara-Misa-I on 03.07.19	A/R operation to be tested for 400kV Balipara-Misa-I	NERTS	To be tested in next AMP S/D	Completed
5		Main-I DP Relay to be tested at Balipara	NERTS	To be tested in next AMP S/D	Completed
6	Grid Disturbance in Dimapur area of Nagaland on 30.09.19 due to tripping of 220kV Misa-Dimapur D/C, 132kV Dimapur-Dimapur D/C, 132kV Bokajan-Dimapur	Bus bar protection wiring to be rectified	NERTS	Tied to upgradation works at Dimapur.	Completed
7		Overreach of Main -2 relay of 220kV Misa-Dimapur-I at Misa to be rectified	NERTS	Shall be tested in next AMP	Settings OK. Testing in next Shutdown.
8	Grid Disturbance in Rangia area of Assam on 12.10.2019, 16.10.2019 due to tripping of 132kV Rangia-Motonga, 220kV Rangia-BTPS D/C & 132kV Bornagar-Dhaligaon	O/V settings to be kept 110%-5s for one circuit and 112%-6s for the other circuit	AEGCL	By Jul '20	Implemented at Rangia
9	Tripping of 132 kV Haflong - Umrangshu line & Khandong - Umrangshu line only at Umrangshu on 13.09.19, 14.09.19, 26.09.19	DC supply failure issue at Umrangshu to be attended	AEGCL	By Jul '20	DC system rectification done. Revised settings implemented at Khandong.
10	Tripping of 400 kV Biswanath Chariali - Ranganadi 2 Line on O/V at RHEP (2 times in Dec'19)	Reasons for 3-6kV voltage difference in Y-ph to be investigated	NEEPCO	By Jul '20	Ratio check done. No abnormality observed.
11	Tripping of 132 kV Aizawl - Tipaimukh Line on 23-01-2020	Software to be procured for DR downloading from SIEMENS relay at Tipaimukh	MSPCL	NERTS to handover software after commissioning of bays at Jiribam.	To be handed over.
12	Tripping of 132kV Loktak-Ningthoukong twice on 03.03.2020	Testing of backup protection relay of 132kV Loktak-Ningthoukong at Ningthoukong (unwanted tripping of faults in reverse side)	MSPCL	Joint visit in July'20	Testing of dummy relay done. Actual B/U relay to be tested during the

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					next opportunity s/d.
13	Tripping of 132 kV Biswanath Chariali - Pavo D/C on 26-02-2020	Non-operation of AR at Pavo to be investigated and AR operation tested	NERTS	To be checked in next AMP.	Bus s/d applied on 03.09.2020 To be checked then.
14	Unwanted tripping of 132 kV Imphal (PG) - Ningthoukong Line ((03-03-2020 15:57:00, 16-03-2020 05:25, & 132 kV Loktak - Ningthoukhong Line for reverse faults	Ningthoukong end DR of 132kV Loktak-Ningthoukong to be time synchronised, channel standardisation to be done.	MSPCL	Joint visit in July'20	Time synchronisation not done due to unavailability of GPS. DR channel standardisation to be done.
15		NERTS& MSPCL to jointly test the B/U protection relay for 132kV Loktak at Ningthoukong	MSPCL	Joint visit in July'20	Testing of dummy relay done. Actual B/U relay to be tested during the next opportunity s/d.
16		Connections & polarity for DP relay at Ningthoukong for 132kV Loktak to be checked.	MSPCL	Joint visit in July'20	End to end connectivity to be checked by MSPCL.
17	Frequent simultaneous tripping of 132 kV Dharmanagar - Dullavcherra line & PK Bari-Dharmanagar line (2 times in May'20 & 4 times in Apr'20)	Protection system healthiness at Dharmanagar to be investigated.	TSECL	-	CVT connection checked and rectification done.

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18	Simultaneous tripping of 132 kV Panchgram - Lumshnong Line & 132kV	B/U protection in DP to be disabled.	MePTCL	WIP	Completed
19	Khliehriat(ME) - Lumshnong Line (3 times in Apr'20 & 1 time in May'20)	Z-3 timing to be kept as 350ms at Khliehriat(MEG) for all feeders	MePTCL	WIP	Completed
20	Tripping of 400 kV BiswanathChariali - Ranganadi 2 Line for fault in 400 kV Balipara - BiswanathChariali 4 Line	CT knee point measurement to be done	NERTS & NEEPCO	By Jul '20	To be checked jointly by NERTS & NEEPCO in Aug'20
21	Unwanted tripping of 132 kV Dimapur - Doyang 1 Line only at Doyang (5 times in Mar'20)	Wiring (for DT send)to be checked and rectified at DHEP	NEEPCO	By Jul '20	Rectified
22	Tripping of 132 kV AGTCCPP - Kumarghat Line only at AGTCCPP on 02-04-2020 18:06:00	Calibration of numerical relay at AGTCCPP	NEEPCO	By Jul '20	Order placed. OEM cannot visit due to pandemic.
23	Tripping of all units at AGBPP on 10-05-2020 at 11:47hrs	referred to OEM for checking the logics of newly commissioned auxiliary systems.	NEEPCO	By Jul '20	Delayed due to pandemic
24	Tripping of all units at AGBPP on 09-06-2020 at 12:51 hrs	Rectify the wrong wiring of Bus selection isolator in LBB scheme for 220kV AGBPP - Tinsukia-I	AEGCL	By Jul '20	CB low pressure at AGBPP attended. Joint visit by Aug'20
25	Tripping of 132kV Dimapur-Kohima, 132kV Karong - Kohima & 132kV Wokha-Kohima on 02-06-2020/20-06-2020	Carrier aided inter-tripping to be immediately implemented for 132kV Dimapur-Kohima	DoP Nagaland	-	After commissioning of PLCC
26	Tripping of 132 kV Loktak- Ningthoukhong line and 132 kV Imphal - Ningthoukhong	Ningthoukhong end DR of 132kV Loktak- Ningthoukhong to be time synchronised, channel to be	MSPCL	Actions to be carried out in Joint team visit of NERTS&	Time synchronisation not done due to

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	lines on 19.06.20	standardised.		MSPCL to Ningthoukhong in July'20	unavailability of GPS. DR channel standardisation to be done.
27		Joint testing of the B/U protection relay for 132kV Loktak at Ningthoukhong	MSPCL/ NERTS		Testing of dummy relay done. Actual B/U relay to be tested during the next opportunities/d.
28		Connections & polarity for DP relay at Ningthoukhong for 132kV Loktak to be checked	MSPCL		End to end connectivity to be checked by MSPCL.
29	132 kV Agartala-Rokhia D/C lines & 132 kV Monarchak - Rokhia line tripped on 05.06.2020, 09.06.2020	CBs to be installed at both ends of link feeder at Rokhia	TPGL	TSECL to pursue with TPGL	Estimate preparation under process.
30		Line differential protection to be installed for link feeder at Rokhia	TPGL		Estimate preparation under process.
31	220 kV AGBPP - Mariani(PG) line, 220 kV AGBPP - Mariani(AS) line, 220 kV AGBPP - Tinsukia D/C tripped on 09.06.2020, along with all units in service at AGBPP.	Joint checking to be conducted by AEGCL & NEEPCO for wiring issue for Bus selection isolator in LBB scheme for 220kV Tinsukia-I.	NEEPCO /AEGCL	July'20	CB low pressure at AGBPP attended. Joint visit by Aug'20
32	Tripping of 220 kV AGBPP - Deomali Line @ 12:51:00 09-06-2020	CT sensing problem at AGBPP	DoP Ar. Pradesh	July'20	
33	Pare Units 1&2 tripped on 22.06.2020	Differential protection of SST operated. However units also tripped. Referred to ANDRIZ HYDRO for RCA.	NEEPCO	July'20	ANDRIZ reply awaited
34	Tripping of 132kV Imphal-Yurembam-2 on 10-06-2020	Settings to be reviewed for the line considering HTLS upgradation.	NERTS/ MSPCL	July'20	
35	Tripping of 132kV Silchar-Melriat D/C, 132kV Melriat-Zuangtui, 132kV Aizawl-	ICT Differential protection non-operation at Sihmui to be investigated	P&ED Mizoram	July'20	Non-functional P642 relay replaced on

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	Melriat & 132kV Melriat-Sihhmui-2 @12:36 hrs on 05-07-2020				10.07.20
36		Battery bank & RTU healthiness at Sihhmui to be confirmed	P&ED Mizoram	July'20	Battery bank healthy. Presently data being transmitted w.e.f.15.07.20
37	Tripping of 132 kV Loktak – Jiribam line only at Jiribam(PG) on 10.06.20	Over-reaching of Zone-1 of Distance protection at Jiribam(PG) to be investigated.	NERTS/N HPC	July'20	Jiribam end setting checked and found OK. Possibly CB reclose at Loktak end.

Status for Implementation of Auto-reclosure

Lines which have tripped due to transient fault(as concluded in previous Sub-group) need to have AR implemented immediately as follows:-

Sl. No	Details of the event	Remedial Actions suggested	Name of the utility	Status as per last Sub-group	Latest Status
1	132 kV Ranganadi - Ziro line tripped on 02.06.2020	AR to be implemented immediately for 132kV RHEP-Ziro	NERTS	By July'20	By Aug'20
2	220 kV Agia - BTPS 2 Line tripped on 29-06-2020	AR to be implemented immediately	AEGCL	By July'20	Tied to completion of PLCC works. By Aug'20

The Sub-Group noted as above.

Action: all utilities as above.

ITEM NO. 3 : FREQUENT TRIPPINGS IN TRIPURA SYSTEM

Status of recommendations as updated in the Sub-group meeting on 11th August,2020:

Recommendations	Status as updated in the last Sub-group on 12.06.2020	Latest status
DP & B/U protection settings to be reviewed for 132kV AGTCCPP-79Tilla D/C at AGTCCPP	Shutdown requested in July'20 for impedance measurement. Replacement of static relay with	By Aug'20. Replacement of static relay with numerical relay at AGTCCPP under process.

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	numerical relay at AGTCCPP under process.	
Bus bar protection to be put into service at SMNagar	Included in 400KV upgradation work. Under tender stage.	Included in 400KV upgradation work. Under tender stage.
At Rokhia protection to be ensured in the link section between the old switchyard and new switchyard for 132kV 79Tilla-Rokhia D/C	<ul style="list-style-type: none"> • Non-Dir Electro-Mechanical O/C & E/F Relay Protection available at one end of the link section at Rokhia. Relay settings to be intimated. • CBs to be installed at both ends of link feeder at Rokhia. • Line differential protection to be installed for link feeder at Rokhia. Referred to TPGL, latest status to be updated.	Matter pursued with DGM, Rokhia by DGM, SLDC and Necessary estimate preparation is under process.
Bus bar protection to be implemented for 132kV 79Tilla S/Sn	DPR Preparation Stage	Enquiry sent to GE T&D for detail scheme.
CB to be installed for Bus sectionalizer at 79Tilla	Space constraint.	Space constrains.
At SMNagar and 79Tilla a pseudo Bus Bar protection to be implemented with Z-IV. When Z-IV detected by the distance relays for all the lines then lines should be tripped with time delay 100ms.	The scheme shall be presented in the meeting	Scheme presented in the meeting. TSECL to implement by Aug'20.
DR output to be triggered manually for all the DP in Tripura system and to be submitted for checking	Partially submitted. Remaining to be submitted by Aug-2020.	Due to ongoing COVID-19 pandemic situation matter may be deferred.
Distance Protection at Kamalpur for 132 kV PK Bari feeder to be checked as it did not operate for fault in the line on 18.06.19	Zone timings for 132kV SMNagar-Budhjungnagar at SMNagar to be completed by July-2020.	Due to ongoing COVID-19 pandemic situation matter may be deferred.

The Sub-Group noted as above.

Action: TSECL.

ITEM NO. 4 : VERIFICATION OF OUTAGE DATA OF NERTS & NETC TILL THE MONTH OF JULY'20:

Reasons of outages for some of the outages are not verified due to non-submission of DR & EL outputs, supporting photographs, weather report etc.

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Deliberation of the Sub-Group:

NERPC informed that there are no unverified/ non-attributed tripping(s) for the month of July'20.

The Sub-Group noted as above.

ITEM NO. 5	: UN-ANALYSED TRIPPINGS TILL JUNE'20:
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Various outages were not analysed due to non-submission of DR & EL outputs, SOE etc.

The following are the important trippings which were not analysed till the last Sub-group:

Sl No	Description of the event	Remarks	Deliberation in the Sub-Group on 10.07.2020	Deliberation in the Sub-group
1	Tripping of 315 MVA, 400/220/33 kV ICT 2 at BgTPP (NTPC) on 13-12-2019	1. No fault observed in the system. 2. FIR, DR & EL outputs not submitted by NTPC.	No representation from NTPC	No representation from NTPC
2	Tripping of 400 kV Alipurduar - Bongaigaon 1 Line @ 6:35 Hrs 11-06-2020	FIR, DR & EL outputs not submitted for both ends by POWERGRID.	Alipurduar end data yet to be submitted	Alipurduar end data yet to be submitted. STERLITE to intimate RCA.
3	Tripping of 400 kV Alipurduar - Bongaigaon 2 Line @ 12:21 Hrs 09-06-2020, 14:43 Hrs 09-06-2020, 10:31 Hrs 10-06-2020	FIR, DR & EL outputs not submitted for both ends by POWERGRID.	Alipurduar end data yet to be submitted	Alipurduar end data yet to be submitted. STERLITE to intimate RCA.
4	400 kV Silchar Main Bus I @ 15:18:00 10-06-2020	-	FIR, DR & EL outputs to be submitted	Maloperation of LBB relay during testing of new 400kV bays.

The Sub-Group noted as above.

Action: NTPC.

ITEM NO. 6	: Non-operation of auto recloser in Important Grid Elements for transient faults:
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The status for AR issues analysed till June'20 with recommended actions:

Name of the line	Recommended action	Status as intimated in Sub-group on 12.06.2020	Latest status
400kV BNC-RHEP-2	MICOM relay internal signal for AR is non-functional. To rectify the same OEM would visit in Feb'20	BNC- AR functional RHEP- MICOM relay internal signal for AR is non-functional. To rectify the same OEM	BNC- AR functional RHEP- MICOM relay internal signal for AR is non-functional. To

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		would visit. Delayed due to COVID situation	rectify the same OEM would visit. Delayed due to COVID situation
132kV AGTCCPP - Kumarghat	Relay to be replaced at AGTCCPP by Aug'20	Delayed due to COVID situation	Delayed due to COVID situation
132 kV Agartala – AGTCCPP D/C	3ph AR to be implemented by Feb'20	Delayed due to COVID situation	Delayed due to COVID situation
400kV Silchar – Azara	Checking of healthiness of carrier channel	Signal mismatch to be rectified by July'20	PLCC testing end to end by availing s/d in Aug'20
220 kV Byrnihat - Misa 2 Line	Non-operation of AR at Byrnihat for Y-E fault	Tested. To be monitored for re-tripping	Tested. To be monitored for re-tripping
132 kV Jiribam - Tipaimukh Line	Non-operation of AR at Jiribam	Tested. To be monitored for re-tripping	Tested. To be monitored for re-tripping
132 kV Jiribam - Loktak 2 Line	NHPC to enable AR for all 132kV lines from Loktak	-	NHPC to enable AR for all 132kV lines from Loktak

List of events for the month of June'20 where non-operation of auto recloser was observed and investigation required:

Non-operation of Auto recloser for Grid Events in NER Grid from 01-June-2020 to 30-June-2020

SL No.	Element Name	Owner	Tripping Date & Time	Restoration Date & Time	Outage Time	Owner(Seed)	Auto Reclosure(S)	Owner(Reed)	Auto Reclosure (R)	Sub-group Deliberation on 11.08.20
1	400 kV Biswanath Chariali - Ranganadi 2 Line	POWER GRID	24-06-2020 18:00	24-06-2020 18:06	00:06:00	POWERGRID	Operated Successfully	NEEPCO	Not Operated	To be tested at RHEP end
2	220 kV Samaguri - Sonapur Line	AEGCL	16-06-2020 10:24	16-06-2020 10:29	00:05:00	AEGCL	Operated as per DR	AEGCL	Not Operated	To be tested at Sonapur end
3	220 kV Agia - BTPS 2	AEGCL	29-06-2020	29-06-2020	00:24:00	AEGCL	Not Operated	AEGCL	NA	To be tested at BTPS end
4	132 kV Roing - Tezu Line	POWER GRID	26-06-2020 11:34	26-06-2020 11:52	00:18:00	POWERGRID	Not Operated	POWERGRID	NA	NERTS to implement AR at both ends with Dead charging at Roing

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5	132 kV Khandong - Khliehriat 1 Line	POWER GRID	27-06- 2020 21:25	27-06- 2020 21:46	00:21: 00	NEEPCO	Not Operate d	POWERG RID	Operated Sucessfull y	To be tested at Khandong end
6	132 kV Jiribam - Pailapool	AEGCL & NERTS	08-06- 2020 18:52	08-06- 2020 19:06	00:14: 00	POWERG RID	Not Operate d	AEGCL	Not Operated	NERTS/AEG CL to investigate
7	132 kV Jiribam - Pailapool Line	AEGCL & NERTS	12-06- 2020 18:06	12-06- 2020 18:22	00:16: 00	POWERG RID	Not Operate d	AEGCL	Not Operated	NERTS/AEG CL to investigate
8	132 kV Dimapur - Doyang 1 Line	POWER GRID	17-06- 2020 13:51	17-06- 2020 15:08	01:17: 00	POWERG RID	Not Operate d	NEEPCO	Not Operated	NERTS/NEE PCO to investigate
9	132 kV Aizawl - Tipaimukh Line	POWER GRID & MSPCL	10-06- 2020 14:35	10-06- 2020 14:46	00:11: 00	POWERG RID	Not Operate d	MSPCL	Operated Success fully	NERTS to investigate
10	132 kV AGTCCPP - Kumarghat Line	POWER GRID	10-06- 2020 02:29	10-06- 2020 02:39	00:10: 00	NEEPCO	Not Operate d	POWERG RID	Not Operated	NERTS/NEE PCO to investigate
11	132 kV AGTCCPP - Kumarghat Line	POWER GRID	10-06- 2020 03:41	10-06- 2020 03:52	00:11: 00	NEEPCO	Not Operate d	POWERG RID	Not Operated	
12	132 kV Dharmanag ar - Dullavcherr a Line	AEGCL	12-06- 2020 16:12	12-06- 2020 16:50	00:38: 00	TSECL	NA	AEGCL	Not Operated	CVT connection checked and necessary rectification done at Dharmanaga r.

List of non-operation of AR events for the period 01.07.20 to 31.07.20 is listed below:

SL No	Element Name (END A - END B)	Trippin g Date & Time	Owner(END A)	Auto Reclosure(EN D A)	Owner(END B)	Auto Reclosure(EN D B)	Sub-group deliberatio n
1	400 kV Imphal - Silchar 2 Line	15-07- 2020 11:40	POWERGRI D	Not Operated	POWERGRI D	Not Operated	To be investigated
2	400 kV Alipurduar - Bongaigao n 2 Line	06-07- 2020 10:27	POWERGRI D	Not Furnished	POWERGRI D	Not Operated	

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3	220 kV Samaguri - Sonabil 2 Line	29-07- 2020 10:58	AEGCL	Not Furnished (DR not submitted)	AEGCL	Not Furnished (DR not submitted)
4	220 kV BTPS - Rangia 2 Line	01-07- 2020 06:08	AEGCL	Not Operated	AEGCL	Operated Successfully
5	220 kV AGBPP - Tinsukia 2 Line	06-07- 2020 14:46	NEEPCO	Not Operated	AEGCL	Not Operated
6	220 kV AGBPP - Tinsukia 1 Line	06-07- 2020 14:46	NEEPCO	Not Operated	AEGCL	Not Operated
7	132 kV Panchgra m - Lumshnon g Line	14-07- 2020 20:01	AEGCL	Not Operated	MePTCL	Not Operated

The Sub-Group noted as above.

Action: all utilities as above.

ITEM NO. 7	:	Review of Distance Protection Settings of 400 kV Silchar – Palatana D/C:
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Impedance measurement of 400 kV D/C Silchar-Palatana line was carried out on 30.11.19. It is observed that actual impedance is slightly higher than the set impedance.

In Sub-group meeting on 10.07.2020 OTPC representative informed that the revised impedance settings have been received. The same would be implemented by 15.07.2020. He requested NERTS to share settings at Silchar upon implementation.

Deliberation of the Sub-Group:

OTPC representative informed that the revised impedance settings have been implemented. However, the new settings as per actual measurement differ only by 2% from the initial settings. The forum decided to revert back to the original settings for both D/C lines.

The Sub-Group noted as above.

Action: NERTS, OTPC.

ITEM NO. 8	:	Review of Bus-Coupler protection setting at Pare HEP
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It is observed that the Bus Coupler (B/C) at 132KV Pare Switchyard tripped on 15-08-2019 and also on 19-01-2020 on O/C stage-III protection due to line fault (1Ph – Earth) prior to tripping of line breaker as tabulated below:

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Sl.No	Tripping Element	Date of Tripping	Type of Fault	Remarks
1.	Pare – RHEP 2 Line	15.08.2019	Yph-E	B/C, RHEP-2 line& Unit-1 Tripped.
2.	Pare – Chimpu Line	19.01.2020	Bph-E	B/C & Itanagar line Tripped.

Initially time setting of B/C stage –III O/C was 0 sec. After the first incident (Sl.No.1 of above) trip time setting of O/C stage-III for B/C was increased from 0 to 50ms after detailed analysis and discussion at PCC to address coordination issue with the line breaker. The modified settings were implemented on 28.12.2019. But, again the B/C has been tripped due to the line fault in Pare – Chimpu Line as mentioned in Sl.No.2 of the above table.

The detailed tripping analysis was again carried out and it is observed that the nature of fault is single phase to earth and with 1Ph-E fault; Auto Reclose (AR) gets started. While AR is in Progress, the AR time is getting overlapped with the trip time of O/C stage-III for B/C. So line breaker did not trip within that period but Bus coupler got tripped. In order to avoid such unwanted tripping, it is proposed that O/C stage-III for B/C will be blocked while AR is in progress and unblock it once the AR progress time of the line breaker is completed. For this some modification (in hardwire & software) will be required (Attached herewith for reference.), which we shall be carrying out at the time of implementation of setting.

In the Sub-group meeting on 10.07.2020 DGM, NEEPCO informed that further study is required in this regard and the modification in scheme would be put up for approval in the next Sub-group meeting.

Deliberation of the Sub-Group:

After detailed deliberation it was decided to review the scheme in the next meeting. In the meantime it was decided to increase the time setting for O/C Stage-III for B/C at Pare HEP to at least 160ms.

The Sub-Group noted as above.

Action: NEEPCO.

ITEM NO. 9 : Updation of Protection Database

In Sub-group meeting on 10.07.2020, M/s PRDC highlighted the high number of pending setting(s) related data for PDMS. Further he suggested that for best utilization of PDMS and for proper audit trail of relays and settings, the tripping portal of PDMS may be utilized. Director(O&P), NERPC stated that as per the data presented by M/s PRDC over 40% on average settings data is pending for all utilities. He requested the utilities to focus station-wise and gradually submit the data at the earliest. Further he informed that a Special Training on PDMS-tripping portal would be carried out for concerned NERLDC officials in July'20. It was decided

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that thereafter only PDMS-tripping portal would be used by NERLDC for creation of trippings and submission of data by the utilities. NERLDC informed that time taken for tripping entry in PDMS is quite high compared to the existing Tripping Monitoring Portal. After deliberation, it is decided that matter will be discussed in detail during special training on PDMS-tripping portal.

The pending list is attached at **Annexure-9**.

Deliberation of the Sub-Group:

Members requested M/s PRDC to convert the Help page of the portal to a html version. Regarding mapping of NERLDC tripping portal and PDMS tripping portal M/s PRDC requested clarification about the following salient points:

1. User Access protocol for NERLDC Tripping portal, users and the hierarchy.
2. Method of data uploading in NERLDC tripping portal-email/direct file upload.
3. Various data available (data model) in NERLDC tripping portal.
4. The various data that needs be flowed from NERLDC portal to PDMS tripping incident module.
5. Database used for the development of the website.
6. Frequency of the data updation- immediate or scheduled.
7. Development works by NERLDC if required.
8. Method of passing data to PDMS - File, direct DB access or services.

NERLDC clarified most of the points raised by M/s PRDC. Members decided that further technical discussion is required in this regard and requested NERLDC, NERPC, M/s PRDC to hold a joint meeting in this regard. For financial involvement M/s PRDC was requested to present an estimate in the next OCC meeting of NERPC.

The Sub-Group noted as above.

Action: NERLDC, NERPC.

ITEM NO. 10 : ANALYSIS & DISCUSSION ON EVENTS, GRID INCIDENCES, GRID DISTURBANCES WHICH OCCURRED IN NER GRID W.E.F 1ST JULY 2020 – 31st JULY 2020

Summary of NER Grid Loss (MU) for FY 2019-20 & FY 2020-21

	May	June	July
FY 2019-20	0.3364	0.6276	0.1998
FY 2020-21	0.478	0.1643	0.100

Localized Load Loss for July, 2020:

Sl. No.	Locality	Owner / Agency	Load Loss in MU
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1	Rangia / Kamalpur	AEGCL	0.033
2	Lumshnong	MEPTCL	0.011
3	Umiam ,Umtru and New Umtru Power Station	MePTCL&MePGCL	0.004
4	Along	DOP, Arunachal Pradesh	0.006
5	Pasighat		0.008
6	Khupi		0.01
7	Ningthoukhong	MSPCL	0.006
8	Karong		0.006
9	Melriat/Zuangtui	P&ED, Mizoram	0.016

The Sub-Group noted as above

ITEM NO. 11 : MAJOR GRID DISTURBANCES AND GRID EVENTS IN NER POWER SYSTEM SINCE 01.07.2020

Items related to AEGCL

Sl No	Description of Event	Action Already Taken	Recommended actions in last sub-group	Discussion Points	Deliberation of the Sub-group
1	Tripping of 220kV BTPS-Rangia D/C lines and 132kV Rangia-Motonga line @11:45 hrs on 23.07.2020. 132kV BTPS-Rangia D/C tripped again on 23.07.2020	-	-	->Z-2 operation at BTPS end for both lines ->Persistent current at BTPS end for Ckt-I subsequent to trip.	-Fault in Ckt#I- 164 km from BTPS end (Y-B-E fault) -Fault due to close spacing of conductors. Rectified. -132kV Rangia-Motonga tripped on overcurrent from Motonga end. -Carrier intertrip to be implemented for 220kV Rangia-BTPS D/C. -AR operation to be tested for 220kV Rangia-BTPS D/C -Testing of DP at Rangia for BTPS#1 to be done due to delayed detection of Z-1 at Rangia.

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2	Tripping of 220kV BTPS-Salakati D/C on 05.08.2020	-	-	-RCA	<p>-Y-ph jumper of Wave Trap opened at BTPS end of Ckt#II</p> <p>-Ckt#II tripped at Salakati end on E/F</p> <p>-Ckt#I tripped on overloading only at BTPS on reverse direction. Directionality of O/C protection at BTPS to be checked.</p> <p>-O/C settings to be reviewed for 220kV BTPS-Salakati D/C</p> <p>-non-operation of O/C protection at Salakati for Ckt#I to be checked by NERTS.</p>
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Items related to POWERGRID

Sl No	Description of Event	Action Already Taken	Recommended actions in last sub- group	Discussion Points	Deliberation of the Sub-group
1	Tripping of 220kV & 132kV Buses at Balipara @12:53hrs on 09.07.2020	-	-	->RCA	<p>Tripping due to closing of line side earth switch on-load while availing shutdown of main CB of 220 kV Sonabil bay</p> <p>-Bus bar differential relay of Transfer zone operated since fault was in transfer bus. However, trip signal issued to main bus due to wrong wiring.</p> <p>-Wiring issue rectified.</p>

Items related to DoP Ar. Pradesh

Sl No	Description of Event	Action Already Taken	Recommended actions in last sub- group	Discussion Points	Deliberation of the Sub-group
1	Tripping of 132kV Along-Pasighat @04:25 hrs on 01.07.2020	-	-	->DR, EL not submitted ->RCA	-DR/EL/Root Cause to be submitted by DoP Ar. Pradesh
	Tripping of 132kV Daporizo-Along line @18:51hrs on 16.07.2020	-	-	->DR, EL not submitted ->RCA	-DR/EL/Root Cause to be submitted by DoP Ar. Pradesh

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Items related to AEGCL& MeECL

Sl No	Description of Event	Action Already Taken	Recommended actions in last sub- group	Discussion Points	Deliberation of the Sub-group
1	Tripping of 132 kV Lumshnong-Panchgram twice on 12.07.2020	-	-	->No trip at Panchgram ->SOTF pickup ->DR to be time synchronised ->RCA	-Fault in 132kV Lumshnong-Khliehriat -B/U settings to be modified as per fault current for 132kV Lumshnong-Khliehriat -DR time synchronisation by Aug'20

Items related to MeECL

Sl No	Description of Event	Action Already Taken	Recommended actions in last sub- group	Discussion Points	Deliberation of the Sub-group
1	Tripping of 132 kV Umiam st-III -Umtru I & II lines, 132 kV Umiam st-IV - Umtru I & II lines, 132 kV EPIP II - Umtru I & II lines, 132 kV EPIP II -New Umtru line, 132 kV Umiam st-II - Umiam st-I line, 132 kV Umiam - Umiam st-I line and Umiam-NEHU line @11:50 hrs on 20.07.2020	-	-	->DR, EL not submitted ->RCA	-Jumper snapped between CB and Isolator of a line at Umtru P/S - Detail report to be submitted by MePGCL after due consultation with MePTCL
2	Tripping of 132 kV New Umtru - Umtru line, 132 kV New Umtru - EPIP II line, 132 kV Umium III-Umium IV ckt I, 132 kV Umium III- Umium IV ckt II, 132 kV Umium IV- Umtru ckt I, 132 kV Epip II-Epip I ckt I, 132 kV Epip II-Epip I ckt II @18:36 hrs on 31.07.2020	-	-	->DR, EL not submitted ->RCA	-Umiam Stg-IV gantry jumper snapped - Detail report to be submitted by MePGCL after due consultation with MePTCL

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Items related to NEEPCO, NERTS & DoP Nagaland

Sl No	Description of Event	Action Already Taken	Recommended actions in last sub-group	Discussion Points	Deliberation of the Sub-group
1	Blackout of 220kV Mariani, 220/132kV Mokokchung (PG) & 132kV Mokokchung (NAG) on 06.08.2020	-	-	->RCA	<p>-Snapping of conductor (and earthed) of 132kV DHEP-Mokokchung at Loc.No.12 near DHEP</p> <p>-Fault cleared at DHEP&Mokokchung ends on DP, Z-1. However, CB reclosed after 1 sec and CB remained in close condition since there was no fault observed at DHEP end after recloser.</p> <p>- While charging the faulty line from Mokokchung(NG), Due to VT Fuse fail, DP was blocked at Mokokchung for 132kV DHEP.</p> <p>-Backup protection of 132 kV Doyang feeder at Mokokchung(NG) operated in 1.5 sec.</p> <p>-at the same time, E/F protection operated at Mariani(PG) for Misa feeder and at AGBPP for Mariani(PG) feeder.</p> <p>-Mariani end Main-2 relay malfunctioned and maltripped</p> <p>-AGBPP E/F TMS of Mariani(PG) line to be revised to 1.2 from 0.12</p> <p>-Mariani B/U E/M relay replaced with numerical relay.</p> <p>-AR to be implemented at DHEP for 132kV DHEP-Mokokchung with check sync function at Doyang</p> <p>-Relay settings for all 132kV lines at DHEP to be reviewed.</p>

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Items related to MPSCL

Sl No	Description of Event	Action Already Taken	Recommended actions in last sub- group	Discussion Points	Deliberation of the Sub-group
1	Tripping of 132kV Karong-Kohima & 132kV Yurembam-Karong lines thrice on 17-07-2020	->CT polarity checked and corrected for Imphal-I&II at Yurembam ->CT polarity checked and rectified for 132kV Yurembam at Karong	-> Revised B/U settings for 132kV Karong at Kohima to be implemented.	->Status against recommended actions ->132kV Yurembam-Karong: Yurembam end O/C trip, Karong end Z-1, L-L-E(Y-B-E) fault ->132kV Karong-Kohima: Karong end N/A, Kohima end Z-2 trip L-L-E fault(R-Y-E) ->Detailed RCA	132kV Yurembam-Karong fault 67.1km from Yurembam -Z-2 start but tripped on O/C high-set at Yurembam -Highset to be disabled at Yurembam -Simultaneously fault in 132kV Karong-Kohima
2	Tripping of 132 kV Loktak-Ningthoukhong line and 132 kV Imphal - Ningthoukhong lines on 04.07.20	->CT polarity for 132kV Loktak at Ningthoukong rectified ->High set setting of E/F for 132kV Loktak at Ningthoukong revised to 7.5 times of primary. ->CT polarity of 132kV Churachandpur-II at Ningthoukong rectified ->B/U relay wiring checked by MSPCL	>Ningthoukong end DR of 132kV Loktak-Ningthoukong to be time synchronised, channel to be standardised. ->NERTS& MSPCL to jointly test the B/U protection relay for 132kV Loktak at Ningthoukong -> Connections & polarity for DP relay at Ningthoukong for 132kV Loktak to be checked.	-> Status against recommended actions ->132kV Loktak-Ningthoukong: Tripped at Loktak end ->132kV Imphal-Ningthoukong tripped on O/C at Ningthoukong end ->RCA	-Fault in 132kV Loktak-Ningthoukong 8km from Loktak end -Cleared in Z-I from Loktak -B/U E/F settings increased from 400% to 600% at Nignthoukong for 132kV Imphal -DR standardisation & B/U relay testing at Nighthoukong to be done by Aug'20
3	Tripping of 132kV Aizawl-Tipaimukh and	-	-	-	-Fault in downstream of Tipaimukh

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	132kV Jiribam- Tipaimukh on 02.08.20& 05.08.20				-Exact location to be intimated by MSPCL -Reasons for delayed clearance by ICT protection to be investigated -ICT settings/fault current to be shared by MSPCL.
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Major 400 kV Element tripping:

Description of Event	Action Taken	Already	Recommend actions in last sub-group	Discussion Points	Meeting Deliberation
400 kV Imphal-Silchar-2 on 15.07.2020				->Z-I, L-E fault ->RCA	-Loc No. 261 lightning flashover
400 kV Alipurduar - Bongaigaon 2 Line on 06.07.2020				->APD end N/A ->Bongaigaon end: GRB (Busbar Relay) Operated	-Alipurduar end DR/EL to be submitted -Root cause to be furnished by STERLITE
400 kV Balipara - Bongaigaon 2 Line, 400kV Balipara- Misa& 400kV Balipara-Biswanath Chari-4 @5:05 Hrs 17-07-2020				->Y-ph CT of tie bay (bus-b side) of the line at Balipara blasted	-Y-ph CT of tie bay for 400kV Balipara-Bongaigaon-2 blasted at Balipara -Misa - Balipara 1 line tripped due to unwanted carrier signal due to Protection coupler issue at Balipara. Same is rectified. -Z-1 over reach of Balipara-2 line at Bongaigaon to be investigated

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400 kV Balipara-Bongaigaon-1 Line @ 10:21 Hrs 17-07-2020			->DT received at Bongaigaon	-NGR protection of L/R maloperated for the line at Balipara -Sent DT to Bongaigaon
400 kV Balipara-Bongaigaon-3 line @ 14:37hrs on 22.07.2020			>NGR OTI operated at Balipara ->DT received at Bongaigaon	>NGR OTI operated at Balipara ->DT received at Bongaigaon

Major 220 kV line tripping:

Description of Event	Action Already Taken	Recommend actions in last sub- group	Discussion Points	Sub-group Deliberation
220 kV AGBPP - Deomali Line @ 16:12hrs on 05-07-2020			FIR/DR/EL/TR not uploaded in tripping portal RCA	-DR/EL to be submitted by DoP AP -Root cause to be furnished by DoP AP
220 kV AGBPP - Tinsukia D/C @ 14:46hrs on 06-07-2020			->L-E fault ->RCA	-Joint visit by NEEPCO&AEGCL in Aug'20 -Records of visit to be submitted to Sub-group
220 kV Balipara-Sonabil Line @12:53 hrs on 09-07-2020			->three phase to earth fault ->RCA	-Conductor snapped due to failure of suspension clamp
220 kV Bongaigaon - Salakati-1 Line @ 23:33 hrs on 09-07-2020			->DT received at Salakati	-Gas Density Monitor(for GIS bay) at Bongaigaon maloperated. -To be replaced
220 kV Samaguri-Sonabil 2 Line @10:58hrs on 29-07-2020			->DR/EL to be submitted ->RCA	-Vegetation fault -AR 3ph operation at Samaguri, non-operation at Sonabil to be investigated

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Major 132 kV line tripping:

Description of Event	No of trippings in July'20/dates	Discussion Points	Sub-group Deliberation
132 kV Karong-Kohima Line	11	->RCA	-B/U relay highest settings to be disabled at both ends -Carrier inter-trip to be implemented and AR.
132 kV Dimapur-Kohima Line	5	->RCA	-Vegetation fault. S/D applied for jungle clearance.
132 kV Loktak-Rengpang Line	4	->RCA	-tripped two times only on 13.07.20& 28.07.20 on vegetation fault
132 kV Rangia-Motonga Line	3	->RCA	-Tripped due to fault near 10km from Rangia -Motonga end DR to be collected for analysis
132kV Gelephu-Salakati tripped twice	10.07.2020 30.07.2020	->DR/EL to be submitted ->RCA	-Z-II lightning fault 49km from Salakati -TLAs to be installed
132kV Khliehriat-Khliehriat-2 tripped twice	12.07.2020	O/C trip at Khliehriat(MEG) end	-tripped due to lightning
	13.07.2020	Z-3 trip at Khliehriat(PG) end	-Root cause to be intimated by MePTCL
132kV Wokha-Kohima tripped twice	04.07.2020	->L-E fault	
	13.07.2020	->Kohima end Z-3 trip	
132kV Agia-Mendipathar	19.07.2020	->Tripped at Agia end only on E/F	-Z-I fault but DP did not operated at Agia -Reasons for non-operation to be furnished by AEGCL
132kV Imphal-Imphal-2 line	16.07.2020	->E/F operation	-Root cause to be furnished by MSPCL -DR to be submitted for both bays by MSPCL
132kV Jiribam-Tipaimukh & 132kV Aizawl-Tipaimukh	07.07.2020	->Z-3 operated at Jiribam, Aizawl ->E/F operated at Tipaimukh for Jiribam line	Fault in downstream of Tipaimukh -Exact location to be intimated by MSPCL -Reasons for delayed clearance by ICT protection to be investigated

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			-ICT settings/fault current to be shared by MSPCL.
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Items related to NEEPCO:

Description of Event	No of trippings in July'20/dates	Discussion Points	Sub-group Deliberation
Frequent tripping of DHEP units	Unit #I- 6 times Unit #II – 9 times	->RCA	-Root cause to be intimated by NEEPCO

The Sub-Group noted as above.

Action: all utilities as above.

ITEM NO. 12 : Status of submission of FIR and DR & EL outputs for NER Grid Events for July, 2020

In line with regulation 12 (1) of CEA Grid Standards Regulations and IEGC provision under clause 5.2 (r), FIR and DR & EL Outputs for each grid events are required to be submitted by concerned utilities to NERLDC for detailed investigation and analysis.

Status of uploading of FIR and DR & EL outputs in Tripping Monitoring Portal for events from 01.07.2020 to 31.07.20 (as on 01.08.2020) is given below:

Name of Utility	Total FIR/DR/EL	Total FIR, DR & EL submitted			Total FIR, DR & EL submitted as NA (Not Applicable)			Total FIR, DR & EL submitted as NU (Not Available)			Total FIR, DR & EL not submitted		
		FIR	DR	EL	FIR	DR	EL	FIR	DR	EL	FIR	DR	EL
DoP, Arunachal Pradesh	19	5	0	0	0	0	0	0	0	0	14	19	19
AEGCL	26	23	16	0	0	6	0	0	1	0	3	3	26
MSPCL	56	56	18	27	0	1	1	0	10	0	0	27	28
MePTCL	50	6	11	0	0	2	2	0	0	0	44	37	48
P&ED, Mizoram	2	0	0	0	0	0	0	0	0	0	2	2	2
DoP, Nagaland	21	21	17	1	0	3	0	0	0	0	0	1	20
TSECL	5	5	3	2	0	2	2	0	0	0	0	0	1
POWERGRID	59	47	41	36	0	7	13	0	5	0	12	6	10
NEEPCO	48	30	26	20	0	15	15	0	1	0	18	6	13
NHPC	7	0	5	0	0	0	0	0	0	0	7	2	7
NTPC	2	0	0	0	0	0	0	0	0	0	2	2	2
OTPC	2	2	2	0	0	0	2	0	0	0	0	0	0

The Sub-Group noted as above.

ITEM NO. 13 : Phase shift errors in PMU

Voltage correction is done for all substations except 132 kV Dimapur (PG).

Two issues that needs discussion:

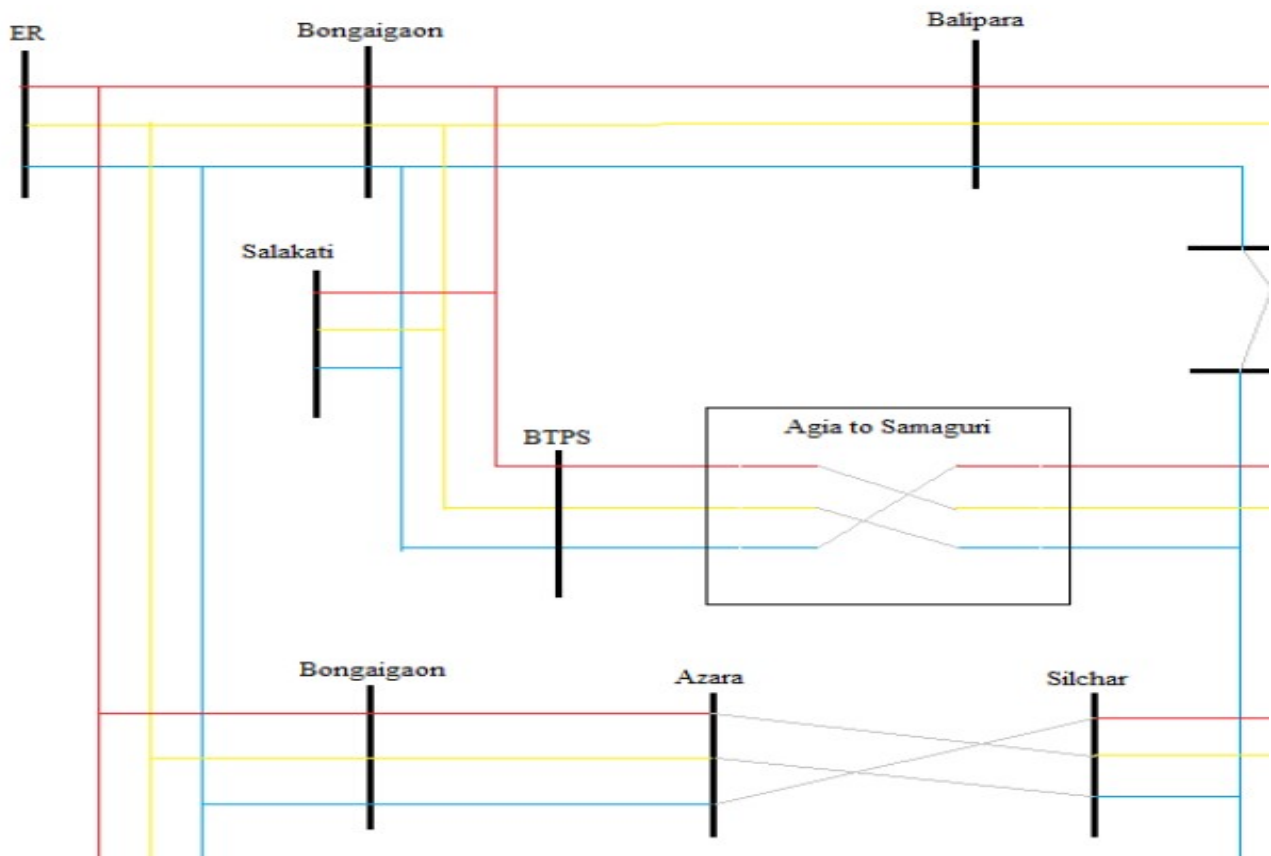
- a. Current sequence is also to be corrected to avoid the discrepancy in fault phase observed from voltage and current waveform. But, if current sequence is changed it will not match with DR.
- b. To match phase sequence with DR, voltage sequence is needed to be reverted to old sequence. But this shall cause error in PMU phase angle as before.

It is recommended that for protection analysis, DR and PMU phase sequence is to be matched and for solving phase angle error, primary side connections should be changed.

The 168th OCC referred the matter to the next Sub-group meeting for discussion.

Deliberation of the Sub-Group:

Sr.DGM(AM), NERTS explained to the forum via a diagram(as given below) that phase rotation mismatch is present in NER grid.



He further stated that simultaneous shutdown of many major Sub-stations shall be required to correct the phase sequence i.e. partial grid shutdown shall be required. After detailed deliberation the forum decided that a team comprising of members from AEGCL, NTPC & NERTS shall visit Bongaigaon, BTPS, Agia, Samaguri to assess the quantum of works and required shutdown period.

The Sub-Group noted as above.

Action: NERTS, NTPC, AEGCL.

List of Participants in the Sub-Group Meeting held on 11.08.2020

SN	Name & Designation	Organization	Contact No.
1.	No Representative	Ar.Pradesh	-
2.	Sh. Abhishek Kalita, AM, AEGCL	Assam (VC)	-
3.	Sh. B. Tlumtea, EE(SLDC)	Mizoram (VC)	-
4.	Smti. Kristine, AE, SLDC	Mizoram (VC)	-
5.	Sh. L. Sailo, JE, SLDC	Mizoram (VC)	-
6.	Sh. W.Khyriem, EE (GSPD)	Meghalaya	-
7.	Sh. A.G. Tham, AE, MePTCL	Meghalaya (VC)	-
8.	Sh. B.Nikhla, EE,SP, MePTCL	Meghalaya (VC)	-
9.	Sh. R.Khongmalai, AEE, MRT	Meghalaya (VC)	-
10.	Sh. Paul Warjri, JE, MRT	Meghalaya (VC)	-
11.	Sh. P.Nonglong, AEE, MRT	Meghalaya (VC)	-
12.	Smt. Khoisnam Steela, DGM	Manipur (VC)	-
13.	Sh. N. Jasobanta Singh, DGM, SSD-II	Manipur (VC)	-
14.	Sh. Rokobeito Iralu, SDO	Nagaland (VC)	-
15.	Sh. Anil Debbarma, DGM, SLDC	Tripura (VC)	-
16.	Sh. H.Talukdar, Sr.DGM(AM)	NERTS	-
17.	Sh. S.C.De, GM(SO-II)	NERLDC (VC)	-
18.	Sh. B.Swargiary, Manager	NERLDC (VC)	-
19.	Sh. Jerin Jacob, Dy manager	NERLDC (VC)	-
20.	Sh. Subhash Kumar,	NERLDC (VC)	-
21.	Sh. Lengminlal Singson,SDO	Nagaland (MS Team)	-
22.	Sh. Kangkan Paul, DM (EEMG)	NTPC (MS Team)	-
23.	Sh. C.L.Khayuingam, Sr. Mgr (Elect)	NHPC (MS Team)	-
24.	Sh. Ratan Singh Basnet, Sr. Mgr	NETC (MS Team)	-
25.	Sh. Joypal Roy, DGM	NEEPCO	-
26.	Sh. Dibyendu Goswami, PSS E	PRDC	-
27.	Sh. B.Lyngkhoi, Director(O&P)	NERPC	-
28.	Sh. Srijit Mukherjee,EE	NERPC	-
29.	Sh. Rajib Das, AE	NERPC	-
30.	Sh. S. Chatturvedi, AE	NERPC	-