

Minutes of the Sub-group meeting on 07.08.2019

The list of Participants is attached at Annexure-I.

ITEM NO. 1: STATUS OF AUTO-RECLOSURE OF GRID CONNECTED LINES FOR AEGCL AND MEPTCL
--

AEGCL has submitted the status of AR for all lines:

SPAR implemented at both ends		Status as updated in the 53rd PCC Meeting	Latest status
220kV Agia - BTPS D/C	Agia end By July'19	Agia end By July'19	To be updated
220kV BTPS-Salakati D/C	August '19	August '19	To be updated
SPAR implemented at one end		Latest status	
220kV Agia-Azara D/C	SPAR available at Azara, Agia end under R&U works	Agia end by July'19	To be updated
220kV Azara-Boko D/C	SPAR available at Azara, other end will be done in R&M works	Boko end by Aug'19	To be updated
220kV Samaguri-Sarusajai D/C	SPAR in service in Sarusajai, other end will be done under PSDF	Presently configuration is 220kV Samaguri-Sonapur-Sarusajai. SPAR present both at Samaguri and Sarusajai. Sonapur by July'19	To be updated
132kV Balipara-Sonabil	3ph AR available at Sonabil end, Balipara end to be impkemented by AEGCL	Balipara end by July'19	To be updated
132kV Pavoi-Sonabil	3ph AR available at Sonabil end, Pavoi end under R&U	Pavoi end by Aug'19	To be updated

MePTCL has submitted the status of AR for all lines:

Name of the line	Status as updated in the Sub-group meeting
132 kV Agia - Mendipathar	Agia end: 3-ph AR will be will be implemented under R&M works, Mendipathar-MePTCL may intimate the status MePTCL will implement the 3 Ph AR in parallel with ongoing R&M works of PLCC &DPC by September 2019.
132 kV EPIP II - Byrnihat D/C	MePTCL will implement the 3 Ph AR in parallel with ongoing R&M works of PLCC &DPC by September 2019.
132 kV EPIP II - Umtru D/C	MePTCL will implement the 3 Ph AR in parallel with ongoing R&M works of PLCC &DPC by November 2019.
132 kV Kahilipara - Umtru D/C	MePTCL will implement the 3 Ph AR in parallel with ongoing R&M works of PLCC &DPC by December 2019.
132 kV Khliehriat - Mustem	MePTCL will implement the 3 Ph AR in parallel with ongoing R&M works of PLCC &DPC by January 2020.
132 kV Mustem - NEHU line	MePTCL will implement the 3 Ph AR in parallel with ongoing R&M works of PLCC &DPC by January 2020.

132 kV Khliehriat (MePTCL) - Khliehriat (PG) Ckt#II	MePTCL will implement the 3 Ph AR in parallel with ongoing R&M works of PLCC &DPC by January 2020
132 kV Khliehriat- NEIGRIHMS	MePTCL will implement the 3 Ph AR in parallel with ongoing R&M works of PLCC &DPC by January 2020
132 kV NEHU - Mawlai	MePTCL will implement the 3 Ph AR in parallel with ongoing R&M works of PLCC &DPC by January 2021
132 kV Mawlai - Umiam Stage I	MePTCL will implement the 3 Ph AR in parallel with ongoing R&M works of PLCC &DPC by January 2021
132 kV Mawphlang - Nongstoin	MePTCL will implement the 3 Ph AR in parallel with ongoing R&M works of PLCC &DPC by March 2020
132 kV Mawphlang - Umiam Stg I D/C	MePTCL will implement the 3 Ph AR in parallel with ongoing R&M works of PLCC &DPC by March 2020
132 kV Mawphlang- Mawlai	MePTCL will implement the 3 Ph AR in parallel with ongoing R&M works of PLCC &DPC by January 2021
132 kV Mendipathar - Nangalbibra	MePTCL will implement the 3 Ph AR in parallel with ongoing R&M works of PLCC &DPC by September 2019.
132 kV Myntdu Leshka - Khliehriat D/C	MePTCL will implement the 3 Ph AR in parallel with ongoing R&M works of PLCC &DPC by April 2020
132 kV Nangalbibra - Nongstoin	MePTCL will implement the 3 Ph AR in parallel with ongoing R&M works of PLCC &DPC by November 2019.
132 kV NEHU - NEIGRIHMS	MePTCL will implement the 3 Ph AR in parallel with ongoing R&M works of PLCC &DPC by May 2020
132 kV NEHU - Umiam	MePTCL will implement the 3 Ph AR in parallel with ongoing R&M works of PLCC &DPC by June 2020
132 kV Sarusajai - Umtru D/C	MePTCL will implement the 3 Ph AR in parallel with ongoing R&M works of PLCC &DPC by May 2020
132 kV Umiam - Umiam St I	Under MePGCL Scope
132 kV Umiam St I - Umiam St II	Under MePGCL Scope
132 kV Umiam St I - Umiam St III D/C	Under MePGCL Scope
132 kV Umiam St III - Umiam St IV D/C	Under MePGCL Scope
132 kV Umiam St III - Umtru D/C	Under MePGCL Scope
132 kV Umtru - Umiam St IV D/C	Under MePGCL Scope

Deliberation in the meeting:

The latest status for Assam could not be updated due to absence of AEGCL representative.

Action: AEGCL / MePTCL

ITEM NO. 2 : IDENTIFICATION OF LINES FOR LINE DIFFERENTIAL PROTECTION OF MSPCL, P&ED MIZORAM, TSECL.

- (i) 132kV Doyang-Sanis - DoP Nagaland to intimate the latest status of AR.
(ii) 132kV RHEP-Pare-2 - DoP Arunachal Pradesh to intimate the latest status of AR.

Deliberation in the meeting:

No representative from DoP Nagaland, P&ED Mizoram, TSECL. SLDC Ar.Pradesh representative informed that the status would be updated in the next meeting.

MSPCL was requested to identify the lines for LDP.

Action: DoP Ar. Pradesh, DoP Nagaland, MSPCL, P&ED Mizoram, TSECL.

ITEM NO. 3 : RE-EVALUATION OF ROOT CAUSE ANALYSIS AS PER 52ND PCCM

SN	Brief details of the disturbance/ incidence	Actions to be taken	Concerned Utilities	Status as per 53rd PCCM	Latest status
1	Frequent tripping of 220kV Misa-Killing D/C	A/R operation at Misa & Byrnihat to be checked for 220kV Misa-Byrnihat-D/C	MePTCL/ NERTS	Team from System Protection, BPL visited killing on the 10.07.19 and both analog protection coupler of BPL 1& 2 for Misa 1&2 respaly revived and all 4 codes were tested from Killing end and found ok. The Protection coupler was put in service and AR operated perfectly at killing. Same to be checked at Misa. By 22.07.19	POWERGRID to confirm operation at Misa end by Aug'19
2	Aizawl blackout in Aug'18	Settings alongwith directionality of earth fault relay may be reviewed for 132kV P.K.Bari-Kumarghat at P.K.Bari.	TSECL	By July'19	No representative
3	Blackout of Ranganadi, Pare and Ar. Pradesh on 29.09.18	Delay in outage of filter bank after tripping of Pole to be investigated	NERTS	Referred to OEM	Referred to OEM
4	Tripping of 400kV Byrnihat-Bongaigaon on 25.09.18, 09.10.18,	Main-I & Main-II relay at Byrnihat channel standardization to be done.	MePTCL	Main-II Submitted Main 1 will be submitted after incorporation change of settings etc in the relay.	Main 1 by 22.08.19 Main-2 DT signal channel to be configured by

	16.11.18				Aug'19.
5		A/R non-operation to be checked at Byrnihat end.	MePTCL	NERTS taken up with SIEMENS. OEM reverted back with suggestions pole open threshold to be increased to 100mA.	By 22.08.19
6		Tower footing resistance measurement to be done for the identified locations. Necessary corrective measures for improving of soil resistivity in line with soil reactivating chemical compound treatment	NETC	Completed. NETC to submit report in this regard to NERPC/NERLDC	No representative
7		Relay settings and CT connection to be reviewed for 132kV Agartala - SMNagar D/C at Agartala.	TSECL	132kV 79Tilla-SMNagar CktI: s/d on 19.07 & 20.07 then it will be done. DR will be sent subsequently	No representative
8	Disturbance in Tripura System on 27.09.18	Carrier inter-trip to be implemented for 132kV Agartala-Budhjunagar immediately.	TSECL	Feasibility to be checked	No representative
9		Patrolling report to be submitted for 132kV Agartala-Budhjunagar line.	TSECL	Will be submitted in Jul'19	No representative
10	Disturbance in Nagaland System on 19.09.18	Tower top patrolling to be done for 220kV Mariani-Mokokchung D/C.	NERTS	Exact RCA- jumper loosening 30km from Mariani. Rectification to be carried out in next AMP.	Rectification to be carried out in next AMP.
11	Tripping of 132kV Pare-Lekhi and Pare Units on 30.09.18	Vegetation clearance of 132 kV Pare – Lekhi line to be done	DoP Ar. Pradesh/NERT S	To be updated	To be updated
12	Repeated tripping of 132 kV	Vegetation fault clearance to be done	DoP Ar. Pradesh	To be updated	To be updated

	Ranganadi-Pare				
13	Repeated trippings of 132kV Doyang-Mokokchung and 132kV Mokokchung-Mokokchung D/C	Timings at 132 kV Mokokchung(PG) and 132kV Doyang to be increased.	NERTS/NEEP CO	Setting OK. On 20.06.19 CB did not open at Mokokchung(NAG). Breaker to be tested.	No representative

Action: MePTCL, NERTS, NETC, DoP Ar.Pradesh, NEEPCO, TSECL, OTPC.

ITEM NO. 4 : FREQUENT TRIPPINGS IN MANIPUR SYSTEM

A. Tripping(s) affecting power supply to the Capital area:

Tripping of 132kV Imphal-Imphal D/C

Details of Tripping	Relay indications	Sub-group deliberation on 13.06.19	Deliberation in 53rd PCC Meeting	Latest status
132kV Imphal-Imphal tripped 4 times in April'19 and once in May'19	Trippings in April'19: In 3 cases O/C at Imphal(MAN), no tripping at Imphal(PG); In one case no trip at Imphal(MAN) and Not available at Imphal(PG). Trippings in May'19: O/C at Imphal(MAN). no trip at Imphal(PG)	->Downstream 33kV cable fault. <i>Recommendations/analysis</i> (i)Reasons for non-tripping of ICTs to be informed (ii)Instantaneous high set O/C at 132 kV Imphal(MSPCL) for 132 kV Imphal(PG) 1 & 2 lines to be disabled	-Recommendation No.(ii) completed	->ICT did not trip due to the higher settings of O/C protection ->Setting changed to 3 in LV side ICT & 2 in HV side ICT on 29.05.19

New tripping(s) of 132kV Imphal - Imphal D/C

Details of Tripping	Relay indications/FIR/EL	Deliberation of the Sub-group
Tripping of D/C line on 25.07.2019	->FIR states fault in the 132kV Yurembam-Karong line. ->No protection operated as per DR submitted for Karong line. ->132kV Imphal-Imphal-I: tripped on O/C protection(configured in NR for DP), VR appearing at VN	-> Puncture insulator in the 132kV Yurembam-Karong T/L. Presently line upgradation/rectification is going on. ->Setting at Yurembam for 132kV Yurembam-Karong reduced on 03.08.19 and high set now set at 1.2. -> Distance Protection not operated at

	->132 Imphal-Imphal-II: tripped on O/C protection(configured in NR for DP).	Yurembam for 132 kV Karong line. <u>Remedial Actions</u> -> Since backup protection is in service, O/C feature in DP relay to be disabled for both 132kV Imphal-Imphal D/C lines at Imphal(MAN) ->Setting and PSL for 132kV Yurembam-Karong to be sent -> R-ph PT fuse of Imphal (PG) 1 line at Imphal (MSPCL) to be checked.
Tripping of D/C line on 31.07.19	->FIR states fault in the 132kV Yurembam-Karong line due to R-ph CT blast at Yurembam. -> D/C line tripped on OC protection	<u>Remedial Actions</u> ->O/C feature in DP relay to be disabled for both 132kV Imphal-Imphal D/C lines at Imphal(MAN) ->Setting and PSL for 132kV Yurembam-Karong to be sent -> R-ph PT fuse of Imphal (PG) 1 line at Imphal (MSPCL) to be checked.

B. Tripping(s) affecting power supply to Ningthoukong area:

Tripping of 132kV Loktak-Ningthoukong

Details of Tripping	Recommendations	Latest Status	Deliberation of the Sub-group
Line tripped 2 times in Sep'18 3 times in Nov'18, 12times in April'19 & 4 times in May/June'19	(i)E/F relay to be made directional at Ningthoukong (ii)E/F to be configured in DR at Ningthoukong (iii) MSPCL to submit the downloaded relay settings of E/F protection of 132 kV Loktak feeder at Ningthoukong & DR output of the tripping for verification of the same.	-Recommendation (i) &(ii) completed.	->E/F relay has been made directional -> Setting file & triggered DR for 132kV Loktak-Ningthoukong at Ningthoukong to be sent

New tripping(s) of 132kV Loktak-Ningthoukong

Details of Tripping	Relay indications/FIR/EL	Deliberation of the Sub-group
Tripping of the line on 25.06.19	->Relay indication: No trip at Loktak, E/F at Ningthoukong	-> To be observed for tripping on same protection

C. Tripping(s) affecting power supply to Rengpang area:

Tripping of 132kV Loktak-Rengpang

Details of Tripping	Recommendations	Latest Status	Deliberation of the Sub-group
The line tripped 6 times in Sep'18 5 times in Oct'18, 3 times in Feb-Mar'19, 6 times in April'2019 and 3 times in May/June'19	(i)Vegetation clearance to be done (ii)Patrolling report to be submitted	-Vegetation clearance done, all infringement cleared.	-Vegetation clearance confirmed by MSPCL

New tripping(s) of 132kV Loktak-Rengpang(LL-39.8kM)**

Details of Tripping	Relay indications/FIR/EL	Deliberation of the Sub-group
Tripped 3 times in Jun'19: 19.06, 26.06, 28.06	->Relay indication: At Loktak DP, Z-II 39.15kM(28/06), DP Z-II 38kM(26/06), E/F B-E, 34kM (19/06)	-> All trippings due to vegetation ->Loc No. 145-415 vegetation clearance being done -> Delay in return of the line after tripping due to non-identification of the exact location of fault.
Tripping on 01.07.19. Restoration done on 04.07.19	->FIR at Loktak: 3ph-E. Tripped on E/F ->Relay indication: at Loktak DP, Z-I R-Y-E, 24.78kM	
Tripped on 11.07.19	-> Relay indication: at Loktak E/F ->No trip at Rengpang	
Tripped on 16.07.19	-> Relay indication: at Loktak DP, Z-I B-E, 14.5 kM ->No trip at Rengpang	
Tripped on 18.07.19	-> Relay indication: at Loktak DP, Z-I B-E, 20.03 kM, at Rengpang E/F	
Tripped on 27.07.19	-> Relay indication: at Loktak DP, Z-I B-E, 3.3 kM, at Rengpang O/C	

D. Multiple tripping(s) of 132kV Aizawl-Tipaimukh and 132kV Jiribam- Tipaimukh:

Previous cases of tripping of the above lines

Actions already taken:

- E/F settings reviewed at Aizawl for 132kV Aizawl-Tipaimukh on 10.07.19.
- PLCC and carrier intertrip jointly checked by NERTS & MSPCL for Aizawl,Tipaimukh and Jiribam on 10.07.19
- Work order placed for procurement of Gap Less LA at Jiribam. Completion: Dec'19.
- Tower top patrolling done and flashover marks found at various locations. Accordingly TLAs installed at 337, 329, 327, 315, 299, 285, 278, 449, 411, 388, 356 & 350.

New tripping(s) of 132kV Aizawl-Tipaimukh(*LL-95.6kM) & 132kV Jiribam-Tipaimukh(*LL-76.7kM)

Details of Tripping	Relay indications/FIR/EL	Deliberation of the Sub-group
132kV Aizawl-Tipaimukh tripped on 13.06.19, 01.07.19 , 02.07.19 & 18.07.19	On 13.06.19 ->Relay indication: At Aizawl DP, Z-I R-Y-B At Tipaimukh: DP Z-I, R-Y On 01.07.19 -> Relay indication: At Aizawl DP, ZI, R-Y-B-E,69.8 KM At Tipaimukh: DP, ZI, R-Y-B-E,30.7 KM On 02.07.19 -> Relay indication: At Aizawl DP, ZI, R-Y-B-E,50.16 KM.At Tipaimukh: DP, ZI, R-E,47.0 KM On 18.07.19 -> Relay indication: At Aizawl DP, ZI, R-B-E,FD:73.95 km At Tipaimukh: DP, ZI, Y-B-E,FD:35.2 km	->A/R successful in all cases at Tipaimukh ->Lightning related trippings ->NERTS to investigate reasons for non-operation of A/R ->NERTS to conduct tower top patrolling and confirm location nos of the fault(s)
132kV Jiribam-Tipaimukh tripped on 15.06.19 & 28.07.19	On 15.06.19 ->Relay indication: At Jiribam No tripping At Tipaimukh: DP Z-II, B-E On 28.07.19 -> Relay indication: At Jiribam DP, ZI, B-E, FD: 22.2 Km At Tipaimukh: Overcurrent	-> DR for Tipaimukh to be submitted for proper analysis
Both the lines tripped on 02.07.19 & 21.07.19	On 02.07.19 ->Relay indication: At Aizawl O/C At Tipaimukh: No tripping	<u>On 02.07.19</u> ->DR at Tipaimukh to be

	->Relay indication: At Jiribam DP, ZII, R-Y-E,61.7 KM At Tipaimukh: DP, ZI, R-Y-E,13.8 KM On 21.07.19 -> Relay indication: At Aizawl No tripping At Tipaimukh: Hand-trip ->Relay indication: At Jiribam DP, ZII, B-E,FD:79.8 KM At Tipaimukh: E/F	submitted ->Reasons for non-tripping at Tipaimukh end to be furnished -> DR output from Aizawl (PG) of 132 kV Tipaimukh feeder for protection operation to be submitted <u>On 21.07.19</u> ->Hot Spot found in Main Bus ->Hand-trip of lines at Tipaimukh due to wrong operation
--	--	---

Repeated tripping(s) of 132kV Jiribam-Jiribam

Previous cases:

Action already taken:

- At Jiribam(PG) back up protection relays tested and necessary rectification done on 17.06.19

Recommended Actions	Status
For downstream fault in Apr'19 & May'19 exact fault locations to be intimated for all the cases	->Fault in 132kV Jiribam-Rengpang
Jiribam(MAN) settings to be shared with NERTS for co-ordination.	->Relay co-ordination done on 29.06.19

New tripping(s) in June-July'19

Details of Tripping	Relay indications/FIR/EL	Deliberation of the Sub-group
132kV Jiribam - Jiribam tripped on 15.06.19 & 25.06.19	On 15.06.19 ->Relay indication: At Jiribam(PG) No tripping At Jiribam(MAN): Earth Fault On 25.06.19 -> Relay indication: At Jiribam(PG) Backup E/F At Jiribam(MAN): No tripping	<u>On 15.06.19</u> ->LA blasted at Jiribam(PG) -> Protection not operated at Jiribam (PG) for 132 kV Jiribam (MSPCL) line. -> NERTS informed that non-operation of Protection at Jiribam (PG) was due to: <ol style="list-style-type: none"> DP not detected the fault due to close-in fault. Backup protection was not in service at that time. -> Due to non-operation of protection at Jiribam (PG) for 132 kV Jiribam (MSPCL), all lines connected to Jiribam (PG) tripped from remote end to clear the fault. -> NERTS informed that backup protection was taken in to service after necessary checking on 17.06.19. ->LDP to be implemented for 132kV Jiribam-Jiribam <u>On 25.06.19</u> ->Cascaded from downstream fault in 132kV Jiribam-Rengpang ->E/F relay settings to be co-ordinated for 132 kV Jiribam - Rengpang with 132 kV Jiribam-Jiribam line...

Action: MSPCL, NERTS.

ITEM NO. 5 : FREQUENT TRIPPINGS IN TRIPURA SYSTEM

For trippings till 27th June'2019 the following are the status against the recommendations of the Sub-group:

Recommendations	Latest status	Deliberation in the Sub-group
Distance Relay for 132kV 79Tilla-Rokhia to be put into service	Reinstated on 05.07.19	To be updated
CT/PT connections to be rectified at 79Tilla for 132kV 79Tilla-Rokhia D/C	Completed by 08.07.19 for both the circuits	To be updated
Undervoltage settings for GTG at AGTCCPP to be reviewed(NEEPCCO)	Time delay increased to 2s	Completed to be dropped
DP & B/U protection settings to be reviewed for 132kV AGTCCPP-79Tilla D/C at AGTCCPP	-	->B/U protection in Numerical Relay disabled -> S/D of 132 kV AGTCCPP – Agartala D/C for impedance measurement & Settings to be decided based on generation of AGTCCPP
Bus Coupler CT to be immediately replaced and both the buses at SMNagar to be put into service	New CT 600/1 installed and loaded on 26.06.19 and both the buses loaded accordingly	To be dropped
RCA for tripping of 132kV Baramura-Gamaitilla & 132kV AGTCCPP-Kumarghat on 18.06.19 to be submitted	B/U protection relay non-directional in character and setting was less than main protection Z-IV. This has been rectified.	To be updated
Bus bar protection to be put into service at SMNagar	Will be done on arrangement of fund	To be updated
At Rokhia protection to be ensured in the link section between the old switchyard and new switchyard for 132kV 79Tilla-Rokhia D/C	At present 132kV CB of Rokhia old SY is out of order. Will be implemented on arrangement of fund	To be updated
Bus bar protection to be implemented for 132kV 79Tilla S/Sn	Will be implemented on getting fund from central source	To be updated
Relay directionality at 79Tilla for 132kV 79Tilla-SMNagar-I to be corrected	Will be checked and corrected on 18.07.19,19.07.19.	To be updated
CB to be installed for Bus sectionalizer at 79Tilla	Space constraint issue at 79Tilla SY for installation of CB. The matter will be further explored.	To be updated
At Rokhia directionality of the relay(s) for line protection to be ensured with proper CT connections.	Rectified for both circuits by 08.07.19	To be updated
Line patrolling, jumper tightening and strengthening of weak sections to be done	Scheduled to be completed by 23.07.19	To be updated
At SMNagar and 79Tilla a pseudo Bus Bar protection to be implemented with Z-IV. When Z-IV detected by the	Will be complied on arrangement of fund.	To be updated

distance relays for all the lines then lines should be tripped with time delay 100ms.		
DR output to be triggered manually for all the DP in Tripura system and to be submitted for checking	After completion of scheduled shutdown activities i.e. after 23.07.19	To be updated

The following additional recommendations were made by the 53rd PCCM:

Recommendations	Latest status	Deliberation in the Sub-group
CB operation at Dhalabil for Kamalpur feeder to be checked [DP issued trip and CB did not open for 1 second for event on 18.06.19]	-	To be updated
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	-	To be updated
Z-1 operation of 132 kV SMNagar – Budhjungnagar -2 line at Budhjungnagar to be checked (over reached for event on 18.06.19)	-	To be updated
Settings of Distance Protection at Dhalabil for 132 kV Agartala feeder to be checked and CB operation to be checked. [DP, Z-1 detected at Dhalabil for 132 kV Agartala line (over reached) for event on 22.06.19. CB did not open for 2 seconds.]	-	To be updated
Review of Z-2 & Z-3 timing of lines going out from SMNagar & 132 kV Agartala – Budhjungnagar line at Budhjungnagar (over lapping with Palatana, 500 msec delay for Z-2 & 800 msec delay for Z-3 for these lines at present	-	To be updated
Distance Protection at Dhalabil for 132 kV Agartala feeder to be checked as Z-2 was not detected by this relay for the event on 27.06.19	-	To be updated
RCA of tripping of 132 kV Ambassa – Gamaitilla line on 27.06.19	-	To be updated

New trippings after 28.06.19

Details of Tripping	Relay indications/FIR/EL	Deliberation of the Sub-group
Tripping of 132kV Monarchak-Udaipur-I on 30.06.19	Relay indication: At Monarchak DP, Z-II B-E At Udaipur: No indication	->->FIR & DR output from Udaipur to be sent ->Delayed clearance to be investigated
Tripping of 132kV Monarchak-Rokhia line on 01.07.19, 12.07.19	On 01.07.19 ->Relay indication: At Monarchak DP, Z-II E/F At	<u>On 01.07.19</u> ->Carrier intertrip to be implemented ->CVT connection to be checked at

	Rokhia: DP, Z-I Y-E On 12.07.19 (two times) ->Relay indication: At Monarchak CB PD Fail At Rokhia: No trip	Rokhia <u>On 12.07.19</u> -> Single pole opened at Monarchak. DC fault reported ->NEEPCO to intimate the RCA & corrective actions taken
Tripping of 132kV 79Tilla-Rokhia D/C & 132kV Monarchak-Rokhia on 18.07.19	For 132kV 79Tilla - Rokhia - I: ->Relay indication: At 79Tilla No trip At Rokhia: DP, Z-I For 132kV 79Tilla - Rokhia - II: ->Relay indication: At 79Tilla DP,ZI,FD:39.1 km At Rokhia: No trip For 132kV Monarchak - Rokhia: ->Relay indication: At Monarchak DP,ZII,FD:26.5 km At Rokhia: No trip	->Fault suspected in link section at Rokhia ->Link section protection to be ensured -> Issues in CT/PT Connections observed and noted from DR output, same to be compiled and sent to TSECL for rectification. -> PSL & settings of 132 kV Rokhia – Agartala 1 line at Rokhia to be checked

Action: TSECL.

ITEM NO. 6	: FREQUENT TRIPPINGS IN ARUNACHAL PRADESH SYSTEM
-------------------	---

Previous tripping(s) details

Brief details of the event	Discussion/Recommendations in Sub-group/PCC	Latest status	Deliberation in the Sub-group
Tripping of 132kV RHEP-Ziro & 132kV Ziro-Daporizo on 04.01.19	O/C, E/F relay co-ordination for 132kV RHEP-Ziro at Ziro(PG) to be done with 132kV Ziro-Daporizo	Non directional instantaneous element of Earth Fault relay at Ziro for Ranganadi feeder kept in service with a setting of 4 kA to prevent any tripping at Ranganadi	-> Relay coordination status to be intimated by DoP Ar.Pradesh
Grid Disturbance in Itanagar area of Arunachal Pradesh due to tripping of 132kV Ranganadi-Chimpu and 132kV Pare-Chimpu on 29.01.19	RCA to be submitted	RCA to be submitted	RCA to be submitted
Grid Disturbance in Arunachal Pradesh due to tripping of 132kV RHEP-Ziro and 132kV Ziro-	Fault in 132kV Ziro-Daporizo. RCA to be submitted	RCA to be submitted	RCA to be submitted

Daporizo line on 11.03.2019(two times)			
Disturbance in Lekhi area and Nirjuli Area due to tripping of Arunachal Pradesh on 02.04.19 due to tripping of 132kV Lekhi-Pare	Suspected vegetation fault. Proper vegetation clearance to be done and patrolling report to be submitted by DoP Ar.Pradesh	Suspected vegetation fault. Proper vegetation clearance to be done and patrolling report to be submitted by DoP Ar.Pradesh	Suspected vegetation fault. Proper vegetation clearance to be done and patrolling report to be submitted by DoP Ar.Pradesh

New trippings in June-July'19

Details of Tripping	Relay indications/FIR/EL	Deliberation of the Sub-group
Tripping of 132kV Ziro-Daporizo on 02.06.19, 06.06.19, 23.06.19	Relay indication: At Ziro(PG) O/C, E/F & No trip consecutively At Daporizo: E/F on each of the 3 occasions	Could not be discussed due to absence of proper representation from DoP Ar.Pradesh
Tripping of 132kV Lekhi-Nirjuli on 06.06.19, 01.07.19 & 132kV Lekhi-Pare on 01.07.19	On 06.06.19 ->Relay indication: At Lekhi E/F & At Nirjuli: No trip On 01.07.19 ->Relay indication: At Lekhi N/A & At Nirjuli: N/A ->Relay indication: At Lekhi N/A & At Pare: DP, ZIII, B-E, 29.64KM	Could not be discussed due to absence of proper representation from DoP Ar.Pradesh
Tripping of 132kV Pare-Chimpu, 132kV RHEP-Pare-I, 132kV RHEP-Chimpu on 11.06.19	->Relay indication: At Pare Directional O/C Stg-2 & At Chimpu: No trip ->Relay indication: At RHEP No trip & At Pare: Directional O/C Stg-2 ->Relay indication: At RHEP no trip & At Chimpu: N/A	-> Disturbance occurred in RHEP-Pare Generation complex due to unwanted tripping of ICT-1 at RHEP on NVD protection. -> SPS to be implemented at RHEP for tripping of any one ICT at RHEP. Refer discussions at Item 19. -> Adopted CT ratio of 132 kV Bus coupler at RHEP to be increased
Tripping of 132kV Pare-Chimpu, 132kV, 132kV RHEP-Chimpu on 02.07.19	->Relay indication: At Pare DP, ZII, R-B-E started, O/C stage-II operated & At Chimpu: N/A ->Relay indication: At RHEP DP, ZII, R-Y-E, 27.21 KM & At Chimpu: N/A	->RCA/DR to be submitted by DoP Ar.Pradesh ->For Pare-Chimpu, at Pare Z-2 start, CTR-800/1 OC Stg-2 set at 2xIN and time 10ms(DMT) -> For RHEP-Chimpu at RHEP Z-II trip. ->It was recommended to review the O/C E/F stage-II setting at Pare -> NEEPCO informed that changing settings at Pare for Chimpu feeder would be done after getting analysis report & DR outputs from Chimpu (DoP AP). -> DoP Ar.Pradesh to intimate the exact location of fault and submit RCA/DR for further analysis.

Tripping of 132kV Pare-Chimpu, 132kV, 132kV RHEP-Chimpu on 05.07.19	->Relay indication: At Pare O/C , E/F& At Chimpu: no trip ->Relay indication: At RHEP DP, ZII, R-E,31.27 KM & At Chimpu: no trip	->RCA/DR to be submitted by DoP Ar.Pradesh
Tripping of 132kV Pare-Chimpu on 18.06.19 & 20.06.19	On 18.06.19 ->Relay indication: At Pare DP, ZI, R-E & At Chimpu: E/F On 20.06.19 ->Relay indication: At Pare no trip & At Chimpu: DP, ZI, R-E	->RCA/DR to be submitted by DoP Ar.Pradesh
Tripping of 132kV Roing(PG) - Pasighat(DoP) on 07.06.19	->Relay indication: At Roing no trip & At Pasighat: DP, ZII, Y-B	->RCA/DR to be submitted by DoP Ar.Pradesh
Tripping of 132kV Along-Pasighat on 14.07.19	Due to conductor snapping	Restored after conductor repair.

ITEM NO. 7 : PROTECTION AUDIT STATUS

The timeline given by various utilities for submission of compliance status(Third Party Audit + Tractabel Audit) is as below:

Name of utility	Status given in 53rd PCC	Latest status
TSECL	By 15.07.19	Could not be updated
DoP Nagaland	By 15.07.19	Could not be updated
NERTS-POWERGRID(Tractabel Audit)	By 15.07.19	By 15.08.19
DoP Ar.Pradesh	By 15.07.19	Could not be updated
P&ED Mizoram	By 15.07.19	Could not be updated
NTPC	By 15.07.19	Could not be updated

Action: TSECL, DoP Nagaland, NERTS, DoP Ar.Pradesh, P&ED Mizoram, NTPC.

ITEM NO. 8 : STATUS REVIEW AGAINST RECOMMENDATIONS FOR GD-IV & V IN NER

Brief details of the disturbance	Recommendations	Name of utility	Latest status	Status as intimated in the Sub-group
Grid Incidence on 05.12.18 affecting 800kV BNC HVDC and 4 other stations in NER	combine the existing TEED and Reactor Differential Protection Zone as well as replace the existing old differential relays by new Numerical Differential Relay.	NERTS	Reactor-2 differential protection reach increased. Reactor-3 teed protection tested and found ok	To be dropped.

	Review of BNC-APD-Agra Multi-terminal HVDC Pole protection philosophy	NERTS	In progress	In progress
GD-V on 03.04.19 affecting southern part of NER & GD-V on 20.04.19 affecting southern part of NER and part of Assam, Meghalaya system	Review of negative phase sequence relay settings for GBC motor at Monarchak	NEEPCO	TMS changed. BHEL response on idea settings awaited.	->TMS changed. BHEL response on ideal settings awaited. -> Testing of the relay to be done - NEEPCO
	Identification of weak joints for 400kV Palatana-Silchar D/C	NETC	Sent to NTH.	Sent to NTH.
	Study for reactive compensation in Tripura System	TSECL	MVAR data to be submitted by SLDC Tripura by 15.07.19	Not updated
	Identification of feeders for additional UFR based load shedding under Islanding Scheme-II	TSECL	Refer to OCC	Identification completed upon visit of team to Tripura. TSECL intimated that planning to be complete by Aug'19
	Standalone EL for integration of relay at AGTCCPP by Oct'19	NEEPCO	AGTCCPP - Oct'19. Standalone EL at RHEP completed in June'19	AGTCCPP - Oct'19. Standalone EL at RHEP completed in June'19
	NHPC to procure standalone EL for Loktak HEP	NHPC	Next year supply will be done linked with R&M	Next year supply will be done linked with R&M
	NERTS would explore options in consultation with OEM regarding time synchronization issues at Silchar	NERTS	The problem is suspected to be specific to a make of GPS time synchronizer. The GPS Time Synchroniser at Silchar is replaced with a different make on 03.07.19 and is under observation.	No adverse observation made so far. To be dropped
	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	OTPC	Original scheme to remain.	To be dropped.
	Revised SPS-3 scheme offer sought from GE by	NERTS	Refer to 158th OCC discussion	Budgetary offer will be collected

	NERTS			by 31.08.19
	Line defects in 400kV Silchar - Azara & 400kV Silchar-Byrnihat T/L to be attended	NETC		Shut down proposed from 16th to 23rd Aug'19
	Impedance measurement for 400kV Paltana-Silchar D/C, 400kV Silchar-Azara, 400kV Silchar - Byrnihat	NERTS	On opportunity	On opportunity
	Line parameters to be matched at Silchar, Azara and Byrnihat.	NERTS/AEGCL/MePTCL	Shall be done by 15.07.19	Shall be done by 31.08.19
	Spare relay REL 670 to be installed at Byrnihat for 400kV Silchar-Byrnihat	MePTCL	By July'19	Correction of necessary settings in Siemens relay to be done during shut down proposed from 16th to 19th Aug'19. Relay will not be replaced with Spare REL relay.
	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	NERTS/AEGCL	By July'19	Shall be done by 31.08.19

Action: AEGCL, MePTCL, NEEPCO, NERTS, NETC, OTPC.

ITEM NO. 9 : STATUS OF REMEDIAL ACTIONS RECOMMENDED IN THE 53RD PCCM

Sl. No	Brief details of the disturbance/incidence	Actions to be taken	Concerned Utilities	Status as per 53rd PCC Meeting	Latest status
1	Grid Disturbance in Kolasib Area of Mizoram due to tripping of 132kV Badarpur-Kolasib and 132kV Aizawl-Kolasib on 30.12.18	Protection co-ordination works i.r.o. Tural, Kolasib, Badarpur and Aizawl by Feb'19.	NERTS/ NEEPCO/ P&E Dept. Mizoram	Kolasib Switchgear operation to be checked and the report to be submitted. By July'19	No representative
2	Tripping of 400kV Bongaigaon-Byrnihat on 08.12.18	Gas leakage in bus duct to	MePTCL	EE Killing has requested for offer from OEM but till	Same status

		be rectified		date there is no response.	
3		DT send to be configured in DR at Byrnihat	MePTCL	Main-II completed Main-I: By July'19	Main-II completed. Naming of the DR channel to be corrected. Main-I: By 22.08.19
4	Grid Disturbance in capital area of Assam due to tripping of 220/132 kV, 100 MVA ICT I, II & III at Sarusajai and 132 kV Sarusajai-Sishugram 1 Line on 17.02.2019**	Carrier intertrip to be implemented for 132kV Sarusajai - Kamakhya	AEGCL	By July'19	No representative
5	Grid Disturbance in Arunachal Pradesh due to tripping of 132kV RHEP-Ziro and 132kV Ziro-Daporizo line on 11.03.2019(two times)	Fault in 132kV Ziro-Daporizo. RCA to be submitted	DoP Ar.Pradesh	Fault in 132kV Ziro-Daporizo. RCA to be submitted.	To be updated
6		Conductor failure to be referred to OEM with sample	NETC	Report by June'19	Sample sent to NTH
7	Grid Disturbance in Southern Part of NER grid due to tripping of 400kV Palatana- Silchar D/C on 03.04.2019##	Thermo vision scanning of 132kV PKBari-Kamalpur-Dhalabil-Agartala & strengthening of jumpers	TSECL	s/d going on for jumper strengthening & vegetation clearance. Thermo-vision scanning will be explored.	No representative
8	Multiple tripping of 132 kV Jiribam – Loktak line (18-01-2019 09:07:00, 19-01-2019 09:10:00 & 25-03-2019 14:31:00)	Disable SoTF/TOR function of 132 kV Loktak – Jiribam Line at Loktak till correction of SOTF/TOR logic.	NHPC	Auxiliary contact replaced. Subsequently no mal-tripping observed.	To be dropped

9	Disturbance in Meghalaya Power System at 21:03 Hrs on 16.01.19	Availability of Distance Protection in 132 kV Byrnihat to be intimated	MePTCL	Both 132 KV EPIP 1&2 line are equipped with Protection Scheme as on July 2019.	Agenda item may be dropped.
10		O/C E/F Relays at Khlieriat (MePTCL) to be made directional	MePTCL	Directionality of O/C and E/F relay at Khliehriat (PG) for Khliehriat-Khliehriat-1 checked and found in order.	Agenda item may be dropped.
11	Simultaneous tripping of 400 kV Azara - Bongaigaon Line & 400 kV Bongaigaon - Killing (Byrnihat) Line on 29-01-2019 10:40:00 Hrs	No conclusive finding from DR. Detailed RCA to be submitted	NETC		RCA to be submitted
12	400 kV Balipara - Biswanath Chariali 1 Line on 23-02-2019 00:07:00 Hrs	Report regarding switching of filter bank before set power order of 750MW to be investigated	NERTS	Referred to OEM	Referred to OEM
13	400 kV Bongaigaon - Killing (Byrnihat) Line on 11-03-2019 13:37:00 Hrs	Vegetation fault as per DR and AR successful. But tripped in reclaim time. Report to be submitted	NETC	To be updated	To be updated
14	400 kV Bongaigaon - Killing (Byrnihat) Line on 26-03-2019 13:31:00	Root cause could not concluded from DR output. Report to be submitted	NETC	To be updated	RCA to be submitted
15	800 kV Biswanath Chariali - Agra 1 HVDC on 14-03-2019 09:05:00 Hrs	RCA to be submitted	NERTS	HVDC Pole-I tripped on 14.03.19 on Reverse Power Direction Trip initiated from Agra end for a transient	Referred to OEM

				fault in B-Ph of Balipara – Bongaigaon -2 line . Matter referred to OEM ABB for analysis.	
16	400/ 220 kV, 315 MVA ICT 2 at BGTPP tripped on 15-03-2019 00:11:00 Hrs	Settings of Line differential relay to be reviewed at both ends and testing of the relays to be done	AEGCL/NT PC	OCC date to be fixed in s/d list and communicated.	Shutdown given on the 17.07.19. Status could not be updated due to absence of representative from AEGCL&NTP C
17	220 kV Kopili - Misa 1 & 2 Lines tripped on 17-03-2019 12:49:00 Hrs	Carrier sent and Receive channel is to be configured in DR at Kopili	NEEPCO	Order placed for deputation of service personnel of relay.	To be updated
18	Tripping of 132kV Aizawl -Tipaimukh and 132kV Jiribam-Tipaimukh on 20.08.18	Relay coordination amongst lines, ICT and downstream to be done	MSPCL	To be reviewed before putting ICT into service.	To be reviewed before putting ICT into service.
19		ICT winding to be repaired	MSPCL	Delayed due to bad road conditions	ICT yet to reach site.

Action: All utilities as above.

ITEM NO. 10 : STATUS OF REMEDIAL ACTIONS RECOMMENDED IN THE LAST SUB-GROUP

Sl. No	Brief details of the disturbance/ incidence	Actions to be taken	Concerned Utilities	Status as per last Sub-group	Latest status
GD-I					
18	Grid Disturbance in Imphal region	Proper jumper connection required in one location for	NERTS	By June' 19	##

	due tripping of 400kV Silchar-Imphal-I on 15.04.19	to of 400kV Silchar-Imphal Ckt#II			
19		Auto-reclosure operation to be tested at both ends for both circuits	NERTS	By June'19	##
20	Grid Disturbance in Imphal region due to tripping of 132kV Imphal-Imphal D/C on 17.04.2019	Instantaneous high set O/C at Imphal to be disabled	MSPCL	By June'19	Completed
21	Grid Disturbance in Dimapur Area of Nagaland system due to tripping of 132kV Dimapur-Dimapur D/C on 24.04.2019	Downstream relay co-ordination to be done at Dimapur(NAG) station	DoP Nagaland	To be intimated	To be intimated
25	Disturbance in Pavoi, Gohpur Area of Assam on 04.04.19 due to tripping of 132kV BNC-Pavoi D/C	Auto-reclosure operation and distance protection to be checked at both the ends	NERTS	By June'19	completed
26		Patrolling to be done to identify the lightning strike locations	NERTS	Already completed. Ckt-I Loc No. 28,42 Ckt-II Loc No. 29,42 Tower footing resistance to be measured for these locations.	##
27	Disturbance in Lekhi area and Nirjuli Area due to tripping of Arunachal Pradesh on 02.04.19 due to tripping of 132kV Lekhi-Pare	Suspected vegetation fault. Proper vegetation clearance to be done and patrolling report to be submitted	DoP Ar. Pradesh	Target date to be informed	To be updated

28	Disturbance in Kohima area of Nagaland due to tripping of 132kV Doyang-Sanis on 02nd, 13th, 16th and 17th April and on 13th May'19	DoP Nagaland to confirm the exact fault location in all of the cases and submit RCA	DoP Nagaland	Target date to be informed	To be updated
29		Relay settings to be reviewed at DHEP	NEEPCO	Target date to be informed	Completed
30	Disturbance in Northern Part of Tripura system on 13.05.19	Permanent fault in 132kV Dhalabil-Kamalpur line. Exact nature of fault and rectification measures to be informed.	TSECL	By June'19	No representative
31		Relay settings to be co-ordinated for 132kV Silchar-PKBari-Dharmanagar-Durlavcherra-Silchar	TSECL/AEGCL/NERTS	By June'19	No representative
32		Relay settings to be co-ordinated in downstream of Tripura system from PKBari	TSECL	By June'19	No representative
33		Distance Relay settings to be reviewed at PKBari, Kumarghat and Dharmanagar	TSECL	By June'19	No representative
34		Disturbance in Zuangtui area of Mizoram due to tripping of 132kV Melriat-Zuangtui on 17th, 19th, and 31st May'19	Downstream relay settings to be co-ordinated at Zuangtui	P&ED Mizoram	By June'19
35	Z-II timing at Zuangtui to be kept 350ms for 132kV Zuangtui-Serchip and 132kV		P&ED Mizoram	By June'19	No representative

		Zuangtui-Saitual			
36		Z-II timing at Melriat for 132kV Melriat – Zuangtui to be changed to 500ms	NERTS	By June'19	By Aug'19
37	Disturbance in western part of Meghalaya due to tripping of 132kV Nangalbira-Nongstoin on 21.05.19	Tripped due to inclement weather. Line patrolling to be done.	MePTCL	By June'19	By Aug'19
38		A/R to be implemented immediately	MePTCL	By July'19	By Nov'19
40	Disturbance in Luangmual area of Mizoram due to tripping of 132kV Aizawl-Luangmual on 16th,17th,19th May'19	Downstream relay co-ordination to be done at Luangmual	P&ED Mizoram	By June'19	No representative
41	Disturbance in Monarchak & Rabindranagar area of Tripura due to tripping of 132kV Monarchak-Rokhia & 132kV Monarchak-Udaipur on 24.05.19	Carrier aided protection to be implemented for 132kV Monarchak-Udaipur and 132kV Mnarchak-Rokhia	NEEPCO/TSECL	By June'19	No representative from TSECL
42		Distance Relay settings to be reviewed at Monarchak for 132kV Udaipur line and at Rokhia for 132kV Monarchak feeder(wrong Z-4 operation)	NEEPCO/TSECL	By June'19	Not completed. No representative from TSECL
43		Exact fault location and RCA to be submitted	TSECL	By June'19	No representative
44	Disturbance in Mokokchung area of Nagaland due to tripping of	Fault in 220kV Mariani-MOkokchung D/C line. Jumper issue in one location.	NERTS	By June'19	##

45	220kV Mariani-Mokokchung D/C , 132kV Mokokchung-Mokokchung D/C and 132kV Doyang-Mokokchung on 16.04.19	i) Reasons for non-tripping at Mokokchung(NAG) to be investigated. ii) CT polarity to be corrected at Mokokchung for Doyang feeder.	DoP Nagaland	Timeline to be informed	No representative
Other Notable trippings					
46	Tripping of 3x120MVA 400/132kV ICT-2 at RHEP on 06th & 13th April'19	->Tripping of ICT due to Neutral Displacement Protection to be disabled. Only alarm feature to be kept. -> PMS of 132 kV Bus Coupler O/C protection to be kept at 1000 amps (at Primary).	NEEPCO	By June'19	Completed
47	Tripping of 220kV Misa-Kopili-Ckt#I on 14.05.19	AR operation & teleprotection to be checked	NEEPCO/NERTS	By July'19	##
48	Tripping of 220kV Misa-Kopili-Ckt#III on 25.05.19	AR operation & teleprotection to be checked	NEEPCO/NERTS	By July'19	##
50	Tripping of 132kV Khliehriat-Khliehriat on 20.05.19 & 21.05.19	Distance relay settings Z-III at Khliehriat(MEG) to be reviewed	MePTCL	Timing changed to 800ms	Agenda item to be dropped.
51		Exact RCA of the fault in Ckt#II to be informed	NERTS	To be informed	##
53	Tripping of 220kV Misa-Byrnihat Kt#II on 25.05.19	A/R facility to be immediately implemented	NERTS/MePTCL	By June'19	AR successfully operational at Byrnihat end. Power Grid may checked operational at Misa end by Aug 2019.
54	Tripping of 132kV Khandong-Khliehriat-I &	Fault in 132kV Khandong-Khliehriat-I. Detailed RCA to be	NERTS	By June'19	##

	132kV Khandong-Kopili-II on 01.05.19	submitted			
55		Mal-tripping of 132kV Khandong-Kopili-II to be investigated	NERTS	By June'19	##
56	Tripping of all 132 kV lines from Silchar (PG) on 19.04.19 [LBB of 132 kV Silchar – Melriat 1 operated due to delayed GIS breaker operation due to problem in damping device]	-	NERTS	Actions Taken: 1. Damping devices replaced Auxiliary contact issue of isolator attended (which caused tripping of all feeders connected to both buses.	To be dropped
57	Tripping of 132 kV Silchar – Badarpur D/C on 05.05.19 [fault was in 400 kV Silchar - Badarpur-2 line]	Delayed fault clearance at Silchar for 400 kV Silchar - Badarpur-2 (due to problem in teleprotection system) to be attended	NERTS	To be informed	##

ITEM NO. 11 : GRID EVENTS FROM JUN'19 TO JUL'19 TO BE ANALYSED

Grid Disturbances (GD), Grid Incidences (GI), element tripping that occurred during Jun'19 to Jul'19 is given at **Annexure-12** as prepared by NERLDC.

Constituents are requested to furnish the following information in respect of the above grid occurrences to have fruitful discussions.

- (a) **Single line diagram** of the station with switching devices, CT, PT and relay details.
- (b) Cause of the tripping & Remedial Action taken
- (c) Relay setting details

Constituents are requested to bring/ furnish full particulars of the tripping events pertaining to their system.

Deliberation in the meeting:

Grid Disturbances

Sl. No	Brief details of the disturbance/ incidence	Analysis	Concerned Utilities	Actions to be taken
GD-I				
1	Grid Disturbance in Arunachal Pradesh system(except Khupi, Deomali) on 15.06.19 due to tripping of 400kV BNC-RHEP D/C line	(i)Vegetation fault in the 400kV BNC-RHEP Ckt#II.	NERTS	Vegetation clearance to be done.
2		(ii)Delay in clearance at RHEP for Ckt#II is due to wrong connection problems(neutral current reflected in B-ph as per DR).	NEEPCO	->NEEPCO to rectify the connections to NR at RHEP for 400kV RHEP-BNC#II -> Week infeed feature to be enabled in case of no generation at RHEP
3	Grid Disturbance in Dimapur region of Nagaland due to tripping of 132kV Dimapur-Dimapur D/C on 28.07.2019	(i)Bursting of Y-ph LA at Dimapur(PG) end of Ckt#I	NERTS	To replace defective LA at Dimapur(PG) for 132kV Dimapur-Dimapur-Ckt#I
4		(ii) Ckt#II tripped due to non clearance at Dimapur(DoP) for Ckt#I	NERTS & DoP Nagaland	-> Submission of DR outputs from Dimapur (DoP) & Dimapur (PG) for both circuits for analysis.
5	Grid Disturbance in Zuangtui area of Mizoram on 02.07.19 due to tripping of 132kV Melriat-Zuangtui	Fault due to lightning	NERTS	Tower top patrolling to be done for identification of fault location
6	Grid Disturbance in Kolasib area of Mizoram on 09.06.19, 20.06.19 (2 times), 20.09.19 & 30.06.19 due to tripping of 132kV Badarpur - Kolasib line & 132kV Aizawl-Kolasib line	Downstream fault at Kolasib. Non-clearance at Kolasib due to switchgear problem.	P&ED Mizoram	Breakers to be tested and report to be submitted.
7	Grid Disturbance in Kohima area of Nagaland and Karong area of Manipur on 23.06.19 due to tripping of 132kV DHEP-Sanis and 132kV Wokha-	(i)Fault suspected in the 132kV Wokha-Kohima (ii)Could not be analyses due to insufficient information	DoP Nagaland	RCA, DR to be submitted

	Kohima			
8	Grid Disturbance in Kohima area of Nagaland and Karong area of Manipur on 24.06.19 due to tripping of 132kV Dimapur-Kohima	Suspected downstream fault at Kohima. Could not be analysed due to insufficient information	DoP Nagaland	RCA, relay indication with exact fault location to be intimated
9	Grid Disturbance in Kohima area of Nagaland on 17.07.19 due to tripping of 132kV Wokha-Kohima	Fault in the line. Could not be analysed due to insufficient information	DoP Nagaland	Availability of Distance Protection at Wokha to be intimated
10				RCA to be submitted
11	Grid Disturbance in Kohima area of Nagaland and Karong area of Manipur on 19.07.19 due to tripping of 132kV Imphal-Karong and 132kV Wokha-Kohima	Suspected fault in Karong-Kohima line.	DoP Nagaland	RCA, DR to be submitted
12			DoP Nagaland	Instantaneous high set O/C, E/F for 132kV Doyang – Sainis – Wokha-Kohima-Imphal link to be made directional/disabled.
13	Grid Disturbance in Pailapool area of Assam on 17.07.19 due to tripping of 132kV Jiribam-Pailapool and 132kV Pailapool-Srikona	High resistive vegetation fault in 132kV Jiribam-Pailapool	AEGCL	->Patrolling and vegetation clearance for 132kV Jiribam-Pailapool -> O/C E/F Relay co-ordination of Srikona – Pailapool – Jiribam link to be done -> Carrier aided tripping to be implemented
Other notable trippings				
14	Tripping of 400kV Silchar-Azara and 400kV Silchar-Byrnihat on 02.08.19	(i)Tripped due to lightning around Byrnihat (ii)Identified location - clearance	NERTS	Line defects to be rectified by Aug'19. Shutdown approved in the 159th OCCM.

15		defects already marked for correction	MePTCL/NERTS	SPAR to be tested for 400kV Silchar-Byrnihat after rectification of relay settings at Byrnihat by 22.08.19
16		(iii) Auto recloser not operated at both Azara & Byrnihat (DT signal issued to Silchar).	AEGCL/NERTS	SPAR to be tested for 400kV Silchar-Azara
17			AEGCL	Voltage input to the DPR at Azara for 400 kV Silchar line to be checked as fluctuation of voltage observed in all 3-phases during dead time
18			NERPC	NERPC to write to CTU/POWERGRID for implementation of 3-ph AR for the two lines
19	Tripping of 132kV Khliehriat-Khliehriat-I on 16.06.19	Lightning fault	NERTS	Tower top patrolling to identify the fault location.
20	Tripping of 132kV Khliehriat-Khliehriat-II on 24.06.19	(i)E/F at Lumshnong due to breaker fuse failure (ii)132kV Khliehriat-Lumshnong tripped at Khliehriat end. (iii)132kV Khliehriat-Khliehriat-II tripped at Khliehriat(PG) in Z-3	NERTS	Z-3 timing at Khliehriat(PG) for 132kV Khliehriat-Khliehriat-II to be changed to 750ms
21	Tripping of 132kV AGTCCPP-Kumarghat and AGTCCPP Unit#6 at AGTCCPP end on 01.06.2019	Could not be analysed due to insufficient information	NEEPCO	->Detailed RCA and proper DR to be submitted. -> I>1 trip configured in DR output of Units at AGTCCPP to be checked since Breaker did not open for I>1 trip command.
22	Tripping of 132kV Pare-Chimpu, 132kV RHEP-Chimpu and Pare Unit-2 on 02.07.2019	(i)132kV Pare-Chimpu and 132kV RHEP-Chimpu tripped due to lightning (ii)Pare Unit-2 tripped due to excitation card	DoP Ar.Pradesh	Tower top patrolling to identify the exact fault location
23		PSG-3 failure	NEEPCO	Excitation card to be replaced

24	Tripping of 400kV Balipara-Misa-I on 03.07.19	(i)Vegetation fault Y-E	NERTS	Line patrolling and vegetation clearance to be done.
25		(ii)Carrier aided trip at Misa, No A/R operation	NERTS	A/R operation to be tested for 400kV Balipara-Misa-I
26		(iii)Growth in voltage Y-ph observed in DR for Balipara	NERTS	Main-I DP Relay to be tested at Balipara
27	Tripping of 132kV DHEP-Mokokchung, 220kV Mariani-Mokokchung-2& 220/132kV ICT-2 at Mokokchung on 20.07.19	(i)132kV DHEP-Mokokchung tripped at Mokokchung(NAG) on E/F. Suspected lightning fault.	NEEPCO	Reasons for tripping of 132kV DHEP-Mokokchung line at Mokokchung to be investigated(tripped for reverse fault)
28		(ii)ICT-2 at Mokokchung tripped on LV side B/U O/C protection sensing the fault in 220 kV Mariani – Mokokchung 2 line.	NERTS	ICT-2 settings at Mokokchung to be reviewed.
29		(iii)Lightning Fault in 220kV Mariani-Mokokchung-2. DP operated Z-1 at both ends. ARLO at Mariani, AR operated at Mokokchung	NERTS	AR non-operation at Mariani to be investigated.
30	Tripping of 400 kV Balipara – Kameng 2 line on 30.06.19 & 01.07.19	Vegetation at Loc No-6	NERTS	Vegetation clearance to be done
31		Lightning Fault	POWERGRID	->NERTS informed that TLSA is being installed in this D/C. 1. Locations where TLSA installed to be intimated.
32			NERTS	Healthiness of carrier signal for Main-1 relay to be checked for 220 kV Salakati – APD 2 line
33		GD in Mokokchung area of Nagaland due to	->It appears that fault was in 132 kV Doyang -	DoP Nagaland

	tripping of 132 kV Mokokchung – Mokokchung D/C, 132 kV Doyang – Mokokchung line & 132 kV Dimapur – Doyang 2 line on 20.06.19 & 21.06.19 (2 times)	Mokokchung line. -> Due to delayed fault clearance at Mokokchung, 132 kV 132 kV Mokokchung – Mokokchung D/C tripped at PG. ->Tripping of 132 kV Doyang - Dimapur 2 line alone while 132 kV Doyang - Dimapur 1 line survived needs investigation		
34			DoP Nagaland	2. Checking of Relay to Breaker operation at Mokokchung for 132 kV Doyang line
35			NERTS, NEEPCO & DoP AP	3. Co-ordination of backup O/C E/F relays of 132 kV Dimapur(PG) – Doyang - Mokokchung link
36	Tripping of Loktak – Jiribam line on 17.07.19 (2 times), 16.07.19 (2 times), 14.07.19, 05.07.19	Fault beyond the line section. Line tripped only at Loktak on E/F protection.	NERTS/AEGCL/ NHPC	Review of E/F protection settings for the link Pailapol – Jiribam – Loktak to be done
37	Tripping of elements connected to 220 kV Samaguri(AEGCL) on 21.07.19, 05.07.19, 12.06.19 & 06.06.19	Could not be analysed due to insufficient information & absence of representatives from AEGCL	AEGCL	1. Submission of FIR, DR & EL outputs Submission of RCA & Action Taken report
38	Non operation of AR of 400 kV Balipara - Bongaigaon 2 line on 03.06.19	Unwanted 3-ph tripping of 400 kV Balipara 2 line at Bongaigaon.	NERTS	AR operation of 400 kV Balipara - Bongaigaon 2 line at Bongaigaon to be tested
39	Tripping of 132 kV Aizawl – Melriat line on 24.-6.19	-> 132 kV Aizawl – Melriat line tripped for reverse fault on backup protection at Aizawl -> Instantaneous element of the protection operated which is non-directional	NERTS	NERTS informed that instantaneous settings of backup protection disabled.

40	Tripping of 132kV Khandong-Khliehriat-I and 132kV Khandong-Kopili-2 on 17.06.19	(i)Solid Fault in the 132kV Khandong-Khliehriat-I (ii)Maltripping of O/C protection for 132kV Khandong-Kopili-2	NERTS	Loc.No. for solid fault to be intimated
41			NEEPCO	Reasons for non-operation of DP at Khandong for 132kV Khandong-Khliehriat-I to be investigated
42			NERTS	O/C maloperation for 132kV Khandong-Kopili-2 to be investigated.
43	Tripping of 400kV Silchar-Imphal D/C on 22.06.19	(i)Ckt#I tripped due to vegetation fault. AR successful at both ends (ii) Unwanted weak infeed signal for fault in reverse direction generated at Imphal end resulted in tripping of healthy Ckt#II	NERTS	Patrolling and vegetation clearance to be done. Loc. No. to be intimated.
44			NERTS	Mal-tripping for Ckt#II to be investigated and rectified to prevent recurrence.

Action: All utilities as above.

ITEM NO. 12 : IMPORTANT TRIPPINGS FROM APRIL TO JUNE'19

Grid Disturbance Category-1

Disturbance in Arunachal Pradesh System(except Khupi, Deomali) on 15.06.2019

Disturbance affected the Ar.Pradesh power system on 15.06.19 due to tripping of the 400kV BNC-RHEP-D/C line with load loss of 70MW.

->For 400kV Ckt#I Relay indication: At BNC DP, ZII, Y-E & At RHEP: No trip

->For 400kV Ckt#II Relay indication: At BNC DP, ZII, Y-E & At RHEP: DP, ZII, Y-B-E

Disturbance in Dimapur Area of Nagaland System on 28.07.2019

Disturbance affected the Dimapur area of Nagaland due to tripping of 132kV Dimapur-Dimapur D/C lines with load loss of 60MW.

Root Cause as intimated by DoP Nagaland:

->Bursting of Y-ph LA in 132kV Dimapur-Dimapur -I

Disturbance in Zuangtui Area of Mizoram System on 02.07.2019

Disturbance affected the Zuangtui area of Nagaland due to tripping of 132kV Melriat-Zuangtui line with load loss of 50MW.

-> Relay indication: At Melriat DP, ZI, Y-E,4.78 KM & At Zuangtui: E/F

Disturbance in Zuangtui Area of Mizoram System on 02.07.2019

Disturbance affected the Zuangtui area of Mizoram due to tripping of 132kV Melriat-Zuangtui line with load loss of 50MW.

-> Relay indication: At Melriat DP, ZI, Y-E,4.78 KM & At Zuangtui: E/F

Disturbance in Kolasib Area of Mizoram System on 30.06.2019

Disturbance affected the Kolasib area of Mizoram due to tripping of 132kV Badarpur-Kolasib & 132kV Aizawl-Kolasib line with load loss of 2 MW & generation loss 39MW.

-> Relay indication: At Badarpur B/U E/F & At Kolasib: NO trip

-> Relay indication: At Aizawl B/U E/F & At Kolasib: NO trip

Repeated trippings in the 132kV DHEP-Sanis-Wokha-Kohima corridor

a. Disturbance affected the Kohima area of Nagaland on 17.07.19 due to tripping(twice) of 132kV Wokha-Kohima line with load loss of 42 MW.

-> First time Relay indication: At Wokha O/C & At Kohima: N/A

-> Second time Relay indication: At Wokha N/A & At Kohima: N/A

b. Disturbance affected the Kohima area of Nagaland and Karong area of Manipur on 23.06.19 due to tripping of 132kV DHEP-Sanis & 132kV Wokha-Kohima line with load loss of 38 MW.

-> Relay indication: At DHEP DP, ZI, B-E & At Sanis: No trip

-> Relay indication: At Wokha Over Current, Earth Fault & At Kohima: Over Current, Earth Fault

The lines failed to be charged twice and the second time 132kV Karong-Kohima also tripped.

c. Disturbance affected the Kohima area of Nagaland & karong Area of Manipur system on 24.06.19 due to tripping of 132kV Dimapur-Kohima line with load loss of 22 MW.

-> Relay indication: At Dimapur DP, ZIII, R-Y-B-E & At Kohima: No Trip

d. Disturbance affected the Kohima area of Nagaland and Karong area of Manipur on 19.07.19 due to tripping of 132kV Imphal - Karong & 132kV Wokha-Kohima line with load loss of 14 MW.

-> Relay indication: At Imphal No trip & At Karong: N/A

-> Relay indication: At Wokha N/A & At Kohima: No trip

Deliberation in the meeting:

Pls refer to discussion in item No. 11.

ITEM NO. 13 : IMPLANTATION OF O/V SETTINGS OF ISTS LINES IN NER

In the 48th PCCM, forum requested NERLDC to make list of Over Voltage Settings of ISTS lines in NER and the same will be circulated to POWERGRID for comments.

Accordingly, settings were calculated and circulated to concerned utilities for comments. Proposed O/V settings was discussed in subgroup meeting of NERPC held on 05.04.19 and with few corrections, the Sub-group recommended for approval of PCC.

In the 53rd PCCM, NERTS informed that OV settings would be implemented by first week of Aug'19. After detailed deliberation, it was decided that schedule would be drawn up by NERTS and testing of the relays would be done during AMP (preferably completion by 14.08.19).

Drop off to pick up ratio of the relay to be tested after implementation of settings and to be submitted to NERLDC/NERPC.

OTPC vide email dated 23.07.19 informed that they have implemented the revised settings.

NERTS/MePTCL/NEEPCO/AEGCL are requested to kindly intimate the status & schedule of works.

Deliberation in the meeting:

MePTCL informed that the OV settings at Byrnihat has been implemented. NEEPCO informed that the OV settings at RHEP has been implemented, however grading in voltage has not been done, same would be implemented by Aug'19. NERTS, AEGCL were requested to implement the same.

Action: NERTS, NEEPCO, AEGCL

ITEM NO. 14 : FREQUENT TRIPPING 132 KV RANGIA - MOTONGA (NOW 132 KV DEOTHANG) LINE

Following issues were observed at Rangia:

- a. Unwanted tripping on SoTF function
- b. Analog Channels are not configured in DR.

NERTS, POWERGRID is requested to please intimate the action plan for attending issues at Rangia.

Deliberation in the meeting:

NERTS intimated that the work would be completed by Aug'19.

Action: NERTS

ITEM NO. 15 : PROTECTION RELATED INFORMATION FOR UPDATING LIST OF IMPORTANT GRID ELEMENTS OF NER

- a. Details of Controlled Switching Devices in NER
- b. Lines where Tele-protection is available
- c. Details of LDP
- d. Details of offline fault locators

In the 53rd PCC Meeting, utilities were requested to submit the details by Jul'19. Format was circulated vide email on 24.07.19. No reply received from utilities as on 01.08.19.

Deliberation in the meeting:

NERLDC requested all to submit by Aug'19.

Action: All utilities

ITEM NO. 16 : NODAL PERSON FROM EACH STUS FOR PROTECTION RELATED ISSUES & FORMATION OF PROTECTION GROUP

Lack of co-ordination was observed in several occasions which is affecting the proper analysis of grid events. NERLDC is not getting proper response from state utilities especially in regard of submission of FIR, DR & EL outputs.

In this regard, it is proposed to **identify the coordinator(s) from each STU** for submission of *FIR, DR & EL outputs and RCA & Action Taken report* for events pertaining to their Power System.

Deliberation in the meeting:

Director(Protection&SS), NERPC stated that at present setting up of MRT divisions for DoP Ar.Pradesh, DoP Nagaland and manpower issues in MRT divisions of other utilities would be addressed. MePTCL nominated AEE MRT,Sub Division MePTCL,Umiam to be the Nodal Officer.

Action: All utilities

ITEM NO. 17 : AVAILABILITY OF CARRIER INTER-TRIP SCHEME FOR LINES OF 132 KV AND ABOVE VOLTAGE LEVEL

In the 53rd PCCM, forum approved Carrier-intertrip to be immediately implemented for all Important grid elements in NER.

Deliberation in the meeting:

NERLDC requested utilities to submit time schedule.

Action: All utilities

ITEM NO. 18 : 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 dated 20.06.19 requested to form a committee comprising of members from NERPC, NERLDC, POWERGRID and NEEPCO to design & implement an SPS.

In the 158th OCCM, the matter was referred to the PCC Sub-group

Deliberation in the meeting:

NERPC informed that as per decision in the 158th OCCM a team visited RHEP on 05.08.19 and suggested the following SPS:

- (i) With tripping of one ICT, one unit of RHEP is to be tripped.
- (ii) SPS to be taken into service when all 3 units of RHEP are generating.

NEEPCO requested that tripping of one unit of Pare HEP to be included in the SPS when both units at Pare are generating.

The matter was referred to OCC for approval.

Action: NERPC

ADDITIONAL AGENDA

ITEM NO. 19 : DR CHANNEL STANDARDISATION FOR GENERATING STATIONS

After detailed deliberation it was agreed that:

- (i) For coal stations - NTPC to trigger DR for unit(s) at BgTPP and send to NERLDC/NERPC. This will be considered as standard.
- (ii) For hydro stations - NEEPCO to trigger DR for unit(s) at Khandong/Kopili and send to NERLDC/NERPC. This will be considered as standard.
- (ii) For gas stations - OTPC to trigger DR for unit(s) at Palatana and send to NERLDC/NERPC. This will be considered as standard.

Action: NTPC, OTPC, NEEPCO

List of Participants in the Sub-Group Meeting held on 07th August, 2019

SN	Name & Designation	Organization	Contact No.
1.	Smt. L.Ritu, DGM, SLDC	Manipur	09612882984
2.	Sh. Chesam Warish, Dy. Manager	Manipur	-
3.	Sh. L.Kamei, Dy. Manager	Manipur	07085597555
4.	Sh. S.Kennedy, AM (S.S-I)	Manipur	07085464547
5.	Smt. Jayela Wahengbam, AM (Syst.Opt), SLDC	Manipur	09856875084
6.	Sh. H. Manimukta Singh, GM	Manipur	08974007300
7.	Smt. Khoisnam Steela, DGM (SO),SLDC	Manipur	08730831703
8.	Sh. Gowmei Dindal, Dy.Manager	Manipur	09774080772
9.	Sarungbam Romen Singh, Dy.Manager	Manipur	08787640020
10.	Sh. Kh.Rocky Singh,Asst. Manager	Manipur	08732841020
11.	Sh. L.S.Kumar Sharma,Manager	Manipur	09862765430
12.	Sh. B.Nikhla, EE (SP)	MePTCL	09436314163
13.	Sh. A.G.Tham, AEE, MRT	MePTCL	09774664034
14.	Sh. R.Khongmalai, Asst.Engineer	MePTCL	-
15.	Sh. Alokesh Hazarika, AM	OTPC	-
16.	Sh. Joypal Roy, DGM	NEEPCO	-
17.	Sh. Ashim Kumar Sarmah, Manager	NEEPCO	09435078860
18.	Sh. H.Talukdar, Sr.GM	NERTS, PGCIL	09436335237
19.	Sh. Samar Chandra De, GM	NERLDC	09436335369
20.	Sh. Manoj Kumar Sharma, ET (EE)	NERLDC	07597365564
21.	Sh. Jerin Jacob, DM	NERLDC	-
22.	Shift-in Charge	Ar.Pradesh	-
23.	Sh. Lalrinsanga, Director	NERPC	-
24.	Sh.S.Mukherjee, AEE	NERPC	-