भारत सरकार Government of India
विद्युत मंत्रालय Ministry of Power
उत्तर पूर्वी क्षेत्रीय विद्युत समिति
**North Eastern Regional Power Committee**
एन ई आर पी सी कॉम्प्लेक्स, डोंग पारमाओ, लापालाङ, शिल्लोंग-७९३००६, मेघालय
NERPC Complex, Dong Parmaw, Lapalang, Shillong - 793006, Meghalaya

Ph. No: 0364 - 2534039
Fax No: 0364 - 2534040
Website: www.nerpc.nic.in

No. NERPC/SE (O)/PCC/2021/***3288-3325*** Dated: March 25th, 2022

To,

1. Managing Director, AEGCL, Bijuli Bhawan, Guwahati – 781 001
2. Managing Director, APDCL, Bijuli Bhawan, Guwahati – 781 001
3. Managing Director, APGCL, Bijuli Bhawan, Guwahati – 781 001
4. Director (Generation), Me. PGCL, Lumjingshai, Short Round Road, Shillong – 793 001
5. Director (Distribution), Me. ECL, Lumjingshai, Short Round Road, Shillong – 793 001
6. Director(Transmission), Me. PTCL, Lumjingshai, Short Round Road, Shillong – 793 001
7. Managing Director, MSPDCL, Secure Office Bldg. Complex, South Block, Imphal – 795 001
8. Managing Director, MSPCL, Electricity Complex, Keishampat, Imphal – 795 001
9. Director (Tech.), TSECL, Banamalipur, Agartala -799 001.
10. Director (Generation), TPGCL, Banamalipur, Agartala -799 001.
11. Chief Engineer (WE Zone),Department of Power ,Govt. of Arunachal Pradesh, Itanagar- 791111
12. Chief Engineer (EE Zone),Department of Power, Govt. of Arunachal Pradesh, Itanagar- 791111
13. Chief Engineer (TP&MZ),Department of Power, Govt. of Arunachal Pradesh, Itanagar- 791111
14. Engineer-in-Chief (P&E), Department of Power, Govt. of Mizoram, Aizawl – 796 001
15. Chief Engineer (P), Department of Power, Govt. of Nagaland, Kohima – 797 001
16. CGM, (LDC), SLDC Complex, AEGCL, Kahilipara, Guwahati-781 019
17. Group General Manager, NTPC, Bongaigoan Thermal Power Project, P.O. Salakati, Kokrajhar- 783369
18. ED, NERTS, PGCIL, Dongtieh-Lower Nongrah, Lapalang, Shillong -793 006
19. ED (O&M), NEEPCO Ltd., Brookland Compound, Lower New Colony, Shillong-793003
20. ED (Commercial), NEEPCO Ltd., Brookland Compound, Lower New Colony, Shillong-793003
21. ED (O&M), NHPC, NHPC Office Complex, Sector-33, Faridabad,Haryana-121003
22. Vice President (Plant), OTPC, Badarghat Complex, Agartala, Tripura - 799014
23. GM, NERLDC, Dongtieh, Lower Nongrah, Lapalang, Shillong -793 006
24. Member Secretary, ERPC, 14 Golf Club Road, Tollygunge, Kolkata-700033
25. Chief Engineer, GM Division, Central Electricity Authority, New Delhi – 110066
26. Chief Engineer (NPC), NRPC Complex, Katwaria Sarai, SJSS Marg., New Delhi - 110016

**Sub: Minutes of 57h PCC Meeting.**

**Sir/Madam,**

Please find enclosed herewith the minutes of 57th PCC Meeting held at NERPC Conference Hall, Shillong on the **15th February, 2022** for your kind information and necessary action. The minute is also available on the website of NERPC, **www.nerpc.nic.in**.

Any comments/observations may kindly be communicated to NERPC Secretariat at the earliest.

***Encl: As above***

भवदीय / Yours faithfully,

S. Mukherjee
**Dy. Director (O&P)**

Copy to:

1. CGM, AEGCL, Bijuli Bhavan, Guwahati - 781001
2. CGM, APGCL, Bijuli Bhavan, Guwahati - 781001
3. CGM, DISCOM, Bijuli Bhavan, Guwahati - 781001
4. Head of SLDC, Me.ECL, Lumjingshai, Short Round Road, Umjarain, Shillong – 793 022
5. Head of SLDC, Department of Power, Govt. of Arunachal Pradesh, Itanagar- 791 111
6. Head of SLDC, Department of Power, Dimapur, Nagaland
7. Head of SLDC, Electricity Department, Govt. of Manipur, Keishampat, Imphal – 795 001
8. Head of SLDC, Department of Power, Govt. of Mizoram, Aizawl – 796 001
9. Head of SLDC, TSECL, Agartala – 799 001
10. Chief Engineer(Elect), Loktak HEP,Vidyut Vihar, Kom Keirap, Manipur- 795124
11. Addl. GM (EED), NTPC Ltd., Bongaigoan Thermal Power Project, P.O. Salakati, Kokrajhar- 783369
12. DGM (C&M), OTPC, 6th Floor, A-Wing, IFCI Tower -61, Nehru Place, New Delhi – 110019.

**Dy. Director (O&P)**

**North Eastern Regional Power Committee**

**MINUTES OF THE 57th PROTECTION COORDINATION SUB-COMMITTEE MEETING OF NERPC**

**Date** : 15/02/2022 (Tuesday)

**Time** : 10:30 hrs

**Venue** : "NERPC Conference Hall", Shillong.

The List of Participants in the 57th PCC Meeting is attached at **Annexure – I**

Shri B. Lyngkhoi, Member Secretary, NERPC welcomed all the participants to the 57th PCC meeting. He noted the sparse participation from the constituents, inspite of the meeting being held virtually. He requested the utilities especially members from STUs/ Department of Power to attend the PCC meeting positively. Further, he pointed out the following:

- non-submission of DR/EL by most constituents is a matter of serious concern and thus most of the trippings/disturbances could not be analyzed.
- Based on the discussions in the 56th PCC meeting and subsequent OCC meetings the webinar-cum-workshop on (i)O&M of Transmission line, (ii)DR/EL downloading and submission was held by NERTS-POWERGRID virtually on 17th June'2021. He thanked NERTS-POWERGRID profusely for organizing the training.
- Almost 90% of the trippings are due to transient faults and may be reduced considerably by adopting best O&M practices.
- Load loss has been in an increasing trend compared to the corresponding period in the previous year. This is an alarming situation and hoped that suitable decisions would be taken in the meeting to reduce load loss in the region.

Thereafter he requested Dy. Director, NERPC to take up the agenda items for discussion.

## A. CONFIRMATION OF MINUTES

**CONFIRMATION OF MINUTES OF 56th MEETING OF PROTECTION SUB-COMMITTEE OF NERPC.**

The minutes of 56th meeting of Protection Sub-committee held on 21st April, 2021 at Shillong were circulated vide letter No. NERPC/SE/PCC/2018/2565-589 dated 29th May, 2021.

***The Sub-committee confirmed the minutes of 56th PCCM of NERPC as no comments/observations were received from the constituents.***

## B. I T E M S FOR DISCUSSION

### B.1 Protection Audit of NER:

First phase of Third-Party protection Audit (2013-14) was completed in 2015 and in Second Stage of Protection Audit (2017-18) numerous stations were covered. However few stations are yet to be audited. Status for second phase of Protection Audit:

| Name of the state/utility | Name of the station(s)/Status |
|---|---|
| Arunachal Pradesh | 132/33kV Aalo, 132/33kV Pasighat, 220/132/33kV Deomali, 132/33kV Daporizo, 132/33kV Lekhi, 132/33kV Tippi, 132/33kV Chimpu, 132/33kV Khupi. |
| Assam | Completed in Nov'21. Audit Report under preparation. |
| Manipur | Yet to be intimated |
| Meghalaya | 400/220/132kV Byrnihat, 132kV Mawphlang, 132kV Mustem, 132kV Umiam |
| Mizoram | Yet to be intimated |
| Nagaland | 132kV Wokha, 132kV Sanis, 132kV Kiphire |
| Tripura | Yet to be intimated |

***Deliberation of the sub-Committee:***

AD, NERPC informed the forum that the Assam Audit report is under compilation and the consolidated report shall be circulated by Feb'22. Member Secretary, NERPC urged the utilities who have completed the R&U of Sub-stations under PSDF to apply for Protection Audit of their stations.

***The Sub-Committee noted as above.***
***Action: all utilities.***

### B.2 Review of settings for Important elements:

As per discussions in the 56th PCC meeting the following settings are to be reviewed:

*a.* All 132kV feeders of DHEP alongwith Mokokchung(NAG), Sanis and Wokha – *suggested settings to be presented in the meeting*

b. Downstream co-ordination at 132kV Zuangtui(Zemabawk) completed. NERTS to revert back to original zone timings at Melriat.

*c.* 132kV Dimapur-Dimapur D/C with downstream of Dimapur(Nagarjan)- *Implementation status of revised settings to be confirmed*

*d.* Co-ordination of Tipaimukh relay settings with Aizawl and Jiribam- *suggested settings to be presented in the meeting*

*e.* Review of Distance Protection settings at Ningthoukong for Churachandpur D/C - *Implementation status of revised settings to be confirmed*

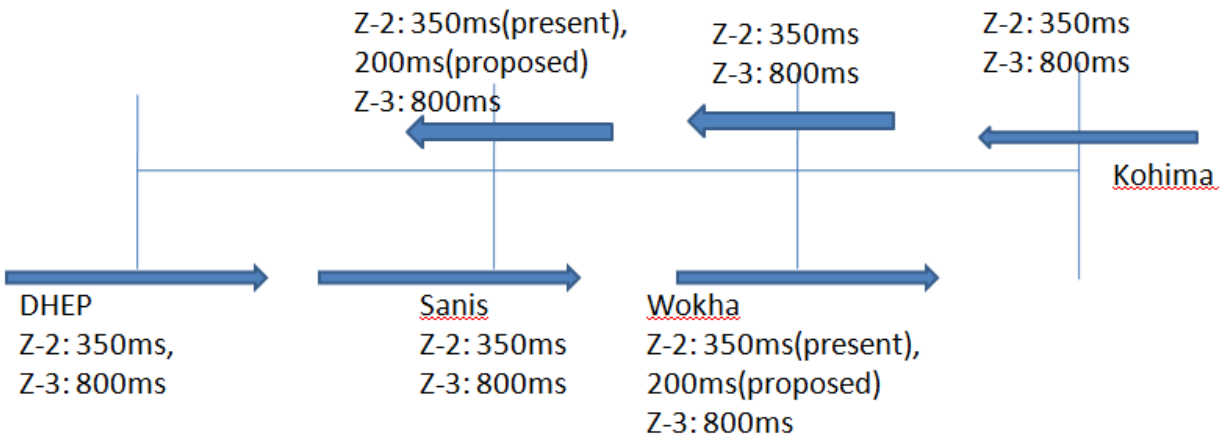
***Deliberation of the sub-Committee:***

(a) DD, NERPC stated that some actions have already been undertaken subsequent to the 56th PCC meeting viz. (i) back-up settings for Dimapur, Wokha and Karong revised by DoP Nagaland as per NERLDC (to be updated in PDMS by utility), (ii)revised DP settings for 132kV DHEP-Mokokchung implemented by DoP Nagaland on 18.10.2021 as per NERLDC (to be updated in PDMS by utility). However subsequent to the above actions following has been observed tripping from Mokokchung(PG) on B/U protection in 500ms for fault in 132kV DHEP-Mokokchung and tripping of 132kV Sanis-Wokha for fault in 132kV Wokha-Kohima line.

EE(Mokokchung Circle), DoP Nagaland intimated that the Z-2 timing for 132kV DHEP-Mokokchung at Mokokchung(NAG) is 350ms. Chief Manager(AM), NERTS informed that the TMS for E/F setting at Mokokchung(PG) is 0.1. After detailed deliberation the forum decided the following to reduce disturbance in Mokokchung area:

a. Immediate implementation of carrier-intertrip for 132kV DHEP-Mokokchung by DoP Nagaland
b. Till implementation of carrier-intertrip the B/U protection TMS at Mokokchung(PG) shall be co-ordinated with Z-2 timing i.e. 350ms such that B/U protection operation time = 350ms +100ms +CB opening time.

Regarding tripping of 132kV Sanis-Wokha for fault in 132kV Wokha-Kohima, DD, NERPC suggested a time-grading in Z-2 time in the corridor 132kV DHEP-Sanis-Wokha-Kohima as follows:




EE(Kohima Circle), DoP Nagaland opined that the settings are acceptable. After detailed deliberation the forum approved the settings as above and requested DoP Nagaland to implement the same at the earliest, with a request to upload the same in PDMS after implementation. It was also noted by the forum that such setting change is only a stop-gap arrangement till implementation of carrier-intertrip for the above lines. The forum

requested NEEPCO and DoP Nagaland to implement carrier-intertrip for the aforesaid lines at the earliest.

(b) Chief Manager(SO-II), NERLDC informed that after disturbance on 02nd August, 2022 there have been no recorded disturbances in Zuangtui area due to tripping of 132kV Melriat-Zuangtui S/C. Chief Manager(AM), NERTS informed that Z-2 timing at 200ms and Z-3 timing at 400ms has been kept at Melriat for 132kV Melriat-Zuangtui line. After detailed deliberation the forum requested P&ED Mizoram to upload the following settings (in PDMS) at the earliest:

(i)All settings at 132/33kV Zuangtui S/Sn

(ii) DP settings at both ends for 132kV Serchiip-Lunglei, 132kV Lunglei-Melriat(MIZ), 132kV Luangmual- Melriat(MIZ)

The forum decided that after verification of the above settings NERTS shall revert to the earlier settings at 132kV Melriat for Zuangtui line.

(c) SDO(Dimapur Circle), DoP Nagaland intimated that the revised settings have been implemented in Sep'21. The forum requested DoP Nagaland to upload the revised settings in PDMS

(d) To be taken up for review in the next Sub-group meeting

(e) To be taken up for review in the next Sub-group meeting

(f) Review of B/U settings of ICT at New Kohima (item **No. B.36**): After detailed deliberation the forum decided the following-(i)B/U pickup current 0.2A with IDMT, (ii)O/C highset to be set at 110% of Max fault current with 50ms DT, (iii)Standby E/F to be disabled for both the ICTs.

(g) Review of settings at Comilla (item No. **B.5**): For 132/33kV Transformer the B/U Stg-I settings to be kept as IDMT and Stg-II Highset to be kept as DT. The 33kV feeder settings to be kept as it is. The forum requested NERLDC to co-ordinate for implementation of the same at Bangladesh.

**Formation of a Fast Track Committee for approval of Relay Settings**

DD, NERPC stated that presently all utilities are submitting relay settings by mail for approval. This is discouraged as audit trail is required for relay settings. Since PDMS has this feature, it is suggested that the following PCC members are nominated, so that roles can be created in PDMS

NERTS/POWERGRID – Sh. Ankit Vaish, DGM/ Sh. Devaprasad Paul, Chief Manager

NEEPCO – Sh. Joypal Roy, GM/Sh. Ashim Sarmah, Sr. Manager

NERLDC/NERPC- Sh. Bimal Swargiary, CM/ Sh. Srijit Mukherjee, DD

The forum approved the proposal and requested NERPC to create roles in PDMS appropriately and also advised all the utilities to submit the settings in PDMS-DNMS only.

***The Sub-Committee noted as above.***
***Action: all utilities as above.***

**B.3 <u>Implementation of Auto-Reclosure on Z-I operation:</u>**

In the discussions of the Sub-group on 12-04-2021 the following points were noted:

- Auto-Reclosure is very much required for maintaining system stability, reliability and uninterrupted power supply.
- Presently it will take some time for the state utilities to implement the PLCC and establish carrier communication between stations.
- The operation of Auto-Reclosure on Z-I operation at the local end independent of carrier healthiness is required.

In the 56th PCC meeting the forum approved the implementation of Auto-Reclosure on Z-1 without carrier check for all lines except the lines with generating stations at both the ends.

***<u>Deliberation of the sub-Committee:</u>***

Deputy Manager, AEGCL informed that CVT on all phases are required at Rangia, Salakati, Mirza, Samaguri and Relay OEM involvement is required for Jawaharnagar, Sonapur. The forum clarified that for 220kV and above SPAR alongwith 3 phase AR is recommended, while for 132kV lines 3 phase AR is recommended as per regional philosophy. For this sync-check relay and CVT on one phase is required.

AEE, MePTCL informed that work is underway and the same would be completed by Dec'22.

GM, NEEPCO informed that for all plants except DHEP the AR scheme with check sync at plant end shall be implemented by April'22. For DHEP, he informed that the CBs have delayed operation due to mechanical problem. The forum advised NEEPCO to replace the CBs at DHEP and implement the scheme at the earliest.

After detailed deliberation the forum decided that a list of Intra-state lines for Arunachal Pradesh, Manipur, Mizoram, Nagaland and Tripura shall be prepared and circulated by NERLDC.

***The Sub-Committee noted as above.***
***Action: all utilities.***

**B.4. Frequent tripping of 132 kV Balipara – Tenga line.**

132 kV Balipara – Tenga line tripped 4 times since Jan'21. The root cause of frequent tripping could be concluded due to unavailability of DR, EL output and FIR.

DoP, AP is requested to intimate the root cause of tripping and also submit DR and EL output along with FIR for proper analysis of the event.

In 56th PCC meeting EE(Trans.), DoP Ar. Pradesh informed that majority of the trippings were on E/F protection operation due to infringement on the line. Further, he intimated the following:

- The maintenance of the line is being done by M/s Megha Electricals (as before) after taking over by DoP Ar. Pradesh. M/s Megha Electricals is being pursued for regular patrolling and vegetation clearance of the line.
- Tenga LILO portion is being maintained by M/s DEVI Energies Ltd. and they have been sensitized for regular submission of DR/EL.

***Deliberation of the sub-Committee:***

Chief Manager, NERLDC informed that from July'21 132kV Balipara-Khupi has tripped 20 times, however no patrolling report OR DR/EL has been submitted by DoP Ar. Pradesh in any of the instances. AE, DoP Ar. Pradesh informed that the Balipara end SEL relay has been replaced in FY 21-22. Further he informed that Dikshi HEP has been apprised to submit DR for LILO at Tenga. The forum decided that DoP Ar. Pradesh shall submit a detailed with the Root Cause Analysis and Remedial Action at the earliest.

***The Sub-Committee noted as above.***
***Action: DoP Ar. Pradesh***

**B.5. Review of Settings of 132kV Surjamaninagar-Comilla D/C**

***Deliberations in the 9th OCM between India and Bangladesh***

Many incidences of non-clearance of faults from downstream of Comilla have been observed which were cleared by operation of zone 2/zone 3 distance protection at Surjyamaninagar end. PMU plots for some of these trippings were shared, which show faults persisting upto 1 second. These are resulting into unintended tripping of both circuits and supply interruption. It was discussed to maintain the fault clearing time of 33KV feeders as per Bangladesh Grid Code and share the same for harmonization of protection settings. It was agreed by all that clearly finding out the protection issues and protection coordination with the downstream network in Comilla are of utmost importance. Bangladesh side shared the protection philosophy for 132/33 kV system

and stated that tripping could be due to protection coordination issues between India and Bangladesh end. Bangladesh side stated that they would share the SLD and protection settings of Comilla substation with Indian side in 2 days. It was also stated that as teleprotection has not yet been established between Comilla and Surjyamaninagar, its establishment would be helpful.

It was agreed that NERPC would convene a meeting with NERLDC, NLDC, TSECL, Powergrid India, and PGCB Comilla to discuss protection coordination issues after protection settings from Comilla are received.

***Deliberation of the sub-Committee:***

Pls refer to discussion in item No. **B.2.**

***The Sub-Committee noted as above.***
***Action: NERLDC***

**B.6. Updation of PDMS**

Protection Database Management System was GoLive on 14.02.2020. For the FY 21-22 updation of the same is under AMC to M/s PRDC. The status for the works under AMC completed for FY 21-22 will be elaborated by NERPC.

***Deliberation of the sub-Committee:***

AD, NERPC informed the forum that out of 130 elements commissioned in the grid in FY 21-22, 105 elements are remaining to be updated in PDMS. It was also informed that training of TSECL officials was completed in Mar'21. The forum requested NERPC to give a detailed presentation on the works completed during AMC in the next Sub-group/PCC meeting.

***The Sub-Committee noted as above.***
***Action: NERPC***

**B.7. Load loss in NER for the period July'21 to Jan'22**

| Month | Load Loss(in MU) | |
|---|---|---|
| | | Corresponding month Previous Year |
| Jan 22 | 0.389 | 0.1553 |
| Dec'21 | 0.0069 | 0 |
| Nov'21 | 0.0452 | 0 |
| Oct'21 | 0.8229 | 0.231 |
| Sep'21 | 0.495 | 0.9077 |
| Aug'21 | 0.515 | 0.623 |
| Jul'21 | 0.2376 | 0.123 |

***Deliberation of the sub-Committee:***

DD, NERPC informed the forum that majority of the load loss ranging from 50% to 90% is in areas not fulfilling N-1. Further, he noted the areas not fulfilling N-1 viz. Ziro, Daporizo, Along, Pasighat, Roing, Tezu, Namsai, Khupi, Tenga of DoP Ar. Pradesh & Zuangtui area of Mizoram. Member Secretary, NERPC stated that Upgradation of 33kV Khupi-Kimi to 132kV is expected to complete shortly, thereafter resolving the N-1 non-compliance of all the areas in Ar. Pradesh. Regarding Zuangtui area of Mizoram he informed that additional lines/upgradation of existing lines are required and same will be taken up in the next Transmission planning meeting.

***The Sub-Committee noted as above.***
***Action: DoP Ar. Pradesh, P&ED Mizoram, NEEPCO, NERPC***

**B.8. Analysis & Discussion on Major Grid Disturbances which occurred in NER grid w.e.f. July'21 to Jan'22.**

***Items related to DoP, Arunachal Pradesh***

| Sl No | Description of Event | Action Already Taken | Recommended actions in last sub- group | Discussion Points | Deliberation of the PCC |
|---|---|---|---|---|---|
| 1. | Tripping of 132 kV Balipara - Tenga line on 19.08.21 and 29.08.21 | - | - | 19.08.21<br>-> As per FIR, R phase jumper torn out and fell on Y phase insulator at Location-09. No DR from both ends.<br>29.08.21<br>->No DR from both ends. | RCA & Action taken report to be submitted by DoP Ar. Pradesh |
| 2. | Tripping of 132 kV Along - Pasighat Line on 09.08.21 | - | - | ->As per FIR from Along end, E/F relay operated (Distance protection not working).<br>->No DR from both ends. | ->Faults due to infringement on line.<br><br>->Extensive vegetation clearance done. |
| 3. | Tripping of 132 kV Along - Daporijo Line on 14.08.21 and 29.08.21 | - | - | 29.08.21<br>->As per FIR from Along, three phase to earth fault.<br>->Submitted DR does not contain pre-fault data. DR not time synchronized. | |

| | | | | | |
|---|---|---|---|---|---|
| 4. | Tripping of 132 kV Along-Pasighat line on 03.09.21, 04.09.21, 11.09.21, 12.09.21, 27.09.21 and 28.09.21. | - | ->DR/FIR to be submitted regularly.<br>-<br>>Infringement clearance to be done and patrolling report to be submitted to NERPC and NERLDC | 03.09.21<br>->DR submitted is not time synchronized and does not contain pre-fault data.<br>04.09.21<br>->As per FIR from Along, vegetation related transient fault. DR submitted from Along is not time synchronized and does not contain pre-fault data.<br>11.09.21<br>->As per FIR, vegetation related transient fault. No DR from both ends.<br>12.09.21<br>-> As per FIR, recurring fault. No DR from both ends.<br>27.09.21<br>->As per FIR from Along, due to low SF6in the 132kV main bus breaker, main bus breaker tripped.<br>28.09.21<br>->No DR/FIR from both ends. | ->Faults due to infringement on line.<br><br>->Extensive vegetation clearance done. |
| 5. | Tripping of 132 kV Balipara - Tenga line on 03.09.21(twice), 06.09.21 and 14.09.21 (twice) | | | ->No DR from both ends. | RCA & Action taken report to be submitted by DoP Ar. Pradesh |
| 6. | Tripping of 132 kV Along - Daporijo Line on 03.10.21, 11.10.21 | | ->DR/FIR to be submitted regularly.<br>-<br>>Infringement clearance to be done and patrolling report to be submitted to NERPC and NERLDC | ->Submitted DR not standardized. | ->DR channel to be standardized<br>->Relay to be time synced<br>->Faults due to infringement on line.<br><br>->Extensive vegetation clearance done. |

| | | | | | |
|---|---|---|---|---|---|
| 7. | Tripping of 132 kV Balipara – Tenga Line on 04.10.21 | | | ->No DR/FIR. | RCA & Action taken report to be submitted by DoP Ar.Pradesh |
| 8. | Tripping of 132 kV Along – Pasighat Line on 08.10.21, 16.10.21 | | | 08.10.21<br>->No DR/FIR<br>16.10.21<br>->Y-N fault cleared on Z2 at Along end in 460 msec. No DR from Pasighat. | ->DR channel to be standardized<br>->Relay to be time synced<br>->Faults due to infringement on line.<br><br>->Extensive vegetation clearance done. |
| 9. | Tripping of 132 kV Daporijo – Ziro on 16.10.21 | | | ->No DR/FIR. | RCA & Action taken report to be submitted by DoP Ar.Pradesh |
| 10 | Tripping of 132 kV Along – Pasighat Line on 07.11.21, 11.11.21 | | ->DR/FIR to be submitted regularly.<br><br>->Infringement clearance to be done and patrolling report to be submitted to NERPC and NERLDC | 07.11.21<br>->Y-E fault in the line. Z1 operated at Along end.<br>->No DR from Pasighat end.<br><br>11.11.21<br>->No DR/FIR from both ends. | |
| 11 | Tripping of 132kV Along-Pasighat on 25.01.2022. | | | ->No DR/FIR from both ends. | |

***<u>Items related to OTPC and TSECL</u>***

| Sl No | Description of Event | Action Already Taken | Recommended actions in last sub- group | Discussion Points | Deliberation of the Subgroup |
|---|---|---|---|---|---|
| 12. | Tripping of 132 kV Palatana - Udaipur Line and Monarchak Unit GT on 14.07.21 | - | ->400/132kV ICTs at Palatana & 132kV Palatana-Udaipur reviewed settings to be Implemented. | ->Suspected Single line to ground(Y-N) Fault in 132kV Palatana-Udaipur line. Z1 protection operated at both end.<br>->Monarchak GT tripped on F>1. | ->Fault in 132kV Palatana-Udaipur line, non-operation of DP relay at Palatana |

| | | | | | |
|---|---|---|---|---|---|
| 13. | Tripping of 132 kV Palatana - Udaipur Line and 132 kV Monarchak - Udaipur on 18.08.21 | - | - | ->Suspected Y-N fault in 132 kV Palatana - Udaipur Line. Z1 operated at Palatana end.<br>->Z2 operated at Monarchak end.<br>->No DR/FIR from Udaipur end.<br>->Relay non-operation at Udaipur may be checked. | ->Distance Relay CT polarity to be reversed and triggered DR to be sent. |

***Items related to NEEPCO, DoP Nagaland and Powergrid***

| Sl No | Description of Event | Action Already Taken | Recommended actions in last sub- group | Discussion Points | Deliberation of the Subgroup |
|---|---|---|---|---|---|
| 14. | Tripping of 132 kV Mokochung (PG) - Mokokchung (DoP, Nagaland) D/C Lines, 132 kV Doyang - Mokokchung (DoP, Nagaland) Line and Doyang Unit 1 and 3 on 20.07.21 | - | - | ->Suspected Single line to ground fault(B-N) in 132kV Doyang - Mokokchung(DoP, Nagaland) line.<br>->132 kV Mokochung (PG) - Mokokchung (DoP, Nagaland) D/C Lines tripped from Mokokchung(PG) end within 1.2 sec on IN>1.<br>->Fault was cleared after delay of 2.4 sec from Mokokchung (DoP, Nagaland) end on IN>1. | ->Disturbance due to improper relay co-ordination.<br>-> Recommended settings as per item No. B.2 to be implemented. |
| 15. | Tripping of 132 kV Mokochung (PG) - Mokokchung (DoP, Nagaland) D/C Lines, 132 kV Doyang - Mokokchung (DoP, Nagaland) Line on 26.07.21 | - | - | ->Suspected Single line to ground fault(B-N) in 132kV Doyang - Mokokchung(DoP, Nagaland) line.<br>->132 kV Mokochung (PG) - Mokokchung (DoP, Nagaland) D/C Lines tripped from Mokokchung(PG) end within 550 ms on IN>1. | |

***Items related to P&ED Mizoram***

| Sl No | Description of Event | Action Already Taken | Recommended actions in last sub- group | Discussion Points | Deliberation of the Subgroup |
|---|---|---|---|---|---|
| 16. | Tripping of 132 kV Melriat(PG) - Zuangtui Line on 22.07.21 (twice) and 30.07.21 (twice) | | ->Z-2/3 time settings at Melriat to be reverted to original after revised implemented settings at Zuangtui are submitted. | 16:54Hrs 22.07.21<br>B-N fault.<br>->No DR from Melriat end.<br>->DR from Zuangtui inconclusive. | ->Settings at Zuangtui to be reviewed.<br>->P&ED Mizoram to submit the settings as per item No. B.2<br>-> DR standardization(at Zuangtui) to be done for proper analysis purpose<br>->Pre-fault time to be increased to 500ms from 50ms for better visualization |
| | | | | 18:07Hrs 22.07.21<br>B-N fault.<br>->At Melriat end, IN>1 protection cleared the fault in 470 msec. | |
| | | | | 10:18Hrs 30.07.21<br>->No DR from Melriat end.<br>->DR from Zuangtui inconclusive. | |
| | | | | 10:46Hrs 30.07.21<br>B-N fault.<br>->No DR from Melriat end.<br>->DR from Zuangtui inconclusive. | |
| 16. | Tripping of 132 kV Melriat(PG) - Zuangtui Line on 02.08.21 (twice) | | | ->Suspected R-N fault.<br>->As per FIR, no tripping at Melriat end. No DR from Melriat.<br>->As per DR from Zuangtui, fault cleared in 1.1 sec on operation of Relay 1.<br>->DR to be standardized at Zuangtui. | |
| 17. | Tripping of 132kV Melriat-Zuangtui on 31.01.2022. | | | ->No DR/FIR from both ends. | |

***Items related to AEGCL and NEEPCO***

| Sl No | Description of Event | Action Already Taken | Recommended actions in last sub- group | Discussion Points | Deliberation of the Subgroup |
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| 18. | Tripping of 132 kV Khandong - Umranshu Line on 23.07.21 | | | ->Single line to ground fault(B-N). Z1 operated at both ends. | ->Vegetation fault in the line |

***Items related to DoP Nagaland and Powergrid***

| Sl No | Description of Event | Action Already Taken | Recommended actions in last sub- group | Discussion Points | Deliberation of the Subgroup |
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| 19. | Tripping of 132 kV Dimapur(DoP, Nagaland)-Dimapur(PG) D/C line on 15.09.21 | | | ->Line-2 tripped from Dimapur(PG) end on SOTF trip.<br>->Subsequently, Line 1 tripped from Dimapur(DoP, Nagaland) end on OC.<br>->Root cause of tripping from Dimapur(PG) end for Line 2 may be intimated. | ->Settings revised during upgradation At Dimapur(PG)<br>->**Item to be dropped**. |
| 20. | Tripping of 132 kV Doyang-Mokokchung, 132kV Mokokchung(DoP ,NG)-Mokokchung(PG) line on 18.09.21 and 28.09.21. | | | 18.09.21<br>->Suspected B-N fault in 132kV Doyang-Mokokchung line.<br>->From Mokokchung(DoP), Z2 cleared the fault in 460 msec.<br>->At Mokokchung(PG) end, EF protection cleared the fault in 430 msec.<br>28.09.21<br>->Suspected RB-N fault in 132kV Doyang-Mokokchung line.<br>->From Mokokchung(DoP), Z2 cleared the fault in 480 msec.<br>->At Mokokchung(PG) end, EF protection cleared the fault in 360 msec. | ->Fault in 132kV DHEP-Mokokchung line<br>->Revised settings to be implemented as per item No.B.2 |

***Items related to DoP Nagaland, NEEPCO and NERTS***

| Sl No | Description of Event | Action Already Taken | Recommended actions in last sub- group | Discussion Points | Deliberation of the Subgroup |
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| 21. | Tripping of 132 kV Doyang - Mokokchung (DoP, Nagaland), 132 kV | | | ->Suspected Y-N fault in 132 kV Doyang - Mokokchung (DoP, | ->Fault in 132kV DHEP-Mokokchung line |

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| | Mokochung (PG) - Mokokchung (DoP, Nagaland) D/C line, 132 kV Doyang-Sanis and 132 kV Dimapur - Doyang 2 on 08.10.21 | | | Nagaland).<br>->Pre-fault data not present in DR from Doyang.<br>->At Dimapur end, Backup O/C & E/F protection cleared the fault in 1.3 sec.<br>-> No DR from Sanis.<br>->From Mokokchung(DoP, Nagaland) end, Z2 cleared the fault in 530 msec.<br>->From Mokokchung(PG) end, IN>1 protection cleared the fault in 500 msec. | ->Revised settings to be implemented as per item No.B.2 |

***Items related to DoP Nagaland, MSPCL***

| Sl No | Description of Event | Action Already Taken | Recommended actions in last sub- group | Discussion Points | Deliberation of the Subgroup |
|---|---|---|---|---|---|
| 22. | Tripping of 132 kV Dimapur(PG)-Kohima line, 132 Kohima -Wokha line and 132 kV Karong -Kohima line on 27.07.21 | | ->B/U Relay for 132kV Karong-Kohima at Karong to be replaced. | ->At Dimapur end, single line to fault (B-N) converted to double line to ground fault after 1.15 sec. Z3 cleared the YB-N fault in 0.85 sec.<br>->At Kohima end for Karong line, directional earth fault cleared the B-N fault in 850 msec.<br>->No DR from 132kV Kohima-Wokha line. | ->Faulty CB of 132kV Dimapur-Kohima at Kohima to be replaced.<br>->Revised settings to be implemented as per item No. **B.2** |
| 23. | Tripping of 132 kV Karong-Kohima, 132kV Kohima-Wokha and 132kV Kohima-Dimapur(PG) on 15.09.21 | | | ->Suspected R-N fault in 132kV Kohima-Wokha line.<br>->At Dimapur end, Z2 cleared the fault in 440 msec. | ->Revised settings to be implemented as per item No. **B.2** |
| 24. | Tripping of 132kV Yurembam-Karong, 132 kV Karong-Kohima, 132kV Kohima-Wokha and 132kV Kohima-Dimapur(PG) on 28.09.21. | | ->B/U Relay for 132kV Karong-Kohima at Karong yet to be replaced.<br>->BB protection to be implemented at Yurembam.<br><br>->Z-4 setting at Yurembam to be reduced to | ->R-N fault. Exact location to be intimated.<br>->At Dimapur end, Z2 cleared the fault in 820 msec.<br>->At Imphal end, overcurrent protection cleared the fault in 410 msec. Z2 also picked the fault. | ->Fault in 132kV Wokha-Kohima<br>->Revised settings to be implemented as per item No. **B.2** |

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| | | | 200ms. | | |
| 25. | Tripping of 132 kV Yurembam – Karong, 132kV Karong - Kohima and 132 kV Dimapur (PG) – Kohima on 15.10.21 | | | ->Suspected B-N fault in 132kV Dimapur-Kohima line. Z2 cleared the fault in 470 msec at Dimapur.<br>->Tripping of 132 kV Yurembam – Karong, 132kV Karong – Kohima to be investigated. | ->Fault in 132kV Dimapur-Kohima<br>->Revised settings to be implemented as per item No. **B.2** |
| 26. | Tripping of 132 kV Yurembam – Karong, 132 kV Dimapur (PG) – Kohima, 132 kV Kohima – Wokha and 132 kV Sanis – Wokha on 20.10.21 | | | ->Suspected Y-B fault in 132kV Kohima-Wokha line.<br>->Z1 picked the fault at Kohima end however fault was cleared after 1.1 sec.<br>->At Imphal end, DR does not show pre-fault conditions.<br>->At Karong end for 132kV Imphal-Karong line, Z4 picked the fault.<br>->Z3 cleared the fault at Dimapur end after 1.3 sec.<br>->No DR for 132 kV Sanis – Wokha line. | ->Fault in 132kV Wokha-Kohima<br>->MT relay & control switch of Wokha CB at Kohima replaced on 11.11.2021.<br>->Revised settings to be implemented as per item No. **B.2** |
| 27. | Tripping of 132 kV Yurembam – Karong, 132 kV Kohima – Wokha and 132 kV Dimapur (PG) – Kohima on 06.11.21 | | ->B/U Relay for 132kV Karong-Kohima at Karong yet to be replaced.<br>->BB protection to be implemented at Yurembam.<br><br>->Z-4 setting at Yurembam to be reduced to 200ms. | ->Suspected B-N fault in 132 kV Kohima – Wokha line.<br>->As per FIR from Kohima, Z1 picked the fault for 132kV kohima-Wokha line at Kohima. No DR from Kohima end.<br>->At Wokha end, Z2 cleared the fault in 490 msec.<br>->At Dimapur(PG), directional TEF cleared the fault in 1.5 sec. | ->Fault in 132kV Wokha-Kohima<br>-> MT relay & control switch of Wokha CB at Kohima replaced on 11.11.2021.<br>->Revised settings to be implemented as per item No. **B.2** |
| 28. | Tripping of 132 kV Karong – Kohima, 132 kV Kohima – Wokha and 132 kV Dimapur (PG) – Kohima on 08.11.21 | | | ->Y-N fault.<br>->At Dimapur(PG) end, Directional EF operated.<br>->DR submitted from Kohima does not correspond to the fault. | ->Fault in 132kV Wokha-Kohima<br>-> MT relay & control switch of Wokha CB at Kohima replaced on 11.11.2021.<br>->Revised settings to be implemented as per item No. **B.2** |

***Items related to DoP Nagaland and MSPCL***

| Sl No | Description of Event | Action Already Taken | Recommended actions in last sub- group | Discussion Points | Deliberation of the Subgroup |
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| 29. | Tripping of 132 kV Sanis - Wokha line, 132 Kohima - Wokha line and 132 kV Karong - Kohima line on 02.08.21 | ->O/C setting changed at Kohima and wrong CT polarity corrected at Kohima for Wokha line.<br>->DP relay settings at Wokha revised for Kohima line.<br>-> MT relay & control switch of Wokha CB at Kohima replaced on 11.11.2021. | | ->Suspected Y-B fault in 132kV Kohima-Wokha line.<br>->Z1 operated at Kohima end for Wokha feeder.<br>->Overcurrent Protection operated at Kohima end for 132kV Karong-Kohima line.<br>->As per FIR, no tripping at Sanis end.<br>->No DR from Wokha and Sanis end. | ->Fault in 132kV Wokha-Kohima<br>->Revised settings to be implemented as per item No. **B.2** |
| 30. | Tripping of 132 kV Yurembam – Karong and 132kV Karong – Kohima on 05.09.21, 11.09.21 and 26.09.21 (twice) | ->B/U settings revised at Karong. | | 05.09.21<br>->Suspected Downstream B-N fault at Karong end.<br>->From Yurembam, OC protection cleared the fault in 510 msec. Z3 also pick up the fault.<br>-> At Karong end for 132kV Karong – Kohima line, Z4 picked the fault. At Kohima end, IN>1 trip the line. Pre-fault is not present in DR from Kohima end. | ->Exact fault location to be intimated by MSPCL.<br>->Reasons for non-operation of protection at Karong to be intimated. |
| | | ->B/U settings revised at Karong. | | 11.09.21<br>->Suspected R-N fault in 132kV Karong – Kohima. Z1 cleared the fault at Kohima end.<br>->No DR/FIR from other ends. | ->Details of protection operated at Karong end to be intimated. |
| | | ->Reverse trip of 132kV Yurembam-karong due to phase sequence | | 26.09.21,10:13 Hrs<br>->Root cause may please be intimated.<br>26.09.21,16:15 Hrs<br>->Suspected R-Y | ->Fault in 132kV Wokha-Kohima |

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| | | error rectified<br><br>-> MT relay & control switch of Wokha CB at Kohima replaced on 11.11.2021. | | fault in 132kV Karong-Kohima line. Z1 operated at both ends.<br>->At Karong end for 132kV Imphal(MSPCL)-Karong line, SOTF trip operated. No DR from Imphal end. | ->Revised settings to be implemented as per item No. **B.2** |
| 31. | Tripping of 132 kV Yurembam – Karong and 132kV Karong - Kohima on 15.10.21 and 21.10.21 | ->B/U settings revised at Karong. | ->B/U Relay for 132kV Karong-Kohima at Karong yet to be replaced.<br>->BB protection to be implemented at Yurembam.<br><br>->Z-4 setting at Yurembam to be reduced to 200ms. | 15.10.21<br>->As per FIR from Karong, fault was in 33kV Karong-kangpokpi Line.<br>->At Karong end for 132kV Yurembam-Karong line, fault cleared in 100 msec on R3. DR at Karong to be standardized.<br>->No DR from Imphal end.<br>->No pre-fault data from Kohima end.<br>21.10.21<br>->Suspected B-N fault in 132kV Karong – Kohima line. Z1 operated at Kohima end.<br>-> No DR from other end. | ->Relay co-ordination to be done at 132kV Karong alongwith downstream system.<br>->Z-2 timing at Karong and Kohima for 132kV Karong-Kohima to be changed to 200ms. |
| 32. | Tripping of 132 kV Imphal (Yurembam)-Karong line and 132kV Karong-Kohima on 02.12.21 | ->B/U settings revised at Karong. | ->B/U Relay for 132kV Karong-Kohima at Karong yet to be replaced.<br>->BB protection to be implemented at Yurembam.<br><br>->Z-4 setting at Yurembam to be reduced to 200ms. | ->Suspected downstream fault at Karong.<br>->Z3 picked the fault at Kohima end. As per FIR from Kohima, B/U EF operated.<br>->At Karong end for Kohima, Z4 picked the fault.<br>->At karong end for Yurembam, SOTF cleared the fault.<br>->No tripping at Yurembam end. | ->Relay co-ordination to be done at 132kV Karong alongwith downstream system.<br>->Z-2 timing at Karong and Kohima for 132kV Karong-Kohima to be changed to 200ms. |

***Items related to AEGCL***

| Sl No | Description of Event | Action Already Taken | Recommended actions in last sub- group | Discussion Points | Deliberation of the Subgroup |
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| 33. | Tripping of 132 kV Gohpur - North Lakhimpur D/C Line on 10.07.21(twice) | ->PUR implemented for 132kV Gohpur-N.Lakhimpur D/C | -> Carrier aided intertripping to be made functional for 132kV Gohpur – N.Lakhimpur D/C to avoid delayed fault clearance.<br>->Z-2 timing at Gohpur for N.Lakhimpur D/C has to be reduced to 350ms, carrier communication to be tested. | 04:46 10.07.21<br>->Z1 cleared the fault at both ends for D/C lines.<br>14:16 10.07.21<br>->Suspected fault in line-2, Z1 operated at Gohpur. Z2 operated at North Lakhimpur end in 590 msec.<br>->For line-1, Z2 protection cleared the fault at Gohpur end in 550 msec. | ->Z-2 timing at Gohpur for N.Lakhimpur D/C has to be reduced to 350ms, carrier communication to be tested. |
| 34. | Tripping of 132 kV BTPS - Dhaligaon 1 & 2 Line on 16.07.21 | ->Signal extended from BCU to CB | ->Dhaligaon end DP settings to be reviewed. | ->YB-N Fault due to Lightning. Z1 cleared the fault at BTPS end.<br>->Z1 operated at Dhaligaon end for line 1.<br>-> No DR from Dhaligaon for line 2. | ->DP relay at Dhaligaon operated<br>->Line did not trip due to non transference of signal from BCU to CB |
| 35. | Tripping of 132 kV Kahilipara - Sarusajai 1, 2 and 3 line, 132 kV Kahilipara Main Bus I, 132 kV Kahilipara Transfer Bus I and 132 kV Kahilipara - Kamalpur Line on 02.08.21 | | | ->R-Y phase bus fault at Kahilipara.<br>->Z2 protection operated at Sarusajai end for line 1,2 and 3.<br>->Z5 picked the fault at Kahilipara for all the feeders. | ->BB protection to be implemented at Kahilipara With procurement of 5 core CTs |
| 36. | Tripping of 220 kV BTPS - Rangia D/C and 132 kV Motonga (Bhutan) - Rangia on 05.08.21 | ->Thorough patrolling of line done. | | ->Suspected B-N fault in 132kV BTPS-Rangia 2.<br>->At BTPS end, Z2 cleared the fault in 580 msec for both circuits.<br>->No tripping at Rangia end for circuit 1.<br>->Z1 picked the fault at Rangia end for ckt 2 after 590 msec. Thereafter, fault was cleared in 70 msec.<br>->No DR for 132 kV Motonga (Bhutan) – Rangia line. | Delayed pick-up from Rangia due to high resistive nature of fault.<br>->Resistive reach for Z-I of 220kV Rangia-BTPS D/C to be appropriately increased at both BTPS and Rangia so that high resistive faults can be tripped within Z-I timing |

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| 37. | Tripping of 132 kV Golaghat - Mariani (AEGCL) line on 07.08.21 | | | ->As per FIR, no tripping at Golaghat end. Dir. E/F operated at Mariani end.<br>->No DR from both ends. | ->Vegetation fault in the line |
| 38 | Tripping of 132 kV BTPS - Dhaligaon D/C on 10.08.21 | ->Signal extended from BCU to CB<br>->Dhaligaon end DP settings to be reviewed. | | ->Suspected Vegetation related R-N fault.<br>->Z1 operated at Dhaligaon end.<br>->TEF protection operated after 430 msec at BTPS end. | ->DP relay at Dhaligaon operated<br>->Line did not trip due to non transference of signal from BCU to CB |
| 39 | Tripping of 220 kV AGBPP - Tinsukia D/C line, 220 kV NTPS - Tinsukia 1 Line and 100 MVA, 220/132 kV Transformer 1 & 2 at Tinsukia on 20.08.21 | | | ->As per FIR from Tinsukia for 220 kV NTPS - Tinsukia 1 Line, LBB operated as Y-pole CB failed to open for Y-phase to ground fault in zone 1 of 220 kV NTPS - Tinsukia 1 Line.<br>-> No DR from other ends. | ->220kV Bus-2 at Tinsukia needs to be charged at the earliest by AEGCL to utilize the double main scheme for safe and reliable operation. |
| 40 | Tripping of 220/132kV Tinsukia ICT 1&2, 132kV Tinsukia-Bordubi and 132kV Tinsukia-Dibrugarh on 16.09.21. | | | ->As per FIR from Tinsukia, B phase jumper snapped on LV side of 100MVA Transformer 1.<br>->For 132kV Tinsukia-Dibrugarh line,Z4 picked and cleared the fault in 550 msec at .<br>-> No DR from other ends. | ->Fault in LV side of ICT<br>->Stuck breaker<br>->LBB to be implemented at the earliest. |
| 41 | Tripping of 220 kV Jawaharnagar – Samaguri on 09.10.21 | | | ->Suspected R-N fault in 220 kV Jawaharnagar – Samaguri line. Z1 operated at Samaguri end. No DR from Jawaharnagar. | ->Lightning fault<br>->Due to software issue DR erased.<br>->Patrolling report to be submitted. |

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| 42 | Tripping of 220 kV Karbi Langpi - Sarusajai D/C on 14.10.21 (twice) and 17.10.21 | ->CB mechanical problem at Karbi Langpi HEP rectified. | | 14.10.21 11:06Hrs ->Suspected B-N fault in 220 kV Karbi Langpi – Sarusajai line 1. Z1 operated at Sarusajai end for line 1. Z2 operated at Sarusajai for line 2. ->No DR from Karbi Langpi. 14.10.21 12:28 Hrs ->Suspected B-N fault in 220 kV Karbi Langpi – Sarusajai line 1. Z1 operated at Sarusajai end for line 1. Z2 operated at Sarusajai for line 2. ->No DR from Karbi Langpi. 17.10.21 ->Suspected RB-N fault. ->Both line tripped on ZCOM-trip at Sarusajai end. ->No DR from Karbi Langpi. | ->Vegetation fault in 220kV Karbi langpi – Sarusajai –I ->Due to delayed clearance from Karbi Langpi HEP Line-2 tripped on Z-2 at Sarusajai end. ->CB problem at Karbi Langpi HEP ->Carrier inter-trip available and healthy. |

***<u>Items related to AEGCL and Meghalaya</u>***

| Sl No | Description of Event | Action Already Taken | Recommended actions in last sub- group | Discussion Points | Deliberation of the Subgroup |
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| 43. | Tripping of 132kV Khliehriat (MePTCL)- Lumshnong on 06.09.21. | ->Broken conductor protection disabled for 132kV Khliehriat-Lumshnong | | -> YB-N fault. ->Z4 picked fault at Lumshnong end. Z2 pick up at Khliehriat end. ->Fault was cleared in 220 msec at Khliehriat end. | ->Broken conductor of 132kV Lumshnong-Panchgram ->132kV Khliehriat-Lumshnong tripped on broken conductor protection. ->Jumper |

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| 44 | Tripping of 132kV Khleiriat(ME) – Lumshong on 07.01.2022 and 20.01.2022. | ->Broken conductor protection disabled for 132kV Khliehriat-Lumshnong | | 07:39 Hrs on 07.01.2022<br>->At 07:18 Hrs, 132 kV Panchgram – Lumshnong line tripped.<br>->As per FIR from Lumshnong, when 132 kV Panchgram – Lumshnong was charged at 07:39 Hrs ,132kV Khleiriat(ME) – Lumshong line tripped on broken conductor indication. Suspected fault in 132 kV Panchgram – Lumshnong.<br>->Pre-fault condition not present in the DR from Lumshnong for 132kV Khleiriat(ME) – Lumshong line. | Strengthening of 132kV Lumshnong-Panchgram done.<br>->Patrolling report to be submitted for 132kV Lumshnong-Panchgram |
| | | | | 16:30 Hrs on 20.01.2022<br>->At 16:07 Hrs, 132 kV Panchgram – Lumshnong line tripped.<br>->As per FIR from Lumshnong, when 132 kV Panchgram – Lumshnong was charged at 16:30 Hrs ,132kV Khleiriat(ME) – Lumshong line tripped on broken conductor indication. Suspected fault in 132 kV Panchgram – Lumshnong. | |
| 45. | Tripping of 132kV Khleiriat(ME) – Lumshong and 132 kV Panchgram - Lumshnong on 18.01.2022. | | | 07:09 Hrs on 18.01.2022<br>-> As per FIR, 132kV Khleiriat(ME) – Lumshong line tripped on broken conductor indication. Suspected fault in 132 kV Panchgram – Lumshnong.<br>->Pre-fault conditions not present in the DR sent.<br>->DR to be standardized. | |

***Items related to MSPCL***

| Sl No | Description of Event | Action Already Taken | Recommended actions in last sub- group | Discussion Points | Deliberation of the Subgroup |
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| 46. | Tripping of 132 kV Yurembam – Karong and 132kV Karong - Kohima on 03.08.21 | | | ->Suspected R-B fault in 132kV Karong – Kohima line.<br>->Z1 operated at Karong end for Kohima line.<br>->Z4 picked the fault at Karong end for 132kV Yurembam – Karong. SOTF/TOR trip cleared the fault. | ->Fault in 132kV Karong-Kohima<br>->Z-4 timing to be co-ordinated with Z-2 timing at Karong |
| 47 | Tripping of 132 kV Imphal (MSPCL) - Yaingangpokpi D/C line on 15.08.21 | | | ->As per FIR, fault was in 132kV Yaingangpokpi-Hundung line.<br>->DR submitted were not for this GD. | ->Detailed RCA to be submitted by MSPCL |
| 48. | Tripping of 132 kV Imphal (Yurembam)-Karong line on 04.11.21 | | ->BB protection to be implemented at Yurembam.<br><br>->Z-4 setting at Yurembam to be reduced to 200ms. | ->DR from Imphal end does not contain pre-fault data.<br>->As per FIR from Karong end, line tripped while charging 132kV Karon-Kohima line. | ->Detailed RCA to be submitted by MSPCL |
| 49. | Tripping of 132 kV Ningthoukhong-Churachandpur D/C lines and 132 kV Churachandpur - Kakching line on 29.11.21 | | ->O/C setting at Yurembam for Yaingangpokpi D/C to be revised. | ->No DR submitted.<br>->As per FIR, LA burst at Churachandpur. No tripping at Ningthoukhong end. | ->Detailed RCA to be submitted by MSPCL |

***Items related to Meghalaya***

| Sl No | Description of Event | Action Already Taken | Recommended actions in last sub- group | Discussion Points | Deliberation of the Subgroup |
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| 50 | Tripping of 132 kV Myntdu Leshka - Khleihriat 1 & 2 Line and Myndtu Leshka Unit 1,2 & 3 on 18.07.21, 22.07.21(twice) and 30.07.21 | | ->Relay to be time synced at Leshka and Khliehriat.<br>->Jumper strengthening to be done.<br>->Line patrolling reports to be submitted. | 18.07.21<br>->As per FIR, Y phase conductor snapped at Myntdu Leshka for feeder 2. | ->Conductor snapped at Leshka HEP in the section between GT and switchyard<br>->LDP to be immediately installed for the unprotected section. |
| | | | | 13:35 Hrs 22.07.21<br>->Three phase to gnd fault. Z1 cleared the fault at all ends. | |
| | | | | 14:35 Hrs 22.07.21<br>->Three phase to gnd fault. Z1 cleared the fault at all ends. | ->Lightning fault in the line.<br>->Tower footing resistance to be |

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| | | | | 30.07.21<br>->As per FIR, B phase conductor snapped for feeder 1.<br>->At Khliehriat end for feeder 2, lN>1 trip operated after 1.2 sec. | checked<br>->GPS to be installed for relay time sync. |
| 51 | Tripping of 132 kV Myntdu Leshka - Khleihriat 1 & 2 Line and Myndtu Leshka Unit 1,2 & 3 on 04.08.21 and 22.08.21 | | | 04.08.21<br>->R-Y fault.<br>->Z1 protection operated for both the lines at both ends. | |
| | | | | 22.08.21<br>->As per FIR, cause of tripping was snapping of jumper between line and wave trap at Leshka switchyard.<br>->At Khleihriat end, IN>1 tripped both the line. Pre-fault data not present in the submitted DR. | ->Jumper strengthening to be done. |
| 52. | Tripping of 132 kV Myntdu Leshka - Khleihriat 1 & 2 on 05.09.21 and 09.09.21. | | ->Relay to be time synced at Leshka and Khliehriat.<br>->Jumper strengthening to be done.<br>->Line patrolling reports to be submitted. | 05.09.2021<br>->Suspected Lightning 3-phase to gnd fault. Z1 protection operated at both ends.<br>09.09.2021<br>->Suspected lightning related YB-N fault. Z1 protection operated at both ends. | ->Lightning fault in the line.<br>->Tower footing resistance to be checked<br>->GPS to be installed for relay time sync. |

***Items related to NEEPCO, OTPC and TSECL***

| Sl No | Description of Event | Action Already Taken | Recommended actions in last sub- group | Discussion Points | Deliberation of the Subgroup |
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| 53. | Tripping of 132 kV Palatana – Udaipur, 132 kV Monarchak – Udaipur, Monarchak Unit ST and AGTCCPP Unit 2 on 13.10.21 | | ->400/132kV ICTs at Palatana & 132kV Palatana-Udaipur reviewed settings to be Implemented. | ->RYB fault. Z2 cleared the fault at Monarchak in 520 msec. No DR from other ends. | ->Detailed RCA to be submitted. |

***Items related to NEEPCO and TSECL***

| Sl No | Description of Event | Action Already Taken | Recommended actions in last sub- group | Discussion Points | Deliberation of the Subgroup |
|---|---|---|---|---|---|
| 54. | Tripping of 132 kV Monarchak – Udaipur and Monarchak Unit GT & ST on 06.10.21 | | | ->R-N fault. Z4 cleared the fault at Monarchak after 580 msec. Z1 cleared the fault at Udaipur. | ->Detailed RCA to be submitted. |

| | | | | | |
|---|---|---|---|---|---|
| 55. | Tripping of 132 kV Monarchak – Rokhia, 132 kV Agartala – Rokhia D/C, Rokhia Unit 7 & 9 and Monarchak Unit GT on 13.10.21 (twice) | | | 04:23 Hrs<br>->Exact fault location to be intimated.<br>-> For 132V Agartala-Rokhia line 2, Z4 picked the fault at Rokhia. Z2 cleared the fault in 410 msec from Agartala end.<br>-> For 132V Agartala-Rokhia line 1, DR from Agartala end for line 1 not standardized. At Rokhia end, Z1 cleared the fault in 60 msec.<br>->For 132kV Monarchak-Rokhia line, initially Z4 pick up the fault at Rokhia end. Later, Z1 cleared the fault in 60 msec.<br>07:09Hrs<br>->Exact fault location to be intimated.<br>-> For 132V Agartala-Rokhia line 2, Z1 cleared the fault at Rokhia in 60 msec. Z2 cleared the fault in 410 msec from Agartala end.<br>-> For 132V Agartala-Rokhia line 1, Z2 cleared the fault in 390 msec from Agartala end. At Rokhia end, initially Z4 picked the fault. After 60 msec delay, Z1 cleared the fault in another 60 msec.<br>->For 132kV Monarchak-Rokhia line, Z1 cleared the fault at Rokhia end in 60 msec. | |

***Items related to TSECL***

| Sl No | Description of Event | Action Already Taken | Recommended actions in last sub- group | Discussion Points | Deliberation of the Subgroup |
|---|---|---|---|---|---|
| 56. | Tripping of 132 kV Monarchak – Rokhia, 132kV Monarchak-Udaipur and Monarchak STG & GTG on 05.09.21 | | | ->Suspected Y-N Fault in 132kV Monarchak-Rokhia.<br>->As per FIR for 132kV Monarchak-Udaipur, at Monarchak end Z4 picked the fault. | ->Z-4 timing at Monarchak for 132kV Monarchak-Udaipur to be co-ordinated with Z-2 timing. |
| 57. | Tripping of 132kV Monarchak-Udaipur on 15.09.21 | | | ->Y-B Fault. Z1 operated at Udaipur end.<br>->No DR from Monarchak | ->Detailed RCA to be submitted. |
| 58. | Tripping of 132 kV Monarchak – Rokhia and | | | 08.09.21<br>->YB-N fault. Z1 operated at Rokhia | ->Detailed RCA to be submitted. |

| | | | | | |
|---|---|---|---|---|---|
| | Monarchak STG & GTG on 08.09.21 and 22.09.21 | | | end. Z2 cleared the fault at Monarchak.<br>22.09.21<br>-> B-N fault. Z2 operated at Rokhia end. No DR from Monarchak. | |
| 59. | Tripping of 132 kV Dharmanagar-PK Bari on 27.09.21. | | | ->RB-N fault in 132 kV Dharmanagar-PK Bari line. Z1 operated at PK Bari end.<br>->No DR from Dharmanagar end. | ->Detailed RCA to be submitted. |

***Items related to NHPC, MSPCL and Powergrid***

| Sl No | Description of Event | Action Already Taken | Recommended actions in last sub- group | Discussion Points | Deliberation of the Subgroup |
|---|---|---|---|---|---|
| 60. | Tripping of 132 kV Loktak-Ningthoukhong and 132kV Imphal(PG)-Ningthoukhong on 13.09.21 and 20.09.21. | | ->Defective Card at Loktak PLCC panel to be replaced.<br><br>->Z-3 timing at Imphal for Ningthoukhong feeder to be revised to 500ms.<br>->Z-4 at Loktak for Ningthoukhong feeder to be revised to 350ms.<br>->Backup relay coordination for Imphal-Ningthoukhong-Loktak has to be done to avoid tripping of healthy line 132Kv Imphal-Ningthoukhong. | 13.09.2021<br>->Suspected R-N fault in 132kV Loktak-Ningthoukhong line.<br>->At Loktak end, overcurrent protection cleared the fault.<br>->At Imphal end, Z2 cleared in 360 msec.<br><br>20.09.2021<br>-> Suspected Y-N fault in 132kV Imphal(PG)-Ningthoukhong line.<br>Z1 protection operated at Imphal end.<br>->At Loktak end, Z3 and overcurrent picked the fault.<br>->No DR from Ningthoukhong end. | ->Details of protection operated at Ningthoukong to be submitted.<br>->Detailed RCA to be submitted |

***Items related to NEEPCO and Powergrid***

| Sl No | Description of Event | Action Already Taken | Recommended actions in last sub- group | Discussion Points | Deliberation of the Subgroup |
|---|---|---|---|---|---|
| 61. | Tripping of 400kV Balipara-Kameng II line and Kameng Unit 1 &2 on 24.09.21. | - | - | ->No fault was observed from DRs from Kameng end.<br>->As per FIR from Balipara, Ckt-I did not trip at Balipara end. DT was received from Kameng end for ckt II. | High speed relay of Bus bar panel 96 operated due to spurious signal which resulted in DT send to Balipara and tripped Balipara Line-2 |

***Items related to NERTS***

| Sl No | Description of Event | Action Already Taken | Recommended actions in last sub- group | Discussion Points | Deliberation of the Subgroup |
|---|---|---|---|---|---|
| 62. | Tripping of 132 kV Badarpur – Kolasib and 132 kV Aizawl – Kolasib Line on 07.09.21 | Defective B/U relay at Aizawl replaced | | - | ->Fault in 132kV Badarpur-Kolasib ->Maltripping of 132kV Aizawl-Kolasib due to defective B/U relay at Aizawl |
| 63. | Tripping of 132 kV Badarpur – Kolasib and 132 kV Aizawl – Kolasib Line on 28.10.21 | | | ->Suspected Y-B fault in Kolasib downstream. Z3 cleared the fault from Aizwal and Badarpur end. | Detailed RCA to be submitted. |

***The Sub-Committee noted as above.***
***Action: NERTS.***

**B.9. Non-operation of auto-reclosure in Important grid elements for transient faults w.e.f. July'21**

| Sl. No | Name of the Line | Utility | Date and Time |
|---|---|---|---|
| 1 | 220 kV AGBPP - Tinsukia 1 Line | AEGCL | 15-07-2021 at 16:19 Hrs |
| 2 | 220 kV AGBPP - Tinsukia 2 Line | AEGCL | 28-10-2021 at 17:33 Hrs |
| 3 | 220 kV Agia - Boko Line | AEGCL | 04-09-2021 at 12:08 and 30-09-2021 at 11:36 Hrs |
| 4 | 220 kV Agia - BTPS 1 Line | AEGCL | 01-09-2021 at 19:47 Hrs , 23-10-2021 at 10:09 Hrs,29.01.22 at 13:18 Hrs |
| 5 | 220 kV Agia - BTPS 2 Line | AEGCL | 28-07-2021 at 11:57 Hrs, 13-09-2021 at 10:57 Hrs, 30-09-2021 at 11:28 Hrs, 10-10-2021 at 11:40 Hrs |
| 6 | 220 kV Azara - Sarusajai 1 Line | AEGCL | 11-09-2021 at 11:33 Hrs |
| 7 | 220 kV Azara - Sarusajai 2 Line | AEGCL | 05-09-2021 at 12:21 Hrs |
| 8 | 220 kV Balipara - Sonabil 1 Line | AEGCL | 01-08-2021 at 20:06 Hrs, 11-09-2021 at 10:50 Hrs. |
| 9 | 220 kV BTPS - Rangia 1 Line | AEGCL | 18-09-2021 at 00:58 Hrs and 09-10-2021 at 19:03 Hrs. |
| 10 | 220 kV BTPS - Rangia 2 Line | AEGCL | 09-07-2021 at 10:03 Hrs, 10-07-2021 at 11:51 Hrs, 05-08-2021 at 11:36 Hrs, 29-08-2021 at 13:36 Hrs and 29-08-2021 at 15:06 Hrs. |
| 11 | 220 kV Jawaharnagar - Samaguri Line | AEGCL | 12-07-2021 at 11:59 Hrs, 16-09-2021 at 06:19 Hrs, 20-09-2021 at 17:33 Hrs, 01-10-2021 at 10:36 Hrs, 03-10-2021 at 14:57 Hrs, 09-10-2021 at 11:35 Hrs |

| Sl. No | Name of the Line | Utility | Date and Time |
|---|---|---|---|
| 12 | 220 kV Karbi Langpi - Sarusajai 1 Line | AEGCL | 03-10-2021 at 14:20 Hrs, 14-10-2021 at 11:06 Hrs and 14-10-2021 at 12:28 Hrs |
| 13 | 220 kV Karbi Langpi - Sarusajai 2 Line | AEGCL | 11-09-2021 at 10:40 Hrs, 13-09-2021 at 13:22 Hrs, 14-10-2021 at 11:06 Hrs and 14-10-2021 at 12:28 Hrs |
| 14 | 220 kV Mariani (AEGCL) - NTPS Line on 28-08-2021 | AEGCL | 28-08-2021 at 20:21 Hrs, 09-09-2021 at 18:47 Hrs, 01-11-2021 at 08:16 Hrs. |
| 15 | 220 kV Mariani (AEGCL) - Samaguri Line | AEGCL | 22-07-2021 at 01:05 Hrs, 23-07-2021 at 06:42 Hrs, 25-08-2021 at 10:22 Hrs. |
| 16 | 220 kV Samaguri - Sonabil 1 Line | AEGCL | 15-10-2021 at 10:53 Hrs |
| 17 | 220 kV Samaguri - Sonabil 2 Line | AEGCL | 14-10-2021 at 10:35 Hrs |
| 18 | 220 kV Sarusajai- Sonapur Line | AEGCL | 16-09-2021 at 06:19 Hrs, 12-10-2021 at 10:28 Hrs, 05.02.22 at 15:55Hrs |
| 19 | 220 kV Agia - Azara | AEGCL | 05.02.22 at 17:41Hrs |
| 20 | 220 kV Samaguri–Sonapur Line | AEGCL | 25.01.22 at 06:15Hrs |
| 21 | 220 kV Byrnihat - Misa 1 Line | MePTCL | 11-09-2021 at 12:39 Hrs, 21-09-2021 at 08:20 Hrs |
| 22 | 220 kV Byrnihat - Misa 2 Line | MePTCL | 20-12-2021 at 02:20 Hrs |
| 23 | 132 kV Badarpur - Khliehriat Line | POWERGRID | 25.09.21 at 13:08 Hrs, 01.02.22 at 23: 43 Hrs |
| 24 | 220 kV Mariani (PG) - Mokokchung (PG) 1 Line | POWERGRID | 29-07-2021 at 23:04 Hrs |
| 25 | 400 kV Imphal - New Kohima 2 Line | POWERGRID | 02.02.22 at 10:54Hrs |
| 26 | 400 kV Balipara - BiswanathChariali 2 Line | POWERGRID | 02-10-2021 at 10:55 Hrs |
| 27 | 400 kV Misa - Silchar 2 Line | POWERGRID | 12-10-2021 at 07:27 Hrs |
| 28 | 400 kV Byrnihat - Silchar Line | NETC&MePTCL | 25-09-2021 at 11:51 Hrs |
| 29 | 400 kV Palatana - Silchar 1 Line | NETC | 13-10-2021 at 03:28 Hrs, 04-11-2021 at 09:49 Hrs |
| 30 | 400 kV Palatana - Silchar 2 Line | NETC | 04-09-2021 at 12:46 Hrs and 12-09-2021 at 16:21 Hrs |

***Deliberation of the sub-Committee:***

Deputy Manager, AEGCL informed that the Auto-Reclosure is presently not working at Azara, Sarusajai, Agia, Rangia due to outage of protection coupler. AEE, MePTCL informed that carrier is not healthy at Byrnihat end, thus Auto-Reclosure is not working. The forum requested MePTCL to take suitable action so that AR is working on Z-I operation(only) at Byrnihat end. DGM(AM), NERTS informed that (i)400kV Imphal-New Kohima-2 PLCC failed which led to AR Locked Out, the same has been rectified, (ii)400kV Balipara – Biswanath Chariali-2 Auto-Reclosure did not function as both end

tripped on Z-2 due to high resistive nature of the permanent fault, (iii)400kV Misa-Silchar-2 AR Locked Out due to persistent nature of fault, (iv)Auto-Reclose was turned off due to OPGW works, (v)400kV Palatana-Silchar-I/II AR did not work due to BCU logic problem, same has been rectified and testing shall be done by 20th Feb'22. The forum requested other utilities to take suitable action to ensure Auto-Reclosure operation.

***The Sub-Committee noted as above.***
***Action: all utilities as above.***

**B.10. Frequent tripping of 132kV Balipara-Tenga(20 times) .**

132 kV Balipara – Tenga line tripped 20 times since July 2021to January 2022 resulting in Black out of Tenga and Khupi area of Arunachal Pradesh Power System and Dikshi Power Station

DoP, AP is requested to intimate the root cause of tripping and also submit DR and EL output along with FIR for proper analysis of the event.

***Deliberation of the sub-Committee:***

Pls refer to discussion in item No. **B.8**

***The Sub-Committee noted as above.***
***Action: DoP Ar.Pradesh.***

**B.11. Frequent tripping of 132kV Along-Daporizo and 132kV Along-Pasighat.**

132 kV Along – Daporizo line and 132 kV Along – Pasighat line tripped 5 times and 22 times respectively since July 2021 to January 2022resulting in Black out of Along, Pasighat, Roing, Tezu and Namsai area of Arunachal Pradesh Power System.

As per the analysis from the submitted DR and EL output, fault was mainly due to vegetation infringement. NERLDC vide Letter no NERLDC/SOII/14/1868 dated 03.08.2021 and NERLDC/SOII/14/2391 dated 30.11.2021 had requested for clearance of vegetation infringement to avoid repeated tripping of the line. It is requested to submit detailed report furnishing the measures taken to resolve the issues.

***Deliberation of the sub-Committee:***

Pls refer to discussion in item No. **B.8**

***The Sub-Committee noted as above.***
***Action: DoP Ar.Pradesh.***

**B.12. Frequent tripping of 132kV Dimapur-Kohima.**

132 kV Dimapur – Kohima line tripped 34 times since July 2021 to January 2022with fault distance within 15 to 58 km from Dimapur in 33 cases.

As per the analysis from DR output, tripping of line was mostly due to high resistive vegetation fault. NERLDC vide Letter no NERLDC/SOII/14/1842 dated 29.07.2021 had requested for clearance of vegetation infringement to avoid repeated tripping of the line.

DoP, Nagaland is requested for thorough patrolling of the line and infringement clearance and submit patrolling report to NERPC and NERLDC.

***Deliberation of the sub-Committee:***

S.E(SLDC), DoP Nagaland informed that many trippings (5-6 times) due to disc failing due to dust accumulation, tracking and multiple trippings (10-12 times) due to infringement near Kohima. Further he informed that due to CB problem at Kohima the line is under outage. The forum requested DoP Nagaland to restore Transfer Bus and charge the line via Transfer BC and submit the patrolling report to NERLDC/NERPC at the earliest.

***The Sub-Committee noted as above.***
***Action: DoP Nagaland.***

**B.13. Repeated GD in Mokokchung area of Nagaland.**

Grid disturbance occurred 5 (five) times on 20th July,26th July,29th July, 18th September and 28th September 2021at Mokokchung area of Nagaland Power System.

For Grid Disturbance on 18th September and 28th September 2021, fault was in 132 kV Doyang - Mokokchung (DoP, Nagaland) Line. Fault was delayed cleared from Mokokchung (DoP Nagaland) end on operation of Zone II protection. Thesaid fault was also sensed by the Back Up relay at Mokokchung (PG)for 132 kV Mokokchung (DoP Nagaland) D/C Lines and fault was cleared from Mokokchung (PG) on operation of earth fault protection prior to opening of CB at Mokokchung (DoP Nagaland) for Doyang Line.

Members are required to suggest measures to avoid unwanted tripping of healthy lines resulting in Grid Disturbance in Mokokchung area of Nagaland Power System.

***Deliberation of the sub-Committee:***

After detailed deliberation the forum requested NERTS, DoP Nagaland to take remedial actions as per deliberation in item **No. B.2**.

***The Sub-Committee noted as above.***
***Action: NERTS, DoP Nagaland.***

**B.14. Frequent tripping of 132kV DHEP-Sanis and 132kV Sanis-Wokha .**

132 kV Doyang – Sanis line tripped on 08.10.21 and 132 kV Sanis - Wokha line tripped on 17.10.21, 20.10.21 and 19.11.21 reducing the reliability of Wokha and Sanis area of

Nagaland Power System. Due to non-submission of DR and EL output, proper analysis of the events could not be done. DoP, Nagaland is requested to submit detailed report of the events and also upload DR and EL output in Tripping Portal.

***Deliberation of the sub-Committee:***

After detailed deliberation the forum requested NEEPCO, DoP Nagaland to take remedial actions as per deliberation in item **No. B.2**.

***The Sub-Committee noted as above.***
***Action: NEEPCO, DoP Nagaland.***

**B.15. Tripping of Karong line at Kohima multiple times.**

132 kV Kohima-Karong line tripped at Kohima end only on 19th June'21, 24th July'21, 27th July'21 and on 02nd August'21 due to operation of B/U EF relay. The tripping on 24th July'21 and 2nd August'21 was due to fault in 132 kV Kohima – Wokha line.

Tripping of healthy Karong line at Kohima by operation of B/U protection for REVERSE fault inferred to be unwanted. The CT-PT inputs, directional features of B/U relay along with settings needs to be checked/reviewed immediately for healthiness

***Deliberation of the sub-Committee:***

After detailed deliberation the forum requested DoP Nagaland to check CT-PT inputs, directional features of B/U relay along with settings and revert back to the forum.

***The Sub-Committee noted as above.***
***Action: DoP Nagaland.***

**B.16. GD in Karong area on 20th Jan'22.**

132 kV Yurembum - Karong line tripped on B/U protection for fault in 132 kV Kohima – Meluri line at 20:07 Hrs on 20.01.22 which resulted in black out of Karong area of Manipur Power System. MSPCL is requested to check/test the B/U relay at Karong immediately to prevent further mis-operation.

***Deliberation of the sub-Committee:***

Pls refer to deliberation in item **No. B.8**

***The Sub-Committee noted as above.***
***Action: MSPCL.***

**B.17. Frequent tripping of 220kV lines in Assam System.**

Repeated tripping of the following lines in Assam Power System were observed since July 2021

- 220 kV BTPS-Agia I: 7 times (9thJuly,1st Sept, 6th Sept, 2nd Oct, 23rd Oct, 30th Oct 2021 and 29th Jan 2022)

- 220 kV BTPS-Agia II: 5 times (28thJuly,6th Sept, 13th Sept, 30th Sept and 10th Oct 2021)
- 220 kV BTPS- RangiaI :9 times (19th July, 5th August, 10th Sept, 16th Sept, 18th Sept, 20th Sept, 9th Oct, 12th Oct and 1st Dec 2021)
- 220 kV BTPS- RangiaII : 7 times (9th July, 10th July, 5th August , 29th August ( two times), 3rd Sept and 27thSept 2021)
- 220 kV Balipara – Sonabil: 3 times (1stAugust, 6th Sept and 11th Sept 2021)

As per the analysis, the lines mostly tripped on vegetation fault with some tripping involving opening of jumper as well. AEGCL is requested to intimate the root cause for these events and remedial measures that has been taken. Also, intensive patrolling of the lines is to be done to avoid repeated tripping and patrolling report may be submitted to NERPC and NERLDC.

***Deliberation of the sub-Committee:***

After detailed deliberation the forum requested AEGCL to submit patrolling report of 220kV BTPS-Agia D/C, 220kV BTPS – Rangia D/C, 220kV Balipara-Sonabil at the earliest.

***The Sub-Committee noted as above.***
***Action: AEGCL.***

**B.18. Multiple tripping at Rengpang area.**

132 kV Rengpang-Jiribam Line & RengpangLoktak Line tripped thrice since December'21 due to fault in 132 kV Rengpang – Jiribam Line. No DR and EL output have been submitted by MSPCL for these events to conclude the root cause. However, as per the DR output at Loktak, Zone III was detected, and the fault disappeared within 73 msec. However, 132 kV Loktak – Rengpang line tripped at Rengpang for reverse fault on B/C OC & EF protection.

MSPCL is requested to check the healthiness of the distance relay and directionality of the B/C OC and EF relay at Rengpang to avoid re-occurrence of the events resulting in Grid Disturbance in Rengpang area.

***Deliberation of the sub-Committee:***

The forum requested MSPCL to check the healthiness of the distance relay and directionality of the B/C OC and EF relay at the earliest.

***The Sub-Committee noted as above.***
***Action: MSPCL.***

**B.19. Frequent tripping of 132kV Loktak-Rengpang.**

132 kV Loktak – Rengpang line tripped 16 times since September'21. As per the DR output from Loktak, fault was mostly due to vegetation infringement. NERLDC vide

Letter no NERLDC/SO-II/14/1911 dated 11.08.21 and NERLDC/SO-II/14/2084 dated 20.09.21 had raised concern on frequent tripping of this line.

MSPCL is requested to intimate the root cause for frequent tripping of this line and share remedial measures that has been taken to NERPC and NERLDC.

***Deliberation of the sub-Committee:***

Member Secretary, NERPC informed the forum that MD, MSPCL has been intimated about the frequent tripping of 132kV Loktak-Rengpang and details of Action Taken is awaited. After detailed deliberation the forum requested MSPCL to submit the patrolling report at the earliest.

***The Sub-Committee noted as above.***
***Action: MSPCL.***

**B.20. Frequent tripping of 132kV Karong-Kohima.**

132 kV Karong – Kohima line line tripped 18 times since September'21. As per the DR output, fault was mostly due to vegetation infringement. Being inter-state line, frequent tripping of 132 kV Karong – Kohima line is a major concern and reduces the reliability.

MSPCL and DoP, Nagaland is requested to intimate the root cause for frequent tripping of this line and share remedial measures that has been taken to NERPC and NERLDC.

***Deliberation of the sub-Committee:***

After detailed deliberation the forum requested MSPCL/DoP Nagaland to submit the patrolling report at the earliest.

***The Sub-Committee noted as above.***
***Action: MSPCL/ DoP Nagaland.***

**B.21. Tripping of 132kV Lumshnong-Panchgram and 132kV Lumshnong-Khliehriat.**

132 kV Panchgram - Lumshnong Line and 132 kV Lumshnong - Khliehriat Line tripped thrice since January'22 due to Jumper failure. As per the DR output, the line tripped on broken conductor. NERLDC vide Letter no NERLDC/SO-II/14/2597 dated 19.01.22shared the observations and suggested that broken conductor check is normally used for ALARM purpose as per guidelines of Ramakrishna task forceand the same may be reviewed. MePTCL is requested to intimate the measures that has been taken in this regard.

Also, 132 kV Panchgram – Lumshnong line, being an Inter-State line, tripped 9 times since September'21 which is a cause of major concern.

MePTCL and AEGCL are requested to intimate the root cause for frequent tripping of this line and share remedial measures that has been taken to NERPC and NERLDC.

***Deliberation of the sub-Committee:***

Pls refer to deliberation in item No. **B.8**

***The Sub-Committee noted as above.***
***Action: AEGCL/MePTCL.***

**B.22. Unwanted tripping of 132kV Khliehriat-Khliehriat on Z3 on 02.10.21.**

132 kV Khliehriat(MePTCL)–Khliehriat(PG)-2 Line and 132 kV Khliehriat(PG)-Khandong 1 Line tripped at 01:29 Hrs on 2nd October'21. As per the DR analysis, fault was in 132 kV Khandong – Khliehriat 1 line which was cleared by Khliehriat(PG) within 487 msec in Zone II and no carrier aided tripping was observed. However, the same fault was cleared by Khliehriat (MeTCL) on Zone III within 403 msec resulting in tripping of healthy line.

NERTS is requested to review the carrier aided scheme at Khliehriat(PG) for 132 kV Khandong 1 Line.

MePTCL is requested to coordinate the Zone III at Khliehriat(MePTCL) with Zone II timing of 132 kV Khliehriat – Khandong 1 Line.

***Deliberation of the sub-Committee:***

AE, MePTCL informed that the Z-3 time settings has been increased to 800ms post-incident. DGM(AM), NERTS informed that Z-2/3 setting has been revised at Khliehriat(PG). The forum requested MePTCL & NERTS to ensure carrier & PUR healthiness of 132kV Khliehriat-Khliehriat D/C and 132kV Khliehriat-Khandong D/C at all times.

***The Sub-Committee noted as above.***
***Action: NERTS/MePTCL.***

**B.23. Grid Disturbance at Kolasib area of Mizoram Power System.**

GD occurred at Kolasib area of Mizoram Power System on 07.09.21 and 28.10.21 due to tripping of multiple elements.

As per the analysis, it appears that the fault was in 132 kV Badarpur – Kolasib line on 07.09.21. No tripping was reporting at Kolasib which resulted in tripping of 132 kV Aizawl – Kolasib line at Aizawl on B/U EF. Reason for Non-operation of CB at Kolasib may be intimated by NERTS.

For fault on 28.10.21, it was likely in the downstream side of Kolasib area of Mizoram Power System. The exact location of the fault may be intimated by P&ED Mizoram to NERLDC and NERPC along with a copy of the root cause of the event and the remedial measures taken to avoid re-occurrence.

***Deliberation of the sub-Committee:***

Please refer to deliberation in item No. **B.8**

***The Sub-Committee noted as above.***
***Action: NERTS/P&ED Mizoram.***

**B.24. Grid Disturbance in Zuangtui area of Mizoram Power System.**

132 kV Melriat – Zuangtui line tripped 6 times since July'21 resulting in black out of Zuangtui area of Mizoram Power System. For fault on 30.07.21(twice) and 02.08.21 (twice), CB tripped at Zuangtui area only which suggest fault in downstream system. The protection which issued trip command at Zuangtui could not be concluded due to non-standardization of DR channels.

The exact location of the fault may be intimated by P&ED Mizoram to NERLDC. Directionality of the Back-up protection may be checked to avoid tripping of healthy line.

***Deliberation of the sub-Committee:***

Please refer to deliberation in item No. **B.2**

***The Sub-Committee noted as above.***
***Action: NERTS/P&ED Mizoram.***

**B.25. Grid Disturbance in Udaipur area of Tripura Power System.**

Grid disturbance occurred at Udaipur area of Tripura Power System at 13:00 Hrs on 18.08.21 due to the tripping of 132 kV Monarchak - Udaipur Line and 132 kV Palatana - Udaipur Line. Due to non -operation of protection system at Udaipur for Palatana line, fault was cleared by tripping of healthy 132 kV Monarchak – Udaipur line from Monarchak on Zone-2. NERLDC vide Letter no NERLDC/SO-II/14/1940 dated 19.08.21 requested TSECL to furnish the root cause of the event and remedial measures that has been taken and the same has not been received.

Reason for Non-operation of Protection system at Udaipur S/S for Palatana line may be intimated by TSECL to avoid re-occurrence.

***Deliberation of the sub-Committee:***

The item could not be discussed due to absence of TSECL representative. Member Secretary, NERPC strongly noted the absence of participation from TSECL in Sub-group/PCC meetings inspite of the multiple deficiencies in Tripura System. He decided to refer this non-participation to the next TCC/RPC meeting.

***The Sub-Committee noted as above.***
***Action: TSECL/NERPC.***

**B.26. Grid Disturbance in Monarchak area of Tripura Power System.**

Grid disturbance occurred in Monarchak area of Tripura Power System at 02:05 Hrs on 5th August 2021 due to the tripping of 132 kV Monarchak - Rokhia Line and 132 kV Monarchak - Udaipur Line. As per the DR analysis, fault was in 132 kV Monarchak – Udaipur line which was cleared from Rokhia end within 350 msec on Zone II prior to opening from Monarchak for Udaipur line on Zone II within 500 msec.

TSECL is requested to carry out necessary Zone II timing coordination of Monarchak for Udaipur line with 132 kV Monarchak – Rokhia line to avoid tripping of healthy line.

***Deliberation of the sub-Committee:***

The item could not be discussed due to absence of TSECL representative. Member Secretary, NERPC strongly noted the absence of participation from TSECL in Sub-group/PCC meetings inspite of the multiple deficiencies in Tripura System. He decided to refer this non-participation to the next TCC/RPC meeting.

***The Sub-Committee noted as above.***
***Action: TSECL/NERPC.***

**B.27. Frequent tripping of 132kV Monarchak-Rokhia and Monarchak-Udaipur.**

132 kV Monarchak-Rokhia Line and 132 kV Monarchak-Udaipur Line tripped 19 times and 15 times respectively since July 2021. As per DR analysis, most of the tripping were single phase faults due to vegetation infringement. NERLDC vide Letter no NERLDC/SO-II/14/2096 dated 22.09.21 expressed concern over frequent of these lines whicheffects the reliability of evacuation path of Monarchak Power Plant.

TSECL is requested to intimate the root cause for these events and remedial measures that has been taken. Also, intensive patrolling of the line is to be done for vegetation infringement clearance and patrolling report may be submitted to NERPC and NERLDC.

***Deliberation of the sub-Committee:***

The item could not be discussed due to absence of TSECL representative. Member Secretary, NERPC strongly noted the absence of participation from TSECL in Sub-

group/PCC meetings inspite of the multiple deficiencies in Tripura System. He decided to refer this non-participation to the next TCC/RPC meeting.

***The Sub-Committee noted as above.***
***Action: TSECL/NERPC.***

**B.28. Misoperation of SPS-4 related to Bangladesh.**

As per DR analysis from Surajmaninagar for Comilla II line, at 13:09 Hrs on 09.11.21, SPS-4 carrier signal was received resulting in tripping of 132 kV South Comilla II line (Line I was under Shutdown). However, as confirmed by OPTC, no carrier signal was sent from Palatana. Unwanted operation of this SPS results in failure of power supply to Bangladesh Power System which is a matter of concern.

POWERGRID is requested to share the root cause of the event and remedial measures that has been to avoid re-occurrence.

***Deliberation of the sub-Committee:***

Chief Manager(AM), NERTS informed that spurious signal was received at Surjamaninagar(TSECL). After detailed deliberation the forum decided to keep in observation any repetition of the incidences.

***The Sub-Committee noted as above.***
***Action: NERLDC/TSECL/NERTS.***

**B.29. Tripping of 132kV Palatana-SMNagar on LBB on 21.11.2021.**

At 03:53 Hrs on 21.11.21, 132 kV Palatana – SM Nagar line tripped on LBB only at SM Nagar end.

The operation of LBB protection seems to be unwanted as there was no abnormal fault current and voltage at the time of event.

POWERGRID is requested to share the root cause of the event and remedial measures that has been to avoid such unwanted tripping resulting in interruption of power supply to Bangladesh Power System.

***Deliberation of the sub-Committee:***

Chief Manager(AM), NERTS informed that the faulty static LBB relay resulted in tripping of the line and same has been replaced. The forum decided to drop the agenda item.

***The Sub-Committee noted as above.***

**B.30. Tripping of 132kV Melriat-Sihhmui on 14.12.2021.**

132 kV Melriat – Sihhmui D/C tripped at 14:50 Hrs on 14.12.21 due to operation of Differential protection at Melriat end. However, no significant voltage dip was observed from DR output.

No DR and EL output has been generated at Sihhmui end as confirmed by POWERGRID and hence, the root cause cannot be concluded.

POWERGRID is requested to intimate the root cause of the event and corrective action that has been taken to avoid such multiple tripping of lines.

***Deliberation of the sub-Committee:***

Chief Manager(AM), NERTS informed that tripping occurred due to mal-operation of Line Differential Protection due to CT ratio configuration issue at Shimui end and the same has been rectified.

***The Sub-Committee noted as above.***
***Action: NERTS.***

**B.31. Tripping of 400kV Balipara- Bongaigaon on 03.02.2022.**

400 kV Balipara – Bongaigaon 1 Line tripped at Bongaigaon end only at 16:51 Hrs on 03.02.2022 due to receipt of DT signal as reported by RTAMC.

No DR and EL output have been uploaded at Bongaigaon end by POWERGRID and hence, the root cause cannot be concluded.

POWERGRID is requested to intimate the root cause of the event and corrective action taken.

***Deliberation of the sub-Committee:***

DGM(AM), NERTS informed that the tripping was due to DC E/F between PLCC to Relay panel and cable has been replaced. ***The forum decided to drop the agenda item.***

***The Sub-Committee noted as above.***

**B.32. Tripping of 400kV Balipara- Misa-1 alongwith Main CB of Misa-2 on 07.01.2022.**

400 kV Balipara-Misa-1 Line along with Main CB of Misa-2 Line tripped from Balipara end only at 13:35 Hrs on 07.01.2022. As per DR output, no abnormalities in current and voltage signature were observed.

POWERGRID is requested to intimate the root cause of the event and corrective action taken to avoid re-occurrence.

***Deliberation of the sub-Committee:***

DGM(AM), NERTS informed that during relay testing, maloperation of DC changeover relay resulted in DC E/F and the same has been rectified. ***The forum decided to drop the agenda item.***

***The Sub-Committee noted as above.***

**B.33. Tripping of 132kV Imphal-Imphal-I on 24.01.2022**

Phase to Earth fault was in 132 kV Imphal (MSPCL)-Yangangpokpi-2 Line and fault was cleared from Imphal (MSPCL) within 200 msec on Z-II operation. Tripping of healthy 132 kV Imphal (PG)-Imphal (MSPCL)-1 Line from Imphal (PG) on B/U EF operation seems to be UNWANTED. NERLDC vide mail dated 25.01.2022requested to POWERGRID to furnish the root cause of the event and remedial measures that has been taken and the same has not been received.

No DR and EL output have been uploaded at Imphal (PG) by POWERGRID and hence, the root cause cannot be concluded.

POWERGRID is requested to intimate the root cause of the event and corrective actions taken.

***Deliberation of the sub-Committee:***

DGM(AM), NERTS informed that due to improper CT ratio the B/U E/F operated at Imphal(PG). Thereafter the CT ratio has been changed. ***The forum decided to drop the agenda item.***

***The Sub-Committee noted as above.***

**B.34. Tripping of 400kV Palatana-Silchar on 17.12.21**

While opening of Main CB at Palatana for Silchar 1 line to avail planned shutdown, DT signal was sent to Silchar end resulting in unwanted tripping of the line.

OTPC is requested to furnish the reason for sending DT while Tie Bay was in service at Palatana resulting in tripping of healthy line. Corrective action that has been taken may be shared with NERPC and NERLDC.

***Deliberation of the sub-Committee:***

Sr. Executive, OTPC informed that CB contacts have worn out and the same will be rectified during CB overhauling in May'22

***The Sub-Committee noted as above.***
***Action: OTPC***

**B.35. Grid Disturbance in Kameng HEP on 24.09.21**

400 kV Balipara - Kameng II Line tripped at 14:52 Hrs on 24.09.2021, while attempting to charge 400 kV Balipara - Kameng I Line (after returning from Shutdown) from Kameng resulting in black out of Kameng HEP and generation loss of around 300 MW. As per the DR analysis, DT was received at Balipara for Kameng II line, and no fault was observed at Kameng which seems unwanted tripping. NERLDC vide Letter no: NERLDC/SO-II/14/2111 dated 27.09.21 requested NEEPCO to intimate the root cause of the event.

NEEPCO is requested to intimate the reason for sending DT signal to Balipara while attempting to charge parallel line.

***Deliberation of the sub-Committee:***

GM, NEEPCO informed that the tripping of Line-2 was due to mal-operation of Bus bar 96 Trip relay at Kameng and same has been rectified.

***The Sub-Committee noted as above.***
***Action: OTPC***

**B.36. Unwanted tripping of 2x500MVA ICTs at New Kohima for fault in 400kV New Kohima –New Mariani-I**

At 13:08 Hrs on 01-11-21, 2x500 MVA ICT I and II at New Kohima tripped on operation of IN1>2 within 119 msec prior to tripping of 400 kV New Kohima-New Mariani-1 Line on DEF within 1004 msec. NERLDC vide email dated 03.11.21 suggested review of IN1>2 and SEF settings as per the Ramakrishna Task Force Guidelines.

KMTL is requested to intimate the latest status and actions that has been taken to avoid mis-operation.

***Deliberation of the sub-Committee:***

The forum requested M/s KMTL to implement the revised settings as per deliberation in item No. **B.2.**

***The Sub-Committee noted as above.***
***Action: M/s KMTL***

**B.37. Frequent tripping/outage of 220kV Karbi Langpi-Sarusajai D/C lines**

220 kV Karbi Langpi - Sarusajai 1 & 2 lines tripped on 03.10.21, 10.10.21, 14.10.21 (Twice) and 17.10.21 resulting in blackout of Karbi LangpiHEP with generation loss of around 100 MW. As per the analysis from DR output, fault was mostly due to vegetation infringement. Frequent tripping of the above lines is the matter of serious concern and effects the reliability of evacuation path of Karbi Langpi HEP.

AEGCL is requested to intimate the root cause for these events and remedial measures that has been taken. Also, intensive patrolling of the line is to be done for vegetation infringement clearance and patrolling report may be submitted to NERPC and NERLDC.

***Deliberation of the sub-Committee:***

AGM, AEGCL informed that the majority of trippings are due to vegetation and infringement clearance is difficult due to long length of the line. The forum requested AEGCL to submit patrolling report to NERLDC/NERPC at the earliest.

***The Sub-Committee noted as above.***
***Action: AEGCL***

**AGENDA ITEMS FROM NEEPCO**

**B.38. Protection of 132kV Pare-Nirjuli and 132kV Pare-N. Lakhimpur after modification works**

As per NERSS-IX scheme, modification of transmission line from Pare to NIrjuli and Pare to North Lakhimpur shall take place. The protections of these two lines at Pare end are to be ensured by NEEPCO.

The executing agency of these two lines i.e. M/s Sterlite has proposed there shall be Line Differential Protection for the New line of 132KV Pare - Nirjuli which is of 20.10Km Circuit Km Length.

The forum is requested to confirm whether LDP is required for the above mentioned line or distance protection relay will suffice. This confirmation is required for NEEPCO to finalize the scope between NEEPCO and M/s Sterlite for completion of the modification work at Pare end.

***Deliberation of the sub-Committee:***

GM, NEEPCO requested guidance of forum regarding installation of Line Differential Protection for 132kV Pare-Nirjuli, so that same may be include in upgradation works as per 6th SCM. As 132kV Pare-Nirjuli line length is 20.1km, the forum advised NEEPCO that Line Differential Protection is not required for the same.

***The Sub-Committee noted as above.***
***Action: NEEPCO***

## C. I T E M S F O R STATUS REVIEW

### C.1. STANDARDIZATION OF DR CHANNELS:

In 56th PCC meeting held on 21st April, 2021 it was decided that a webinar workshop on DR/EL downloading from various relays and DR standardization would be conducted by NERTS. Accordingly, NERTS-POWERGRID conducted a webinar/workshop on 17th June'2021.

***Deliberation of the sub-Committee:***

Member Secretary, NERPC thanked NERTS for conducting the workshop and requested all the utilities to complete standardization by Mar'22 especially the relays singled out in Item No. **B.8**

***The Sub-Committee noted as above.***
***Action: All utilities.***

### C.2 STATUS OF AUTO-RECLOSURE FOR IMPORTANT STATE GRID LINES:

Latest status of AEGCL lines

| **SPAR implemented at both ends** | **Status as updated in 56th PCC meeting** | **Latest status** |
|---|---|---|
| 220kV Agia - BTPS D/C | New ERL Panels installed. Latest Status to be intimated. | Operational |
| **SPAR implemented at one end** | **Status as updated in the last Sub-group Meeting** | **Latest status** |
| 220kV Agia-Azara D/C | SPAR available at Azara. At Agia by the end of January 2020. Tied to completion of PLCC works under R&U. Latest Status to be intimated. | Operational at both ends |
| 220kV Azara-Boko D/C | SPAR available at Azara. At Boko, the testing of the new panels is yet to be started. By January 2020. Tied to completion of PLCC works under R&U. Latest Status to be intimated. | |
| 220kV Samaguri-Sarusajai D/C | PLCC to be established under R&U scheme. Tied to completion of PLCC works under R&U. Latest Status to be intimated. | |
| 132kV Balipara-Sonabil | Balipara end status to be intimated. Tied to completion of PLCC works under R&U. Latest Status to be intimated. | |
| 132kV Pavoi-Sonabil | PLCC to be established under R&U scheme. Tied to completion of PLCC works under R&U. Latest Status to be intimated. | |

Status of MePTCL lines

| Name of the line | Status as updated in 56th PCC meeting | Latest Status |
|---|---|---|
| 132 kV Agia - Mendipathar | PLCC works completed. AR operation configuration to commence from Jun'21. Latest Status to be intimated. | By Mar'22 |
| 132 kV EPIP II - Byrnihat D/C | | |
| 132 kV EPIP II - Umtru D/C | | |
| 132 kV Kahilipara - Umtru D/C | | |
| 132 kV Khliehriat - Mustem | | |
| 132 kV Mustem - NEHU line | | |
| 132 kV Khliehriat (MePTCL) - Khliehriat (PG) Ckt#II | | |
| 132 kV Khliehriat- NEIGRIHMS | | |
| 132 kV NEHU - Mawlai | | |
| 132 kV Mawlai - Umiam Stage I | | |
| 132 kV Mawphlang - Nongstoin | | |
| 132 kV Mawphlang - Umiam Stg I D/C | | |
| 132 kV Mawphlang- Mawlai | | |
| 132 kV Mendipathar – Nangalbibra | | |
| 132 kV Myntdu Leshka - Khleihriat D/C | | |
| 132 kV Nangalbibra – Nongstoin | | |
| 132 kV NEHU – NEIGRIHMS | | |
| 132 kV NEHU – Umiam | | |
| 132 kV Sarusajai - Umtru D/C | | |
| 132 kV Umiam - Umiam St I | By Jun'21 | By Mar'22 |
| 132 kV Umiam St III - Umtru D/C | | |
| 132 kV Umtru - Umiam St IV D/C | | |

Other utilities are requested to furnish the target date for Implementation of Auto Reclosure Scheme and furnish the details as decided

- 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.
- Updated list of auto recloser is attached as **Annexure-C.2**.

***Deliberation of the sub-Committee:***

Chief Manager(AM), NERTS informed that due to multiple faults in the 132kV Dimapur-Kohima line the AR has been turned off as multiple operations is harmful for GIS CBs. The forum requested NERTS and DoP Nagaland to co-ordinate bilaterally so that outage of 132kV Dimapur-Kohima is minimized and AR can be kept in service at both ends.

***The Sub-Committee noted as above.***

***Action: all utilities.***

**C.3 Installation of Line differential protection for short lines:**

As per discussion in 56th PCC meeting and subsequent OCC/Sub-group meetings the status for different STUs are as follows:

| Name of utility | Last updated status | Latest status |
|---|---|---|
| AEGCL | Lines identified. Under Preparation stage. | |
| MSPCL | Revised DPR for 132kV Imphal-Imphal-III to be submitted. | |
| MePTCL | Work completed but not commissioned. By Aug'21. | |
| P&ED Mizoram | Lines identified viz. 132kV Aizawl - Luangmual and 132kV Khamzawl - Khawiva. DPR submitted. PSDF approval awaited. | |
| DoP Nagaland | Lines identified under DPR preparation stage. | |
| TSECL | 132kV 79Tilla-Budhjungnagar. DPR to be prepared | |

Also as per previous deliberation for the following important lines it was decided to implement LDP as early as possible:

| Name of the line | Status of OPGW | | Status of relay at both ends | |
|---|---|---|---|---|
| | Implementing utility | Latest status | Implementing utility | Latest status |
| 132kV DHEP-Sanis | DoP Nagaland | Included in NER-FO | NEEPCO | LDP to be implemented. Relay under procurement |

As per approval of the 19th TCC/NERPC meeting NERTS is required to implement line differential protection for the following lines. The status may be discussed.

| SN | Line | Length (CKm) |
|---|---|---|
| 1 | 132kV D/C RC Nagar – Agartala - I | 8.38 |
| 2 | 132kV D/C RC Nagar – Agartala - II | 8.38 |
| 3 | 132kV D/C Mokokchung – Mokokchung - I | 1.70 |
| 4 | 132kV D/C Mokokchung – Mokokchung - II | 1.70 |
| 5 | 132kV S/C Aizawl – Melriat | 12.00 |
| 6 | 132kV S/C Badarpur – Badarpur | 1.02 |
| 7 | 132kV S/C Imphal – Imphal – I | 1.50 |
| 8 | 132kV S/C Imphal – Imphal – II | 1.50 |
| 9 | 132kV S/C Kumarghat – PK Bari | 5.00 |
| 10 | 132kV S/C Khliehriat – Khliehriat - I | 7.8 |
| 11 | 132kV S/C Dimapur (PG) – Dimapur (S) - Old | 0.65 |
| 12 | 132kV S/C Dimapur (PG) – Dimapur (S) - New | 0.65 |
| 13 | 220kV S/C Balipara - Tezpur | 8.62 |
| 14 | 220kV Salakati – BTPS - I | 2.70 |
| 15 | 220kV Salakati – BTPS - II | 2.70 |

***Deliberation of the sub-Committee:***

DGM(AM), NERTS informed that Line Differential Relays have installed and commissioned for all the above lines. However, for 132kV Badarpur - Panchgram the relay at Panchgram end have to be retro-fitted in the SAS panel. The forum referred the matter for discussion in the next OCC meeting.

***The Sub-Committee noted as above.***
***Action: All utilities as above/NERPC.***

**C.4 Implementation of carrier inter-trip for important grid lines:**

Decisions as per previous meeting(s):

- ✓Carrier-intertrip to be immediately implemented for all Important grid elements in NER.
- ✓Utilities are requested to update the Status

***Deliberation of the sub-Committee:***

The updated list is attached at **Annexure-C.4.**

***The Sub-Committee noted as above.***
***Action: all state utilities***

**C.5 Status for SPS and Islanding Schemes:**

The latest status for suggested modifications to be updated:

| Sl No | SPS Details | Status as per 56th PCC meeting | Utility | Status as per 57th PCC meeting |
|---|---|---|---|---|
| **A. Existing** | | | | |
| 1 | SPS-1(Tripping of both modules of Palatana) | Load disconnection to be removed from logic at Silchar. Channels to be freed at Palatana& Silchar. | NERTS/ OTPC | Completed and disabled |
| 2 | SPS-2 (Tripping of 400kV Palatana-Silchar D/C when both modules of Palatana in service | Load disconnection to be removed from logic at Silchar. Channels to be freed at Palatana& Silchar. | POWER GRID | Load disconnection removed from logic at Silchar. NERLDC to disable the SPS if 400kV Palatana-SMNagar is in service. |
| 3 | SPS-3 ( Tripping of both 400kV Silchar – Azara and 400kV Silchar-Byrnihat when both modules of Palatana in service) | SPS to be deactivated and channels to be freed at Silchar, Azara & Byrnihat | NERTS/ AEGCL/ MePTCL | De-activated. |
| 4 | SPS-4(Tripping of both 400kV Silchar-Azara and 400kV Silchar-Byrnihat when both modules of Palatana not in service) | After commissioning of 400kV Silchar-Misa SPS to be deactivated and channels to be freed at Silchar, Azara & Byrnihat | NERTS | De-activated. |

| | | | | |
|---|---|---|---|---|
| 5 | SPS-5(When reverse power flow greater than 60MW from LV to HV side of 400/132kV ICT at Azara, Trip both ICTs at Azara to prevent overloading of 220kV BTPS-Salakati D/C) | Similar scheme as before. | AEGCL | Similar scheme as before. |
| 6 | SPS-6<br>(When 132kV Umiam Stg-I to<br>Umiam Stg-III D/C line trips ) | Carrier communication established for 132kV Mawngap-Umiam Stg-I. Remaining for 132kV Umiam-Umiam Stg-I. By Jun'21. | MePTCL | NERLDC informed that load shedding is required at Mawngap. MePTCL stated that 30MW load shedding at mawngap is possible, however s/d is required to implement the scheme. It was decided that works would be completed after return of Khandon s/d.<br>MePTCL to submit the SPS scheme to NERLDC/NERPC. |
| 7 | SPS-7<br>(When 220kV BTPS-Salakati D/C gets overloaded OR in case of<br>outage of one circuit the other<br>circuit gets overloaded (i.e loading greater than 600A)<br>Signal to be sent from BTPS to Agia to trip 220kV Agia-Azara and 220kV Agia-Boko at Agia end. | Logics implemented. Protection coupler not working at Agia end. Rectification by May'21. | AEGCL | In operation |
| 8 | SPS-9<br>(Tripping of 132kV AGTCCPP – Kumarghat line) | To be de-activated after commissioning of 132kV AGTCCPP-PKBari D/C | NERTS | De-activated |
| 9 | SPS- 10 (Tripping of both 400kV BgTPP – Bongaigaon D/C lines)<br>SPS Action: If generation greater than 600MW at that instant, then generation to be reduced to 600MW in order for power evacuation via 400/220kV 2x315MVA ICTs | In service w.e.f. 15.10.2020.<br>Schematic to be shared with NERLDC/NERPC | NTPC | Schematic attached at **Annexure-C.5** |

| | | | | |
|---|---|---|---|---|
| 10 | SPS- 11(Tripping of 132kV Monarchak-Udaipur OR 132kV Monarchak-Rokhia line)<br>SPS Action: If before tripping of either of the lines CC generation greater than 65MW, then STG at Monarchak will be tripped. | In-service w.e.f. 19.01.2022 | NEEPCO | In-service w.e.f. 19.01.2022 |
| 11 | SPS-12 (Outage of any one of the 400/132kV 2x360MVA ICTs at RHEP)<br>SPS Action: Tripping of one unit of RHEP for ICT loading>130% for 2s, Tripping of one unit RHEP+one unit Pare HEP for ICT loading>145% | Under implementation. Overload relay to be procured. | NEEPCO | M/s GE yet to revert back. |
| **SPS related to Bangladesh** | | | | |
| 12 | SPS-1(Outage of one ICT out of 400/132kV 2x125MVA ICTs at Palatana)<br>SPS Action: 60MW load disconnection at South Comilla. Followed by shifting of the load to main Bangladesh grid | In 171st OCCM held on 16.10.2020 it was decided to keep implementation in abeyance in view of commissioning of 400kV Palatana-SMNagar | POWER GRID | Not required. ***To be dropped.*** |
| 13 | SPS-2(Outage of 400kV Palatana – SMNagar line charged at 132kV)<br>SPS Action: Entire load disconnection of South Comilla by way of tripping of 132kV SMNagar-South Comilla D/C | In-service w.e.f. 08th Aug'2020. To be reviewed as per discussion in 184th OCCM on 26.11.2021. | NERTS/ TSECL | In-service w.e.f. 08th Aug'2020.Required till upgradation to HTLS of Tripura lines. |
| 14 | SPS-3(Outage of one circuit of 400kV SMNagar-South Comilla D/C(charged at 132kV)<br>SPS Action: 30MW load disconnection at South Comilla area of Bangladesh followed by shifting of the load to main grid of Bangladesh | As per decision of 171st OCCM implementation kept in abeyance. To be reviewed based on the present load growth in Bangladesh supply. | Bangladesh | To be reviewed in next Operational meeting with Bangladesh |

| | | | | |
|---|---|---|---|---|
| 15 | SPS-4(Outage of both 400/132kV 2x125MVA ICTs at Palatana)<br>SPS Action: Entire load disconnection of South Comilla by way of tripping of 132kV SMNagar-South Comilla D/C | In-service w.e.f. 08th Aug'2020. To be reviewed as per discussion in 184th OCCM on 26.11.2021. | NERTS/ TSECL | After commissioning of 400kV Palatana-SMNagar some load at Bangladesh may be catered even after tripping of both ICTs. It was decided that NERLDC would determine the quantum of shedding required and thereafter the SPS would be suitably modified. |

**New**

| | Name of SPS | SPS Trigger/Action | Utility | 57th PCC meeting deliberation |
|---|---|---|---|---|
| 16 | SPS related to secure & reliable operation of Leshka HEP | Upon tripping of one circuit of 132kV Leshka-Khliehriat D/C, Leshka generation to be reduced | MePGCL | MePGCL to determine the logic based on line loading OR generation quantum and prepare the schematic at the earliest. |
| 17 | SPS for charging of Bus Reactors at 400kV SMNagar | Tripping of both circuits of 400kV SMNagar-PKBari D/C trip both Bus Reactors at SMNagar, tripping of both Bus Reactors at SMNagar trips one circuit of 400kV SMNagar-PKBari D/C | INDI GRID | Implemented. To be reviewed upon commissioning of 2nd 400kV Palatana - Surjamaninagar |
| 18 | SPS for Bus Reactors at 400kV PKBari | SPS to prevent frequent opening of 400kV Silchar-PKBari D/C | INDI GRID | Implemented. To be reviewed upon commissioning of 2nd 400kV Palatana –Surjamaninagar line |

Status for Islanding Schemes:

| **Sl No** | **Name of the Islanding Scheme** | **Status as per last meeting** | **Timeline for SCADA visibility** | **Utility** | **Status as per 57th PCC meeting** |
|---|---|---|---|---|---|
| 1 | Tripura IS | In Special Meeting held on 06.10.21 tripping of 500MVA ICTs at 400kV Surjamaninagar and 400kV PKBari was decided. INDIGRID to maintain continuity in station supply has implemented the UFR settings in DP of 132kV lines at | Visible in SCADA | INDIGRID /TSECL | Implemented at Surjamninagar(ISTS) and PKBari(ISTS). UFR under procurement by TSECL. |

| | | | | | |
|---|---|---|---|---|---|
| | | Surjamaninagar(ISTS) and PKBari(ISTS). UFR procurement by TSECL – 7 out of 20 installed. | | | |
| 2 | Upper Assam (Assam-I) IS | Revised UFR settings to be implemented for 132kV Dimapur-Bokajan(at Dimapur), 220kV AGBPP-New Mariani(at AGBPP), 220kV New Mariani-Mariani(at Mariani) | Visible | NERTS/ AEGCL/ NEEPCO | 220kV New Mariani-mariani by Feb'22. Rest implemented. |
| 3 | Guwahati (Assam-II) IS | Under planning stage. Detailed BoQ based on summary schedule to be submitted. | Visible | NERLDC /NERTS/ NTPC/ AEGCL | AEGCL informed that M/s SIEMENS has suggested a RTU based load shedding and exact details shall be submitted in week. NTPC has already submitted the BoQ portion relevant to BgTPP. |

***The Sub-Committee noted as above.***

***Action: all utilities as above.***

## C.6 Status against remedial actions for important grid events:

| Sl. No | Details of the event | Remedial Actions suggested | Name of the utility | Status as intimated in last Sub-group | Latest status |
|---|---|---|---|---|---|
| 1 | 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 | Ningthoukhong end DR of 132kV Loktak-Ningthoukong to be time synchronised, channel standardisation to be done. | MSPCL | Time synchronization not yet done due to unavailabilty of required equipment. | Time synchronization of DR done for 132 kV Imphal-Ningthoukhong end on 22nd January 2022. Time synchronization for 132kV Loktak-Ningthoukhong line at Ningthoukhong end not yet done due to non-availability of software for GE relay and some other technical issues |

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| 2 | Tripping of 132kV Loktak-Ningthoukhong & 132kV Imphal-Ningthoukhong on 01.08.20 | Faulty DP relay at Ningthoukhong for Imphal (PG) to be replaced. | MSPCL | Faulty DP relay is to be replaced under PSDF scheme. Request is put up to the contractor to deliver the relay as soon as possible. | Replacement done on 22nd January 2022 |
| 3 | 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 | Over-reach issue could not be resolved. OEM reply awaited. | CT knee point voltage could not be measured at site. |
| 4 | Tripping of 132 kV AGTCCPP - Kumarghat Line only at AGTCCPP on 02-04-2020 18:06:00 | Calibration of numerical relay at AGTCCPP | NEEPCO | P442 procurement has been done. Installation works are yet to be completed. | |
| 5 | 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 | PLCC installation done. | |
| 6 | 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 | Estimated submitted | |
| 7 | | Line differential protection to be installed for link feeder at Rokhia | TPGL | Estimated submitted | |
| 8 | 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 | Joint Inspection done. MoM prepared will be send to NERPC. | Joint Inspection done. Report sent to NERPC. |

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| 9 | Tripping of 220kV BTPS-Rangia D/C lines and 132kV Rangia-Motonga line on 23.07.2020 | Carrier intertrip to be implemented for 220kV Rangia-BTPS D/C. | AEGCL | PLCC panel was replaced. However, Carrier intertrip is disabled currently after maloperation of Y-phase CB at BTPS feeder 2 at Rangia. Will be enabled after inspection. | Joint Inspection done. Report sent to NERPC. |
| 10 | Blackout of 220kV Mariani, 220/132kV Mokokchung(PG) & 132kV Mokokchung(NAG) on 06.08.2020 | AR to be implemented at DHEP for 132kV DHEP-Mokokchung with check syc function at Doyang | NEEPCO | Under proposal stage | |
| 11 | Tripping of 132kV Loktak-Ningthoukong & 132kV Loktak-Rengpang tripped multiple times | 3ph AR facility at Loktak for Z-I to be implemented at the earliest | NHPC | 1ph AR facility for Z-1 is implemented only for Jiribam and Imphal lines. For Ningthoukhong and Rengpang lines, necessary shutdown will be taken. | 1ph AR facility for Z-1 for Ningthoukhong and Rengpang lines not implemented as PLCC not present for the said lines |
| 12 | Tripping of all main CBs connected to 400kV Bus-2 at Balipara on 19.08.2020 | Replacement of all MCTI relays for 400kV Balipara, Bongaigaon &Misa | NERTS | 3 number of MCTI Relays are to be replaced at Balipara. | Completed |
| 13 | Tripping of 132 kV Dimapur (PG)-Kohima (DoP, Nagaland) line, 132 Kohima -Wokha line and 132 kV Karong -Kohima line on 24-09-2020 | Bus strengthening both at 132kV & 33kV level to be done at Kohima | DoP Nagaland | 132kV strengthening approval awaited. | |
| 14 | Tripping of 132kV Umiam- Umiam Stg-I on 14.10.2020 | Line differential protection to be implemented for 132kV Umiam-Umiam Stg-I | MePGCL | LDP under progress. | LDP under progress |
| 15 | Blackout of Ningthoukong on 13.04.2021 | B/U co-ordination to be done for 132kV Imphal-Ningthoukong and 132kV Loktak-Ningthoukong | MSPCL/ NHPC | MSPCL informed that: For Imphal-Ningthoukhong B/U settings seem to be fine as there is no unwanted trippings for the | Back up settings for both the lines were changed before and the settings have already been shared |

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| | | | | last few months.<br><br>For Loktak-Ningthoukhong B/U coordination not yet done. Required settings is requested so as to make the changes. | |
| 16 | Disturbance in Karong Area | B/U relay for 132kV Karong-Kohima at Karong to be replaced | MSPCL | B/U Relay for 132kV Karong-Kohima at Karong yet to be replaced. | |
| 17 | Blackout of 220/132kV Tinsukia S/S on 08.04.2021 | Detailed report to be submitted to NERLDC/NERPC | AEGCL | - | Tinsukia blackout all report have been submitted to NERLDC |
| 18 | | For downloading DR at Tinsukia OEM co-operation required. By July'21 | AEGCL | - | |
| 19 | Disturbance in PKBari area of Tripura on 01.04.21 | LBB scheme at PKBari to be shared with NERLDC/NERPC | INDIGRID | - | |
| 20 | Multiple tripping of 132kV Monarchak-Rokhia, 132kV Rokhia-Agartala D/C, Monarchak Unit and Rokhia unit on 30.04.21,01.05.21,23.05.21, 28.05.21 | Proper vegetation clearance within switchyard at Rokhia equipment to be done to avoid re-occurrence. | TSECL | | |
| 21 | Tripping of 132 kV Along - Daporijo Line on 23.04.21, 01.05.21, 27.05,21 and 28.05.21 (3 times).<br>Tripping of 132 kV Balipara - Tenga Line and 132 kV Tenga - Khupi Line on 29.05.21 and 30.05.21(2 times), 03.06.21, 16.06.21 and 21.06.21 (3 times) | From Aug'21 onwards all DR/EL would be submitted. | DoP Ar.Pradesh | | Infringement clearance being done regularly, disturbances have reduced to a great extent. Substations have begun to upload DR/EL reports after tripping. Substations are requested to submit regular Patrolling reports. shall be shared to |

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| | | | | | NERPC and NERLDC.<br><br>Vegetation clearance being done regularly. Grid disturbance issues reduced. |
| 22 | | Infringement clearance is to be done and patrolling report to be submitted to NERPC and NERLDC | DoP Ar.Pradesh | | |
| 23 | | Relay at Pare for NDTL to be tested for accelerated Z-3 operation. | NEEPCO | | |
| 24 | | B/U highest at Pare HEP for 132kV Chimpu line to be disabled. | NEEPCO | | |
| 25 | Tripping of 132 kV Biswanath Chariali - Chimpu 1 & 2 Line, 132 kV Itanagar - Lekhi Line, 132 kV Pare - Itanagar Line, 132 kV Lekhi - Pare Line<br>And 132 kV Ranganadi-Itanagar line on 12.05.21 | Zone-4 timings at Chimpu are to be co-ordinated with Z-2 of remote end for all the feeders at Chimpu. | DoP Ar.Pradesh | | Z-4 timing for Pare, Ranganadi and lekhi feeders of Chimpu S/s have been revised to 250 ms. Action on part of feeders owned by NER-II Transmission Ltd. Is pending.<br><br>LBB protection for Chimpu S/s shall be implemented by October 2022. |
| 26 | | Bus Bar protection to be implemented at Chimpu | DoP Ar.Pradesh | | |
| 27 | | Till implementation of Bus bar protection | DoP Ar.Pradesh | | |

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| | | at Chimpu pseudo BB protection using Z-4 to be implemented. | | | |
| 28 | Tripping of 132 kV Gohpur - North Lakhimpur 1 & 2 Line, 132 kV Gohpur - Nirjuli Line, 132 kV Gohpur - Pavoi 2 Line and 132 kV Lekhi - Nirjuli Line on 26.05.21 | Carrier aided intertripping to be made functional for 132kV Gohpur – N.Lakhimmpur D/C and it is to be tested to avoid delayed fault clearance. | AEGCL | | Carrier Aided Tripping in operation at 132kV N. Lakhimpur-Gohpur ckt I&II. |
| 29 | Tripping of 132 kV Imphal (MSPCL) - Imphal (PG) 2 Line, 132 kV Imphal (MSPCL) - Yaingangpokpi D/C Line ON 12.04.21 | BB protection to be implemented at Yurembam | MSPCL | | Done |
| 30 | | Z-4 setting at Yurembam to be reduced to 200ms | MSPCL | | Done |
| 31 | Tripping of 132 kV Imphal (MSPCL) - Yaingangpokpi D/C Line on 19.04.21 | O/C setting at Yurembam for Yaingangpokpi-I to be revised. | MSPCL | | Done |
| 32 | Tripping of 132 kV Imphal (PG) - Ningthoukong Line, 132 kV Loktak - Ningthoukhong Line and 132 kV Imphal (PG) - Loktak Line on 13.06.21. | Z-3 timing at Imphal for Ningthoukong feeder to be revised to 500ms | NERTS | | |
| 33 | | Z-4 at Loktak for Ningthoukong feeder to be revised to 350ms | NHPC | | Z-4 at Loktak for Ningthoukong feeder has been revised to 350ms |
| 34 | | Backup relay coordination for Imphal-Ningthoukhong-Loktak has to be done to avoid tripping of healthy line 132kV Imphal-Ningthoukhong. | | | |
| 35 | Tripping of 132 kV Bokajan - Dimapur Line and 132 kV Bokajan - Golaghat Line on 23.06.21 and 28.06.21. | Carrier aided tripping to be implemented for 132kV Dimapur-Bokajan | NERTS/ AEGCL | | Not implemented yet for 132kV Bokajan-Dimapur line. |
| 36 | Tripping of 132 kV BTPS - Dhaligaon 1 & 2 Line on 26.06.21 and 29.06.21. | Reasons for DT send from BTPS end to be intimated. | AEGCL | | Ckts tripped due to missing isolator status for "Bay in normal" |

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| | | | | | operation due to breakage of goose signals. Hence, zone 1 trip could not be achieved and line tripped zone 2 and EF at certain instances (EF trip had sent the DT signal). The above issue has been resolved. Settings are as per recommendations |
| 37 | | Dhaligaon end DP settings to be reviewed. | AEGCL | | |
| 38 | Tripping of 132 kV NEHU - NEIGRIHMS Line, 132 kV Khliehriat- NEIGRIHMS Line, 132 kV Khliehriat - Mustem Line, 132 kV Panchgram - Lumshnong Line, 132 kV Khliehriat (MePTCL) - Khliehriat (PG) 1& 2 Line and 132 kV Khandong - Khliehriat 1 & 2 Line on 16.04.21. | DP relay at Panchgram for 132kV Lumshnong to be time synced | AEGCL | | 132kV Panchgram-Lumshnong carrier communication not present yet. GPS time synced at Panchgram end.<br><br>At NEIGRIHMS, Mustem, Khliehriat(ME) B/U relay settings are co-ordinated. |
| 39 | | Carrier inter-trip to be immediately implemented for 132kV Lumshnong-Panchgram | AEGCL/ MePTCL | | |
| 40 | | At NEIGRIHMS, Mustem, Khliehriat(ME) B/U relay settings to be co-ordinated to provide proper grading | MePTCL | | |

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| 41 | Tripping of 132 kV Myntdu Leshka - Khleihriat 1 & 2 Line and Myndtu Leshka Unit 2 & 3 on 09.06.21 and 26.06.21 (2 times) | Jumper strengthening to be done at Khliehriat and Leshka switchyard. | MePTCL/ MePGCL | | |
| 42 | Tripping of 132kV Haflong – Jiribam line and 132kV Haflong – Umrangshu on 29th June'2021 | Downstream settings at Haflong(AS) to be co-ordinated. | AEGCL | | Downstream settings of Transformer HV, LV and 33kV O/G feeders are coordinate with 300 ms time delay between successive voltage levels. |
| 43 | Tripping of 132kV Imphal-Ningthoukong and 132kV Loktak-Ningthoukong on 26.03.2021 | DP relay to be installed for 132kV Imphal-Ningthoukong | MSPCL | | DP relay and backup relays have newly been installed on 22nd January 2022 |

***The Sub-Committee noted as above.***

***Action: all utilities as above.***

**C.7 Status of submission of FIR and DR & EL outputs for the Grid Events**

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 in Sept'21-as on 06.02.22is given below:

| Name of Utility | Total FIR/ DR/E L | 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 | 72 | 39 | 21 | 22 | 0 | 17 | 17 | 0 | 12 | 12 | 33 | 22 | 21 |
| AEGCL | 165 | 134 | 118 | 97 | 1 | 16 | 12 | 0 | 7 | 5 | 30 | 24 | 51 |
| MSPCL | 133 | 110 | 43 | 33 | 0 | 30 | 36 | 0 | 24 | 7 | 23 | 36 | 57 |

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MePTCL | 56 | 41 | 49 | 45 | 0 | 3 | 2 | 0 | 0 | 0 | 15 | 4 | 9 |
| MePGCL | 20 | 0 | 6 | 0 | 0 | 4 | 7 | 0 | 0 | 0 | 20 | 10 | 13 |
| P&ED, Mizoram | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 3 | 3 |
| DoP, Nagaland | 69 | 63 | 35 | 36 | 0 | 8 | 9 | 0 | 13 | 8 | 6 | 13 | 16 |
| TSECL | 61 | 0 | 25 | 27 | 0 | 3 | 3 | 0 | 4 | 2 | 61 | 29 | 29 |
| POWERGRID | 226 | 137 | 134 | 84 | 0 | 35 | 37 | 0 | 4 | 6 | 89 | 53 | 99 |
| NEEPCO | 195 | 68 | 69 | 59 | 0 | 72 | 73 | 0 | 3 | 3 | 127 | 51 | 60 |
| NHPC | 27 | 22 | 23 | 21 | 0 | 3 | 3 | 0 | 0 | 0 | 5 | 1 | 3 |
| NTPC | 10 | 0 | 1 | 1 | 0 | 8 | 8 | 0 | 0 | 0 | 10 | 1 | 1 |
| OTPC | 29 | 9 | 13 | 0 | 0 | 4 | 4 | 0 | 1 | 0 | 20 | 11 | 25 |
| Sterlite Power | 18 | 17 | 15 | 16 | 0 | 2 | 1 | 0 | 0 | 0 | 1 | 1 | 1 |
| KMTL | 5 | 3 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 2 | 5 |

Concerned Utilities are requested to upload Disturbance Recorder (DR), Event Logger (EL) outputs for grid events along with a First Information Report (FIR) in Tripping Monitoring Portal (*https://103.7.131.234/Trippingnew/Account/Login.aspx*) for analysis purpose.

***Deliberation of the sub-Committee:***

The forum noted the non-submission of DR/EL from the utilities. It was decided that a team comprising of members from NERTS, NERLDC and NERPC shall follow-up with the utilities on a weekly basis for submission of data.

NERTS – Sh. Pinak Nandi, Manager(AM)

NERLDC – Smt. Ishita Das, Engineer

NERPC- Sh. Shivam Chaturvedi, AD

***The Sub-Committee noted as above.***
***Action: All utilities as above.***

**Date and Venue of next PCC**

It is proposed to hold the 58th PCC meeting of NERPC on second week of May'2022. The date & exact venue will be intimated in due course.

The meeting ended with thanks to the Chair.

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**Annexure-I**

**List of Participants in the 57th PCC Meeting held on 15.02.2022**

| SN | Name & Designation | Organization | Contact No. |
|---|---|---|---|
| 1 | Sh. T.K Tara, SE(E), Electrical Transmission Circle | Ar. Pradesh (VC) | - |
| 2 | Sh. G.Yinyo, JE | Ar. Pradesh (VC) | - |
| 3 | Sh. Moli Kamki, AE. | Ar. Pradesh (VC) | - |
| 4 | Sh. Abhishek Kalita, Asst. Manager | Assam (VC) | - |
| 5 | Sh. Nitovi A. Wotsa, SE (Dimapur Circle) | Nagaland (VC) | - |
| 6 | Sh. Albert Ovung, EE (Kohima) | Nagaland (VC) | - |
| 7 | Sh. Ahoto Aye, EE (Mokochung) | Nagaland (VC) | - |
| 8 | Sh. David Tungoe, SDO | Nagaland (VC) | - |
| 9 | Sh. Lengminlal Singson, SDO (Kohima) | Nagaland (VC) | - |
| 10 | Sh. McDonald Dkhar, EE (System Protection) | Meghalaya (VC) | - |
| 11 | Sh.Alvin Shullai, AEE , MePGCL | Meghalaya (VC) | - |
| 12 | Sh. A.G. Tham, AEE, MePTCL | Meghalaya (VC) | - |
| 13 | Sh. H. Lalruatkima, EE, SLDC | Mizoram (VC) | - |
| 14 | Sh. Devaprasad Paul, Ch.Mgr (AM) | PGCIL (VC) | - |
| 15 | Sh. Ankit Vaish, DGM | PGCIL (VC) | - |
| 16 | Sh. Joypal Roy, DGM | NEEPCO (VC) | - |
| 17 | Sh. G.Sonowal, AGM | NTPC (VC) | - |
| 18 | Sh. Rajendran R., Manager | NTPC (VC) | - |
| 19 | Sh. Subhajit Ganguly, Sr.Executive | OTPC (VC) | - |
| 20 | Sh. Abhijit Ghosh, AGM | NHPC (VC) | - |
| 21 | Sh. Dhurjyoti Chaliha | KMTL (VC) | - |
| 22 | Sh. Vivek Karthikeyan, Sr.Manager | INDIGRID (VC) | - |
| 23 | Sh.S.C.De, Sr.GM | NERLDC (VC) | - |

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|---|---|---|---|
| 24 | Sh. B.Swargiary, Manager | NERLDC (VC) | - |
| 25 | Sh. Chitra Thapa, SO-II | NERLDC (VC) | - |
| 26 | Smti. Isha Das, Engineer | NERLDC (VC) | - |
| 27 | Sh. B. Lyngkhoi, Member Secretary | NERPC | - |
| 28 | Sh. S. Mukherjee, Dy. Director | NERPC | - |
| 29 | Sh. Shaishav Ranjan, AEE | NERPC | - |
| 30 | Sh. S. Chatturvedi, AE | NERPC | - |
| 31 | Sh. Rajib Das, AE | NERPC | - |

**Annexure-C.2**

## Details of Auto Recloser of Lines in North Eastern Regional Grid

| *Sl No* | *Voltage Level* | *Name of Element (Emanating - Terminating)* | *Ckt ID* | Tower Configuration (S/C or D/C) | Agency at End 1 | Agency at End 2 | Owner | AR Details (SPAR/3-Ph AR/Not Available/Information not Available | Remarks |
|---|---|---|---|---|---|---|---|---|---|
| 1 | 132 kV | 132 kV South Comilla (Bangladesh) - Surajmani Nagar | 1 | D/C | PGCB | POWERGRID | POWERGRID | Information not Available | Information not Available |
| 2 | 132 kV | 132 kV South Comilla (Bangladesh) - Surajmani Nagar | 2 | D/C | PGCB | POWERGRID | POWERGRID | Information not Available | Information not Available |
| 1 | 132 kV | 132 kV Gelyphu (Bhutan) - Salakati | 1 | S/C | BPCL | POWERGRID | POWERGRID | 3-ph AR in service at Salakati | |
| 2 | 132 kV | 132 kV Motonga (Bhutan) - Rangia | 1 | S/C | BPCL | AEGCL | POWERGRID & BPC | 3-ph AR in service at Rangia | |
| 1 | 400 kV | 400 kV Azara - Bongaigaon | 1 | D/C | AEGCL | POWERGRID | NETC(1.8%) &AEGCL (98.2%) | SPAR in service | |
| 2 | 400 kV | 400 kV Azara - Silchar | 1 | D/C | AEGCL | POWERGRID | NETC(37.5%) & AEGCL(62.5%) | SPAR in service | |
| 3 | 400 kV | 400 kV Balipara - Biswanath Chariali | 1 | D/C | POWERGRID | POWERGRID | POWERGRID | SPAR in service | |
| 4 | 400 kV | 400 kV Balipara - Biswanath Chariali | 2 | D/C | POWERGRID | POWERGRID | POWERGRID | SPAR in service | |
| 5 | 400 kV | 400 kV Balipara - Biswanath Chariali | 3 | D/C | POWERGRID | POWERGRID | POWERGRID | SPAR in service | |
| 6 | 400 kV | 400 kV Balipara - Biswanath Chariali | 4 | D/C | POWERGRID | POWERGRID | POWERGRID | SPAR in service | |
| 7 | 400 kV | 400 kV Balipara - Bongaigaon | 1 | D/C | POWERGRID | POWERGRID | POWERGRID | SPAR in service | |
| 8 | 400 kV | 400 kV Balipara - Bongaigaon | 2 | D/C | POWERGRID | POWERGRID | POWERGRID | SPAR in service | |
| 9 | 400 kV | 400 kV Balipara - Bongaigaon | 3 | D/C | POWERGRID | POWERGRID | POWERGRID | SPAR in service | |
| 10 | 400 kV | 400 kV Balipara - Bongaigaon | 4 | D/C | POWERGRID | POWERGRID | POWERGRID | SPAR in service | |
| 11 | 400 kV | 400 kV Balipara - Misa | 1 | D/C | POWERGRID | POWERGRID | POWERGRID | SPAR in service | |
| 12 | 400 kV | 400 kV Balipara - Misa | 2 | D/C | POWERGRID | POWERGRID | POWERGRID | SPAR in service | |
| 13 | 400 kV | 400 kV Biswanath Chariali - Ranganadi | 1 | D/C | POWERGRID | NEEPCO | POWERGRID | SPAR in service | |
| 14 | 400 kV | 400 kV Biswanath Chariali - Ranganadi | 2 | D/C | POWERGRID | NEEPCO | POWERGRID | SPAR in service | |
| 15 | 400 kV | 400 kV Bongaigaon - Byrnihat | 1 | D/C | POWERGRID | MePTCL | NETC(97.91 %) & MePTCL(2.09%) | SPAR in service | |
| 16 | 400 kV | 400 kV Binaguri - Bongaigaon | 1 | D/C | POWERGRID | POWERGRID | POWERGRID | SPAR in service | |
| 17 | 400 kV | 400 kV Binaguri - Bongaigaon | 2 | D/C | POWERGRID | POWERGRID | POWERGRID | SPAR in service | |
| 18 | 400 kV | 400 kV Alipurduar - Bongaigaon | 1 | D/C | POWERGRID | POWERGRID | ENICL | SPAR in service | |
| 19 | 400 kV | 400 kV Alipurduar - Bongaigaon | 2 | D/C | POWERGRID | POWERGRID | ENICL | SPAR in service | |
| 20 | 400 kV | 400 kV BgTPP - Bongaigaon | 1 | D/C | NTPC | POWERGRID | POWERGRID | SPAR Available | Due to LDP, SPAR is not attempting |

**Annexure-C.2**

## Details of Auto Recloser of Lines in North Eastern Regional Grid

| *Sl No* | *Voltage Level* | *Name of Element (Emanating - Terminating)* | *Ckt ID* | Tower Configuration (S/C or D/C) | Agency at End 1 | Agency at End 2 | Owner | AR Details (SPAR/3-Ph AR/Not Available/Information not Available | Remarks |
|---|---|---|---|---|---|---|---|---|---|
| 21 | 400 kV | 400 kV BgTPP - Bongaigaon | 2 | D/C | NTPC | POWERGRID | POWERGRID | SPAR Available | Due to LDP, SPAR is not attempting |
| 22 | 400 kV | 400 kV Byrnihat - Silchar | 1 | D/C | MePTCL | POWERGRID | NETC(98.06%)& MePTCL(1.94%) | SPAR in service | |
| 23 | 400 kV | 400 kV Pallatana - Silchar | 1 | D/C | OTPC | POWERGRID | NETC | SPAR in service | |
| 24 | 400 kV | 400 kV Pallatana - Silchar | 2 | D/C | OTPC | POWERGRID | NETC | SPAR in service | |
| 1 | 220 kV | 220 kV AGBPP - Mariani | 1 | S/C | NEEPCO | AEGCL | POWERGRID | Information not available | AGBPP-SPAR enabled, Mariani end-POWERGRID may intimate |
| 2 | 220 kV | 220 kV AGBPP - Mariani(PG) | 1 | S/C | NEEPCO | POWERGRID | POWERGRID | SPAR in service | |
| 3 | 220 kV | 220 kV Mariani - Misa | 1 | S/C | AEGCL | POWERGRID | POWERGRID | Information not available | POWERGRID may intimate the status |
| 4 | 220 kV | 220 kV Mariani (PG) - Misa | 1 | S/C | POWERGRID | POWERGRID | POWERGRID | SPAR in service | |
| 1 | 132 kV | 132kV Imphal - Silchar | 1 | D/C | POWERGRID | POWERGRID | POWERGRID | SPAR in service | |
| 2 | 132 kV | 132kV Imphal - Silchar | 2 | D/C | POWERGRID | POWERGRID | POWERGRID | SPAR in service | |
| 3 | 132 kV | 132kV P K Bari - Silchar | 1 | D/C | TSECL | POWERGRID | POWERGRID | SPAR in service | LINE DISCONTINUED |
| 4 | 132 kV | 132kV P K Bari - Silchar | 2 | D/C | TSECL | POWERGRID | POWERGRID | SPAR in service | LINE DISCONTINUED |
| 1 | 220 kV | 220 kV AGBPP - Deomali | 1 | S/C | NEEPCO | DoP,Arunachal Pradesh | DoP, Arunachal Pradesh | Information not available | DoP AP may intimate the status |
| 2 | 220 kV | 220 kV AGBPP - Tinsukia | 1 | S/C | NEEPCO | AEGCL | AEGCL | SPAR not in service | SPAR available at both ends, but is not enabled at AGBPP as per Audit report |
| 3 | 220 kV | 220 kV AGBPP - Tinsukia | 2 | S/C | NEEPCO | AEGCL | AEGCL | SPAR not in service | SPAR available at both ends, but is not enabled at AGBPP as per Audit report |
| 4 | 220 kV | 220 kV Agia - Azara | 1 | D/C | AEGCL | AEGCL | AEGCL | Not Available | SPAR available at Azara. At Agia by the end of January 2020. |
| 5 | 220 kV | 220 kV Agia - Boko | 1 | D/C | AEGCL | AEGCL | AEGCL | Not Available | SPAR available at Azara. At Agia by the end of January 2020. |
| 6 | 220 kV | 220 kV Agia - BTPS | 1 | D/C | AEGCL | AEGCL | AEGCL | Not Available | At BTPS SPAR completed. At Agia End testing of new panels are going on. Will be completed in two months time. |
| 7 | 220 kV | 220 kV Agia - BTPS | 2 | D/C | AEGCL | AEGCL | AEGCL | Not Available | At BTPS SPAR completed. At Agia End testing of new panels are going on. Will be completed in two months time. |
| 8 | 220 kV | 220 kV Azara - Boko | 1 | D/C | AEGCL | AEGCL | AEGCL | Not Available | SPAR available at Azara. At Boko, the testing of the new panels are yet to be started. By March 2020. |
| 9 | 220 kV | 220 kV Azara - Sarusajai | 1 | D/C | AEGCL | AEGCL | AEGCL | Not Available | SPAR available at Azara, other end will be done in R&M works |

**Annexure-C.2**

## Details of Auto Recloser of Lines in North Eastern Regional Grid

| *Sl No* | *Voltage Level* | *Name of Element (Emanating - Terminating)* | *Ckt ID* | Tower Configuration (S/C or D/C) | Agency at End 1 | Agency at End 2 | Owner | AR Details (SPAR/3-Ph AR/Not Available/Information not Available | Remarks |
|---|---|---|---|---|---|---|---|---|---|
| 10 | 220 kV | 220 kV Azara - Sarusajai | 2 | D/C | AEGCL | AEGCL | AEGCL | Not Available | SPAR available at Azara, other end will be done in R&M works |
| 11 | 220 kV | 220 kV Balipara - Sonabil | 1 | S/C | POWERGRID | AEGCL | AEGCL | SPAR in service | AEGCL & POWERGRID may confirm |
| 12 | 220 kV | 220 kV Alipurduar - Salakati | 1 | D/C | POWERGRID | POWERGRID | POWERGRID | SPAR in service | |
| 13 | 220 kV | 220 kV Alipurduar - Salakati | 2 | D/C | POWERGRID | POWERGRID | POWERGRID | SPAR in service | |
| 14 | 220 kV | 220 kV BTPS - Salakati | 1 | D/C | AEGCL | POWERGRID | POWERGRID | Not Available | SPAR available at BTPS end. Carrier communication link is yet to be established. In the AR logic, AR is blocked if comm. Link is absent. |
| 15 | 220 kV | 220 kV BTPS - Salakati | 2 | D/C | AEGCL | POWERGRID | POWERGRID | Not Available | SPAR available at BTPS end. Carrier communication link is yet to be established. In the AR logic, AR is blocked if comm. Link is absent. |
| 16 | 220 kV | 220 kV Dimapur - Misa | 1 | D/C | POWERGRID | POWERGRID | POWERGRID | SPAR in service | |
| 17 | 220 kV | 220 kV Dimapur - Misa | 2 | D/C | POWERGRID | POWERGRID | POWERGRID | SPAR in service | |
| 18 | 220 kV | 220 kV Jawaharnagar - Samaguri | 1 | D/C | AEGCL | AEGCL | AEGCL | Not Available | SPAR available at JawaharNagar, other end will be done in R&M works |
| 19 | 220 kV | 220 kV Jawaharnagar - Sarusajai | 1 | D/C | AEGCL | AEGCL | AEGCL | Not Available | SPAR available at JawaharNagar, other end will be done in R&M works |
| 20 | 220 kV | 220 kV Karbi Langpi - Sarusajai | 1 | S/C | APGCL | AEGCL | AEGCL | Not Available | SPAR will be done in R&M works |
| 21 | 220 kV | 220 kV Karbi Langpi - Sarusajai | 2 | S/C | APGCL | AEGCL | AEGCL | Not Available | SPAR will be done in R&M works |
| 22 | 220 kV | 220 kV Byrnihat - Misa | 1 | S/C | MePTCL | POWERGRID | MePTCL | SPAR in service | |
| 23 | 220 kV | 220 kV Byrnihat - Misa | 2 | S/C | MePTCL | POWERGRID | MePTCL | SPAR in service | |
| 24 | 220 kV | 220 kV Kopili - Misa | 1 | D/C | NEEPCO | POWERGRID | POWERGRID | SPAR in service | |
| 25 | 220 kV | 220 kV Kopili - Misa | 2 | D/C | NEEPCO | POWERGRID | POWERGRID | SPAR in service | |
| 26 | 220 kV | 220 kV Kopili - Misa | 3 | S/C | NEEPCO | POWERGRID | POWERGRID | SPAR in service | |
| 27 | 220 kV | 220 kV Mariani (AEGCL) - Samaguri | 1 | S/C | AEGCL | AEGCL | AEGCL | Not Available | will be done in PSDF scheme |
| 28 | 220 kV | 220 kV Mariani (PG) - Mokokchung (PG) | 1 | D/C | POWERGRID | POWERGRID | POWERGRID | SPAR in service | |
| 29 | 220 kV | 220 kV Mariani (PG) - Mokokchung (PG) | 2 | D/C | POWERGRID | POWERGRID | POWERGRID | SPAR in service | |
| 30 | 220 kV | 220 kV Misa - Samaguri | 1 | D/C | POWERGRID | AEGCL | POWERGRID | Information not available | POWERGRID may intimate the status |
| 31 | 220 kV | 220 kV Misa - Samaguri | 2 | D/C | POWERGRID | AEGCL | POWERGRID | Information not available | POWERGRID may intimate the status |
| 32 | 220 kV | 220 kV NTPS - Tinsukia | 1 | D/C | AEGCL | AEGCL | AEGCL | Not Available | will be done in PSDF scheme |

**Annexure-C.2**

## Details of Auto Recloser of Lines in North Eastern Regional Grid

| *Sl No* | *Voltage Level* | *Name of Element (Emanating - Terminating)* | *Ckt ID* | Tower Configuration (S/C or D/C) | Agency at End 1 | Agency at End 2 | Owner | AR Details (SPAR/3-Ph AR/Not Available/Information not Available | Remarks |
|---|---|---|---|---|---|---|---|---|---|
| 33 | 220 kV | 220 kV NTPS - Tinsukia | 2 | D/C | AEGCL | AEGCL | AEGCL | Not Available | will be done in PSDF scheme |
| 34 | 220 kV | 220 kV Samaguri - Sarusajai | 1 | D/C | AEGCL | AEGCL | AEGCL | Not Available | AEGCL may intimate the plan of action |
| 35 | 220 kV | 220 kV Samaguri - Sarusajai | 2 | D/C | AEGCL | AEGCL | AEGCL | Not Available | will be done in PSDF scheme |
| 35 | 220 kV | 220 kV Samaguri - Sonabil | 1 | S/C | AEGCL | AEGCL | AEGCL | Not Available | Due to problem at Samaguri end. Implemeted in R&M scheme funded from PSDF |
| 36 | 220 kV | 220 kV Samaguri - Sonabil | 2 | S/C | AEGCL | AEGCL | AEGCL | Not Available | Due to problem at Samaguri end. Implemeted in R&M scheme funded from PSDF |
| 1 | 132 kV | 132 kV Agartala - AGTCCPP | 1 | D/C | TSECL | NEEPCO | POWERGRID | Not Available | SPAR available at AGTCCPP, PLCC is not in service |
| 2 | 132 kV | 132 kV Agartala - AGTCCPP | 2 | D/C | TSECL | NEEPCO | POWERGRID | Not Available | SPAR available at AGTCCPP, PLCC is not in service |
| 3 | 132 kV | 132 kV Agartala - Bodhjungnagar | 1 | S/C | TSECL | TSECL | TSECL | Not Available | 132 KV breaker are 3-ph. gang operated. |
| 4 | 132 kV | 132 kV Agartala - Dhalabil | 1 | S/C | TSECL | TSECL | TSECL | Not Available | 132 KV breaker are 3-ph. gang operated. |
| 5 | 132 kV | 132 kV Agartala - Rokhia | 1 | D/C | TSECL | TPGL | TSECL | Not Available | 132 KV breaker are 3-ph. gang operated. |
| 6 | 132 kV | 132 kV Agartala - Rokhia | 2 | D/C | TSECL | TPGL | TSECL | Not Available | 132 KV breaker are 3-ph. gang operated. |
| 7 | 132 kV | 132 kV Agia - Mendipathar | 1 | S/C | AEGCL | MePTCL | MePTCL | Not Available | Agia end: 3-ph AR will be implemented under R&M works, Mendipathar- MePTCL will implement the 3 Ph AR in paralell with ongoing R&M works of PLCC &DPC by September 2019. |
| 8 | 132 kV | 132 kV AGTCCPP - Kumarghat | 1 | S/C | NEEPCO | POWERGRID | POWERGRID | SPAR/TPAR not in service | AGTCCPP: 1 AR facility available; Kumarghat: Gang Operated CBs |
| 9 | 132 kV | 132 kV Aizawl - Jiribam | 1 | S/C | POWERGRID | POWERGRID | POWERGRID | 3-Ph AR in service | |

**Annexure-C.2**

## Details of Auto Recloser of Lines in North Eastern Regional Grid

| *Sl No* | *Voltage Level* | *Name of Element (Emanating - Terminating)* | *Ckt ID* | Tower Configuration (S/C or D/C) | Agency at End 1 | Agency at End 2 | Owner | AR Details (SPAR/3-Ph AR/Not Available/Information not Available | Remarks |
|---|---|---|---|---|---|---|---|---|---|
| 10 | 132 kV | 132 kV Aizawl - Kolasib | 1 | S/C | POWERGRID | P&ED, Mizoram | POWERGRID | 3-Ph AR in service | POWERGRID may confirm |
| 11 | 132 kV | 132 kV Aizawl - Kumarghat | 1 | S/C | POWERGRID | POWERGRID | POWERGRID | 3-Ph AR in service | |
| 12 | 132 kV | 132 kV Aizawl - Luangmual | 1 | S/C | POWERGRID | P&ED, P&ED, Mizoram | P&ED, Mizoram | Not Available | |
| 13 | 132 kV | 132 kV Aizawl - Melriat(PG) | 1 | S/C | POWERGRID | POWERGRID | POWERGRID | Not Available | |
| 14 | 132 kV | 132 kV Ambasa - Gamaitila | 1 | S/C | TSECL | TSECL | TSECL | Not Available | 132 KV breaker are 3-ph. gang operated. |
| 15 | 132 kV | 132 kV Ambasa - Kamalpur | 1 | S/C | TSECL | TSECL | TSECL | Not Available | 132 KV breaker are 3-ph. gang operated. |
| 16 | 132 kV | 132 kV Ambasa - P K Bari | 1 | S/C | TSECL | TSECL | TSECL | Not Available | Line terminated at P.K.Bari(Sterlite ISTS) & Line Differential In Service between 132KV P.K. Bari(ISTS) to P.K.Bari(TSECL) |
| 17 | 132 kV | 132 kV Badarpur - Jiribam | 1 | S/C | POWERGRID | POWERGRID | POWERGRID | Information not available | POWERGRID may intimate the status |
| 18 | 132 kV | 132 kV Badarpur - Kolasib | 1 | S/C | POWERGRID | P&ED, Mizoram | POWERGRID | Information not available | POWERGRID may intimate the status |
| 19 | 132 kV | 132 kV Badarpur - Kumarghat | 1 | S/C | POWERGRID | POWERGRID | POWERGRID | 3-Ph AR in service | |
| 20 | 132 kV | 132 kV Badarpur - Panchgram | 1 | S/C | POWERGRID | AEGCL | POWERGRID | Information not available | **POWERGRID may intimate the status**, Panchgram end: 3 ph AR will be implemeted under R&M |
| 21 | 132 kV | 132 kV Badarpur - Silchar | 1 | D/C | POWERGRID | POWERGRID | POWERGRID | Information not available | Silchar end: AR in BCU available, **AEGCL may intimate the status** |
| 22 | 132 kV | 132 kV Badarpur - Silchar | 2 | D/C | POWERGRID | POWERGRID | POWERGRID | Information not available | Silchar end: 3-ph AR in BCU available, **AEGCL may intimate the status** |
| 23 | 132 kV | 132 kV Balipara - Bhalukpong | 1 | S/C | POWERGRID | DoP, Arunachal Pradesh | NEEPCO & DoP, Arunachal Pradesh | Not Available | |
| 24 | 132 kV | 132 kV Balipara - Depota | 1 | S/C | POWERGRID | AEGCL | AEGCL | Not Available | AEGCL&POWERGRID may intimate the plan of action |

**Annexure-C.2**

## Details of Auto Recloser of Lines in North Eastern Regional Grid

| *Sl No* | *Voltage Level* | *Name of Element (Emanating - Terminating)* | *Ckt ID* | Tower Configuration (S/C or D/C) | Agency at End 1 | Agency at End 2 | Owner | AR Details (SPAR/3-Ph AR/Not Available/Information not Available | Remarks |
|---|---|---|---|---|---|---|---|---|---|
| 25 | 132 kV | 132 kV Balipara - Sonabil | 1 | S/C | AEGCL | AEGCL | AEGCL | Information not available | Sonabil end: 3-ph AR available, **Balipara end: POWERGRID may intimate** |
| 26 | 132 kV | 132 kV Baramura - Gamaitilla | 1 | S/C | TPGL | TSECL | TSECL | Not Available | 132 KV breaker are 3-ph. gang operated. |
| 27 | 132 kV | 132 kV Baramura - Jirania | 1 | S/C | TPGL | TSECL | TSECL | Not Available | 132 KV breaker are 3-ph. gang operated. |
| 28 | 132 kV | 132 kV Bhalukpong - Khupi | 1 | S/C | DoP, Arunachal Pradesh | NEEPCO | NEEPCO & DoP, Arunachal Pradesh | Not Available | |
| 29 | 132 kV | 132 kV Biswanath Chariali - Pavoi | 1 | D/C | POWERGRID | AEGCL | POWERGRID | Not Available | Pavoid end- 3-ph AR will be implemented, BNC: POWERGRID may intimate the status |
| 30 | 132 kV | 132 kV Biswanath Chariali - Pavoi | 2 | D/C | POWERGRID | AEGCL | POWERGRID | Not Available | Pavoid end- 3-ph AR will be implemented, BNC: POWERGRID may intimate the status |
| 31 | 132 kV | 132 kV Pavoi - Sonabil | 1 | S/C | AEGCL | AEGCL | AEGCL | Not available | TPAR is available both at Pavoi and Sonabil. Carr. Comm. Is yet to be established. |
| 32 | 132 kV | 132 kV Bodhjannagar - Jirania | 1 | S/C | TSECL | TSECL | TSECL | Not Available | 132 KV breaker are 3-ph. gang operated. |
| 33 | 132 kV | 132 kV Bokajan - Dimapur | 1 | S/C | AEGCL | POWERGRID | AEGCL | Not available | |
| 34 | 132 kV | 132 kV Bokajan - Golaghat | 1 | S/C | AEGCL | AEGCL | AEGCL | Not available | AEGCL may intimate the plan of action |
| 35 | 132 kV | 132 kV BTPS - Dhaligaon | 1 | D/C | AEGCL | AEGCL | AEGCL | Not available | 3-ph AR under R&M |
| 36 | 132 kV | 132 kV BTPS - Dhaligaon | 2 | D/C | AEGCL | AEGCL | AEGCL | Not available | 3-ph AR under R&M |
| 37 | 132 kV | 132 kV BTPS-Kokrajhar | 1 | S/C | AEGCL | AEGCL | AEGCL | Not available | AEGCL may intimate the plan of action |
| 38 | 132 kV | 132 kV Bilashipara-Kokrajhar | 1 | S/C | AEGCL | AEGCL | AEGCL | Not available | AEGCL may intimate the plan of action |
| 39 | 132 kV | 132 kV Bilashipara-Gauripur | 1 | S/C | AEGCL | AEGCL | AEGCL | Not available | AEGCL may intimate the plan of action |

**Annexure-C.2**

## Details of Auto Recloser of Lines in North Eastern Regional Grid

| *Sl No* | *Voltage Level* | *Name of Element (Emanating - Terminating)* | *Ckt ID* | Tower Configuration (S/C or D/C) | Agency at End 1 | Agency at End 2 | Owner | AR Details (SPAR/3-Ph AR/Not Available/Information not Available | Remarks |
|---|---|---|---|---|---|---|---|---|---|
| 40 | 132 kV | 132 kV Bornagar - Dhaligaon | 1 | S/C | AEGCL | AEGCL | AEGCL | Not available | AEGCL may intimate the plan of action |
| 41 | 132 kV | 132 kV Bornagar - Rangia | 1 | S/C | AEGCL | AEGCL | AEGCL | Not available | AEGCL may intimate the plan of action |
| 42 | 132 kV | 132 kV Budhjangnagar - Surjamaninagar | 1 | S/C | TSECL | TSECL | TSECL | Not available | 132 KV breaker are 3-ph. gang operated. |
| 43 | 132 kV | 132 kV Budhjangnagar - Surjamaninagar | 2 | S/C | TSECL | TSECL | TSECL | Not available | Line terminated at S.M.Nagar(Sterlite ISTS) & Distance relay in Service between 132KV S.M.Nagar(Sterlite ISTS) to S.M.Nagar(TSECL) |
| 44 | 132 kV | 132 kV Dhalabil - Kamalpur | 1 | S/C | TSECL | TSECL | TSECL | Not available | 132 KV breaker are 3-ph. gang operated. |
| 45 | 132 kV | 132 kV Dhaligaon-Gossaigaon | 1 | S/C | AEGCL | AEGCL | AEGCL | Not available | AEGCL may intimate the plan of action |
| 46 | 132 kV | 132 kV Dharmanagar - Dullavcherra | 1 | S/C | TSECL | AEGCL | AEGCL | Not available | AEGCL&TSECL may intimate the plan of action |
| 47 | 132 kV | 132 kV Dullavcherra - Hailakandi | 1 | S/C | AEGCL | AEGCL | AEGCL | Not available | AEGCL may intimate the plan of action |
| 48 | 132 kV | 132 kV Dharmanagar - P K Bari | 1 | S/C | TSECL | TSECL | TSECL | Not available | 132 KV breaker are 3-ph. gang operated. |
| 49 | 132 kV | 132 kV Dimapur - Doyang | 1 | D/C | POWERGRID | NEEPCO | POWERGRID | SPAR in service | |
| 50 | 132 kV | 132 kV Dimapur - Doyang | 2 | D/C | POWERGRID | NEEPCO | POWERGRID | SPAR in service | |
| 51 | 132 kV | 132 kV Dimapur - Imphal | 1 | S/C | POWERGRID | POWERGRID | POWERGRID | SPAR in service | |
| 52 | 132 kV | 132 kV Dimapur (PG) - Dimapur (DoP, Nagaland) | 1 | S/C | POWERGRID | ED, DoP, Nagaland | DoP, Nagaland | Not Available | DoP Nagaland may please intimate the plan of action |
| 53 | 132 kV | 132 kV Dimapur (PG) - Dimapur (DoP, Nagaland) | 2 | S/C | POWERGRID | ED, DoP, Nagaland | DoP, Nagaland | Not Available | DoP Nagaland may please intimate the plan of action |
| 54 | 132 kV | 132 kV Dimapur (PG) - Kohima | 1 | S/C | POWERGRID | ED, DoP, Nagaland | DoP, Nagaland | Not Available | 3-ph AR available at Dimapur(PG). DoP Nagaland may please intimate the plan of action |
| 55 | 132 kV | 132 kV Doyang - Mokokchung (DoP, Nagaland) | 1 | S/C | NEEPCO | ED, DoP, Nagaland | DoP, Nagaland | Not Available | |
| 56 | 132 kV | 132 kV Doyang - Sanis | 1 | S/C | NEEPCO | DoP, Nagaland | DoP, Nagaland | Not Available | |

**Annexure-C.2**

## Details of Auto Recloser of Lines in North Eastern Regional Grid

| *Sl No* | *Voltage Level* | *Name of Element (Emanating - Terminating)* | *Ckt ID* | Tower Configuration (S/C or D/C) | Agency at End 1 | Agency at End 2 | Owner | AR Details (SPAR/3-Ph AR/Not Available/Information not Available | Remarks |
|---|---|---|---|---|---|---|---|---|---|
| 57 | 132 kV | 132 kV EPIP II - Byrnihat | 1 | D/C | MePTCL | MePTCL | MePTCL | Not Available | MePTCL will implement the 3 Ph AR in paralell with ongoing R&M works of PLCC &DPC by September 2019. |
| 58 | 132 kV | 132 kV EPIP II - Byrnihat | 2 | D/C | MePTCL | MePTCL | MePTCL | Not Available | MePTCL will implement the 3 Ph AR in paralell with ongoing R&M works of PLCC &DPC by September 2019. |
| 59 | 132 kV | 132 kV EPIP II - Umtru | 1 | D/C | MePTCL | MePTCL | MePTCL | Not Available | MePTCL will implement the 3 Ph AR in paralell with ongoing R&M works of PLCC &DPC by November 2019. |
| 60 | 132 kV | 132 kV EPIP II - Umtru | 2 | D/C | MePTCL | MePTCL | MePTCL | Not Available | MePTCL will implement the 3 Ph AR in paralell with ongoing R&M works of PLCC &DPC by November 2019. |
| 61 | 132 kV | 132 kV Gauripur-Gossaigaon | 1 | S/C | AEGCL | AEGCL | AEGCL | Not available | AEGCL may intimate the plan of action |
| 62 | 132 kV | 132 kV Gohpur - Pavoi | 1 | S/C | AEGCL | AEGCL | AEGCL | Not available | AEGCL may intimate the plan of action |
| 63 | 132 kV | 132 kV Gohpur - Nirjuli | 1 | S/C | AEGCL | POWERGRID | POWERGRID | Not available | AEGCL may intimate the plan of action |
| 64 | 132 kV | 132 kV Golaghat - Mariani (AEGCL) | 1 | S/C | AEGCL | AEGCL | AEGCL | Not available | AEGCL may intimate the plan of action |
| 65 | 132 kV | 132 kV Haflong - Jiribam | 1 | S/C | POWERGRID | POWERGRID | POWERGRID | Not available | AEGCL may intimate the plan of action |
| 66 | 132 kV | 132 kV Haflong - Umranshu | 1 | S/C | AEGCL | POWERGRID | AEGCL | Not available | AEGCL may intimate the plan of action |
| 67 | 132 kV | 132 kV Imphal (MSPCL) - Imphal (PG) | 1 | S/C | MSPCL | POWERGRID | POWERGRID | Not available | AEGCL may intimate the plan of action |
| 68 | 132 kV | 132 kV Imphal (MSPCL) - Imphal (PG) | 2 | S/C | MSPCL | POWERGRID | POWERGRID & MSPCL | Not available | AEGCL may intimate the plan of action |
| 69 | 132 kV | 132 kV Imphal (MSPCL) - Karong | 1 | S/C | MSPCL | MSPCL | MSPCL | Not Available | AEGCL may intimate the plan of action |
| 70 | 132 kV | 132 kV Imphal (PG) - Ningthoukong | 1 | S/C | POWERGRID | MSPCL | MSPCL | Not Available | AEGCL may intimate the plan of action |
| 71 | 132 kV | 132 kV Imphal (PG) - Loktak | 1 | S/C | POWERGRID | NHPC | POWERGRID | SPAR in service | |
| 72 | 132 kV | 132 kV Jiribam - Loktak | 2 | S/C | POWERGRID | NHPC | POWERGRID | SPAR in service | |
| 73 | 132 kV | 132 kV Jiribam - Pailapool | 1 | S/C | POWERGRID | AEGCL | AEGCL/ MSPCL | Not Available | POWERGRID & AEGCL may intimate the plan of action |

**Annexure-C.2**

## Details of Auto Recloser of Lines in North Eastern Regional Grid

| *Sl No* | *Voltage Level* | *Name of Element (Emanating - Terminating)* | *Ckt ID* | Tower Configuration (S/C or D/C) | Agency at End 1 | Agency at End 2 | Owner | AR Details (SPAR/3-Ph AR/Not Available/Information not Available | Remarks |
|---|---|---|---|---|---|---|---|---|---|
| 74 | 132 kV | 132 kV Jiribam(PG) - Jiribam(MA) | 1 | S/C | POWERGRID | MSPCL | MSPCL | Not available | AEGCL may intimate the plan of action |
| 75 | 132 kV | 132 kV Jorhat - Mariani | 1 | S/C | AEGCL | AEGCL | AEGCL | Not Available | AEGCL may intimate the plan of action |
| 76 | 132 kV | 132 kV Jorhat - Mariani | 2 | S/C | AEGCL | AEGCL | AEGCL | Not Available | AEGCL may intimate the plan of action |
| 77 | 132 kV | 132 kV Jorhat - Nazira | 1 | S/C | AEGCL | AEGCL | AEGCL | Not Available | AEGCL may intimate the plan of action |
| 78 | 132 kV | 132 kV Kahilipara - Kamalpur | 1 | S/C | AEGCL | AEGCL | AEGCL | Not Available | AEGCL may intimate the plan of action |
| 79 | 132 kV | 132 kV Kamalpur - Rangia | 1 | D/C | AEGCL | AEGCL | AEGCL | Not Available | AEGCL may intimate the plan of action |
| 80 | 132 kV | 132 kV Kamalpur - Rangia | 2 | D/C | AEGCL | AEGCL | AEGCL | Not Available | AEGCL may intimate the plan of action |
| 81 | 132 kV | 132 kV Kahilipara - Sarusajai | 1 | D/C | AEGCL | AEGCL | AEGCL | Not Available | AEGCL may intimate the plan of action |
| 82 | 132 kV | 132 kV Kahilipara - Sarusajai | 2 | D/C | AEGCL | AEGCL | AEGCL | Not Available | AEGCL may intimate the plan of action |
| 83 | 132 kV | 132 kV Kahilipara - Sarusajai | 3 | D/C | AEGCL | AEGCL | AEGCL | Not Available | AEGCL may intimate the plan of action |
| 84 | 132 kV | 132 kV Sarusajai - Sishugram | 1 | D/C | AEGCL | AEGCL | AEGCL | Not Available | AEGCL may intimate the plan of action |
| 85 | 132 kV | 132 kV Kamalpur - Sishugram | 1 | S/C | AEGCL | AEGCL | AEGCL | Not Available | AEGCL may intimate the plan of action |
| 86 | 132 kV | 132 kV Kahilipara - Umtru | 1 | D/C | AEGCL | MePTCL | MePTCL | Not Available | MePTCL will implement the 3 Ph AR in paralell with ongoing R&M works of PLCC &DPC by Deceber 2019 |
| 87 | 132 kV | 132 kV Kahilipara - Umtru | 2 | D/C | AEGCL | MePTCL | MePTCL | Not Available | MePTCL will implement the 3 Ph AR in paralell with ongoing R&M works of PLCC &DPC by Deceber 2019 |
| 88 | 132 kV | 132 kV Kamalpur - P K Bari | 1 | S/C | TSECL | TSECL | TSECL | Not available | 132 KV breaker are 3-ph. gang operated. |
| 89 | 132 kV | 132 kV Karong - Kohima | 1 | S/C | DoP, Nagaland | MSPCL | MSPCL(65.3%) / DoP, Nagaland(34.7%) | Not Available | |
| 90 | 132 kV | 132 kV Khandong - Khliehriat | 1 | S/C | NEEPCO | POWERGRID | POWERGRID | SPAR in service | |
| 91 | 132 kV | 132 kV Khandong - Khliehriat | 2 | S/C | NEEPCO | POWERGRID | POWERGRID | Information not available | POWERGRID may intimate the status |

**Annexure-C.2**

## Details of Auto Recloser of Lines in North Eastern Regional Grid

| *Sl No* | *Voltage Level* | *Name of Element (Emanating - Terminating)* | *Ckt ID* | Tower Configuration (S/C or D/C) | Agency at End 1 | Agency at End 2 | Owner | AR Details (SPAR/3-Ph AR/Not Available/Information not Available | Remarks |
|---|---|---|---|---|---|---|---|---|---|
| 92 | 132 kV | 132 kV Khandong - Kopili | 1 | S/C | NEEPCO | NEEPCO | POWERGRID | SPAR kept in non-auto mode | (SPAR facility available) |
| 93 | 132 kV | 132 kV Khandong - Kopili | 2 | S/C | NEEPCO | NEEPCO | POWERGRID | AR kept in non-auto mode | Gang operated CB at Kopili end (Owner:POWERGRID) |
| 94 | 132 kV | 132 kV Khandong - Umranshu | 1 | S/C | NEEPCO | AEGCL | POWERGRID & AEGCL | Not Available | Due to problem at Umrangshu end, Single pole CB, AR relay available at Khandong end |
| 95 | 132 kV | 132 kV Khliehriat - Badarpur | 1 | S/C | POWERGRID | POWERGRID | POWERGRID | 3-Ph AR in service | |
| 96 | 132 kV | 132 kV Khliehriat - Mustem | 1 | S/C | MePTCL | MePTCL | MePTCL | Not available | MePTCL will implement the 3 Ph AR in paralell with ongoing R&M works of PLCC &DPC by January 2020. |
| 97 | 132 kV | 132 kV Mustem - NEHU line | 1 | S/C | MePTCL | MePTCL | MePTCL | Not available | MePTCL will implement the 3 Ph AR in paralell with ongoing R&M works of PLCC &DPC by January 2020. |
| 98 | 132 kV | 132 kV Khliehriat (MePTCL) - Khliehriat (PG) | 1 | S/C | MePTCL | POWERGRID | POWERGRID | Not available | |
| 99 | 132 kV | 132 kV Khliehriat (MePTCL) - Khliehriat (PG) | 2 | S/C | MePTCL | POWERGRID | MePTCL | Not available | MePTCL will implement the 3 Ph AR in paralell with ongoing R&M works of PLCC &DPC by January 2020. |
| 100 | 132 kV | 132 kV Khliehriat- NEIGRIHMS | 1 | S/C | MePTCL | POWERGRID | MePTCL | Not available | MePTCL will implement the 3 Ph AR in paralell with ongoing R&M works of PLCC &DPC by January 2020. |
| 101 | 132 kV | 132 kV Kumarghat - P K Bari | 1 | S/C | POWERGRID | TSECL | TSECL | Not Available | Scheme not available at PK Bari end; PLCC not available |
| 102 | 132 kV | 132 kV Lekhi - Nirjuli | 1 | S/C | DoP, Arunachal Pradesh | POWERGRID | DoP, Arunachal Pradesh & POWERGRID | Information not available | DoP, Arunachal Pradesh & POWERGRID may please intimate the status |
| 103 | 132 kV | 132 kV Pare - Ranganadi | 1 | S/C | DoP, Arunachal Pradesh | NEEPCO | DoP, Arunachal Pradesh & POWERGRID | AR kept in non-auto mode | |
| 104 | 132 kV | 132 kV Loktak - Ningthoukhong | 1 | S/C | NHPC | MSPCL | MSPCL | Not Available | |
| 105 | 132 kV | 132 kV Loktak - Rengpang | 1 | S/C | NHPC | MSPCL | MSPCL | Not Available | |
| 106 | 132 kV | 132 kV LTPS - Mariani | 1 | S/C | AEGCL | AEGCL | AEGCL | Not Available | AEGCL may intimate the plan of action |

**Annexure-C.2**

## Details of Auto Recloser of Lines in North Eastern Regional Grid

| *Sl No* | *Voltage Level* | *Name of Element (Emanating - Terminating)* | *Ckt ID* | Tower Configuration (S/C or D/C) | Agency at End 1 | Agency at End 2 | Owner | AR Details (SPAR/3-Ph AR/Not Available/Information not Available | Remarks |
|---|---|---|---|---|---|---|---|---|---|
| 107 | 132 kV | 132 kV LTPS - Moran | 1 | S/C | AEGCL | AEGCL | AEGCL | Not Available | AEGCL may intimate the plan of action |
| 108 | 132 kV | 132 kV LTPS - Nazira | 1 | D/C | AEGCL | AEGCL | AEGCL | Not Available | AEGCL may intimate the plan of action |
| 109 | 132 kV | 132 kV LTPS - Nazira | 2 | D/C | AEGCL | AEGCL | AEGCL | Not Available | AEGCL may intimate the plan of action |
| 110 | 132 kV | 132 kV LTPS - NTPS | 1 | D/C | AEGCL | AEGCL | AEGCL | Not Available | AEGCL may intimate the plan of action |
| 111 | 132 kV | 132 kV LTPS - Sonari | 1 | D/C | AEGCL | AEGCL | AEGCL | Not Available | AEGCL may intimate the plan of action |
| 112 | 132 kV | 132 kV Mariani (AEGCL) - Mokokchung ( DoP, Nagaland) | 1 | S/C | AEGCL | ED, DoP, Nagaland | AEGCL(40%)/ DoP, Nagaland(60%) | Not Available | |
| 113 | 132 kV | 132 kV NEHU - Mawlai | 1 | S/C | MePTCL | MePTCL | MePTCL | Not available | MePTCL will implement the 3 Ph AR in paralell with ongoing R&M works of PLCC &DPC by January 2020. |
| 114 | 132 kV | 132 kV Mawlai - Umiam Stage I | 2 | S/C | MePTCL | MePTCL | MePTCL | Not available | MePTCL will implement the 3 Ph AR in paralell with ongoing R&M works of PLCC &DPC by January 2021. |
| 115 | 132 kV | 132 kV Mawphlang - Nongstoin | 1 | S/C | MePTCL | MePTCL | MePTCL | Not available | MePTCL will implement the 3 Ph AR in paralell with ongoing R&M works of PLCC &DPC by March 2020. |
| 116 | 132 kV | 132 kV Mawphlang - Umiam Stg I | 1 | D/C | MePTCL | MePTCL | MePTCL | Not available | MePTCL will implement the 3 Ph AR in paralell with ongoing R&M works of PLCC &DPC by March 2020. |
| 117 | 132 kV | 132 kV Mawphlang - Umiam Stg I | 2 | D/C | MePTCL | MePTCL | MePTCL | Not available | MePTCL will implement the 3 Ph AR in paralell with ongoing R&M works of PLCC &DPC by March 2020. |
| 118 | 132 kV | 132 kV Mawphlang- Mawlai | 1 | S/C | MePTCL | MePTCL | MePTCL | Not available | MePTCL will implement the 3 Ph AR in paralell with ongoing R&M works of PLCC &DPC by January 2021. |
| 119 | 132 kV | 132 kV Melriat(PG) - Zuangtui | 1 | S/C | POWERGRID | P&ED, Mizoram | POWERGRID | Not Available | POWERGRID may intimate the status |
| 120 | 132 kV | 132 kV Mendipathar - Nangalbibra | 1 | S/C | MePTCL | MePTCL | MePTCL | Not available | MePTCL will implement the 3 Ph AR in paralell with ongoing R&M works of PLCC &DPC by Septemeber 2019. |

**Annexure-C.2**

## Details of Auto Recloser of Lines in North Eastern Regional Grid

| *Sl No* | *Voltage Level* | *Name of Element (Emanating - Terminating)* | *Ckt ID* | Tower Configuration (S/C or D/C) | Agency at End 1 | Agency at End 2 | Owner | AR Details (SPAR/3-Ph AR/Not Available/Information not Available | Remarks |
|---|---|---|---|---|---|---|---|---|---|
| 121 | 132 kV | 132 kV Mokochung (PG) - Mokokchung (DoP, Nagaland) | 1 | D/C | POWERGRID | DoP,Nagaland | POWERGRID | Information not available | |
| 122 | 132 kV | 132 kV Mokochung (PG) - Mokokchung (DoP, Nagaland) | 2 | D/C | POWERGRID | DoP,Nagaland | POWERGRID | Information not available | |
| 123 | 132 kV | 132 kV Monarchak - Rokhia | 1 | S/C | NEEPCO | TPGL | TSECL | Not available | 132 KV breaker are 3-ph. gang operated. |
| 124 | 132 kV | 132 kV Monarchak - Udaipur | 1 | S/C | NEEPCO | TSECL | TSECL | Not available | 132 KV breaker are 3-ph. gang operated. |
| 125 | 132 kV | 132 kV Myntdu Leshka - Khleihriat | 1 | D/C | MePTCL | MePTCL | MePTCL | Not available | MePTCL will implement the 3 Ph AR in paralell with ongoing R&M works of PLCC &DPC by April 2020. |
| 126 | 132 kV | 132 kV Myntdu Leshka - Khleihriat | 2 | D/C | MePTCL | MePTCL | MePTCL | Not available | MePTCL will implement the 3 Ph AR in paralell with ongoing R&M works of PLCC &DPC by April 2020. |
| 127 | 132 kV | 132 kV Nangalbibra - Nongstoin | 1 | S/C | MePTCL | MePTCL | MePTCL | Not available | MePTCL will implement the 3 Ph AR in paralell with ongoing R&M works of PLCC &DPC by November 2019. |
| 128 | 132 kV | 132 kV NEHU - NEIGRIHMS | 1 | S/C | MePTCL | MePTCL | MePTCL | Not available | MePTCL will implement the 3 Ph AR in paralell with ongoing R&M works of PLCC &DPC by May 2020. |
| 129 | 132 kV | 132 kV NEHU - Umiam | 1 | D/C | MePTCL | MePTCL | MePTCL | Not available | MePTCL will implement the 3 Ph AR in paralell with ongoing R&M works of PLCC &DPC by June 2020. |
| 130 | 132 kV | 132 kV NTPS - Tinsukia | 1 | S/C | AEGCL | AEGCL | AEGCL | Not Available | AEGCL may intimate the plan of action |
| 131 | 132 kV | 132 kV NTPS - Sonari | 1 | D/C | AEGCL | AEGCL | AEGCL | Not Available | AEGCL may intimate the plan of action |
| 132 | 132 kV | 132 kV Pailapool - Srikona | 1 | D/C | AEGCL | AEGCL | AEGCL | Not Available | AEGCL may intimate the plan of action |
| 133 | 132 kV | 132 kV Palatana - Surjamaninagar | 1 | D/C | OTPC | POWERGRID | POWERGRID | Not Available | Gang operated CB at Palatana end |
| 134 | 132 kV | 132 kV Palatana - Udaipur | 1 | S/C | OTPC | TSECL | TSECL | Not Available | 132 KV breaker are 3-ph. gang operated. |
| 135 | 132 kV | 132 kV Hailakandi - Silchar | 1 | S/C | AEGCL | POWERGRID | POWERGRID | Information not available | Silchar end: AR in BCU available, AEGCL may intimate the status |
| 136 | 132 kV | 132 kV Panchgram - Srikona | 1 | S/C | AEGCL | AEGCL | AEGCL | Not Available | Will be implemented under R&M works funded from PSDF |

**Annexure-C.2**

## Details of Auto Recloser of Lines in North Eastern Regional Grid

| *Sl No* | *Voltage Level* | *Name of Element (Emanating - Terminating)* | *Ckt ID* | Tower Configuration (S/C or D/C) | Agency at End 1 | Agency at End 2 | Owner | AR Details (SPAR/3-Ph AR/Not Available/Information not Available | Remarks |
|---|---|---|---|---|---|---|---|---|---|
| 137 | 132 kV | 132 kV Ranganadi - Ziro | 1 | S/C | NEEPCO | POWERGRID | POWERGRID | SPAR in service | |
| 138 | 132 kV | 132 kV Roing - Pasighat | 1 | S/C | POWERGRID | POWERGRID | POWERGRID | Information not available | POWERGRID may intimate the status |
| 139 | 132 kV | 132 kV Roing - Tezu | 1 | S/C | POWERGRID | POWERGRID | POWERGRID | Information not available | POWERGRID may intimate the status |
| 140 | 132 kV | 132 kV Sarusajai - Umtru | 1 | D/C | AEGCL | MePTCL | MePTCL | Not Available | MePTCL will implement the 3 Ph AR in paralell with ongoing R&M works of PLCC &DPC by May 2020. |
| 141 | 132 kV | 132 kV Sarusajai - Umtru | 2 | D/C | AEGCL | MePTCL | MePTCL | Not Available | MePTCL will implement the 3 Ph AR in paralell with ongoing R&M works of PLCC &DPC by May 2020. |
| 142 | 132 kV | 132 kV Silchar - Srikona | 1 | D/C | POWERGRID | AEGCL | POWERGRID | Information not available | Silchar end: AR in BCU available, AEGCL may intimate the status |
| 143 | 132 kV | 132 kV Silchar - Srikona | 2 | D/C | POWERGRID | AEGCL | POWERGRID | Information not available | Silchar end: AR in BCU available, AEGCL may intimate the status |
| 144 | 132 kV | 132 kV Umiam - Umiam St I | 1 | S/C | MePTCL | MePTCL | MePTCL | Not Available | MePGCL may intimate the plan of action |
| 145 | 132 kV | 132 kV Umiam St I - Umiam St II | 1 | S/C | MePTCL | MePTCL | MePTCL | Not Available | MePGCL may intimate the plan of action |
| 146 | 132 kV | 132 kV Umiam St I - Umiam St III | 1 | D/C | MePTCL | MePTCL | MePTCL | Not Available | MePGCL may intimate the plan of action |
| 147 | 132 kV | 132 kV Umiam St I - Umiam St III | 2 | D/C | MePTCL | MePTCL | MePTCL | Not Available | MePGCL may intimate the plan of action |
| 148 | 132 kV | 132 kV Umiam St III - Umiam St IV | 1 | D/C | MePTCL | MePTCL | MePTCL | Not Available | MePGCL may intimate the plan of action |
| 149 | 132 kV | 132 kV Umiam St III – Umiam St IV | 2 | D/C | MePTCL | MePTCL | MePTCL | Not Available | MePGCL may intimate the plan of action |
| 150 | 132 kV | 132 kV Umiam St III - Umtru | 1 | D/C | MePTCL | MePTCL | MePTCL | Not Available | MePGCL may intimate the plan of action |
| 151 | 132 kV | 132 kV Umiam St III - Umtru | 2 | D/C | MePTCL | MePTCL | MePTCL | Not Available | MePGCL may intimate the plan of action |
| 152 | 132 kV | 132 kV Umtru - Umiam St IV | 1 | D/C | MePTCL | MePTCL | MePTCL | Not Available | MePGCL may intimate the plan of action |

**Annexure-C.2**

## Details of Auto Recloser of Lines in North Eastern Regional Grid

| *Sl No* | *Voltage Level* | *Name of Element (Emanating - Terminating)* | *Ckt ID* | Tower Configuration (S/C or D/C) | Agency at End 1 | Agency at End 2 | Owner | AR Details (SPAR/3-Ph AR/Not Available/Information not Available | Remarks |
|---|---|---|---|---|---|---|---|---|---|
| 153 | 132 kV | 132 kV Umtru - Umiam St IV | 2 | D/C | MePTCL | MePTCL | MePTCL | Not Available | MePGCL may intimate the plan of action |
| 154 | 132 kV | 132 kV Pare - Lekhi | 1 | S/C | NEEPCO | DoP, Arunachal Pradesh | NEEPCO, DoP, Arunachal Pradesh & POWERGRID | Not Available | |
| 155 | 132 kV | 132 kV Ranganadi - Itananar | 1 | S/C | NEEPCO | DoP, Arunachal Pradesh | NEEPCO & DoP, Arunachal Pradesh | Information not available | |

## List of Lines in North Eastern Regional Grid

**Annexure-C.4**

| Sl No | Name of Element (Emanating - Terminating) | Ckt ID | Agency at End 1 | Agency at End 2 | Name of Owners | TLSA | Megger /off line Fault locator | Controlled Switching Device (CSD) | Line Differential Protection Availability | OPGW Availability | PLCC Availabilty | Carrier Aided Protection Availability (Yes/No) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **A. International Lines** | | | | | | | | | | | | |
| ***a. 400 kV Lines (Charged at 132 kV)*** | | | | | | | | | | | | |
| 1 | South Comilla (Bangladesh) - Surajmani Nagar | 1 | PGCB | TSECL | POWERGRID & PGCB | NA | | | | Available | | |
| 2 | South Comilla (Bangladesh) - Surajmani Nagar | 2 | PGCB | TSECL | POWERGRID & PGCB | NA | | | | NA | | |
| ***b. 132 kV Line*** | | | | | | | | | | | | |
| 1 | Gelyphu (Bhutan) - Salakati | 1 | BPCL | POWERGRID | POWERGRID | | | | Not Available | Available | | |
| 2 | Motonga (Bhutan) - Rangia | 1 | BPCL | AEGCL | POWERGRID | | | | | | | |
| ***c. 11 kV Line*** | | | | | | | | | | | | |
| 1 | Moreh - Tamu (Myanmar) | 1 | MSPCL | ESE, Myanmar | MSPDCL & ESE, Myanmar | | | | | | | |
| ***B. +/- 800 kV HVDC Lines*** | | | | | | | | | | | | |
| 1 | Agra - Biswanath Chariali | Pole 1 | POWERGRID | POWERGRID | POWERGRID | | | | | | | |
| 2 | Agra - Biswanath Chariali | Pole 2 | POWERGRID | POWERGRID | POWERGRID | | | | | | | |
| ***C. 400 kV Lines*** | | | | | | | | | | | | |
| 1 | Azara - Bongaigaon | 1 | AEGCL | POWERGRID | NETC(1.8%) & AEGCL (98.2%) | | | | No | | | |
| 2 | Azara - Silchar | 1 | AEGCL | POWERGRID | NETC(37.5%) & AEGCL(62.5%) | | | | No | | | |
| 3 | Balipara - Biswanath Chariali | 1 | POWERGRID | POWERGRID | POWERGRID | | | | | | | |
| 4 | Balipara - Biswanath Chariali | 2 | POWERGRID | POWERGRID | POWERGRID | | | | | | | |
| 5 | Balipara - Biswanath Chariali | 3 | POWERGRID | POWERGRID | POWERGRID | | | | | | | |
| 6 | Balipara - Biswanath Chariali | 4 | POWERGRID | POWERGRID | POWERGRID | | | | | | | |
| 7 | Balipara - Bongaigaon | 1 | POWERGRID | POWERGRID | POWERGRID | | | Not Installed | Not Available | | | |
| 8 | Balipara - Bongaigaon | 2 | POWERGRID | POWERGRID | POWERGRID | | | Not Installed | Not Available | | | |
| 9 | Balipara - Bongaigaon | 3 | POWERGRID | POWERGRID | POWERGRID | | | Not Installed | Not Available | | | |
| 10 | Balipara - Bongaigaon | 4 | POWERGRID | POWERGRID | POWERGRID | | | Not Installed | Not Available | | | |
| ***C. 400 kV Lines*** | | | | | | | | | | | | |
| 11 | Balipara - Misa | 1 | POWERGRID | POWERGRID | POWERGRID | NA | | No | NA | YES | | |
| 12 | Balipara - Misa | 2 | POWERGRID | POWERGRID | POWERGRID | NA | | No | NA | YES | | |
| 13 | Biswanath Chariali - Ranganadi | 1 | POWERGRID | NEEPCO | POWERGRID | | | | | | | |
| 14 | Biswanath Chariali - Ranganadi | 2 | POWERGRID | NEEPCO | POWERGRID | | | | | | | |

## List of Lines in North Eastern Regional Grid

**Annexure-C.4**

| Sl No | Name of Element (Emanating - Terminating) | Ckt ID | Agency at End 1 | Agency at End 2 | Name of Owners | TLSA | Megger /off line Fault locator | Controlled Switching Device (CSD) | Line Differential Protection Availability | OPGW Availability | PLCC Availabilty | Carrier Aided Protection Availability (Yes/No) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 15 | Bongaigaon - Byrnihat | 1 | POWERGRID | MePTCL | NETC(97.91 %) & MePTCL(2.09%) | | | | | | | |
| 16 | New Siliguri - Bongaigaon | 1 | POWERGRID | POWERGRID | POWERGRID | | | | | | | |
| 17 | New Siliguri- Bongaigaon | 2 | POWERGRID | POWERGRID | POWERGRID | | | | | | | |
| 18 | Alipurduar - Bongaigaon | 1 | POWERGRID | POWERGRID | ENICL | | | | | | | |
| 19 | Alipurduar - Bongaigaon | 2 | POWERGRID | POWERGRID | ENICL | | | | | | | |
| 20 | BgTPP - Bongaigaon | 1 | NTPC | POWERGRID | POWERGRID | | | Not Installed | Available | | | |
| 21 | BgTPP - Bongaigaon | 2 | NTPC | POWERGRID | POWERGRID | | | Not Installed | Available | | | |
| 22 | Byrnihat - Silchar | 1 | MePTCL | POWERGRID | NETC(98.06%) & MePTCL(1.94%) | | | | | | | |
| 23 | Pallatana - Silchar | 1 | OTPC | POWERGRID | NETC | | | | | | | |
| 24 | Pallatana - Silchar | 2 | OTPC | POWERGRID | NETC | | | | | | | |
| 25 | Imphal - Silchar | 1 | POWERGRID | POWERGRID | POWERGRID | No | | NA | | | | |
| 26 | Imphal - Silchar | 2 | POWERGRID | POWERGRID | POWERGRID | No | | NA | | | | |
| 27 | Balipara - Kameng | 1 | POWERGRID | NEEPCO | POWERGRID | | | | | | | |
| 28 | Balipara - Kameng | 2 | POWERGRID | NEEPCO | POWERGRID | | | | | | | |
| ***D. 400 kV Lines (Charged at 220 kV)*** | | | | | | | | | | | | |
| 1 | AGBPP - Mariani | 1 | POWERGRID | POWERGRID | POWERGRID | Nil | 1 Off Line Fault Locator/2 Megger | No | | Available | | |
| 2 | AGBPP - Mariani(PG) | 2 | POWERGRID | POWERGRID | POWERGRID | Nil | | No | | Available | | |
| 3 | Mariani - Misa | 1 | AEGCL | POWERGRID | POWERGRID | NA | | | NA | | | |
| 4 | Mariani (PG) - Misa | 1 | POWERGRID | POWERGRID | POWERGRID | NA | | | NA | | | |
| ***E. 400 kV Lines (Charged at 132 kV)*** | | | | | | | | | | | | |
| 1 | Silchar-Melriat | 1 | POWERGRID | POWERGRID | POWERGRID | NA | | | NIL | YES | | |
| 2 | Silchar-Melriat | 2 | POWERGRID | POWERGRID | POWERGRID | NA | | | NIL | NO | | |
| 3 | P K Bari - Silchar | 1 | TSECL | POWERGRID | POWERGRID | | | | | | | |
| 4 | P K Bari - Silchar | 2 | TSECL | POWERGRID | POWERGRID | | | | | | | |
| 5 | Palatana - Surjamaninagar | 1 | OTPC | TSECL | POWERGRID | NA | | | | NA | | |
| ***F. 220 kV Lines*** | | | | | | | | | | | | |
| 1 | AGBPP - Deomali | 1 | NEEPCO | DoP,Arunachal Pradesh | DoP, Arunachal Pradesh | | | | | | | |
| 2 | AGBPP - Tinsukia | 1 | NEEPCO | AEGCL | AEGCL | | | | | | | |
| 3 | AGBPP - Tinsukia | 2 | NEEPCO | AEGCL | AEGCL | | | | | | | |
| 4 | Agia - Azara | 1 | AEGCL | AEGCL | AEGCL | | | | | | | |
| 5 | Agia - Boko | 1 | AEGCL | AEGCL | AEGCL | | | | | | | |
| 6 | Agia - BTPS | 1 | AEGCL | AEGCL | AEGCL | | | | | | | |
| 7 | Agia - BTPS | 2 | AEGCL | AEGCL | AEGCL | | | | | | | |
| 8 | Azara - Boko | 1 | AEGCL | AEGCL | AEGCL | | | | | | | |
| 9 | Azara - Sarusajai | 1 | AEGCL | AEGCL | AEGCL | | | | | | | |
| 10 | Azara - Sarusajai | 2 | AEGCL | AEGCL | AEGCL | | | | | | | |
| ***F. 220 kV Lines*** | | | | | | | | | | | | |
| 11 | Alipurduar - Salakati | 1 | POWERGRID | POWERGRID | POWERGRID | | | | | | | |
| 12 | Alipurduar - Salakati | 2 | POWERGRID | POWERGRID | POWERGRID | | | | | | | |
| 13 | Balipara - Sonabil | 1 | POWERGRID | AEGCL | AEGCL | | | | | | | |

## List of Lines in North Eastern Regional Grid

**Annexure-C.4**

| Sl No | Name of Element (Emanating - Terminating) | Ckt ID | Agency at End 1 | Agency at End 2 | Name of Owners | TLSA | Megger /off line Fault locator | Controlled Switching Device (CSD) | Line Differential Protection Availability | OPGW Availability | PLCC Availabilty | Carrier Aided Protection Availability (Yes/No) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 14 | Bongaigaon-Salakati | 1 | POWERGRID | POWERGRID | POWERGRID | | | Not Installed | Available | Available | | |
| 15 | Bongaigaon-Salakati | 2 | POWERGRID | POWERGRID | POWERGRID | | | Not Installed | Available | Available | | |
| 16 | BTPS - Salakati | 1 | AEGCL | POWERGRID | POWERGRID | | | Not Installed | Not Available | Available | | |
| 17 | BTPS - Salakati | 2 | AEGCL | POWERGRID | POWERGRID | | | Not Installed | Not Available | Available | | |
| 18 | Dimapur - Misa | 1 | POWERGRID | POWERGRID | POWERGRID | | | | NA | | | |
| 19 | Dimapur - Misa | 2 | POWERGRID | POWERGRID | POWERGRID | | | | NA | | | |
| 20 | Jawaharnagar - Samaguri | 1 | AEGCL | AEGCL | AEGCL | | | | | | | |
| 21 | Jawaharnagar - Sarusajai | 1 | AEGCL | AEGCL | AEGCL | | | | | | | |
| 22 | Karbi Langpi - Sarusajai | 1 | APGCL | AEGCL | AEGCL | | | | | | | |
| 23 | Karbi Langpi - Sarusajai | 2 | APGCL | AEGCL | AEGCL | | | | | | | |
| 24 | Byrnihat - Misa | 1 | MePTCL | POWERGRID | MePTCL | | | | | | | |
| 25 | Byrnihat - Misa | 2 | MePTCL | POWERGRID | MePTCL | | | | | | | |
| 26 | Kopili - Misa | 1 | NEEPCO | POWERGRID | POWERGRID | | | | NA | | | |
| 27 | Kopili - Misa | 2 | NEEPCO | POWERGRID | POWERGRID | | | | NA | | | |
| 28 | Kopili - Misa | 3 | NEEPCO | POWERGRID | POWERGRID | | | | NA | | | |
| 29 | Mariani (AEGCL) - Samaguri | 1 | AEGCL | AEGCL | AEGCL | | | | | | | |
| 30 | Mariani (PG) - Mokokchung (PG) | 1 | POWERGRID | POWERGRID | POWERGRID | | | | | | | |
| 31 | Mariani (PG) - Mokokchung (PG) | 2 | POWERGRID | POWERGRID | POWERGRID | | | | | | | |
| 32 | Misa - Samaguri | 1 | POWERGRID | AEGCL | POWERGRID | | | | NA | | | |
| 33 | Misa - Samaguri | 2 | POWERGRID | AEGCL | POWERGRID | | | | NA | | | |
| ***F. 220 kV Lines*** | | | | | | | | | | | | |
| 34 | NTPS - Tinsukia | 1 | AEGCL | AEGCL | AEGCL | | | | | | | |
| 35 | NTPS - Tinsukia | 2 | AEGCL | AEGCL | AEGCL | | | | | | | |
| 36 | Samaguri - Sonapur | 1 | AEGCL | AEGCL | AEGCL | | | | | | | |
| 37 | Sarusajai-Sonapur | 1 | AEGCL | AEGCL | AEGCL | | | | | | | |
| 38 | Samaguri - Sonabil | 1 | AEGCL | AEGCL | AEGCL | | | | | | | |
| 39 | Samaguri - Sonabil | 2 | AEGCL | AEGCL | AEGCL | | | | | | | |
| ***G. 132 kV Lines*** | | | | | | | | | | | | |
| 1 | Agartala - AGTCCPP | 1 | TSECL | NEEPCO | POWERGRID | NA | | | | | | |
| 2 | Agartala - AGTCCPP | 2 | TSECL | NEEPCO | POWERGRID | NA | | | | | | |

## List of Lines in North Eastern Regional Grid

**Annexure-C.4**

| Sl No | Name of Element (Emanating - Terminating) | Ckt ID | Agency at End 1 | Agency at End 2 | Name of Owners | TLSA | Megger /off line Fault locator | Controlled Switching Device (CSD) | Line Differential Protection Availability | OPGW Availability | PLCC Availabilty | Carrier Aided Protection Availability (Yes/No) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 3 | Agartala - Bodhjungnagar | 1 | TSECL | TSECL | TSECL | NA | Megger available | NA | NA | NA | NA | No |
| 4 | Agartala - Dhalabil | 1 | TSECL | TSECL | TSECL | NA | Megger available | NA | NA | Available | NA | No |
| 5 | Agartala - Rokhia | 1 | TSECL | TSECL | TSECL | NA | Megger available | NA | NA | NA | Available | No |
| 6 | Agartala - Rokhia | | TSECL | TSECL | TSECL | NA | Megger available | NA | NA | NA | Available | No |
| 7 | Agia - Mendipathar | 1 | AEGCL | MePTCL | MePTCL | | | | | | | |
| 8 | AGTCCPP - Kumarghat | 1 | NEEPCO | POWERGRID | POWERGRID | | | | | | | |
| 9 | Aizawl - Tipaimukh | 1 | POWERGRID | MSPCL | POWERGRID | 37 nos. of TLSA, Make-Oblum | 1.0 | - | NO | NO | | |
| 10 | Aizawl - Kolasib | 1 | POWERGRID | P&ED, Mizoram | POWERGRID | 09 nos. of TLSA, Make-Oblum | | - | NO | Yes | | |
| 11 | Aizawl - Kumarghat | 1 | POWERGRID | POWERGRID | POWERGRID | 30 nos. of TLSA, Make-Oblum | | - | NO | Yes | | |
| 12 | Aizawl - Luangmual | 1 | POWERGRID | P&ED, Mizoram | P&ED, Mizoram | 0.0 | | - | NO | NO | | |
| 13 | Aizawl - Melriat(PG) | 1 | POWERGRID | POWERGRID | POWERGRID | | | | NIL | | | |
| 14 | Ambasa - Gamaitila | 1 | TSECL | TSECL | TSECL | NA | Megger available | NA | NA | NA | NA | No |
| 15 | Ambasa - Kamalpur | 1 | TSECL | TSECL | TSECL | NA | Megger available | NA | NA | NA | NA | No |
| 16 | Ambasa - P K Bari | 1 | TSECL | TSECL | TSECL | NA | Megger available | NA | Line Differential Protection availble between P.K.Bari(Sterlite) to P.K.Bari(TSECL) | Available | NA | No |
| ***G. 132 kV Lines*** | | | | | | | | | | | | |
| 17 | Badarpur - Jiribam | 1 | POWERGRID | POWERGRID | POWERGRID | | | | NO | | | |

## List of Lines in North Eastern Regional Grid

**Annexure-C.4**

| Sl No | Name of Element (Emanating - Terminating) | Ckt ID | Agency at End 1 | Agency at End 2 | Name of Owners | TLSA | Megger /off line Fault locator | Controlled Switching Device (CSD) | Line Differential Protection Availability | OPGW Availability | PLCC Availabilty | Carrier Aided Protection Availability (Yes/No) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 18 | Badarpur - Kolasib | 1 | POWERGRID | P&ED, Mizoram | POWERGRID | | | | | | | |
| 19 | Badarpur - Kumarghat | 1 | POWERGRID | POWERGRID | POWERGRID | | | | | | | |
| 20 | Badarpur - Panchgram | 1 | POWERGRID | AEGCL | POWERGRID | | | | | | | |
| 21 | Badarpur - Silchar | 1 | POWERGRID | POWERGRID | POWERGRID | | | | | | | |
| 22 | Badarpur - Silchar | 2 | POWERGRID | POWERGRID | POWERGRID | | | | | | | |
| 23 | Balipara - Bhalukpong | 1 | POWERGRID | DoP, Arunachal Pradesh | NEEPCO & DoP, Arunachal Pradesh | | | | | | | |
| 24 | Balipara - Ghoramari | 1 | POWERGRID | AEGCL | AEGCL | | | | | | | |
| 25 | Balipara - Sonabil | 1 | AEGCL | AEGCL | AEGCL | | | | | | | |
| 26 | Baramura - Gamaitilla | 1 | TSECL | TSECL | TSECL | NA | Megger available | NA | NA | Available | NA | No |
| 27 | Baramura - Jirania | 1 | TSECL | TSECL | TSECL | NA | Megger available | NA | NA | Available | NA | No |
| 28 | Bhalukpong - Khupi | 1 | DoP, Arunachal Pradesh | NEEPCO | NEEPCO & DoP, Arunachal Pradesh | | | | | | | |
| 29 | Biswanath Chariali - Pavoi | 1 | POWERGRID | AEGCL | POWERGRID | | | | | | | |
| 30 | Biswanath Chariali - Pavoi | 2 | POWERGRID | AEGCL | POWERGRID | | | | | | | |
| 31 | Pavoi - Sonabil | 1 | AEGCL | AEGCL | AEGCL | | | | | | | |
| 32 | Bodhjannagar - Jirania | 1 | TSECL | TSECL | TSECL | NA | Megger available | NA | NA | Available | NA | No |
| 33 | Bokajan - Dimapur | 1 | AEGCL | POWERGRID | AEGCL | | | | | | | |
| 34 | Bokajan - Golaghat | 1 | AEGCL | AEGCL | AEGCL | | | | | | | |
| ***G. 132 kV Lines*** | | | | | | | | | | | | |
| 35 | BTPS - Dhaligaon | 1 | AEGCL | AEGCL | AEGCL | | | | | | | |
| 36 | BTPS - Dhaligaon | 2 | AEGCL | AEGCL | AEGCL | | | | | | | |
| 37 | Budhjangnagar - Surjamaninagar | 1 | TSECL | TSECL | TSECL | NA | Megger available | NA | NA | Available | NA | No |

## List of Lines in North Eastern Regional Grid

**Annexure-C.4**

| Sl No | Name of Element (Emanating - Terminating) | Ckt ID | Agency at End 1 | Agency at End 2 | Name of Owners | TLSA | Megger /off line Fault locator | Controlled Switching Device (CSD) | Line Differential Protection Availability | OPGW Availability | PLCC Availabilty | Carrier Aided Protection Availability (Yes/No) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 38 | Budhjangnagar - Surjamaninagar | 2 | TSECL | TSECL | TSECL | NA | Megger available | NA | NA | Available | Available (Between Bodhjungnagar to S.M.Nagar(Sterlite) and S.M.Nagar(Sterlite) to S.M.Nagar(TSECL) | No |
| 39 | Dhalabil - Kamalpur | 1 | TSECL | TSECL | TSECL | NA | Megger available | NA | NA | Available | NA | No |
| 40 | Dharmanagar - Dullavcherra | 1 | TSECL | AEGCL | AEGCL | NA | Megger available | NA | NA | NA | NA | No |
| 41 | Dullavcherra - Hailakandi | 1 | AEGCL | AEGCL | AEGCL | | | | | | | |
| 42 | Dharmanagar - P K Bari | 1 | TSECL | TSECL | TSECL | NA | Megger available | NA | NA | NA | NA | No |
| 43 | Dimapur - Doyang | 1 | POWERGRID | NEEPCO | POWERGRID | | | | No | Yes | | |
| 44 | Dimapur - Doyang | 2 | POWERGRID | NEEPCO | POWERGRID | | | | No | Yes | | |
| 45 | Dimapur - Imphal | 1 | POWERGRID | POWERGRID | POWERGRID | | | | No | Yes | | |
| 46 | Dimapur (PG) - Dimapur (DoP, Nagaland) | 1 | POWERGRID | DoP, Nagaland | DoP, Nagaland | | | | | | | |
| 47 | Dimapur (PG) - Dimapur (DoP, Nagaland) | 2 | POWERGRID | DoP, Nagaland | DoP, Nagaland | | | | | | | |
| 48 | Dimapur (PG) - Kohima | 1 | POWERGRID | DoP, Nagaland | DoP, Nagaland | | | | | | | |
| 49 | Doyang - Mokokchung (DoP, Nagaland) | 1 | NEEPCO | DoP, Nagaland | DoP, Nagaland | | | | | | | |
| 50 | Doyang-Sanis | 1 | NEEPCO | DoP, Nagaland | DoP, Nagaland | | | | | | | |
| ***G. 132 kV Lines*** | | | | | | | | | | | | |
| 51 | Hailakandi - Silchar | 1 | AEGCL | POWERGRID | POWERGRID | | | | | | | |
| 52 | Hailakandi - Silchar | 2 | AEGCL | POWERGRID | POWERGRID | | | | | | | |
| 53 | EPIP II - Byrnihat | 1 | MePTCL | MePTCL | MePTCL | | | | | | | |
| 54 | EPIP II - Byrnihat | 2 | MePTCL | MePTCL | MePTCL | | | | | | | |
| 55 | EPIP II - Umtru | 1 | MePTCL | MePTCL | MePTCL | | | | | | | |
| 56 | EPIP II - Umtru | 2 | MePTCL | MePTCL | MePTCL | | | | | | | |
| 57 | Gohpur - Pavoi | 1 | AEGCL | AEGCL | AEGCL | | | | | | | |
| 58 | Gohpur - Nirjuli | 1 | AEGCL | POWERGRID | POWERGRID | Not Installed | YES | NA | Not Used | Available | | |
| 59 | Golaghat - Mariani (AEGCL) | 1 | AEGCL | AEGCL | AEGCL | | | | | | | |
| 60 | Haflong - Jiribam | 1 | POWERGRID | POWERGRID | POWERGRID | No | Yes | NA | NO | YES(some part) | | |
| 61 | Haflong - Umranshu | 1 | AEGCL | POWERGRID | AEGCL | | | | | | | |
| 62 | Imphal (MSPCL) - Imphal (PG) | 1 | MSPCL | POWERGRID | POWERGRID | | | | | | | |
| 63 | Imphal (MSPCL) - Imphal (PG) | 2 | MSPCL | POWERGRID | POWERGRID & MSPCL | | | | | | | |
| 64 | Imphal (MSPCL) - Karong | 1 | MSPCL | MSPCL | MSPCL | | | | | | | |
| 65 | Imphal (PG) - Ningthoukong | 1 | POWERGRID | MSPCL | MSPCL | | | | | | | |

## List of Lines in North Eastern Regional Grid

**Annexure-C.4**

| Sl No | Name of Element (Emanating - Terminating) | Ckt ID | Agency at End 1 | Agency at End 2 | Name of Owners | TLSA | Megger /off line Fault locator | Controlled Switching Device (CSD) | Line Differential Protection Availability | OPGW Availability | PLCC Availabilty | Carrier Aided Protection Availability (Yes/No) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 66 | Imphal (PG) - Loktak | 1 | POWERGRID | NHPC | POWERGRID | | | | | | | |
| 67 | Jiribam - Loktak | 2 | POWERGRID | NHPC | POWERGRID | No | Yes | NA | NO | No | | |
| 68 | Jiribam - Pailapool | 1 | POWERGRID | AEGCL | AEGCL/ MSPCL | | | | | | | |
| 69 | Jiribam(PG) - Jiribam(MA) | 1 | POWERGRID | MSPCL | MSPCL | | | | | | | |
| 70 | Jiribam-Tipaimukh | 1 | POWERGRID | MSPCL | POWERGRID | No | Yes | NA | NO | NO | | |
| 71 | Jorhat - Mariani | 1 | AEGCL | AEGCL | AEGCL | | | | | | | |
| 72 | Jorhat - Mariani | 2 | AEGCL | AEGCL | AEGCL | | | | | | | |
| 73 | Jorhat - Nazira | 1 | AEGCL | AEGCL | AEGCL | | | | | | | |
| ***G. 132 kV Lines*** | | | | | | | | | | | | |
| 74 | Kahilipara - Kamalpur | 1 | AEGCL | AEGCL | AEGCL | | | | | | | |
| 75 | Kahilipara - Sarusajai | 1 | AEGCL | AEGCL | AEGCL | | | | | | | |
| 76 | Kahilipara - Sarusajai | 2 | AEGCL | AEGCL | AEGCL | | | | | | | |
| 77 | Kahilipara - Sarusajai | 3 | AEGCL | AEGCL | AEGCL | | | | | | | |
| 78 | Kamakhya-Sarusajai | 1 | AEGCL | AEGCL | AEGCL | | | | | | | |
| 79 | Kamakhya-Sishugram | 1 | AEGCL | AEGCL | AEGCL | | | | | | | |
| 80 | Kahilipara - Umtru | 1 | AEGCL | MePTCL | MePTCL | | | | | | | |
| 81 | Kahilipara - Umtru | 2 | AEGCL | MePTCL | MePTCL | | | | | | | |
| 82 | Kamalpur - P K Bari | 1 | TSECL | TSECL | TSECL | NA | Megger available | NA | NA | Available | NA | No |
| 83 | Karong - Kohima | 1 | DoP, Nagaland | MSPCL | MSPCL (65.3%) / DoP, Nagaland (34.7%) | | | | | | | |
| 84 | Khandong - Khliehriat | 1 | NEEPCO | POWERGRID | POWERGRID | in 16 towers | | | | No | | |
| 85 | Khandong - Khliehriat | 2 | NEEPCO | POWERGRID | POWERGRID | 100% TOWERS (Make-Oblum & Raychem) | | | | Yes | | |
| 86 | Khandong - Kopili | 1 | NEEPCO | NEEPCO | POWERGRID | NIL | | | | No | | |
| 87 | Khandong - Kopili | 2 | NEEPCO | NEEPCO | POWERGRID | NIL | | | | Yes | | |
| 88 | Khandong - Umranshu | 1 | NEEPCO | AEGCL | POWERGRID & AEGCL | | | | | | | |
| 89 | Khliehriat - Badarpur | 1 | POWERGRID | POWERGRID | POWERGRID | in 12 towers | | | | Yes | | |
| 90 | Khliehriat - Mustem | 1 | MePTCL | MePTCL | MePTCL | | | | | | | |
| 91 | Mustem - NEHU line | 1 | MePTCL | MePTCL | MePTCL | | | | | | | |
| 92 | Khliehriat (MePTCL) - Khliehriat (PG) | 1 | MePTCL | POWERGRID | POWERGRID | NIL | | | | Yes | | |
| 93 | Khliehriat (MePTCL) - Khliehriat (PG) | 2 | MePTCL | POWERGRID | MePTCL | | | | | | | |
| 94 | Khliehriat- NEIGRIHMS | 1 | MePTCL | POWERGRID | MePTCL | | | | | | | |
| 95 | Kumarghat - P K Bari | 1 | POWERGRID | TSECL | TSECL | NA | Megger available | NA | NA | NA | NA | No |

## List of Lines in North Eastern Regional Grid

**Annexure-C.4**

| Sl No | Name of Element (Emanating - Terminating) | Ckt ID | Agency at End 1 | Agency at End 2 | Name of Owners | TLSA | Megger /off line Fault locator | Controlled Switching Device (CSD) | Line Differential Protection Availability | OPGW Availability | PLCC Availabilty | Carrier Aided Protection Availability (Yes/No) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 96 | Lekhi - Nirjuli | 1 | DoP, Arunachal Pradesh | POWERGRID | DoP, Arunachal Pradesh & POWERGRID | Not Installed | Yes | NA | Not Available | Yes | | |
| 97 | Lekhi - Pare | 1 | DoP, Arunachal Pradesh | NEEPCO | DoP, Arunachal Pradesh & POWERGRID | Not Installed | Yes | NA | Not Available | Yes | | |
| ***G. 132 kV Lines*** | | | | | | | | | | | | |
| 98 | Loktak - Ningthoukhong | 1 | NHPC | MSPCL | MSPCL | | | | | | | |
| 99 | Loktak - Rengpang | 1 | NHPC | MSPCL | MSPCL | | | | | | | |
| 100 | LTPS - Mariani | 1 | AEGCL | AEGCL | AEGCL | | | | | | | |
| 101 | LTPS - Moran | 1 | AEGCL | AEGCL | AEGCL | | | | | | | |
| 102 | LTPS - Nazira | 1 | AEGCL | AEGCL | AEGCL | | | | | | | |
| 103 | LTPS - Nazira | 2 | AEGCL | AEGCL | AEGCL | | | | | | | |
| 104 | LTPS - NTPS | 1 | AEGCL | AEGCL | AEGCL | | | | | | | |
| 105 | LTPS - Sonari | 1 | AEGCL | AEGCL | AEGCL | | | | | | | |
| 106 | Mariani (AEGCL) - Mokokchung ( DoP, Nagaland) | 1 | AEGCL | ED, DoP, Nagaland | AEGCL(40%)/ DoP, Nagaland(60%) | | | | | | | |
| 107 | NEHU - Mawlai | 1 | MePTCL | MePTCL | MePTCL | | | | | | | |
| 108 | Mawlai - Umiam Stage I | 2 | MePTCL | MePTCL | MePTCL | | | | | | | |
| 109 | Mawphlang - Nongstoin | 1 | MePTCL | AEGCL | MePTCL | | | | | | | |
| 110 | Mawphlang - Umiam Stg I | 1 | MePTCL | MePTCL | MePTCL | | | | | | | |
| 111 | Mawphlang - Umiam Stg I | 2 | MePTCL | MePTCL | MePTCL | | | | | | | |
| 112 | Mawphlang- Mawlai | 1 | MePTCL | MePTCL | MePTCL | | | | | | | |
| 113 | Melriat(PG) - Zuangtui | 1 | POWERGRID | P&ED, Mizoram | POWERGRID | | | | NIL | | | |
| 114 | Mendipathar - Nangalbibra | 1 | MePTCL | MePTCL | MePTCL | | | | | | | |
| 115 | Mokokchung (PG) - Mokokchung (DoP, Nagaland) | 1 | POWERGRID | DoP,Nagaland | POWERGRID | Nil | yes | No | Yes, Micom Schneider | Available | | |
| 116 | Mokokchung (PG) - Mokokchung (DoP, Nagaland) | 2 | POWERGRID | DoP,Nagaland | POWERGRID | Nil | Yes | No | Yes, Micom Schneider | Available | | |
| 117 | Monarchak - Rokhia | 1 | NEEPCO | TSECL | TSECL | NA | Megger available | No | NA | NA | NA | No |
| 118 | Monarchak - Udaipur | 1 | NEEPCO | TSECL | TSECL | NA | Megger available | No | NA | NA | NA | No |
| 119 | Myntdu Leshka - Khleihriat | 1 | MePTCL | MePTCL | MePTCL | | | | | | | |
| 120 | Myntdu Leshka - Khleihriat | 2 | MePTCL | MePTCL | MePTCL | | | | | | | |
| 121 | Namsai-Tezu | 1 | POWERGRID | POWERGRID | POWERGRID | NO | Megger available | NA | NO | NO | | |
| 122 | Nangalbibra - Nongstoin | 1 | MePTCL | MePTCL | MePTCL | | | | | | | |
| 123 | NEHU - NEIGRIHMS | 1 | MePTCL | MePTCL | MePTCL | | | | | | | |
| 124 | NEHU - Umiam | 1 | MePTCL | MePTCL | MePTCL | | | | | | | |
| ***G. 132 kV Lines*** | | | | | | | | | | | | |

## List of Lines in North Eastern Regional Grid

**Annexure-C.4**

| Sl No | Name of Element (Emanating - Terminating) | Ckt ID | Agency at End 1 | Agency at End 2 | Name of Owners | TLSA | Megger /off line Fault locator | Controlled Switching Device (CSD) | Line Differential Protection Availability | OPGW Availability | PLCC Availabilty | Carrier Aided Protection Availability (Yes/No) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 125 | NTPS - Tinsukia | 1 | AEGCL | AEGCL | AEGCL | | | | | | | |
| 126 | NTPS - Sonari | 1 | AEGCL | AEGCL | AEGCL | | | | | | | |
| 127 | Pailapool - Srikona | 1 | AEGCL | AEGCL | AEGCL | | | | | | | |
| 128 | Palatana - Udaipur | 1 | TSECL | TSECL | TSECL | NA | Megger available | NA | NA | Available | NA | No |
| 129 | Panchgram - Srikona | 1 | AEGCL | AEGCL | AEGCL | | | | | | | |
| 130 | Pare- Itanagar | 1 | NEEPCO | DoP, Arunachal Pradesh | DoP, Arunachal Pradesh & NEEPCO | | | | | | | |
| 131 | Ranganadi- Itanagar I | 1 | POWERGRID | DoP, Arunachal Pradesh | DoP, Arunachal Pradesh | | | | | | | |
| 132 | Ranganadi - Pare | 1 | NEEPCO | NEEPCO | POWERGRID | Not Installed | Yes | NA | | | | |
| 133 | Ranganadi - Pare | 2 | NEEPCO | NEEPCO | DoP, Arunachal Pradesh & NEEPCO | | | | | | | |
| 134 | Ranganadi - Ziro | 1 | NEEPCO | POWERGRID | POWERGRID | 03 nos, make: OBLUM | 1.0 | | | Yes | | |
| 135 | Roing - Pasighat | 1 | POWERGRID | POWERGRID | POWERGRID | NO | 1.0 | | NO | NO | | |
| 136 | Roing - Tezu | 1 | POWERGRID | POWERGRID | POWERGRID | NO | 1.0 | | NO | NO | | |
| 137 | Sarusajai - Umtru | 1 | AEGCL | MePTCL | MePTCL | | | | | | | |
| 138 | Sarusajai - Umtru | 2 | AEGCL | MePTCL | MePTCL | | | | | | | |
| 139 | Silchar - Srikona | 1 | POWERGRID | AEGCL | POWERGRID | | | | | | | |
| 140 | Silchar - Srikona | 2 | POWERGRID | AEGCL | POWERGRID | | | | | | | |
| 141 | Umiam - Umiam St I | 1 | MePTCL | MePTCL | MePTCL | | | | | | | |
| 142 | Umiam St I - Umiam St II | 1 | MePTCL | MePTCL | MePTCL | | | | | | | |
| 143 | Umiam St I - Umiam St III | 1 | MePTCL | MePTCL | MePTCL | | | | | | | |
| 144 | Umiam St I - Umiam St III | 2 | MePTCL | MePTCL | MePTCL | | | | | | | |
| 145 | Umiam St III - Umiam St IV | 1 | MePTCL | MePTCL | MePTCL | | | | | | | |
| 146 | Umiam St III – Umiam St IV | 2 | MePTCL | MePTCL | MePTCL | | | | | | | |
| 147 | Umiam St III - Umtru | 1 | MePTCL | MePTCL | MePTCL | | | | | | | |
| 148 | Umiam St III - Umtru | 2 | MePTCL | MePTCL | MePTCL | | | | | | | |
| 149 | Umtru - Umiam St IV | 1 | MePTCL | MePTCL | MePTCL | | | | | | | |
| 150 | Umtru - Umiam St IV | 2 | MePTCL | MePTCL | MePTCL | | | | | | | |

**Lines expected to be commissioned during 2019-20 (After commissioning of these elements, they will be considered as important elements of NER)**

**B. 220 kV Lines**

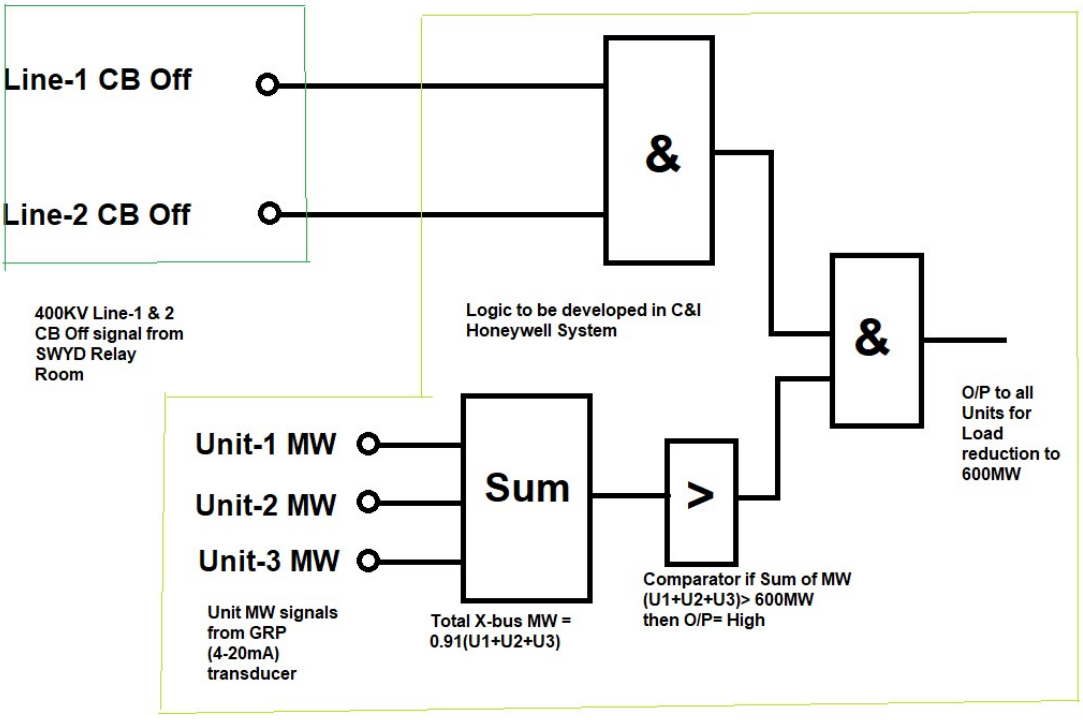
| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | BTPS - Rangia | 1 | AEGCL | AEGCL | AEGCL | | | | | | | |
| 2 | BTPS - Rangia | 2 | AEGCL | AEGCL | AEGCL | | | | | | | |

**C. 132 kV Lines**

## List of Lines in North Eastern Regional Grid

**Annexure-C.4**

| Sl No | Name of Element (Emanating - Terminating) | Ckt ID | Agency at End 1 | Agency at End 2 | Name of Owners | TLSA | Megger /off line Fault locator | Controlled Switching Device (CSD) | Line Differential Protection Availability | OPGW Availability | PLCC Availabilty | Carrier Aided Protection Availability (Yes/No) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | Palatana-Surajmaninagar | 2 | OTPC | TSECL | POWERGRID | | | | | | | |
| 2 | Monarchak - Surajmaninagar | 1 | NEEPCO | TSECL | TSECL | | | | | | | |
| 3 | Monarchak - Surajmaninagar | 2 | NEEPCO | TSECL | TSECL | | | | | | | |


Line-1 CB Off
Line-2 CB Off
400KV Line-1 & 2 CB Off signal from SWYD Relay Room
&
Logic to be developed in C&I Honeywell System
&
O/P to all Units for Load reduction to 600MW
Unit-1 MW
Unit-2 MW
Unit-3 MW
Unit MW signals from GRP (4-20mA) transducer
Sum
Total X-bus MW = 0.91(U1+U2+U3)
>
Comparator if Sum of MW (U1+U2+U3)> 600MW then O/P= High