



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
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No.: No. NERPC/SE (O)/PCC/2023/ 3537-3578

March 26, 2024

To

As per list attached

Sub: Minutes of 65th Protection Coordination Sub-Committee (PCC) Meeting

Sir/Madam,

Please find enclosed herewith the minutes of the 65th PCC Meeting held at Hotel Royae De'casa, Beltola, Guwahati on 14th March 2024 for your kind information and necessary action. The minutes is also available on the website of NERPC: www.nerpc.gov.in.

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

भवदीय / Yours faithfully,

(अनिल कवरानी/ Anil Kawrani)

निदेशक / Director

Encl: As above

Distribution List:

1. Managing Director, AEGCL, Bijuli Bhawan, Guwahati – 781 001
2. Managing Director, APGCL, Bijuli Bhawan, Guwahati – 781 001
3. Managing Director, APDCL, Bijuli Bhawan, Guwahati – 781 001
4. Managing Director, MSPCL, Electricity Complex, Keishampat, Imphal – 795 001
5. Managing Director, MSPDCL, Secure Office Bldg. Complex, South Block, Imphal – 795 001
6. Director (Transmission), MePTCL, Lumjingshai, Short Round Road, Shillong – 793 001
7. Director (Generation), MePGCL, Lumjingshai, Short Round Road, Shillong – 793 001
8. Director (Distribution), MePDCL, Lumjingshai, Short Round Road, Shillong – 793 001
9. Director (Tech.), TSECL, Banamalipur, Agartala -799 001.
10. Director (Generation), TPGCL, Banamalipur, Agartala -799 001.
11. GM (Transmission), TPTL, Banamalipur, Agartala -799 001.
12. Chief Engineer (WE 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. Chief Engineer (Commercial) -cum- CEI, DoP, Govt. of Arunachal Pradesh, Itanagar- 791111
15. Engineer-in-Chief, P&E Department, Govt. of Mizoram, Aizawl – 796 001
16. Engineer-in-Chief, Department of Power, Govt. of Nagaland, Kohima – 797 001
17. ED (O&M), NEEPCO Ltd., Brookland Compound, Lower New Colony, Shillong-793003
18. ED (O&M), NHPC, NHPC Office Complex, Sector-33, Faridabad, Haryana-121003
19. Group GM, NTPC, Bongaigoan Thermal Power Project, P.O. Salakati, Kokrajhar- 783369
20. Vice President (Plant), OTPC, Badarghat Complex, Agartala, Tripura - 799014
21. ED, PGCIL/NERTS, Dongtiah-Lower Nongrah, Lapalang, Shillong -793 006
22. AGM (BD), NVVN, Core 5, 3rd floor, Scope Complex, 7 Institutional Area, Lodhi Rd., N. Delhi-3
23. Vice President, PTCIL, 2nd Floor, NBCC Tower, 15, Bhikaji Cama Place, New Delhi – 110066
24. Dy. COO, CTUIL, “Saudamini”, 1st Floor, Plot No. 2, Sector-29, Gurugram, Haryana – 122001
25. Chief Engineer, GM Division, Central Electricity Authority, New Delhi – 110066
26. Chief Engineer, NPC Division, Central Electricity Authority, New Delhi – 110066
27. Head & VP, (R&C), ENICL, IndiGrid, Windsor Building, Kalina, Santacruz (East), Mumbai- 98
28. ED, NERLDC, Dongtiah, Lower Nongrah, Lapalang, Shillong -793 006
29. CGM, AEGCL, Bijuli Bhawan, Guwahati – 781001
30. CGM, APGCL, Bijuli Bhawan, Guwahati – 781001
31. CGM, DISCOM, Bijuli Bhawan, Guwahati – 781001
32. Head of SLDC, Dept. of Power, Govt. of Arunachal Pradesh, Itanagar – 791111
33. CGM, (LDC), SLDC Complex, AEGCL, Kahilipara, Guwahati-781 019
34. Head of SLDC, MSPCL, Imphal – 795001
35. Head of SLDC, MePTCL, Lumjingshai, Short Round Road, Shillong – 793 001
36. Head of SLDC, P&E Deptt. Govt. of Mizoram, Aizawl – 796 001
37. Head of SLDC, Dept. of Power, Govt. of Nagaland, Dimapur – 797103
38. Head of SLDC, TSECL, Agartala – 799001
39. Chief Engineer (Elect), Loktak HEP, Vidyut Vihar, Kom Keirap, Manipur- 795124
40. DGM (O&M), OTPC, Badarghat Complex, Agartala, Tripura – 799014
41. Head, Transmission, KMTL, 7th Floor, Fulcrum, Sahar Road, Andheri (E), Mumbai-400099
42. Director, NETC, 2C, 3rdFloor, D21Corporate Park, DMRC Building Sector 21, Dwarka, Delhi-77.

(अनिल कवरानी/ Anil Kawrani)

निदेशक / Director

Minutes of
65th Protection Coordination Sub-Committee Meeting

Date: 14/03/2024 (Thursday)

Time: 11:30 hrs

Venue: Hotel royale De'casa, Beltola, Guwahati

A. C O N F I R M A T I O N O F M I N U T E S

1. CONFIRMATION OF MINUTES OF THE 64th PROTECTION SUB-COMMITTEE MEETING OF NERPC.

Minutes of the 64th PCC Meeting held on 15th February, 2024 (Thursday) at NERPC conference Hall, Shillong was circulated vide No.: NERPC/SE (O)/PCC/2023/3304-3345 dated 1st March, 2024.

No comment(s)/observation(s) were received from the constituents.

The Sub-committee confirmed the minutes of 64th PCCM of NERPC

B. ITEMS FOR DISCUSSION

B.1 Protection Audit of NER:

As per the protection code of IEGC 2023 following roles and responsibilities, related to the subject mentioned, of constituents have been defined–

Description		Constituent	Responsibility	Timeline
Audit	Internal Audit	All users (132kV and above)	Shall conduct internal audit of protection system	Annually
			Audit report to be shared with RPC	Within 30 days of Audit
			Action plan for rectification of deficiencies to be shared with RPC	Within 30 days of Audit
	Third party Audit	All users (132kV and above)	Shall conduct audit for each SS	Once in five years
			Shall conduct audit on advice of RPC	Within three months of advice of RPC
			Audit report* to be submitted to RPC and NERLDC/SLDC	Within a month of submission of third-party audit report
			Action plan for rectification of deficiencies	Same as above
		RPC	Compliance to audit reports to be followed up regularly	Not specified
		RPC	After analysis of any event, shall identify substations where audit is required to be carried out	Conditional responsibility
	Annual audit plan	All users	Annual audit plan to be submitted to RPC by 31st October	Annual

In 60th PCCM the following points were discussed–

Member Secretary NERPC informed that third party protection audit has to be generally conducted by the utilities on their own. However, the 3rd party audit will be carried out by team constituted by NERPC at selected substations based on the criticality, analysis and requirement. In this regard, NERPC has already circulated an audit calendar and audit formats for reference of the constituents.

The nodal officers of respective State/power utilities have to fill the audit formats and submit to the NERPC secretariat within 1 week.

The forum decided that compliance to audit reports will be followed up regularly in PCC meeting of NERPC. NERLDC to submit a list of all 132 kV and above substations of the States to NERPC.

Information regarding substations that have already been audited will be provided by states to NERPC & NERLDC.

Forum agreed that all users (132 kV and above) have to conduct Internal Audit annually and submit audit report to RPC with action plan for rectification of deficiencies within 30 days of Audit.

AEGCL requested for a uniform guideline for maintenance of bay elements. Member Secretary requested POWERGRID to share their maintenance guideline with the states so that Assam and other utilities may adopt it after customizing to suit local requirement.

In 64th PCCM,

NERPC informed that protection audit of Sarusajai, Kahilipara and BTPS substations of Assam (AEGCL) has been carried out on 31st January'24 by the NERPC audit team. Preliminary report has already been submitted and final report will be submitted within a month.

NERPC also stated that audit of substations of Nagaland (Dimapur, Kohima, Sanis, Wokha, Mokokchung) will be carried out shortly. NERTS requested the forum to carry out the audit at Dimapur (PG) and Mokokchung (PG) and nearby Substations. Forum agreed for the same.

Regarding audit plan of utilities, the forum requested the utilities to furnish the list of substations and audit (internal as well as third party) schedule for FY 2024-25. NERLDC stated that a google spreadsheet has been circulated to the constituents to provide the schedule of protection audit as well as date of last audit. The forum requested the constituents to update the spreadsheet.

Deliberation of the sub-committee

NERPC updated that final report of audit of Sarusajai, Kahilipara and BTPS substations of Assam will be finalized within one week.

Regarding audit of substations of Nagaland (Dimapur, Kohima, Sanis, Wokha, Mokokchung), Member Secretary, NERPC stated that the audit can be conducted between 25th to 29th April'24.

NERTS requested to the forum that whenever the audit team plans for audit of any station of any other utility, audit for the nearest station of NERTS may also be carried out. Forum agreed to the same.

Regarding schedules of internal and third-party protection audit –

1. AEGCL representative stated that internal audit of all 132 kV and above substations of Assam will be completed before 30th June'24 as per the direction of AERC. He further stated that third party audit will be planned thereafter. The forum requested Assam to share internal audit report to NERPC and also plan third party audit as early as possible and update the google spreadsheet with schedules of internal as well as third party audit
2. Mizoram stated that internal audit of all 132 kV and above substations have been completed one week ago and third-party audit will be planned shortly. Member Secretary, NERPC requested Mizoram to provide the internal audit reports to NERPC and NERLDC at the earliest.
3. TSECL assured that internal audit plan will be shared soon. Forum requested TSECL to plan for third party audit also.
4. Manipur updated that a protection audit committee has been formed recently and the audit will be scheduled shortly keeping in mind the prevailing Law and Order situation of the State

Sub-committee noted as above.

B.2 Urgent requirement of Third-Party Protection Audit of substations of MePTCL and Assam

In 64th PCCM, MePTCL had informed that third party protection audit is urgently required at 21 substations (list provided).

AEGCL vide email dtd 4.03.2024 requested for urgent Planning of Protection Audit for the following AEGCL substations viz.

- i) 220kV Jawaharnagar GIS
- ii) 220kV KLHEP GSS
- iii) 132kV Gauripur GSS
- iv) 132kV Karimganj GSS

In 64th PCCM, in respect of MePTCL, Member Secretary NERPC opined that conducting audit by NEPRC at all of these substations may not be feasible and

advised MePTCL to send list of priority Substations, out of which few Substations will be audited by NERPC team.

Deliberation of the sub-committee

Meghalaya

MePTCL updated that a revised list of prioritized substations which includes 18 substations has been submitted to NERPC. Member Secretary, NERPC stated that conducting audit by NERPC team at these 18 substations may not be feasible and advised MePTCL to send a list of 4-5 substations for which protection audit may be conducted by NERPC.

Assam

AEGCL requested NERPC to conduct audit at the substations as SCADA system and relay system are obsolete at the substations and PSDF funding is required for the renovation of the systems. NERLDC highlighted that the Karim Ganj GSS is less than 10 years old so it may not be eligible for PSDF funding.

After detailed deliberation, NERPC decided that protection audit of Jawahar Nagar, KLHEP and Gauripur substations of Assam will tentatively be carried out in 1st week of May'24

Sub-committee noted as above.

B.3 AMC of PDMS and PSCT

Comprehensive AMC for Protection Database Management System (PDMS) and Protection Setting Calculation Tool (PSCT), currently provided by M/s PRDC, is expiring in March 2025. The PDMS and PSCT system comprise complex set of software, hardware, servers, firewall etc. The AMC of the system is essential for smooth functioning and effective utilization of the system for improvement of protection system of NER region and thus ensuring secure and reliable operation of the grid. Therefore, it is critical that AMC of the system be renewed for next five years. The forum may deliberate upon renewal of the AMC.

Deliberation of the sub-committee

The forum noted the requirement of renewal of AMC of PDMS and PSCT system and requested NERPC to get price offer from the vendor for reference of NERPC constituents. Also, the forum referred the matter to upcoming commercial coordination meeting of NERPC for further discussion.

B.4 Analysis and Discussion on Grid Disturbances which occurred in NER grid in February'24 in compliance with IEGC 2023:

TABLE 8 : REPORT SUBMISSION TIMELINE

Sr. No.	Grid Event [^] (Classification)	Flash report submission deadline (users/ SLDC)	Disturbance record and station event log submission deadline (users/ SLDC)	Detailed report and data submission deadline (users/ SLDC)	Draft report submission deadline (RLDC/ NLDC)	Discussion in protection committee meeting and final report submission deadline (RPC)
1	GI-1/GI-2	8 hours	24 hours	+7 days	+7 days	+60 days
2	Near miss event	8 hours	24 hours	+7 days	+7 days	+60 days
3	GD-1	8 hours	24 hours	+7 days	+7 days	+60 days
4	GD-2/GD-3	8 hours	24 hours	+7 days	+21 days	+60 days
5	GD-4/GD-5	8 hours	24 hours	+7 days	+30 days	+60 days

[^]The classification of Grid Disturbance (GD)/Grid Incident (GI) shall be as per the CEA Grid Standards.

The forum may deliberate upon the GD/GI/Near miss events that occurred in February 2024 based on the draft reports prepared by NERLDC. The list of events and draft report of NERLDC is attached as **Annexure B.3**

Deliberation of the sub-committee

NERLDC briefed the Event, Out of 10 events occurred in the month of Feb'24, 8 numbers of GD/GI occurred in the Manipur system only which is the concern. GD on 2nd Feb occurred due to insulator damages at multiple location & non opening of the CB at Ningthoukhong. Issue with Tripping circuit DC fuse blown (Resolved).

GD on 8th & 21st Feb occurred due to downstream fault. Y-E fault with fault current 1.2 kA cleared within 100 msec on B/U. Suspected fault in 132 kV Churachandpur-Thanolon line which was not cleared from Churachandpur end which led to tripping of 132 kV Ningthoukhong-Churachandpur II line. Issue with B/U relay setting curve (extremely inverse). (Resolved).

Member Secretary, NERPC stressed that a separate meeting can be organised by NERPC to discuss the grid events and chalk out the remedial measures.

Agenda items from NERLDC

B.5 Status of submission of FIR, DR & EL outputs for the Grid Events for the month of February'2024

In line with regulation 12 (1) of CEA Grid Standards Regulations and IEGC-23 provision under clause 37.2 (c), 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, DR & EL outputs in Tripping Monitoring Portal for events from 01-02-2024 to 29-02-2024 as on 06-03-2023 is given below:

Name of Utility	Total FIR/ DR/EL to be submitted	Total FIR, DR & EL submitted			Total FIR, DR & EL not submitted			% Submission of		
		FIR	DR	EL	FIR	DR	EL	FIR	DR	EL
DoP, Arunachal Pradesh	3	3	3	3	0	0	0	100	100	100
AEGCL	9	9	7	5	0	1	0	100	86	100
MSPCL	23	19	8	5	2	5	10	90	74	44
MePTCL	7	6	5	5	1	1	1	86	83	83
DoP, Nagaland	2	2	1	1	0	0	0	100	100	100
TSECL	8	2	8	8	6	0	0	25	100	100
POWERGRID	27	27	25	25	0	0	0	100	100	100
NEEPCO	2	0	2	2	2	0	0	0	100	100
NHPC	4	1	1	1	3	3	3	25	25	25
OTPC	1	1	1	1	0	0	0	100	100	100
MUML	1	0	1	1	1	0	0	0	100	100
NTL	4	4	2	0	0	2	4	100	50	0

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://tripping.nerlhc.in/Default.aspx>) for analysis purpose. In light of the cybersecurity measures implemented by Grid India to safeguard sensitive information, NERLDC has created the email address

nerldcso3@gmail.com . This new account has been specifically set up to facilitate the secure exchange of DR and EL files that have previously faced blockage when sent to nerldcprotection@grid-india.in.

Deliberation of the sub-committee

NERLDC informed that AEGCL & NTL submitted 100% DR.

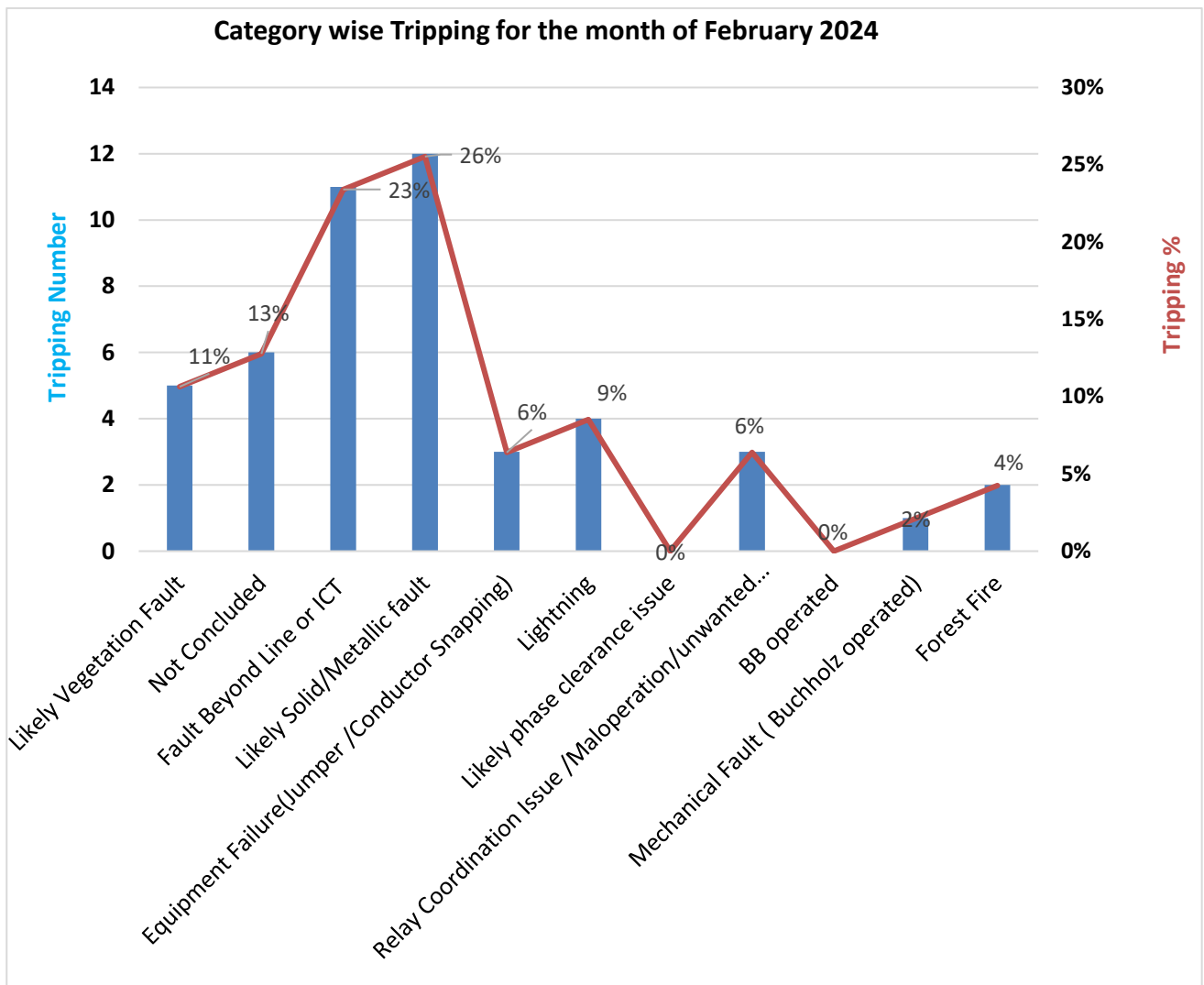
NHPC stated that electromagnetic relays, which are currently in use for various feeders at Loktak HEP, are being replaced with numerical relays and DR submission will improve after the replacement.

After detailed deliberations, Member Secretary, NERPC exhorted the utilities to provide the FIR/DR/EL data timely in compliance with IEGC 2023.

Sub-committee noted as above

B.6 Category wise Tripping for the month of February 2024:

There was a total of 47 numbers of Line & ICT tripping during the month of February'24. A plot showing number of tripping and tripping percentage in each category such as Likely Vegetation, Solid/metallic fault and fault beyond the line etc. is shown below. It is observed that for around 23% of tripping were due to fault beyond the line and 26% of tripping were due to solid fault. The trippings due to vegetation fault and solid fault are listed below:



List of tripping due to Vegetation fault during February, 2024

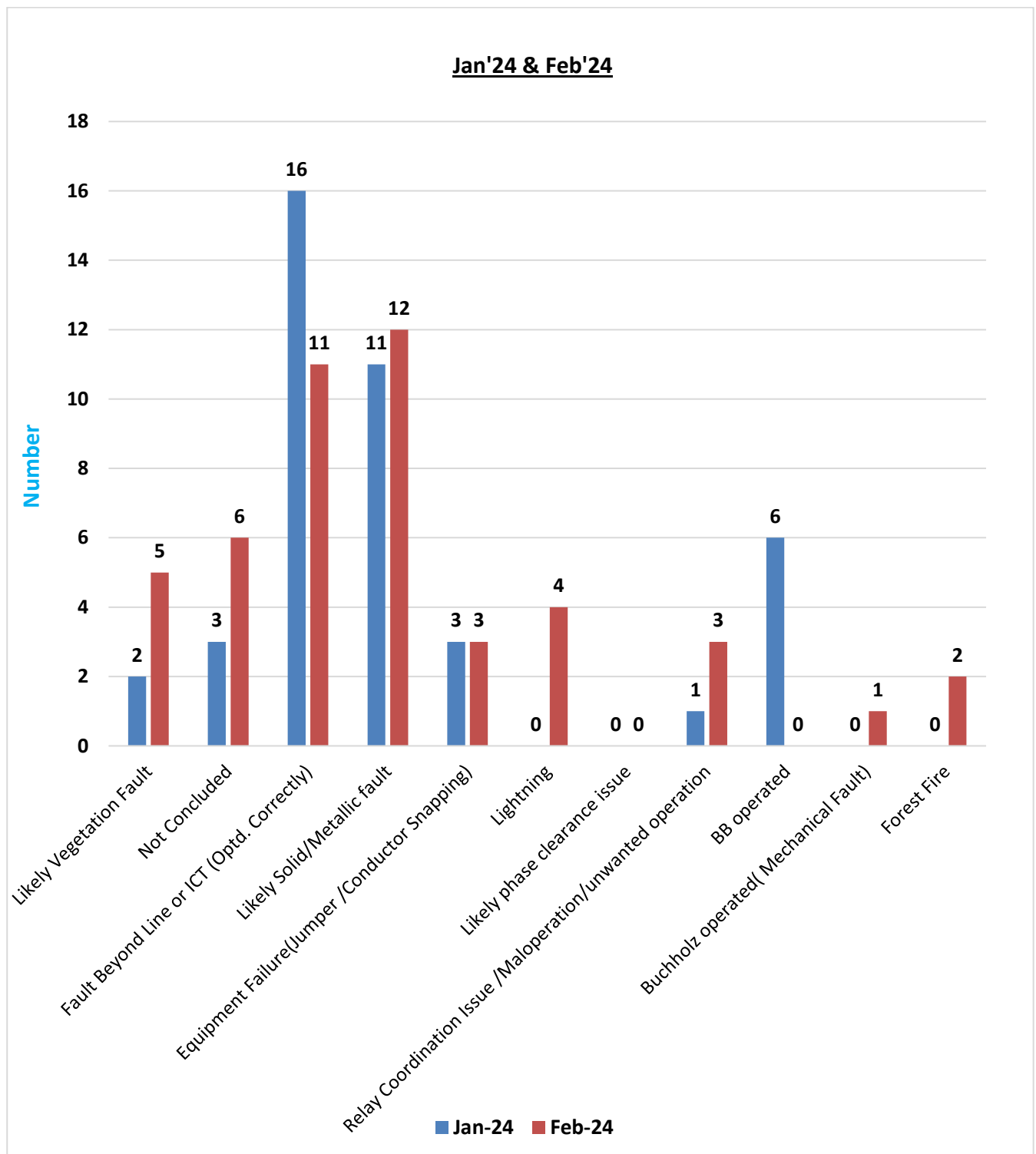
Sl. No.	Element Name	Owner	Tripping Date & Time
1	132 kV Nirjuli-North Lakhimpur 1 Line	MUML	12-02-2024 10:10
2	400 kV Palatana - Silchar 1 Line	NETC	16-02-2024 13:37
3	132 kV Roing - Pasighat Line	POWERGRID	21-02-2024 21:44
4	132 kV Jiribam - Pailapool Line	AEGCL	22-02-2024 01:14
5	132 kV Imphal (MSPCL) - Imphal (PG) 1	POWERGRID	27-02-2024 19:54

List of tripping due to Solid fault during February, 2024

Sl. No.	Element Name	Owner	Tripping Date & Time	End A	End B
1	132 kV Ningthoukhong - Churachandpur 2 Line	MSPCL	01-02- 2024 22:47	DP, ZI, B-E	No tripping
2	132 kV Ningthoukhong - Churachandpur 2 Line	MSPCL	02-02- 2024 01:37	DP, ZI, B-E	No tripping
3	220 kV Amguri - NTPS Line	AEGCL	02-02- 2024 09:51	DP, ZI, B- E,FD: 81.89km	DP, ZI, B-E
4	400 kV Balipara - Bongaigaon 1 Line	POWERGRID	05-02- 2024 10:42	DP, Z-I, B- E, FD:114.3 KM	DP, Z-I, B- E, FD:138.5KM
5	220 kV Samaguri - Sonabil 2 Line	AEGCL	08-02- 2024 05:37	DP, ZI, Y-E, FD: 10.4 Kms	DP, ZI, Y-E, FD:45.8km
6	132 kV Bodhjannagar - Jirania Line	TSECL	08-02- 2024 16:39	DP,ZII,B- E,FD: 17.56 km	DP,ZI,B- E,FD:0.5 KM
7	220 kV Mariani (AEGCL) - Samaguri Line	AEGCL	12-02- 2024 13:52	DP,ZI,B- E,FD:27.8 Km	DP,ZI,B- E,FD:12.2 km
8	132 kV Basar- Daporijo Line	DoP, Arunachal Pradesh	13-02- 2024 12:25	DP,ZI, B-E	DP,ZI, B-E, FD: 27.12 km
9	132 kV Dharmanagar - P K Bari Line	TSECL	21-02- 2024 10:26	DP,ZI,B-E	DP,ZI,R- E,FD:22.49 km

10	132 kV Dhalabil - Kamalpur Line	TSECL	22-02- 2024 12:10	DP,ZI,Y- E,FD:3 Kms	DP,ZI,Y- E,FD: 27.42 Kms
11	132 kV Agartala - Surajmaninagar 1 Line	TSECL	25-02- 2024 05:04	DP,ZI, Y-B, FD: 5.8 Km	DP,ZI,R-Y, FD:11.82 Kms
12	220 kV Byrnihat - Misa 1 Line	MePTCL	26-02- 2024 06:41	DP, ZI, R-E, FD: 55.27 Kms	DP,ZI, R-E, FD: 61.69 km

Monthly Comparison of category wise tripping for Jan'24 & Feb'24



Deliberation of the sub-committee

The forum noted the category wise tripping of transmission elements in February'24 and requested cornered utilities to minimize tripping under all categories.

Cause of tripping due to suspected vegetation fault as updated by utilities-

Sl. No.	Element Name	Owner	Tripping Date & Time	Update form utility
1	132 kV Nirjuli-North Lakhimpur 1 Line	MUML	12-02-2024 10:10	MUML absent. As informed to NERLDC, Tree fallen on the line from outside corridor
2	400 kV Palatana - Silchar 1 Line	NETC	16-02-2024 13:37	NETC intimated that it was due to vegetation fault as vegetation could not be cleared in certain stretches due to RoW issues. Necessary action will be taken in coordination with local administration. Further NETC stated that since end bays belong to other utility, information about tripping was not timely conveyed to them by bay owners, it was provided by NERLDC after few minutes only*.
3	132 kV Roing - Pasighat Line	POWERGRID	21-02-2024 21:44	Tree outside the corridor came in proximity due to storm.
4	132 kV Jiribam - Pailapool Line	AEGCL	22-02-2024 01:14	AEGCL updated that it was a transient solid fault and AR was also attempted.

5	132 kV Imphal (MSPCL) - Imphal (PG) 1	POWERGRID	27-02-2024 19:54	NERTS updated that fault was in downstream and there is some issue with DR signaling at Manipur end and the same needs to be rectified.
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*Regarding non-intimation of tripping of the line by bay owners NERTS stated that it has adopted SMS alert system in which data related to CB status etc. is instantly provided thorough SMS. The forum requested other utilities to adopt the SMS alert system for timely intimation about tripping of their transmission elements.

Tripping due to suspected solid fault

Sl. No.	Element Name	Owner	Tripping Date & Time	Update by utility
1	132 kV Ningthoukhong - Churachandpur 2 Line	MSPCL	01-02-2024 22:47	Insulator failure due to actions of miscreants.
2	132 kV Ningthoukhong - Churachandpur 2 Line	MSPCL	02-02-2024 01:37	Insulator failure due to actions of miscreants.
3	220 kV Amguri - NTPS Line	AEGCL	02-02-2024 09:51	Solid fault. AR not configured at NTPS end, so kept off at Amguri end. To be configured within 3 months.
4	400 kV Balipara - Bongaigaon 1 Line	POWERGRID	05-02-2024 10:42	AR was kept off due to OPGW work.

5	220 kV Samaguri - Sonabil 2 Line	AEGCL	08-02- 2024 05:37	AR not configured, to be completed within 3 months.
6	132 kV Bodhjannagar - Jirania Line	TSECL	08-02- 2024 16:39	LA blast at Jirania end. LA replaced.
7	220 kV Mariani (AEGCL) - Samaguri Line	AEGCL	12-02- 2024 13:52	AR not configured as Panel replacement work underway at MARIANI, to be completed within 3 months.
8	132 kV Basar- Daporijo Line	DoP, Arunachal Pradesh	13-02- 2024 12:25	Arunachal Pradesh was absent.
9	132 kV Dharmanagar - P K Bari Line	TSECL	21-02- 2024 10:26	Tree branch fell on the line due to storm.
10	132 kV Dhalabil - Kamalpur Line	TSECL	22-02- 2024 12:10	Tree felling by miscreants.
11	132 kV Agartala - Surajmaninagar 1 Line	TSECL	25-02- 2024 05:04	Tree branch fell on the line due to storm.
12	220 kV Byrnihat - Misa 1 Line	MePTCL	26-02- 2024 06:41	No access to fault location, so root cause cannot be ascertained.

Sub-committee noted as above

B.7 Submission of Flash Report and Detailed Report by User/SLDC as per IEGC-2023:

As per IEGC-2023, all User/SLDCs are requested to prepare and share **Flash Report** and **Detailed Report** with NERLDC and NERPC following any Grid Events.

Status of submission of the same for the month of February, 2024 is shown below:

Sl. No.	GD/GI/No ar Miss	Affected Areas	Date & Time	Flash/Detailed report to be submitted by User/SLDC	Flash Report By User (IEGC section 37.2 (b))	Detailed report by User within 7 Days (IEGC section 37.2 (e))	Detailed Report submitted By NERLDC	Root Cause	Non Compliance observed
1	GD-I	Blackout of Churachandpur & Thanlon areas	22:47 Hrs on 01-02-2024	Manipur	No	No	Yes	Insulator damaged in multiple phases/locations in the 132 kV Ningthoukhong Churachandpur II.	IEGC section 37.2(b) Flash report within 8 hrs IEGC section 37.2 (e)- Detailed Report By User IEGC section 37.2 (c) & CEA grid Standard 15.3-DR/EL provided within 24 Hours? IEGC section 17.3 - DR time sync
2	GD-I	Blackout of Churachandpur & Thanlon areas	01:37 Hrs on 02-02-2024	Manipur	No	No	Yes	Insulator damaged in multiple phases/locations in the 132 kV Ningthoukhong Churachandpur II.	IEGC section 37.2(b) Flash report within 8 hrs IEGC section 37.2 (e)- Detailed Report By User IEGC section 37.2 (c) & CEA grid Standard 15.3-DR/EL provided within 24 Hours? IEGC section 17.3 - DR time sync
3	GD-I	Blackout of Ningthoukhong, Churachandpur & Thanlon areas	10:05 Hrs on 02-02-2024	Manipur	No	No	Yes	Insulator damaged in multiple phases/locations in the 132 kV Ningthoukhong Churachandpur II. (Tripping of Healthy line due to non-operation of the CB at Ningthoukhong end for 132 kV Ningthoukhong - Churachandpur II.)	IEGC section 37.2(b) Flash report within 8 hrs IEGC section 37.2 (e)- Detailed Report By User IEGC section 37.2 (c) & CEA grid Standard 15.3-DR/EL provided within 24 Hours? - POWERGRID
4	GD-I	Blackout of Ningthoukhong, Churachandpur & Thanlon areas	18:44 Hrs on 02-02-2024	Manipur	No	No	Yes	Insulator damaged in multiple phases/locations in the 132 kV Ningthoukhong Churachandpur II. (Tripping of Healthy line due to non-operation of the CB at Ningthoukhong end for 132 kV Ningthoukhong - Churachandpur II.)	IEGC section 37.2(b) Flash report within 8 hrs IEGC section 37.2 (e)- Detailed Report By User IEGC section 37.2 (c) & CEA grid Standard 15.3-DR/EL provided within 24 Hours? - POWERGRID & NHPC
5	GD-I	Blackout of Thoubal, and radially connected Kongba, Kakching, Chandel, Moreh, Elangkangpokpi areas of Manipur & international Tamu Load of Myanmar	08:32 Hrs on 03-02-2024	Manipur	No	No	Yes	Buchholz Relay operated for B-phase ICT at 400/132 kV 315 MVA ICT-1 at Thoubal	IEGC section 37.2(b) Flash report within 8 hrs IEGC section 37.2 (e)- Detailed Report By User IEGC section 37.2 (c) & CEA grid Standard 15.3-DR/EL provided within 24 Hours?
6	GD-I	Blackout of Churachandpur & Thanlon areas	12:59 Hrs on 08-02-2024	Manipur	No	No	Yes	Y-E fault with fault current 1.2 kA. Suspected fault in 132 kV Churachandpur-Thanol line which led to tripping of 132 kV Ningthoukhong-Churachandpur II line from Ningthoukhong end on DP, ZIII.	IEGC section 37.2(b) Flash report within 8 hrs IEGC section 37.2 (e)- Detailed Report By User
7	GD-I	Blackout of Churachandpur & Thanlon areas	06:57 Hrs on 21-02-2024	Manipur	No	No	Yes	Y-E fault with fault current 1.2 kA. Suspected fault in 132 kV Churachandpur-Thanol line which led to tripping of 132 kV Ningthoukhong-Churachandpur II line from Ningthoukhong end on DP, ZIII.	IEGC section 37.2 (b)- Flash Report By User IEGC section 37.2 (e)- Detailed Report By User
8	GD-I	Blackout of Kolasib area	13:47 Hrs on 22-02-2024	Mizoram	No	No	Yes	Suspected fault in 132 kV Kolasib-Turial line which was not cleared from Kolasib end resulting in tripping of healthy 132 kV Aizawl-Kolasib and 132 kV Badarpur-Kolasib lines. (Y-B ph fault detected from Aizawl and Badarpur end DR)	IEGC section 37.2 (b)- Flash Report By User IEGC section 37.2 (e)- Detailed Report By User
9	GI-II	AGBPP	06:31 Hrs on 23-02-2024	NEEPCO	No	No	Yes	Loss of Power supply due to tripping of station transformer	IEGC section 37.2(b) Flash report within 8 hrs IEGC section 37.2 (e)- Detailed Report By User IEGC section 37.2 (c) & CEA grid Standard 15.3-DR/EL provided within 24 Hours?
10	GD-I	Blackout of Karong area	20:34 Hrs on 28-02-2024	Manipur	No (Submitted on 04-03-24)	No	Yes	Y- phase CT blast at 132 kV Imphal (Yurembam) S/S	IEGC section 37.2 (e)- Detailed Report By User IEGC section 37.2 (c) & CEA grid Standard 15.3-DR/EL provided within 24 Hours?

The complied Event Report of February 2024 attached in **Annexure B.3**

Deliberation of the sub-committee

Forum noted the instances of non-submission of flash reports and detailed reports by Manipur, Mizoram and NEEPCO. Further, the forum strongly urged all the utilities to take necessary measures to ensure submission of required reports and compliance of IEGC 2023.

B.8 Submission of Protection Performance Indices by Transmission Utilities:

As per Regulation No. 15(6), Protection Code - Users shall submit the following protection performance indices of previous month to their respective RPC and RLDC on monthly basis for 220 kV and above (132 kV and above in NER) system by 10th of every month for previous month indices, which shall be reviewed by the RPC:

- The Dependability Index defined as $D = N_c / (N_c + N_f)$
- The Security Index defined as $S = N_c / (N_c + N_u)$
- The Reliability Index defined as $R = N_c / (N_c + N_i)$

Where,

N_c : number of correct operations at internal power system faults

N_f : Number of failures to operate at internal power system faults.

N_u : Number of unwanted operations.

N_i : Number of incorrect operations and is the sum of N_f and N_u

NTL, NETC & AEGCL submitted the Protection Performance Indices for the month of February, 2024 as follows:

SN	Name of Transmission Licencee	D= ($N_c / (N_c + N_f)$)	S= ($N_c / (N_c + N_u)$)	R= ($N_c / (N_c + N_i)$)	Remarks
1	NETC	-	-	-	No bays owned by NETC
2	NTL	1	1	1	-
3	AEGCL	1	0.9	0.9	S & R Index below 1 due to the Pole Discrepancy Mal-operation at NTPS end for 220kV NTPS - Amguri line. The issue has been resolved.

It has been observed that Protection Performance Indices are not being submitted by all the users. Therefore, all Users are requested to furnish performance indices

(Dependability-D, Security-S, Reliability-R) with regards to the tripping of elements to NERPC & NERLDC positively by 10th of every month for previous month indices.

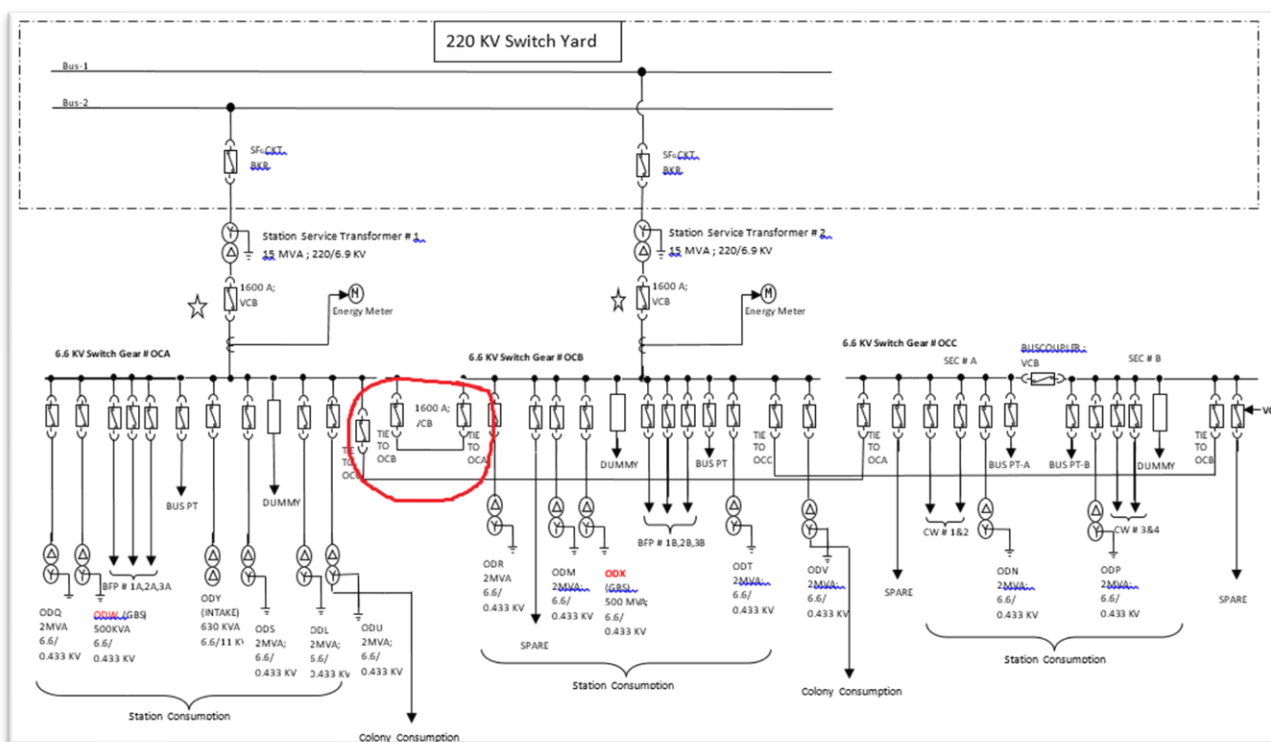
Deliberation of the sub-committee

NERLDC stated that Nagaland, MePTCL & NERTS have also submitted the report. Member Secretary, NERPC directed other utilities to provide the indices before 10th of every month for previous month grid element operation.

B.9 Tripping of AGBPP all units due to tripping of Station Transformer II on 23.02.2024:

On 23rd Feb, 2024 at 06:15 Hrs, all available units of AGBPP(NEEPCO) tripped due to tripping of Station Transformer which give auxiliary supply to Gas Booster Station (GBS). GBS is the key element for running of GTGs.

It was informed by AGBPP that Station transformer tripped due to sudden pressure valve (30DQ) trip. And during restoration of power from Station Transformer I to GBS, running GBS tripped.



SLD of Station consumption of AGBPS

AGBPP(NEEPCO) may deliberate on this issue and make automatic switching arrangement between Station transformer I & II to avoid power interruption to GBS and unwanted tripping of units in future.

Deliberation of the sub-committee

NEEPCO stated that switching of GBS from one SST to another is done manually and same could not be completed within available time margin of around 5 minutes due to some issues. Further NEEPCO assured the forum that such incidents are very rare and will take all measure to ensure that this is not repeated. Regarding automatic switching scheme, NEEPCO stated that the scheme was not planned in original scheme of the plant.

Forum noted the above points and requested NEEPCO to consult the OEM, M/s BHEL to look into the issues of automatic switching arrangement of Tie CB in case of tripping of any one station transformers.

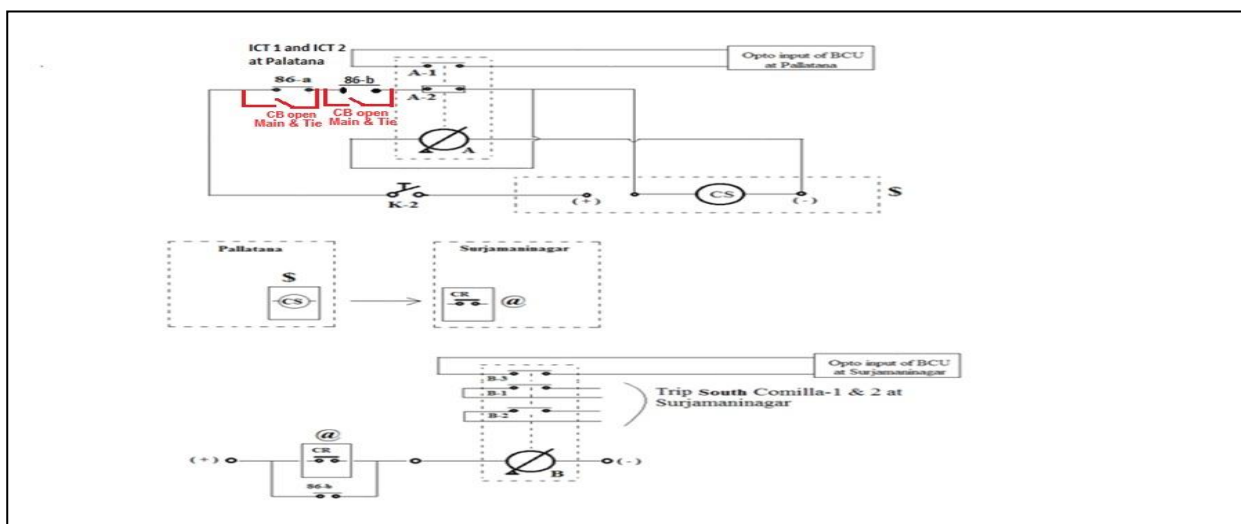
B.10 Modification of SPS at Palatana due to outage of both the ICT's:

SPS related to Reliable Power Supply to Bangladesh operates during the outage of both the ICT's at Palatana. On successful operation, entire load disconnection of South Comilla by way of tripping of 132kV SM Nagar-South Comilla D/C.

Present tripping logic included the operation of 86 relay status of both the ICT's.

However, the SPS will not work during the Shutdown (86 operate status-OFF) of any one ICT & tripping (86 Operate Status-ON) of other ICT.

Modification: Main CB & Tie CB status need to be included in the tripping logic for reliable SPS operation as highlighted in red colour below.



Deliberation of the sub-committee

Forum noted the modification in SPS as suggested by NERLDC. NERTS stated that for CB status BCU output contacts may be used. OTPC stated that they will study

the modifications as suggested by NERLDC and NERTS and will implement the same accordingly.

Sub-committee noted as above.

B.11 Modification required in the logic of the SPS Related to the tripping of Bus Reactors at 400 kV S M Nagar (ISTS) and 400 kV P K Bari (ISTS):

SPS: Related to the tripping of Bus Reactors at 400 kV S M Nagar (ISTS)

Tripping of both circuits of 400 kV SM Nagar-PK Bari D/C will trip 2 x 125 MVAR Bus Reactors at SM Nagar (ISTS) to prevent under voltage situation at S M Nagar (ISTS) and nearby areas of Tripura Power system. Logic will also operate in case of the outage of any one circuit and tripping of the other circuit.

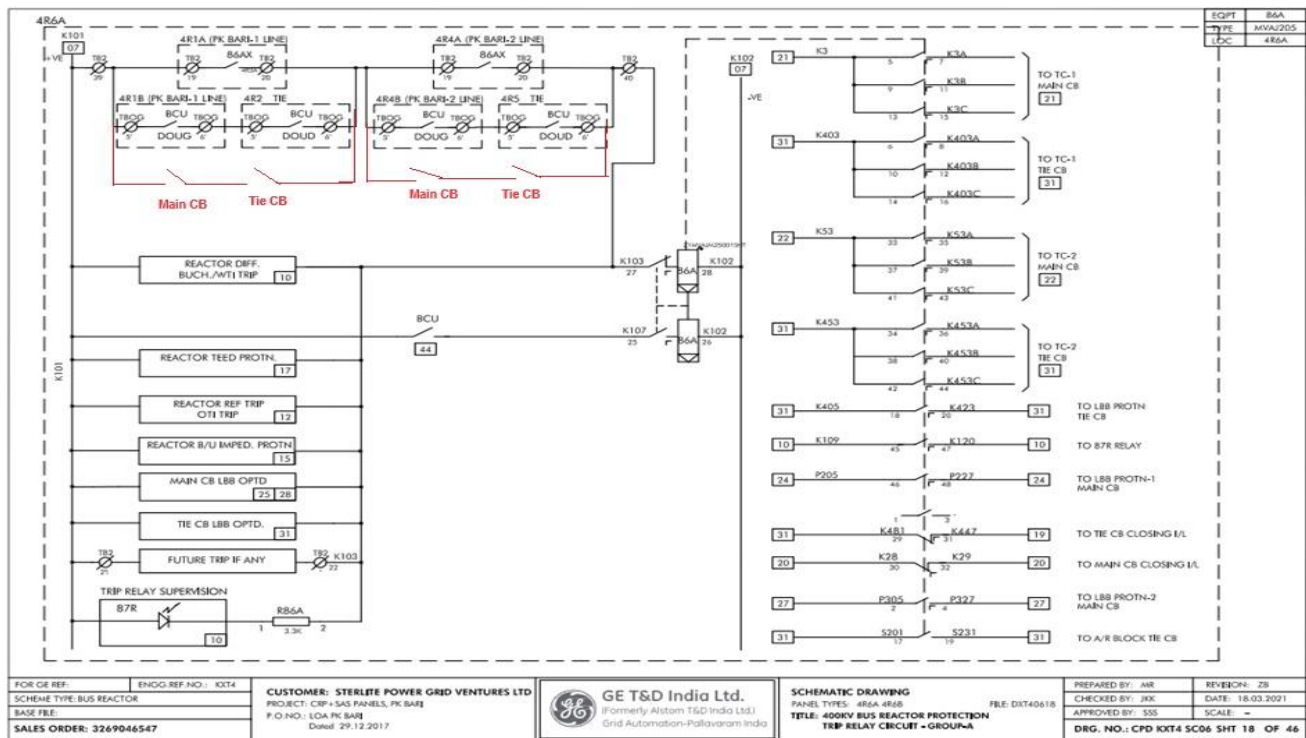
SPS: Related to the tripping of Bus Reactors at 400 kV P K Bari (ISTS)

Tripping of both circuits of 400kV PK Bari (ISTS) – Silchar (PG) D/C will trip 2 x 125 MVAR Bus Reactors at P K Bari (ISTS) to prevent under voltage situation at P K Bari (ISTS) and nearby areas of Tripura system. Logic will also operate in case of the outage of any one circuit and tripping of the other circuit.

Present tripping logic included the operation of 86/86 LO relay status of both the Lines.

However, the SPS will not work during the Shutdown (86 operate status-OFF) of any one line & tripping (86 operate Status-ON) of other line.

Modification Required: Main CB & Tie CB status need to be included in the tripping logic for reliable SPS operation.



Deliberation of the sub-committee

Forum noted the modification in SPS as suggested by NERLDC. Matter could not be discussed further as the concerned utility, NER-II TL, was not present in the meeting. Forum requested NERLDC to coordinate with NTL and modify the SPS accordingly.

B.12 Requirement of SPS for generation evacuation from Leshka HEP (MePGCL)

Reporting Party: MePGCL

Classification: SPS related to safe evacuation of Generation

Operation: Generation Rejection

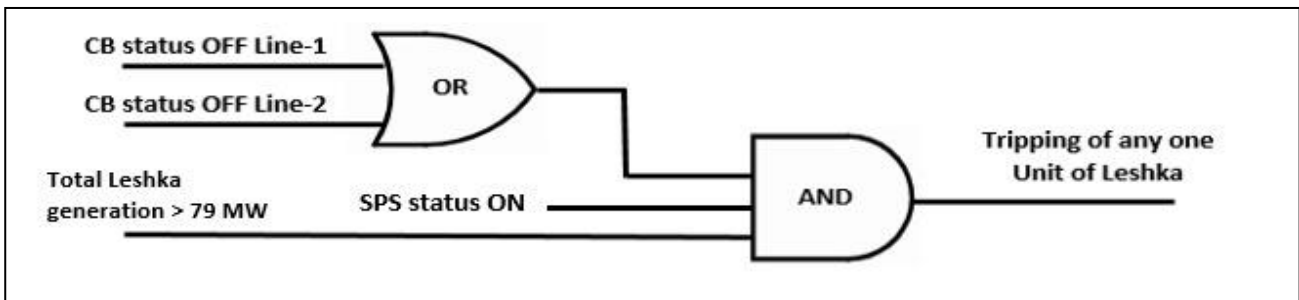
Scheme-

1. Right now Leshka with an installed capacity of 42 X 3=126 MW connected with rest of Grid via 132 kV Leshka-Khlieriat (MePTCL) D/C Line. If one circuit of 132 kV Leshka – Khliehriat (MePTCL) D/C trips/goes under outage, the full generation could not be evacuated via a single line of 132 kV Leshka – Khliehriat (MePTCL) line.

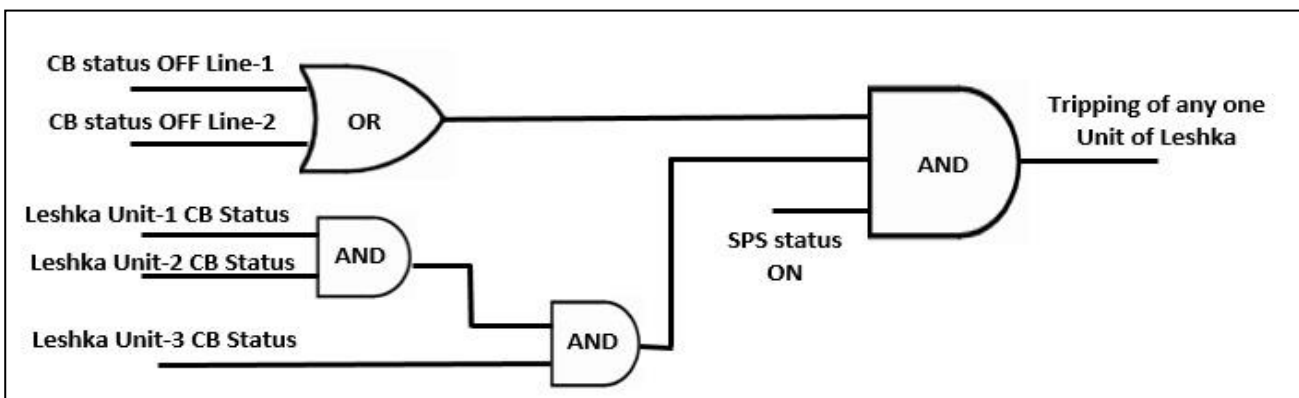
- As per the scheme logic, when sum of Leshka generation is more than 79 MW, outage of any one circuit of 132 kV Leshka-Khlieriat (MePTCL) line should result in tripping of any one unit of Leshka for safe evacuation of power from Leshka HEP. Hence, reliability of Leshka generation shall increase.

- OR
- When all the units running, outage of any one circuit of 132 kV Leshka-Khlieriat (MePTCL) line should result in tripping of any one unit of Leshka for safe evacuation of power from Leshka HEP. Hence, reliability of Leshka generation shall increase.

The schematics of the SPS is attached for reference.



OR



MePGCL is requested to implement any of the SPS logic at the earliest.

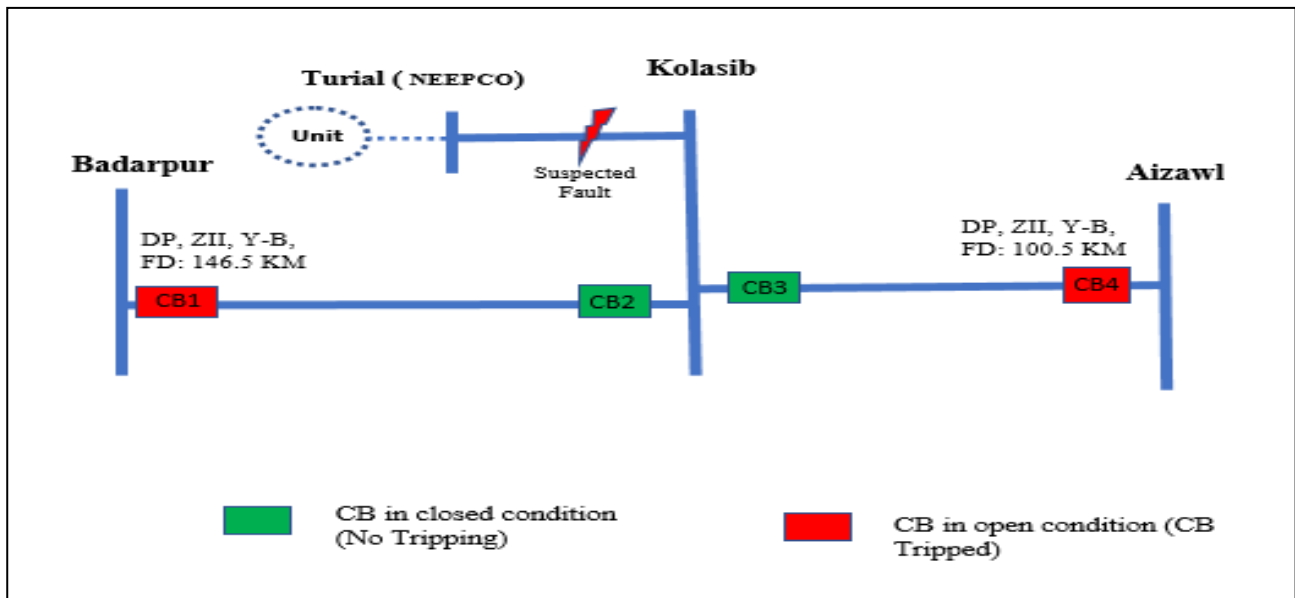
Deliberation of the sub-committee

MePGCL noted the SPS scheme as suggested by NERLDC and stated that the same will be put up for approval of higher authority.

Sub-committee noted as above.

B.13 Grid Disturbance at Kolasib area of Mizoram power system on 22-02-2024:

At 13:47 Hrs of 22.02.2024, 132 kV Aizawl-Kolasib and 132 kV Badarpur-Kolasib lines tripped, which led to blackout at Kolasib Substation of Mizoram Power system.



As per DR analysis, Y-B fault detected from Aizawl and Badarpur end which was cleared on operation of DP, ZIII within 850 msec. There was no tripping from Kolasib end for both the lines. Fault is suspected in 132 kV Kolasib-Tuirial line which was not cleared resulting in tripping of healthy 132 kV Aizawl-Kolasib and 132 kV Badarpur-Kolasib lines from remote end on operation of DP, ZIII which impacts the ISTS node

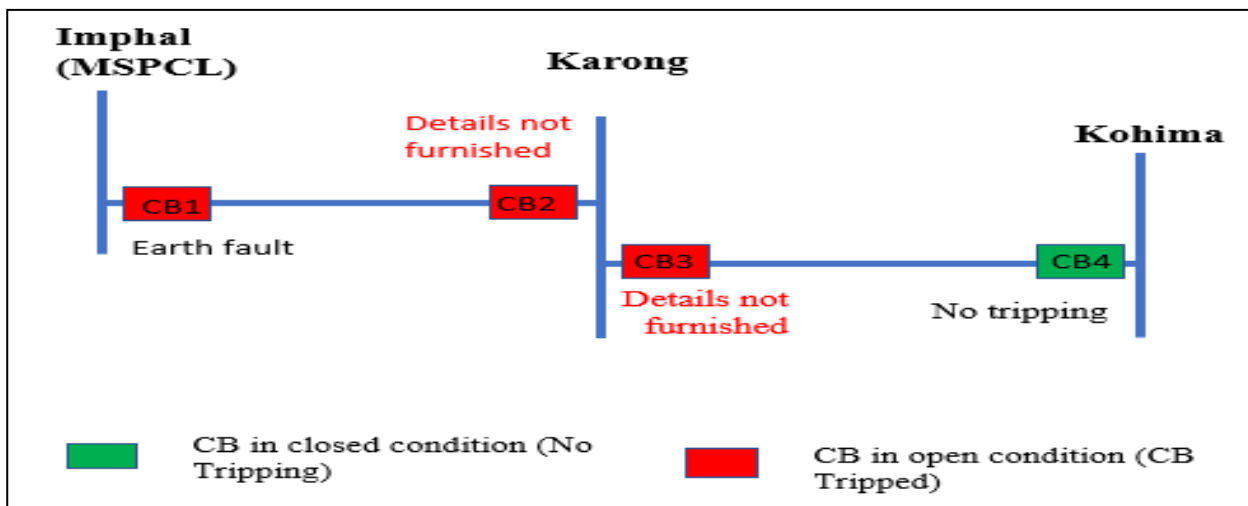
P&ED, Mizoram may share the root cause of the events and corrective action that has been taken to forum.

Deliberation of the sub-committee

Mizoram stated that root cause of tripping has not been ascertained yet and assured that complete analysis of the event will be done soon. The forum strongly urged Mizoram to do necessary analysis and send the report to NERPC and NERLDC at the earliest.

B.14 Grid Disturbance at Karong area of Manipur power system on 28-02-2024:

At 20:34 Hrs on 28-02-2024, 132 kV Imphal – Karong & 132 kV Karong – Kohima tripped resulting into the Grid Disturbance at the Karong area of Manipur power system.



As per the PMU snap of the Imphal SS, Y phase fault with Fault current of 414 A appears in the Y phase and cleared in 80 msec.

As per information from Manipur, Y- phase CT blast at 132 kV Imphal (Yurembam) S/S.

Tripping of 132 kV Karong- Kohima line from Karong end is unwanted resulting in blackout of Karong Substation which is the serious concern.

MSPCL may share the root cause of the event, reason of tripping of healthy 132 kV Kohima Line and remedial measures that has been taken to forum.

Deliberation of the sub-committee

MSPCL stated that root cause of the problem is blasting of CT at Imphal substation. Further he stated that maloperation of CB3 (as shown in the picture above) could not be analyzed as Karong substation lies in the buffer zone and reachability to the substation is severely hampered.

Forum noted the above points and urged MSPCL to undertake complete analysis at the earliest and share the report to NERPC/NERLDC.

B.15 Mapping of SPS in the SCADA Display for real time monitoring of all SPS:

NLDC has submitted the Guidelines on “Interfacing Requirements” after stakeholder consultation for approval of the Commission as mentioned in the Regulation 7.4, read with Regulation 14.2 of the Communication System for inter-State transmission of electricity) Regulations, 2017.

On dated 19-Jan-2024, CERC approved the guideline on “Interfacing Requirements” prepared by NLDC in consultation with the stakeholder.

As per the Guideline, real time telemetered is SPS Signal need to be monitored.

The digital status shall be as per IEC standard. Digital Status for circuit breaker must be double point while isolator status can be either single point or double point as per end device. All users shall comply with interface requirements as specified and shall share interface details with respective control centre.

Sl. No.	Description	Analog Points	Digital Points	Protection Signal
1	SPS Signal		DIGITAL STATUS: Enable/Disable, Operated/No Operated (Condition/Logic Wise)	

At present, there are 18 numbers of SPS under operation and 2 numbers of SPS under implementation as listed tabulated below:

Sl. No.	SPS under operation	Long term measures	SPS mapping status in SCADA (YES/No)
1	<u>Tripping of 400kV Palatana-Silchar D/C-</u> when both modules of Palatana are in service causes tripping of HV side breaker of 2x125 MVA, 400/132 kV ICT at Palatana	After commissioning of 400 kV Palatana - Surajmaninagar line-1, there is no requirement of this SPS and hence, it is to be kept OFF. However, the SPS at Palatana is to be kept ON during shut down of 400 kV Palatana-Surajmaninagar(ISTS) line-1	
2	Reverse power flow more than 60 MW from LV to HV side of 2 X 315 MVA, 400/220 kV Azara ICTs causes tripping of 400/220 kV, 2x315 MVA ICTs at Azara (AEGCL)	After upgradation of 220 kV BTPS-Salakati D/C lines. (Need to disable after system study of the present condition)	

3	Tripping of 132 kV Umiam Stg-I to Umiam Stg-III D/C lines causes instantaneous load shedding near Mawphlang area	After commissioning of 220 kV Killing-Mawngap D/C lines and re-conductoring of 132kV Lumshnong-Panchgram line, SPS is kept OFF	
4	SPS related to overloading of 220kV BTPS- Salakati D/C- Tripping of 220kV Agia – Boko and 220kV Agia – Mirza	After upgradation of 220 kV BTPS-Salakati D/C lines, this SPS is kept OFF	
5	<u>Related to the safe evacuation of power from BgTPP(NTPC) generation</u> - BGTTP generation reduction to 600 MW	-	
6	<u>Related to Generation evacuation from Monarchak(NEEPCO) Power Plant</u> - Tripping of STG at Monarchak under outage of any one circuit of 132 kV Monarchak – Rokhia line & 132 kV Monarchak- Udaipur	Commissioning of 132 kV Monarchak-Surajmaninagar line	
7	Outage of 220 kV BTPS (Salakati) – Rangia I & II - load shedding	Commissioning of 400 kV Rangia SS and LILO of 400 kV Bongaigaon-Balipara 1 & 2 Line at Rangia.	
8	<u>Related to the tripping of Bus Reactors at 400 kV S M Nagar (ISTS)</u> - Tripping of both circuits of 400 kV SM Nagar-PK Bari D/C will trip 2 x 125 MVAR Bus Reactors at SM Nagar (ISTS) to prevent under voltage situation	-	
9	<u>Related to the tripping of Bus Reactors at 400 kV P K Bari (ISTS)</u> - Tripping of both circuits of 400kV PK Bari (ISTS) – Silchar(PG) D/C will trip 2 x 125 MVAR Bus Reactors at P K	-	

	Bari(ISTS) to prevent under voltage situation		
10	<u>Related to the tripping of Bus Reactors at 400 kV Imphal (PG) -</u> Tripping of 400 kV New Kohima – Imphal D/C during outage of 400 kV Silchar – Imphal D/C will lead to the tripping of 125 MVAR and 80 MVAR Bus Reactor at Imphal(PG)	-	
11	<u>Related to Outage of any one of the 400/132kV 2x360MVA ICTs at Panyor Lower Hydro Power Station -</u> Disconnection of One Unit of Panyor (135 MW) and One Unit of Pare (55 MW)	After restoration of 132 kV Panyor -Itanagar & 132 kV Panyor -Pare line (expected by 31st Mar'24)	
12	<u>SPS related to outage of 220 kV Azara-Sarusajai DC/220 kV Misa-Samaguri DC -</u> 1) On tripping of 220 kV Azara-Sarusajai D/C: 140-150 MW load disconnection is to be done at Sarusajai and Kahilipara areas 2) On tripping of 220 kV Misa-Samaguri DC: Load reduction of 50-60 MW at Samaguri area	Commissioning of 400 kV Sonapur Substation. LILO of 400 kV Bongaigaon-Byrnihat Line at Sonapur.	
13	<u>SPS related to the outage of 132 kV Panyor HEP-Ziro Line -</u> Tripping of 132 kV Panyor-Ziro will cause disconnection of 33kV Load at Ziro	Commissioning of 132 kV Khupi - Along Link/220 kV AGBPS-Namsai D/C	
14	Related to outage of any one circuit of 132 kV Dimapur(PG)- Dimapur(NA) D/C	Reconductoring of 132 kV Dimapur(PG)- Dimapur(NA) D/C	Yes

15	Related to outage of any one circuit of 220 kV Balipara-Sonabil D/C	Reconductoring of 220 kV Balipara-Sonabil D/C lines with higher ampacity and Utilisation of 2 X 160 MVA ICTs at Balipara	
16	<u>Related to Outage of 400 kV Palatana – Surajmani Nagar line (charged at 132 kV)</u> - Tripping of 400 kV SM Nagar – Comilla D/C (charged at 132 kV) during outage of 400 kV Palatana – SM Nagar(TSECL) line (charged at 132 kV)	Upgradation of 132 kV Surajmaninagar(TSECL) to 400 kV	
17	<u>Related to Outage of both 400/132 kV, 2x125 MVA ICTs at Palatana</u> - Entire load disconnection of South Comilla by way of tripping of 132kV SM Nagar-South Comilla D/C	Upgradation of 132 kV Surajmaninagar(TSECL) to 400 kV	
18	Related to the outage of any one circuit of the 132 KV Khliehriat (PG)-Khliehriat D/C line	Reconductoring of 132 KV Khliehriat (PG)-Khliehriat D/C line	

Sl. No.	SPS under implementation	Long term measures
1	Related to outage of any one circuit of 132 kV Leshka – Khliehriat D/C	Reconductoring of 132 kV Khliehriat – Leshka D/C
2	Related to Outage of one circuit of 400 kV Surajmani Nagar (TSECL)-South Comilla line (Charged at 132 kV)	Upgradation of Comilla SS to 400 kV level

Deliberation of the sub-committee

NERLDC gave a ppt presentation (**annexure B.15**) on the guideline on interfacing requirement as approved by CERC. Forum noted the guidelines and requested the concerned stakeholders to take necessary measures to ensure mapping of SPS signals in SCADA for real time monitoring.

B.16 Non-operation of auto recloser in Important Grid Elements for transient faults in February 2024:

SL No	Element Name	Tripping Date and Time	Relay Details_A	Relay Details_B	AR not Operated	Remarks
1	220 kV Amguri - NTPS Line	02-02- 2024 09:51	DP, ZI, B-E, FD: 81.89km	DP, ZI, B-E	Amguri & NTPS	
2	132 kV Dimapur - Imphal Line	06-02- 2024 21:01	DP, ZI, Y-E, FD:17.02 km (AR Unsuccessful)	DP, ZII, Y-E, FD: 149.5km (Carrier Aided tripping)	Imphal	
3	220 kV Samaguri - Sonabil 2 Line	08-02- 2024 05:37	DP, ZI, Y-E, FD: 10.4 Kms	DP, ZI, Y-E, FD:45.8km	Both ends	
4	132 kV Roing - Pasighat Line	21-02- 2024 21:44	DP, ZI, Y-B, AR Successful	DP, ZII, Y-B, FD:95KM	Pasighat (out of service)	
5	220 kV Byrnihat - Misa 2 Line	23-02- 2024 04:39	DP, ZI, Y-E, FD: 59.54 Km	DP, ZI, Y-E, FD: 81.019km (AR Successful)	Byrnihat	
6	220 kV Byrnihat - Misa 1 Line	26-02- 2024 06:41	DP, ZI, R-E, FD:	DP, ZI, R-E, FD: 61.69 km	Both Ends	

			55.27 Kms			
7	220 kV Kopili - Misa 1 Line	27-02- 2024 12:09	DP,ZI,B-E , AR not operated	DP,ZII,B- E,FD: 53.14KM (Carrier Aided Tripping), (AR Unsuccessful)	Kopili	

Utilities may update

Utilities updated as under –

SL No	Element Name	Trippin g Date and Time	Relay Details_A	Relay Details_B	AR not Operated	Remarks
1	220 kV Amguri - NTPS Line	02-02- 2024 09:51	DP, ZI, B- E,FD: 81.89km	DP, ZI, B-E	Amguri & NTPS	AR not configured at NTPS end, so kept off at Amguri end. To be configured within 2 months.
2	132 kV Dimapur - Imphal Line	06-02- 2024 21:01	DP, ZI, Y- E, FD:17.02 km (AR	DP, ZII, Y- E, FD: 149.5km (Carrier Aided tripping)	Imphal	Issue in DC output contacts resolved.

			Unsuccessful)			
3	220 kV Samaguri - Sonabil 2 Line	08-02-2024 05:37	DP, ZI, Y-E, FD: 10.4 Kms	DP, ZI, Y-E, FD:45.8km	Both ends	AR configuration not yet done. To be completed within 2 months.
4	132 kV Roing - Pasighat Line	21-02-2024 21:44	DP, ZI, Y-B, AR Successful	DP, ZII, Y-B, FD:95KM	Pasighat (out of service)	Arunachal Pradesh was absent.
5	220 kV Byrnihat - Misa 2 Line	23-02-2024 04:39	DP,ZI, Y-E, FD: 59.54 Km	DP,ZI, Y-E, FD: 81.019km (AR Successful)	Byrnihat	OEM to arrive this month to resolve the issue.
6	220 kV Byrnihat - Misa 1 Line	26-02-2024 06:41	DP, ZI, R-E, FD: 55.27 Kms	DP,ZI, R-E, FD: 61.69 km	Both Ends	OEM,ABB to arrive this month(18/03/2024) to resolve the issue.
7	220 kV Kopili - Misa 1 Line	27-02-2024 12:09	DP,ZI,B-E , AR not operated	DP,ZII,B-E,FD: 53.14KM (Carrier Aided Tripping), (AR Unsuccessful)	Kopili	NEEPCO updated that CB opening status not coming so AR was not attempted.

Sub-committee noted as above.

Agenda from NERTS

B.17 Regarding Highset function for HV & LV O/C E/F for ICTs at Roing, Tezu & Namsai:

Due to frequent 33kV feeder faults in Roing, Tezu & Namsai, the ICTs in all the 3 stations are subjected to frequent fault currents. Further, there is also chance that in case the fault spills over to the connected 132kV system it will lead to blackout of Namsai & Tezu Ss which are the radially fed.

To isolate the faults in the 33kV system in the ICTs itself in worst case scenario, the HV & LV side O/C E/F settings have been revised and kept sensitive as:

Sl.No.	Protection for ICT	Settings	Trip time
1	HV OC Highset	70% of Max fault current	50 msec
2	HV EF Highset	80% of Max fault current	50 msec
3	LV OC Highset	50% of Max fault current	50 msec
4	LV EF Highset	50% of Max fault current	50 msec

The above settings revision is for intimation to forum & request to DoP AP to reduce the 33kV feeder faults.

Deliberation of the sub-committee

NERPC stated that it is critical to isolate the heavy downstream faults as early as possible, however protection system of downstream lines should also be given reasonable time to isolate the fault first to ensure specificity of the protection system. After detailed deliberations, the forum advised NERTS to increase the trip time settings in consultation with DoP Arunachal Pradesh and intimate NERPC and NERLDC accordingly. NERTS stated that highest trip time for 33kV feeders is instant & high set trip time for ICTs is 50 msec allowing the ICTs to remain in service until the fault in feeders are isolated by highest function. However, for stage-1 protection, standard IDMT O/C E/F function shall remain in service which will provide time graded isolation of feeders before the ICTs. Forum agreed to the same.

Member Secretary, NERPC opined that a letter could be written at NERPC Secretariat level to all the discoms to strengthen their protection system so that effect on the Intra- State and Inter-State grid may be minimized.

B.18 Unwanted tripping of 132kV Badarpur – Kolsaib & 132kV Aizwal – Kolasib

on 22.02.24, it was observed that both 132kV Badarpur – Kolsaib & 132kV Aizwal – Kolasib feeder tripped on Z-3 fault at the same time. Upon investigation it was found that the fault was in 132kV Kolsaib-Turial feeder which was not cleared by Kolasib which led to tripping of the upstream feeders.

To prevent recurrence of above issue, Circuit Breaker as well relay operation (Distance Function) maybe checked at Kolasib end for Kolasib-Turial feeder. Forum may deliberate.

Deliberation of the sub-committee

Matter already discussed in item B.13.

B.19 Regarding usage of dark fiber for Line Differential Function:

POWERGRID has successfully commissioned LDR for numerous 132kV lines in NER. For the following feeders, even though the LDR has been commissioned, due to non-availability of dedicated dark fibers Differential function has not been activated:

- a. 132kV Kumarghat – PKBari – Fibre is owned by Tripura.
- b. 132kV Kumarghat – Karimganj - ULDC owned 24 pair fibre is being installed & shall be commissioned by march 2024 upto LILO point. Beyond LILO point, fibre is owned by AEGCL.

Forum may approve usage of 01 pair of available fibre for Line Diff function of above feeders.

Deliberation of the sub-committee

After detailed deliberations, the forum agreed in-principle for provision of one pair of fiber for line differential protection. Further the forum requested NERTS and concerned States to work out the modalities and bring the same in next PCC meeting.

B.20 Issue of 48 V PLCC supply at Pasighat for 132 kV Roing-Pasighat feeder:

Due to unhealthy 48V dc supply at Pasighat Ss, carrier is permanently unhealthy for 132kV Roing-Pasighat feeder. Due to this, Auto Reclose & Carrier Aided Tripping (in case of Z-2 fault) at both ends is nonfunctional.

Remedial measures: To ensure successful AR & Carrier Aided Tripping (in case of Z-2 fault) at both ends, the following changes shall be done until the 48V supply is restored at Pasighat end:

- c. Carrier healthy shall be made permanently high at Pasighat end to prevent AR lockout in case of carrier unhealthy.
- d. For both Roing & Pasighat end, Auto Reclose initiation shall be configured for Z-2 (without carrier) & trip extension to Master Trio relay (86) from Z-2 shall be removed. Alongwith it, trip time (T2) for Z2 fault shall be reduced to 100 msec.

Deliberation of the sub-committee

Forum noted and suggested that NERTS to implement the above setting in consultation with DoP Arunachal Pradesh. Also, the forum requested DoP to rectify the 48V supply issue at the earliest.

C. FOLLOW - UP AGENDA ITEMS

C.1 Submission of monthly and Quarterly progress report by respondents of NERLDC's Petition:

As per the Direction of Hon'ble commission related to the Petition No 198/MP/2020, 259/MP/2020, 535/MP/2020, 539/MP/2020 and 540/MP/2020, respective respondents has to submit the **monthly/quarterly progress report** of the action plan prepared by the respective respondents in consultation with the Petitioner (i.e. NERLDC) to NERPC.

Order dated	Petition No	Respondent
08-Nov-2023	198/MP/2020	DoP, Arunachal Pradesh
	259/MP/2020	DoP, Nagaland
	539/MP/2020	MSPCL
27-Oct-2023	535/MP/2020	TPTL/TSECL
	540/MP/2020	P&ED, Mizoram

All the respondents are requested to share the monthly/Quarterly progress report for the month of Dec'23.

In 63rd PCCM, MS, NERPC stated that Hon'ble CERC (in above mentioned Petition) has directed the following:

NERPC shall monitor the work of the implementation of the Protection system by the Department of Power, Arunachal Pradesh; Department of Power, Nagaland, MSPCL, TPTL/TSECL, P&ED, Mizoram and shall submit a quarterly progress report to the Commission till the establishment of the Protection system at the substations identified by the NERLDC.

NERPC shall validate relay settings and conduct the Protection Audit of the associated transmission system at the substation and transmission lines, as and when required. Any issue faced during the implementation of Protection system or observed during the protection audit shall be discussed in the Protection Sub-Committee meeting at the RPC forum and sorted out. Concerned Power department /State shall identify one person from their top management as a nodal officer, who shall submit a monthly progress report on the implementation of the protection

system to the NERPC and NERLDC, till the establishment of the Protection system at the substations identified by the NERLDC.

In this regard, Member Secretary strongly urged the concerned States to appoint a nodal officer at SE and above level who shall submit a monthly progress report on the implementation of the protection system to NERPC and NERLDC. The monthly progress report will be monitored at PCC forum. He requested the states to send monthly progress report and action plan accordingly.

All the respondents are requested to provide the progress report for Dec'23 and Jan'24.

In 64th PCCM, DoP Nagaland stated that the progress report for Jan'24 has been recently sent to NERPC and NERLDC.

Member Secretary, NERPC requested NERLDC and concerned states to provide following details and month wise report to NERPC so as quarterly report can be submitted to Commission –

State/Utility	Nomination of Nodal officers (at the level of SE & above)	Whether List of substations identified by NERLDC/State?	Whether Action plan with timeline for implementation submitted?	Monthly Work progress report submitted?
DoP Arunachal Pradesh	No	Yes	Yes	December 2023 1. DR/EL-100% 2. AR status-2024-25
DoP Nagaland	No	Yes	Not available	Not available
DoP Mizoram	No	Yes	Not available	Not available
TPTL/TSECL	No	Yes	Not available	Not available
MSPCL	No	Yes	Not available	Not available

Deliberation of the sub-committee

NERLDC updated as follow –

State/Utility	Nomination of Nodal officers (at the level of SE & above)	Whether List of substations identified by NERLDC/State?	Whether Action plan with timeline for implementation submitted?	Monthly Work progress report submitted?
DoP Arunachal Pradesh	No	Yes	Yes	Not submitted
DoP Nagaland	yes	Yes	Yes	Feb'24
DoP Mizoram	Yes (SE, MSLDC)	Yes	Yes	Not submitted
TPTL/TSECL	Yes (AGM, TPTL)	Yes	Yes	Not submitted

Forum noted above and directed the concerned state utilities to provide the nominations (if not provided) and monthly work progress report from December 2023 to February 2024 to NERPC within 15 days. The quarterly report will be submitted by NERPC to CERC as compliance to above petition. Forum also requested NERLDC to provide the Action plan report and monthly progress report (from December 2023 to February 2024 received from state) to NERPC.

C.2 Mock testing of the System Protection Scheme (SPS) of the NER:

New IEGC highlighted the need for mock testing of the SPS for reviewing SPS parameters & functions, at least once in a year under the regulation 16 (2) of IEGC 2023.

As per the discussion in the 63rd PCCM, NERLDC has prepared draft procedure for testing of SPS at Samaguri substation at Assam attached in **Annexure C.2**.

All the utilities are requested to share Suggestions/comments on the draft procedure.

In 64th PCCM, NERLDC and AEGCL stated that mock SPS testing at Samaguri will be conducted on Sunday and shutdown of identified loads will be required for half an hour.

Deliberation of the sub-committee

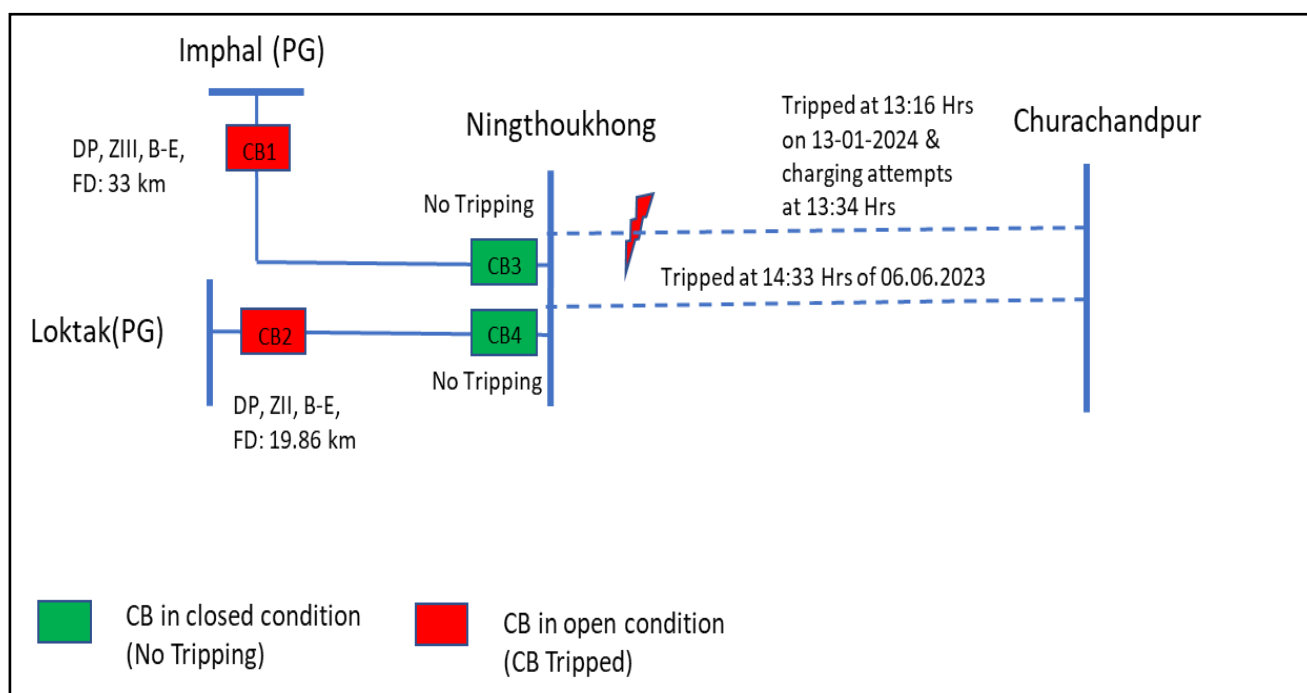
AEGCL updated that required shutdown has been planned on 7th April to carry out the SPS testing

Sub-committee noted as above

C.3 Repeated Grid Disturbance in Ningthoukhong and radially connected Churachandpur & Thanlon area of Manipur power system on January & February 2024:

Blackout of Ningthoukhong area:

At 13:34 Hrs of 13.01.2024, 132 kV Loktak – Ningthoukhong & 132 kV Imphal – Ningthoukhong lines tripped which led to blackout of Ningthoukhong area of Manipur power system.



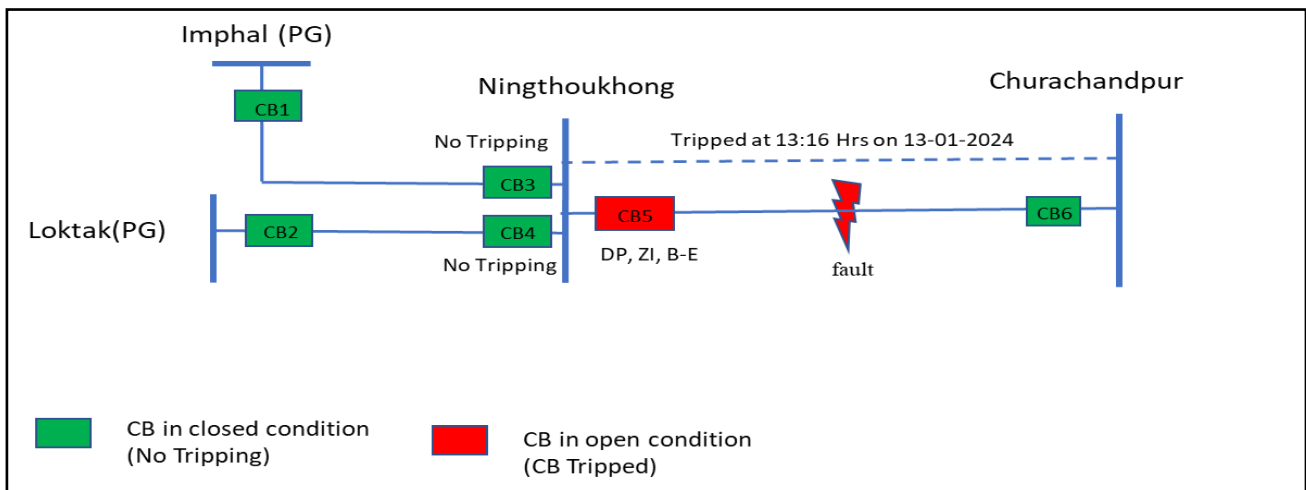
Remarks: Healthy lines tripped while taking charging attempts of the 132 kV Ningthoukhong-Churachandpur 1 line at 13:34 Hrs.

Blackout of Churachandpur & Thanlon area:

Event 1: 01.02.2024, 22:47 Hrs: Load Loss: 8 MW

Event 2: 02.02.2024, 01:37 Hrs : Load Loss: 5 MW

132 kV Ningthoukhong-Churachandpur 2 line tripped which led to blackout of Churachandpur and Thanlon area of Manipur power system.



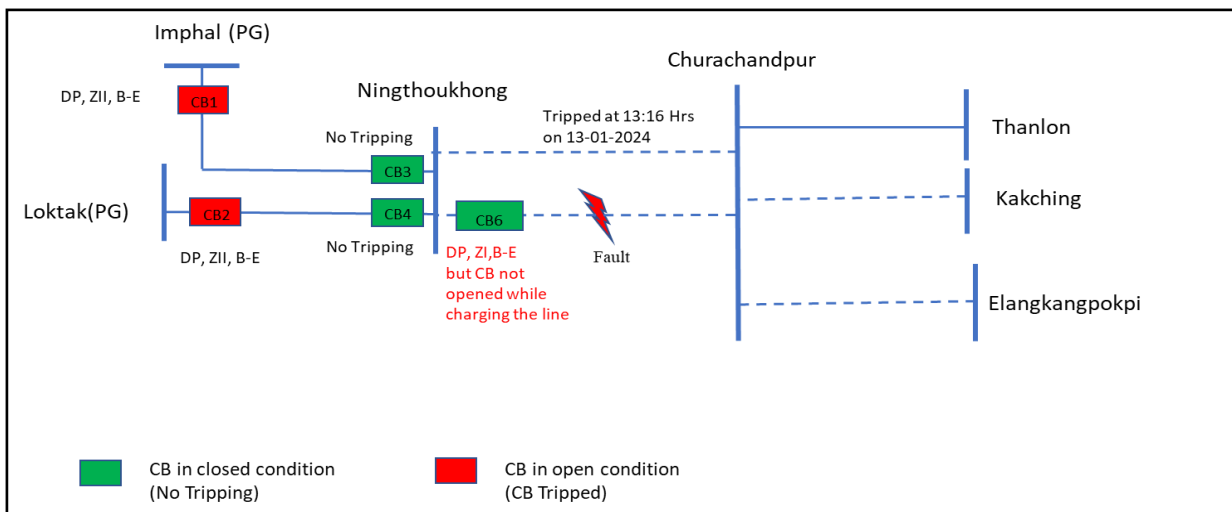
Remarks: Line tripped correctly due to Solid/metallic fault.

Blackout of Ningthoukhong and radially connected Churachandpur & Thanlon area:

Event 1: 02.02.2024, 10:05 Hrs: Loss: 18 MW

Event 2: 02.02.2024, 18:44 Hrs: Load Loss: 19 MW

132 kV Loktak – Ningthoukhong & 132 kV Imphal – Ningthoukhong lines tripped which led to blackout of Ningthoukhong area of Manipur power system.



Remarks: Healthy lines tripped while taking charging attempts of the 132 kV Ningthoukhong-Churachandpur 2 line at 10:05 Hrs and 18:44 Hrs.

MSPCL is requested to share the root cause for repeated fault in the 132 kV Ningthoukhong-Churachandpur 2 line and remedial action taken to avoid such blackouts in the future.

In 64th PCCM, MSPCL stated that, regarding blackout on 13.01.2024, protection system at Ningthoukhong end for Churachandpur line 1 did not operate due to trip coil issue in the breaker which has now been resolved.

NERLDC stated that no flash report was received from MSPCL. MSPCL assured to look into the matter.

The forum requested Manipur to ensure simultaneous operation of both lines of Ningthoukhong-Churachandpur D/C line. Also, the forum urged Manipur to restore Elangkangpokpi- Churachandpur and Kakching-Churachandpur lines at the earliest for stable and reliable operation of the Manipur system.

Manipur representative stated that due to the law-and-order situation in the State, maintenance activities have been affected. He however assured that suggested actions will be taken at the earliest.

Deliberation of the sub-committee

MSPCL updated that trip coil issue with the breaker at Ningthoukhong end for Churachandpur line 1 has been resolved.

Regarding charging of both lines of Ningthoukhong-Churachandpur D/C line and restoration of other connecting lines to Churachandpur, MSPCL updated that the area lies in the buffer zone due to existing Law and Order issue in Manipur, so restoration works are severely hampered.

Forum noted the above and urged MSPCL to restore the lines at the earliest to ensure reliable operation of Manipur power system.

C.4 Requirement of SPS implementation at Dimapur for ensuring reliable power in Dimapur area of Nagaland:

Loading profile of Dimapur shows N-1 contingency of any one circuit not satisfied most of the time as the combined loading was above 85 MW for 22% of times and above 80 MW for 35% of times.

Hence, to satisfy the N-1 contingency at Dimapur (NL) and to avoid load loss in the Dimapur area, DoP, Nagaland is requested to implement suitable System Protection Scheme (SPS) with following criteria-

If the loading of any one circuit current exceeds more than 415A, the SPS will trigger and it will shed 25-30 MW load at Nagarijan area, which will increase the reliability of Nagarijan area of Nagaland system.

In 60th PCCM, DoP Nagaland updated that reconductoring of the line is under process, DPR is in final stage.

Regarding the SPS, forum requested DoP Nagaland to identify 25-30 MW load at Nagarjan area for the implementation of the SPS scheme at the earliest.

In 61st PCCM, Nagaland stated that feeders have been identified to cut around 40MW in 66kV Power House and 33kV Metha Further he stated that internal approval for the same has also been taken.

In 62nd PCCM, NERLDC informed that DoP Nagaland has identified the load and NERLDC has prepared the draft SPS. NERLDC further informed that the draft SPS has been sent to NERPC for review.

NERPC stated that the scheme will be reviewed shortly.

In 64th PCCM, DoP Nagaland stated that the SPS will be implemented before the next PCC meeting.

Deliberation of the sub-committee

DoP Nagaland updated that the SPS has been implemented and telemetered at SLDC control room also.

Sub-committee noted as above.

C.5 Status on remedial measures actions on Non-operation of auto recloser in Important Grid Elements for transient faults occurred in last few four months:

As updated in 65th PCCM

Sl No	Element Name	Time	Relay End1	Relay End2	A/R not Operated	Remarks from Utility
1	220 kV NTPS - Tinsukia 1 Line	26-10-2023 16:37	DP,Z1,Earth fault,39km	B-Eph, Z-1, LA burst	No details provided	Planning completed, Implementation by May'24.
2	132 kV Jiribam - Pailapool Line	30-10-2023 12:47	DP, ZI, R-Y, FD: 6.49 km, AR successful	DP, ZI, R-Y	Pailapool	Completed.

3	132 kV Agartala - Surajmaninagar 2 Line	17-11- 2023 15:10	DP,ZI,Y- B,FD:5.81 km, AR successful	DP,ZI,R- Y,FD:11.98 KM	Surajmani nagar	Will be implemented by May'24.
4	220 kV Mariani (AEGCL) - Samaguri Line	29-11- 2023 15:10	DP, ZI, B-E	DP, ZI, B- E, FD: 16 km	Samaguri	Panel retrofitting at Mariani under PSDF. AR will be enabled within 3 months.

Sl No	Element Name	Time	Relay End1	Relay End2	A/R not Operated	Remarks from Utility
5	132 kV Along- Pasighat Line	24-12- 2023 03:07	DP, ZI, R-E	DP, ZI, R-E	Both ends	Along AR not ready due to issue with CB spring charging motor. To be done by March'24.

Sl No	Element Name	Time	Relay End1	Relay End2	A/R not Operated	Remarks from Utility
6	132 kV Along- Pasighat Line	01-01- 2024 04:48	DP, ZI, R-E, FD: 47.52 Km	DP, ZI, R-E, FD: 19.57 Km	Both ends	CB spring charging motor issue at Along SS, to be rectified by March'24
7	220 kV Karbi Langpi - Sarusbajai 2 Line	01-01- 2024 11:41	DP, ZI, B-E, FD: 36.33 Km, No DR submitted	DP, ZI, B-E, FD: 21.3 Km	Both ends	AR not configure at Karbi langpi. Will visit shortly and configure the same.

8	132 kV Balipara - Tenga Line	04-01- 2024 22:51	DP, ZI, R-Y, FD: 40.36 Km	DP, ZI, R-Y, FD: 37.30 Km	Both ends	Single phase AR enabled, but 3 phase fault occurred. Three phase AR to enabled by March'24
9	220 kV AGBPP- Mariani(PG) Line	12-12- 2023 12:29	DP,ZI,B- E,FD: 44.9 Km, (No DR submitted)	DP,ZI,B- E,FD: 110.9 KM, A/R successful	AGBPP	Insulator flashover. Burnt BPR was observed Will look into the issue of non- operation of AR
10	220 kV Mariani (AEGCL) - Samaguri Line	25-01- 2024 13:11	DP, ZI, B-E, FD: 27.8 KM (No DR submitted)	DP, ZII, FD: 132 KM (No DR submitted)	Both ends	Panel replacement work underway. To be completed in 3 months

Sub-committee noted as above.

C.6 132 kV Kumarghat - P.K. Bari issue

POWERGRID has commissioned Line Diff Relay for 132kV Kumarghat PK Bari feeder. During commissioning, following issues have been noted at PK Bari end: -

1. AR kept OFF at PK Bari end by Tripura, however, the same is in ON Position at Kumarghat end.
2. Due to previous experience of multiple tripping at Kumarghat because of fault in P.K. Bari-Dharmanagar feeder & non isolation of the fault by P.K. Bari end CB, previously it was decided that Zone Timer for 132kV Kumarghat-P.K. Bari feeder (at Kumarghat end) shall be kept as under: -
 - a. Z1 = 0 msec
 - b. Z2 = 200 msec
 - c. Z3 = 300 msec

Tripura may please confirm the healthiness of the CBs (PK Bari end CB for Kumarghat PK Bari & P.K. Bari end CB for P.K. Bari-Dharmanagar feeder) otherwise

forum may allow continuing the above Time delay setting for respective Zones of Distance Protection in 132kV Kumarghat-P K Bari Line at Kumarghat end.

In 62nd PCCM, Forum approved above stated time delay setting till TSECL checks and confirms the healthiness of the CBs (PK Bari end CB for Kumarghat PK Bari & P.K. Bari end CB for P.K. Bari-Dharmanagar feeder).

TSECL assured the forum to check the healthiness at the earliest.

In 63rd PCCM, TSECL informed that there is some issue with CB at PK Bari for Dharmanagar. Testing equipment has been received and test will be done soon.

Forum requested TSECL to confirm CB healthiness status after testing within Feb24.

In 64th PCCM, TSECL stated that protection team will visit P K Bari substation in Feb'24 to inspect and rectify the issue.

Deliberation of the sub-committee

TSECL updated that shutdown of the PK Bari-Dharmanagar line is scheduled in March'24, required work will be carried out during the shutdown.

Sub-committee noted as above.

C.7 Pending Line Diff Relay issues in 132kV feeder:

a. As discussed in 62nd PCCM, CT & PT wiring check is pending at Luangmual end for 132kV Aizwal - Luangmual feeder due to which Diff function cannot be activated at both ends.

b. For 132kV Haflong - Haflong feeder, at Haflong AEGCL end CT wiring needs to be checked & rectified as Diff function cannot be activated until the wiring mismatch is rectified.

Status as per 65th PCCM -

Sl. No	feeder	Remedial measures	Last update	Latest update
1	132kV Aizwal - Luangmual	CT PT wiring need to be checked at Lunagmual end	Mizoram stated that CT PT wiring was checked but no problem was identified. He	Shutdown is scheduled next Saturday to carry out the necessary

			requested NERTS for assistance in next round of inspection	work. Mizoram to coordinate with NERTS to carry out the work.
2	132 kV Haflong - Haflong feeder	CT wiring needs to be checked and modified	AEGCL stated that shutdown has been planned for next week for required checking and rectification work	Shutdown planned on 28 th March '24

Sub-committee noted the latest update as above.

C.8 PLCC issues follow up:

a. PLCC/DTPC needs to be implemented in below stated lines –

1. 132 kV Dimapur Kohima
2. 132 kV Nirjuli Lekhi
3. 132 kV Melriat - Zemabwk

b. 400 kV Mariani Kohima Ckt #2 - For 400 kV Mariani-Kohima Ckt-2, ABB make PLCC Model no-ETL41 is installed at both ends. PLCC panels at both ends are owned by KMTL. At Mariani end, for PLCC Ch#1, alarm is persisting in P4LA card. KMTL had previously deputed service engineer for rectification of the issue in Oct 2022. The issue was resolved in Oct 2022. However, the same issue had resurfaced again from 24th August 2023. Repeated communication has been sent to KMTL to resolve the issue. However, rectification action is still pending.

c. 132 kV Roing - Pasighat – PLCC panels for 132kV Roing -Pasighat feeder are installed at both ends. Panels are in healthy condition at both ends. However, due to non-availability of healthy 48V dc supply at Pasighat end, PLCC panels at Pasighat are in OFF state. DoP AP is requested to arrange healthy 48V dc supply at Pasighat end.

In 64th PCCM following points were discussed

Utilities updated as follow-

Sl. No	Line	Utility	update
1	132 kV Dimapur-Kohima	DoP Nagaland	DPR, for DTPC installation, to be prepared by March'24.
2	132 kV Nirhuli-Lekhi	DoP Ar. Pradesh	NERTS stated that one spare PLCC is available. Forum requested both utilities to implement the PLCC at the earliest.
3	132 kV Melriat-Zemabawk	Mizoram	NERTS updated that PLCC is available, Mizoram to check for spare WT and CVT.
4	400kV Mariani-Kohima ckt 2		KMTL was not present for update.
5	132kV roing-Pashighat	DoP Ar. Pradesh	48V DC at Pashighat is not working, proposal for new battery has been put up to higher authorities, to be procured by Dec'24.

Deliberation of the sub-committee

Utilities updated as follow-

Sl. No	Line	Utility	Update
1	132 kV Dimapur-Kohima	DoP Nagaland	DPR, for DTPC installation, to be prepared by March'24
2	132 kV Nirhuli-Lekhi	DoP Ar. Pradesh	NERTS stated that one spare PLCC is available. Availability of WT and CVT to be confirmed with DoP Arunachal Pradesh.
3	132 kV Melriat-Zemabawk	Mizoram	NERTS updated that PLCC is available, Mizoram stated that WT and CVT are under procurement.
4	400 kV Mariani-Kohima ckt 2		KMTL was not present for update.
5	132 kV Roing-Pashighat	DoP Ar. Pradesh	DoP Ar. Pradesh not present in the meeting.

D. ITEMS FOR STATUS UPDATE**D.1. Status of auto-reclosure on z-1 operation for important lines:**

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

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

In the 57th and 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 and requested the utilities to implement the AR scheme at the earliest.

Status as updated in 65th PCCM

Sl no	State	Important Transmission lines where AR has to be enabled at the earliest	Status (64th PCCM)	Latest status
1.	Arunachal Pradesh	132kV Balipara-Tenga, 132kV Ziro-Daporijo-Along-Pashighat link	PLCC implementation under PSDF underway. SPAR have been enabled on the lines without PLCC 3-Ph AR will be enabled by March'24.	Absent
2.	Assam	All 220kV and 132kV lines	Work completed at Sonapur. At Katalguri and Jawahanagar, work to be completed by April'24. At 132kV substations, works under progress.	220 kV bays Work to be completed except for some bays at Kathalguri 132 kV bays

				All work to be completed by June'24
3.	Manipur	132kV Imphal-Ningthoungkong	DPR preparation underway, to be prepared by March'24	Under preparation
4.	Meghalaya	Annexure (D.1)	AR configuration to be done by August'24	August'24. Forum requested Meghalaya to provide monthly work progress report(around 25 number of 132kV line)
5.	Tripura	132kV Agartala-S M Nagar (TSECL), 132kV Agartal-Rokhia DC, 132kV, 132kV Agartala-Budhjungnagar	To be commissioned by March'24	To be done during internal audit.

Sub-committee noted as above.

D.2. Installation of line differential protection for short lines:

As per sub-regulation3 of Regulation 48 of Central Electricity Authority (Technical Standards for Construction of Electrical Plants and Electric Lines) Regulations, 2022-

"For short line (less than 10 km) or cable or combination of overhead line and cable, line differential protection shall be used with built-in backup distance protection."

As per discussion in 61st PCC meeting the status for different STUs/ISTS licensees are as follows:

Status as updated in 65th PCCM

Name of utility	Last updated status (64th PCCM)	Latest status
AEGCL	Revised DPR prepared (20 lines), Price quotation received.	DPR sent.

	DPR to be sent shortly.	AEGCL requested NEPRC to take up with MoP regarding expediting PSDF funding for LDP
MSPCL	Revised DPR for 132kV Imphal-Imphal-III to be submitted. Revised DPR to be submitted to PSDF.	Under preparation, to be submitted within one month.
MePTCL	Work completed Aug'21, but not commissioned yet. OPGW to be installed on some lines. LDP will be commissioned after OPGW link is established. (annexure D.2) 7 Feeder operational for rest OPGW work is pending OPGW to be installed on 16 lines. LDP will be enabled after that.	LDP operation for 9 feeders. For Neighrims-NEHU line, waiting for dark fiber. For other lines, OPGW not available
P&ED Mizoram	Lines identified 132kV Khamzawl - Khawiva. DPR being revised.	Mizoram requested for assistance in preparation of DPR. Forum requested Assam to provide assistance to Mizoram in this regard.
DoP Nagaland	LDP Doyang-Sanis line, LDR to be installed by NEEPCO by March'24.	NEEPCO updated that LDR has been collected, commissioning target is April'24. However, testing has to be done to ensure healthiness of the line.
TSECL	132kV 79 Tilla-Budhjungnagar. DPR to be prepared. Cost estimate submitted to TIDC to arrange for ADB funding. TIDC approval is still awaited for fund.	TIDC approval is still awaited. Forum strongly requested TSECL for early commissioning.

Sub-committee noted as above.

D.3. Status against remedial actions for important grid events:Status as updated in the 65th PCCM:

Sl No	Details of the events(outage)	Remedial action suggested	Name of the utility & previous update	Latest status
1.	132 kV Balipara-Tenga line in May and June	Carrier aided inter-tripping to be implemented for 132kV Balipara-Tenga-Khupi at the earliest (PLCC has to be installed on the link. Under consideration of the higher authorities)	DoP, Arunachal Pradesh. PLCC panels received. For further work PSDF payment issue. Matter to be taken up with PSDF	
2.	132 kV DoyangMokokchung line 132 kV Mokokchung - Mokokchung (DoP, Nagaland) D/C lines on 30th July	Carrier inter-trip for 132kV DHEP-Mokokchung to be implemented by DoP Nagaland (NO PLCC on the line. Matter under consideration of Higher authorities)	DoP Nagaland (DPR is under preparation for PLCC.	DPR to be prepared by March'24
3.	Leshka-Khleihriat DC multiple tripping in April to September	TLSA installation along the line to be done by MePTCL	MePTCL (DPR submitted, Approval pending.)	Same status
4.	132 kV Loktak-Jiribam line, 132 kV Loktak-Imphalline, 132 kV Loktak-Ningthoukhong line, 132 kV Loktak-Rengpang line & Loktak Units 1,2 and 3 on 3rdAug	> 5MVA TRAFO (Aux. Transformer) to be repaired ->5MVA Auxiliary TRAFO panel to be repaired by NHPC	NHPC Tender awarded, Order to be placed by March'24	Order placed, manufacturing underway.
5.	Grid Disturbance at Loktak HEP on 03rd Aug'22	NHPC-Loktak informed that LBB has been included under R&U scheme and the same shall be commissioned by Mar'23	NHPC (LBB to be commissioned under R&U project and by the end of Jan'24) Forum requested NHPC to delink LBB from R& U scheme and	Renovation would start in Nov.'24 and to be completed by Oct.'25. Forum stressed to take LBB on priority.

			implement the same at the earliest	
6.	Review of SPS at Monarchak (item 2.22 of the sub-group held on 4 th May 23)	NERLDC requested NEEPCO and Tripura to implement the revised logic at Monarchak (as provided by NERLDC) and Udaipur Rokhia ends respectively	NEEPCO, TSECL (SLDC TSECL intimated that logic 1 (to be configured at Udaipur and Rokhia to send DT to Monarchak) could not be implemented as there is no PLCC/OPGW connectivity in the LILO portion of Monarchak. Forum requested TSECL to take up with PSDF under reliable communication scheme.	TSECL stated that OPW and PLCC on the LILO portion to be undertaken under other schemes.
7.	132 kV Aizawl - Tipaimukh Line tripped at Aizawl end only on received of spurious DT signal on 16 th and 26 th Feb'23	rectification of PLCC issues at Tipaimukh end by MSPCL	MSPCL DC battery available. PLCC frequency issue. WIP	FOTE card replaced. Issue resolved now. Same issue was with Jiribam-Tipaimukh line, resolved now. NERTS stated that issue is yet to be completely resolved.
8.	Outage of 220 KV Bus Bar Protection Scheme at 400/220/132 KV Killing SS	Bus-Bar protection of 220kV bus at Killing SS	MePTCL Order given to ABB. To be completed by April'24	Visit of OEM next week. To be completed by April'24

9.	Retrip configuration in LBB scheme in AEGCL Hailakandi station:	In previous sub group meeting the forum opined that the retrip scheme in the LBB protection will increase reliability of the protection system and will help in preventing mal operations in connecting feeders. AEGCL agreed to the suggestion and assured that the Retrip scheme, with time delay of 100msec will be configured in the LBB scheme in Silchar-Hailakandi Ckt 1 & 2 at Hailakandi end.	AEGCL Logic finalized, need to be tested. CMR installation next month.	Forum decided that retrip configuration may not be required for existing relays. It may be adopted in upcoming relays.
10.	Non-operation of AR for various lines at Byrnihaat end on 25 th and 26 th June'23	Rectification of PLCC issues by MePTCL Consultation with OEM underway for resolution	MePTCL Order given to ABB. Completion by April'24	Visit of OEM next week. To be completed by April'24
11.	Tripping of 132kV Kahilipara- Sarusajai 1, 2 and 3 line, 132kV Kahilipara Main bus 1, 132kV Kahilipara transfer Bus 1 and 132kV Kahilipara-Kamalpur line on 2.08.2021	BB protection to be implemented at Kahilipara with procurement of 5 core CTs	AEGCL DPR is under preparation for PSDF. CT under procurement as Reconductoring of Kahilipara-Sarusajai underway	CT under procurement, to be completed by end of this year.
12.	GD at Agartala S/S (15.01.2024)	Bus Bar protection to be enabled at Agartala substation	TSECL	NO space for putting additional relay panel. GIS to be proposed.
13.	AR issue at Gohpur end for 132kV Nirjuli-Gohpur line	Panel replacement underway	AEGCL - By Jan'24	April'24
14.	Non-operation of AR at Doyang HEP	Pneumatic CBs to be replaced	NEEPCO- August 2024	August 24

DATE AND VENUE OF NEXT PROTECTION SUB- COMMITTEE MEETING

The next Protection Sub-Committee meeting will be held in the month of April, 2024.
The date and venue will be intimated separately.

Annexure-I**List of Participants in the 65th PCC Meeting held on 14.03.2024**

SN	Name & Designation	Organization	Contact No.
1	Sh. Abhishek Kalita, Dy.Mgr, AEGCL	Assam	08486213068
2	Sh. Safir Ahmed, Dy.Mgr, AEGCL	Assam	09859472631
3	Sh. N.Saranjit, Mgr, MSPCL	Manipur	08730999318
4	Sh. N.Arun Singh, Mgr, MSPCL	Manipur	08974433277
5	Sh. C.Daniela, EE	Mizoram	09774692350
6	Sh. Lalzarliana, JE	Mizoram	09862169589
7	Sh. A.G.Tham, AEE, MePTCL	Meghalaya	09774664034
8	Sh. A.Shullai, AEE, MePGCL	Meghalaya	07005379616
9	Sh. Rokobeito Iralu, SDO	Nagaland	09436832020
10	Sh. Pulovi Sumi, SDO	Nagaland	08575748180
11	Sh. Alex E. Ngullie, JE	Nagaland	08837080321
12	Sh. Anil Debbarma, DGM, SLDC, TPTL	Tripura	09612589250
13	Sh. Amaresh Mallick, ED	NERLDC	09436302720
14	Sh. Bimal Swargiary, Ch.Mgr	NERLDC	09435499779
15	Sh. Utpal Das, AM	NERLDC	07005504075
16	Sh. Manash Jyoti Baishya, Ch.Manager	PGCIL	09435555740
17	Sh. Manas Pratim Sharma, Sr.Mgr	NEEPCO	08729901871
18	Sh. Mamani Talukdar, DGM (E/M)	NEEPCO	09435339690
19	Sh. Sanjib Pal, Section Head-PME	OTPC	09436583737
20	Sh. Ratan Singh Basnet, Mgr (Proj.)	NETC	08811072489
21	Sh. C.L.Khayuingam, Sr.Mgr (E), LOKTAK	NHPC	07085916006
22	Sh. Sanjeev Mohan Das, AGM (EMD), BgTPS	NTPC	09496006403
23	Sh. K.B.Jagtap, Member Secretary	NERPC	-
24	Sh. Anil Kawrani, Director	NERPC	08799737377
25	Smt Maya Kumari, Dy.Director	NERPC	09024334279
26	Sh. Vikash Shankar, AD-I	NERPC	09455331756

MOCK TEST PROCEDURE FOR SPS OPERATION SIMULATION FOR 220kV SAMAGURI – MISA CKT I & II

SPS LOGIC DEFINITION:

On event of loss of double circuits of 220kV Samaguri – Misa I & II, the power import to Samaguri will be shifted to substations in Guwahati Capital Area. To ensure stability of the network, the following elements are to be tripped at Samaguri substation:

- i) 132kV Samaguri – SD Nagar Line I
- ii) 132kV Samaguri – SD Nagar Line II

An average of 70MW load will be curtailed and stability of the grid will be ensured.

As per the SPS logic designed, the loss of the circuit will be recorded in the relay when all the three poles of the Circuit Breaker are found open. As such two cases are established for initiation of SPS:

CASE A: When both CBs are tripped at Samaguri end

CASE B: When both CBs are tripped at Misa end while AR is successful at Samaguri end

SPS SIMULATION:

- a. A shutdown of 220kV Samaguri – Misa Line I & II and 132kV Samaguri – SD Nagar Line I & II will be availed by the respective utility in discussion with SLDC and NERLDC
- b. The isolators of all the above four lines will be kept open at Samaguri, Misa and SD Nagar and thereafter, the CBs will be closed manually. The GPS time synch at the local SCADA and concerned IEDs are to be verified
- c. CB of Samaguri – Misa I will be opened at Samaguri end. There will not be any SPS operation at this step (AND LOGIC verified)
- d. Thereafter, CB of Samaguri – Misa II will be opened at Samaguri end. SPS would instantaneously operate and the CBs of Samaguri – SD Nagar Line I & II will be tripped at Samaguri end.
- e. The event log/trip log created in the SAS and relays will be verified and instantaneous operation will be ensured.

- f. Following the successful verification of 1st Case, the CBs of all the four concerned lines will be closed, with the isolators kept open at Samaguri end.
- g. The healthiness of the PLCC Panel of Misa Line will be ensured. (The PLCC panel which is included in the SPS implementation)
- h. The CB of Misa – Samaguri ckt I will be tripped at Misa end. No SPS operation will be ensured
- i. Following this, the CB of Misa – Samaguri ckt II will be tripped at Misa. SPS would operate instantaneously and a “Direct Trip” command will be received at Samaguri. On receipt of the DT, the CBs of Samaguri – SD Nagar ckt I & II will be opened at Samaguri
- j. The Sequence of events will be verified at Samaguri and Misa end (From SAS and relays)
- k. On verification of the above two cases successfully, all the CBs of the lines at concerned substation will be opened and the shutdown will be returned.
- l. Any discrepancy found during simulation of SPS will be recorded and rectification will be made during next scheduled shutdown.

SI No.	CHECKLIST	YES/NO	REMARKS
1	Shutdown of Samaguri – Misa I at both ends		
2	Shutdown of Samaguri – Misa II at both ends		
3	Shutdown of Samaguri – SD Nagar I at both ends		
4	Shutdown of Samaguri – SD Nagar II at both ends		
5	Isolators of all concerned lines kept open at respective ends		
6	GPS Synch ensured at for all concerned substations at SAS and relays		
7	SPS (CASE A) VERIFICATION START		
7.1	CBs of all lines closed locally at all concerned substations		
7.2	CB of Samaguri – Misa I opened at Samaguri end and no SPS operation or spurious signals noticed		
7.3	CB of Samaguri – Misa II opened at Samaguri end and tripping of CBs of Samaguri – SD Nagar Line I & II observed at Samaguri end		
7.4	Verification of SOE/EL/Trip log/DR at Samaguri end		

7.5	Instantaneous operation hence verified successfully and no mal-operations observed		
8	SPS (CASE B) VERIFICATION START		
8.1	All CBs for the concerned lines are closed locally at the substations		
8.2	Healthiness of PLCC of Misa Line (including SPS DT logic) verified at Samaguri and Misa		
8.3	CB of Misa – Samaguri Line I opened at Misa end and no SPS operation observed		
8.4	CB of Misa – Samaguri Line II opened at Misa and instantaneous SPS operation observed		
8.5	CBs of Samaguri – SD Nagar Line I and II are tripped at Samaguri end as per SPS logic		
8.6	Verification of SOE/EL/Trip log/DR at Samaguri end		
8.7	Instantaneous operation observed and hence verified successfully and no mal-operations observed		
9	All the CBs are tripped manually after verification of the SPS scheme		
10	Shutdown of the concerned lines are returned successfully by the utility		
REMARKS (if any):			

Signatures of Members Present:

Annexure D.1
Annexure C.1

Name of the line	Status as updated in 56/57th PCC meeting	Latest Status
132 kV Agia - Mendipathar	PLCC works completed. AR operation configuration to commence from March'22. Latest Status to be intimated.	
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 - Khliehriat 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 March'22	
132 kV Umiam St I - Umiam St II		
132 kV Umiam St I - Umiam St III D/C		
132 kV Umiam St III -Umiam St IV D/C		
132 kV Umiam St III - Umtru D/C		
132 kV Umtru - Umiam St IV D/C		

MePTCL

STATUS OF LINE DIFFERENTIAL PROTECTION PROJECT UNDER PSDF					
Sl. No	Feeder Name	Installation		Commissioning	Remarks
		End A	End B		
1	EPIP-I - EPIP II Line I	Completed	Completed	Completed	
2	EPIP-I - EPIP II Line II	Completed	Completed	Completed	
3	EPIP -I - Killing Line I	Completed	Completed	Completed	
4	EPIP -I - Killing Line II	Completed	Completed	Not Completed	Fiber Network Not Available
5	EPIP -I - M/S Maithan Alloy	Completed	Completed	Not Completed	
6	EPIP -I - Shyam Century	Completed	Completed	Not Completed	
7	EPIP-II - Umtru Line I	Completed	Completed	Not Completed	
8	EPIP-II - Umtru Line II	Completed	Completed	Completed	
9	EPIP II - New Umtru	Completed	Completed	Completed	
10	EPIP II - Killing Line I	Completed	Completed	Not Completed	Fiber Network Not Available
11	EPIP II - Killing Line II	Completed	Completed	Not Completed	
12	Umtru- New Umtru	Completed	Completed	Completed	
13	LUMSHNONG- M/S MCL	Completed	Completed	Not Completed	Fiber Network Not Available
14	LumSHNONG- M/S ACL	Completed	Completed	Not Completed	
15	Lumshnong - M/S MPL	Completed	Completed	Not Completed	
16	UMIAM - Stage I	Completed	Completed	Not Completed	
17	Umiam - NEHU	Completed	Completed	Completed	
18	UMIAM STAGE-I - Umiam Stage II	Completed	Completed	Not Completed	Fiber Network Not Available
19	NEHU - NEIGHRIMS	Completed	Completed	Not Completed	Awaiting for Commissioning of fiber under NERFO
20	NEHU - MAWLAI	Completed	Completed	Completed	
21	KHLIEHRIAT (MePTCL)- KHLIEHRIAT(PG) line-II	Completed	Completed	Completed	
22	Stage-III - Stage IV Line I	Completed	Completed	Not Completed	Fiber Network Not Available
23	Stage-III - Stage IV Line II	Completed	Completed	Not Completed	