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Agenda

for

73rd PCCM

Govt. of India

Ministry of Power

North Eastern Regional Power Committee

Shillong

North Eastern Regional Power Committee

Agenda for

73rd Protection Coordination Sub-Committee Meeting

Date: 26/11/2024 (Tuesday)

Time: 11:00 hrs.

Venue: NERPC conference Hall, Shillong

A. CONFIRMATION OF MINUTES

1. CONFIRMATION OF MINUTES OF THE 72nd PROTECTION SUB-COMMITTEE MEETING OF NERPC.

Minutes of the 72nd PCC Meeting held on 21st October, 2024 (Monday) at NERPC Conference Hall, Shillong was circulated vide letter No.: NERPC/SE (O)/PCC/2024/2709-2750 dated 30th October, 2024.

No comments were received from constituents

The Sub-committee may confirm the minutes of 72nd PCCM.

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

Background: 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.

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.

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.

<u>In 70th and 69th PCCM, following points were discussed</u>

1. Forum requested users to update the proposed date for Internal Audit & Third-party Audit in the spreadsheet shared by NERLDC as soon as possible.

2. AEGCL updated that the internal audit of 61 substations has been completed and would share the report by this month.
3. TSECL absent
4. Manipur informed that Protection audit committee has been formed and the audit schedule, for external audit, will be decided shortly.
5. DoP Arunachal Pradesh updated that internal audit of Chimpu SS is done and report will be shared shortly to NERPC and NERLDC. He further informed that audit of Lekhi would be done by August'24. He also stated that the audit reports would be shared in due time to NERPC.
6. NTPC informed that 3rd party audit has been awarded and will be done in 3rd week of September.
7. NERTS updated that internal audit of its substations is being done in a phased manner and audit of 10 substations has been completed and reports shared with NERPC.
8. DoP Naglanad updated that internal audit of 4 substations has been completed and report shared with NERPC.
9. NEEPCO informed that internal audit of Pare and Kopili has been completed and audit of thermal substations will be done shortly.

Regarding audit of substations of Nagaland and adjoining substations of NERTS, it was decided to conduct the audit of 132 kV Dimapur (DoPN) SS, 132 kV Kohima SS, 132 kV Chiepouvozou SS132 kV Zhadima SS and 220 kV Dimapur (PGCIL) in August'24. DoP Nagaland stated that the audit schedule will be provided shortly. Further, it has been decided that audit of rest of the 132 kV substations of Nagaland will be conducted after end of Monsoon season.

The status of internal audit, external audit and report submissions have been summarized in the following table (as update in 72nd PCCM) –

	Utility/Constituents	Internal Audit		External audit	
		Status (72nd PCCM)	**report**	**Status (72nd PCCM)**	**report**
1.	Ar. Pradesh	Chimpu – done.	Report of Chimpu to	Financial approval for the	NA

		Rest to be done	be submitted by December'24	audit pending. Schedule to be decided afterwards.	
2.	Assam	Done for 61 SS	To be submitted by Aug end	NERPC conducted audit of 6 SS in Jan to June'24. Other SS done in 2021-22. Only Karimganj left.	submitted
3.	Manipur	Done for all SS	Submitted	8 SS to be done, Schedule to be decided.	NA
4.	Meghalaya	No audit done yet in FY 2024-25	NA	Audit of 6 SS (Killing, EPIP I, EPIP II, NEHU, Mawlai an MAwphlang) conducted by NERPC on 26th and 27th August'24	Report to be shared by end of October'24
5.	Mizoram	Done for all SS	Report shared	Audit of Luangmual, Zuangtui and Kolasib planned in August'24. List of external agencies awaited	NA
6.	Nagaland	Done for four SS	Report shared	Audit of 5 ss to be done in Mid of November'24.	NA

				For rest, to be planned later.	
7.	Tripura	11 done, rest by November'24. For 66kV SS - audit by ecmber'24.	To be shared	Jan-Feb'25	NA
8.	Powergrid(NERTS)	POWERGRID has completed & submitted internal protection reports for 16 nos. of substations.	shared	External audit completed for Misa & Salakati Ss.	
9.	NTL				
10	KMTL				
11	MUML	Planned in Dec'24 for N.Lakhimpur-Pare line bays and N.Lakhimpur-Nirjuli bays at Lakhimpur	To be shared		
12	NEEPCO	Pare, Ranganadi and Turial done. RC Nagar and Kathalguri to be planned	Shared for Pare and Turial	To be planned. Waiting for the list of agencies from NPC	

13.	OTPC	Done		Done	shared
14.	NTPC	Done	shared	September 3rd week	
15.	NHPC				
16.	APGCL				
17.	TPGCL				
18.	MEPGCL				

Following points were discussed in the 72nd PCC meeting

1. Forum requested users to update the proposed date for Internal Audit & Third-party Audit in the spreadsheet shared by NERLDC as soon as possible.
2. Forum requested users to update the next year Internal Audit & Third-party Audit plan and also requested to send the last 5-years Internal Audit & Third-party Audit list to NERPC and NERLDC as soon as possible.

3. AEGCL updated that the internal audit of 61 substations has been completed and report has been submitted. AEGCL also updated that for Third-party Audit of 132 kV Karimganj substation is yet to be done.
4. TSECL updated that the internal audit of 11 substations has been completed and rest would be completed by Sept.'24 and would share the report at earliest. He also informed the forum that Third-party Audit would be planned after Oct'24.
5. Manipur informed that Protection audit committee had been formed and the audit schedule, for external audit, would be decided shortly.
6. DoP Arunachal Pradesh updated that the external audit is planned to be conducted in Nov'24.
7. Mizoram informed the forum that they were planning Third-party Audit through recognized auditor and for the same they were waiting for the CEA recognized auditor list.
8. NTPC informed that 3rd party audit had been awarded and would be done in 3rd week of September.

9. DoP Naglanad informed the forum that due to landslide issue, external audit of 5 substations would not be possible then and requested that external audit of the same could be done tentatively in Nov'24.

It was also decided that Audit of the 5 SS of Nagaland can be conducted in Mid of Novemebr'24 by NERPC and audit of Kolasib (Mizoram), Aizwal (PG), Melriat (PG) and other nearby important substations also to be conducted by November'24.

Sub-committee may deliberate

B.2 Analysis and Discussion on Grid Disturbances which occurred in NER grid in September'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 September 2024 based on the draft report prepared by NERLDC (attached as **annexure B.2**).

Sub-committee may deliberate

NERLDC Agenda

B.3 Status of submission of FIR, DR & EL outputs for the Grid Events for the month of October'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 01-10-2024 to 31-10-2024 as on **11-11-2024** is given below:

Name of Utility	No. of trippings	Total FIR to be submitted	Total DR to be submitted	Total 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	2	4	4	4	4	3	4	0	0	0	100	100	100
DEPL	0	0	0	0	0	0	0	0	0	0	No event		
AEGCL	25	50	37	37	50	37	37	0	0	0	100	100	100
APGCL	1	1	1	1	1	1	0	0	0	0	100	100	100
MSPCL	8	20	17	17	18	13	13	2	4	4	90	76	76
MePTCL	2	2	2	2	2	2	2	0	0	0	100	100	100
MePGCL	4	4	0	0	4	0	0	0	0	0	100	NA	NA
P&ED, Mizoram	0	0	0	0	0	0	0	0	0	0	No event		
DoP, Nagaland	6	13	13	13	12	10	11	1	3	2	92	77	85
TSECL	3	5	5	5	3	5	5	2	0	0	60	100	100
TPGCL	0	0	0	0	0	0	0	0	0	0	No event		
POWERGRID	23	50	48	48	44	41	36	6	7	12	88	85	75
NEEPCO	29	33	27	31	26	19	23	7	8	8	79	70	74
NHPC	4	6	4	3	6	3	2	0	0	0	100	100	100
NTPC	0	0	0	0	0	0	0	0	0	0	No event		
OTPC	3	3	2	2	3	2	2	0	0	0	100	100	100
NTL	5	4	4	4	4	4	4	0	0	0	100	100	100
MUML	0	0	0	0	0	0	0	0	0	0	No event		
KMTL	1	1	1	1	1	1	1	0	0	0	100	100	100

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.nerldc.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.

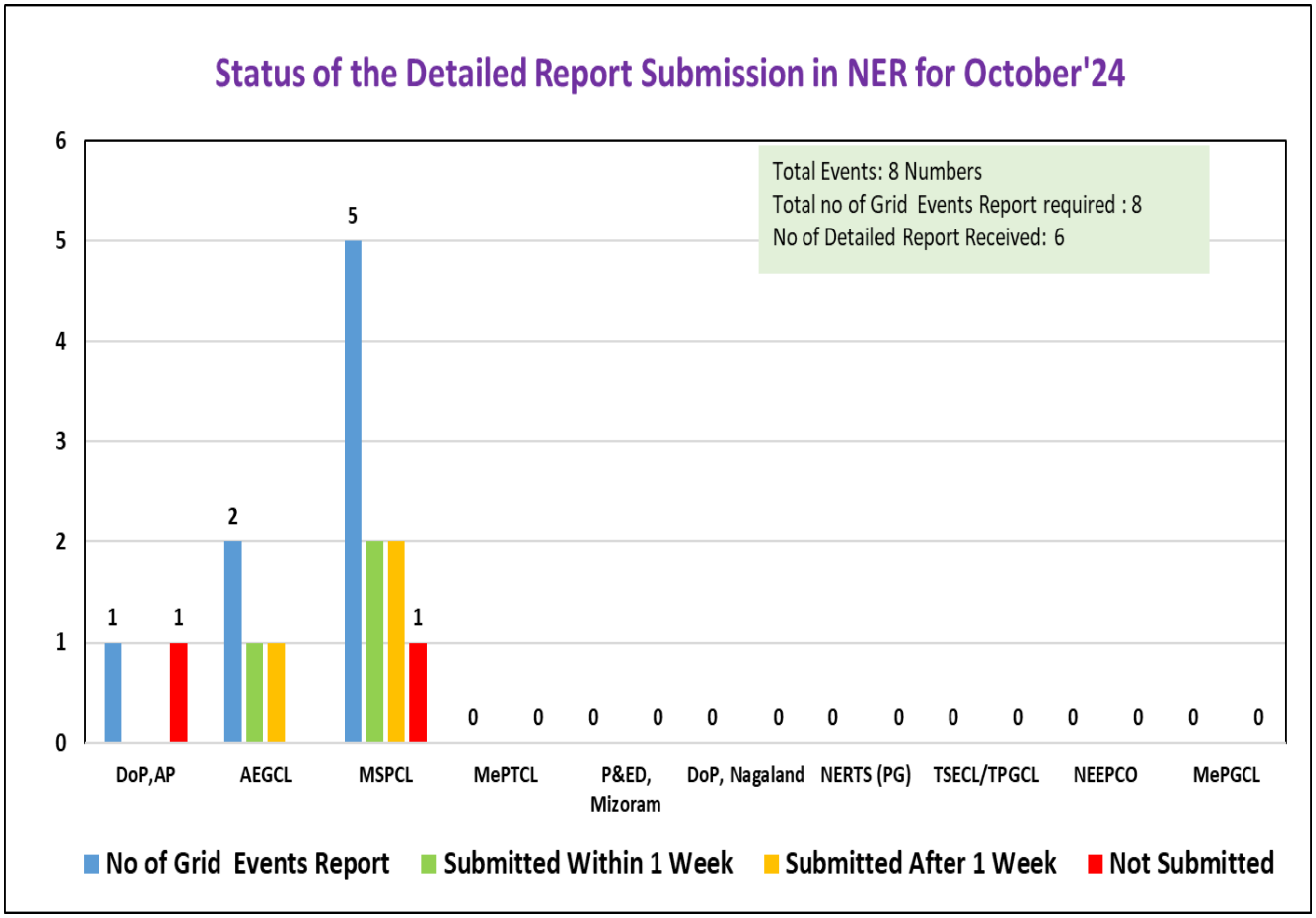
Also, all utilities are requested to nominate a nodal officer responsible for the submission of FIR,DR & EL in Tripping Monitoring Portal (https://tripping.nerldc.in/Default.aspx)

Members may discuss.

B.4 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 as per the timeline mentioned in the cl 37.2(f).

Status of submission of the same for the month of **October, 2024** as on **11-11-2024** is shown below:



All the utilities are requested to promptly share all the necessary information such as FIR, DR, EL and Reports (Flash Report & Detailed Report) as per the specified timeline mention in the Grid Code-2023.

Member may discuss

B.5 Non-operation of auto recloser in Important Grid Elements for transient faults in September 2024:

Sl. No	Element Name	Tripping Date and Time	RELAY_A	RELAY_B	Auto-Recloser not Operated	Remarks from Utility
1	400 kV PK Bari-Silchar I Line	06:26 Hrs of 01-10-2024	DP, ZI, R-N, **A/R successful**	DP, ZI, Y-N	Silchar	
2	132 kV Dimapur(PG)-Kohima Line	14:00 Hrs of 01-10-2024	DP, ZI, B-N	**A/R successful**	Dimapur(PG)	
3	132 kV Jiribam-Loktak Line	03:26 Hrs of 12-10-2024	DP, ZI, R-Y-B-N, **A/R successful**	DP, ZII, R-Y-B-N (**DR not opening**)	Loktak	
4	220 kV Agia-Boko Line	11:20 Hrs of 12-10-2024	DP, ZI, B-N	DP, ZI, B-N, **A/R successful**	Agia	
5	132 kV Dimpaur-Imphal Line	02:59 Hrs of 25-10-2024	DP, ZII, B-N, Carrier aided tripping	**DR not submitted**	Dimapur, Imphal	
6	132 kV AGTCCPP-PK Bari II Line	08:59 Hrs of 28-10-2024	DP, ZII, B-N, Carrier aid trip, **A/R successful**	DP, ZI, B-N	PK Bari	

Utilities may update

B.6 <u>Submission of Protection Performance Indices by Transmission Utilities:</u>

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.

As on 11.11.2024, **NETC, MUML, DoP Nagaland, OTPC, TPTL, MePGCL, MePTCL, AEGCL and NERTS** has submitted protection performance indices for the month of October'24.

SN	Name of Transmission Licencee	D= (Nc/Nc+Nf)	S= (Nc/Nc+Nu)	R= (Nc/Nc+Ni)	Remarks
1	NETC	-	-	-	No bays owned by NETC
2	MUML	-	-	-	No tripping during Oct'24
3	DoP Nagaland	1	1	1	
4	OTPC	1	1	1	
5	TPTL	1	1	1	
6	AEGCL	1	0.78	0.78	• Spurious tripping of 220 kV BTPS-Rangia II line at Rangia end on 10.10.2024. • Unwanted tripping of 100 MVA ICT-I at Tinsukia on 11.10.2024, 12.10.2024 & 14.10.2024 due to DC earth fault. • Unwanted tripping of 220 kV Behiating-Tinsukia D/C

					lines & 220/132 kV ICT-I&II at Behiating for fault in 132 kV Dibrugarh-Tinsukia line on 28.10.2024.
7	MePGCL	1	1	1	
8	MePTCL	1	1	1	
9	NERTS	1	1	1	

Protection Performance Indices not received from transmission utilities such as **NTL, KMTL, MSPCL and DoP AP**. Also, not received from Generating companies such as **NHPC, NEEPCO and APGCL**.

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 in compliance with IEGC.

B.7 Tripping of 220 kV Misa-Kopili III line on 06-09-2024:

At 01:52 Hrs & 02:52 Hrs of 06-09-2024, 220 kV Misa-Kopili III line tripped.

As per submitted DR, there was no fault observed in the system. At Misa end, 86 relay operated at 01:52:37.051 Hrs and 02:52:06.635 Hrs on receipt of DT as per EL. From submitted DR of Kopili, CB opening at Kopili is not clear.

Time drift of 16 min observed in EL of Misa end. The same needs to be corrected by NERTS.

As informed by NEEPCO, there was sparking observed in Bus isolator at Kopili.

NEEPCO is requested to share the root cause and remedial measures taken.

B.8 Tripping of 132 kV Pare-Nirjuli line on 23-09-2024:

At 22:01 Hrs of 23-09-2024, 132 kV Pare-Nirjuli line tripped.

As per DR analysis, R-Y fault (Ir-1.7 kA, Iy-1.6 kA) initiated at 22:00:50.016 Hrs. At Pare end, DP, ZIII started at 22:00:50.034 Hrs and fault current disappears after 150 msec. Total fault duration: 167 msec. There was no tripping from Nirjuli end (DR/EL not submitted).

It is unclear which protection system operated and cleared the fault.

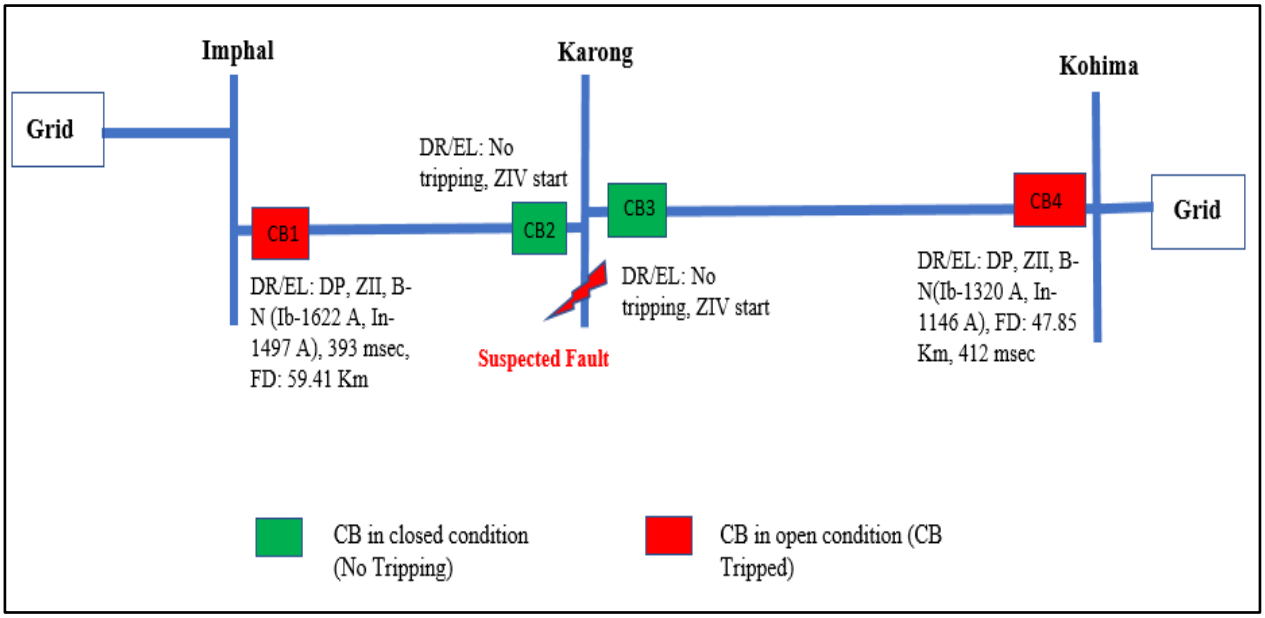
NEEPCO is requested to:

1. Share root cause of tripping and remedial measures taken.
2. Furnish which relay issued trip command to Pare CB.

B.9 Grid Disturbance in Karong area of Manipur on 13-10-2024:

Karong area of Manipur Power System was connected with rest of NER Grid through 132 kV Kohima-Karong line and 132 kV Imphal(MA) –Karong line.

At 23:37 Hrs of 13-10-2024, 132 kV Kohima-Karong line and 132 kV Imphal(MA) – Karong line tripped due to which grid disturbance occurred in Karong area of Manipur. Load loss of 7 MW occurred.



Following observations:

- B-N fault initiated at 23:36 Hrs & cleared within 412 msec from Kohima end and within 393 msec from Imphal end on operation of DP, ZII. There was no tripping from Karong end. ZIV started for both 132 kV Imphal-Karong line & 132 kV Karong-Kohima line.

- Suspected fault is in 132 kV Karong Bus /downstream feeder which was cleared by tripping of 132 kV Imphal-Karong line and 132 kV Karong-Kohima line from remote ends.
- Time drift of 2 min observed at Imphal end for 132 kV Imphal-Karong line which need to be sync with GPS by MSPCL.

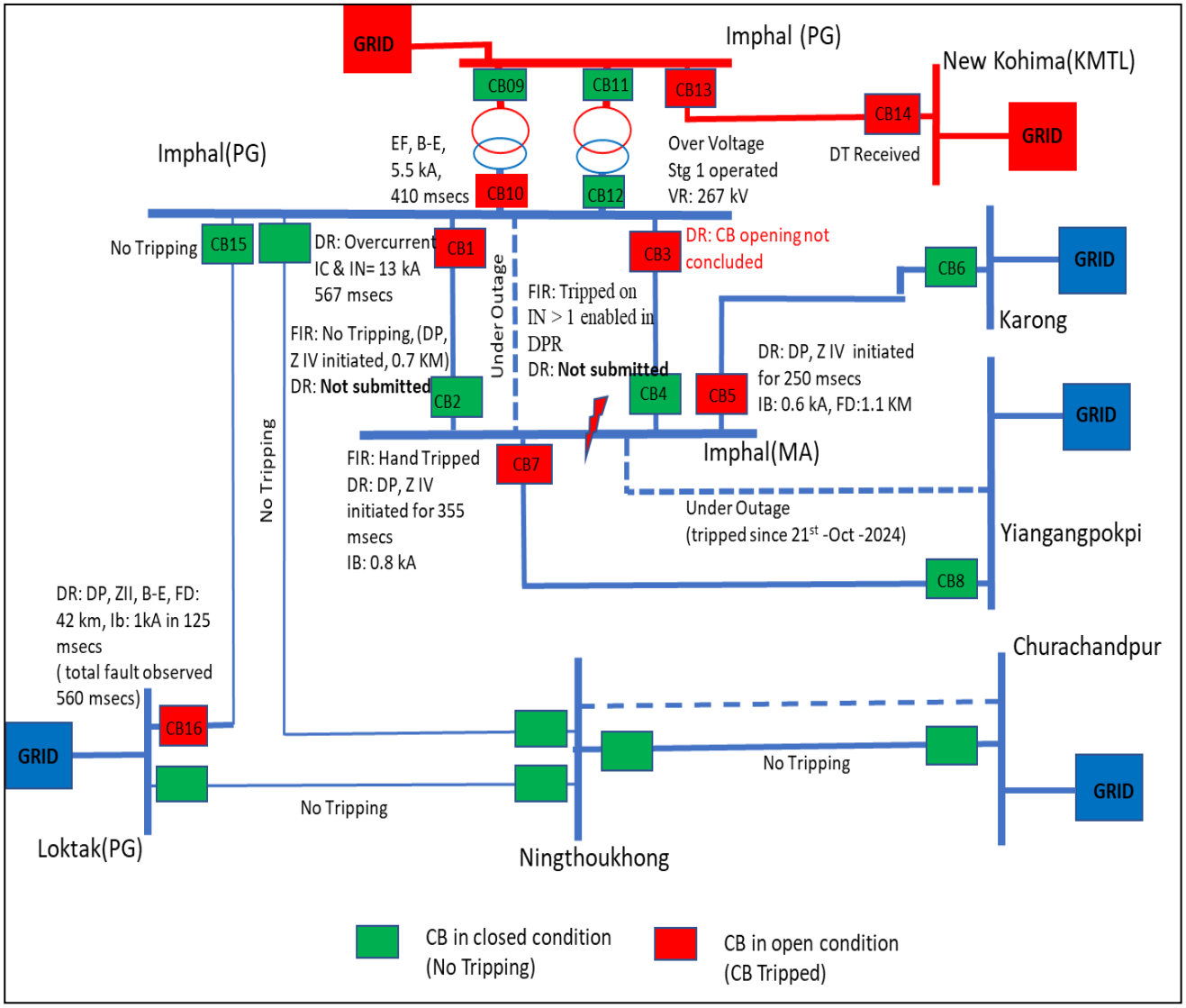
MSPCL is requested to update the root cause of the event and remedial measures taken.

B.10 Grid Disturbance in the Imphal (Yurembam) substation of Manipur power system on 28th October 2024:

Imphal (Yurembam) area i.e. the capital area of Manipur is connected with rest of the NER grid mainly through 3 numbers of 132 kV Imphal(PG)- Imphal(Yurembam) Lines. Also, Imphal(Yurembam) is connected with Yiangangpokpi SS through 2 numbers of 132 kV Imphal (Yurembam) - Yaingangpokpi 1&2 Lines and connected with Karong SS through 1 number of 132 kV Imphal (MSPCL) - Karong Line.
Before the event, 132 kV Imphal (PG)- Imphal(Yurembam) 2 Line and 132 kV Imphal (Yurembam) - Yaingangpokpi 2 Lines was under planned shutdown.

At 13:30 Hrs of 28th October 2024, due to heavy fault in Imphal (Yurembam) SS, all the connected lines i.e. 132 kV Imphal(PG)- Imphal(Yurembam) 1 &3 Lines, 132 kV Imphal (Yurembam) - Yaingangpokpi 1 Lines and 132 kV Imphal (MSPCL) - Karong Line tripped resulted into the Grid Disturbance (Category 1) in the Imphal(Yurembam) substation of Manipur power system. Due to the event, load loss of 50 MW observed in the Capital area of Manipur power system.

Additionally, tripping of 400/132 kV, 315 MVA, ICT I at Imphal (PG), 132 kV Imphal (PG) - Loktak Line and 400 kV Imphal(PG) - New Kohima 1 Line observed during the time.



As per event analysis based on the DR & EL, DP, ZIV initiated at Imphal (Yurembam) for Imphal(PG) 1 line, Karong line and Yaingangpokpi 1 line indicates that fault location is in the Imphal (Yurembam) Substation. The fault persisted in the system for 560-567 msecs.

As informed by MSPCL, B-phase Bus jumper snapped at Yurembam S/S.

Major Protection issues observed are as follows:

1. 132 kV Imphal(PG)- Imphal(Yurembam) 1 Line tripped on Overcurrent at Imphal(PG) end in 567 msecs. However, the same was not detected by the Main Relay. To be checked by NERTS.
2. 315 MVA ICT I at Imphal(PG) tripped at 132 kV side on Backup E/F in 410 msecs on reverse fault. Directionality of the LV side backup relay need to be rectified by NERTS.
3. High Voltage of Vre: 267 kV observed in the Imphal(PG) end of the 400 kV Imphal(PG) - New Kohima 1 Line after the tripping of Tie CB of 315 MVA, ICT-

1 which resulted into the tripping of the line. NERTS is requested to check & rectify the reason for HV in the R-Phase of 400 kV Imphal(PG) - New Kohima 1 Line.

4. 132 kV Imphal (PG) - Loktak Line detected the fault in ZIII for 420 msecs & then ZII initiated and tripped the CB in next 125 msecs. However, ZII time delay need to be reviewed by NHPC.
5. Tripping of 132 kV Imphal (Yurembam) - Yaingangpokpi 1 Line, 132 kV Imphal (MSPCL) - Karong Line and 132 kV Imphal(PG)- Imphal(Yurembam) 3 Lines could not be concluded due to non-availability of the DR & EL of Yaingangpokpi, Karong and Imphal (Yurembam) end. MSPCL is requested to share the DR & EL files.
6. DR time synch Issue observed in the submitted DR for CB3 and CB7. MSPCL is requested to rectify the same for proper analysis purpose.

MSPCL is requested to share the actual reason for the GD at Imphal (Yurembam) and its corrective measures taken.

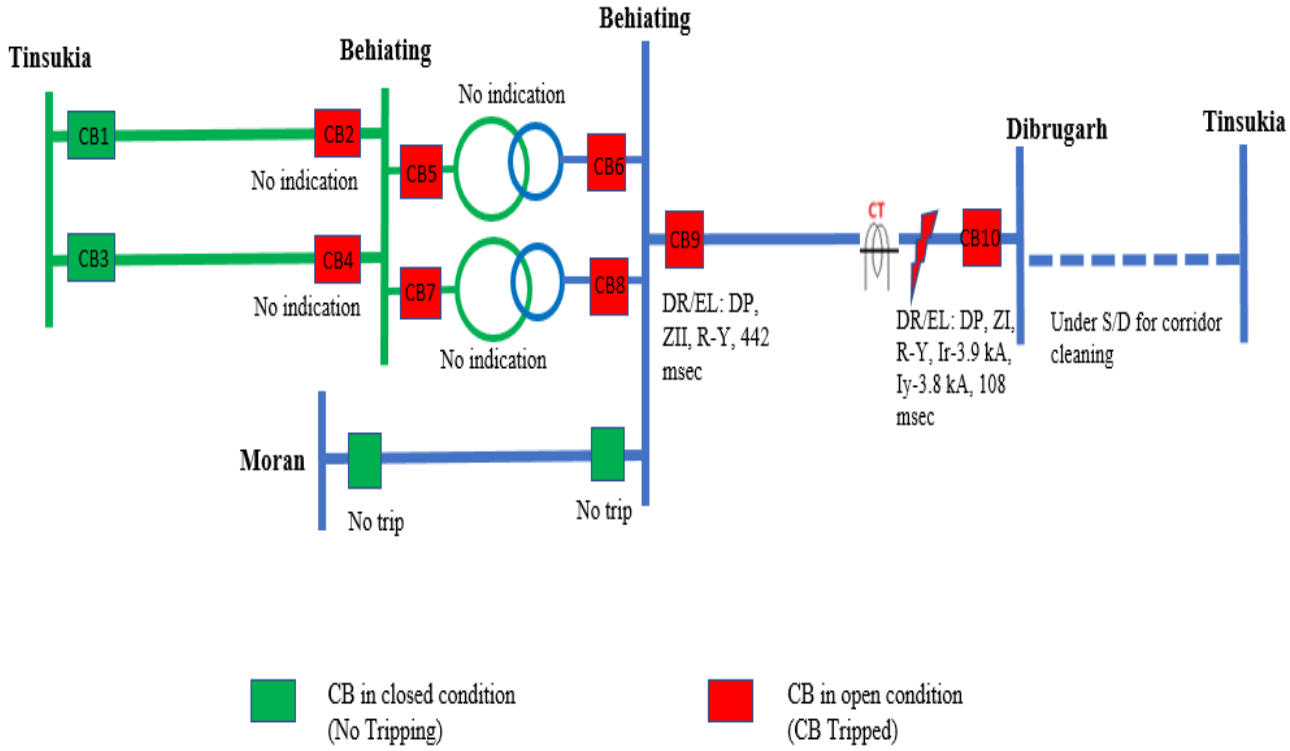
Also, **NERTS & NHPC** is requested to provide update on the above-mentioned issues.

Members may discuss

B.11 <u>Grid Disturbance in Dibrugarh area in Assam on 29-10-2024:</u>

Dibrugarh area of Assam Power System was connected with rest of NER Power system through 132kV Behiating- Dibrugarh line. Prior to the event, 132 kV Tinsukia-Dibrugarh was under S/D for corridor cleaning.

At 09:05 Hrs of 28-10-2024, 132 kV Behiating- Dibrugarh, 220 kV Behiating-Tinsukia D/C lines & 2x100 MVA 220/132 kV ICTs at Behiating tripped leading to blackout in Dibrugarh area of Assam.



As per DR analysis, solid R-Y phase fault (Ir-3.9 kA, Iy-3.8 kA) in 132 kV Dibrugarh-Behiating line initiated at 09:05:53.331 Hrs and cleared within 108 msec on operation of DP, ZI from Dibrugarh end and within 442 msec from Behiating end on operation of DP, ZII.

As informed by AEGCL, fault is between CT and Line Isolator (RØ-YØ) of 132 kV Dibrugarh – Behiating Line.

Following observations:

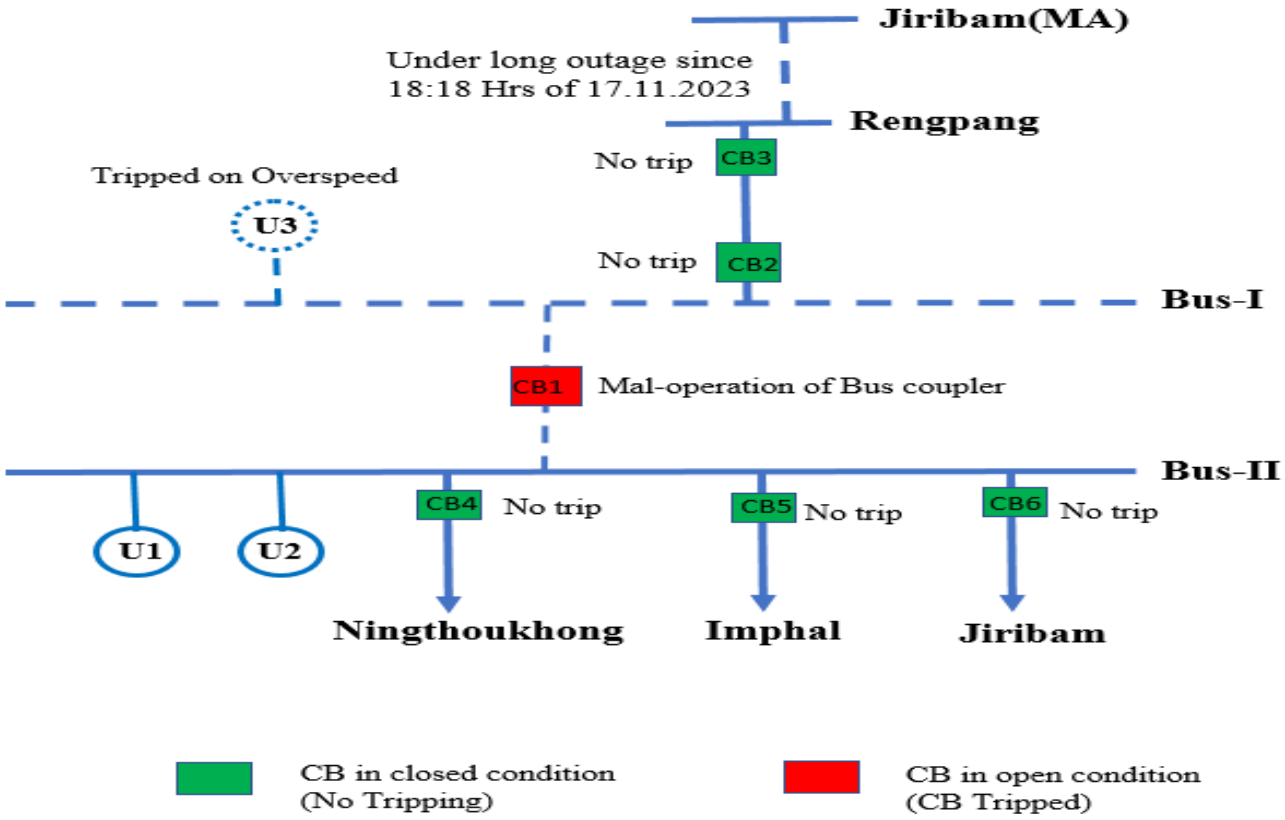
1. 220 kV Behiating-Tinsukia I & II lines tripped from Behiating end within 265 msec of inception of fault. It is unclear which protection system operated at Behiating.
2. 220/132 kV Behiating ICT-I&II tripped. As per EL, O/C started at 09:05:53.386 Hrs. HV side CB open at 09:05:53.600 Hrs.
3. Tripping of upstream 220 kV Behiating-Tinsukia D/C lines & 220/132 kV Behiating ICT-I&II for fault in 132 kV Dibrugarh-Behiating line seems to be unwanted.

AEGCL is requested to update the findings and review the protection setting of 220 kV Behiating-Tinsukia D/C lines & 220/132 kV ICT-I&II at Behiating to prevent further re-occurrence of such events.

B.12 Grid Disturbance in Rengpang area in Manipur on 29-10-2024:

Rengpang area of Manipur Power System was connected with rest of NER Grid through 132 kV Loktak – Rengpang line. 132 kV Jiribam -Rengpang line was under outage since 18:18 Hrs of 17.11.2023.

Prior to the event, 132 kV Loktak-Rengpang line & Loktak Unit-3 were connected to 132 kV Loktak Bus-I. 132 kV Loktak-Ningthoukhong, 132 kV Loktak-Imphal & 132 kV Loktak-Jiribam lines were connected to 132 kV Loktak Bus-II.



At 22:26 Hrs of 29-10-2024, Bus coupler breaker of Loktak mal-operated (as informed by NHPC verbally) due to which 132 kV Loktak Bus-I got isolated and Rengpang area got separated due to load-generation mismatch in this area.

NHPC, Loktak is requested to furnish the reason of mal-operation of Bus coupler at Loktak.

B.13 Frequent operation of auto-recloser/tripping of 400 kV Silchar-Misa D/C lines during Sept'24 & Oct'24:

During September'24 to October'24, there were 6 numbers of Auto-Reclosure/tripping of 400 kV Misa-Silchar D/C lines.

The details of tripping are shown below:

Sl. No.	Name of element	Tripping time	Reason
1	400 kV Silchar-Misa I line	00:07 Hrs of 08.09.2024	AR operated successfully both ends
2	400 kV Silchar-Misa II line	06:04 Hrs of 08.09.2024	Phase-phase fault cleared within 51 msec on ZI from both ends
3	400 kV Silchar-Misa II line	09:09 Hrs of 21.10.2024	Phase-Earth fault. AR attempted at both ends after 1.25 sec and tripped on reclaim time
4	400 kV Silchar-Misa II line	09:30 Hrs of 22.10.2024	AR operated successfully both ends
5	400 kV Silchar-Misa II line	01:25 Hrs of 24.10.2024	AR operated successfully both ends
6	400 kV Silchar-Misa II line	17:39 Hrs of 24.10.2024	AR operated successfully both ends

Such frequent tripping compromises grid operational security and impacts the circuit breaker (CB) also. This repetitive CB operation puts stress on the CB and GIS equipment, potentially reducing their lifespan.

NTL is requested to ensure the healthiness of the line, share the reason of such tripping and corrective measures taken.

B.14 <u>Non-operation of Special Protection Scheme (SPS) for reliable power supply to Arunachal Pradesh via Chapakhowa-Roing line:</u>

On 21st October'24, at 16:48 Hrs and 17:24 Hrs, SPS related to 132 kV Tinsukia-Ledo & 132 kV Tinsukia-Rupai lines operated while 132 kV Tinsukia-Ledo line was under shutdown.

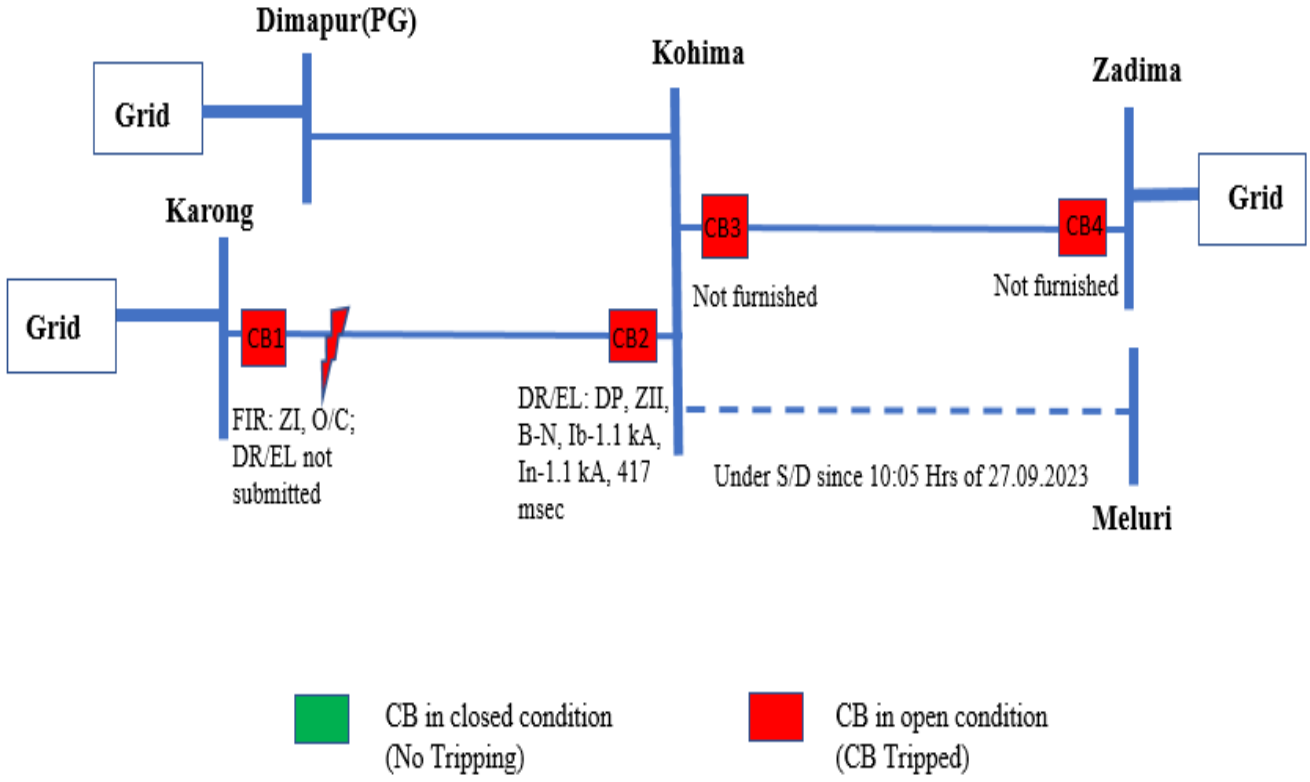
During both the instances, loading of 132 kV Tinsukia-Rupai line exceeded the pre-defined loading limit as per SPS for reliable power supply to Arunachal Pradesh via Chapakhowa-Roing line. Subsequently, SPS operation signals were triggered and received at 132 kV Rupai GSS. However, due to non-healthiness of OPGW link in 132 kV Rupai-Chapakhowa line, SPS stage 1 operation signals were not received at 132 kV Chapakhowa due to which 132 kV Chapakhowa-Roing D/C lines along with 20 MVAR Bus Reactor at Roing GSS did not trip.

SPS stage 2 operated at 132 kV Rupai S/S resulting in tripping of 2 nos. of 33 kV feeders of Rupai S/S.

AEGCL is requested to provide update on the healthiness of OPGW link in 132 kV Rupai-Chapakhowa line.

B.15 Tripping of 132 kV Karong-Kohima line & 132 kV Kohima- Zadima line on 02-Nov-2024:

At 10:58 Hrs of 02-Nov-2024, 132 kV Karong-Kohima & Kohima- Zadima lines tripped.



As per FIR, submitted by MSPCL, tripping occurred at Karong end on operation of OC, ZI.

As per DR analysis, metallic B-N fault (Ib-1.1 kA, In-1.1 kA) initiated at 10:57:30.743 Hrs and cleared within 417 msec from Kohima end on operation of DP, ZII from Kohima end which indicates that fault is in 132 kV Karong-Kohima Line.

At the same time, 132 kV Kohima-Zadima line tripped which is unwanted.
DoP, Nagaland/MSPCL is requested to share:

- Root cause of tripping of 132 kV Karong-Kohima line.
- Reason for non-submission of DR/tripping of 132 kV Kohima- Zadima line from Zadima.
- FIR, DR & EL of Kohima & Zadima end for 132 kV Kohima-Zadima line. DR & EL at Karong end for 132 kV Karong-Kohima line.

B.16 Mock Testing of SPS in NER:

In line with the Regulation of IEGC-23, the following mock testing are already performed/ planned in the North Eastern Region are as follows: -

Serial Number	Scheme	Date of Mock Testing Performed
1	SPS related to outage of 220 kV Azara-Sarusajai DC/220 kV Misa-Samaguri DC	23-Jun-24
2	Related to the tripping of Bus Reactors at 400 kV S M Nagar (ISTS) to prevent under voltage situation	05-Aug-24
3	Related to the tripping of Bus Reactors at 400 kV P K Bari (ISTS) to prevent under voltage situation	06-Aug-24
4	Related to outage of any one circuit of 132 kV Dimapur(PG)- Dimapur(NA) D/C	26-Sep-24
5	Related to the safe evacuation of power from BgTPP(NTPC) generation	10-Oct-24
6	Related to the outage of any one circuit of the 132 KV Khliehriat (PG)- Khliehriat D/C line	Planned on 22nd Nov'24

List of SPS scheme for which yearly mock testing yet to be planned: -

Sl. No.	Scheme	Remarks
1	SPS related to the outage of 132 kV Panyor HEP-Ziro Line - disconnection of 33kV Load at Ziro	Operated Correctly in April'24
2	Outage of 220 kV BTPS (Salakati) – Rangia I & II - load shedding	Operated Correctly in Aug'24
3	Related to Generation evacuation from Monarchak(NEEPCO) Power Plant - Tripping of STG at Monarchak	Operated Correctly in July'24

4	Related to outage of any one circuit of 220 kV Balipara-Sonabil D/C	Operated Correctly in Mar'24 (Triggering criteria 2)
5	SPS related to reliable power supply to Arunachal Pradesh from Assam through the Roing-Chapakhowa DC line: Triggering criteria-1: Tripping of either 132KV Tinsukia-Ledo or 132KV Tinsukia-Rupai line with current exceeding 300A in 132kV Tinsukia - Ledo or 132KV Tinsukia - Rupai line, Triggering criteria-2: Overloading of 132 kV Tinsukia-Rupai line when current in the line crosses 300Amps. , 8-10 MW of load at 132kV Rupai GSS will be shed.	Operated Correctly in Sep'24 (Triggering criteria 2)
6	Tripping of 400kV Palatana-Silchar D/C- when both modules of Palatana are in service causes tripping of HV side breaker of 2x125 MVA, 400/132 kV ICT at Palatana	SPS is kept OFF
7	SPS related to overloading of 220kV BTPS-Salakati D/C- Tripping of 220kV Agia – Boko and 220kV Agia – Mirza	SPS is kept OFF
8	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)	SPS is kept OFF (operated in May'24)
9	Tripping of 132 kV Umiam Stg-I to Umiam Stg-III D/C lines causes instantaneous load shedding near Mawphlang area	SPS is kept OFF (operated in May'24)
10	Related to the tripping of Bus Reactors at 400 kV Imphal (PG)	

11	Related to Outage of any one of the 400/132kV 2x360MVA ICTs at Panyor Lower Hydro Power Station	
12	Related to Outage of 400 kV Palatana – Surajmani Nagar line (charged at 132 kV) - 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)	
13	Related to Outage of both 400/132 kV, 2x125 MVA ICTs at Palatana - Entire load disconnection of South Comilla by way of tripping of 132kV SM Nagar-South Comilla D/C	
14	Related to the outage of any one circuit of the 132 kV Khliehriat (PG)- Khliehriat D/C line	Planned on 22nd November'24
15	Related to outage of any one circuit of 132 kV Leshka – Khliehriat D/C	
16	SPS related to 132 kV Surajmaninagar(ISTS)-Surajmaninagar(TSECL) line to prevent overloading	

It is requested the forum to avoid mock testing of SPS scheme operated correctly in 2024 and propose the tentative dates of mock testing of remaining SPS so that it can be completed within March'25 in compliance with IEGC-23.

Agenda from NLDC

B.17 <u>Uniform Protection protocol</u>

The Uniform Protection Protocol has been approved by 15th NPC on 14.11.24

It is requested to please include following agendas from NLDC:

1) Review of protection setting of following power system elements
   - Transmission Lines
   - ICTs and Reactors

- Generators (Thermal, Gas, Hydro)
- FACTS device
- HVDC
- RE source-based generation.

As the review of setting of above transmission elements are exhaustive such review of settings shall be done on individual basis by all PSC members.

Sub-committee may deliberate

B.18 <u>parameter standardization of Disturbance Recorder (DR)</u>

States may update on status of uniform adoption parameter standardization of Disturbance Recorder (DR), as finalized in FOLD.

Sub-committee may deliberate

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 have 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

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 stated that the monthly progress reports will be monitored at PCC forum. He requested the States to send monthly progress report and action plan accordingly.

In 70th PCCM,_NERLDC informed that only Nagaland, Manipur and Mizoram are submitting the monthly progress report, while Arunachal Pradesh and Tripura have not yet shared any monthly report. The forum strongly urged Ar. Pradesh and Tripura to provide the reports within two working days.

NERLDC informed in 73rd PCCM that only Manipur has sent the monthly progress report for July and August'24. The forum urged the other states to provide the monthly reports at the earliest and on priority to NERPC and NERLDC.

C.2 Status on remedial measures actions on non-operation of auto recloser in Important Grid Elements for transient faults occurred in last few months:

As updated in 72nd PCCM

Sl No	Element Name	Tripping date and time	Relay End1	Relay End2	A/R not Operated	Remarks from Utility (72nd PCCM)
1	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	Surajmaninagar	AR without carrier to be enabled shortly. The Relay Testing kit has been received last week. AR to be enabled after Diwali

2	132 kV Dimapur - Doyang 2	29-03-2024 13:10	DP, Z1, R-Y, FD: 72.6km	DP, Z1, R-Y	Doyang	CB procurement underway. By March'25
3	220 kV AGBPP - Mariani (PG) Line	01-05-2024 03:12	Z1, B-N, 24.97 Kms	DP, ZI, B-E, FD: 131.4 KM, Operated Sucessfully	AGBPP	order placed, work to be done next month
4	132 kV Badarpur - Karimganj Line	05-05-2024 13:48	DP, ZII, Y-E, FD:27.25KM, Carrier Aided tripping & AR Operated Successfully	DP, ZI, Y-E, FD: 0.2km	Karimganj	Relay shifting, from Jorhat, to be done by next PCC meeting.
5	400 kV Byrnihat-Silchar Line	02-09-2024 16:53	DP, ZII, Y-N	DP, ZI, B-N, Carrier send	Both ends	Sil: tie breaker stuck, LBB operated so no AR. Byrnihat: will update
6	220 kV Mariani-Samaguri Line	13-09-2024 12:17	DP, ZI, B-N, AR successful	DP, ZII, B-N, Carrier aided trip	Samaguri	Spring charge status high, so no AR attempt. Issue in the contactor. Contactor may be changed.

7	220 kV Amguri-NTPS Line	27-09-2024 11:50	DP, ZI, B-N	DP, ZII, B-N	Both ends	Will check for both ends

Utilities may further update

C.3 PLCC issues follow up:

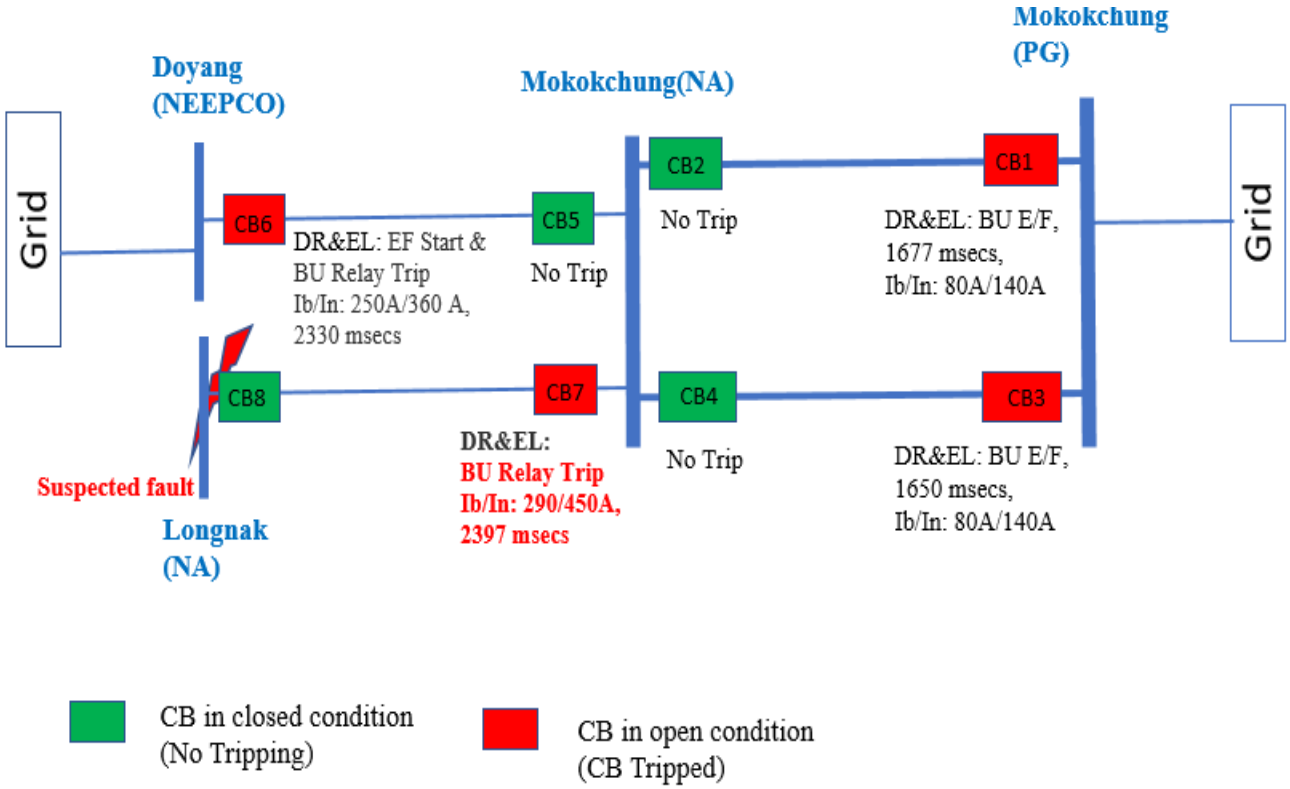
Update as provided by utilities in 72nd PCCM

Sl. No	Line	Utility	Update
1	132 kV Dimapur-Kohima	DoP Nagaland	DPR (for DTPC) is completed except for budgetary offer. Offer has not been received from Hitachi yet.
2	132 kV Melriat-Zemabawk	Mizoram	For Wave Trap order has been placed with GE. Order will be received after 4 months as communicated by GE. Forum had suggested that both PLCC and DTPC has to be enabled. POWERGRID shall install only the PLCC. CVT installed. Regarding the DTPC, DPR to be finalized, one quotation received, waiting for another one
3	132 kV Roing-Pashighat	DoP Ar. Pradesh	DoP Ar. Pradesh updated that 48 V battery has been commissioned. PGCIL to commission the PLCC link

Utilities may further update

C.4 Grid Disturbance in Mokokchung(NL) and Longnak areas of Nagaland power system on 07-09-2024:

At 15:43 Hrs of 07-09-2024, 132 kV Mokokchung (PG) - Mokokchung (NL) D/C Lines, 132 kV Doyang - Mokokchung (NL) Line and 132 kV Mokokchung(NL)-Longnak Line tripped due to which grid disturbance occurred in Mokokchung(NL) and Longnak areas of Nagaland.



Analysis based on DR signal:

- Mokokchung(PG): Y-N fault initiated at 15:42:32.784 Hrs. CB opens in 1.67 sec by opening 132 kV Mokokchung(PG)-Mokokchung(NL) 1&2 line on operation of B/U E/F. Fault current of Ib: 80-90A & In: 140A observed in each line.
- Doyang(NEEPCO): CB opens in 2.3 sec on operation of backup relay trip. Fault current of Ib: 200-250A & In: 230A observed.
- Mokokchung(NL): CB opens in 2.3-2.4 seconds on operation of backup E/F. Fault current of Ib: 290A & In: 450A observed.

As per report from DoP Nagaland, insulation failure of 132/33 kV ICT-II in between HV to body at Longnak observed. R-Phase jumper Open at fault distance of 10 Km in 132 kV Mokokchung-Longnak Line and same has rectified at 13:30 hrs on 09.09.2024.

Following observations:

1. Protection system of 132/33 kV ICT-II at Longnak failed to isolate fault in ICT which was cleared by operation of Backup Relay at Mokokchung(PG), Doyang(NEEPCO) & Mokokchung(NL). The same needs to be checked by DoP Nagaland.

2. 132 kV Mokokchung(NL)-Longnak line tripped from Mokokchung(NL) end within 2.4 sec for fault in 132/33 kV Longnak ICT-II. As per existing setting, B/U EF pickup 75A, TMS: 0.20. With this setting the fault should clear from Mokokchung SS (for 132 kV Longnak Line) within 767 msec with neutral current of 450 A. NERLDC has already shared mail on 16th September'24 to DoP Nagaland to carry out the following-

   i) The reason of non-clearance of fault and its corrective measures to prevent repetition. Also, requested to test the relay to ensure the healthiness of the protection system.

   ii) Non-operation of distance protection at Mokokchung(NL) end for 132 kV Mokokchung(NL)-Longnak line needs to be checked.

Similar incident occurred at 21:36 Hrs of 07.09.2024.

DoP Nagaland may update.

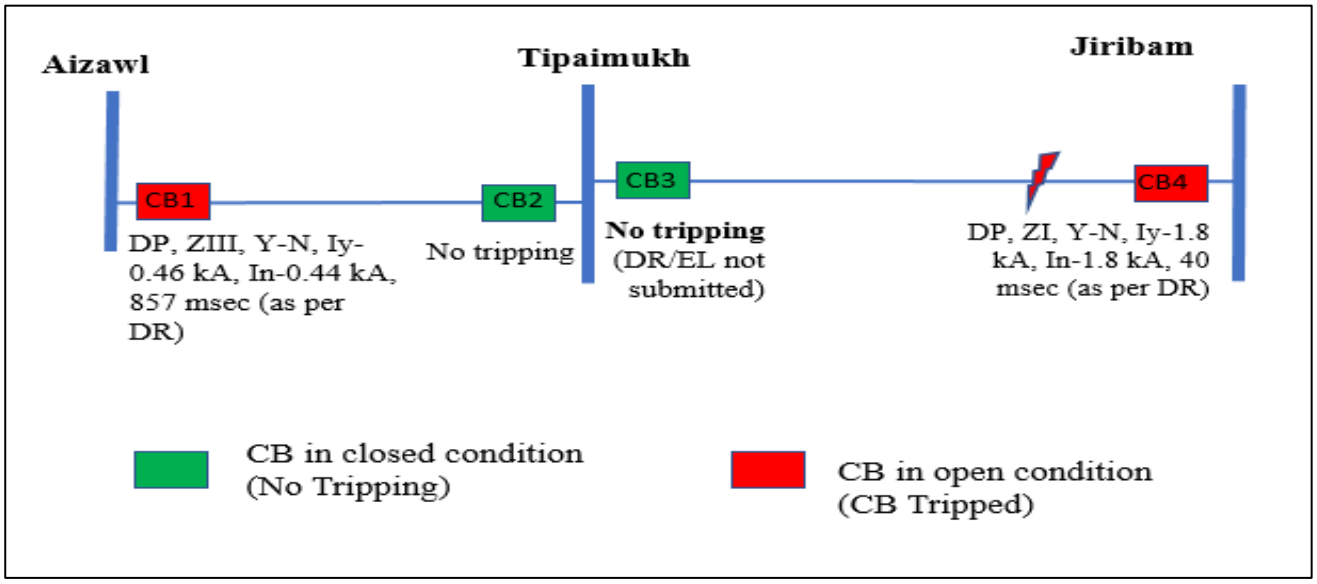
In 72nd PCCM, Nagaland informed that the fault was in the 132/33kV transformer at the Longnak SS. The forum noted –

i. The transformer differential protection should have isolated the fault and requested DoP Nagaland to check the protection system of the ICT
ii. There was delayed operation of the B/U protection at Mokokchung(NA) and requested Nagaland to revise the settings in coordination with NERPC and NERLDC
iii. B/U protection at Doyang should have operated faster than that at Mokokchung (PG) as the fault current was higher and requested NEEPCO, PGCIL to coordinate the settings.

DoP Nagaland may further update

C.5 Tripping of 132 kV Aizawl-Tipaimukh line on 30th August, 2024

At 09:32 Hrs of 30.08.2024, 132 kV Aizawl-Tipaimukh and 132 kV Jiribam-Tipaimukh lines tripped.



As per DR analysis, Y-N fault in 132 kV Jiribam-Tipaimukh line cleared within 40 msec from Jiribam end on operation of DP, ZI. Carrier signal was sent to Tipaimukh end from Jiribam. However, CB at Tipaimukh end did not trip until 800 msec from inception of fault which led to clearing of fault by tripping of healthy 132 kV Aizawl-Tipaimukh line from Aizawl end on operation of DP, ZIII within 857 msec.

Similar incident occurred on 25.08.2024.

MSPCL is requested to furnish the reason for non-opening of CB at Tipaimukh end for 132 kV Jiribam-Tipaimukh line and remedial actions taken.

In 71st PCCM, Manipur representative informed that checking by local staffs was done recently but expert visit was required. He further informed the forum that due to landslide issue road was not approachable for them to send any skilled staff to Tipaimukh SS to download DR/EL for the event for further analysis and submission to NERLDC. He further stated that access to Tipaimukh was through Aizawl only. Therefore, Manipur requested the forum to provide support either from Mizoram or NERTS.

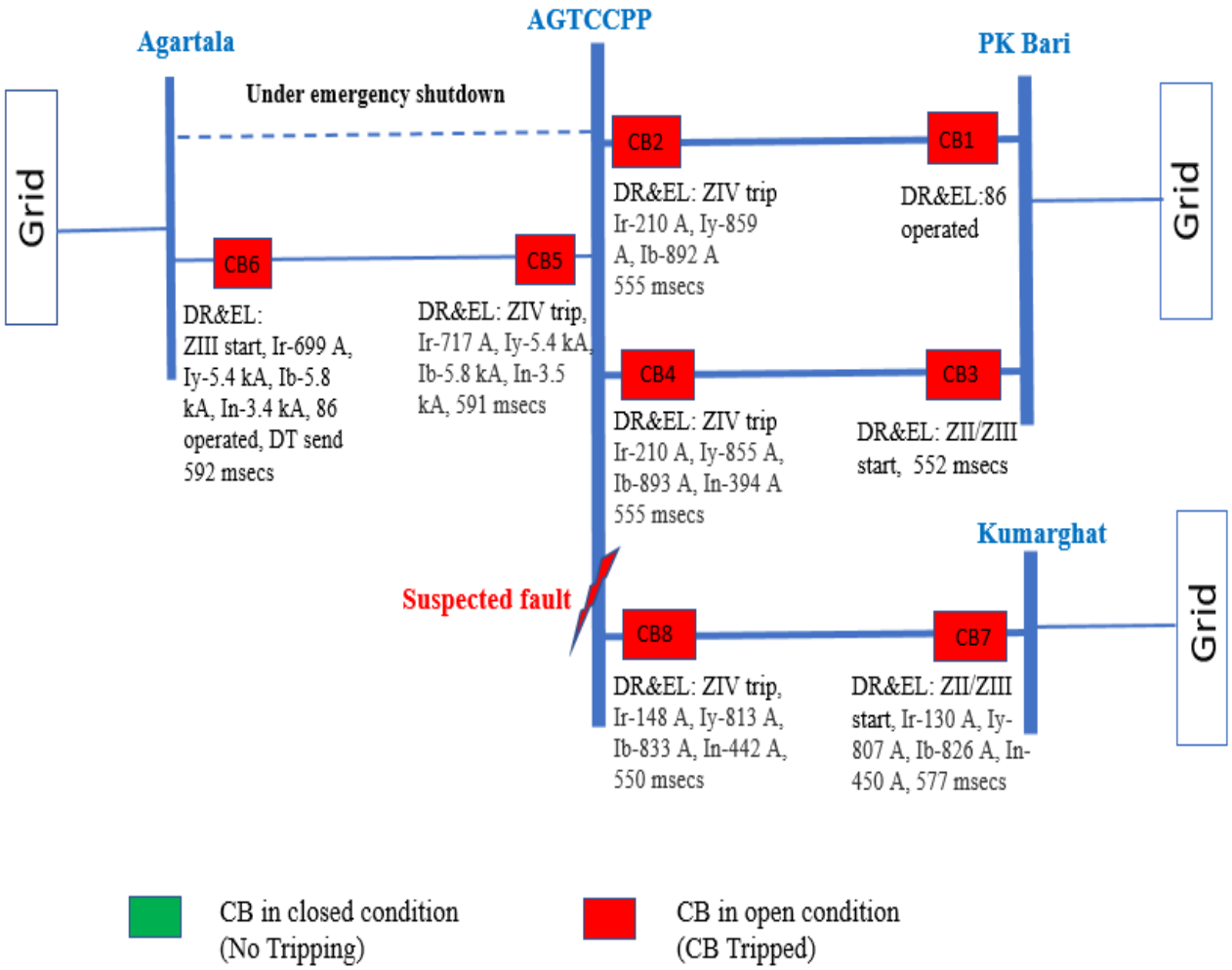
Forum requested Mizoram & NERTS to provide necessary support to Manipur at earliest.

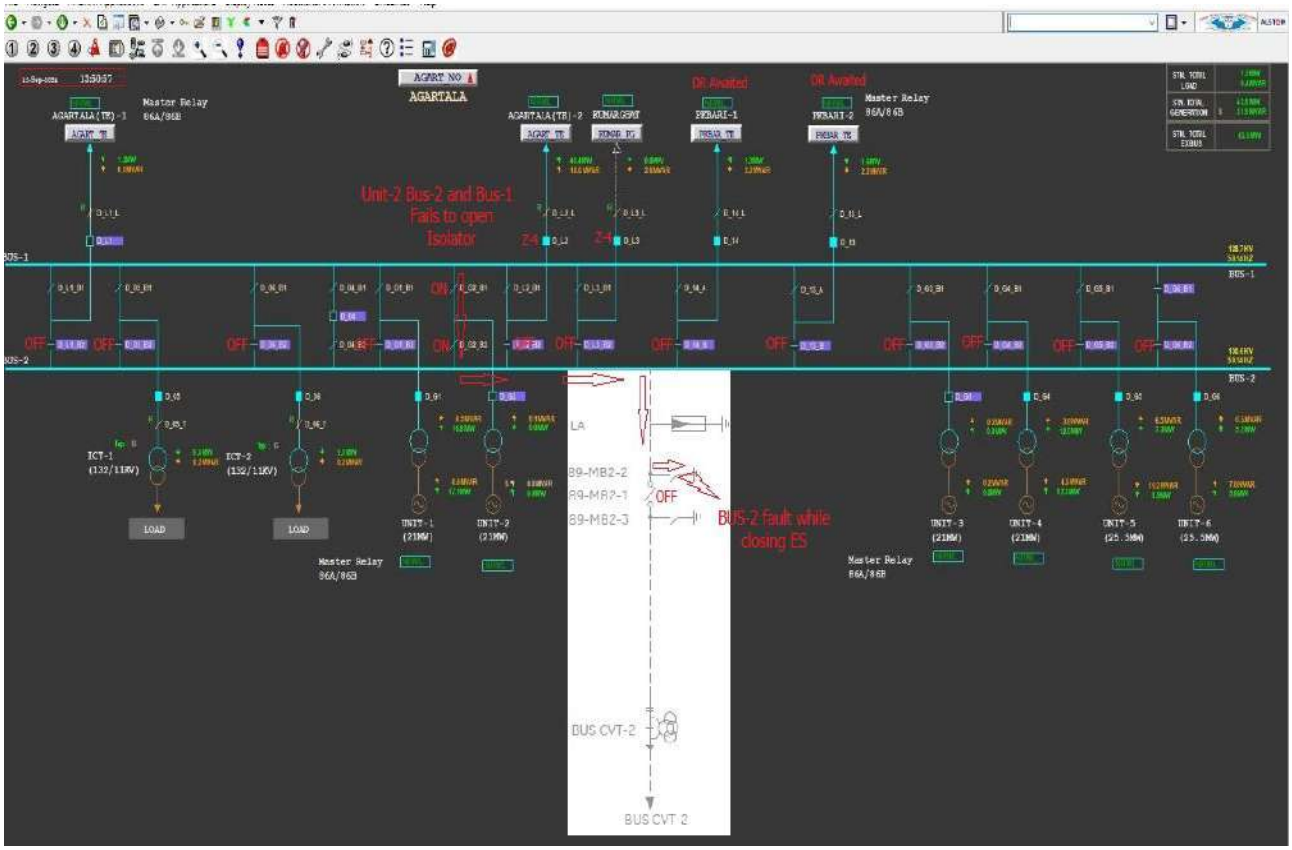
In 73rd PCCM, MSPCL informed that support from PGCIL and Mizoram is required to access the site. Mizoram and PGCIL requested MSPCL to formally initiate the request to them for the support.

MSPCL may update

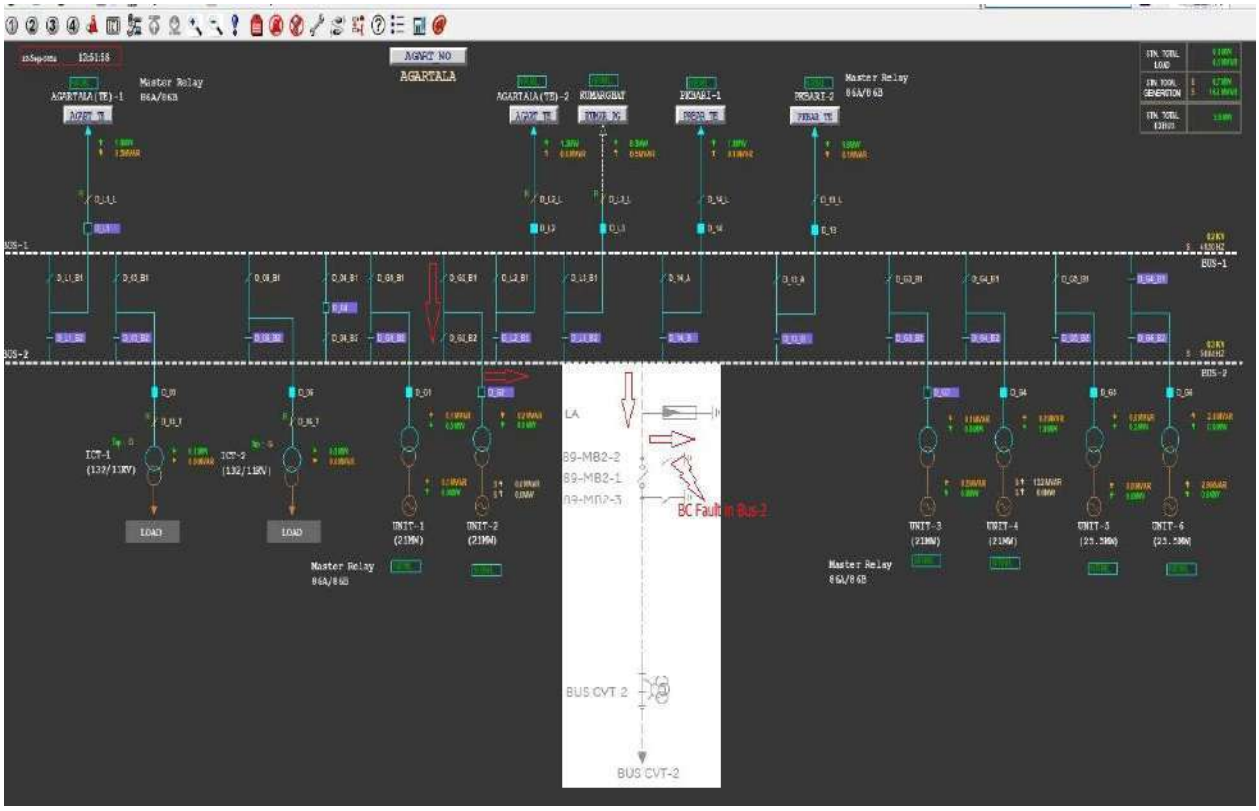
C.6 Grid Disturbance in AGTCCPP generating station of NEEPCO on 12-09-2024:

At 13:43 Hrs of 12-09-2024, 132 kV AGTCCPP - Kumarghat Line, 132 kV Agartala - AGTCCPP 2 Line and 132 kV AGTCCPP - P K Bari D/C lines tripped due to which AGTCCPP generating station of Tripura power system was blackout due to loss of evacuation path.





SLD during fault



SLD during blackout

Analysis based on DR:

- **AGTCCPP:** R-Y-B-N fault cleared within 555 msec on operation of ZIV for all the lines.
- **PK Bari-I:** 86 relay operated. It is not clear which protection cleared the fault.
- **PK Bari II:** ZII/ZIII start, 86 operated.
- **Agartala II:** ZIII started at Agartala end and 86 relay operated at 13:43:57.563 Hrs. Also, DT send signal high at 13:43:57.563 Hrs. It is not clear which protection cleared the fault.
- **Kumarghat:** ZII operated at 13:45:06.511 Hrs and CB open after 503 msec.

Suspected BUS-2 fault in 132 kV AGTCCPP switchyard while availing emergency shutdown of 132 kV Bus-I as all the lines connected to AGTCCPP tripped on ZIV from AGTCCPP end.

POWERGRID/NEEPCO is requested to:

- Update the root cause of the events and remedial measures taken to prevent in future.
- Furnish the reason of DT send signal from Agartala to AGTCCPP for 132 kV Agartala-AGTCCPP II line.
- Update the reason of non-submission of detailed report of the event as per IEGC 2023.

In 72nd PCCM, NEEPCO informed the forum that the incident caused during the maintenance activities at AGTCPP. However, non-operation of Interlock during Earth Switch operation was undesirable. He further stated that analysis report will be submitted shortly. The forum noted that such actions are very dangerous and strictly urged NEEPCO to be cautious with SOP. The forum also noted that the BB protection did not operate and 86 relay operation at P K Bari is unwanted.

The forum referred the matter to PSAG of NER for further analysis.

PSAG may update

C.7 Hands on training on PDMS and PSCT software for carrying out system study:

In order to review the protection settings of NER grid, it is necessary to carry out detailed system study of NER grid using PDMS and PSCT software.

In view of this, an offline hands-on training of the software is required for NERLDC protection team from M/s PRDC.

M/s PRDC is requested to arrange a hands-on training session on PSCT and PDMS software for carrying out necessary studies in the month of November'24.

In 72nd PCCM, the forum requested M/s PRDC to conduct a physical training program on the matter. M/s PRDC stated that the training will be conducted in last week of November. The forum opined that the training may be conducted in NERLDC, Guwahati. NERLDC agreed.

M/s PRDC may update

C.8 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 19 numbers of SPS under operation and 1 number of SPS under implementation as listed tabulated below:

Sl. No.	**SPS under operation**	**Long term measures**	**SPS mapping status in SCADA (YES/No) as per 69th PCCM**
1	**Tripping of 400kV Palatana-Silchar D/C-** when both modules of Palatana are in service causes tripping of HV	After commissioning of 400 kV Palatana - Surajmaninagar line-1, there is no requirement of	Done

	side breaker of 2x125 MVA, 400/132 kV ICT at Palatana	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	done
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	done
5	**Related to the safe evacuation of power from BgTPP(NTPC) generation -** BGTPP generation reduction to 600 MW	-	Done
6	**Related to Generation evacuation from Monarchak(NEEPCO) Power Plant -** Tripping of STG at Monarchak under outage of any one circuit of 132 kV Monarchak –	Commissioning of 132 kV Monarchak-Surajmaninagar line	By Oct'24

	Rokhia line & 132 kV Monarchak-Udaipur		
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.	done
8	**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	-	Facing SCADA integration issue at P K Bari. To be done by 15th Dec'24
9	**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	-	Same as point 8
10	**Related to the tripping of Bus Reactors at 400 kV Imphal (PG)** - 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)	-	Done
11	**Related to Outage of any one of the 400/132kV 2x360MVA ICTs at Panyor Lower Hydro Power Station** -	After restoration of 132 kV Panyor -Itanagar & 132 kV Panyor -Pare line (expected by 31st Mar'24)	By Nov'24

	Disconnection of One Unit of Panyor (135 MW) and One Unit of Pare (55 MW)		
12	**SPS related to outage of 220 kV Azara-Sarusajai DC/220 kV Misa-Samaguri DC** - **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.	1. This month 2. By Dec'24
13	**SPS related to the outage of 132 kV Panyor HEP-Ziro Line** - 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	done
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	Done
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	By Dec'24
16	**Related to Outage of 400 kV Palatana – Surajmani Nagar line (charged at 132 kV)** - Tripping of 400 kV SM Nagar – Comilla D/C (charged at 132 kV) during outage of 400 kV Palatana – SM	Upgradation of 132 kV Surajmaninagar(TSECL) to 400 kV	Done

	Nagar(TSECL) line (charged at 132 kV)		
17	**Related to Outage of both 400/132 kV, 2x125 MVA ICTs at Palatana** - 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	Will check
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	This month
19	Related to outage of any one circuit of 132 kV Leshka – Khliehriat D/C	Reconductoring of 132 kV Khliehriat – Leshka D/C	Not done
20	SPS related to reliable power supply to Arunachal Pradesh from Assam through the Roing-Chapakhowa DC line: Triggering criteria-1: Tripping of either 132KV Tinsukia-Ledo or 132KV Tinsukia-Rupai line with current exceeding 300A in 132kV Tinsukia - Ledo or 132KV Tinsukia - Rupai line, Triggering criteria-2: Overloading of 132 kV Tinsukia-Rupai line when current in the line crosses 300Amps. , 8-10 MW of load at 132kV Rupai GSS will be shed.		
21	SPS related to 132 kV Surajmaninagar(ISTS)-Surajmaninagar(TSECL) line to prevent overloading		

Sl. No.	SPS under implementation	Long term measures
1	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

Utilities may further update

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 72nd PCCM

Sl no	**State**	**Important Transmission lines where AR has to be enabled at the earliest**	**Status (69th/68th PCCM)**	**Status as per 72nd PCCM**
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.	3 Ph AR has been enabled on the lines.

2.	Assam	All 220kV and 132kV lines	For 220kV Some bays at Tinsukia, NTPS and Kathalguri remaining, to be done soon For 132kV bays Testing and enabling of AR is being done gradually, to be completed by June'24.	Process underway. 220kV – Completed except for Kathalguri-tinsukia line which will be done within 2 months. Delay is due to the shutdown issue with Discoms. 132kV – completed except for Dhemaji and Majuli Substations, to be done by Oct'24.
3.	Manipur	132kV Imphal-Ningthounkong	DPR preparation underway, to be prepared by March'24	1. In 71st PCCM Manipur updated that 132kV Imphal-Ningthounkong line work has been completed & 4 additional line have been considered for AR implementation which work will be completed by end of Sept'24.

				DPR for PLCC under preparation. To be completed shortly.
4.	Meghalaya	**Annexure** (D.1)	August'24. Forum requested Meghalaya to provide monthly work progress report (around 25 number of 132kV line)	Matter was thoroughly discussed in State protection committee. Report of the meeting has been submitted to NERPC. It was further updated that AR on 132kV Lumshnong-khliehriat line and Lumshnong-Panchgram lines will be enabled by next week.
5.	Tripura	132kV Agartala-S M Nagar (TSECL), 132kV Agartal-Rokhia DC, 132kV, 132kV Agartala-Budhjungnagar	To be done during internal audit.	Relay testing kit has been repaired but not received yet. Target-Sept.'24

Utilities may further update

D.2. <u>Installation of line differential protection for short lines:</u>

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 72nd PCCM -

Name of utility	**Last updated status (70th /69th/68th PCCM)**	**Status as per 72nd PCCM**
AEGCL	AEGCL updated that PSDF monitoring group has suspended funding for LDP for 1 year. AEGCL requested MS, NERPC to take up with NPC, CEA to provide funding for the same considering the special case of NER	MS, NERPC stated that funding for the LDP considering the special case of NER will be taken up as resolution by RPC forum
MSPCL	DPR under preparation, to be submitted within one month.	DPR has been approved & NIT to be floated
MePTCL	LDP operation for 9 feeders. For Neighrims-NEHU line, waiting for dark fiber. For other lines, OPGW not available 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.	Regarding OPGW installation, MePTCL updated that DPR has been prepared and it would be submitted to PSDF committee for funding by next month for inclusion in reliable communication scheme. For NEHU-NEighrims line, NERPSIP informed the forum that fiber for this line is not under the scope of NERPSIP. Therefore, forum suggested MePTCL to cover this in any other scheme.
P&ED Mizoram	Lines identified 132kV Khamzawl - Khawiva. DPR being revised.	Mizoram stated that DPR in final stage. Price offer

	Mizoram requested for assistance in preparation of DPR. Forum requested Assam to provide assistance to Mizoram in this regard.	has been received from one vendor and awaited form other vendors. The DPR would be prepared by end of Sept.'24.
DoP Nagaland	LDP Doyang-Sanis line, LDR to be installed by NEEPCO. NEEPCO stated that LDR is available with NEEPCO, however, healthiness of the OPGW link on the line has to be checked first. DoP Nagaland updated that FOTE is present. NEEPCO updated that GE engineers will visit on 15th July.	1. NEEPCO updated that GE engineers had visited the site and work had been completed. 2. Report has been submitted to NERPC. 3. Agenda may be dropped
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. Approved for ADB funding. E-tendering underway. Regarding Rokhia-N.Rokhia link, he updated that the breaker has been received. MS, NERPC suggested to apply under PSDF	DPR has been sent to PSDF committee for funding.

Utilities may further upadte

D.3. <u>Status against remedial actions for important grid events:</u>

Status as updated in the 72nd PCCM:

Sl No	Details of the events(outage)	Remedial action suggested	Name of the utility & previous update	Status as per 72nd PCCM
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.	DoP updated that PSDF funding will be short closed due to long pending payment issues and delays. He further stated that State is considering funding of the project through its own funding. PLCC work to be tentatively completed by end of this year.
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, by July'24	Offer from Hitachi is still awaited.
3.	Leshka-Khleihriat DC multiple tripping in April to September	TLSA installation along the line to be done by MePTCL	MePTCL	DPR returned by PSDF.

			(DPR submitted, Approval pending.)	
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 TX manufacturing underway. To be completed by Dec'24	Not received yet due to landslide issue.
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) Renovation would start in Nov.'24 and to be completed by Oct.'25. Forum stressed to take LBB on priority.	R & M work to start in Nov'24
6.	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 BBR defective. Order placed in Oct'23, will arrive in around 7 months, i.e. by May or June'24	1.Card arrived in India, but not received yet. 2. Meanwhile Forum requested NERTS to provide card to MePTCL if available. NERTS assured the forum that they would check the availability of

				card and update
7.	Non-operation of AR for various lines at Byrnihaat end on 25th and 26th June'23	Rectification of PLCC issues by MePTCL Consultation with OEM underway for resolution	MePTCL Visit of OEM next week. To be completed by May'24	OEM visited, PLCC defective, will procure at earliest
8.	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, to be completed by end of this year	New bays have to be integrated to ABB relay, so new cards have to be procured, commissioning may go beyond Dec'24
9.	AR issue at Gohpur end for 132kV Nirjuli-Gohpur line	Panel replacement underway	AEGCL - By April'24	Done, Agenda may be dropped
10.	Non-operation of AR at Doyang HEP	Pneumatic CBs to be replaced	NEEPCO- August 2024	March'25
11.	Generation evacuation issue at Leshka due to tripping of any line of 132kV Leshka-Khliehriat DC line	SPS to be implemented	MePGCL to implement the SPS by May'24	Done, Agenda may be dropped
12	Multiple trippings fn the lines connected to Leshka station in April'24 have been observed due to delayed clearance of faults in the link line (GT to Switchyard, 550 meters)	Differential protection on the link line to be implemented. Also, AR on the link line to be implemented	MePGCL To be discussed in internal OCC meeting first. DPR under preparation, to be prepared within one month	DPR has been prepared and submitted to higher authority

13	Multiple tripping of 132 kV Panchgram-Lumshnonong line in April'24 has been observed due to delayed clearance of downstream fault in Lumshnong	B/U protection settings coordination for the 132kV downstream industrial feeders has to be done	MePTCL To be done shortly	Done, Agenda may be dropped
14	Issue with CB at P K Bari end for Dharmangar line (agenda item C.5 of 69th PCCM.) Powergrid has reduced timing of zone settings at Kumaraghat end for P K Bari line. The settings will be reverted as soon as the breaker issues is resolved by TSECL	Pneumatic CB at P K Bari end to be replaced with spring charging type CB	TSECL (Work in progress)	NERPSIP informed the forum that M/s Siemens was working and work would be completed within one month
15	At 12:38 Hrs of 09.07.2024, 132 kV Along - Pasighat Line, 132 kV Roing-Pasighat Line & 132 kV Along-Basar Line tripped leading to blackout of Along & Pasighat areas of Arunachal Pradesh	Pneumatic CBs at Along end for Basar line to replaced with Spring type by Oct'24. LBB relay to be rectified at Along SS	DoP Ar. Pradesh (replacement within 2 months)	Covered under PSDF scheme & parallelly exploring for State funding also
16.	At 14:56 Hrs of 17-07-2024, 132 kV NEHU-NEIGRIHMS line & 132 kV Khleihriat-NEIGRIHMS line tripped leading to blackout of NEIGRIHMS area.	Neigrihms end for NEHU line Relay to be replaced shortly	MePTCL	

Utilities may further update

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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 - 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 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	Not Completed	Fiber Network Not Available
4	EPIP -I - Killing Line II	Completed	Completed	Not Completed	
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	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	

Annexure B.2

ग्रिड कंट्रोलर ऑफ इंडिया लिमिटेड

GRID CONTROLLER OF INDIA LIMITED

Formerly Power System Operation Corporation Limited

North Eastern Regional Load Despatch Centre, Shillong

अक्टूबर, 2024 माह के लिए ग्रिड घटना की विस्तृत विश्लेषण रिपोर्ट

Detailed Analysis Report of Grid Event for the month of October, 2024

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ग्रिड-इंडिया GRID-INDIA
ग्रिड कंट्रोलर ऑफ इंडिया लिमिटेड
(भारत सरकार का उद्यम)
GRID CONTROLLER OF INDIA LIMITED
(A Government of India Enterprise)
[formerly Power System Operation Corporation Limited (POSOCO)]
उत्तर पूर्वी क्षेत्रीय भार प्रेषण केन्द्र / North Eastern Regional Load Despatch Centre
कार्यालय : लोवर, लापालांग, शिलांग -793006
Office : Lower Nongrah, Lapalang, Shillong- 793006
CIN : U40105DL2009GOI188682, Website : www.nerldc.in, E-mail : nerldc@grid-india.in, Tel.: 0364-2537470/427, Fax: 03642537486

Detailed Report of Grid Disturbance in Pailapool area of Assam Power System of North Eastern Region

(To be submitted by RLDC/NLDC during Grid Disturbances/Grid Incidents/Near Miss Event as per IEGC section 37.2 (f))
(आई ई जी सी 37.2 (एफ) के अनुपालन में)

Date (दिनांक):09-10-2024

1. Event Summary (घटना का सारांश):

Pailapool area of Assam Power System was connected with rest of NER Power system through 132 kV Pailapool - Srikona Line & 132 kV Pailapool – Jiribam(PG) Line.

At 13:21 Hrs of 02-10-2024, 132 kV Pailapool - Srikona Line & 132 kV Pailapool – Jiribam(PG) Line tripped. Due to tripping of these elements, Pailapool area of Assam Power System was isolated from NER Grid and collapsed due to load-generation mismatch in this area.

Power supply was extended to Pailapool area of Assam Power System by charging 132 kV Pailapool - Srikona Line at 13:44 Hrs of 02-10-2024.

2. Time and Date of the Event (घटना का स मय और दिनांक): 13:21 Hrs of 02-10-2024

3. Event Category (ग्रिड घटना का प्रकार): GD-I

4. Location/Control Area (स्थान/नियंत्रण क्षेत्र): Pailapool area of Assam Power System

5. Antecedent Conditions (पूर्ववर्ती स्थिति):

	Frequency in Hz	Regional Generation (MW)	Regional Demand (MW)
Pre-Event (घटना पूर्व)	50.01	2261	2498
Post Event (घटना के बाद)	50.01	2264	2501

Pre and post data of 1 minute before and after the event

Important Transmission Line/Unit if under outage (before the event))महत्वपूर्ण संचरण लाइने/ विधुत उत्पादन इकाइयां जो बंद है(	NIL
Weather Condition (मौसम स्थिति)	Normal

2. **Load and Generation loss (लोड और जेनरेशन हानि):** Load loss of 31.2 MW and Generation loss of 26.1 MW
3. **Duration of interruption (रुकावट की अवधि): 23 min**
4. **Network across the affected area (प्रभावित क्षेत्र का नक्शा):**

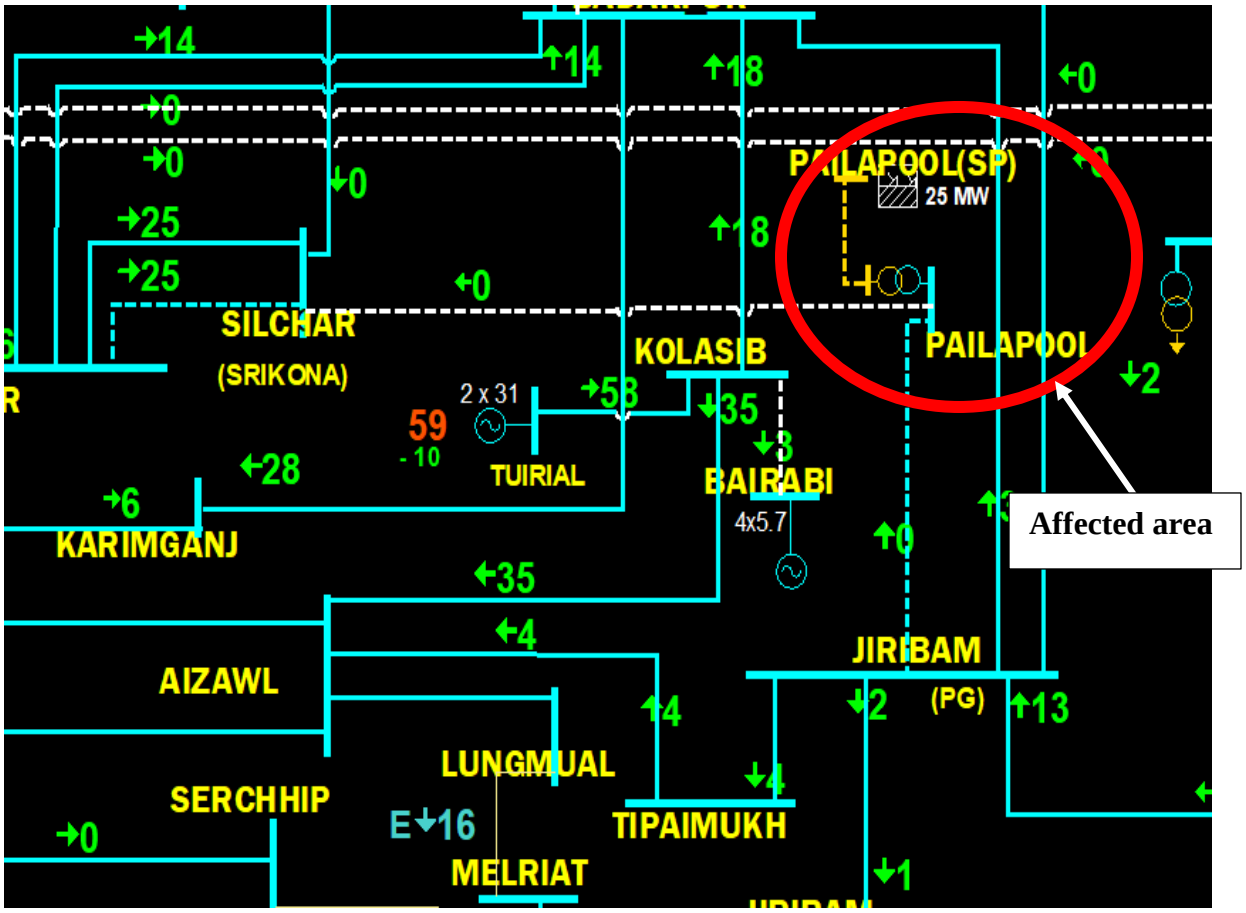
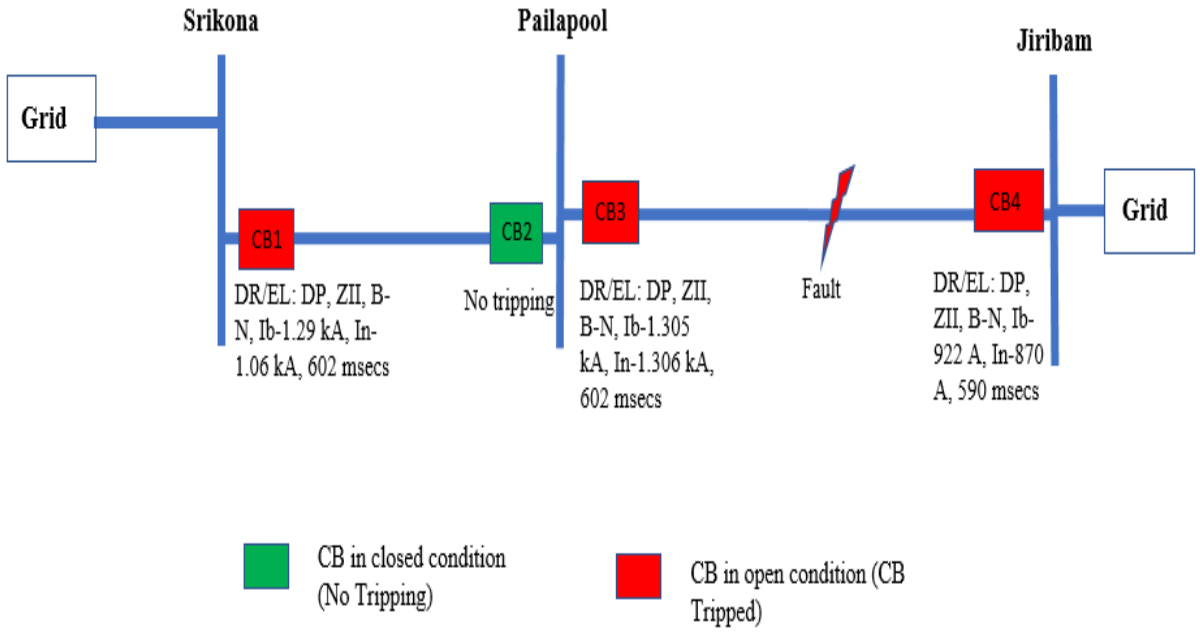


Figure 1: Network across the affected area

5. **Details of Equipment Failure (if any during the event) (उपकरण विफलता का विवरण):** B phase conductor snap between location 13-14 in the 132kV Pailapool – Jiribam(PG) line.
6. **Major Elements Tripped (प्रमुख ट्रिपिंग):**

Sl. No.	नाम	Trip time (hh:mm:ss)	Restoration time	उप केंद्र 1 रिले संकेत	उप केंद्र 2 रिले संकेत
1	132 kV Pailapool - Srikona Line	13:21 Hrs	13:44 Hrs	No Tripping	DP, ZII, B-N
2	132 kV Pailapool – Jiribam(PG) Line	13:21 Hrs	18:27 Hrs of 05/10/2024	DP, ZII, B-N	DP, ZI, B-N, FD: 9.5 Km

7. **Event Analysis (Based on PMU, SCADA & DR) (घटना का विश्लेषण):**



As per DR analysis, high resistive B-N (Ib-922 A, In-870 A) fault in 132 kV Jiribam – Pailapool line initiated at 13:21:34.009 Hrs and cleared within 590 msec on operation of ZII from Jiribam end and within 602 msec from Pailapool end on operation of DP, ZII. Carrier send signal high at 13:21:34.569 Hrs from Jiribam(PG) end.

Carrier was received at Pailapool end at 180ms from inception of the fault, whereas Zone-2 pickup was delayed at Pailapool end. Hence, the logic for POTT was not fulfilled at Pailapool end.

132 kV Pailapool-Srikona line tripped on operation of DP, ZII from Srikona end (within 602 msec) for fault in 132 kV Jiribam(PG)-Pailapool line. There was no tripping from Pailapool end.

8. **Protection/Operational issues observed (सुरक्षा/परिचालन संबंधी समस्या):**

- The Zone-2 delay at Pailapool end for 132kV Pailapool – Jiribam line and at Srikona for 132 kV Srikona-Pailapool line was kept at 250 ms. (This was as per PGCIL request during previous PCCMs to counteract against high resistive fault in Meghalaya system)

9. **Action Taken/Remedial Measures (सुधारात्मक उपाय):**

- Maintenance work was carried out and the line was restored successfully.
- The Zone-2 time delay at Pailapool for 132kV Pailapool – Jiribam line is updated to 350ms.

- The Zone-2 time delay at Srikona for 132kV Srikona – Pailapool is updated to 500ms.

10. Non-compliance observed (विनियमन का गैर-अनुपालन):

Sl.No.	Issues	Regulation Non-Compliance	Utilities
1.	**Flash Report received within 8hrs?**	IEGC section 37.2 (b)	**No Violation**
2.	**Whether DR/EL provided within 24 Hours?**	1. IEGC section 37.2 (c) 2. CEA grid Standard 15.3	**No Violation**
3.	**Detailed Report received within 7 days?**	IEGC section 37.2 (e)	**No Violation**
4.	**DR Time Synchronization Issues**	IEGC section 17.3	**No Violation**
5.	**Any other non-compliance**		-

11. Key Lessons Learnt (प्रमुख अधिगम बिंदु):

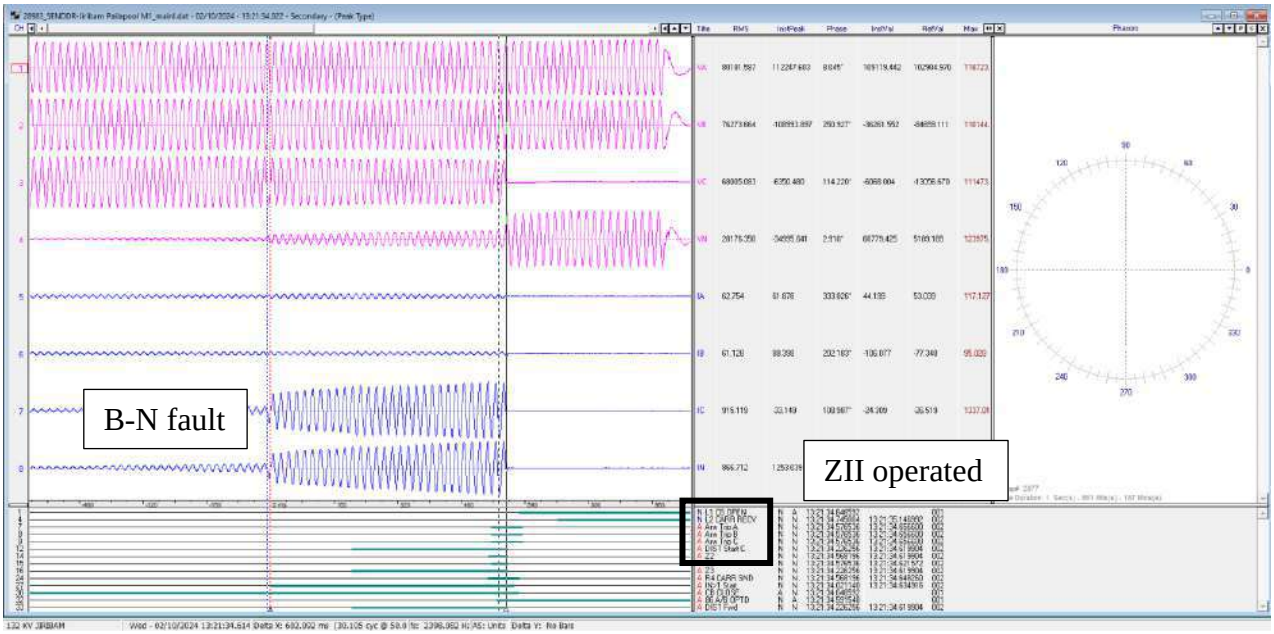
- Proper patrolling and maintenance related activities as per CEA regulations needs to be carried out.

Annexure 1: Sequence of Events as per SCADA

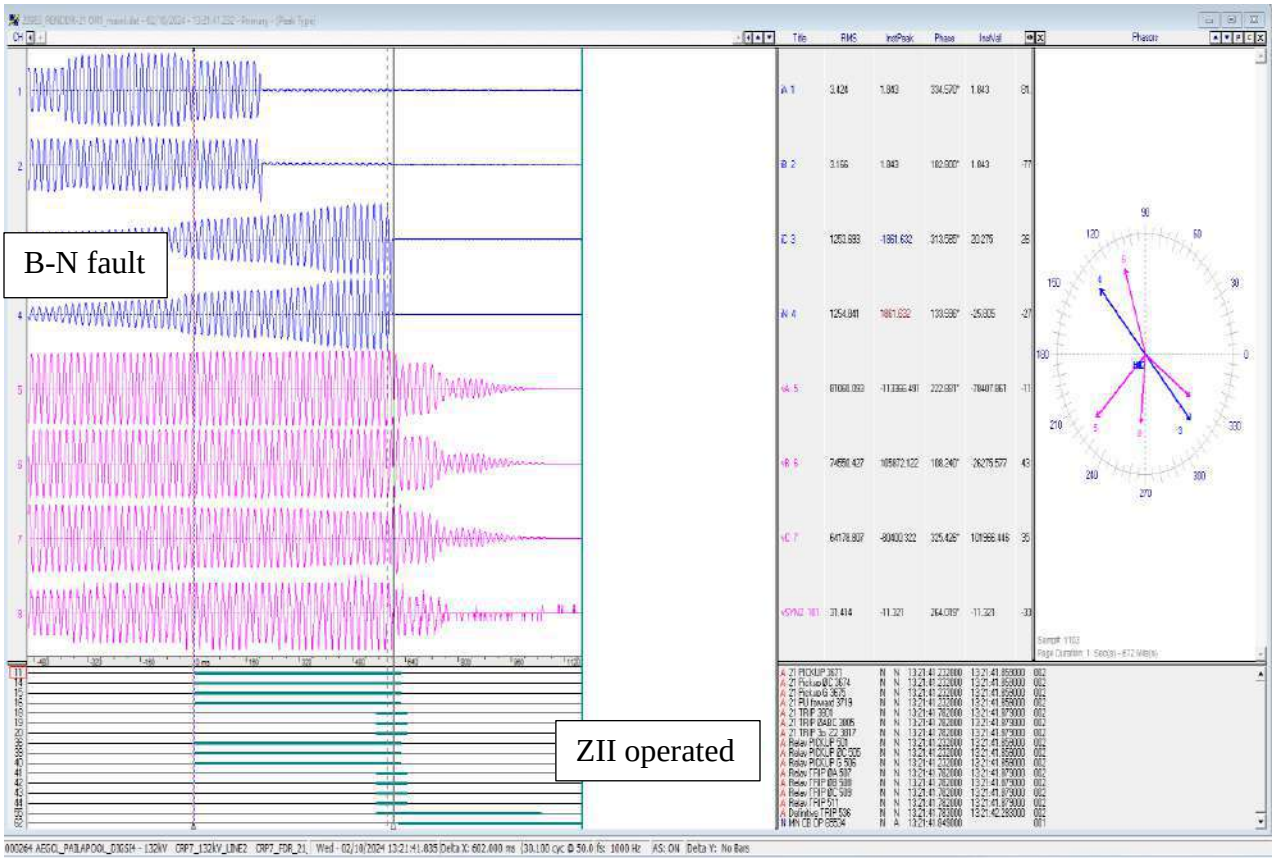
AREA	CATEGORY	LOCATION	TEXT	SYSTEM_TIME	FIELD_TIME	MS
AEGCL	1C	SONAB_AS	SONABIL CB 220Kv LINE-1 TO SAMAG CLOSE	02 Oct 2024 13:22:26:000	02 Oct 2024 13:20:44:000	6.64E+08
AEGCL	1C	SONAR_AS	SONARI CB 132Kv LINE TO LAKWA CLOSED	02 Oct 2024 13:21:02:000	02 Oct 2024 13:20:57:000	5.29E+08
MSPCL	1C	JIRIB_PG	JIRIBAM CB 132Kv LINE-1 TO PAILA OPEN	02 Oct 2024 13:21:36:000	02 Oct 2024 13:21:34:000	6.42E+08
AEGCL	1C	SRIKO_AS	SILCHAR CB 132Kv LINE TO PAILA OPEN	02 Oct 2024 13:21:40:000	02 Oct 2024 13:21:35:000	51000000
AEGCL	1C	SONAB_AS	SONABIL CB 132Kv LINE-2 TO TEZPR OPEN	02 Oct 2024 13:24:05:000	02 Oct 2024 13:24:00:000	4.18E+08
AEGCL	1C	SONAR_AS	SONARI CB 132Kv LINE TO LAKWA CLOSED	02 Oct 2024 13:42:44:000	02 Oct 2024 13:42:42:000	3000000
AEGCL	1C	SRIKO_AS	SILCHAR CB 132Kv LINE TO PAILA CLOSED	02 Oct 2024 13:44:16:000	02 Oct 2024 13:44:13:000	4.05E+08
AEGCL	1C	SONAR_AS	SONARI CB 132Kv LINE TO LAKWA INVALID	02 Oct 2024 13:44:25:000	02 Oct 2024 13:44:21:000	1.58E+08
AEGCL	1C	SONAR_AS	SONARI CB 132Kv LINE TO LAKWA CLOSED	02 Oct 2024 14:20:18:000	02 Oct 2024 14:20:15:000	4.14E+08
AEGCL	1C	PAILA_AS	PAILAPOOL CB 132Kv LINE-1 TO JIRIB OPEN	02 Oct 2024 13:49:19:000	02 Oct 2024 14:21:35:000	1.28E+08
AEGCL	1C	PAILA_AS	PAILAPOOL CB 132Kv LINE-1 TO JIRIB BETWE	02 Oct 2024 13:21:40:000	02 Oct 2024 14:21:35:000	1.12E+08
AEGCL	1C	SONAR_AS	SONARI CB 132Kv LINE TO LAKWA INVALID	02 Oct 2024 14:22:23:000	02 Oct 2024 14:22:19:000	7.78E+08

Annexure 2: Disturbance recorder snips showing faults and digital signals

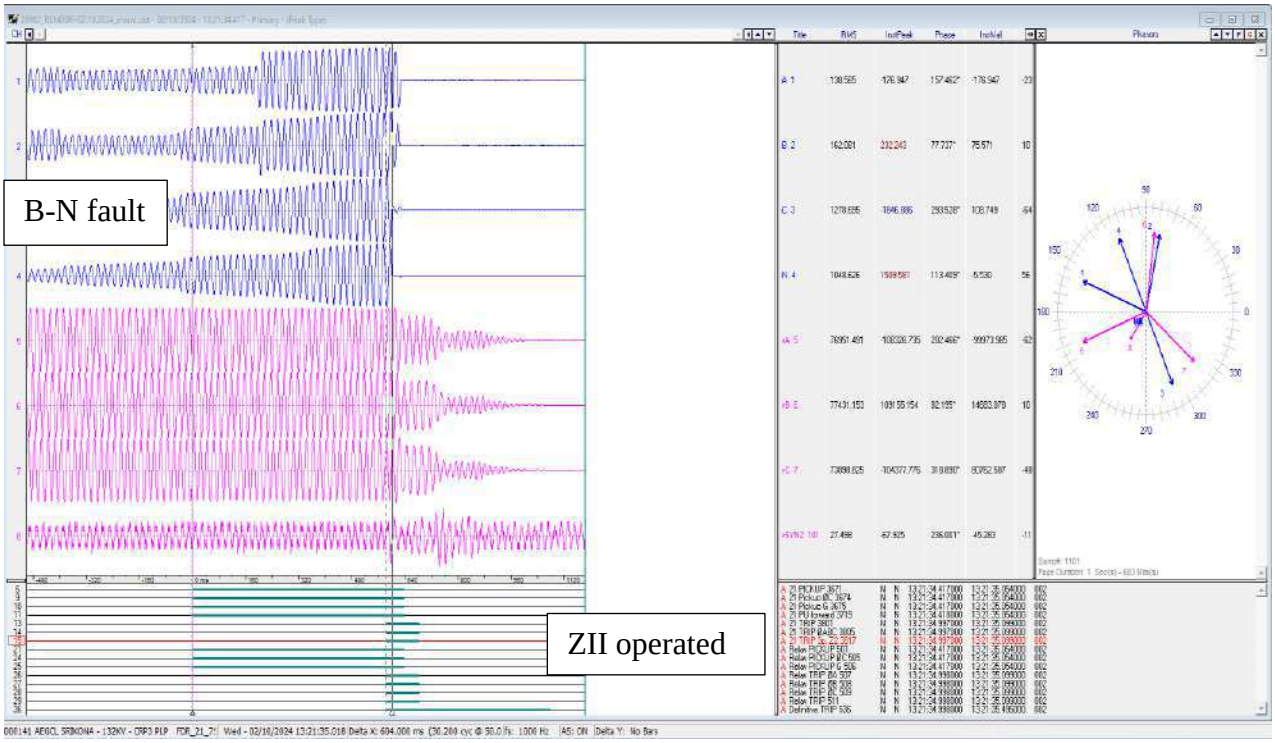
2.1. DR Snapshot of Jiribam(PG) for 132 kV Jiribam(PG)– Pailapool Line



2.2. DR Snapshot of Pailapool for 132 kV Jiribam(PG)– Pailapool Line



2.3. DR Snapshot of Srikona for 132 kV Srikona – Pailapool Line



ग्रिड-इंडिया GRID-INDIA
ग्रिड कंट्रोलर ऑफ इंडिया लिमिटेड
(भारत सरकार का उद्यम)
GRID CONTROLLER OF INDIA LIMITED
(A Government of India Enterprise)
[formerly Power System Operation Corporation Limited (POSOCO)]
उत्तर पूर्वी क्षेत्रीय भार प्रेषण केन्द्र / North Eastern Regional Load Despatch Centre
कार्यालय : लोवर, लापालांग, शिलांग -793006
Office : Lower Nongrah, Lapalang, Shillong- 793006
CIN : U40105DL2009GOI188682, Website : www.nerldc.in, E-mail : nerldc@grid-india.in, Tel.: 0364-2537470/427, Fax: 03642537486

Detailed Report of Grid Disturbance in Karong area of Manipur Power System of North Eastern Region

(To be submitted by RLDC/NLDC during Grid Disturbances/Grid Incidents/Near Miss Event as per IEGC section 37.2 (f))
(आई ई जी सी 37.2 (एफ) के अनुपालन में)

Date (दिनांक):18-10-2024

1. Event Summary (घटना का सारांश):

Karong area of Manipur Power System was connected with rest of NER Grid through 132kV Kohima-Karong line. 132kV Yurembam –Karong line was under outage condition since 16:35 Hrs of 26.09.2024.

At 02:32 Hrs of 04-10-2024, 132kV Kohima-Karong line tripped. Due to tripping of this element, Karong area of Manipur Power System was isolated from NER Grid and collapsed due to no source available in this area.

Power was extended to Karong area of Manipur Power System by charging 132kV Kohima-Karong line at 03:16 Hrs of 04.10.2024.

2. Time and Date of the Event (घटना का स मय और दिनांक): 02:32 Hrs of 04-10-2024

3. Event Category (ग्रिड घटना का प्रकार): GD-I

4. Location/Control Area (स्थान/नियंत्रण क्षेत्र): Karong area of Manipur Power System

5. Antecedent Conditions (पूर्ववर्ती स्थिति):

	Frequency in Hz	Regional Generation (MW)	Regional Demand (MW)
Pre-Event (घटना पूर्व)	49.96	3061	1812
Post Event (घटना के बाद)	49.96	3061	1805

Pre and post data of 1 minute before and after the event

Important Transmission Line/Unit if under outage (before the event))महत्वपूर्ण संचरण लाइने/ विधुत उत्पादन इकाइयां जो बंद है(	132kV Yurembam –Karong line was under outage condition since 26.09.2024
Weather Condition (मौसम स्थिति)	Normal

2. **Load and Generation loss (लोड और जेनरेशन हानि):** Load loss of 7 MW
3. **Duration of interruption (रुकावट की अवधि): 44 min**
4. **Network across the affected area (प्रभावित क्षेत्र का नक्शा):**

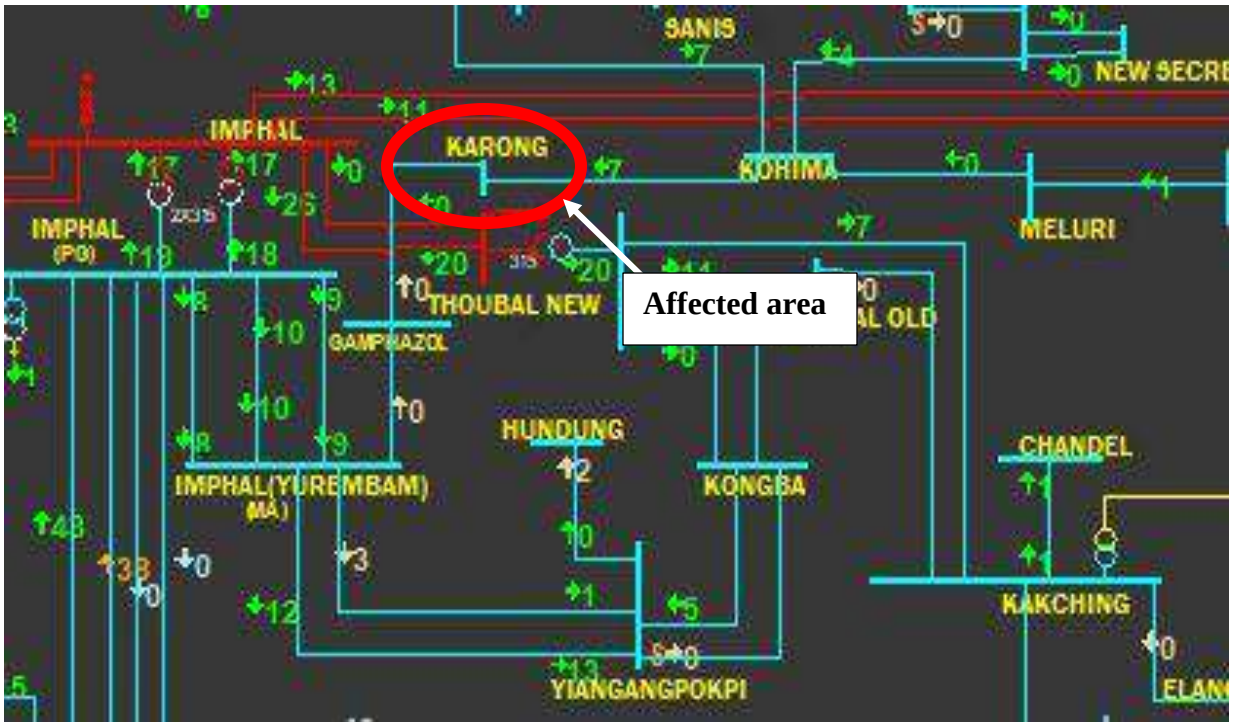


Figure 1: Network across the affected area

5. **Details of Equipment Failure (if any during the event) (उपकरण विफलता का विवरण): NIL**
6. **Major Elements Tripped (प्रमुख ट्रिपिंग):**

Sl. No.	नाम	Trip time (hh:mm:ss)	Restoration time	उप केंद्र 1 रिले संकेत	उप केंद्र 2 रिले संकेत
1	132kV Kohima-Karong line	02:32	03:16	DP, ZII, 35.30 km	No Tripping

7. **Event Analysis (Based on PMU, SCADA & DR) (घटना का विश्लेषण):**

   Proper analysis could not be done due to non-submission of DR/EL.

8. **Protection/Operational issues observed (सुरक्षा/परिचालन संबंधी समस्या): NA**
9. **Action Taken/Remedial Measures (सुधारात्मक उपाय): NIL**

10. Non-compliance observed (विनियमन का गैर-अनुपालन):

Sl.No.	Issues	Regulation Non-Compliance	Utilities
1.	**Flash Report received within 8hrs?**	IEGC section 37.2 (b)	**MSPCL**
2.	**Whether DR/EL provided within 24 Hours?**	1. IEGC section 37.2 (c) 2. CEA grid Standard 15.3	**MSPCL, DoP Nagaland**
3.	**Detailed Report received within 7 days?**	IEGC section 37.2 (e)	**MSPCL (submitted on 22.10.2024)**
4.	**DR Time Synchronization Issues**	IEGC section 17.3	-
5.	**Any other non-compliance**		-

11. Key Lessons Learnt (प्रमुख अधिगम बिंदु):

- Proper patrolling and maintenance related activities as per CEA regulations needs to be carried out.

Annexure 1: Sequence of Events as per SCADA

AREA	CATEGORY	LOCATION	TEXT	SYSTEM_TIME	FIELD_TIME	MS
AEGCL	1C	SAMAG_AS	SAMAGURI CB 220Kv LINE TO MARIA BETWEEN	04 Oct 2024 06:46:34:000	04 Oct 2008 02:16:12:000	9.15E+08
AEGCL	1C	SAMAG_AS	SAMAGURI CB 220Kv LINE TO MARIA CLOSED	04 Oct 2024 06:46:40:000	04 Oct 2008 02:16:12:000	9.21E+08
AEGCL	1C	SAMAG_AS	SAMAGURI CB 220Kv LINE TO MARIA BETWEEN	04 Oct 2024 06:46:47:000	04 Oct 2008 02:16:13:000	1.04E+08
NAGALD	1C	KOHIM_NA	KOHIMA CB 132Kv LINE-1 TO KARON INVALID	04 Oct 2024 02:32:38:000	04 Oct 2008 02:32:27:000	4.47E+08
NAGALD	1C	KOHIM_NA	KOHIMA CB 132Kv LINE-1 TO KARON CLOSED	04 Oct 2024 03:16:44:000	04 Oct 2008 03:16:37:000	9.02E+08
AEGCL	1C	DIPHU_AS	DIPHU CB 132/33 T2 (SEC) INVALID	04 Oct 2024 05:17:15:000	04 Oct 2008 05:15:49:000	3.07E+08
AEGCL	1C	DIPHU_AS	DIPHU CB 132/33 T1 (SEC) OPEN	04 Oct 2024 05:17:15:000	04 Oct 2008 05:15:54:000	7.67E+08
AEGCL	1C	SAMAG_AS	SAMAGURI CB 220Kv LINE TO MARIA CLOSED	04 Oct 2024 09:47:18:000	04 Oct 2008 05:17:11:000	2.93E+08
AEGCL	1C	SAMAG_AS	SAMAGURI CB 220Kv LINE TO MARIA BETWEEN	04 Oct 2024 09:47:24:000	04 Oct 2008 05:17:16:000	2.99E+08

ग्रिड-इंडिया GRID-INDIA
ग्रिड कंट्रोलर ऑफ इंडिया लिमिटेड
(भारत सरकार का उद्यम)
GRID CONTROLLER OF INDIA LIMITED
(A Government of India Enterprise)
[formerly Power System Operation Corporation Limited (POSOCO)]
उत्तर पूर्वी क्षेत्रीय भार प्रेषण केन्द्र / North Eastern Regional Load Despatch Centre
कार्यालय : लोवर, लापालांग, शिलांग -793006
Office : Lower Nongrah, Lapalang, Shillong- 793006
CIN : U40105DL2009GOI188682, Website : www.nerldc.in, E-mail : nerldc@grid-india.in, Tel.: 0364-2537470/427, Fax: 03642537486

Detailed Report of Grid Disturbance in Karong area of Manipur Power System of North Eastern Region

(To be submitted by RLDC/NLDC during Grid Disturbances/Grid Incidents/Near Miss Event as per IEGC section 37.2 (f))
(आई ई जी सी 37.2 (एफ) के अनुपालन में)

Date (दिनांक):18-10-2024

1. Event Summary (घटना का सारांश):

Karong area of Manipur Power System was connected with rest of NER Grid through 132 kV Kohima-Karong line and 132 kV Imphal(MA) –Karong line.

At 23:37 Hrs of 13-10-2024, 132 kV Kohima-Karong line and 132 kV Imphal(MA) –Karong line tripped. Due to tripping of these elements, Karong area of Manipur Power System was isolated from NER Grid and collapsed due to no source available in this area.

Power supply was extended to Karong area of Manipur Power System by charging 132 kV Imphal(MA) –Karong line at 00:07 Hrs of 14.10.2024. 132kV Kohima-Karong line is not yet restored as blast sound was heard near Karong SS in 132kV Karong - Kohima line.

2. Time and Date of the Event (घटना का स मय और दिनांक): 23:37 Hrs of 13-10-2024

3. Event Category (ग्रिड घटना का प्रकार): GD-I

4. Location/Control Area (स्थान/नियंत्रण क्षेत्र): Karong area of Manipur Power System

5. Antecedent Conditions (पूर्ववर्ती स्थिति):

	Frequency in Hz	Regional Generation (MW)	Regional Demand (MW)
Pre-Event (घटना पूर्व)	50.05	3026	1899
Post Event (घटना के बाद)	50.05	3027	1885

Pre and post data of 1 minute before and after the event

Important Transmission Line/Unit if under outage (before the event))महत्वपूर्ण संचरण लाइने/ विधुत उत्पादन इकाइयां जो बंद है(	NIL
Weather Condition (मौसम स्थिति)	Normal

2. **Load and Generation loss (लोड और जेनरेशन हानि):** Load loss of 7 MW and 0.0035 MU

3. **Duration of interruption (रुकावट की अवधि): 30 min**

4. **Network across the affected area (प्रभावित क्षेत्र का नक्शा):**

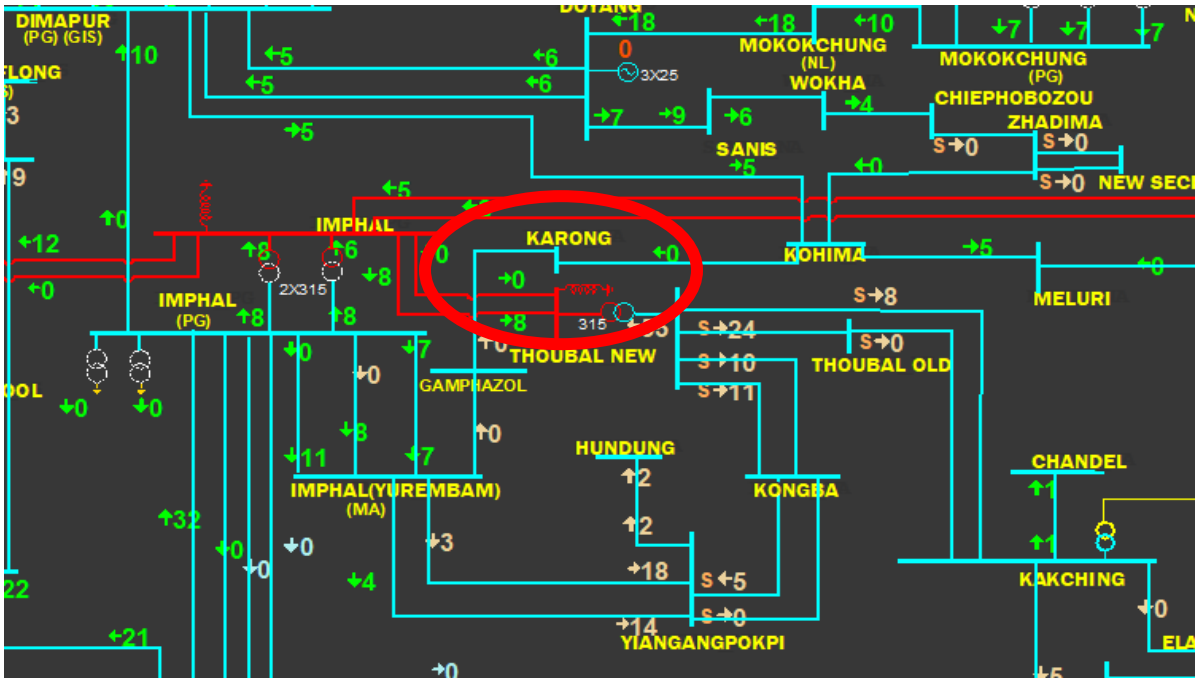


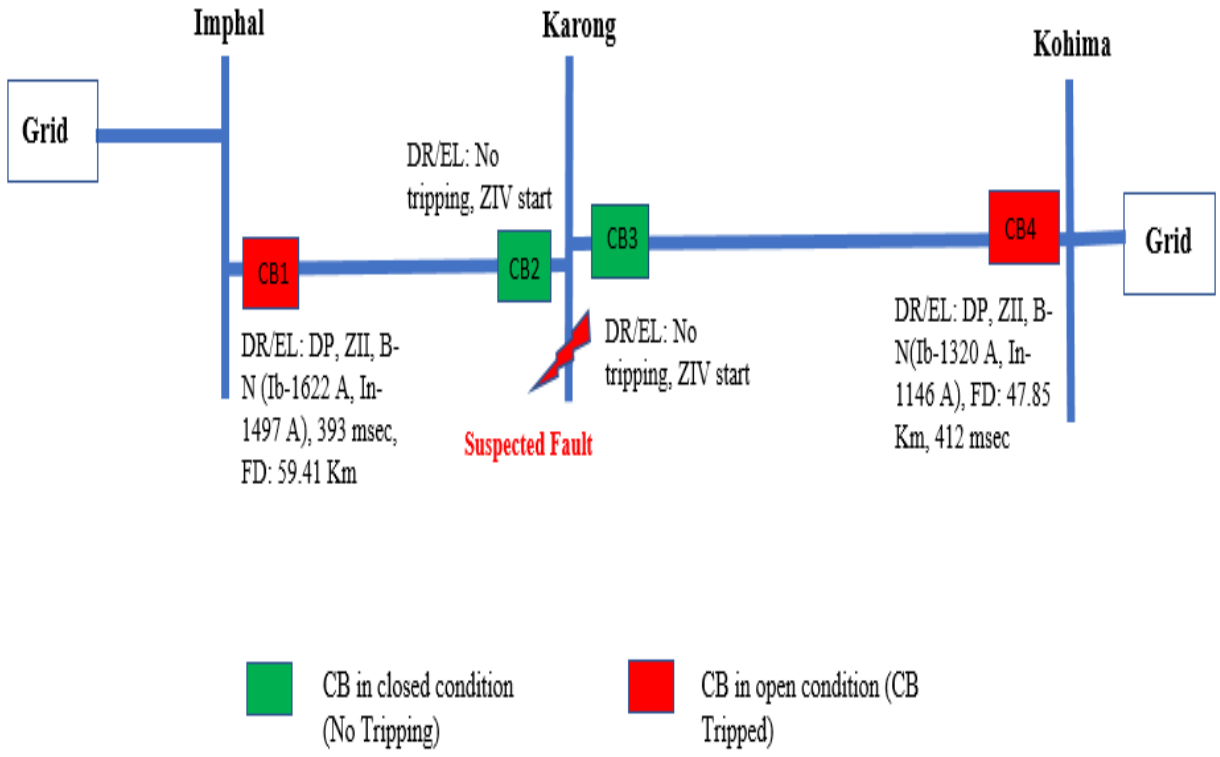
Figure 1: Network across the affected area

5. **Details of Equipment Failure (if any during the event) (उपकरण विफलता का विवरण): NIL**

6. **Major Elements Tripped (प्रमुख ट्रिपिंग):**

Sl. No.	नाम	Trip time (hh:mm:ss)	Restoration time	उप केंद्र 1 रिले संकेत	उप केंद्र 2 रिले संकेत
1	132kV Kohima-Karong line	23:37	-	DP, ZII, B-N, 47.85 Km	No tripping, ZIV pickup
2	132 kV Imphal(MA) –Karong line	23:37	00:07 Hrs of 14.10.24	DP, ZII, B-N, 59.41 Km	No tripping, ZIV pickup

7. **Event Analysis (Based on PMU, SCADA & DR) (घटना का विश्लेषण):**



Analysis based on DR:

Imphal(Yurembam): B-N fault (Ib-1.6 kA, In-1.4 kA) initiated at 23:34:52.884 Hrs and cleared within 393 msec on DP, ZII. DR time drift of 2 min

Kohima: B-N fault (Ib-1.3 kA, In-1.1 kA) initiated at 23:36:39.174 Hrs and cleared within 412 msec on operation of DP, ZII.

Karong: No tripping, ZIV pick up for both 132 kV Imphal-Karong line & 132 kV Karong-Kohima line.

Suspected fault is in 132 kV Karong Bus which was cleared by tripping of 132 kV Imphal-Karong line and 132 kV Karong-Kohima line from remote ends.

8. **Protection/Operational issues observed (सुरक्षा/परिचालन संबंधी समस्या): NIL**

9. **Action Taken/Remedial Measures (सुधारात्मक उपाय): NIL**

10. Non-compliance observed (विनियमन का गैर-अनुपालन):

Sl.No.	Issues	Regulation Non-Compliance	Utilities
1.	**Flash Report received within 8hrs?**	IEGC section 37.2 (b)	**MSPCL**
2.	**Whether DR/EL provided within 24 Hours?**	1. IEGC section 37.2 (c) 2. CEA grid Standard 15.3	**MSPCL, DoP Nagaland**
3.	**Detailed Report received within 7 days?**	IEGC section 37.2 (e)	**MSPCL**
4.	**DR Time Synchronization Issues**	IEGC section 17.3	**Time drift of 2 min at Imphal end for 132 kV Imphal-Karong line**
5.	**Any other non-compliance**		-

11. Key Lessons Learnt (प्रमुख अधिगम बिंदु):

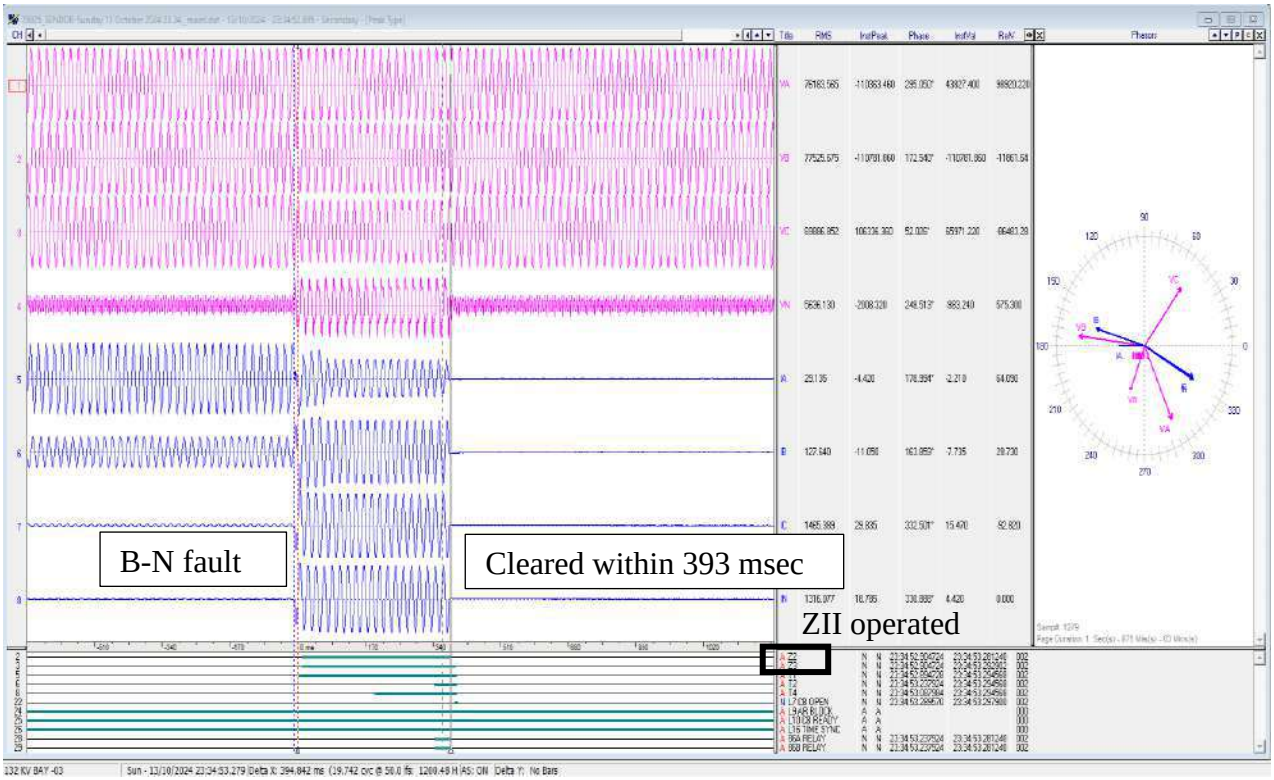
- Proper patrolling and maintenance related activities as per CEA regulations needs to be carried out.

Annexure 1: Sequence of Events as per SCADA

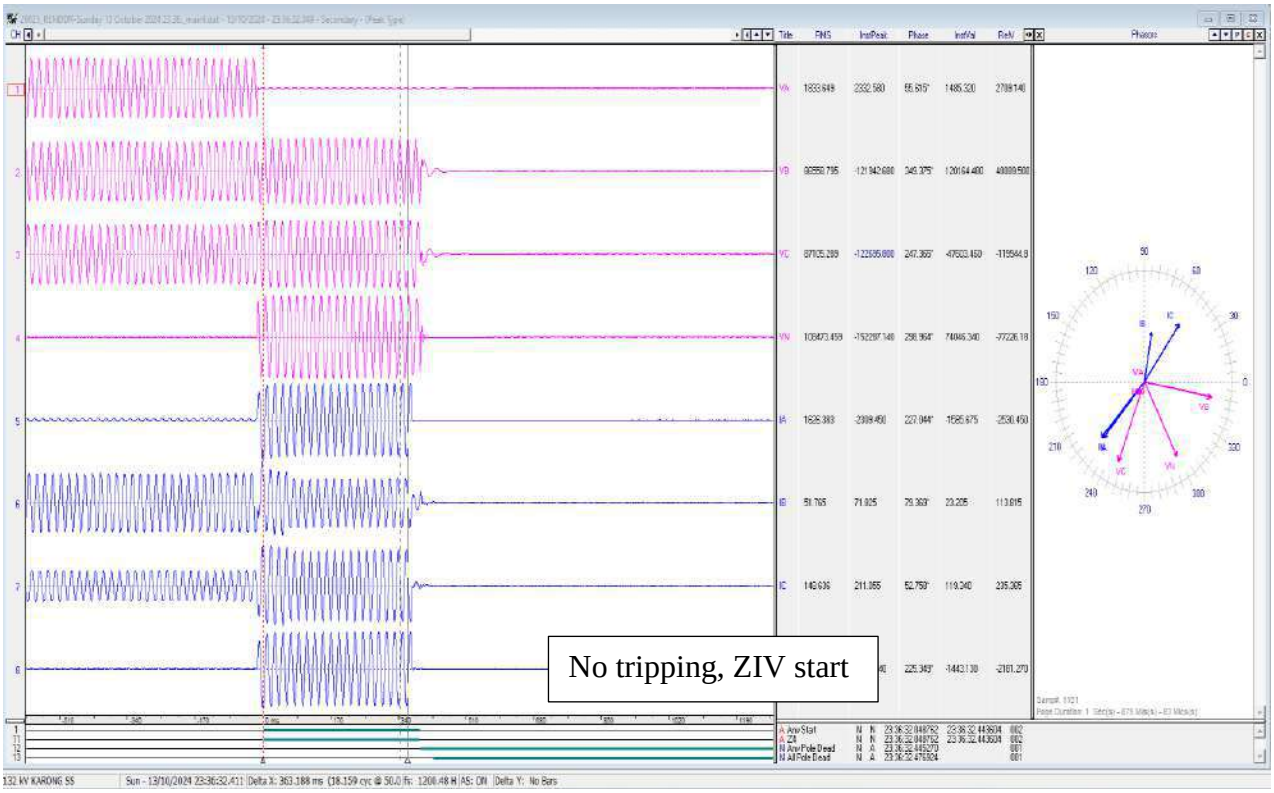
AREA	CATEGORY	LOCATION	TEXT	SYSTEM_TIME	FIELD_TIME	MS
NAGALD	1C	KOHIM_NA	KOHIMA CB 33Kv LOAD CLOSED	13 Oct 2024 20:27:01:000	13 Oct 2008 20:26:50:000	5.98E+08
NAGALD	1C	KOHIM_NA	KOHIMA CB 33Kv LOAD OPEN	13 Oct 2024 20:44:22:000	13 Oct 2008 20:44:05:000	5.3E+08
NAGALD	1C	KOHIM_NA	KOHIMA CB 33Kv LOAD CLOSED	13 Oct 2024 20:46:40:000	13 Oct 2008 20:46:16:000	1.76E+08
NAGALD	1C	KOHIM_NA	KOHIMA CB 132Kv LINE-1 TO KARON INVALID	13 Oct 2024 23:37:21:000	13 Oct 2008 23:37:03:000	1.57E+08
AEGCL	1C	KOPIL_NO	KOPILI CB 11 KV UNIT (H01) OPEN	13 Oct 2024 00:01:12:000	13 Oct 2024 00:01:11:000	0
ARUNCH	1C	ZIRO__PG	ZIRO CB 132Kv LOAD-1 YACHU OPEN	13 Oct 2024 00:03:56:000	13 Oct 2024 00:03:48:000	4.04E+08
AEGCL	1C	SONAR_AS	SONARI CB 132Kv LINE TO LAKWA CLOSED	13 Oct 2024 23:35:07:000	13 Oct 2024 23:34:36:000	9.52E+08
MSPCL	1C	YIANG_MA	YIANGANGPOKPI CB 132Kv LINE TO HUNDU BETWEEN	13 Oct 2024 23:36:58:000	13 Oct 2024 23:36:28:000	2.68E+08
MSPCL	1C	IMPHA_MA	IMPHAL(YUREMBAM) CB 132Kv LINE-1 TO KARON OPEN	13 Oct 2024 23:37:21:000	13 Oct 2024 23:37:04:000	5.18E+08
NAGALD	1C	ZHADI_NA	ZHADIMA CB 132Kv LINE TO KOHIM OPEN	13 Oct 2024 23:37:21:000	13 Oct 2024 23:37:07:000	7.22E+08
AEGCL	1C	SONAR_AS	SONARI CB 132Kv LINE TO LAKWA INVALID	13 Oct 2024 23:38:00:000	13 Oct 2024 23:37:43:000	8.64E+08
AEGCL	1C	SONAR_AS	SONARI CB 132Kv LINE TO LAKWA CLOSED	13 Oct 2024 23:38:17:000	13 Oct 2024 23:38:08:000	2.14E+08

Annexure 2: Disturbance recorder snips showing faults and digital signals

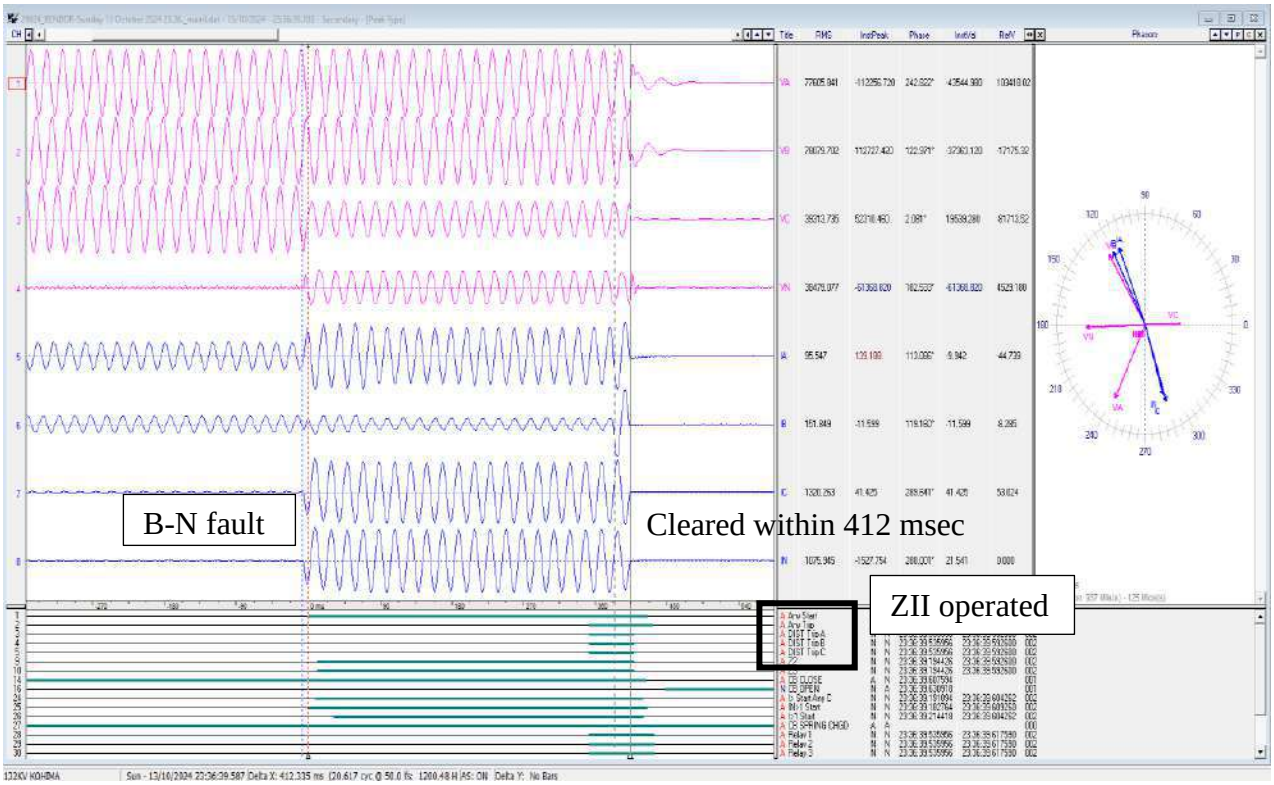
2.1. DR Snapshot of Imphal for 132 kV Imphal – Karong Line



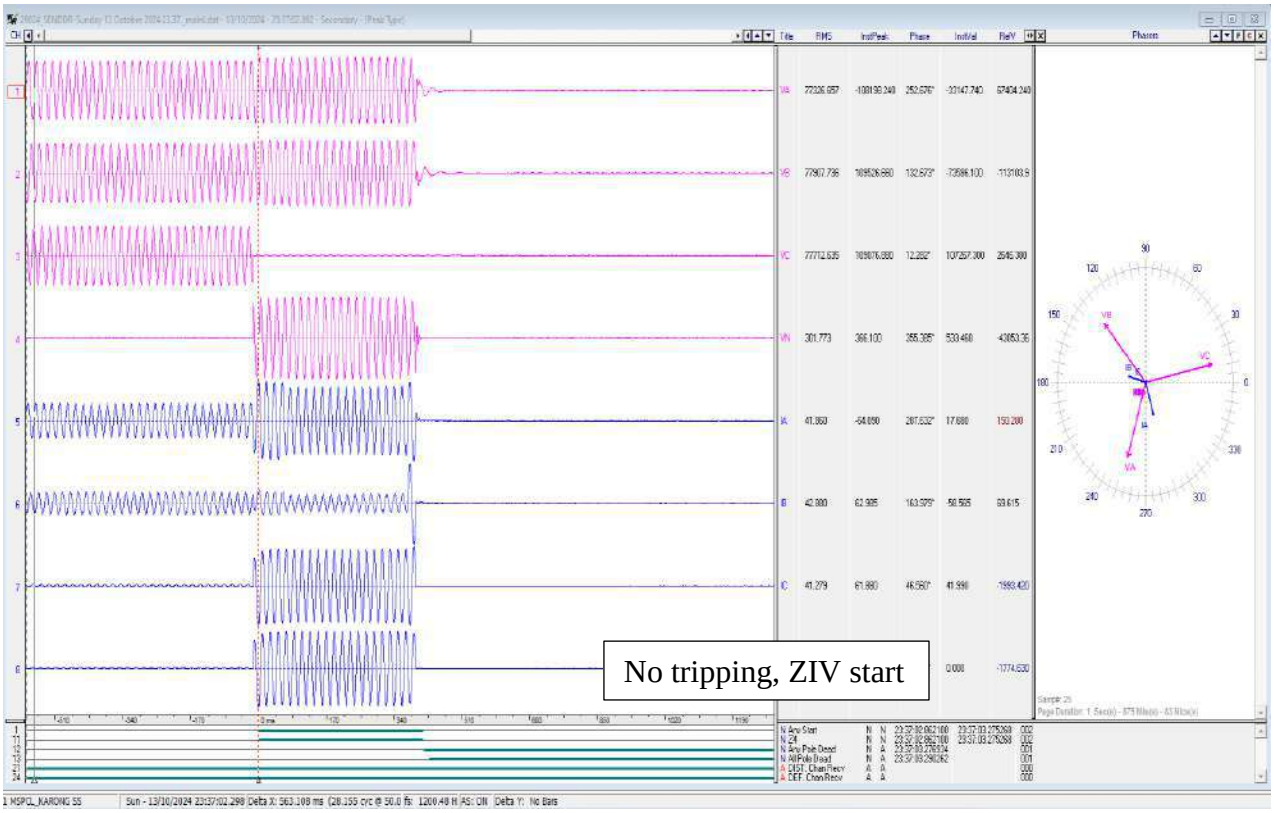
2.2. DR Snapshot of Karong for 132 kV Imphal – Karong Line



2.3. DR Snapshot of Kohima for 132 kV Kohima – Karong Line



2.4. DR Snapshot of Karong for 132 kV Kohima – Karong Line



ग्रिड-इंडिया GRID-INDIA
ग्रिड कंट्रोलर ऑफ इंडिया लिमिटेड
(भारत सरकार का उद्यम)
GRID CONTROLLER OF INDIA LIMITED
(A Government of India Enterprise)
[formerly Power System Operation Corporation Limited (POSOCO)]
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कार्यालय : लोवर, लापालांग, शिलांग -793006
Office : Lower Nongrah, Lapalang, Shillong- 793006
CIN : U40105DL2009GOI188682, Website : www.nerldc.in, E-mail : nerldc@grid-india.in, Tel.: 0364-2537470/427, Fax: 03642537486

Detailed Report of Grid Disturbance in Along, Basar and Pasighat area of Arunachal Pradesh Power System of North Eastern Region

(To be submitted by RLDC/NLDC during Grid Disturbances/Grid Incidents/Near Miss Event as per IEGC section 37.2 (f))
(आई ई जी सी 37.2 (एफ) के अनुपालन में)

Date (दिनांक):18-10-2024

1. Event Summary (घटना का सारांश):

Pasighat, Along and Basar areas of Arunachal Pradesh Power System were connected with rest of NER Grid through 132 kV Roing-Pasighat line only. Prior to the event, 132 kV Daporijo-Basar line was under planned shutdown.

At 14:44 Hrs of 17-10-2024, 132 kV Roing-Pasighat line tripped. Due to tripping of this element, Basar, Along and Pasighat areas of Arunachal Pradesh Power System were isolated from NER Grid and collapsed due to no source available in these areas.

Power supply was extended to Pasighat area by charging 132 kV Roing –Pasighat line at 15:23 Hrs of 17.10.2024. 132 kV Pasighat-Along was charged at 15:39 and 132 kV Along-Basar at 16:23 Hrs of 17.10.2024.

2. Time and Date of the Event (घटना का स मय और दिनांक): 14:44 Hrs of 17-10-2024

3. Event Category (ग्रिड घटना का प्रकार): GD-I

4. Location/Control Area (स्थान/नियंत्रण क्षेत्र): Basar, Along and Pasighat area of Arunachal Pradesh Power System

5. Antecedent Conditions (पूर्ववर्ती स्थिति):

	Frequency in Hz	Regional Generation (MW)	Regional Demand (MW)
Pre-Event (घटना पूर्व)	49.88	2355	2375
Post Event (घटना के बाद)	49.88	2386	2387

Pre and post data of 1 minute before and after the event

Important Transmission Line/Unit if under outage (before the event))महत्वपूर्ण संचरण लाइने/ विधुत उत्पादन इकाइयां जो बंद है(	132 kV Daporijo-Basar line was under planned shutdown
Weather Condition (मौसम स्थिति)	Normal

2. **Load and Generation loss (लोड और जेनरेशन हानि):** Load loss of 8.3 MW (Pasighat: 4.1 MW, Along: 2.9 MW, Basar: 1.3 MW)
3. **Duration of interruption (रुकावट की अवधि): 1 Hr 40 min**
4. **Network across the affected area (प्रभावित क्षेत्र का नक्शा):**

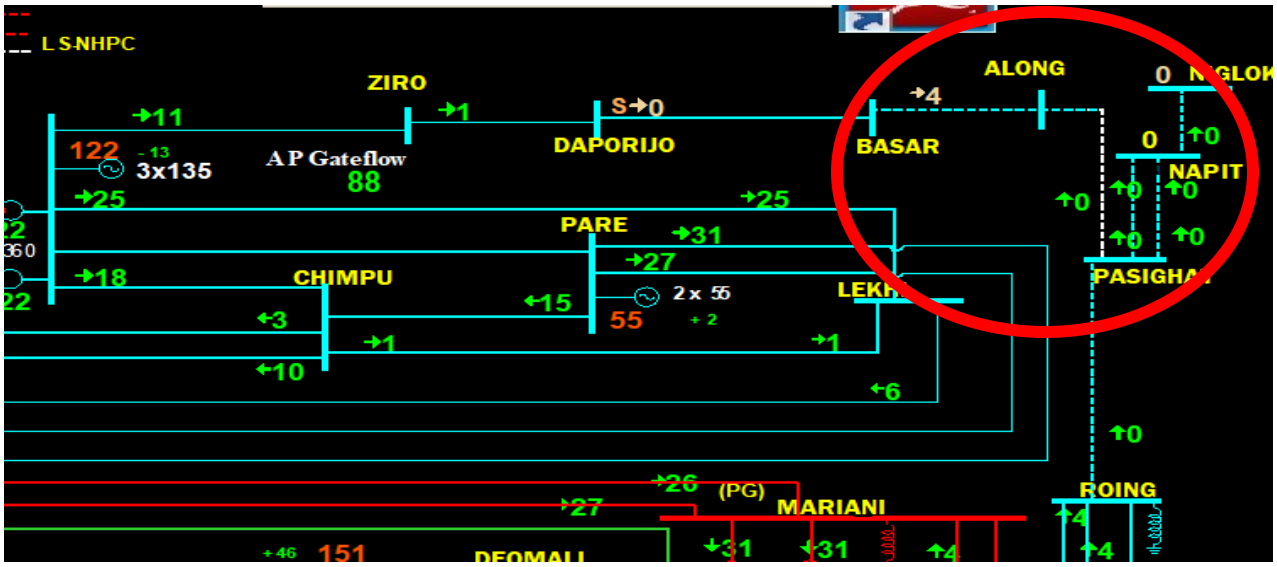


Figure 1: Network across the affected area

5. **Details of Equipment Failure (if any during the event) (उपकरण विफलता का विवरण): NIL**
6. **Major Elements Tripped (प्रमुख ट्रिपिंग):**

Sl. No.	नाम	Trip time (hh:mm:ss)	Restoration time	उप केंद्र 1 रिले संकेत	उप केंद्र 2 रिले संकेत
1	132 kV Roing-Pasighat line	14:44	15:23	B-N, E/F	No tripping

7. **Event Analysis (Based on PMU, SCADA & DR) (घटना का विश्लेषण):**

As per DR analysis of 132 kV Roing-Pasighat line, B-N fault (Ib-145 A, In-103 A) initiated. IN>1 start and 86 operated at 14:44:33.094 Hrs from Roing end. There was no tripping from Pasighat end.

As per event logger, DEF protection operated at Roing end.

8. **Protection/Operational issues observed (सुरक्षा/परिचालन संबंधी समस्या):**

9. **Action Taken/Remedial Measures (सुधारात्मक उपाय): NIL**

10. **Non-compliance observed (विनियमन का गैर-अनुपालन):**

Sl.No.	Issues	Regulation Non-Compliance	Utilities
1.	**Flash Report received within 8hrs?**	IEGC section 37.2 (b)	**DoP AP**
2.	**Whether DR/EL provided within 24 Hours?**	1. IEGC section 37.2 (c) 2. CEA grid Standard 15.3	**No violation**
3.	**Detailed Report received within 7 days?**	IEGC section 37.2 (e)	**DoP AP**
4.	**DR Time Synchronization Issues**	IEGC section 17.3	**No violation**
5.	**Any other non-compliance**		-

11. **Key Lessons Learnt (प्रमुख अधिगम बिंदु):**

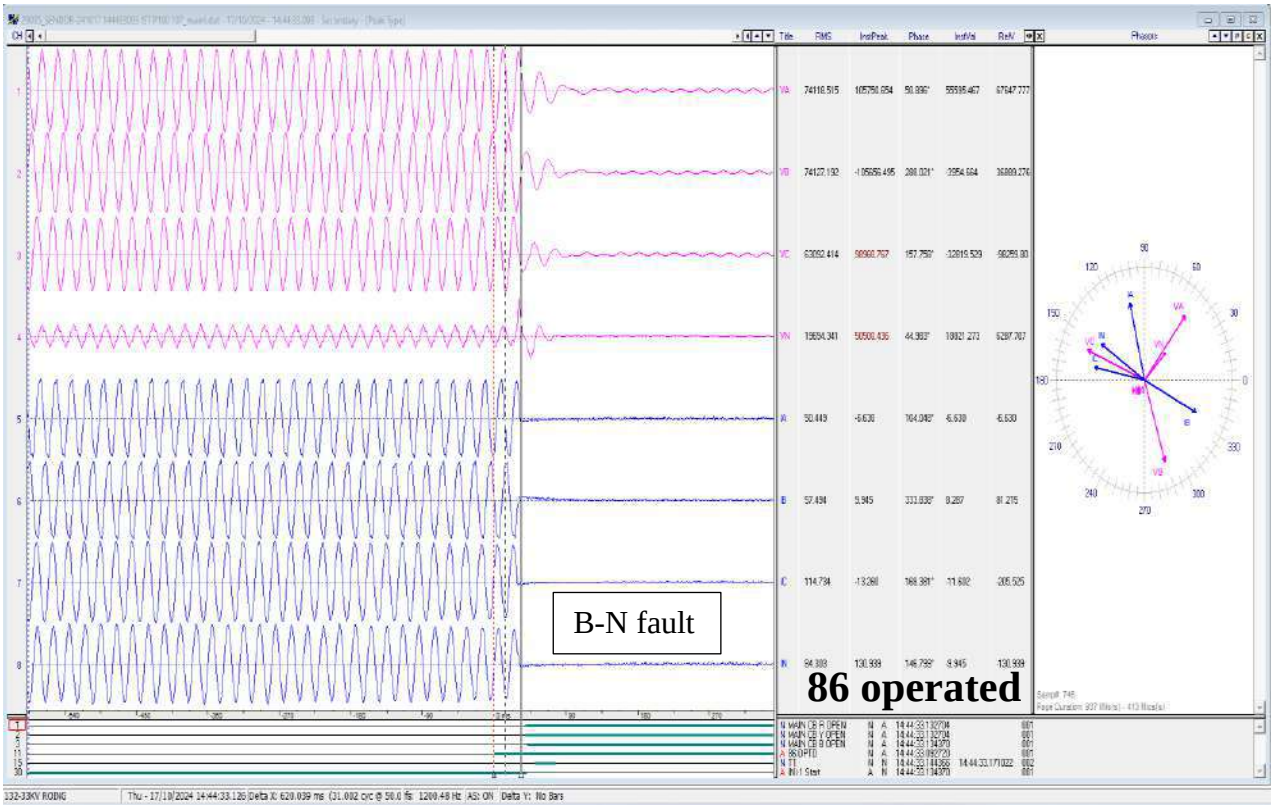
- Proper patrolling and maintenance related activities as per CEA regulations needs to be carried out.

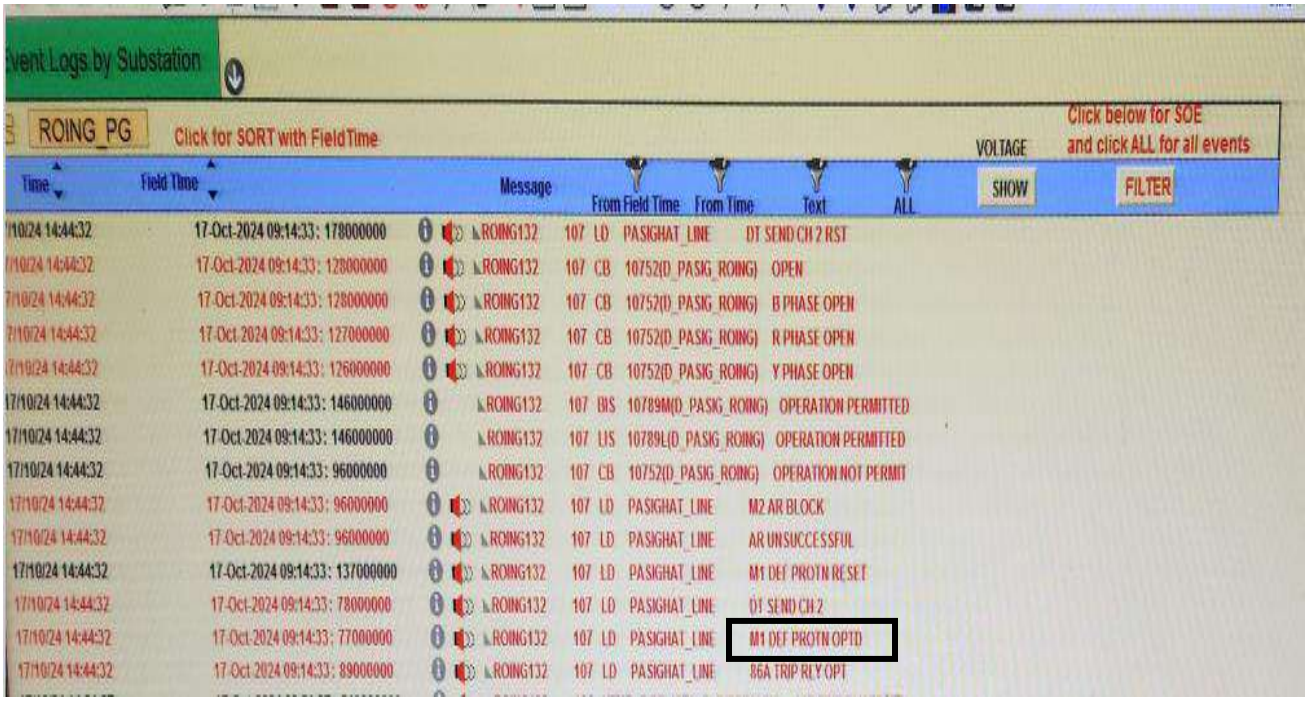
Annexure 1: Sequence of Events as per SCADA

AREA	CATEGORY	LOCATION	TEXT	SYSTEM_TIME	FIELD_TIME	MS
MSPCL	1C	IMPHA_PG	IMPHAL CB TIE CB CLOSED	25 Sep 2024 16:19:13:000	23 Sep 2024 21:09:12:000	59000000
ARUNCH	1C	ROING_PG	ROING CB 132Kv LINE-1 TO PASIG OPEN	25 Sep 2024 01:17:03:000	24 Sep 2024 12:46:59:000	6.58E+08
ARUNCH	1C	ROING_PG	ROING CB 132Kv LINE-1 TO PASIG CLOSED	25 Sep 2024 01:56:09:000	24 Sep 2024 13:26:06:000	8.52E+08
ARUNCH	1C	ROING_PG	ROING CB 132Kv LINE-1 TO PASIG OPEN	25 Sep 2024 03:47:37:000	24 Sep 2024 15:17:32:000	4.26E+08
ARUNCH	1C	ROING_PG	ROING CB 132Kv LINE-1 TO PASIG CLOSED	25 Sep 2024 03:47:39:000	24 Sep 2024 15:17:34:000	31000000
ARUNCH	1C	ROING_PG	ROING CB 132Kv LINE-1 TO PASIG OPEN	25 Sep 2024 03:47:41:000	24 Sep 2024 15:17:34:000	4.87E+08
ARUNCH	1C	ROING_PG	ROING CB 132Kv LINE-1 TO PASIG CLOSED	25 Sep 2024 04:32:05:000	24 Sep 2024 16:02:03:000	1.57E+08
AEGCL	1C	SISHU_AS	SISHUGRAM CB 33 KV CP 2 1 CB CLOSED	25 Sep 2024 07:52:04:000	24 Sep 2024 17:26:22:000	2.39E+08
ARUNCH	1C	ROING_PG	ROING CB REACTOR D_R1_BR CB OPEN	25 Sep 2024 11:13:24:000	24 Sep 2024 22:43:22:000	2.38E+08
ARUNCH	1C	RANGA_NO	PANYOR CB 11 KV UNIT (H02) OPEN	25 Sep 2024 00:01:29:000	25 Sep 2024 00:01:28:000	3.62E+08

Annexure 2: Disturbance recorder snips showing faults and digital signals

2.1. DR Snapshot of Roing for 132 kV Roing-Pasighat Line





ग्रिड-इंडिया GRID-INDIA
ग्रिड कंट्रोलर ऑफ इंडिया लिमिटेड
(भारत सरकार का उद्यम)
GRID CONTROLLER OF INDIA LIMITED
(A Government of India Enterprise)
[formerly Power System Operation Corporation Limited (POSOCO)]
उत्तर पूर्वी क्षेत्रीय भार प्रेषण केन्द्र / North Eastern Regional Load Despatch Centre
कार्यालय : लोवर, लापालांग, शिलांग -793006
Office : Lower Nongrah, Lapalang, Shillong- 793006
CIN : U40105DL2009GOI188682, Website : www.nerldc.in, E-mail : nerldc@grid-india.in, Tel.: 0364-2537470/427, Fax: 03642537486

Detailed Report of Grid Disturbance in Rengpang area in Manipur of North Eastern Region

(To be submitted by RLDC/NLDC during Grid Disturbances/Grid Incidents/Near Miss Event as per IEGC section 37.2 (f))

Date (दिनांक): 03-10-2024

1. Event Summary (घटना का सारांश):

Rengpang area of Manipur Power System was connected with rest of NER Grid through 132 kV Loktak – Rengpang line. 132 kV Jiribam -Rengpang line was under outage since 18:18 Hrs of 17.11.2023.

At 10:28 Hrs of 19-10-2024, 132 kV Loktak - Rengpang line tripped. Due to tripping of this element, Rengpang area of Manipur Power System was isolated from NER Grid.

Power supply was extended to Rengpang area of Manipur Power System by charging 132 kV Loktak – Rengpang line at 10:56 Hrs on 19-10-2024.

2. Time and Date of the Event (घटना का स मय और दिनांक): 10:28 Hrs of 19-10-2024

3. Event Category (ग्रिड घटना का प्रकार): GD-I

4. Location/Control Area (स्थान/नियंत्रण क्षेत्र): Rengpang area of Manipur Power System.

5. Antecedent Conditions (पूर्ववर्ती स्थिति):

	Frequency in Hz	Regional Generation (MW)	Regional Demand (MW)
Pre-Event (घटना पूर्व)	50.07	2247	2096
Post Event (घटना के बाद)	50.07	2248	2105

Pre and post data of 1 minute before and after the event

Important Transmission Line/Unit if under outage (before the even))महत्वपूर्ण संचरण लाइने/ विधुत उत्पादन इकाइयां जो बंद है(	132 kV Jiribam-Rengpang line was under outage since 18:18 Hrs of 17.11.2023.
Weather Condition (मौसम स्थिति)	Normal

2. **Load and Generation loss (लोड और जेनरेशन हानि):** Load loss of 1 MW.

3. **Duration of interruption (रुकावट की अवधि): 28 min**

4. **Network across the affected area (प्रभावित क्षेत्र का नक्शा):**

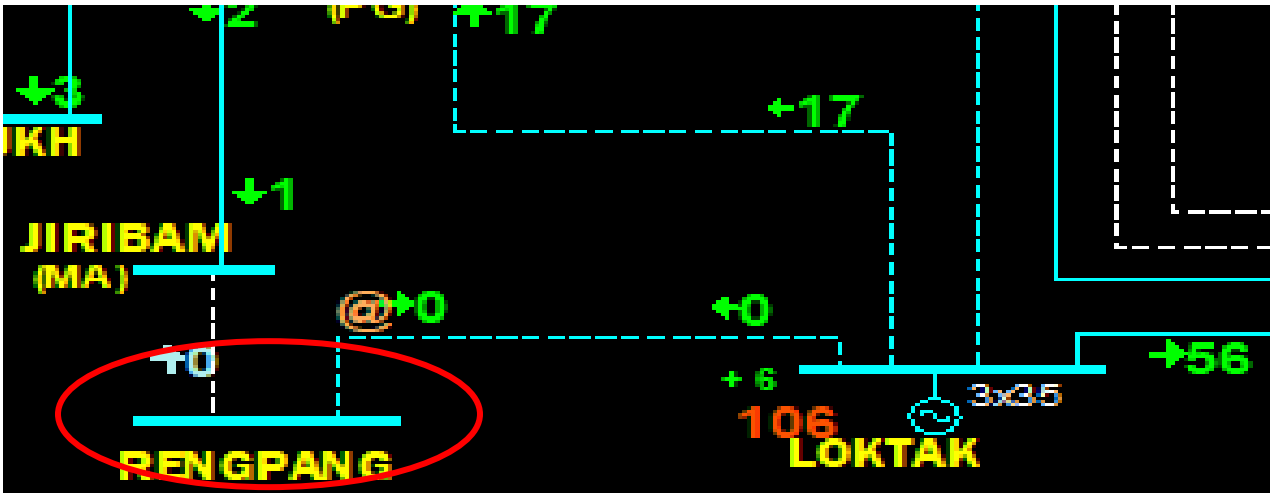


Figure: Network across the affected area

5. **Details of Equipment Failure (if any during the event) (उपकरण विफलता का विवरण): NIL**

6. **Major Elements Tripped (प्रमुख ट्रिपिंग):**

Sl. No.	नाम	Trip time (hh:mm:ss)	Restoration time	उप केंद्र 1 रिले संकेत	उप केंद्र 2 रिले संकेत
1	132 kV Loktak-Rengpang Line	10:28	10:56	DP, ZI, B-N, FD: 32.59 Km	No tripping(radial)

7. **Event Analysis (Based on PMU, SCADA & DR) (घटना का विश्लेषण):**

As per EL of Loktak end, B-N (Ib-1.2 kA) fault in 132 kV Loktak-Rengpang line initiated at 10:28:15.213 Hrs and cleared within 73 msec on operation of DP, ZI from Loktak end. There was no tripping from Rengpang end.

8. **Protection/Operational issues observed (सुरक्षा/परिचालन संबंधी समस्या): NIL**

9. **Action Taken/Remedial Measures (सुधारात्मक उपाय):**

- Jungle clearance was done by MSPCL.

10. Non-compliance observed (विनियमन का गैर-अनुपालन):

Sl.No.	Issues	Regulation Non-Compliance	Utilities
1.	**Flash Report received within 8hrs?**	IEGC section 37.2 (b)	**MSPCL**
2.	**Whether DR/EL provided within 24 Hours?**	1. IEGC section 37.2 (c) 2. CEA grid Standard 15.3	**NHPC, MSPCL**
3.	**Detailed Report received within 7 days?**	IEGC section 37.2 (e)	**No violation**
4.	**DR Time Synchronization Issues**	IEGC section 17.3	-
5.	**Any other non-compliance**		-

11. Key Lessons Learnt (प्रमुख अधिगम बिंदु):

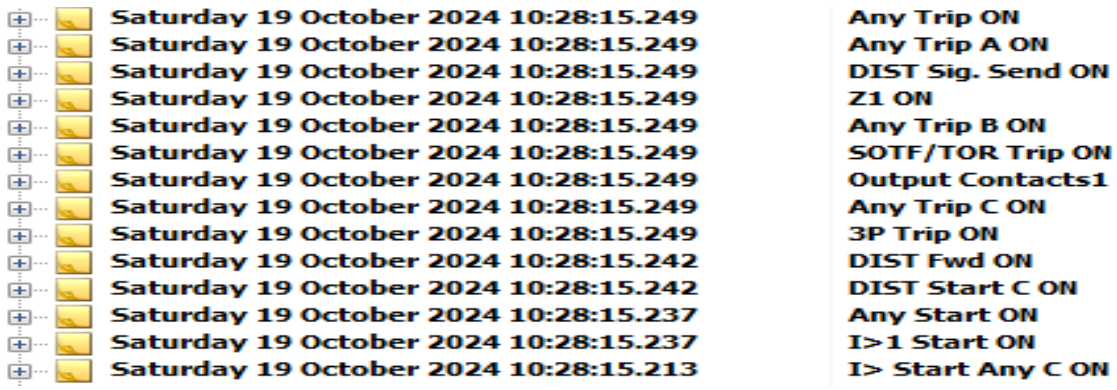
- Regular patrolling and maintenance related activities needs to be carried out as per various CEA/CERC regulations.

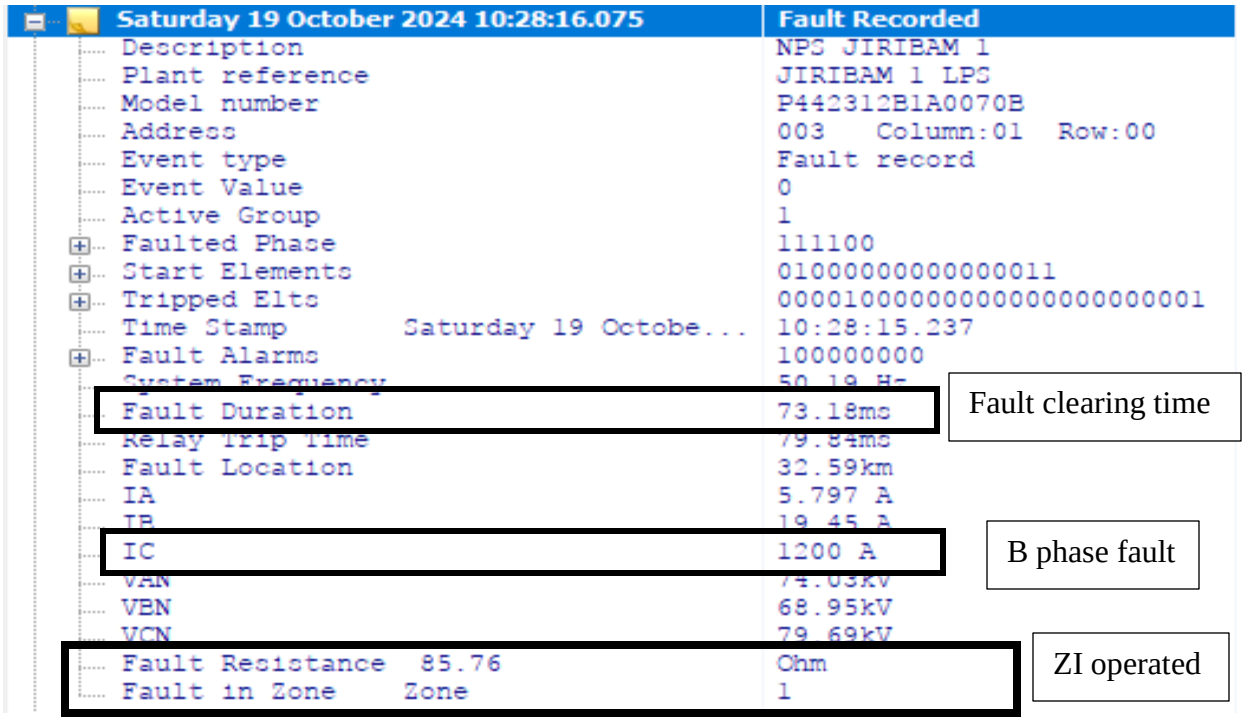
Annexure 1: SOE

AREA	CATEGORY	LOCATION	TEXT	SYSTEM_TIME	FIELD_TIME	MS
MEECL	1C	KILLI_ME	KILLING CB 132Kv LINE-1 TO EPIP1 OPEN	19 Oct 2024 00:50:55:000	19 Oct 2024 00:50:51:000	198000000
MEECL	1C	KILLI_ME	KILLING CB 132Kv LINE-1 TO EPIP1 CLOSED	19 Oct 2024 00:51:02:000	19 Oct 2024 00:51:00:000	263000000
MSPCL	1C	LOKTA_NH	LOKTAK CB 132Kv LINE TO RENGP OPEN	19 Oct 2024 10:28:17:000	19 Oct 2024 00:58:56:000	622000000
MEECL	1C	LESKA_ME	LESKA CB 132 KV UNIT (H03) OPEN	19 Oct 2024 01:03:31:000	19 Oct 2024 01:03:25:000	356000000
NAGALD	1C	NWKOH_KT	NEW KOHIMA(KMTL) CB 405 TIE CB CLOSED	19 Oct 2024 01:17:43:000	19 Oct 2024 01:17:42:000	717000000
MSPCL	1C	LOKTA_NH	LOKTAK CB 132Kv LINE TO RENGP CLOSED	19 Oct 2024 10:56:01:000	19 Oct 2024 01:26:41:000	307000000
MEECL	1C	KILLI_ME	KILLING CB 132Kv LINE-1 TO EPIP1 OPEN	19 Oct 2024 01:31:33:000	19 Oct 2024 01:31:22:000	14000000
MEECL	1C	KILLI_ME	KILLING CB 132Kv LINE-1 TO EPIP1 CLOSED	19 Oct 2024 01:31:40:000	19 Oct 2024 01:31:35:000	663000000

Annexure 2: DR/EL snapshot

2.1 EL of Loktak end of 132 kV Loktak - Rengpang line




Saturday 19 October 2024 10:28:16.075
Fault Recorded
Description
NPS JIRIBAM 1
Plant reference
JIRIBAM 1 LPS
Model number
P442312B1A0070B
Address
003 Column:01 Row:00
Event type
Fault record
Event Value
0
Active Group
1
Faulted Phase
111100
Start Elements
0100000000000011
Tripped Elts
00001000000000000000000001
Time Stamp Saturday 19 Octobe...
10:28:15.237
Fault Alarms
100000000
Fault Duration
73.18ms
Relay Trip Time
79.84ms
Fault Location
32.59km
IA
5.797 A
IB
19.45 A
IC
1200 A
VAN
74.03kV
VBN
68.95kV
VCN
79.69kV
Fault Resistance 85.76
Ohm
Fault in Zone Zone
1
Fault clearing time
B phase fault
ZI operated

ग्रिड-इंडिया GRID-INDIA
ग्रिड कंट्रोलर ऑफ इंडिया लिमिटेड
(भारत सरकार का उद्यम)
GRID CONTROLLER OF INDIA LIMITED
(A Government of India Enterprise)
[formerly Power System Operation Corporation Limited (POSOCO)]
उत्तर पूर्वी क्षेत्रीय भार प्रेषण केन्द्र / North Eastern Regional Load Despatch Centre
कार्यालय : लोवर, लापालांग, शिलांग -793006
Office : Lower Nongrah, Lapalang, Shillong- 793006
CIN : U40105DL2009GOI188682, Website : www.nerldc.in, E-mail : nerldc@grid-india.in, Tel.: 0364-2537470/427, Fax: 03642537486

Detailed Report of Grid Disturbance in 220 kV Behiating S/S & Dibrugarh area of Assam Power System of North Eastern Region

(To be submitted by RLDC/NLDC during Grid Disturbances/Grid Incidents/Near Miss Event as per IEGC section 37.2 (f))
(आई ई जी सी 37.2 (एफ) के अनुपालन में)

Date (दिनांक):07-11-2024

1. Event Summary (घटना का सारांश):

Dibrugarh area of Assam Power System was connected with rest of NER Power system through 132kV Behiating- Dibrugarh line. Prior to the event, 132 kV Tinsukia-Dibrugarh was under S/D for corridor cleaning. 220 kV Behiating S/S was connected to rest of grid through 220 kV Behiating-Tinsukia D/C lines & 2x100 MVA, 220/132 kV ICTs at Behiating.

At 09:05 Hrs of 28-10-2024, 132 kV Behiating- Dibrugarh, 220 kV Behiating-Tinsukia D/C lines & 2x100 MVA 220/132 kV ICTs at Behiating tripped. Due to tripping of these elements, 220 kV Behiating S/S and Dibrugarh area of Assam power system got separated from NER grid due to no source available in these areas.

Power supply was extended to Dibrugarh area by charging 132 kV Behiating- Dibrugarh line at 09:41 Hrs of 28-10-2024.

2. Time and Date of the Event (घटना का स मय और दिनांक): 09:05 Hrs of 28-10-2024

3. Event Category (ग्रिड घटना का प्रकार): GD-I

4. Location/Control Area (स्थान/नियंत्रण क्षेत्र): Dibrugarh area of Assam Power System

5. Antecedent Conditions (पूर्ववर्ती स्थिति):

	Frequency in Hz	Regional Generation (MW)	Regional Demand (MW)
Pre-Event (घटना पूर्व)	49.96	2101	2135
Post Event (घटना के बाद)	49.96	2101	2115

Pre and post data of 1 minute before and after the event

Important Transmission Line/Unit if under outage (before the event))महत्वपूर्ण संचरण लाइने/ विधुत उत्पादन इकाइयां जो बंद है(	132kV Tinsukia-Dibrugarh was under S/D for corridor cleaning
Weather Condition (मौसम स्थिति)	Normal

2. **Load and Generation loss (लोड और जेनरेशन हानि):** Load loss of 20 MW
3. **Duration of interruption (रुकावट की अवधि): 36 min**
4. **Network across the affected area (प्रभावित क्षेत्र का नक्शा):**

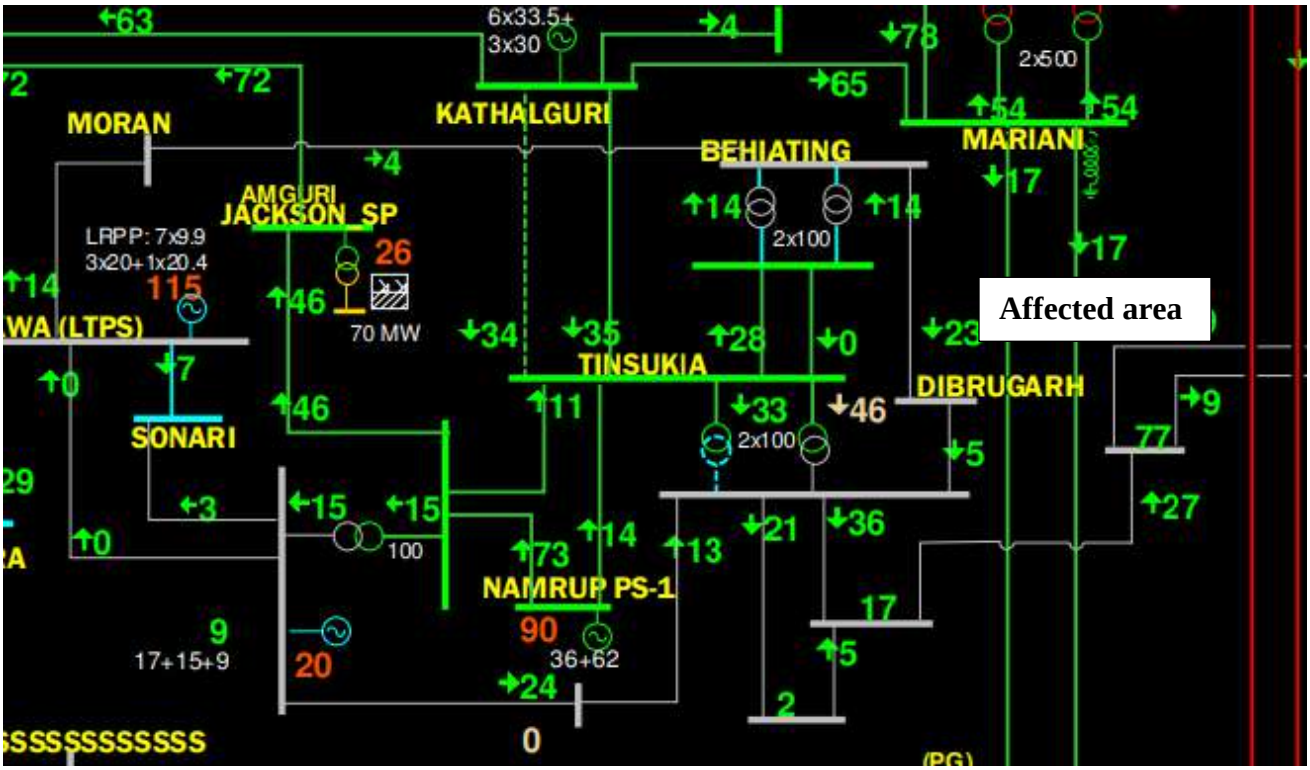


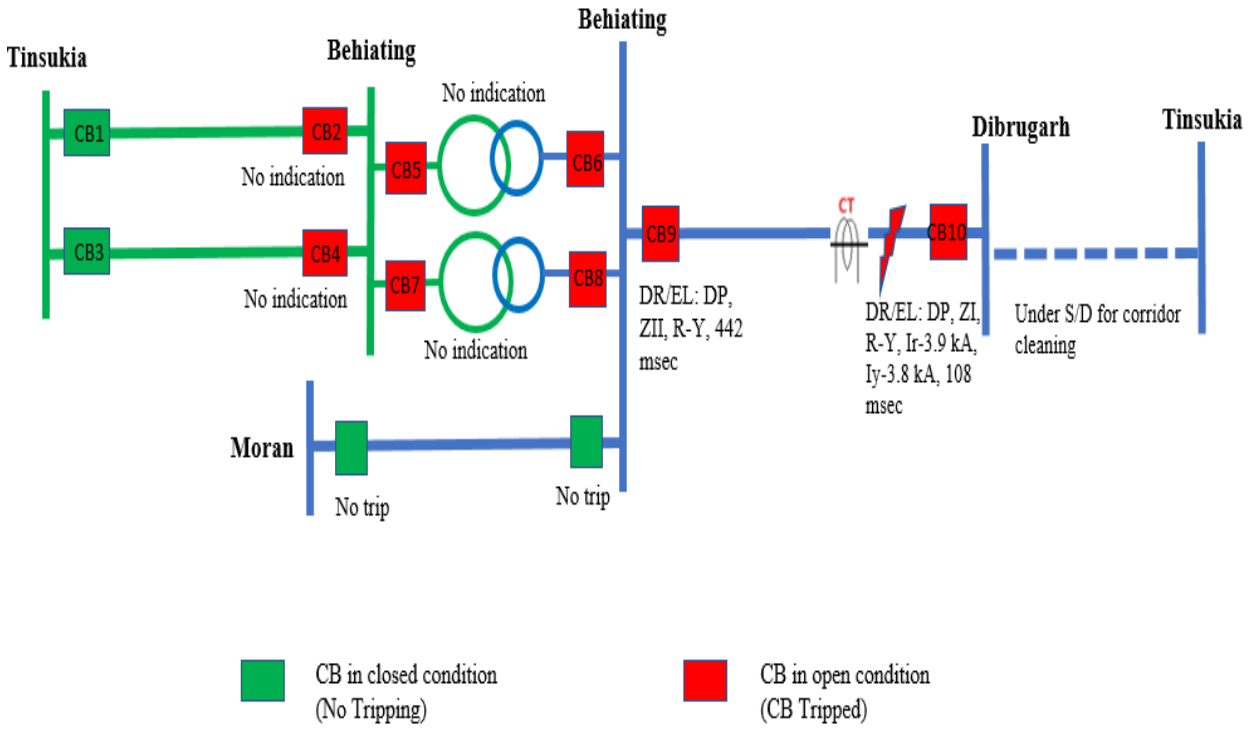
Figure 1: Network across the affected area

5. **Details of Equipment Failure (if any during the event) (उपकरण विफलता का विवरण):**Flashover at Jumpers behind CT
6. **Major Elements Tripped (प्रमुख ट्रिपिंग):**

Sl. No.	नाम	Trip time (hh:mm:ss)	Restoration time	उप केंद्र 1 रिले संकेत	उप केंद्र 2 रिले संकेत
1	132 kV Behiating-Dibrugarh Line	09:05	09:41	DP, ZII, R-Y	DP, ZI, R-Y

2	220 kV Behiating-Tinsukia I Line	09:05	09:34	Tripped, No Indication recorded	No tripping
3	220 kV Behiating-Tinsukia II Line	09:05	10:32	Tripped, No Indication recorded	No tripping
4	220/132kV, 100 MVA ICT-1 at Behiating	09:05	09:42	Tripped, O/C start	
5	220/132kV, 100 MVA ICT-2 at Behiating	09:05	09:48	Tripped, O/C start	

7. Event Analysis (Based on PMU, SCADA & DR) (घटना का विश्लेषण):



As per DR anlaysis, solid R-Y phase fault (Ir-3.9 kA, Iy-3.8 kA) in 132 kV Dibrugarh-Behiating line initiated at 09:05:53.331 Hrs and cleared within 108 msec on operation of DP, ZI from Dibrugarh end and within 442 msec from Behiating end on operation of DP, ZII.

220 kV Behiating-Tinsukia I & II lines tripped from Behiating end within 265 msec of inception of fault.

220/132 kV Behiating ICT-I&II tripped. As per EL, O/C started at 09:05:53.386 Hrs. HV side CB open at 09:05:53.600 Hrs.

Tripping of upstream 220 kV Behiating-Tinsukia D/C lines & 220/132 kV Behiating ICT-I&II for fault in 132 kV Dibrugarh-Behiating line seems unwanted.

As informed by AEGCL, fault is between CT and Line Isolator (RØ-YØ) of 132 kV Dibrugarh – Behiating Line.

8. Protection/Operational issues observed (सुरक्षा/परिचालन संबंधी समस्या):

- 220 kV Behiating-Tinsukia I & II lines tripped from Behiating end within 265 msec of inception of fault. It is unclear which protection system operated at Behiating.
- 220/132 kV Behiating ICT-I&II tripped. As per EL, O/C started at 09:05:53.386 Hrs. HV side CB open at 09:05:53.600 Hrs. It is unclear which protection system operated at Behiating.
- Tripping of upstream 220 kV Behiating-Tinsukia D/C lines & 220/132 kV Behiating ICT-I&II for fault in 132 kV Dibrugarh-Behiating line seems unwanted. AEGCL is requested to review the setting of 220 kV Behiating-Tinsukia D/C lines & 220/132 kV ICT-I&II at Behiating.

9. Action Taken/Remedial Measures (सुधारात्मक उपाय): NIL

10. Non-compliance observed (विनियमन का गैर-अनुपालन):

Sl.No.	Issues	Regulation Non-Compliance	Utilities
1.	**Flash Report received within 8hrs?**	IEGC section 37.2 (b)	**No Violation**
2.	**Whether DR/EL provided within 24 Hours?**	1. IEGC section 37.2 (c) 2. CEA grid Standard 15.3	**AEGCL**
3.	**Detailed Report received within 7 days?**	IEGC section 37.2 (e)	**AEGCL**
4.	**DR Time Synchronization Issues**	IEGC section 17.3	**No violation**
5.	**Any other non-compliance**		-

11. Key Lessons Learnt (प्रमुख अधिगम बिंदु):

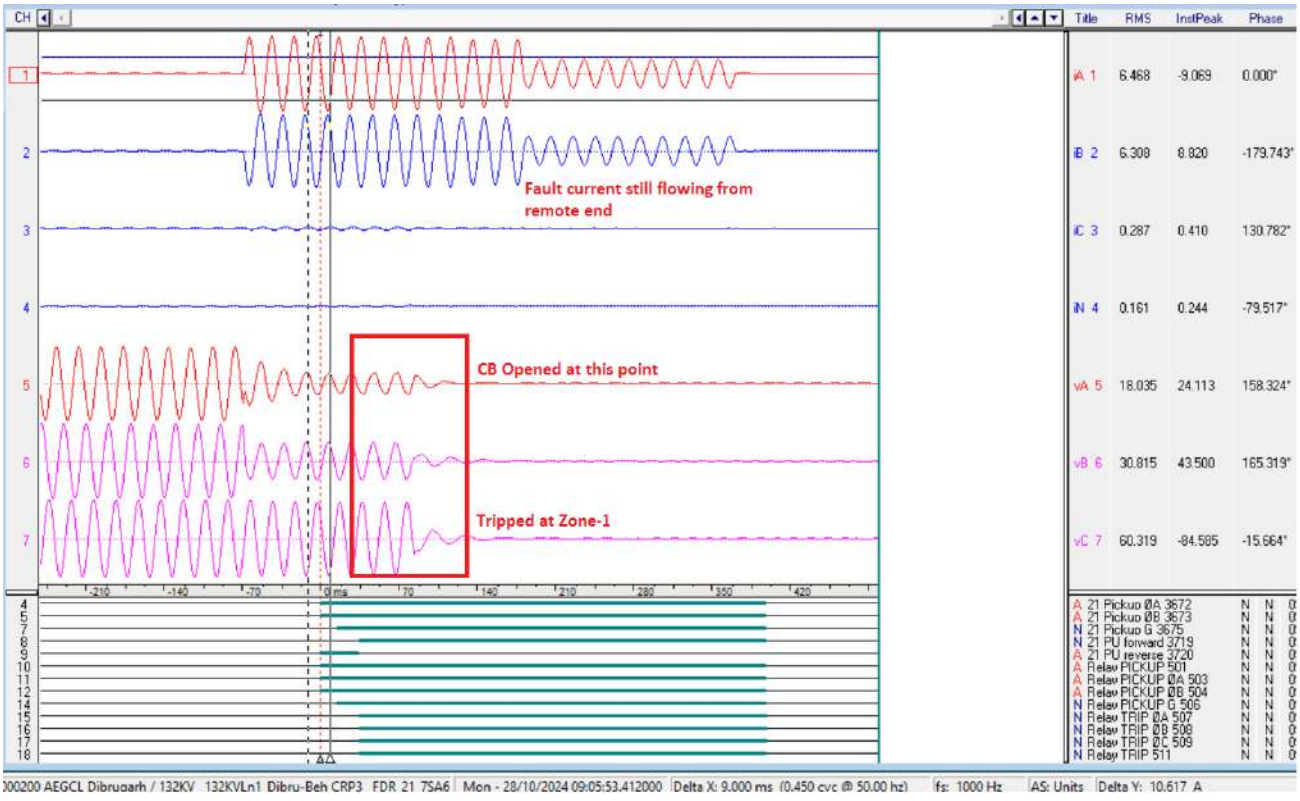
- Proper patrolling and maintenance related activities as per CEA regulations needs to be carried out.
- Healthiness of protection system needs to be ensured at all times.

Annexure 1: Sequence of Events as per SCADA

AREA	CATEGORY	LOCATION	TEXT	SYSTEM_TIME	FIELD_TIME	MS
AEGCL	1C	BIHIA_AS	BEHIATING CB 132Kv LINE TO DIBRU OPEN	28 Oct 2024 09:06:04:000	28 Oct 2024 09:05:53:000	783000000
AEGCL	1C	BIHIA_AS	BEHIATING CB 220 KV COUPLER (BC) OPEN	28 Oct 2024 09:05:57:000	28 Oct 2024 09:05:53:000	591000000
AEGCL	1C	BIHIA_AS	BEHIATING CB 220Kv LINE-1 TO TINSU OPEN	28 Oct 2024 09:05:57:000	28 Oct 2024 09:05:53:000	592000000
AEGCL	1C	BIHIA_AS	BEHIATING CB 220/132 T1 (PRIM) OPEN	28 Oct 2024 09:05:57:000	28 Oct 2024 09:05:53:000	595000000
AEGCL	1C	BIHIA_AS	BEHIATING CB 220/132 T2 (PRIM) OPEN	28 Oct 2024 09:05:57:000	28 Oct 2024 09:05:53:000	590000000
AEGCL	1C	DIBRU_AS	DIBRUGARH CB 132Kv LINE TO BIHIA OPEN	28 Oct 2024 09:06:02:000	28 Oct 2024 09:05:57:000	636000000
AEGCL	1C	DIBRU_AS	DIBRUGARH CB 132/33 T1 (PRIM) OPEN	28 Oct 2024 09:08:13:000	28 Oct 2024 09:08:08:000	376000000
AEGCL	1C	KOPIL_NO	KOPILI CB 132Kv LINE-1 TO KHLEI CLOSED	28 Oct 2024 09:30:28:000	28 Oct 2024 09:30:27:000	60000000
AEGCL	1C	JAWHR_AS	JAWHARNAGAR CB 220/33 T1 (PRIM) OPEN	28 Oct 2024 09:31:51:000	28 Oct 2024 09:31:47:000	398000000
AEGCL	1C	BIHIA_AS	BEHIATING CB 220Kv LINE-1 TO TINSU CLOSED	28 Oct 2024 09:33:56:000	28 Oct 2024 09:33:50:000	691000000
MEECL	1C	LESKA_ME	LESKA CB 132 KV UNIT (H03) CLOSED	28 Oct 2024 09:39:36:000	28 Oct 2024 09:39:09:000	447000000
MEECL	1C	LESKA_ME	LESKA CB 132 KV UNIT (H03) OPEN	28 Oct 2024 09:41:24:000	28 Oct 2024 09:41:08:000	220000000
AEGCL	1C	BIHIA_AS	BEHIATING CB 220/132 T1 (PRIM) CLOSED	28 Oct 2024 09:41:31:000	28 Oct 2024 09:41:17:000	716000000
MEECL	1C	LESKA_ME	LESKA CB 132 KV UNIT (H03) CLOSED	28 Oct 2024 09:41:35:000	28 Oct 2024 09:41:21:000	623000000
MEECL	1C	LESKA_ME	LESKA CB 132 KV UNIT (H03) OPEN	28 Oct 2024 09:41:47:000	28 Oct 2024 09:41:38:000	453000000
AEGCL	1C	DIBRU_AS	DIBRUGARH CB 132Kv LINE TO BIHIA CLOSED	28 Oct 2024 09:42:03:000	28 Oct 2024 09:41:55:000	638000000
AEGCL	1C	DIBRU_AS	DIBRUGARH CB 132/33 T2 (PRIM) CLOSED	28 Oct 2024 09:43:33:000	28 Oct 2024 09:43:24:000	823000000
AEGCL	1C	BIHIA_AS	BEHIATING CB 220/132 T2 (PRIM) CLOSED	28 Oct 2024 09:48:31:000	28 Oct 2024 09:48:26:000	260000000
MEECL	1C	GANOL_ME	GANOL SHEP CB 132 KV UNIT (H01) OPEN	28 Oct 2024 09:49:46:000	28 Oct 2024 09:49:41:000	803000000

Annexure 2: DR snapshot

2.1 DR snapshot of Dibrugarh end for 132 kV Behiating-Dibrugarh Line

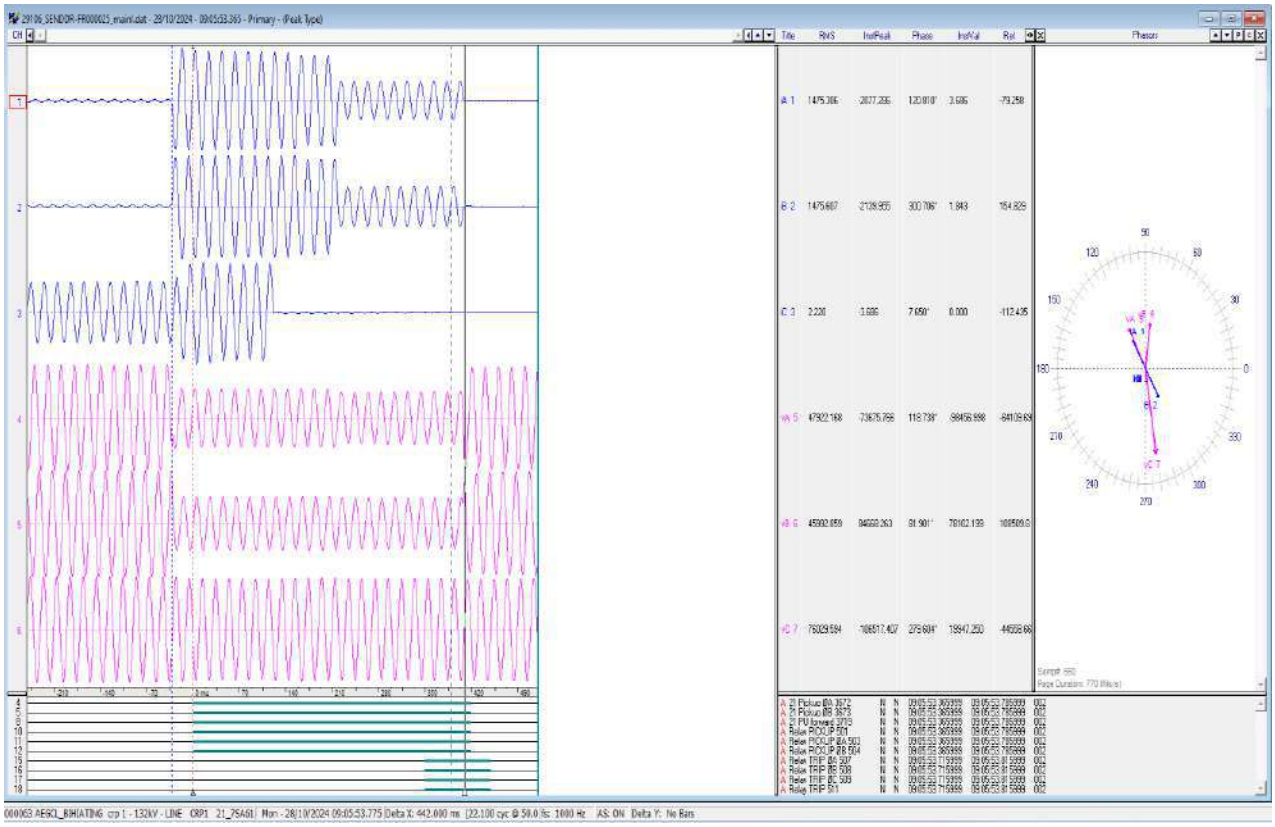


2.2 EL snapshot of Dibrugarh end for 132 kV Behiating-Dibrugarh Line

Event Log - 10/29/2024 - AEGCL Dibrugarh / 132KV / 132KVLn1_Dibru-Beh CRP3 / FDR_21_7SA6/7SA611 V04.74.(3)

Number	Indication	Value	Date and time	Cause
00590	Line closure detected	ON	28.10.2024 09:17:33.236	Spontaneous Com.Issued=AutoLocal
00561	Manual close signal detected	ON	28.10.2024 09:17:33.235	Spontaneous Com.Issued=AutoLocal
00590	Line closure detected	OFF	28.10.2024 09:16:33.345	Spontaneous Com.Issued=AutoLocal
00590	Line closure detected	ON	28.10.2024 09:16:33.045	Spontaneous Com.Issued=AutoLocal
00561	Manual close signal detected	ON	28.10.2024 09:16:33.044	Spontaneous Com.Issued=AutoLocal
00301	Power System fault	200 - OFF	28.10.2024 09:05:53.849	Spontaneous Com.Issued=AutoLocal
	Z2 OPTD	ON	28.10.2024 09:05:53.759	Spontaneous Com.Issued=AutoLocal
05215	81 Undervoltage Block	ON	28.10.2024 09:05:53.509	Spontaneous Com.Issued=AutoLocal
	DISTANCE PRTN OPTD	ON	28.10.2024 09:05:53.439	Spontaneous Com.Issued=AutoLocal
	Z1 OPTD	ON	28.10.2024 09:05:53.439	Spontaneous Com.Issued=AutoLocal
04056	85-21 Carrier SEND signal	ON	28.10.2024 09:05:53.438	Spontaneous Com.Issued=AutoLocal
00536	Relay Definitive TRIP	ON	28.10.2024 09:05:53.438	Spontaneous Com.Issued=AutoLocal
00301	Power System fault	200 - ON	28.10.2024 09:05:53.403	Spontaneous Com.Issued=AutoLocal

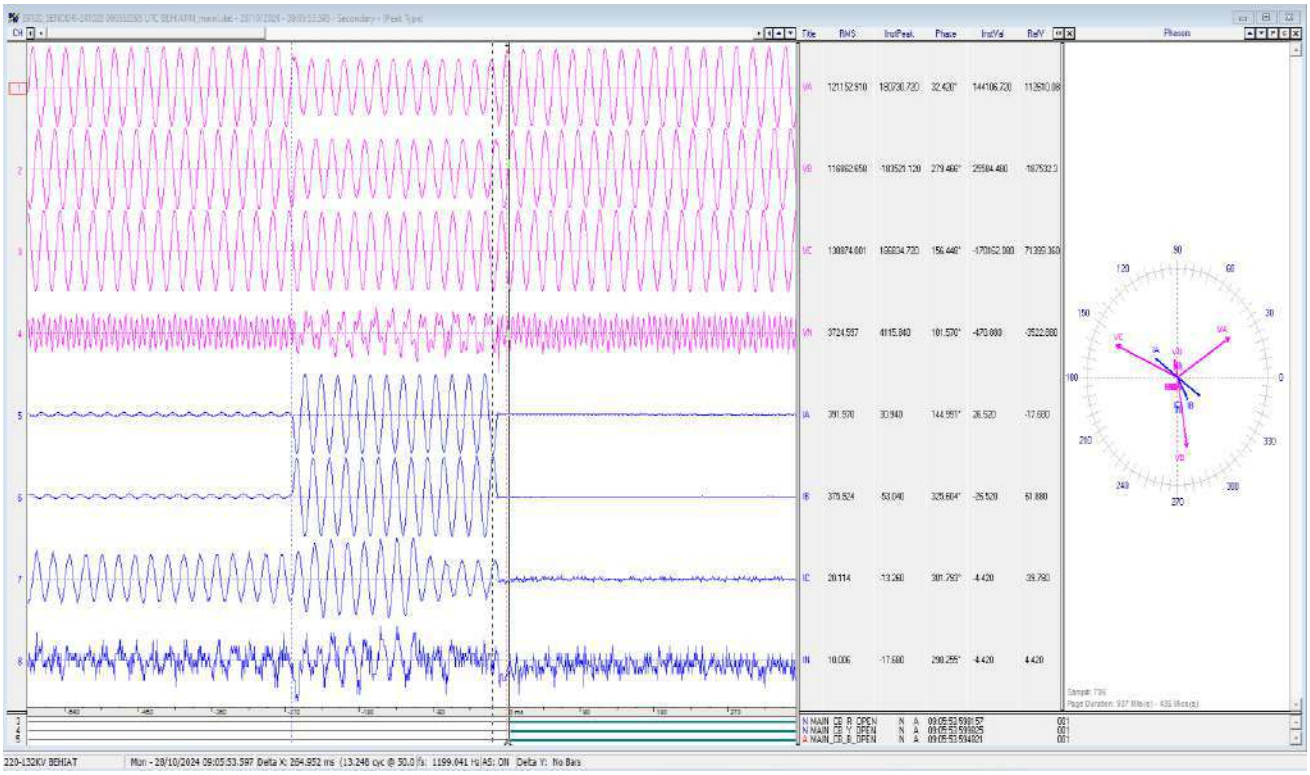
2.3 DR snapshot of Behiating end for 132 kV Behiating-Dibrugarh Line



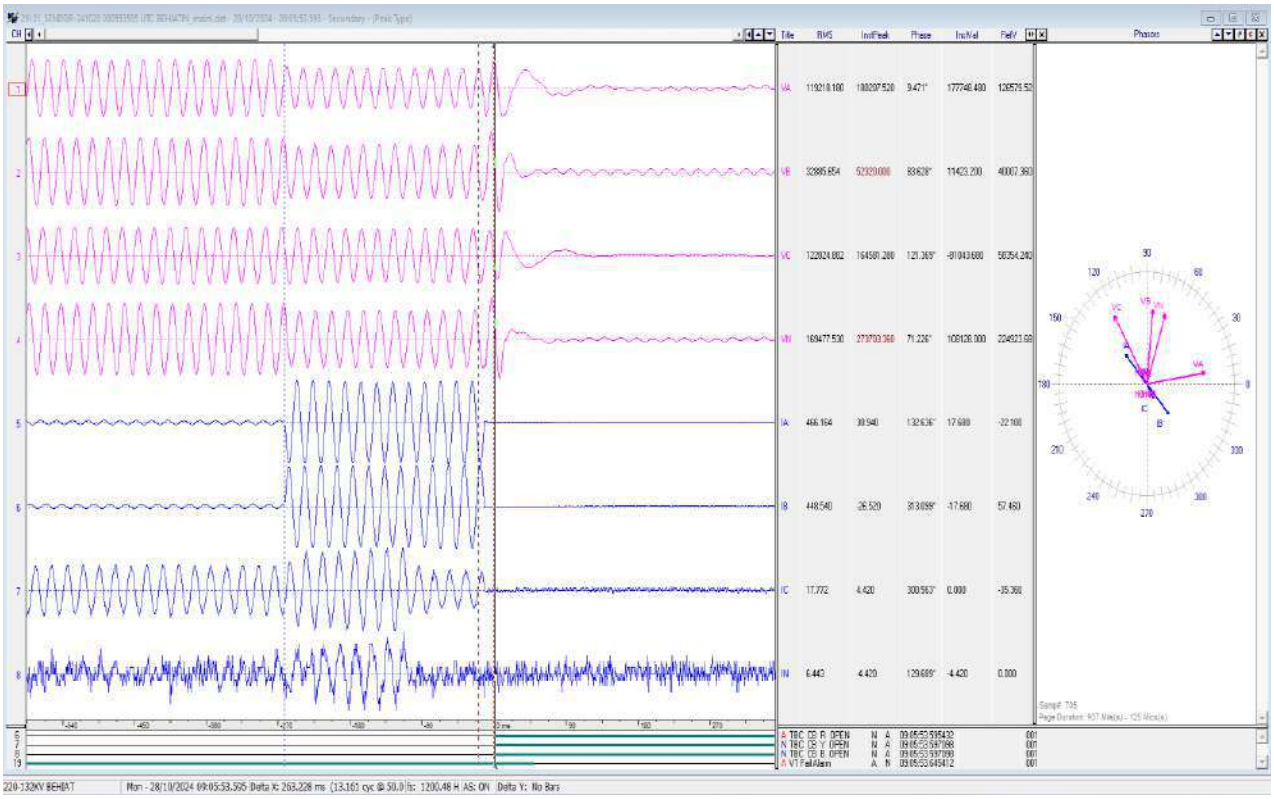
2.4 DR snapshot of Behiating end for 132 kV Behiating-Dibrugarh Line

	CARR/DTT SENT	OFF	28.10.2024	09:05:53.868	Spontaneous Com.Issued=AutoLocal
00301	Power System fault	63 - OFF	28.10.2024	09:05:53.832	Spontaneous Com.Issued=AutoLocal
	.CRP1 86A/B OPTD	OFF	28.10.2024	09:05:53.828	Spontaneous Com.Issued=AutoLocal
	.CRP1 86A/B OPTD	ON	28.10.2024	09:05:53.742	Spontaneous Com.Issued=AutoLocal
03817	21 TRIP 3phase in Z2	ON	28.10.2024	09:05:53.716	Spontaneous Com.Issued=AutoLocal
03801	21 Distance General TRIP command	ON	28.10.2024	09:05:53.716	Spontaneous Com.Issued=AutoLocal
03805	21 TRIP command Phases ABC	ON	28.10.2024	09:05:53.716	Spontaneous Com.Issued=AutoLocal
	CARR/DTT SENT	ON	28.10.2024	09:05:53.488	Spontaneous Com.Issued=AutoLocal
04056	85-21 Carrier SEND signal	ON	28.10.2024	09:05:53.372	Spontaneous Com.Issued=AutoLocal
00301	Power System fault	63 - ON	28.10.2024	09:05:53.366	Spontaneous Com.Issued=AutoLocal

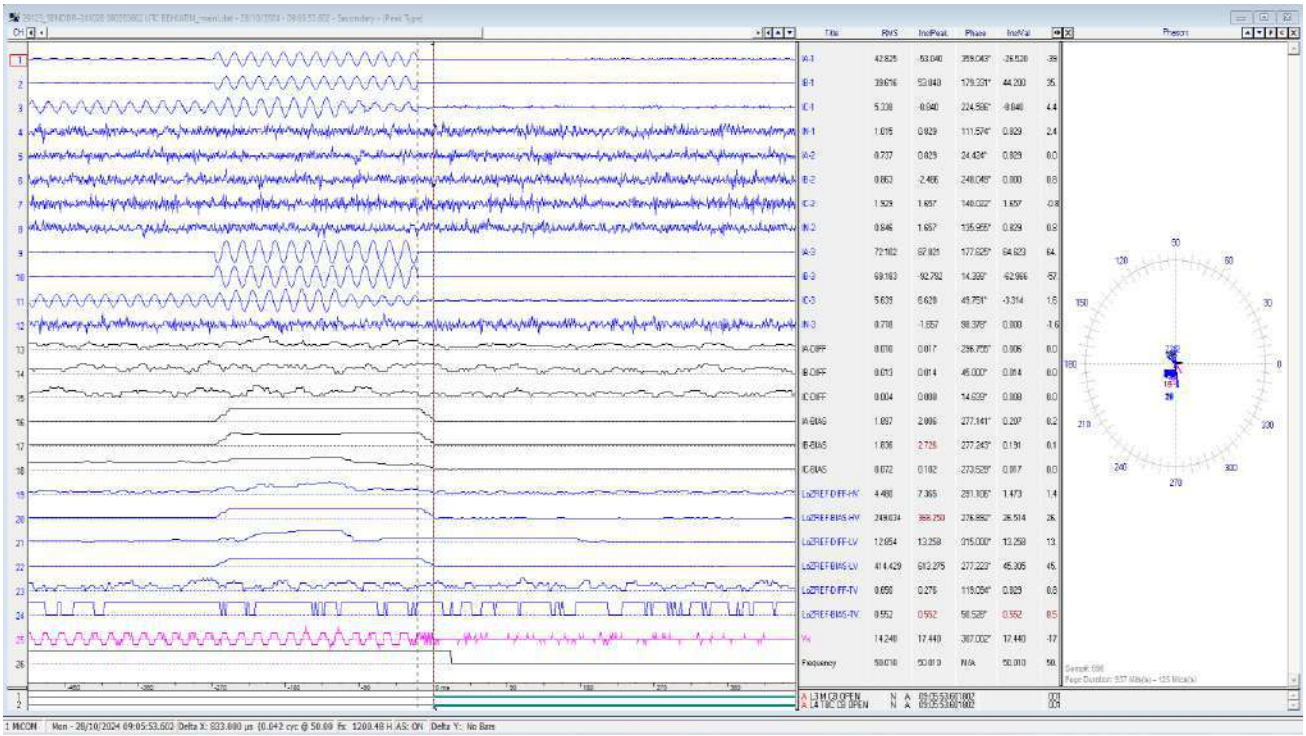
2.5 DR snapshot of Behiating end for 220 kV Behiating-Tinsukia I Line



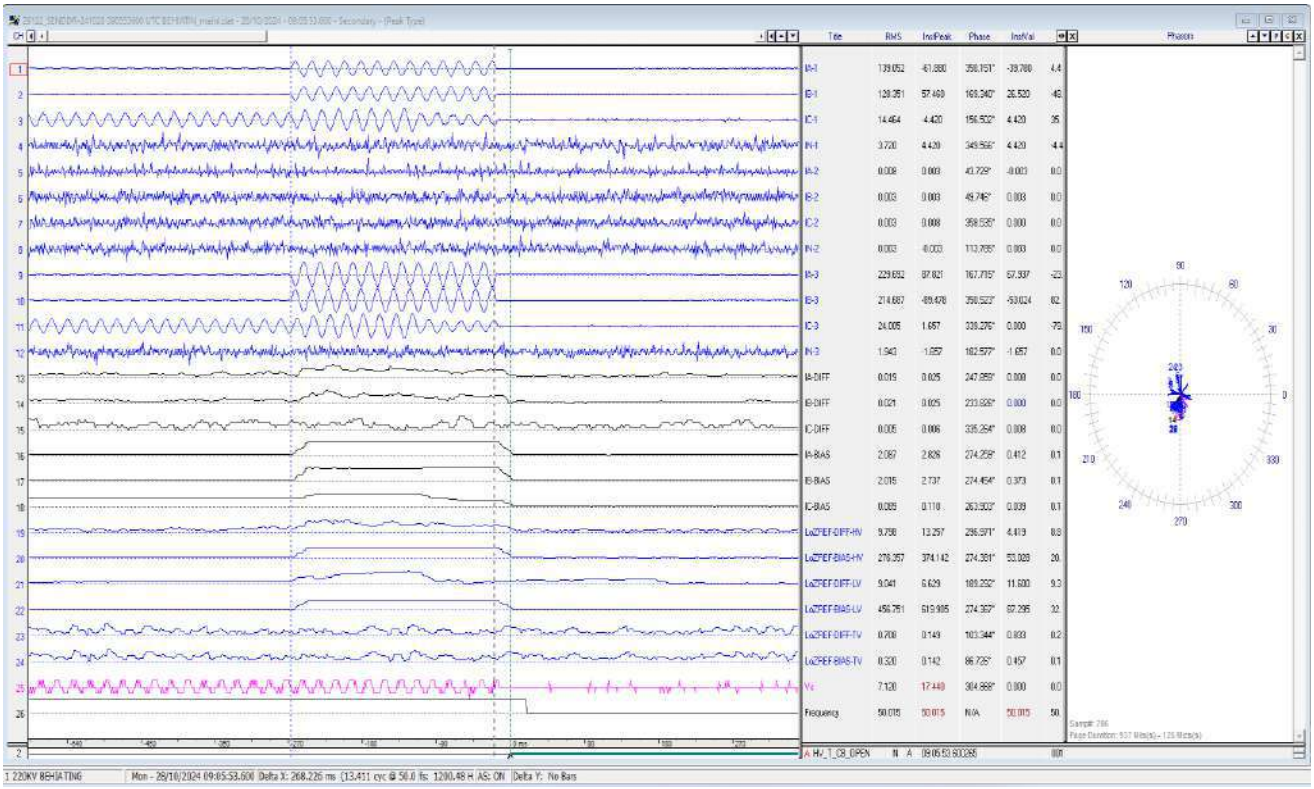
2.6 DR snapshot of Behiating end for 220 kV Behiating-Tinsukia II Line



2.7 DR snapshot of Behiating end for 220/132 kV ICT-I at Behiating



2.8 DR snapshot of Behiating end for 220/132 kV ICT-II at Behiating



ग्रिड-इंडिया GRID-INDIA
ग्रिड कंट्रोलर ऑफ इंडिया लिमिटेड
(भारत सरकार का उद्यम)
GRID CONTROLLER OF INDIA LIMITED
(A Government of India Enterprise)
[formerly Power System Operation Corporation Limited (POSOCO)]
उत्तर पूर्वी क्षेत्रीय भार प्रेषण केन्द्र / North Eastern Regional Load Despatch Centre
कार्यालय : लोवर, लापालांग, शिलांग -793006
Office : Lower Nongrah, Lapalang, Shillong- 793006
CIN : U40105DL2009GOI188682, Website : www.nerldc.in, E-mail : nerldc@grid-india.in, Tel.: 0364-2537470/427, Fax: 03642537486

Detailed Report of Grid Disturbance in Imphal(Yurembam) area in Manipur of North Eastern Region

(To be submitted by RLDC/NLDC during Grid Disturbances/Grid Incidents/Near Miss Event as per IEGC section 37.2 (f))

Date (दिनांक): 05-11-2024

1. Event Summary (घटना का सारांश):

Imphal(Yurembam) area of Manipur Power System is connected with rest of the NER grid mainly through 3 numbers of 132 kV Imphal(PG)- Imphal(Yurembam) Lines. Also, Imphal(Yurembam) is connected with Yiangangpokpi SS through 2 numbers of 132 kV Imphal (Yurembam) - Yaingangpokpi 1&2 Lines and connected with Karong SS through 1 number of 132 kV Imphal (MSPCL) - Karong Line. Before the event, 132 kV Imphal(PG)-Imphal(Yurembam) 2 Line and 132 kV Imphal (Yurembam) - Yaingangpokpi 2 Lines was under planned shutdown.

At 13:30 Hrs of 28-10-2024, due to heavy fault in Imphal(Yurembam) SS, all the connected lines i.e. 132 kV Imphal(PG)- Imphal(Yurembam) 1 &3 Lines, 132 kV Imphal (Yurembam) - Yaingangpokpi 1 Lines and 132 kV Imphal (MSPCL) - Karong Line tripped resulted into the Grid Disturbance in the Imphal(Yurembam) substation of Manipur power system.

Additionally, tripping of 400/132 kV, 315 MVA, ICT I at Imphal(PG), 132 kV Imphal (PG) - Loktak Line and 400 kV Imphal(PG) - New Kohima 1 Line observed during the time.

Power supply was extended to Yurembam area by charging 132 kV Imphal(PG)-Imphal(Yurembam) 2 Line at 15:08 hrs of 28-10-2024.

2. Time and Date of the Event (घटना का स मय और दिनांक): 13:30 Hrs of 28-10-2024

3. Event Category (ग्रिड घटना का प्रकार): GD-I

4. Location/Control Area (स्थान/नियंत्रण क्षेत्र): Imphal(Yurembam) area of Manipur Power System.

5. Antecedent Conditions (पूर्ववर्ती स्थिति):

	Frequency in Hz	Regional Generation (MW)	Regional Demand (MW)
Pre-Event (घटना पूर्व)	50.09	2127	2236
Post Event (घटना के बाद)	50.09	2127	2204

Pre and post data of 1 minute before and after the event

Important Transmission Line/Unit if under outage (before the even))महत्वपूर्ण संचरण लाइने/ विधुत उत्पादन इकाइयां जो बंद है(	132 kV Imphal(PG)- Imphal(Yurembam) 2 Line and 132 kV Imphal (Yurembam) - Yaingangpokpi 2 Lines were under planned shutdown
Weather Condition (मौसम स्थिति)	Normal

2. Load and Generation loss (लोड और जेनरेशन हानि): Load loss of 50 MW.

3. Duration of interruption (रुकावट की अवधि): 1 Hr 38 min

4. Network across the affected area (प्रभावित क्षेत्र का नक्शा):

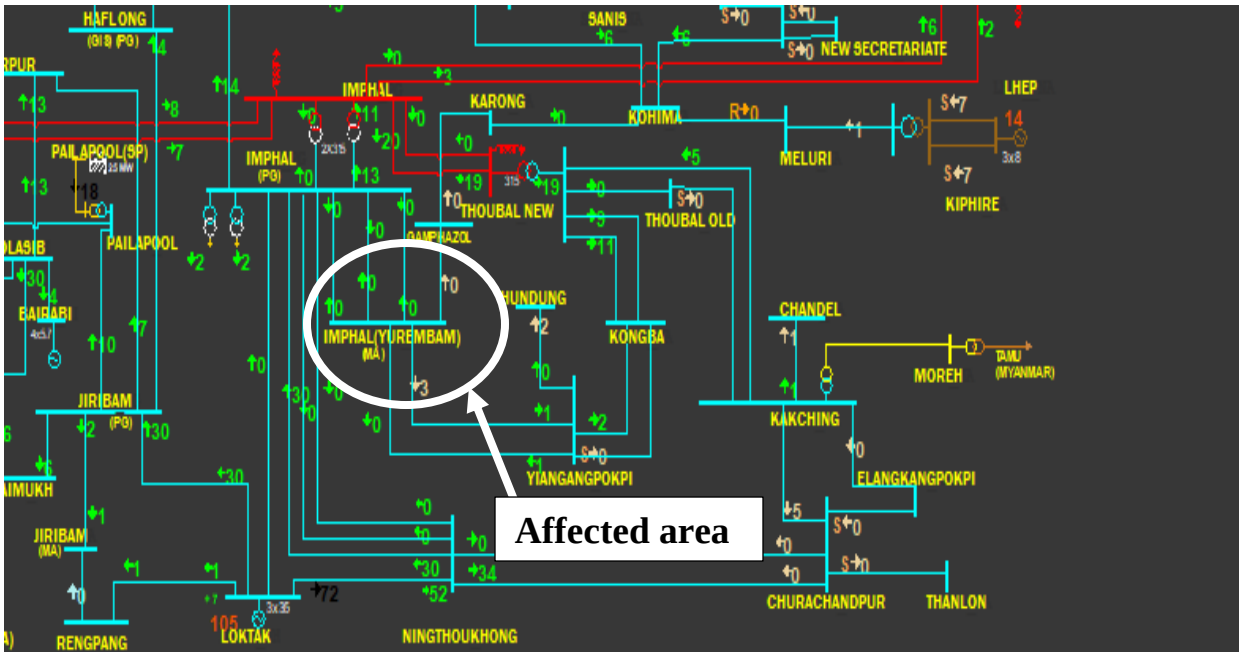


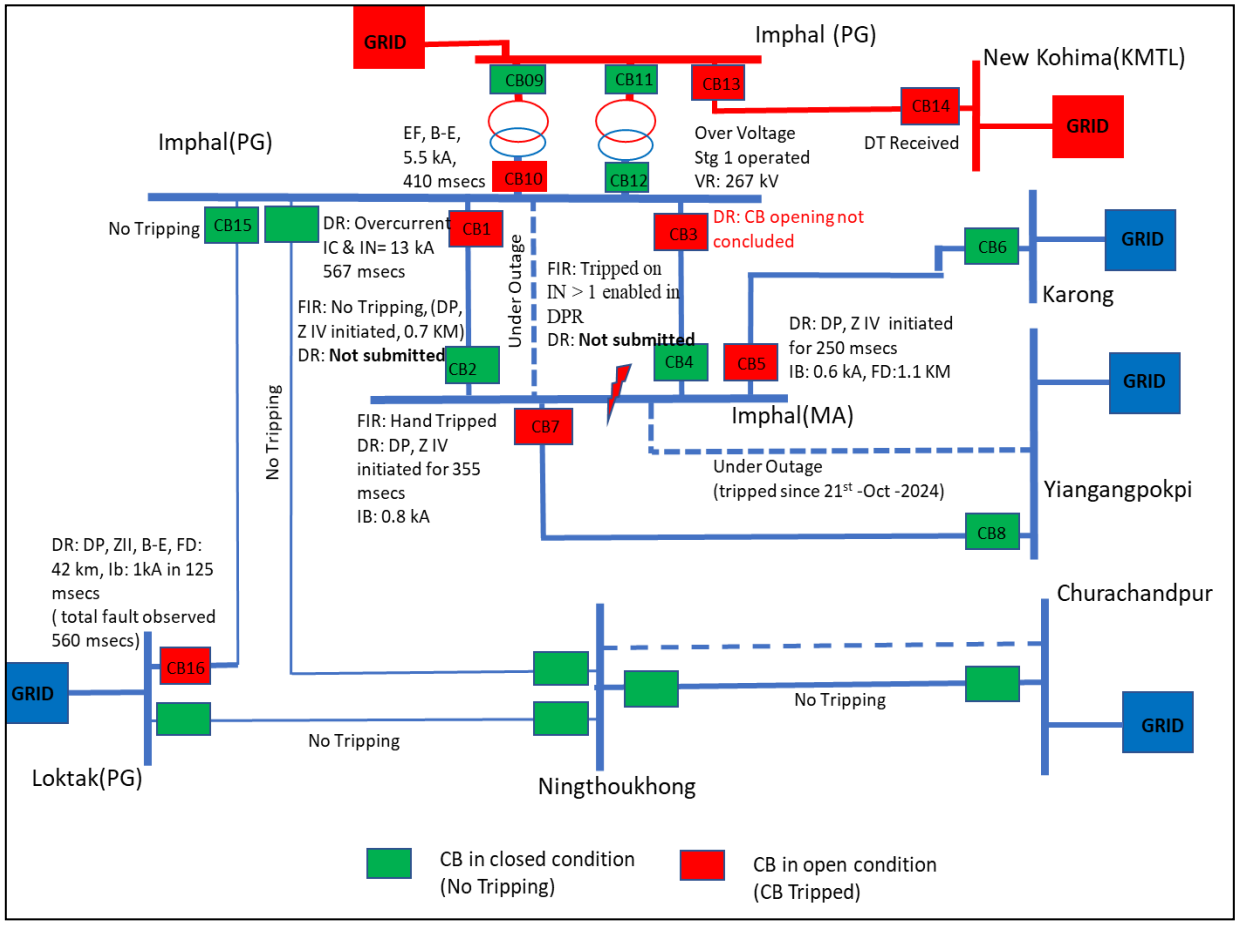
Figure: Network across the affected area

5. Details of Equipment Failure (if any during the event) (उपकरण विफलता का विवरण): NIL

6. Major Elements Tripped (प्रमुख ट्रिपिंग):

Sl. No.	नाम	Trip time (hh:mm:ss)	Restoration time	उप केंद्र 1 रिले संकेत	उप केंद्र 2 रिले संकेत
1	132 kV Imphal(PG)-Imphal(Yurembam) I line	13:30	15:08	O/C, B-N	No tripping (ZIV start)
2	132 kV Imphal(PG)-Imphal(Yurembam) III line	13:30	17:16	CB opening not conclued	B-N, E/F
3	132 kV Imphal (Yurembam) - Yaingangpokpi I Line	13:30	-	Hand tripped, ZIV start in DR	No tripping
4	132 kV Imphal (Yurembam) – Karong Line	13:30	17:41	DP, ZIV initiated from 250 msec	No tripping
5	400/132 kV, 315 MVA, ICT I at Imphal(PG)	13:30	17:27	LV side B/U E/F, B-N	Not applicable
6	132 kV Imphal (PG) - Loktak Line	13:30	15:07	No tripping	DP, ZII, B-N, FD: 42 Km
7	400 kV Imphal(PG) - New Kohima I Line	13:30	18:22	Over voltage Stg I operated	DT recieved

7. Event Analysis (Based on PMU, SCADA & DR) (घटना का विश्लेषण):



As per event analysis based on the DR & EL, DP, ZIV initiated at Imphal (Yurembam) for Imphal(PG) 1 line, Karong line and Yaingangpokpi 1 line which indicates that the suspected fault location is in 132 kV Imphal (Yurembam) Substation. The fault persisted in the system for 560-567 msecs.

8. **Protection/Operational issues observed (सुरक्षा/परिचालन संबंधी समस्या):**

- 132 kV Imphal(PG)- Imphal(Yurembam) 1 Line tripped on Overcurrent at Imphal(PG) end in 567 msecs. However, the same was not detected by the Main Relay. This needs to be checked by NERTS.
- 315 MVA ICT I at Imphal(PG) tripped at 132 kV side on Backup E/F in 410 msecs on reverse fault. Directionality of the LV side backup relay need to be rectified by NERTS.
- High Voltage of VR: 267 kV observed in the Imphal(PG) end of the 400 kV Imphal(PG) - New Kohima 1 Line after the tripping of Tie CB of 315 MVA, ICT-1 at Imphal which resulted into the tripping of the line. NERTS is requested to check & rectify the reason for HV in the 400 kV Imphal(PG) - New Kohima 1 Line.
- 132 kV Imphal (PG) - Loktak Line detected the fault in ZIII for 420 msecs & then ZII initiated and tripped the CB in next 125 msecs. However, ZII time delay need to be reviewed by NHPC.
- Tripping of 132 kV Imphal (Yurembam) - Yaingangpokpi 1 Line, 132 kV Imphal (MSPCL) - Karong Line and 132 kV Imphal(PG)- Imphal(Yurembam) 3 Lines could not be concluded due to non-availability of the DR & EL of Yaingangpokpi, Karong and Imphal (Yurembam) end.
- DR time synch. Issue observed in the submitted DR for CB3 and CB7.

9. **Action Taken/Remedial Measures (सुधारात्मक उपाय):**

10. **Non-compliance observed (विनियमन का गैर-अनुपालन):**

Sl.No.	Issues	Regulation Non-Compliance	Utilities
1.	**Flash Report received within 8hrs?**	IEGC section 37.2 (b)	**MSPCL**
2.	**Whether DR/EL provided within 24 Hours?**	1. IEGC section 37.2 (c) 2. CEA grid Standard 15.3	**MSPCL**
3.	**Detailed Report received within 7 days?**	IEGC section 37.2 (e)	**No violation**

4.	**DR Time Synchronization Issues**	IEGC section 17.3	**Time drift**
5.	**Any other non-compliance**		-

11. Key Lessons Learnt (प्रमुख अधिगम बिंदु):

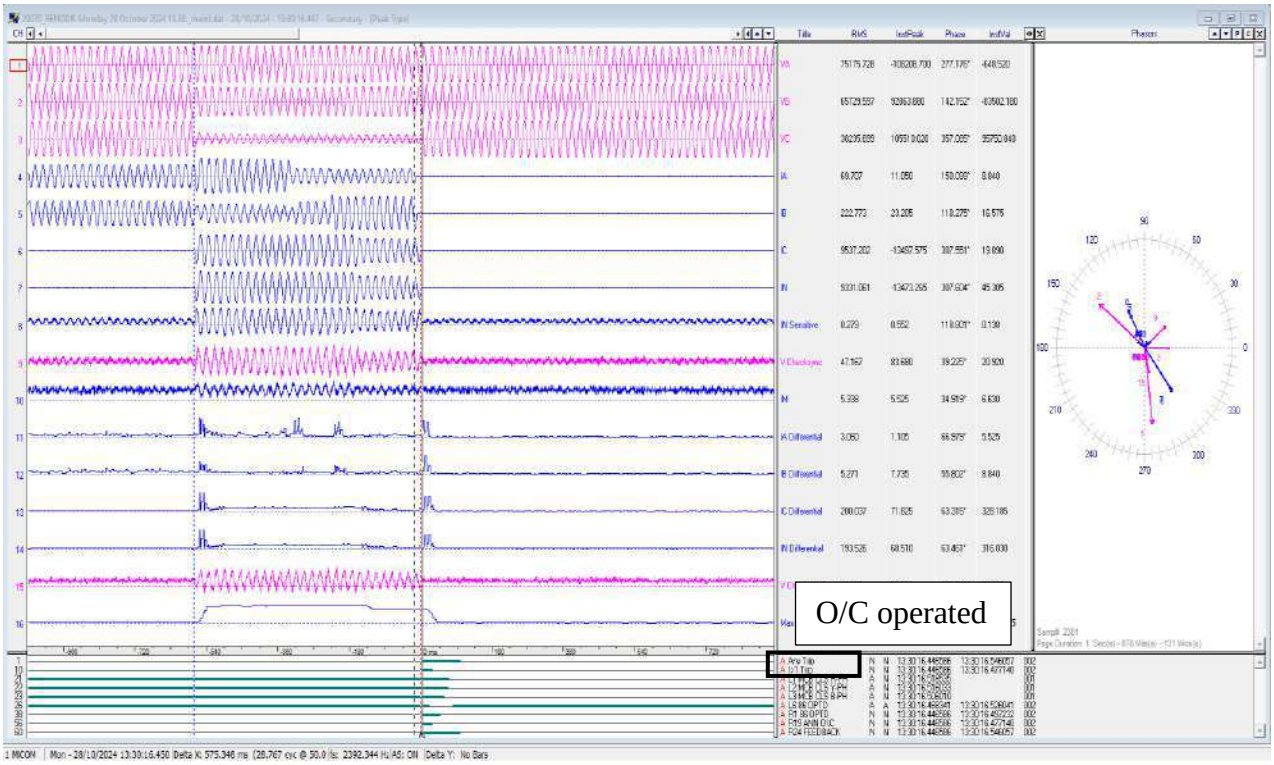
- Timely thermal scanning of jumper and connectors needs to be done.
- Healthiness of protection system needs to be ensured at all times.

Annexure 1: SOE

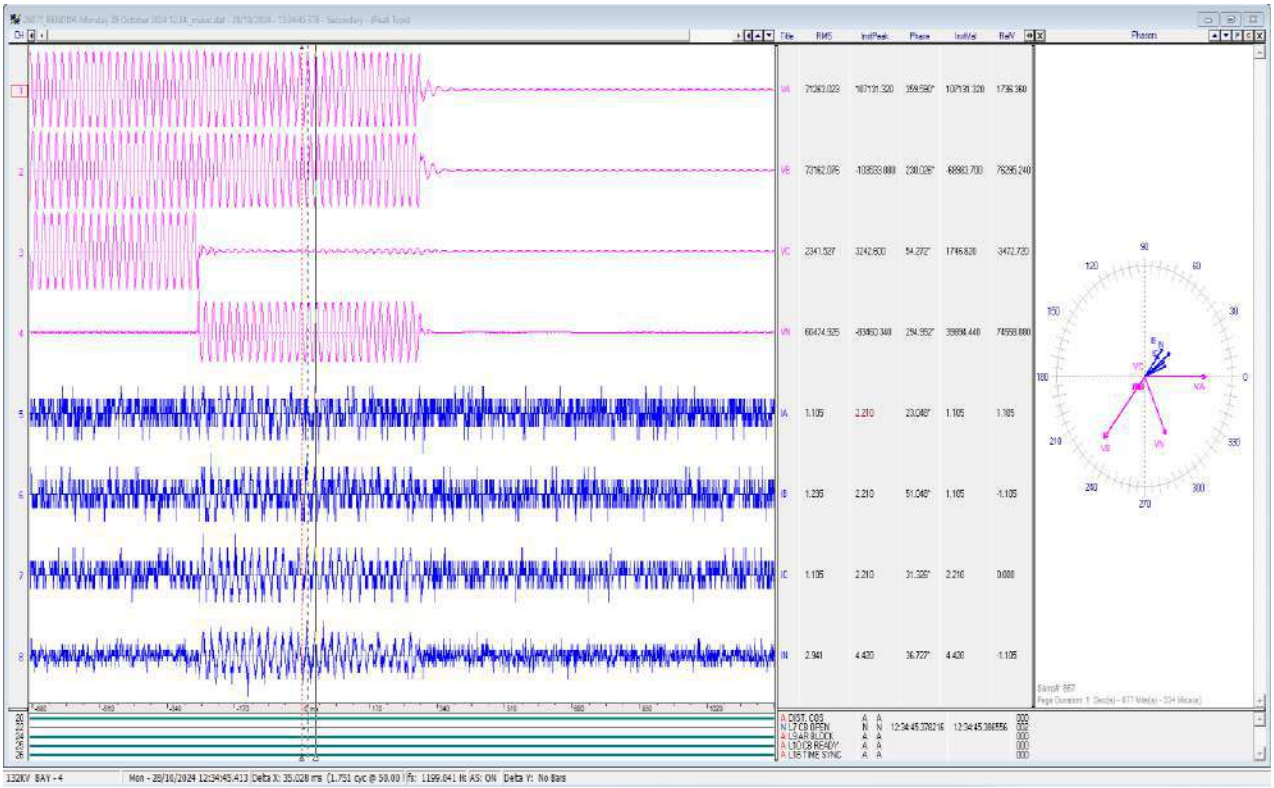
AREA	CATEGORY	LOCATION	TEXT	SYSTEM_TIME	FIELD_TIME	MS
MEECL	1C	KHLEI_ME	KHLEIHRIAT CB 132Kv LINE-2 TO LESKA CLOSED	28 Oct 2024 14:04:03:000	28 Oct 2024 13:04:40:000	6.09E+08
TSECL	1C	AGART_NO	AGARTALA CB 11 KV UNIT (G01) OPEN	28 Oct 2024 13:07:48:000	28 Oct 2024 13:07:46:000	1.13E+08
MSPCL	1C	LOKTA_NH	LOKTAK CB 132Kv LINE-1 TO IMPHA OPEN	28 Oct 2024 13:30:41:000	28 Oct 2024 13:24:16:000	4.8E+08
AEGCL	1C	LANKA_AS	LANKA (S.NAGAR) CB 132Kv LINE TO DIPHU CLOSED	28 Oct 2024 13:27:20:000	28 Oct 2024 13:27:16:000	6.61E+08
MSPCL	1C	NINGT_MA	NINGTHOUKHONG CB 132/33 T1 (PRIM) OPEN	28 Oct 2024 13:30:55:000	28 Oct 2024 13:30:39:000	4E+08
MSPCL	1C	IMPHA_MA	IMPHAL(YUREMBAM) CB 132Kv LINE-1 TO KARON OPEN	28 Oct 2024 13:30:44:000	28 Oct 2024 13:30:39:000	5.01E+08
MSPCL	1C	IMPHA_MA	IMPHAL(YUREMBAM) CB 132Kv LINE-1 TO IMPHA OPEN	28 Oct 2024 13:30:49:000	28 Oct 2024 13:30:39:000	6.33E+08
NAGALD	1C	DIMAP_NA	DIMAPUR NAGARJAN CB 66Kv LINE-1 TO SINJN OPEN	28 Oct 2024 13:30:42:000	28 Oct 2024 13:30:39:000	5.06E+08
MSPCL	1C	IMPHA_PG	IMPHAL CB TIE CB 400/132 ICT 1 OPEN	28 Oct 2024 13:30:39:000	28 Oct 2024 13:30:39:000	5.26E+08
MSPCL	1C	IMPHA_PG	IMPHAL CB MAIN CB 400/132 ICT 1 OPEN	28 Oct 2024 13:30:39:000	28 Oct 2024 13:30:39:000	5.25E+08
MSPCL	1C	IMPHA_PG	IMPHAL CB 400/132 T4 (SEC) OPEN	28 Oct 2024 13:30:39:000	28 Oct 2024 13:30:39:000	5.3E+08
MSPCL	1C	KAKCH_MA	KAKCHING CB 132/33 T2 (PRIM) OPEN	28 Oct 2024 13:30:49:000	28 Oct 2024 13:30:40:000	1.56E+08
MSPCL	1C	YIANG_MA	YIANGANGPOKPI CB 132Kv LINE-1 TO IMPHA BETWEEN	28 Oct 2024 13:30:49:000	28 Oct 2024 13:30:41:000	4.66E+08
MSPCL	1C	IMPHA_PG	IMPHAL CB Kohim1 CB OPEN	28 Oct 2024 13:30:55:000	28 Oct 2024 13:30:45:000	1.1E+08
NAGALD	1C	NWKOH_KT	NEW KOHIMA(KMTL) CB 402 TIE CB OPEN	28 Oct 2024 13:30:55:000	28 Oct 2024 13:30:45:000	1.49E+08
NAGALD	1C	NWKOH_KT	NEW KOHIMA(KMTL) CB MN CB IMP-1 OPEN	28 Oct 2024 13:30:55:000	28 Oct 2024 13:30:45:000	1.5E+08
MSPCL	1C	IMPHA_PG	IMPHAL CB Kohim1 CB OPEN	28 Oct 2024 18:10:35:000	28 Oct 2024 13:30:45:000	1.1E+08
TSECL	1C	BADHA_TE	BADHARGHAT CB 66Kv LINE-1 TO GKNGR CLOSED	28 Oct 2024 15:57:13:000	28 Oct 2024 14:56:43:000	58000000
MSPCL	1C	LOKTA_NH	LOKTAK CB 132Kv LINE-1 TO IMPHA CLOSED	28 Oct 2024 15:07:10:000	28 Oct 2024 15:00:44:000	8.78E+08
MIZORM	1C	ZUANG_MI	ZUANGTUI CB 132Kv LINE TO SERCH CLOSED	28 Oct 2024 16:04:15:000	28 Oct 2024 15:04:58:000	4.66E+08
AEGCL	1C	MYNT2_AS	MYNTRIANG II CB 3.3 KV UNIT (G3) CLOSED	28 Oct 2024 15:12:35:000	28 Oct 2024 15:12:30:000	80000000
AEGCL	1C	SNESP_AS	STRCEM NE LTD SP CB 220Kv LINE TO SONAP CLOSED	28 Oct 2024 17:41:09:000	28 Oct 2024 17:41:04:000	7.21E+08
MSPCL	1C	IMPHA_MA	IMPHAL(YUREMBAM) CB 132Kv LINE-1 TO YIANG CLOSED	28 Oct 2024 17:41:52:000	28 Oct 2024 17:41:45:000	3.56E+08
MSPCL	1C	YIANG_MA	YIANGANGPOKPI CB 132Kv LINE-1 TO IMPHA CLOSED	28 Oct 2024 17:42:27:000	28 Oct 2024 17:42:20:000	6.85E+08

Annexure 2: Disturbance recorder snips showing faults and digital signals

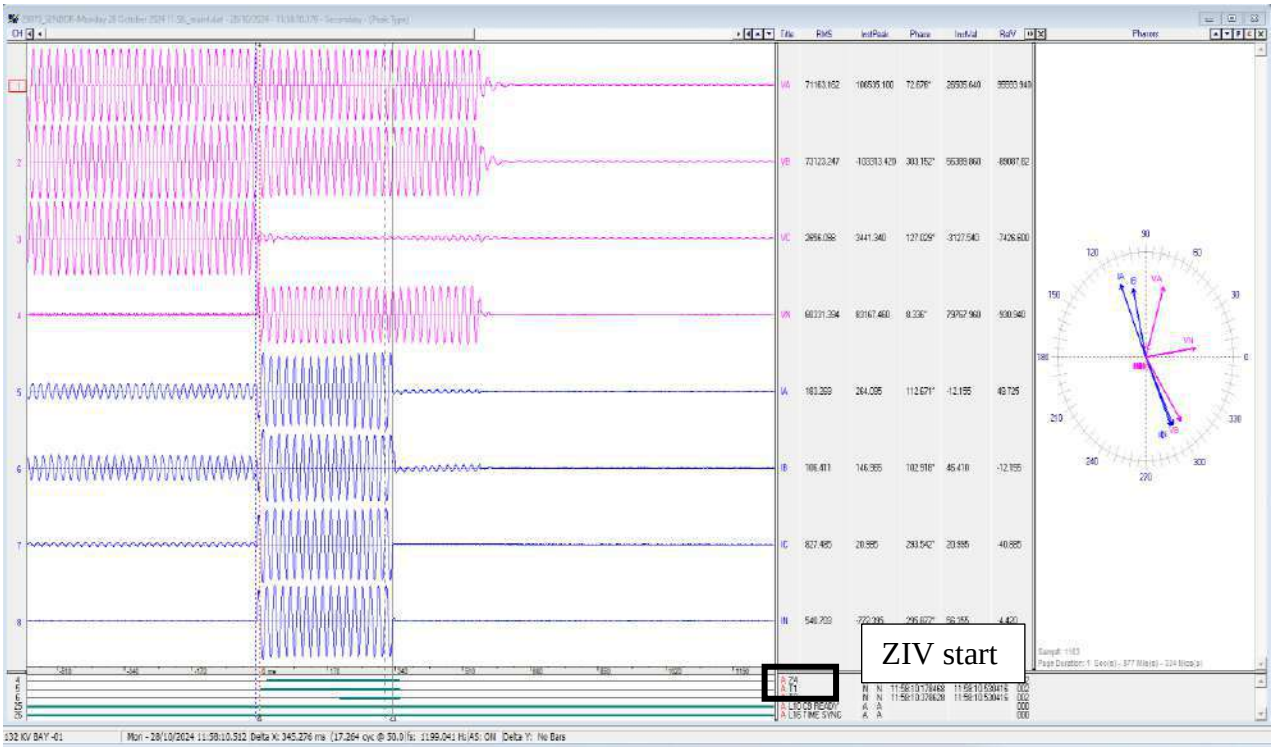
2.1. DR Snapshot of Imphal(PG) for 132 kV Imphal(PG) – Imphal(Yurembam) I Line



2.2. DR Snapshot of Imphal(PG) for 132 kV Imphal(PG) – Imphal(Yurembam) III Line

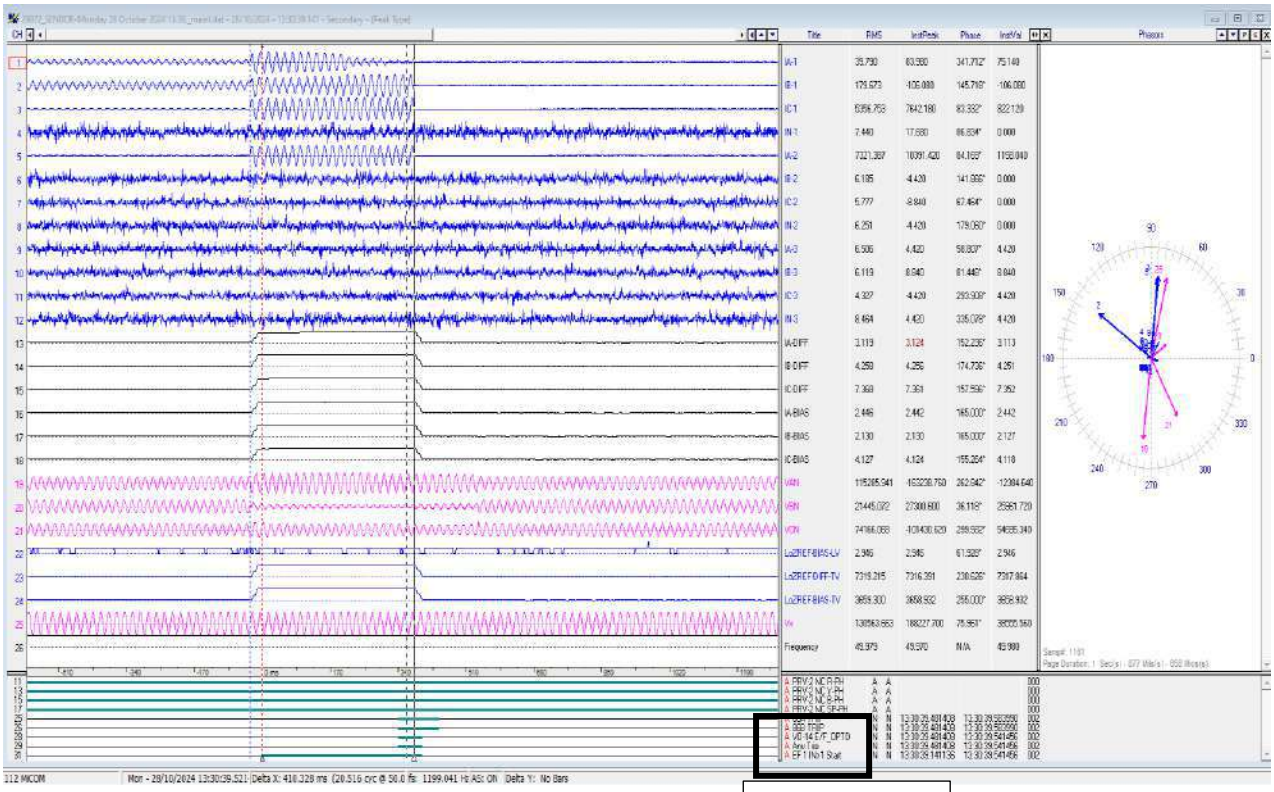


2.3. DR Snapshot of Imphal(Yurembam) for 132 kV Imphal(Yurembam) – Yiangangpokpi I Line



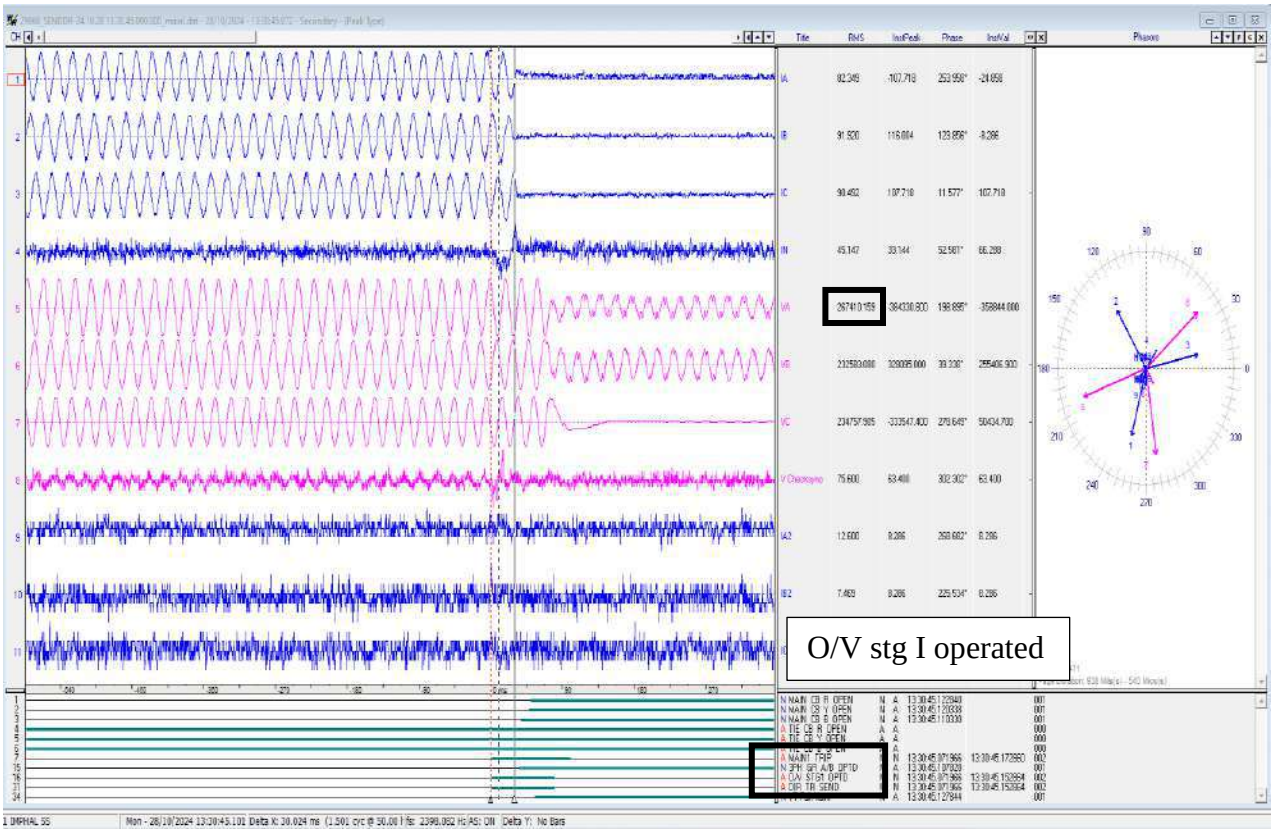
2.4. DR Snapshot of Imphal(Yurembam) for 132 kV Imphal(Yurembam) –Karong Line

2.5. DR Snapshot of 400/132 kV ICT-I at Imphal(PG)



E/F operated

2.6 DR Snapshot of Imphal(PG) for 400 kV Imphal(PG) – Line



O/V stg I operated

2.7 EL Snapshot of New Kohima for 400 kV Imphal(PG)-New Kohima Line

	28/10/2024 13:30:45.119		KOHIMA.400KV.B403_IMPHAL LINE-1.AR FUNCTION.BLOCK	KOHIMA.400KV.B403_IMPHAL LINE-1.AR FUNCTION	BLOCK	RESET -> OPERATED	STATE_CHANGE	1	cBSig		B403KOH1						NOT SUPPORTED
	28/10/2024 13:30:45.118		KOHIMA.400KV.B402_TIE.AR FUNCTION.BLOCK	KOHIMA.400KV.B402_TIE.AR FUNCTION	BLOCK	RESET -> OPERATED	STATE_CHANGE	1	cBSig		B402TIE						NOT SUPPORTED
	28/10/2024 13:30:45.118		KOHIMA.400KV.R403_P444_21M1.INPUTS.86A SUPERVISION	KOHIMA.400KV.R403_P444_21M1.INPUTS	86A SUPERVISION	HEALTHY -> UNHEALTHY	STATE_CHANGE	1	cBSig		R40321M1						NOT SUPPORTED
	28/10/2024 13:30:45.118		KOHIMA.400KV.R403_P141_50BF.INPUTS.LBB INITIATION (86A/86B) 3-PH	KOHIMA.400KV.R403_P141_50BF.INPUTS	LBB INITIATION (86A/86B) 3-PH	RESET -> OPERATED	STATE_CHANGE	1	cBSig		R40350BF						NOT SUPPORTED
	28/10/2024 13:30:45.118		KOHIMA.400KV.R402_P141_50BF.INPUTS.LBB INITIATION (86A/86B) 3-PH	KOHIMA.400KV.R402_P141_50BF.INPUTS	LBB INITIATION (86A/86B) 3-PH	RESET -> OPERATED	STATE_CHANGE	1	cBSig		R40250BF						NOT SUPPORTED
	28/10/2024 13:30:45.117		KOHIMA.400KV.R403_P444_21M1.INPUTS.DIRECT TRIP CH-1	KOHIMA.400KV.R403_P444_21M1.INPUTS	DIRECT TRIP CH-1	NORMAL -> RECEIVED	STATE_CHANGE	1	cBSig		R40321M1						NOT SUPPORTED
	28/10/2024 13:30:45.116		KOHIMA.400KV.R403_D60_21M2.INPUTS.86B	KOHIMA.400KV.R403_D60_21M2.INPUTS	86B	RESET -> OPERATED	STATE_CHANGE	1	cBSig		R40321M2						NOT SUPPORTED
	28/10/2024 13:30:45.112		KOHIMA.400KV.B403_IMPHAL LINE-1.52.86B SUPERVISION	KOHIMA.400KV.B403_IMPHAL LINE-1.52	86B SUPERVISION	HEALTHY -> UNHEALTHY	STATE_CHANGE	1	cBSig		B403KOH1						NOT SUPPORTED
	28/10/2024 13:30:39.688		KOHIMA.400KV.R406_P444_21M1.PROTECTION.DIRECTIONAL E/F START	KOHIMA.400KV.R406_P444_21M1.PROTECTION	DIRECTIONAL E/F START	OPERATED -> RESET	STATE_CHANGE	1	cBSig		R40621M1						NOT SUPPORTED
	28/10/2024 13:30:39.685		KOHIMA.400KV.R403_P444_21M1.PROTECTION.DIRECTIONAL E/F START	KOHIMA.400KV.R403_P444_21M1.PROTECTION	DIRECTIONAL E/F START	OPERATED -> RESET	STATE_CHANGE	1	cBSig		R40321M1						NOT SUPPORTED
	28/10/2024 13:30:39.128		KOHIMA.400KV.R403_P444_21M1.PROTECTION.DIRECTIONAL E/F START	KOHIMA.400KV.R403_P444_21M1.PROTECTION	DIRECTIONAL E/F START	RESET -> OPERATED	STATE_CHANGE	1	cBSig		R40321M1						NOT SUPPORTED
	28/10/2024 13:30:39.127		KOHIMA.400KV.R406_P444_21M1.PROTECTION.DIRECTIONAL E/F START	KOHIMA.400KV.R406_P444_21M1.PROTECTION	DIRECTIONAL E/F START	RESET -> OPERATED	STATE_CHANGE	1	cBSig		R40621M1						NOT SUPPORTED

2.8 DR Snapshot of Loktak for 132 kV Loktak-Imphal Line

Monday 28 October 2024 13:30:39.677	Z2 OFF
Monday 28 October 2024 13:30:39.677	DIST Start C OFF
Monday 28 October 2024 13:30:39.659	Logic Inputs 1
Monday 28 October 2024 13:30:39.626	AR Lockout Shot> ON
Monday 28 October 2024 13:30:39.624	DIST Trip C ON
Monday 28 October 2024 13:30:39.624	Any Trip ON
Monday 28 October 2024 13:30:39.624	DIST Trip A ON
Monday 28 October 2024 13:30:39.624	DIST Trip B ON
Monday 28 October 2024 13:30:39.624	Any Trip A ON
Monday 28 October 2024 13:30:39.624	3P Trip ON
Monday 28 October 2024 13:30:39.624	Output Contacts1
Monday 28 October 2024 13:30:39.624	Any Trip B ON
Monday 28 October 2024 13:30:39.624	Any Trip C ON
Monday 28 October 2024 13:30:39.549	Z2 ON
Monday 28 October 2024 13:30:39.540	Z3 OFF
Monday 28 October 2024 13:30:39.475	A/R Trip 3P ON
Monday 28 October 2024 13:30:39.475	A/R Lockout ON
Monday 28 October 2024 13:30:39.143	TOC Start C ON
Monday 28 October 2024 13:30:39.142	I>1 Start ON
Monday 28 October 2024 13:30:39.140	V< Start Any B ON
Monday 28 October 2024 13:30:39.137	IN>1 Start ON
Monday 28 October 2024 13:30:39.137	V< Start Any C ON
Monday 28 October 2024 13:30:39.137	V<2 Start ON
Monday 28 October 2024 13:30:39.128	Z3 ON
Monday 28 October 2024 13:30:39.127	Any Start ON
Monday 28 October 2024 13:30:39.127	DIST Fwd ON
Monday 28 October 2024 13:30:39.127	DIST Start C ON
Monday 28 October 2024 13:30:39.118	I> Start Any C ON

ग्रिड-इंडिया GRID-INDIA
ग्रिड कंट्रोलर ऑफ इंडिया लिमिटेड
(भारत सरकार का उद्यम)
GRID CONTROLLER OF INDIA LIMITED
(A Government of India Enterprise)
[formerly Power System Operation Corporation Limited (POSOCO)]
उत्तर पूर्वी क्षेत्रीय भार प्रेषण केन्द्र / North Eastern Regional Load Despatch Centre
कार्यालय : लोवर, लापालांग, शिलांग -793006
Office : Lower Nongrah, Lapalang, Shillong- 793006
CIN : U40105DL2009GOI188682, Website : www.nerldc.in, E-mail : nerldc@grid-india.in, Tel.: 0364-2537470/427, Fax: 03642537486

Detailed Report of Grid Disturbance in Rengpang area in Manipur of North Eastern Region

(To be submitted by RLDC/NLDC during Grid Disturbances/Grid Incidents/Near Miss Event as per IEGC section 37.2 (f))

Date (दिनांक): 05-11-2024

1. Event Summary (घटना का सारांश):

Rengpang area of Manipur Power System was connected with rest of NER Grid through 132 kV Loktak – Rengpang line. 132 kV Jiribam -Rengpang line was under outage since 18:18 Hrs of 17.11.2023.

At 22:26 Hrs of 29-10-2024, 132 kV Loktak - Rengpang line tripped. Due to tripping of this element, Rengpang area of Manipur Power System was isolated from NER Grid.

Power supply was extended to Rengpang area of Manipur Power System by charging 132 kV Loktak – Rengpang line at 23:27 Hrs on 29-10-2024.

2. Time and Date of the Event (घटना का स मय और दिनांक): 22:26 Hrs of 29-10-2024

3. Event Category (ग्रिड घटना का प्रकार): GD-I

4. Location/Control Area (स्थान/नियंत्रण क्षेत्र): Rengpang area of Manipur Power System.

5. Antecedent Conditions (पूर्ववर्ती स्थिति):

	Frequency in Hz	Regional Generation (MW)	Regional Demand (MW)
Pre-Event (घटना पूर्व)	50	3091	2577
Post Event (घटना के बाद)	50	3061	2564

Pre and post data of 1 minute before and after the event

Important Transmission Line/Unit if under outage (before the even))महत्वपूर्ण संचरण लाइने/ विधुत उत्पादन इकाइयां जो बंद है(	132 kV Jiribam-Rengpang line was under outage since 18:18 Hrs of 17.11.2023.
Weather Condition (मौसम स्थिति)	Normal

2. **Load and Generation loss (लोड और जेनरेशन हानि):** Load loss of 1 MW.

3. **Duration of interruption (रुकावट की अवधि): 1 Hr 1 min**

4. **Network across the affected area (प्रभावित क्षेत्र का नक्शा):**

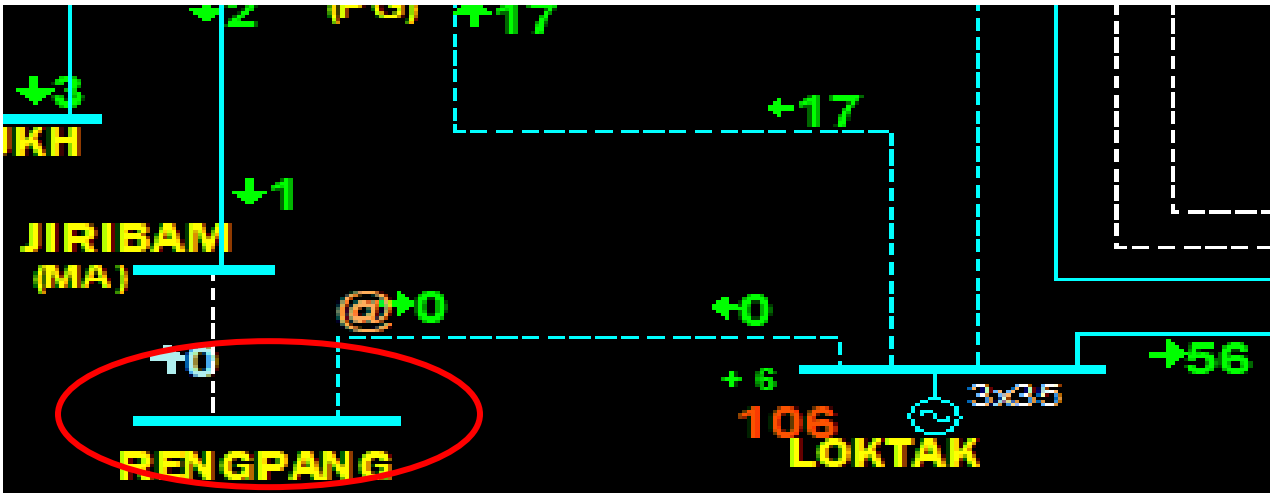


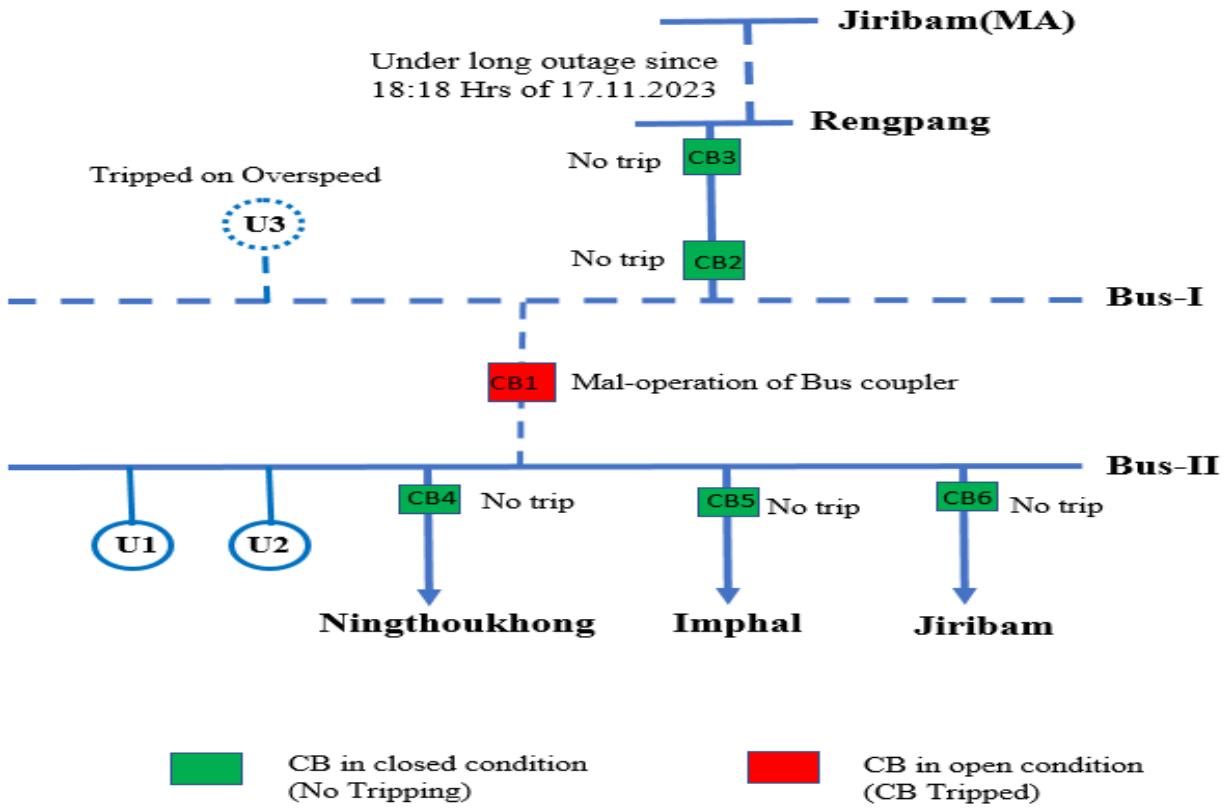
Figure: Network across the affected area

5. **Details of Equipment Failure (if any during the event) (उपकरण विफलता का विवरण): NIL**

6. **Major Elements Tripped (प्रमुख ट्रिपिंग):**

Sl. No.	नाम	Trip time (hh:mm:ss)	Restoration time	उप केंद्र 1 रिले संकेत	उप केंद्र 2 रिले संकेत
1	132 kV Loktak-Rengpang Line	22:26	23:27	Maloperation of bus coupler breaker	No tripping
2	Loktak Unit-3	22:26	23:43	As per FIR, Overspeed relay operated	

7. **Event Analysis (Based on PMU, SCADA & DR) (घटना का विश्लेषण):**



Prior to the event, 132 kV Loktak-Rengpang line & Loktak Unit-3 were connected to 132 kV Loktak Bus-I. 132 kV Loktak-Ningthoukhong, 132 kV Loktak-Imphal & 132 kV Loktak-Jiribam lines were connected to 132 kV Loktak Bus-II.

As informed verbally by NHPC, maloperation of Bus coupler breaker occurred at Loktak due to which 132 kV Loktak Bus-I got isolated and Rengpang area got separated due to load-generation mismatch in this area.

8. **Protection/Operational issues observed (सुरक्षा/परिचालन संबंधी समस्या):**

9. **Action Taken/Remedial Measures (सुधारात्मक उपाय):**

10. **Non-compliance observed (विनियमन का गैर-अनुपालन):**

Sl.No.	Issues	Regulation Non-Compliance	Utilities
1.	**Flash Report received within 8hrs?**	IEGC section 37.2 (b)	**MSPCL**
2.	**Whether DR/EL provided within 24 Hours?**	1. IEGC section 37.2 (c) 2. CEA grid Standard 15.3	**NHPC**
3.	**Detailed Report received within 7 days?**	IEGC section 37.2 (e)	**MSPCL**

4.	**DR Time Synchronization Issues**	IEGC section 17.3	-
5.	**Any other non-compliance**		-

11. Key Lessons Learnt (प्रमुख अधिगम बिंदु):

- Regular patrolling and maintenance related activities needs to be carried out as per various CEA/CERC regulations.

Annexure 1: SOE

AREA	CATEGORY	LOCATION	TEXT	SYSTEM_TIME	FIELD_TIME	MS
TSECL	1C	UDAIP_TE	UDAIPUR CB 132Kv LINE-1 TO MONAR OPEN	29 Oct 2024 12:58:02:000	29 Oct 2024 12:56:20:000	332000000
TSECL	1C	MONAR_TE	MONARCHAK CB 132Kv LINE-1 TO UDAIP INVALID	29 Oct 2024 12:57:06:000	29 Oct 2024 12:56:49:000	407000000
MSPCL	1C	LOKTA_NH	LOKTAK CB 11 KV UNIT (H03) OPEN	29 Oct 2024 22:26:29:000	29 Oct 2024 12:57:09:000	760000000
AEGCL	1C	BALIP_PG	BALIPARA CB CB BNC 1 & MISA 1 CLOSED	29 Oct 2024 13:14:48:000	29 Oct 2024 13:14:37:000	559000000
AEGCL	1C	KOPIL_NO	KOPILI CB 11 KV UNIT (H04) CLOSED	29 Oct 2024 13:56:04:000	29 Oct 2024 13:56:02:000	900000000
MSPCL	1C	LOKTA_NH	LOKTAK CB 132Kv LINE TO RENGP CLOSED	29 Oct 2024 23:27:33:000	29 Oct 2024 13:58:13:000	13000000
AEGCL	1C	KOPIL_NO	KOPILI CB 220/132 T1 (PRIM) BETWEEN	29 Oct 2024 13:59:54:000	29 Oct 2024 13:59:52:000	560000000
MEECL	1C	MAWLA_ME	MAWLAI CB 132/33 T2 (PRIM) CLOSED	29 Oct 2024 14:12:33:000	29 Oct 2024 14:12:24:000	1000000
MEECL	1C	MAWLA_ME	MAWLAI CB 132/33 T2 (PRIM) OPEN	29 Oct 2024 14:12:45:000	29 Oct 2024 14:12:38:000	132000000
MSPCL	1C	LOKTA_NH	LOKTAK CB 11 KV UNIT (H03) CLOSED	29 Oct 2024 23:43:48:000	29 Oct 2024 14:14:29:000	522000000
TSECL	1C	ROKHI_TE	ROKHIA CB 132 KV COUPLER (10) BETWEEN	29 Oct 2024 14:17:49:000	29 Oct 2024 14:17:35:000	446000000
TSECL	1C	ROKHI_TE	ROKHIA CB 132Kv LINE-1 TO MONAR BETWEEN	29 Oct 2024 14:17:49:000	29 Oct 2024 14:17:37:000	26000000
ARUNCH	1C	PARE__NO	PARE CB 11 KV UNIT (G01) OPEN	29 Oct 2024 22:04:49:000	29 Oct 2024 22:04:42:000	770000000
MSPCL	1C	LOKTA_NH	LOKTAK CB 132 KV COUPLER (05) OPEN	29 Oct 2024 22:26:27:000	29 Oct 2024 22:25:49:000	744000000
MSPCL	1C	LOKTA_NH	LOKTAK CB 132/11 T1 (PRIM) CLOSED	29 Oct 2024 22:26:29:000	29 Oct 2024 22:25:51:000	390000000
MSPCL	1C	LOKTA_NH	LOKTAK CB 132/11 T1 (PRIM) BETWEEN	29 Oct 2024 22:26:58:000	29 Oct 2024 22:26:20:000	827000000