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Agenda

for

74th PCCM

Govt. of India

Ministry of Power

North Eastern Regional Power Committee

Shillong

North Eastern Regional Power Committee

Agenda for

74th Protection Coordination Sub-Committee Meeting

Date: 16/12/2024 (Monday)

Time: 11:00 hrs.

Venue: NERLDC conference Hall, Guwahati

A. CONFIRMATION OF MINUTES

1. CONFIRMATION OF MINUTES OF THE 73rd PROTECTION SUB-COMMITTEE MEETING OF NERPC.

Minutes of the 73rd PCC Meeting held on 26th November, 2024 (Tuesday) at NERPC Conference Hall, Shillong was circulated vide letter No.: NERPC/SE (O)/PCC/2024/3205-3247 dated 5th December, 2024.

No comments were received from constituents

The Sub-committee may confirm the minutes of 73rd 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.

In 73rd PCCM, following points were discussed -
Utilities updated as follow-

	Utility/Constituents	Internal Audit	External audit

		Status (73rd PCCM)	**report**	**Status (73rd PCCM)**	**report**
1.	Ar. Pradesh	Chimpu – done. Rest to be done	Report of Chimpu to be submitted by December'24	Financial approval for the audit pending. Schedule to be decided afterwards.	NA
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. For rest, to be planned later.	NA
7.	Tripura	11 done, rest by December '24. For 66kV SS - audit by Decmber'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.	Shared for Pare and Turial	To be planned. Waiting for the list of agencies from NPC	

		RC Nagar and Kathalguri to be planned			
13.	OTPC	Done		Done	shared
14.	NTPC	Done	shared	September 3rd week	
15.	NHPC				
16.	APGCL				
17.	TPGCL				
18.	MEPGCL				

Further discussion-

1. DoP Arunachal Pradesh updated for the external audit, financial approval is pending with higher authorities. Meanwhile DoP AP, requested NERPC to conduct the 3rd Party audit. NERPC stated that the decision on the matter will be taken up in next PCC meeting.
2. Mizoram stated that that they were planning Third-party Audit through recognized auditor and for the same they were waiting for the CEA recognized auditor list. NERPC opined that Mizoram can conduct the external audit by hiring appropriate agencies through internal process till the list is finalized by NPC/CEA.
3. DoP Nagaland informed the forum that due to ongoing Hornbill festival in the state, external audit of the 5 substations (Sania, Wokha, Kohima, Chiepouvouzou and Dimapur) would not be possible in November'24 and requested that external audit of the same could be done tentatively in Jan'25.
4. It was also decided that Audit of the 5 SS of Nagaland can be conducted in Jan'25 by NERPC and audit of Kolasib (Mizoram), Aizwal (PG), Melriat (PG) and other nearby important substations also to be conducted by Jan'24.

Sub-committee may deliberate

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

NERLDC Agenda

B.3 <u>Status of submission of FIR, DR & EL outputs for the Grid Events for the month of November'2024:</u>

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 01-11-2024 to 31-11-2024 as on **09-12-2024** 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	7	7	7	7	3	3	3	4	4	4	43	43	43
DEPL	0	0	0	0	0	0	0	0	0	0	No event		
AEGCL	18	18	16	16	18	16	16	0	0	0	100	100	100
APGCL	0	0	0	0	0	0	0	0	0	0	No event		
MSPCL	7	7	6	6	5	3	3	2	3	3	71	50	50
MePTCL	8	8	7	8	8	7	8	0	0	0	100	100	100
MePGCL	0	0	0	0	0	0	0	0	0	0	No event		
P&ED, Mizoram	0	0	0	0	0	0	0	0	0	0	No event		
DoP, Nagaland	5	5	5	5	5	4	4	0	1	1	100	80	80
TSECL	2	2	2	2	2	2	2	0	0	0	100	100	100
TPGCL	0	0	0	0	0	0	0	0	0	0	No event		
POWERGRID	26	26	24	23	26	23	22	0	0	1	100	100	96
NEEPCO (Line/ICT)	9	9	8	8	7	7	6	2	1	1	78	88	88
NEEPCO (Unit)	17	17	4	15	17	2	10	0	2	3	100	50	80
NHPC	2	2	2	2	2	2	2	0	0	0	100	100	100
NTPC (Unit)	1	1	1	1	0	0	0	1	1	1	0	0	0
OTPC	0	0	0	0	0	0	0	0	0	0	No event		
NTL	5	5	5	5	5	5	5	0	0	0	100	100	100
MUML	1	1	1	1	0	0	0	1	1	1	0	0	0
KMTL	0	0	0	0	0	0	0	0	0	0	No event		

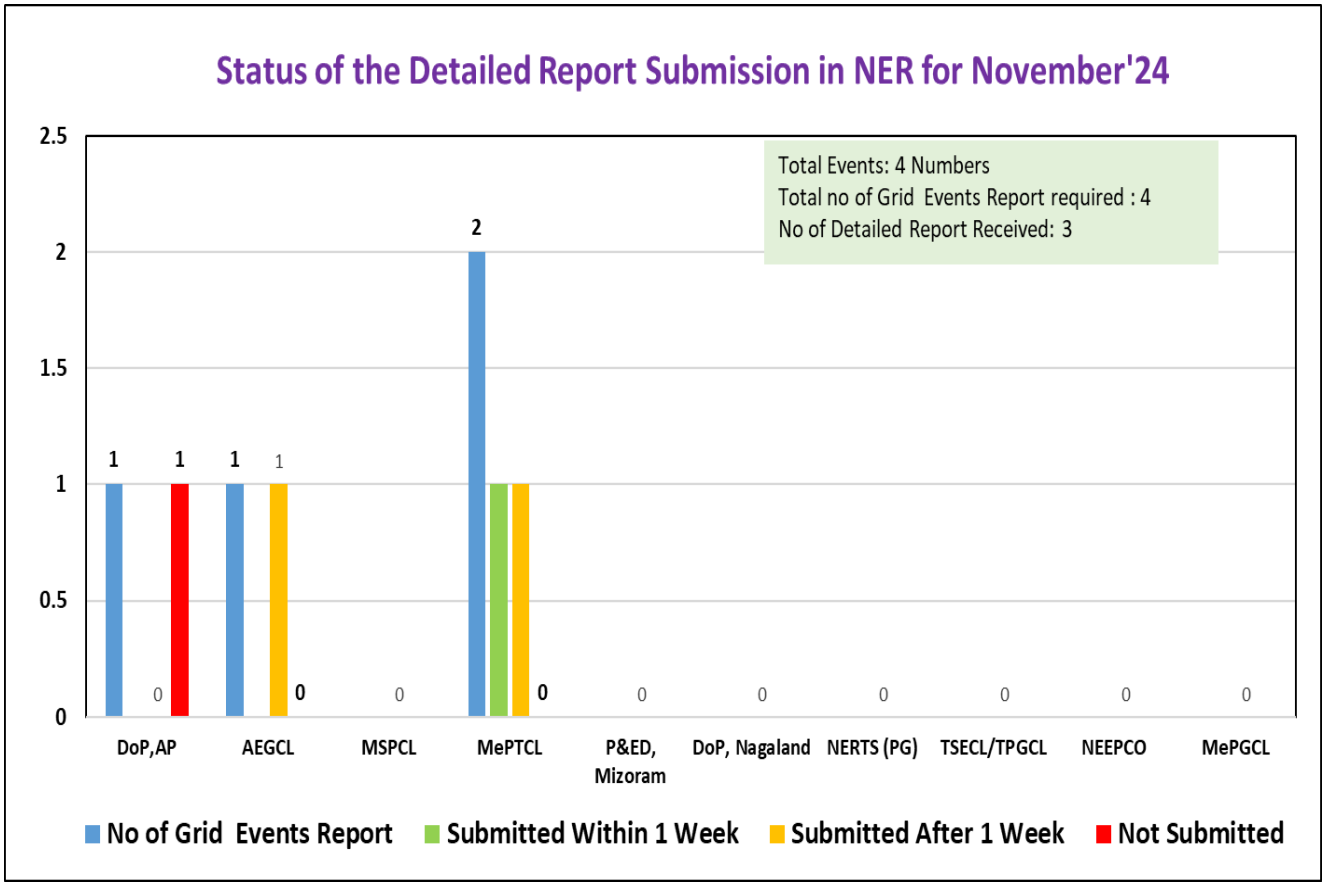
Concerned Utilities are requested to upload Disturbance Recorder (DR), Event Logger (EL) outputs for grid events along with a First Information Report (FIR) in Tripping Monitoring Portal (https://tripping.nerldc.in/Default.aspx) for analysis purpose. In light of the cybersecurity measures implemented 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)

Sub-committee may deliberate

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 **November, 2024** as on **09-12-2024** 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 November 2024:

Sl. No.	Element Name	Tripping Date and Time	RELAY_A	RELAY_B	Auto-Recloser not Operated	Remarks from Utility
1	132 kV Aizawl - Tipaimukh Line	02-11-2024 10:22	DP, ZII,Y-E, FD: 32.4 KM, Carrier received after CB opening , No Carrier aided tripping	LLG fault. IL1 1.06kA IL2 0.88 kA FD: 63.3 km (**A/R Successful**)	Aizawl(PGCIL)	
2	220 kV Behiating - Tinsukia 1 Line	02-11-2024 10:32	DP, ZI, B-E, 1.1 kA	DP, ZI, B-E	Both ends	
3	132 kV Hailakandi - Panchgram Line	02-11-2024 11:39	DP, ZI, R-Y-E, FD: 18.68 Kms, **A/R Successful**	DP, ZI, R-Y-B-E, 2.6 Km	Panchgram(AEGCL)	
4	132 kV Panchgram - Lumshnong Line	04-11-2024 12:50	DP, ZI, Y-E, FD: 12.5km, 3.2kA	DP, ZI, Y-E, FD: 39.9 km	Both Ends	
5	132 kV Haflong - Jiribam Line	05-11-2024 23:02	DP, ZI, R-E, FD: 72.05 km	DP, ZI, R-E, FD: 6.01 km	Both Ends	
6	132 kV Jiribam - Pailapool Line	05-11-2024 23:03	DP, ZI, R-Y, FD: 9.07 km, **A/R Successful**	DP, ZI, R-Y, FD: 4.5 km	Pailapool (AEGCL)	

Sl. No.	Element Name	Tripping Date and Time	RELAY_A	RELAY_B	Auto-Recloser not Operated	Remarks from Utility
1	132 kV Aizawl - Tipaimukh Line	02-11-2024 10:22	DP, ZII,Y-E, FD: 32.4 KM, Carrier received after CB opening , No Carrier aided tripping	LLG fault. IL1 1.06kA IL2 0.88 kA FD: 63.3 km (**A/R Successful**)	Aizawl(PGCIL)	
2	220 kV Behiating - Tinsukia 1 Line	02-11-2024 10:32	DP, ZI, B-E, 1.1 kA	DP, ZI, B-E	Both ends	
7	132 kV Haflong - Jiribam Line	06-11-2024 00:02	R-N, Z-I, 13.99 Km, 1.23 kA	R-N, Z-I, 53.74 Km, 1.13 kA	Both Ends	
8	132 kV Bokajan - Dimapur Line	10-11-2024 13:08	DP, ZI, Y-E, FD: 20.3 kms	DP, ZI, Y-E, FD: 8.4 KM, **AR Successful**	Bokajan (AEGCL)	
9	132 kV Roing - Pasighat Line	23-11-2024 03:46	DP, ZI, R-E, FD: 30.76 Km	DP, ZI, R-E, FD: 55.68 Km	Roing(PGCIL)	

Utility 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 09.12.2024, **NETC, MUML, DoP Nagaland, MePGCL, MePTCL, OTPC, NTL, AEGCL, DoP, AP and TPTL** has submitted protection performance indices for the month of November'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	OTPC	-	-	-	No tripping during Nov'24
3	MUML	-	-	-	No tripping during Nov'24
4	DoP Nagaland	1	0.8	1	Unwanted tripping of 132 kV Kohima-Zadima line on 02.11.2024
5	MePGCL	1	1	1	
6	MePTCL	0.91	1	0.91	On 15.11.2024, fault in 132 kV Lumshnong-Adhunik Cement feeder which was not cleared from Lumshnong end leading to tripping of healthy 132 kV Lumshnong-Panchgram and 132 kV Khleihriat-Panchgram line.
7	AEGCL	1	1	1	
8	NTL	1	1	1	

9	DoP, AP	1.000	0.5	0.5	The protection system of the ICT and faulty downstream 33 kV feeder failed to isolate the fault causing tripping of the 132 kV lines to Pasighat from Along and Roing end.
10	TPTL	1	1	1	

Protection Performance Indices not received from transmission utilities such as **POWERGRID, MSPCL and NEEPCO.** Also, not received from Generating companies such as **NHPC and NTPC**.

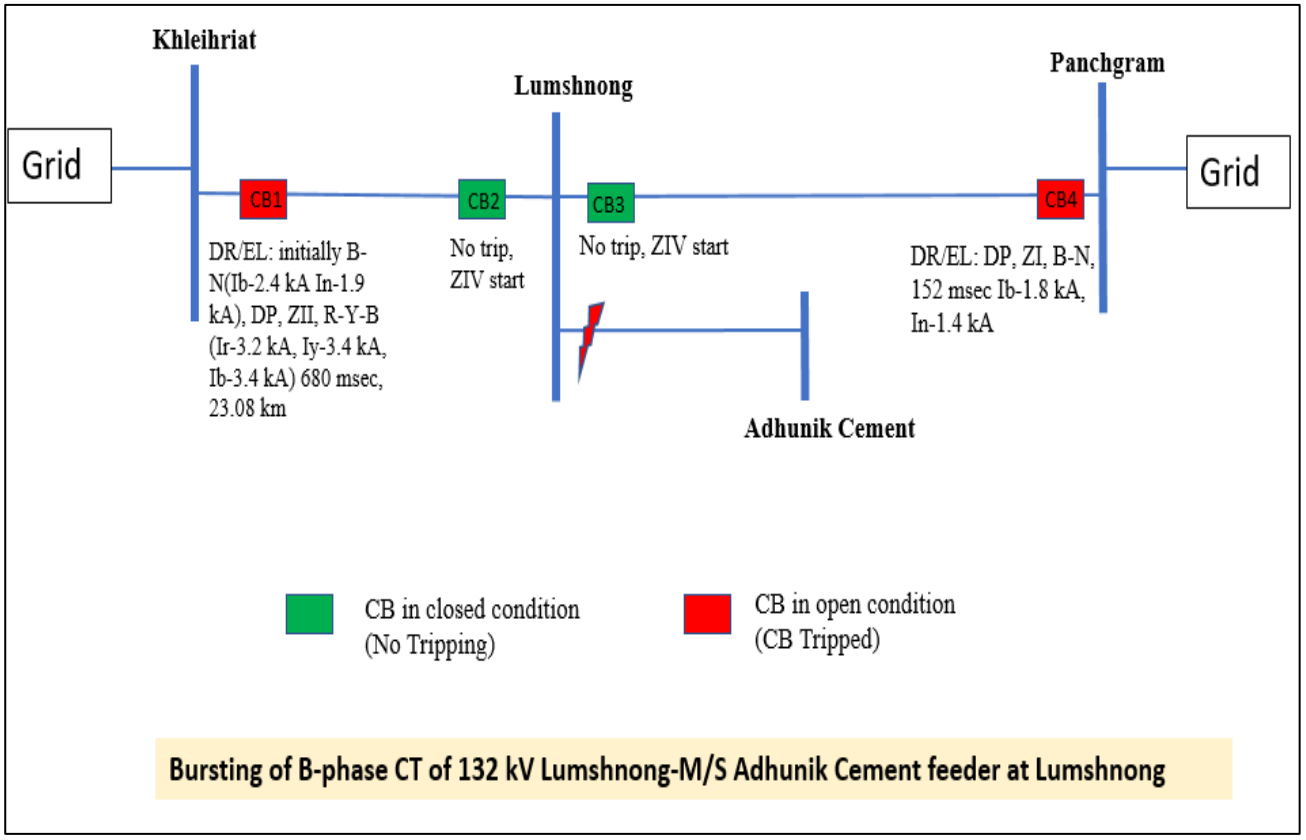
Therefore, all Users are requested to furnish and ensure performance indices (Dependability-D, Security-S, Reliability-R) with regards to the tripping of elements to NERPC & NERLDC positively by **10th** of every month for previous month indices in compliance with IEGC.

Sub-committee may deliberate

B.7 Grid Disturbance in Lumshnong area of Meghalaya on 15-11-2024:

Lumshnong area of Meghalaya Power System were connected to NER Power system via 132 kV Lumshnong-Panchgram line and 132 kV Lumshnong-Khleihriat line.

At 22:13 Hrs of 15-11-2024, 132 kV Lumshnong-Panchgram Line and 132 kV Lumshnong-Khleihriat line tripped due to which grid disturbance at Lumshnong occurred. Load loss of 43 MW occurred.



Following observations:

- For 132 kV Lumshnong-Panchgram line, B-N fault initiated at 22:13:34.511 Hrs and cleared within 152 msec on ZI from Panchgram end. There was no tripping from Lumshnong end (ZIV pickup)
- For 132 kV Khleihriat-Lumshnong line, B-N fault initiated and after 186 msec, fault current disappeared. Again after 86 msec, B-N fault reappeared and first converted into Y-B-N fault and then into R-Y-B fault which was cleared within 680 msec on operation of DP, ZII. There was no tripping from Lumshnong end (ZIV pickup)
- Fault was in 132 kV Lumshnong-M/S Adhunik Cement feeder due to bursting of B-ph CT at Lumshnong which was not cleared from Lumshnong end causing tripping of healthy 132 kV Khleihriat-Lumshnong line & 132 kV Lumshnong-Panchgram line.
- Tripping of 132 kV Panchgram-Lumshnong line on ZI from Panchgram end seems to have overreached. AEGCL needs to check/review the distance setting to avoid overreaching of ZI.
- Time drift of 1 Hour observed at Khleihriat end for 132 kV Khleihriat-Lumshnong line which need to be sync with GPS by MePTCL.

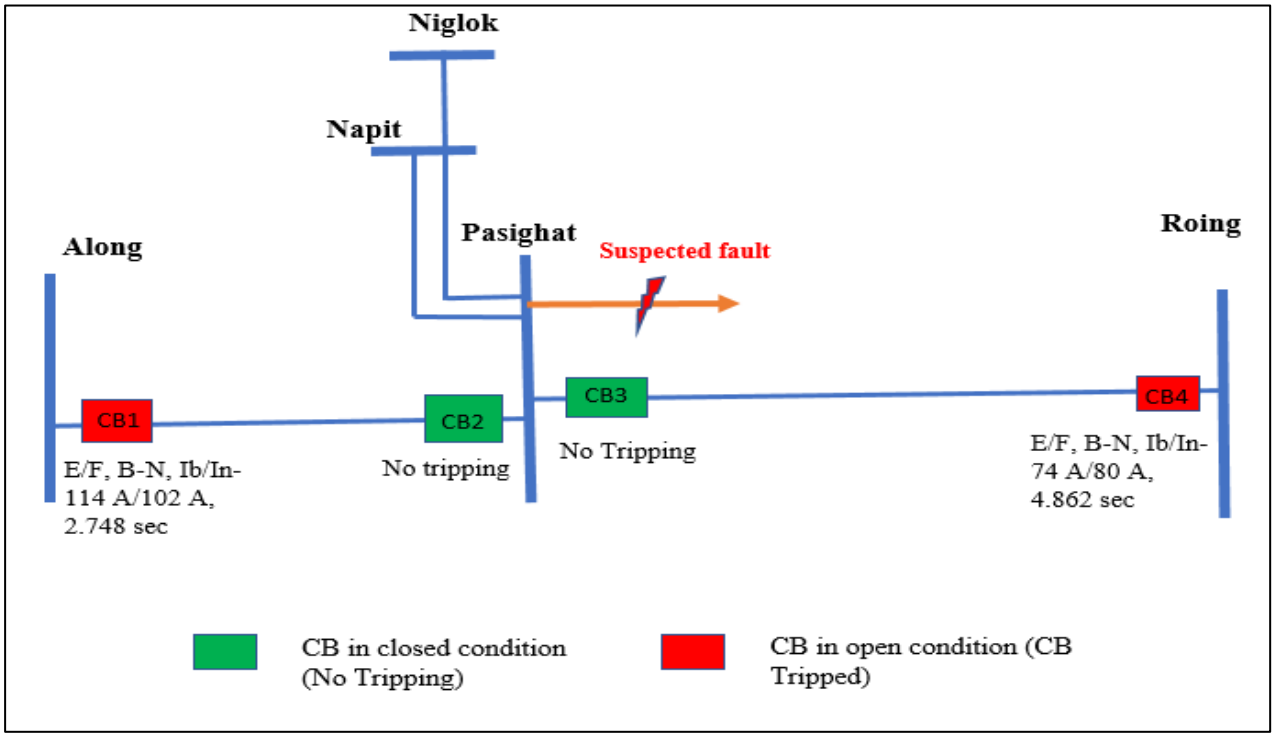
MePTCL/AEGCL is requested to:

- Share the root cause and remedial measures taken.
- Furnish the reason of non-operation of protection system at Lumshnong end for 132 kV Lumshnong-M/S Adhunik Cement feeder.
- Check/review the distance protection setting to avoid overreaching of ZI.
- Rectify the DR time drift at Khleihriat end.

Sub-committee may deliberate

B.8 Grid disturbance in Pasighat and radially connected Niglok and Napit areas of Arunachal Pradesh on 16-11-2024:

Pasighat area and radially connected Niglok and Napit areas of Arunachal Pradesh power system were connected to NER Power system via 132 kV Along-Pasighat and 132 kV Roing-Pasighat lines. At 06:13 Hrs of 16-11-2024, 132 kV Along-Pasighat Line and 132 kV Roing-Pasighat line tripped. Load loss of 8 MW occurred.



Following observations:

- High resistive B-N fault (Ib-114 A, In-102 A) initiated at 06:13:48.275 Hrs and cleared within 2.748 sec from Along end on operation of Backup E/F and within 4.862 sec from Roing end on operation of Backup E/F protection. There was no tripping from Pasighat end for both the lines.
- Suspected fault is in downstream of Pasighat.

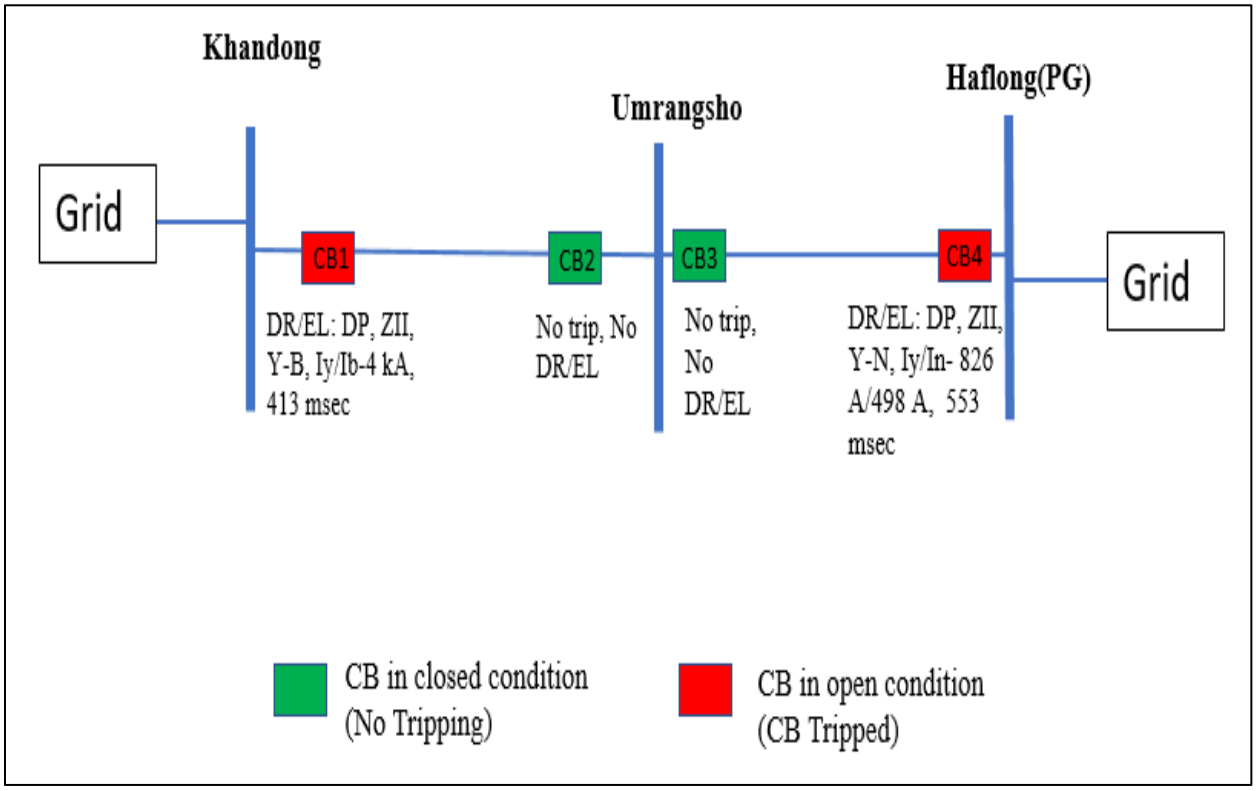
- Protection system at Pasighat failed to isolate fault in downstream feeder at Pasighat due to which fault was cleared by tripping of healthy lines 132 kV Along-Pasighat & 132 kV Roing-Pasighat lines.

DoP Arunachal Pradesh is requested to share the root cause and remedial actions taken.

B.9 Grid disturbance in Umrangsho area of Assam on 24-11-2024:

Umrangsho area of Assam Power System was connected with connected to NER Power system via 132 kV Haflong(PG) - Umrangsho Line & 132 kV Khandong - Umrangsho Line.

At 04:55 Hrs of 24.11.2024, 132 kV Haflong(PG) - Umrangsho Line & 132 kV Khandong – Umrangsho line tripped due to which Umrangsho area of Assam Power System was isolated from NER Grid and collapsed due to no source available in this area. Load loss of 2 MW occurred.



As per DR analysis of 132 kV Khandong-Umrangsho line, Y-B fault (Iy-4 kA, Ib-4 kA) initiated at 04:55:26.146 Hrs and cleared within 413 msec on operation of DP, ZII from Khandong end. There was no tripping from Umrangsho end.

As per DR analysis of 132 kV Haflong(PG)-Umrangsho line, Y-N fault (Iy-826 A In-498 A) initiated at 04:55:24.959 Hrs and cleared within 553 msec from Haflong(PG) end on operation of DP, ZII. There was no tripping from Umrangsho end.

As informed by AEGCL, fault was in between CVT, LA and Gantry point of 132kV Umrangshu – Haflong (PG) line.

AEGCL is requested to:

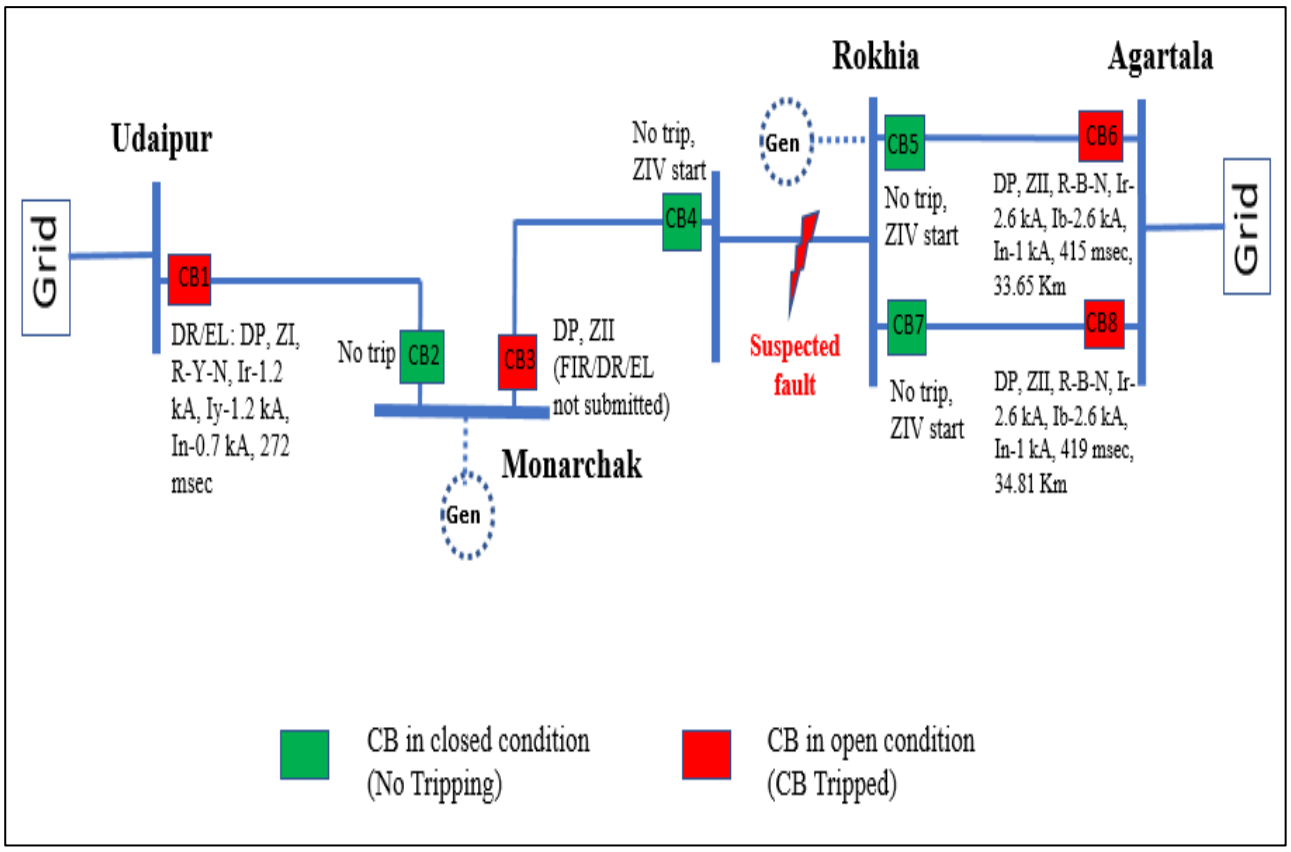
- Update the reason of non-tripping of Umrangsho CB for 132 kV Haflong(PG)-Umrangsho line.
- Submit DR/EL at Umrangsho end for both the lines for proper analysis of the event.

Sub-committee may deliberate

B.10 <u>Grid Disturbance in Monarchak and Rokhia areas of Tripura on 06-12-2024:</u>

Monarchak and Rokhia generating station of Tripura Power System was connected with rest of NER Grid through 132 kV Monarchak – Udaipur Line, 132kV Monarchak – Rokhia line and 132kV Rokhia – Agartala D/C lines.

At 13:06 Hrs of 06.12.2024, 132 kV Monarchak – Udaipur Line, 132kV Monarchak – Rokhia line and 132 kV Rokhia – Agartala D/C lines tripped along with Rokhia unit-9. Load loss of 8 MW and generation loss of 17 MW occurred.



As per DR analysis, R-B-N fault initiated at 13:05:19.698 Hrs and cleared within 415 msec from Agartala end on operation of DP, ZII. No tripping from Rokhia end (ZIV start)

132 kV Monarchak-Rokhia line tripped on ZII from Monarchak (No FIR/DR/EL submitted). There was no tripping from Rokhia end (ZIV start)

Following observations:

- Suspected fault in 132 kV Rokhia-Rokhia link feeder which was not cleared leading to tripping of healthy lines 132 kV Monarchak-Rokhia line & 132 kV Agartala-Rokhia D/C lines on ZII from remote ends.
- At the same time, 132 kV Monarchak-Udaipur line tripped on ZI from Udaipur end which seems unwanted.
- At the same time, AGTCCPP Unit-2 & 6 tripped which seems to be misoperation.

TPTL/NEEPCO is requested to:

- Share the root cause and remedial actions taken.
- Update the status of installation of Line differential protection in 132 kV Rokhia-Rokhia Link feeder.
- Furnish the reason of tripping of 132 kV Monarchak-Udaipur line for fault in 132 kV Rokhia S/S.
- Reason of tripping of AGTCCPP Unit-2 & 6.
- Submit detailed report in compliance with IEGC-23
- Submit DR/EL within the specified timeline as per IEGC-23.

Sub-committee may deliberate

B.11 <u>Mock testing of SPS related to reliable power supply to Bangladesh:</u>

As per 73rd PCC minutes, mock SPS testing of SPS related to reliable power to Bangladesh has been planned during December'24. However, due to non-functioning of PLCC link of 132 kV Palatana-Surajmaninagar line, SPS mock testing could not be conducted.

POWERGRID is requested to update the restoration status of PLCC communication system of 132 kV Palatana-Surajmaninagar line as it is crucial for carrier inter-tripping as well.

B.12 Status Update on Parameter standardization of Disturbance Recorder (DR):

The parameter standardization of Disturbance Recorder (DR) was approved during the 59th PCCM (B.30 Standardization of Disturbance Recorder (DR) Channels). Subsequently, it has been incorporated into the Protection Protocol of the North Eastern Region by NERPC (62nd PCCM 20th December 2023). As per the Uniform Protection Protocol, DR parameters are to be standardized in line with the recommendations of the FOLD working group-3.

Sl. No.	Utility Name	Status update
1	DoP Arunachal Pradesh	
2	DEPL	
3	AEGCL	
4	APGCL	
5	MSPCL	
6	MePTCL	
7	MePGCL	
8	P&ED Mizoram	
9	DoP Nagaland	
10	TSECL	
11	TPGCL	
12	POWERGRID	
13	NEEPCO	
14	NHPC	
15	NTPC	
16	OTPC	
17	NTL	
18	MUML	
19	KMTL	

All utilities are requested to provide an update on the status of uniform adoption of parameter standardization for Disturbance Recorder (DR).

Sub-committee may deliberate

B.13 Review of existing SPS of NER:

All existing 22 SPS of NER has been reviewed.

List of SPS of NER:

SL No.	SPS	Required	Remarks
1	Trpipping of 400 kV Palatana-Silchar D/C	Yes	
2	Reverse power flow more than 60 MW from LV to HV side of 2 X 315 MVA, 400/220 kV Azara ICTs	Not Required	As 220kV BTPS(AS) - Salakati D/C has been reconductored with HTLS conductor. There will be no overloaidng due to reversal of Power Flow in Mirza ICTs, so SPS is now not required.
3	Tripping of 132 kV Umiam Stg-I to Umiam Stg-III D/C lines	Not Required	After commissiong of 220kV Mawngap-Killing D/C and recoductoring of 132kV Umiam III - Umiam I D/C, SPS is not required
4	When 220 kV BTPS (Salakati)-Salakati(PG) D/C gets overloaded or in case of outage of one circuit the other circuit gets overloaded i.e loading greater than 824 A	Yes	
5	Related to the safe evacuation of power from BgTPP(NTPC) generation	Yes	
6	Related to Generation evacuation from Monarchak(NEEPCO) Power Plant	Yes	
7	Outage of 220 kV BTPS (Salakati) – Rangia I & II	Yes	
8	Related to the tripping of Bus Reactors at 400 kV S M Nagar (ISTS)	Yes	
9	Related to the tripping of Bus Reactors at 400 kV P K Bari (ISTS)	Yes	
10	Related to the tripping of Bus Reactors at 400 kV Imphal (PG)	Yes	

SL No.	SPS	Required	Remarks
11	Related to Outage of any one of the 400/132kV 2x360MVA ICTs at Panyor Lower Hydro Power Station (erstwhile RHEP) (NEEPCO)	Yes	
12	Related to outage of 220 kV Azara-Sarusajai D/C	Yes	
13	Related to outage of 220 kV Misa-Samaguri DC	Yes	
14	Related to the outage of 132 kV Panyor HEP-Ziro Line	Yes	
15	Related to outage of any one circuit of 132 kV Leshka – Khliehriat D/C	Yes	
16	Related to outage of any one circuit of 132 kV Dimapur(PG)-Dimapur(NA) D/C	Yes	
17	Related to outage of any one circuit of 220 kV Balipara-Sonabil D/C		
	Criteria I	Yes	
	Criteria II	Yes	
18	Related to the outage of any one circuit of the 132 KV Khliehriat (PG)-Khliehriat D/C line	Yes	
19	**Tinsukia SPS**		
	Criteria I	Yes	
	Criteria II	Yes	
20	Related to 132kV SM Nagar(ISTS) - SM Nagar line to prevent Overloading	Yes	
21	Related to Outage of 400 kV Palatana – Surajmani Nagar line (Charged at 132 kV)	Yes	
22	Related to Outage of both 400/132 kV, 2x125 MVA ICTs at Palatana	Yes	

The following 2 SPS is not required to be operational.

i) SPS related to reverse power flow more than 60 MW from LV to HV side of 2x315 MVA, 400/220 kV Azara ICTs

ii) SPS related to tripping of 132 kV Umiam Stg-I to Umiam Stg-III D/C lines.

Therefore, concerned utilities are requested to disable the above mentioned SPS.

Sub-committee may deliberate

B.14 Requirement of SPS in Arunachal Pradesh Power system:

Reporting party: DoP Arunachal Pradesh & POWERGRID

Classification: SPS related to reliable power supply to Arunachal Pradesh

Operation: Load disconnection

1. **Special Protection Scheme (SPS) at Tezu substation to prevent under voltage issue prior to connection of Niglok load at Pasighat area of Arunachal Power System:**

   The purpose of this SPS is to mitigate low voltage issues at Namsai and Tezu Substations by implementing a coordinated load-shedding scheme through automatic disconnection of 132/33 kV ICTs during specific low-voltage conditions.

   Scheme:

   When voltage at Tezu drops to 105 kV for 2.5 sec, a signal will be generated to trip HV side CB of ICTs at Tezu.

2. **Special Protection Scheme (SPS) at Pasighat substation for preventing Overloading of 132 kV Tinsukia-Rupai/Tinsukia-Ledo Lines:**

   The purpose of this SPS is to mitigate overloading on the 132 kV Tinsukia-Rupai line in the event of a tripping on the 132 kV Paynor-Ziro Line through automatic disconnection of 132 kV Pasighat-Napit line under specific conditions, after the connection of the Niglok load in the Pasighat area of Arunachal Power System.

   Scheme:

   Trigger condition:

   i) Power flow direction change: The power flow in the 132 kV Pasighat-Along Line changes from import to export mode, with a current magnitude of 10 Amperes.

   ii) Overloading of Pasighat-Napit Line: The current on the 132 kV Pasighat-Napit Line exceeds 65 Ampere with a time delay of 3.5 seconds.

   If both of the above conditions are fulfilled, a signal will be generated to trip the CB of 132 kV Pasighat-Napit line at Pasighat.

The detailed SPS scheme is attached in **Annexure A** & **Annexure B**.

DoP Arunachal Pradesh and POWERGRID is requested to implement the SPS logics at the earliest.

B.15 Relay Setting Database for 66 kV and Above Substations:

Maintaining a comprehensive relay setting database is essential for effective protection analysis and ensuring accurate coordination of the protection system. A well-maintained database benefits all stakeholders by enhancing the accuracy and reliability of these records.

All utilities are requested to share the substation-wise relay setting status on the PDMS portal of NERPC in comparison with the actual settings implemented at site.

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 no state has provided the progress report for the month of Oct'24. He added that Tripura has not submitted any monthly progress report so far. The forum strongly asked the states to submit the monthly report and ensure compliance with CERC order.

Tripura assured to start providing the reports shortly.

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 73rd PCCM

Sl No	**Element Name**	**Tripping date and time**	**Relay End1**	**Relay End2**	**A/R not Operated**	**Remarks from Utility (73rd 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	The Relay Testing kit has been received last week. AR (without carrier) to be enabled by Dec'24

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	WIP, completion by Nov'24
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. Work will be completed in the upcoming shutdown.
5	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 and update by next PCC

Utilities may further update

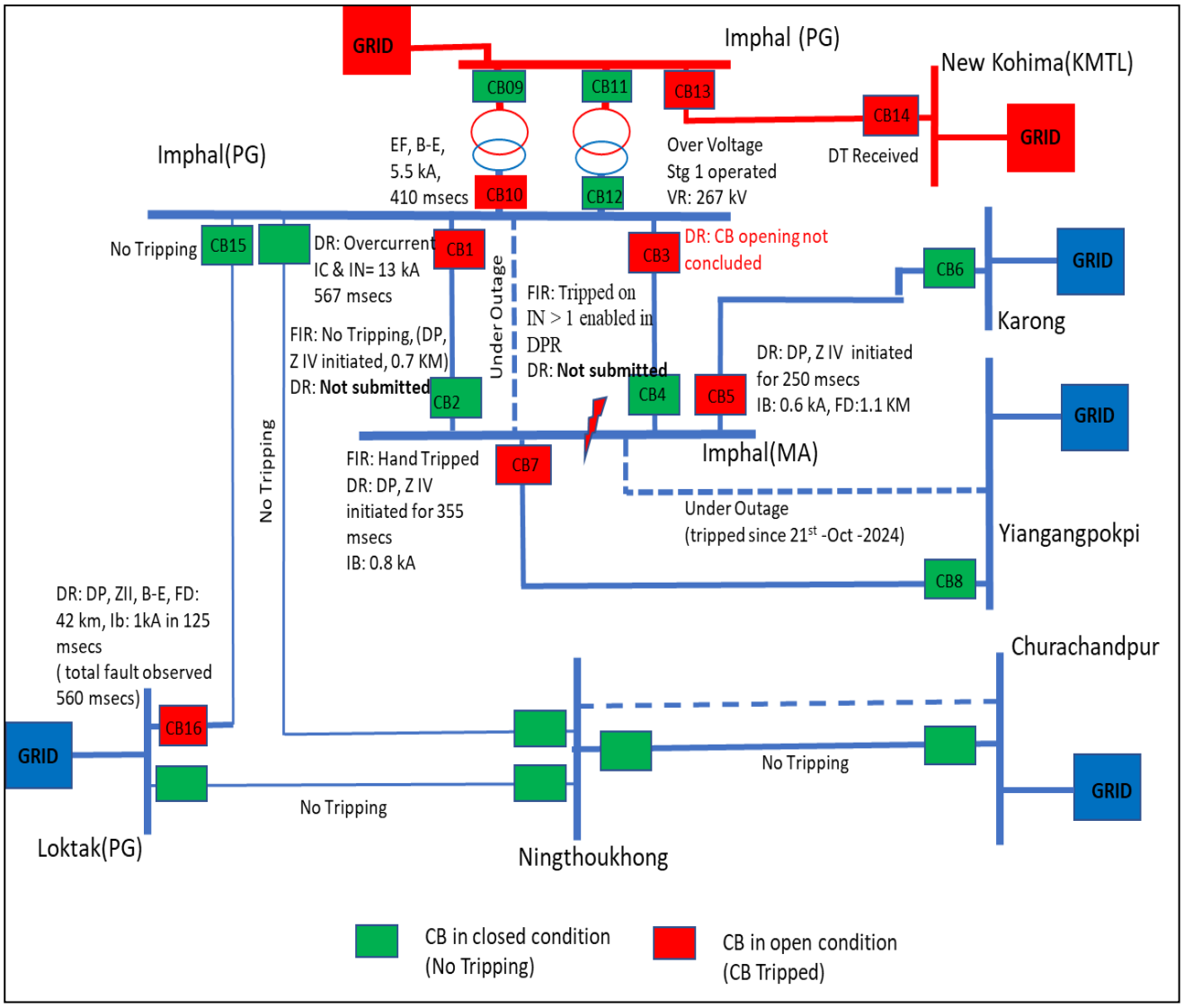
C.3 Grid Disturbance in the Imphal (Yurembam) substation of Manipur power system on 28th October 2024:

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.

Deliberation of 73rd PCCM

1. Manipur stated, regarding the root cause of the fault, that fault initiated due to B-phase Bus jumper snapping at Yurembam SS, however further investigation are underway to ascertain the correct root cause of the fault.
2. NERTS informed that for 132 kV Imphal(PG)-Imphal(Yurembam) III line, Bay at Imphal(PG) owned by MSPCL and relay did not sense any fault during the event.
3. 132 kV Imphal(PG)- Imphal(Yurembam) 1 Line tripped on Overcurrent at Imphal(PG) end in 567 msecs. NERTS informed that distance relay sensed the fault in ZIII.
4. NERTS informed there was some wiring issue in 315 MVA ICT-I at Imphal which has been rectified.
5. NERTS informed O/V at Imphal(PG) was caused in 400 kV Imphal-New Kohima I line during switching of PT selection relays during trip of ICT-1 in which contact of PT selection relay was found burnt & continuously shorted. The same has been replaced.
6. NERLDC emphasized the importance of having a Standard Operating Procedure for any switching operation to prevent any human error.
7. The forum opined that the incident involves multiple failure of protection system at connecting substations and lines and therefore referred the matter to PSAG for further analysis and finalization of remedial actions.

Sub-committee may deliberate

C.4 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.

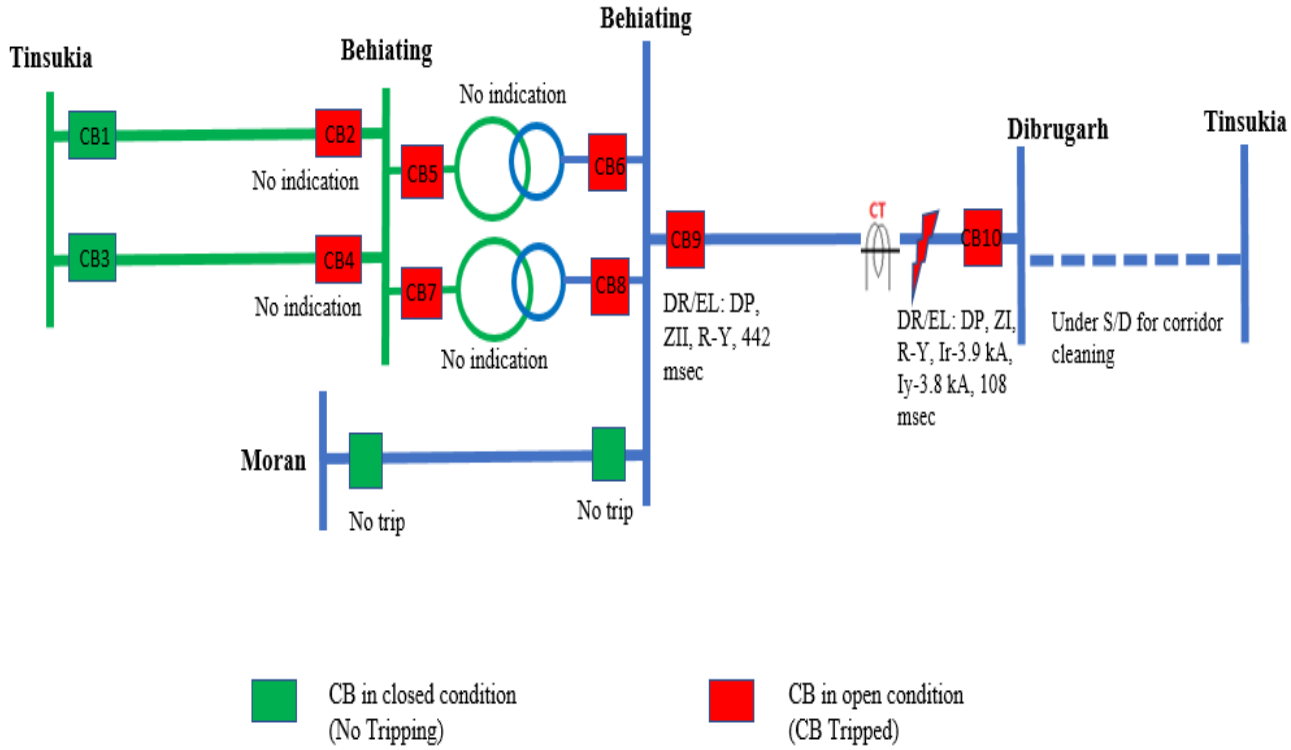
In 73rd PCCM, M/s PRDC updated that the training could not be conducted in Nov'24 owing to server and power supply related issues. He further stated that the training will be conducted in Jan'25.

M/s PRDC may update

C.5 Grid Disturbance in Dibrugarh area in Assam on 29-10-2024:

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.

Deliberation of 73rd PCCM -

1. AEGCL informed that fault is between CT and Line Isolator (RØ-YØ) of 132 kV Dibrugarh – Behiating Line.
2. NERLDC highlighted the absence of Carrier inter-trip scheme in 132 kV Dibrugarh-Behiating line. The same needs to be reviewed by AEGCL.
3. Forum asked AEGCL to review the protection setting at Behiating S/S thoroughly.

C.6 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 (as updated in 73rd PCCM by the utilities): -

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	Operated Correctly in Sep'24 (Triggering criteria 2)

	crosses 300Amps. , 8-10 MW of load at 132kV Rupai GSS will be shed.	
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)	After commissioning of GIS. Jan'25
11	Related to Outage of any one of the 400/132kV 2x360MVA ICTs at Panyor Lower Hydro Power Station	By Dec'24
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)	By Jan'25
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	By Jan'25

14	Related to the outage of any one circuit of the 132 kV Khliehriat (PG)- Khliehriat D/C line	Done on 22nd November'24
15	Related to outage of any one circuit of 132 kV Leshka – Khliehriat D/C	2nd week of Dec'24
16	SPS related to 132 kV Surajmaninagar(ISTS)-Surajmaninagar(TSECL) line to prevent overloading	Implemented on 11.11.2024 after necessary testing

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.

Utilities may further update

C.7 Implementation of Uniform Protection protocol vis-à-vis review of protection settings

The Uniform Protection Protocol has been approved by 15th NPC on 14.11.24. As the protocol, review of protection setting of following power system elements have to be done -

- 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.

In 73rd PCCM, NLDC (through VC) requested the forum to start reviewing the protection settings of the power system elements in compliance with the Uniform Protection Protocol. NERPC stated that a protection sub-group has ben constituted in 71st PCCM for the purpose and the first meeting of the sub-group will be held shortly.

Sub-committee may deliberate

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 73rd PCCM

Sl no	**State**	**Important Transmission lines where AR has to be enabled at the earliest**	**Status (72nd /71st PCCM)**	**Status as per 73rd PCCM**
1.	Arunachal Pradesh	132kV Balipara-Tenga, 132kV Ziro-Daporijo-Along-Pashighat link	PLCC implementation under PSDF underway. 3-Ph AR has been enabled on the lines (without carrier)	3 Ph AR has been enabled on the lines. PLCC implementation underway.
2.	Assam	All 220kV and 132kV lines	Process underway. 220kV – Completed except for Kathalguri-tinsukia line which	220kV -all done except for Amguri-NTPS and Tinsukia-Kathalguri lines

			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.	132kV – Completed except for 2 lines. The same will be completed shortly
3.	Manipur	132kV Imphal-Ningthounkong	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)	Matter was thoroughly discussed in State protection committee.	AR on Lumshnong - Panchgram line will be enabled after FTC is completed

			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	Relay testing kit has been repaired but not received yet. Target-Sept.'24	Relay testing kit received. AR to be enabled by Dec'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 73rd PCCM -

Name of utility	**Last updated status (72nd /71st PCCM)**	**Status as per 73rd 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 has been taken up as resolution by RPC forum	Pending with PSDF
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 prepared and will be sent to PSDF shortly.

	Mizoram stated that DPR in final stage. Price offer 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 waited 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 update

D.3. Status against remedial actions for important grid events:

Status as updated in the 73rd PCCM:

Sl No	Details of the events(outage)	Remedial action suggested	Name of the utility & previous update	Status as per 73rd 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 submitted, Approval pending.)	DPR returned by PSDF.
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	Card received but found defective. New Card will be sent by the OEM shortly.
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

****

Special Protection Scheme (SPS) at Tezu substation to prevent under voltage issue prior to connection of Niglok load at Pasighat area of Arunachal Power System

Objective: The purpose of this SPS is to mitigate low voltage issues at Tezu Substations by implementing a coordinated load-shedding scheme through automatic disconnection of 132/33 kV ICTs during specific low-voltage conditions.

Scheme Overview

1. Tezu Substation SPS Logic

Trigger Condition: Voltage at Tezu drops to 105 kV for 2.5 seconds.

Action: Generate a signal to trip the HV side CB of ICTs at Tezu.

Result: Improved voltage levels at Tezu.

2. **Implementation Steps:**

A. Configuration

- Check the feasibility of enabling U/V setting in either of 132 kV Tezu-Roing or Tezu-Namsai Line at Tezu substation.
- Configure the relays to monitor voltage levels and trigger the SPS at the specified thresholds Pickup: 105 kV and Td: 2.5 sec.
- Integrate the relays with ICT tripping circuits (Group-A and B) for load-disconnection mechanisms.
- Configure DR so that record can be generated on tripping of ICTs as **UV SPS trip** and **UV SPS Start**

B. **Signal Transmission Setup:** Ensure reliable communication systems are in place between relays and ICT control circuits.

C. Documentation and Approval

- Record the detailed SPS logic, settings and test results.
- Actual implementation scheme drawing
- Obtain approval from relevant authorities for implementation.
- SPS ON/OFF status and SPS operated signal to be mapped with NERLDC control room as per regulation mandate.

Special Protection Scheme (SPS) at Pasighat substation for preventing Overloading of 132 kV Tinsukia-Rupai/Tinsukia-Ledo Lines

Objective: The purpose of this SPS is to mitigate overloading on the 132 kV Tinsukia-Rupai line in the event of a tripping on the 132 kV Paynor-Ziro Line through automatic disconnection of 132 kV Pasighat-Napit line under specific conditions, after the connection of the Niglok load in the Pasighat area of Arunachal Power System..

Scheme Overview

1. Pasighat Substation SPS Logic

Trigger Condition: Following two conditions must be met-

i) **Power Flow Direction Change**: The power flow in the 132 kV Pasighat-Along Line changes from import to export mode, with a current magnitude of 10 Amperes(2 MW)

ii) **Overloading of Pasighat-Napit Line**: The current on the 132 kV Pasighat-Napit Line exceeds 65A Ampere (15 MW with pf 0.95) with a time delay of 3.5 seconds.

Action: Generate a signal to trip the Circuit breaker of the 132 kV Napit Line at Pasighat Substation.

Result: Alleviation of overloading on the 132 kV Tinsukia-Rupai Line, ensuring reliable grid operation.

This scheme is designed to enhance the reliability of the Arunachal Power System by efficiently managing line loading under specific contingencies.

2. **Implementation Steps:**

A. Configuration

- Verify the feasibility of enabling the directional current setting for the 132 kV Pasighat-Along Line and the overloading/OC setting for the132 kV Pasighat-Napit Line at Pasighat substation.
- Configure the relays to monitor power direction, current levels and trigger the SPS when the specified thresholds are exceeded.
- Integrate the relays with the tripping circuits of the Napit Line to enable automatic disconnection mechanisms.
- Configure the Disturbance Recorder (DR) to generate records for SPS-triggered tripping of the Napit Line, categorizing events as ***SPS Trip*** and ***SPS Start***.

B. **Signal Transmission Setup:** Ensure reliable communication systems are in place between relays and Napit Line control circuits.

C. Documentation and Approval

- Record the detailed SPS logic, settings and test results.
- Actual implementation scheme drawing
- Obtain approval from relevant authorities for implementation.
- ***SPS ON/OFF status and SPS operated signal to be mapped with SLDC Scada and NERLDC control room as per regulation mandate.***

ग्रिड कंट्रोलर ऑफ इंडिया लिमिटेड

GRID CONTROLLER OF INDIA LIMITED

Formerly Power System Operation Corporation Limited

North Eastern Regional Load Despatch Centre, Shillong

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

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

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ग्रिड-इंडिया GRID-INDIA
ग्रिड कंट्रोलर ऑफ इंडिया लिमिटेड
(भारत सरकार का उद्यम)
GRID CONTROLLER OF INDIA LIMITED
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Detailed Report of Grid Disturbance in Lumshnong area of Meghalaya 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):28-11-2024

1. Event Summary (घटना का सारांश):

Lumshnong area of Meghalaya Power System were connected to NER Power system via 132 kV Lumshnong-Panchgram line. Prior to the event, 132 kV Lumshnong-Khleihriat line was under planned shutdown since 07:15 Hrs of 04.11.2024.

At 12:50 Hrs of 04-11-2024, 132 kV Lumshnong-Panchgram Line tripped. Due to tripping of this line, Lumshnong area of Meghalaya Power System was isolated from NER Grid and collapsed due to no source available in this area.

Power supply was extended to Lumshnong area of Meghalaya Power System by charging 132 kV Lumshnong-Panchgram line at 13:21 Hrs of 04-11-2024.

2. Time and Date of the Event (घटना का स मय और दिनांक): 12:50 Hrs of 04-11-2024.

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

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

5. Antecedent Conditions (पूर्ववर्ती स्थिति):

	Frequency in Hz	Regional Generation (MW)	Regional Demand (MW)
Pre-Event (घटना पूर्व)	49.98	2060	2179
Post Event (घटना के बाद)	49.98	2089	2156

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 Khliehriat - Lumshnong was under planned shutdown since 07:15 Hrs of 04.11.2024
Weather Condition (मौसम स्थिति)	Normal

2. **Load and Generation loss (लोड और जेनरेशन हानि):** Load loss of 25 MW.

3. **Duration of interruption (रुकावट की अवधि): 31 min**

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

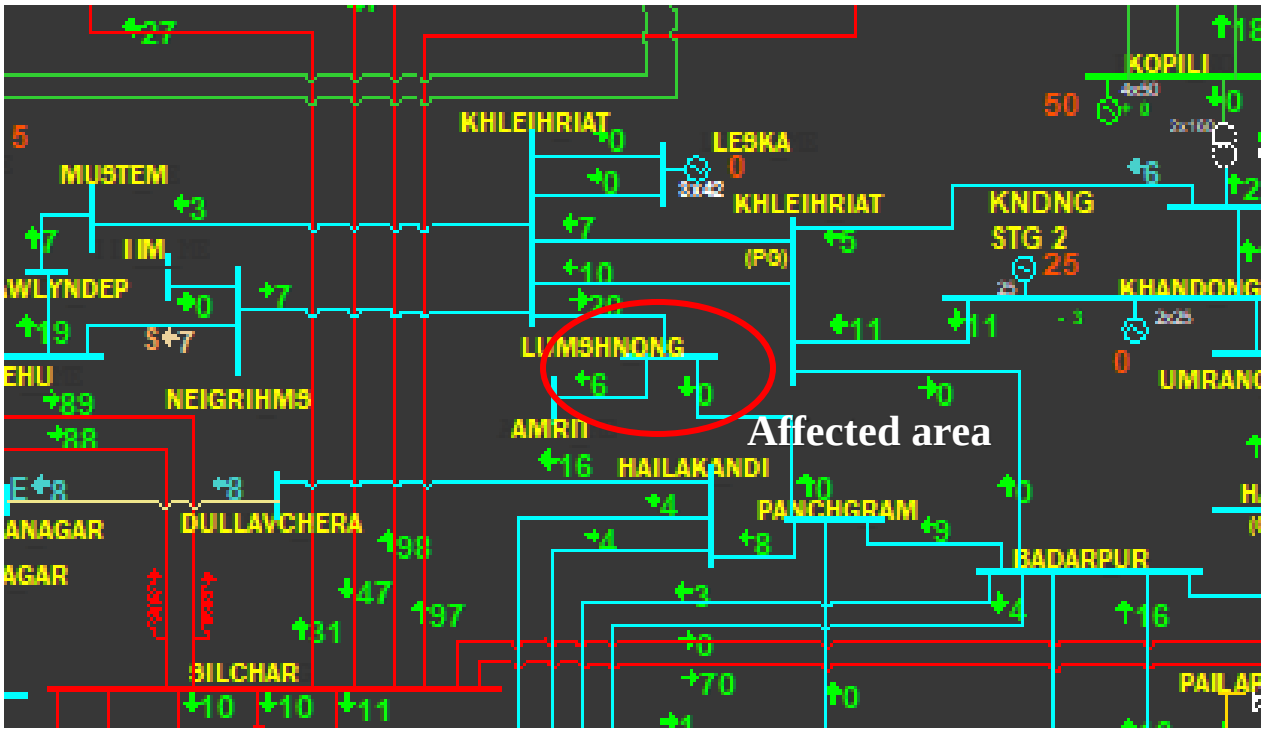


Figure 1: Network across the affected area

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 Lumshnong-Panchgram Line	12:50	13:21	DP, ZI, Y-N, 39.9 Km	DP, ZI, Y-N, 12.5 Km

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

As per DR analysis, Y-N fault (Iy-3.8 kA, In-3.6 kA) initiated at 12:49:24.195 Hrs in 132 kV Lumshnong-Panchgram line and cleared the fault within 69 msec from Panchgram end on operation of DP, ZI and within 60 msec from Lumshnong end on operation of DP, ZI.

As informed by MePTCL, cause of fault was most likely due to vegetation.

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

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

- Line maintenance party was informed for necessary patrolling and maintenance.

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)	**MePTCL (submitted on 25.11.2024)**
4.	**DR Time Synchronization Issues**	IEGC section 17.3	**No violation**
5.	**Any other non-compliance**		-

11. Key Lessons Learnt (प्रमुख अधिगम बिंदु):

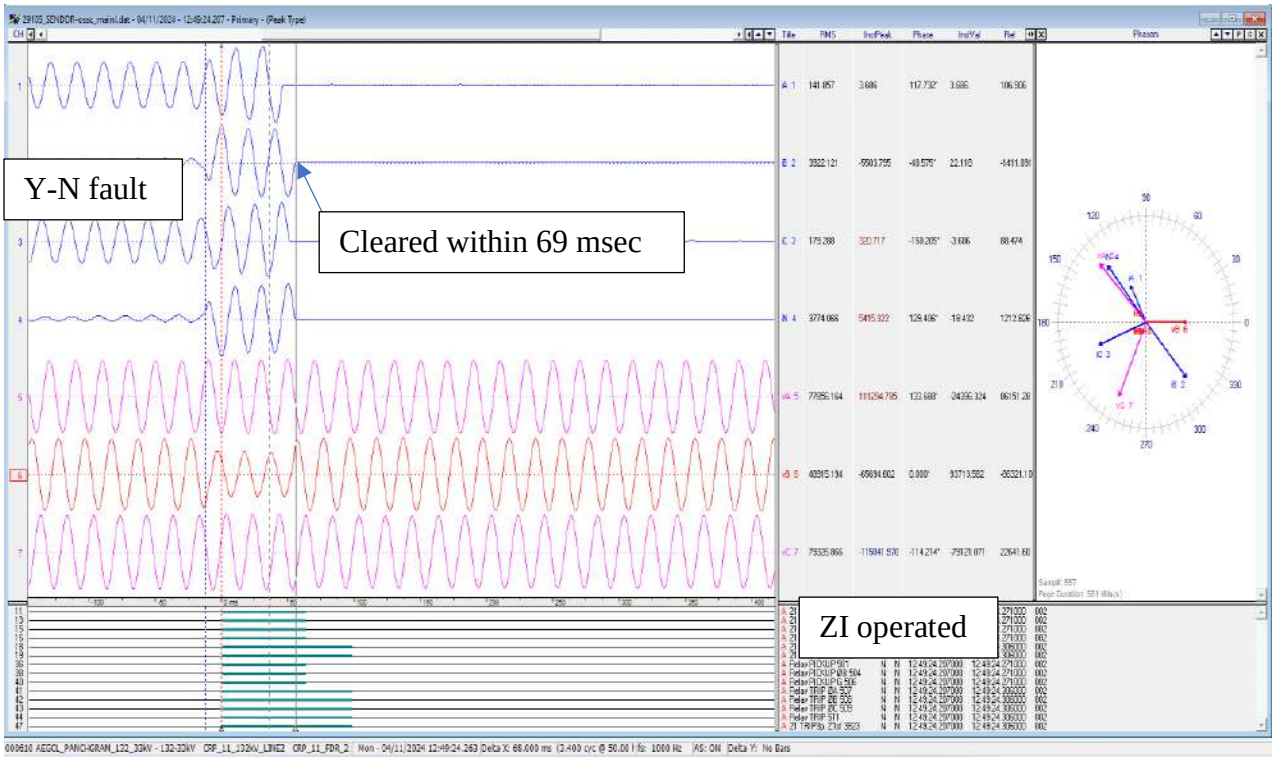
- Proper patrolling and maintenance related activities as per CEA regulations needs to be carried out.

Annexure 1: Sequence of Events as per SCADA

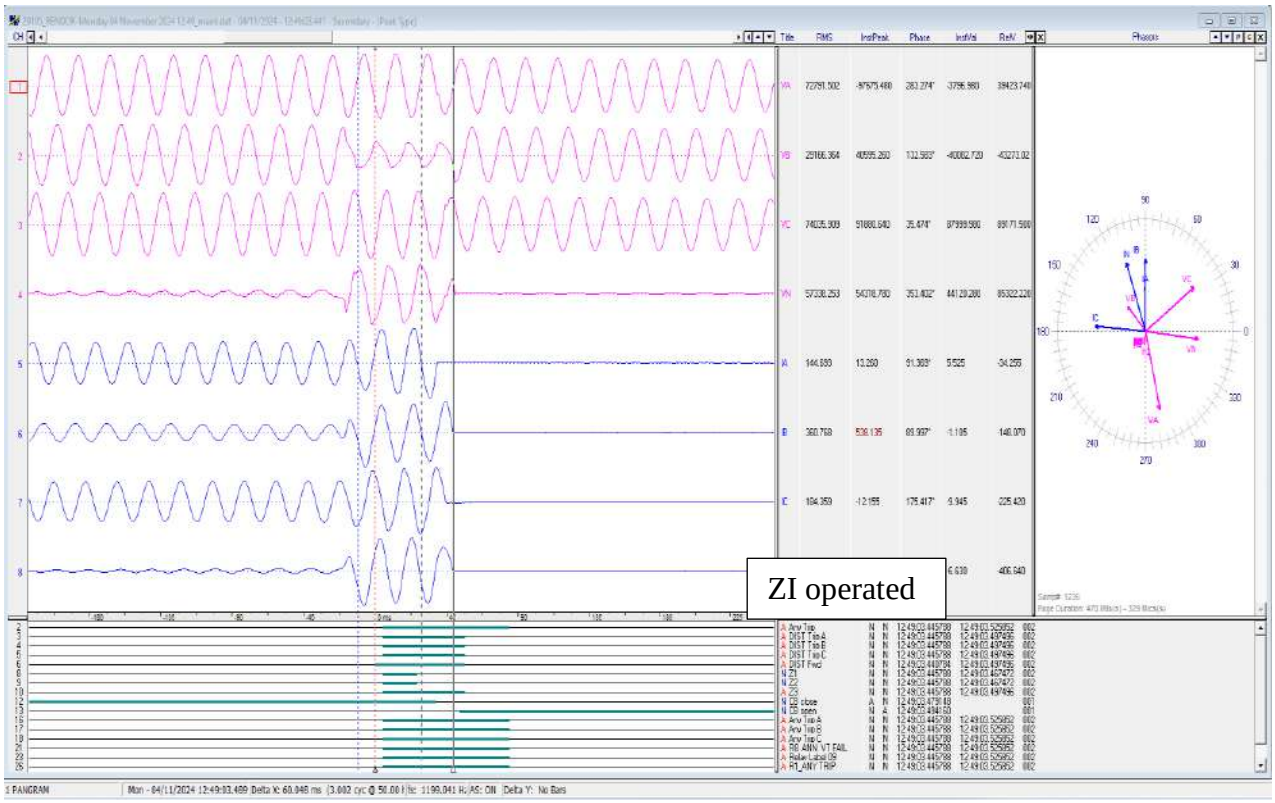
AREA	CATEGORY	LOCATION	TEXT	SYSTEM_TIME	FIELD_TIME	MS
AEGCL	1C	LANGP_AS	KARBI LONGPI CB 11 KV UNIT (G2) CLOSED	04 Nov 2024 12:46:36:000	04 Nov 2024 12:46:17:000	9.6E+08
ARUNCH	1C	RANGA_NO	PANYOR CB 11 KV UNIT (H03) CLOSED	04 Nov 2024 12:48:16:000	04 Nov 2024 12:48:14:000	96000000
MEECL	1C	LUMSH_ME	LUMSHNONG CB 132Kv LINE TO PANCH OPEN	04 Nov 2024 12:49:42:000	04 Nov 2024 12:49:23:000	2.14E+08
AEGCL	1C	PANCH_AS	PANCHGRAM CB 132Kv LINE TO LUMSH OPEN	04 Nov 2024 12:49:42:000	04 Nov 2024 12:49:29:000	7.37E+08
MEECL	1C	AMRIT_ME	AMRIT CB 132Kv LOAD HILL_ OPEN	04 Nov 2024 12:49:42:000	04 Nov 2024 12:49:40:000	2.19E+08
MEECL	1C	AMRIT_ME	AMRIT CB 132/6.6 T1 (PRIM) CLOSED	04 Nov 2024 12:49:42:000	04 Nov 2024 12:49:40:000	2.19E+08
MEECL	1C	NWUMT_ME	NEW UMTRU CB 132 KV UNIT (H01) OPEN	04 Nov 2024 13:05:08:000	04 Nov 2024 13:04:38:000	1.63E+08
MEECL	1C	NANGA_ME	NANGALBIBRA CB 33Kv LOAD BAGHM OPEN	04 Nov 2024 13:15:44:000	04 Nov 2024 13:15:07:000	3.12E+08
MEECL	1C	LUMSH_ME	LUMSHNONG CB 132Kv LINE TO PANCH CLOSED	04 Nov 2024 13:20:36:000	04 Nov 2024 13:20:14:000	43000000
AEGCL	1C	MISA__PG	MISA CB 400/220 T3 (SEC) OPEN	04 Nov 2024 13:20:48:000	04 Nov 2024 13:20:47:000	5.58E+08
AEGCL	1C	PANCH_AS	PANCHGRAM CB 132Kv LINE TO LUMSH CLOSED	04 Nov 2024 13:21:30:000	04 Nov 2024 13:21:09:000	7.07E+08
AEGCL	1C	MISA__PG	MISA CB 400/220 T3 (SEC) CLOSED	04 Nov 2024 13:21:50:000	04 Nov 2024 13:21:49:000	8.32E+08
MEECL	1C	LUMSH_ME	LUMSHNONG CB 132Kv LOAD MPL__ CLOSED	04 Nov 2024 13:23:13:000	04 Nov 2024 13:22:58:000	4.84E+08

Annexure 3: Disturbance recorder snips showing faults and digital signals

3.1. DR Snapshot of Panchgram for 132 kV Lumshnong-Panchgram Line



3.2. DR Snapshot of Lumshnong for 132 kV Lumshnong-Panchgram Line



ग्रिड-इंडिया GRID-INDIA ग्रिड कंट्रोलर ऑफ इंडिया लिमिटेड
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Detailed Report of Grid Disturbance in Lumshnong area of Meghalaya 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):26-11-2024

1. Event Summary (घटना का सारांश):

Lumshnong area of Meghalaya Power System were connected to NER Power system via 132 kV Lumshnong-Panchgram line and 132 kV Lumshnong-Khleihriat line.

At 22:13 Hrs of 15-11-2024, 132 kV Lumshnong-Panchgram Line and 132 kV Lumshnong-Khleihriat line tripped. Due to tripping of this line, Lumshnong area of Meghalaya Power System was isolated from NER Grid and collapsed due to no source available in this area.

Power supply was extended to Lumshnong area of Meghalaya Power System by charging 132 kV Lumshnong-Khleihriat line at 23:14 Hrs of 15-11-2024.

2. Time and Date of the Event (घटना का स मय और दिनांक): 22:13 Hrs of 15-11-2024.

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

4. Location/Control Area (स्थान/नियंत्रण क्षेत्र): Lumshnong and Amrit area of Meghalaya Power System

5. Antecedent Conditions (पूर्ववर्ती स्थिति):

	Frequency in Hz	Regional Generation (MW)	Regional Demand (MW)
Pre-Event (घटना पूर्व)	49.99	2108	2093
Post Event (घटना के बाद)	49.99	2105	2038

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 43 MW.

3. **Duration of interruption (रुकावट की अवधि): 60 min**

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

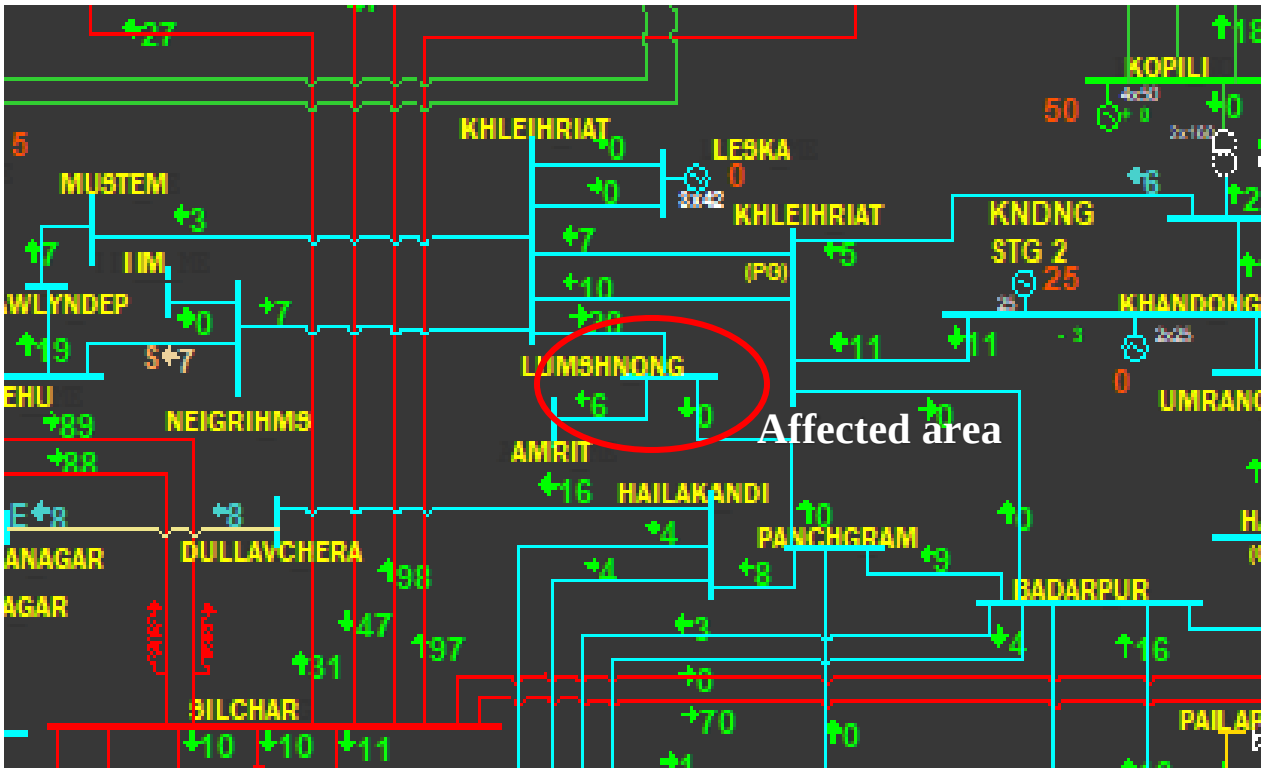


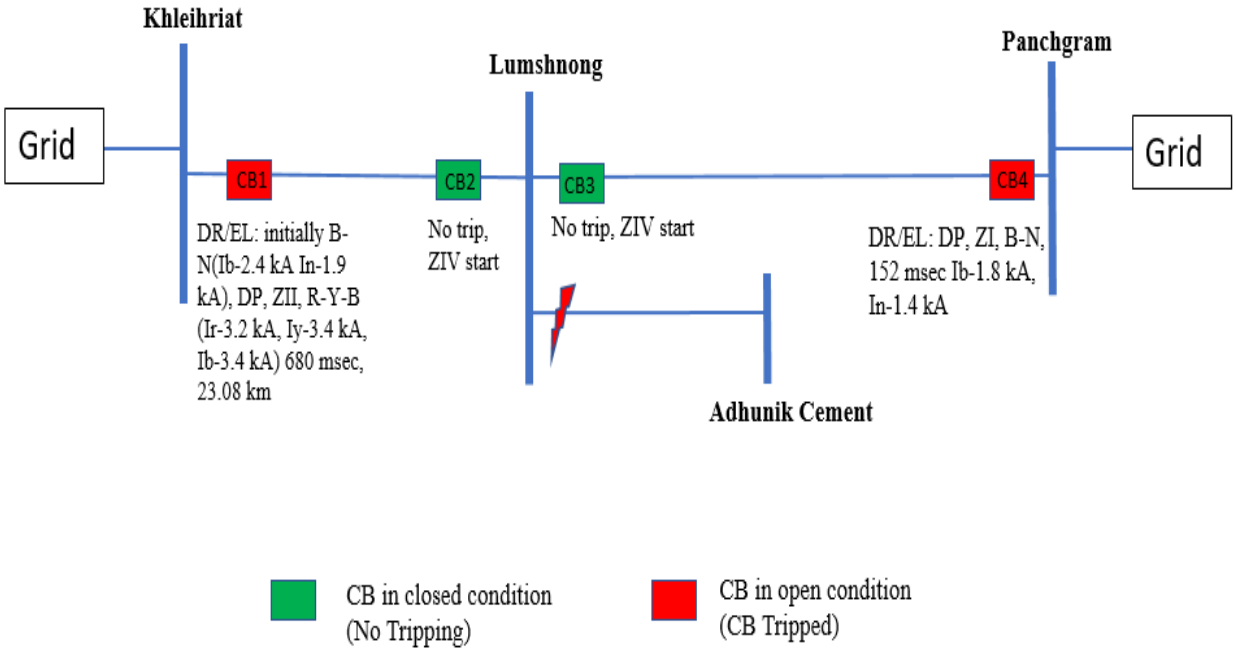
Figure 1: Network across the affected area

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 Lumshnong-Panchgram Line	22:13	23:36	No tripping, ZIV start	DP, ZI, B-N
2	132 kV Lumshnong-Khleihriat Line	22:13	23:14	No tripping, ZIV start	DP, ZII, 23.08 Km
3	132 kV Lumshnong-M/S Adhunik Cement feeder	22:13	01:30 Hrs of 17.11.24	O/C & E/F	Not furnished

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



Bursting of B-phase CT of 132 kV Lumshnong-M/S Adhunik Cement feeder at Lumshnong

Analysis based on DR:

132 kV Lumshnong-Panchgram Line:

Panchgram: B-N fault initiated at 22:13:34.511 Hrs and cleared within 152 msec on DP, ZI. Ib-1.8 kA, In-1.4 kA, Vbe-61 kV

Lumshnong: No tripping, ZIV start

132 kV Khleihriat-Lumshnong Line:

Khleihriat: B-N fault initiated at 21:12:57.280 Hrs. After 186 msec, fault current disappeared. Again after 86 msec, B-N fault reappeared and first converted into Y-B-N fault and then into R-Y-B fault which was cleared within 680 msec on operation of DP, ZII.

Lumshnong: No tripping, ZIV start

As informed by MePTCL, the incident occurred due to bursting of B-phase CT of 132 kV M/S Adhunik cement feeder at Lumshnong end.

O/C & E/F relay operated at Lumshnong and cleared the fault within 100 msec (DR/EL not submitted). However, after few msec, the fault current reappeared causing the delayed/ cascaded tripping of ZII from Khleihriat end.

Suspected that this restriking of fault current must have occurred due to extensive accumulation of cement dust on the porcelain insulators, compounded with wet dew conditions, has provided the conducting path for the fault current to creep externally from CB porcelain body towards ground which resulted on sudden flashover as seen in puncture marks of CB B-phase pole.

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

- Tripping of 132 kV Panchgram-Lumshnong line on ZI from Panchgram end seems to have overreached. AEGCL needs to check/review the distance setting to avoid overreaching of Z-1.

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

- DCRM test of 132 kV CB of M/S Adhunik Cement feeder was carried out and CB closing and opening time has been tested and found to be OK by MePTCL.
- Micom P127 O/C & E/F relay of 132 kV Lumshnong-Adhunik feeder has been tested and found to be satisfactory.
- Since Lumshnong S/S is located inside the compound of M/S Star cement and very close to cement plant, Lumshnong has been instructed to carry out thorough cleaning works of the insulators to remove cement dust and pollution film from accumulation and to take necessary steps to prevent such incidents from repeating.

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	**MePTCL**
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 of around 1 Hr at Khliehriat end for 132 kV Khliehriat-Lumshnong Line**
5.	**Any other non-compliance**		-

11. Key Lessons Learnt (प्रमुख अधिगम बिंदु):

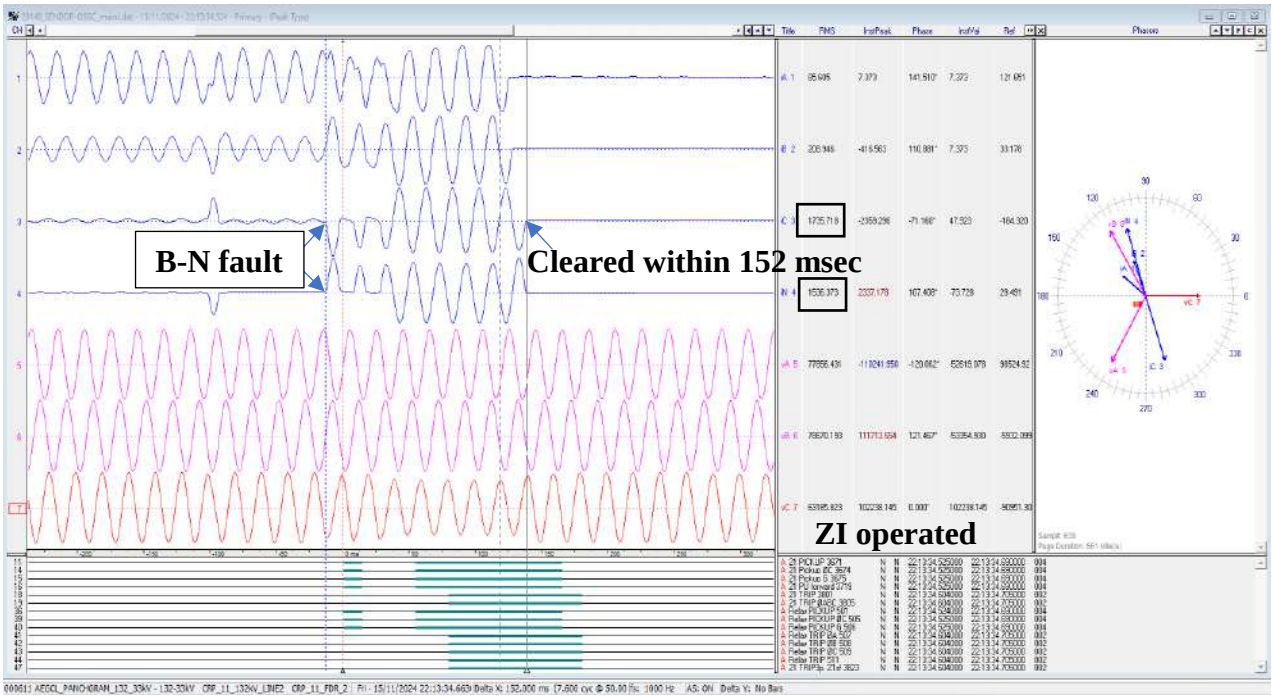
- Proper maintenance related activities as per CEA regulations needs to be carried out.
- Healthiness of protection system needs to be ensured at all times.

Annexure 1: Sequence of Events as per SCADA

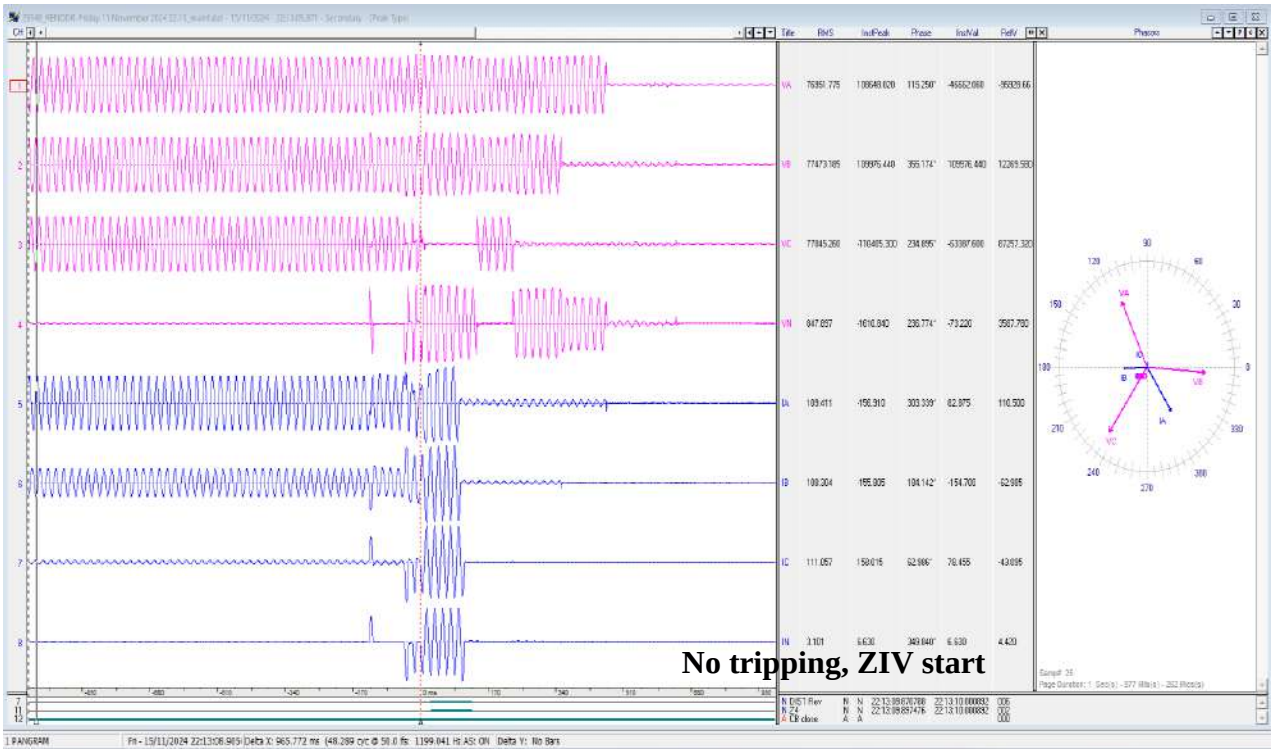
AREA	CATEGORY	LOCATION	TEXT	SYSTEM_TIME	FIELD_TIME	MS
ARUNCH	1C	PARE__NO	PARE CB 11 KV UNIT (G02) OPEN	15 Nov 2024 21:04:46:000	15 Nov 2024 21:04:41:000	60000000
AEGCL	1C	RNG22_AS	RANGIA220 CB 132Kv LINE TO NATHK CLOSED	15 Nov 2024 21:10:53:000	15 Nov 2024 21:10:37:000	9.48E+08
MEECL	1C	KHLEI_ME	KHLEIHRIAT CB 132Kv LINE TO LUMSH OPEN	15 Nov 2024 22:13:38:000	15 Nov 2024 21:13:52:000	3.88E+08
AEGCL	1C	KOPIL_NO	KOPILI CB 11 KV UNIT (H03) OPEN	15 Nov 2024 21:16:25:000	15 Nov 2024 21:16:24:000	8.6E+08
AEGCL	1C	BALIP_PG	BALIPARA CB MN CB 400/220 ICT 2 BETWEEN	15 Nov 2024 22:09:40:000	15 Nov 2024 22:09:39:000	2.39E+08
MEECL	1C	KHLEI_ME	KHLEIHRIAT CB 132Kv LINE TO LUMSH CLOSED	15 Nov 2024 23:13:11:000	15 Nov 2024 22:13:25:000	7.18E+08
MEECL	1C	LUMSH_ME	LUMSHNONG CB 132Kv LOAD ADNIC OPEN	15 Nov 2024 22:13:45:000	15 Nov 2024 22:13:33:000	8.08E+08
MEECL	1C	LUMSH_ME	LUMSHNONG CB 132/33/11 T1 (PRIM) OPEN	15 Nov 2024 22:13:45:000	15 Nov 2024 22:13:33:000	8.09E+08
MEECL	1C	LESKA_ME	LESKA CB 132/33 T1 (PRIM) OPEN	15 Nov 2024 22:13:41:000	15 Nov 2024 22:13:36:000	8.84E+08
AEGCL	1C	PANCH_AS	PANCHGRAM CB 132Kv LINE TO LUMSH OPEN	15 Nov 2024 22:13:38:000	15 Nov 2024 22:13:38:000	4.88E+08
MEECL	1C	LESKA_ME	LESKA CB 132/33 T1 (PRIM) CLOSED	15 Nov 2024 22:14:24:000	15 Nov 2024 22:14:19:000	7.46E+08
MEECL	1C	LUMSH_ME	LUMSHNONG CB 132Kv LOAD MPL__OPEN	15 Nov 2024 23:10:26:000	15 Nov 2024 23:10:18:000	7.3E+08
MEECL	1C	LUMSH_ME	LUMSHNONG CB 132Kv LINE TO KHLEI CLOSED	15 Nov 2024 23:14:15:000	15 Nov 2024 23:14:09:000	6.46E+08
MEECL	1C	LUMSH_ME	LUMSHNONG CB 132Kv LOAD MPL__CLOSED	15 Nov 2024 23:22:18:000	15 Nov 2024 23:22:10:000	8.33E+08
AEGCL	1C	BALIP_PG	BALIPARA CB MN CB 400/220 ICT 2 CLOSED	15 Nov 2024 23:36:00:000	15 Nov 2024 23:36:00:000	94000000
MEECL	1C	LUMSH_ME	LUMSHNONG CB 132Kv LINE TO PANCH CLOSED	15 Nov 2024 23:36:10:000	15 Nov 2024 23:36:01:000	5.62E+08
AEGCL	1C	PANCH_AS	PANCHGRAM CB 132Kv LINE TO LUMSH CLOSED	15 Nov 2024 23:36:30:000	15 Nov 2024 23:36:31:000	7.19E+08
AEGCL	1C	BALIP_PG	BALIPARA CB CB BNC 1 & MISA 1 BETWEEN	15 Nov 2024 23:36:43:000	15 Nov 2024 23:36:41:000	6.74E+08

Annexure 2: Disturbance recorder snips showing faults and digital signals

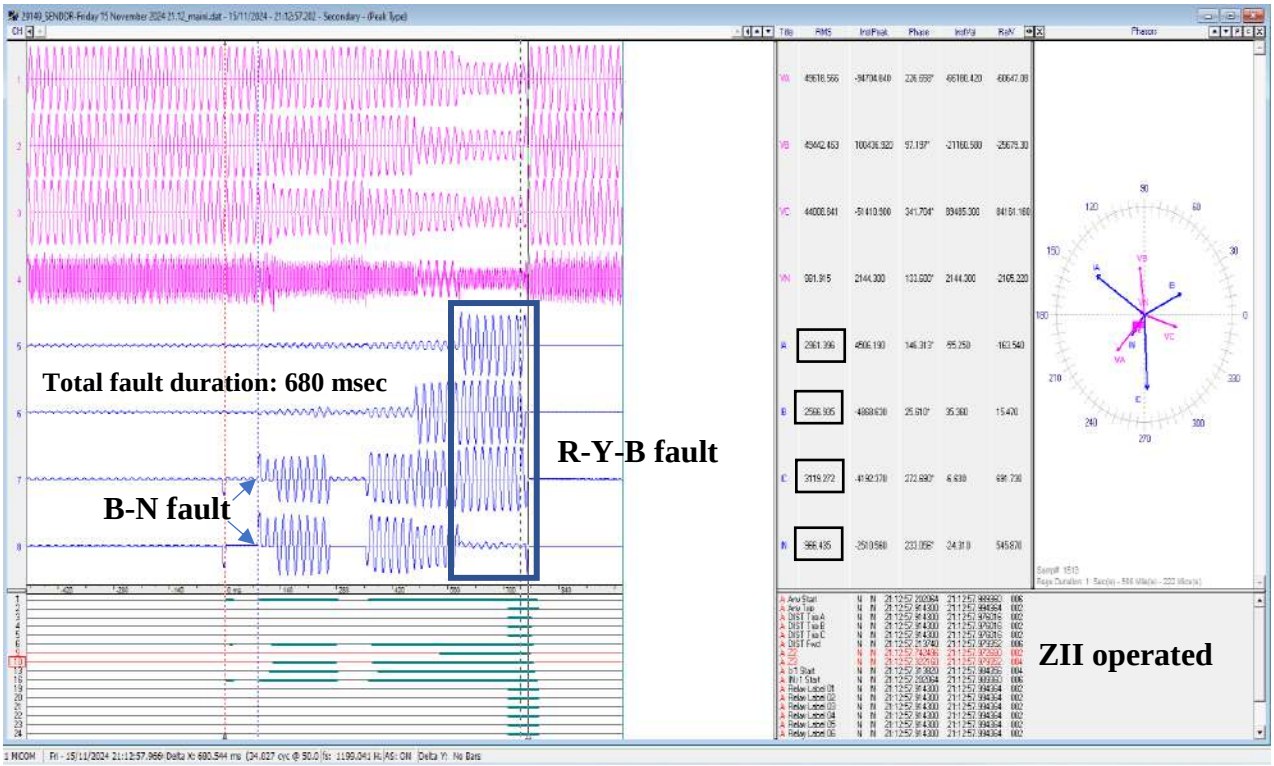
2.1. DR Snapshot of Panchgram for 132 kV Lumshnong-Panchgram Line



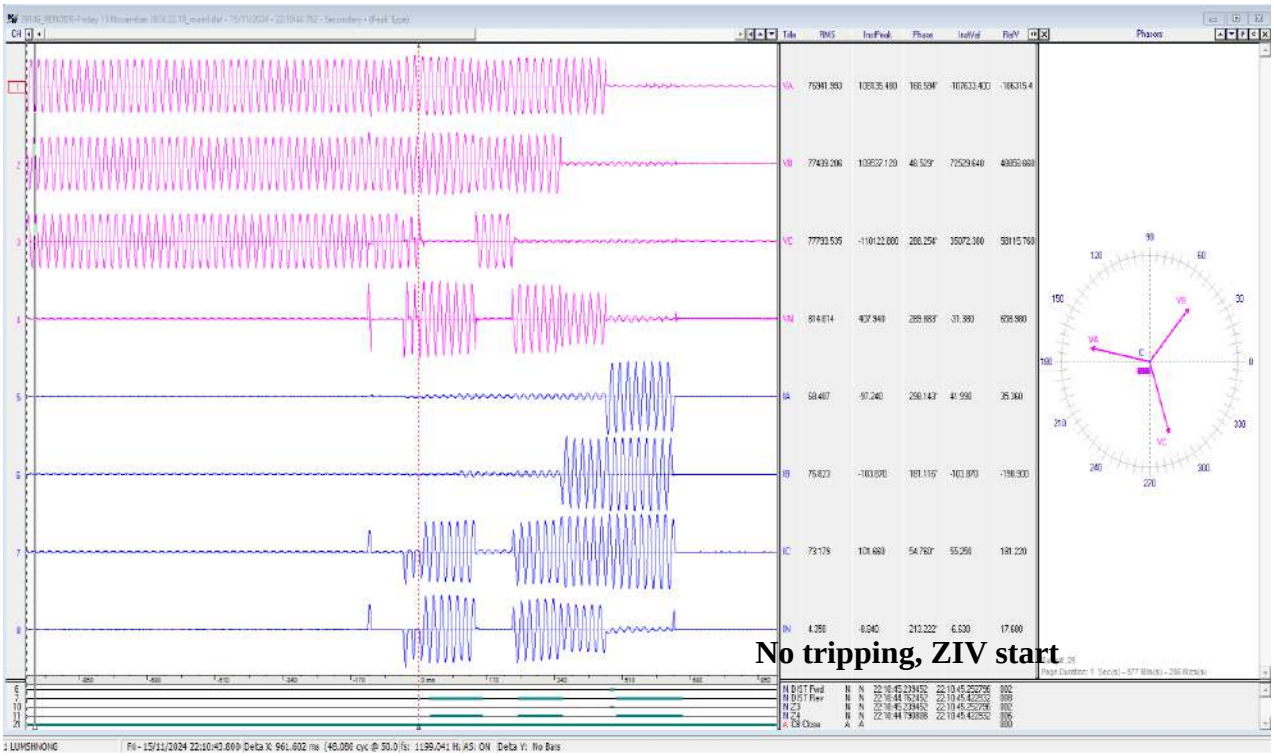
2.2. DR Snapshot of Lumshnong for 132 kV Lumshnong-Panchgram Line



2.3. DR Snapshot of Khleihriat for 132 kV Lumshnong-Khleihriat Line



2.4. DR Snapshot of Lumshnong for 132 kV Lumshnong-Khleihriat Line



No tripping, ZIV start

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 Pasighat and radially connected Niglok and Napit areas of Arunachal Pradesh 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):30-11-2024

1. Event Summary (घटना का सारांश):

Pasighat area and radially connected Niglok and Napit areas of Arunachal Pradesh power system were connected to NER Power system via 132 kV Along-Pasighat and 132 kV Roing-Pasighat lines.

At 06:13 Hrs of 16-11-2024, 132 kV Along-Pasighat Line and 132 kV Roing-Pasighat line tripped. Due to tripping of these lines, Pasighat and radially connected Niglok and Napit 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 and radially connected Niglok and Napit areas of Arunachal Pradesh power system by charging 132 kV Roing-Pasighat line at 07:03 Hrs of 16-11-2024.

2. Time and Date of the Event (घटना का स मय और दिनांक): 06:13 Hrs of 16-11-2024.

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

4. Location/Control Area (स्थान/नियंत्रण क्षेत्र): Pasighat, Niglok and Napit areas of Arunachal Pradesh Power System

5. Antecedent Conditions (पूर्ववर्ती स्थिति):

	Frequency in Hz	Regional Generation (MW)	Regional Demand (MW)
Pre-Event (घटना पूर्व)	49.96	1992	2004
Post Event (घटना के बाद)	49.96	1986	2014

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 8 MW

3. **Duration of interruption (रुकावट की अवधि): 50 min**

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

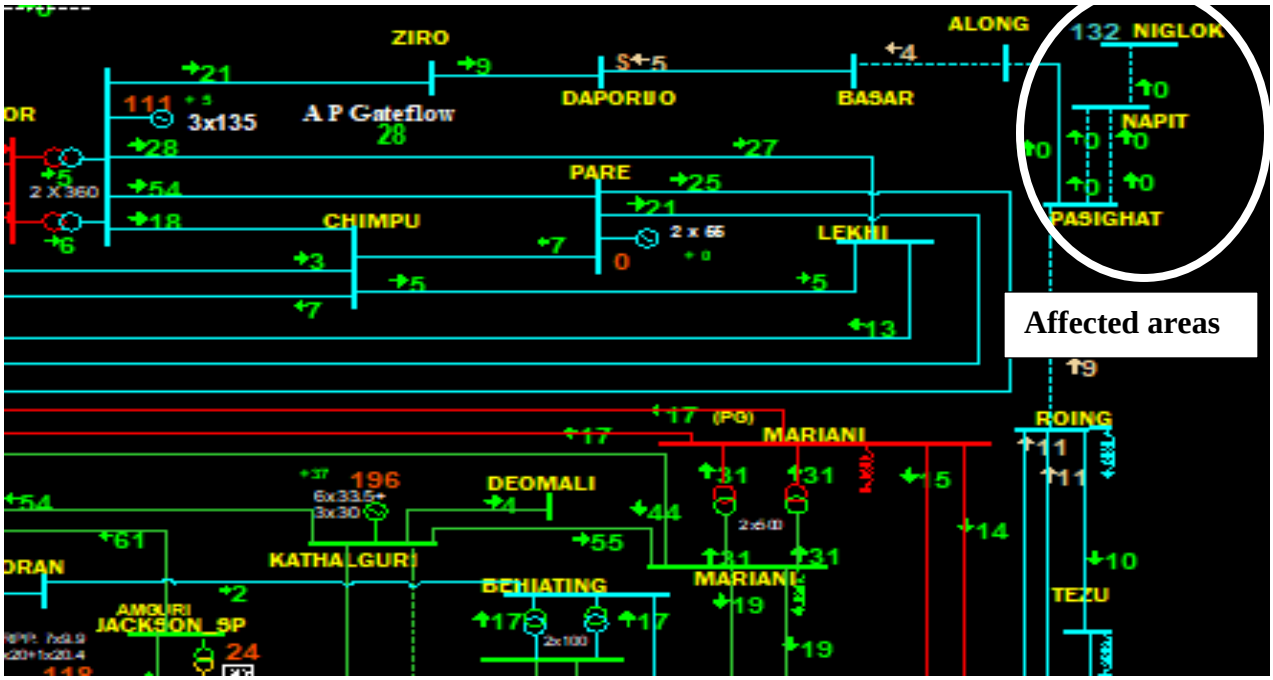


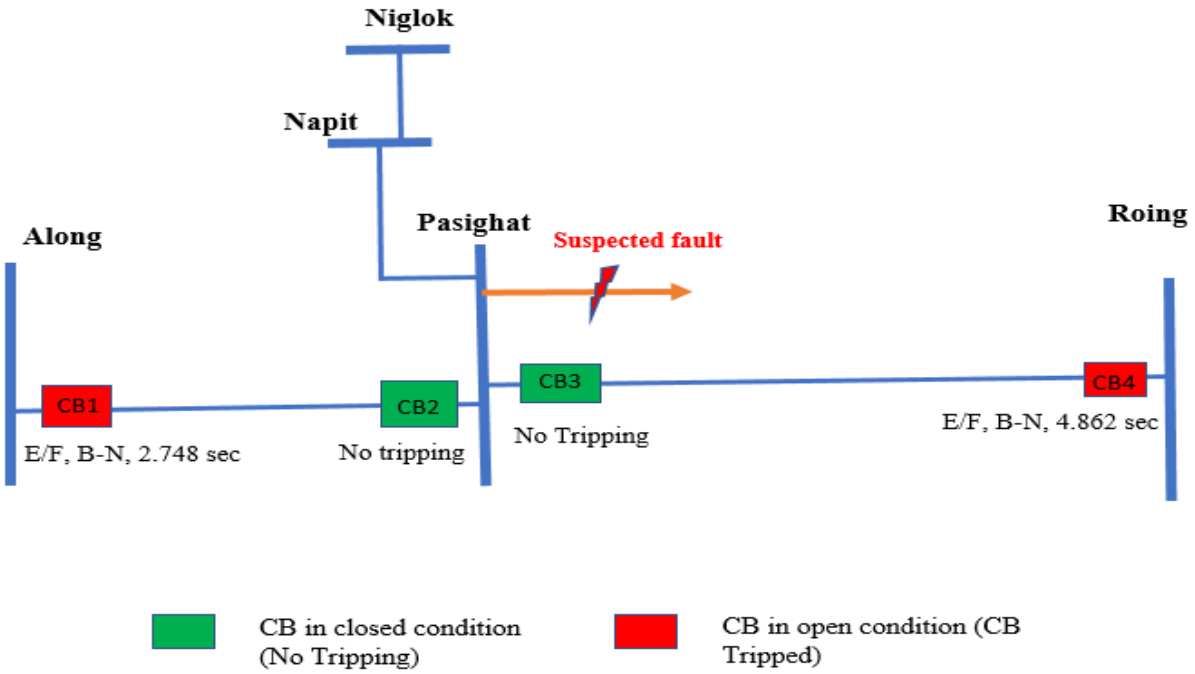
Figure 1: Network across the affected area

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	06:13	-	B/U E/F, B-N	No tripping
2	132 kV Along-Pasighat Line	06:13	07:03	B/U E/F, B-N	No tripping

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



As per DR/EL analysis, high resistive B-N fault (Ib-114 A In-102 A) initiated at 06:13:48.275 Hrs and cleared within 2.748 sec from Along end on operation of Backup E/F and within 4.862 sec from Roing end on operation of Backup E/F protection. There was no tripping from Pasighat end for both the lines.

It is suspected that fault is in the downstream of Pasighat S/S.

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

- Protection system at Pasighat failed to isolate fault in downstream feeder at Pasighat due to which fault was cleared by tripping of healthy lines 132 kV Along-Pasighat & 132 kV Roing-Pasighat.
- SOE not recorded for tripping of 132 kV Along-Pasighat and 132 kV Roing-Pasighat lines.

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	**DoP AP, POWERGRID**
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):

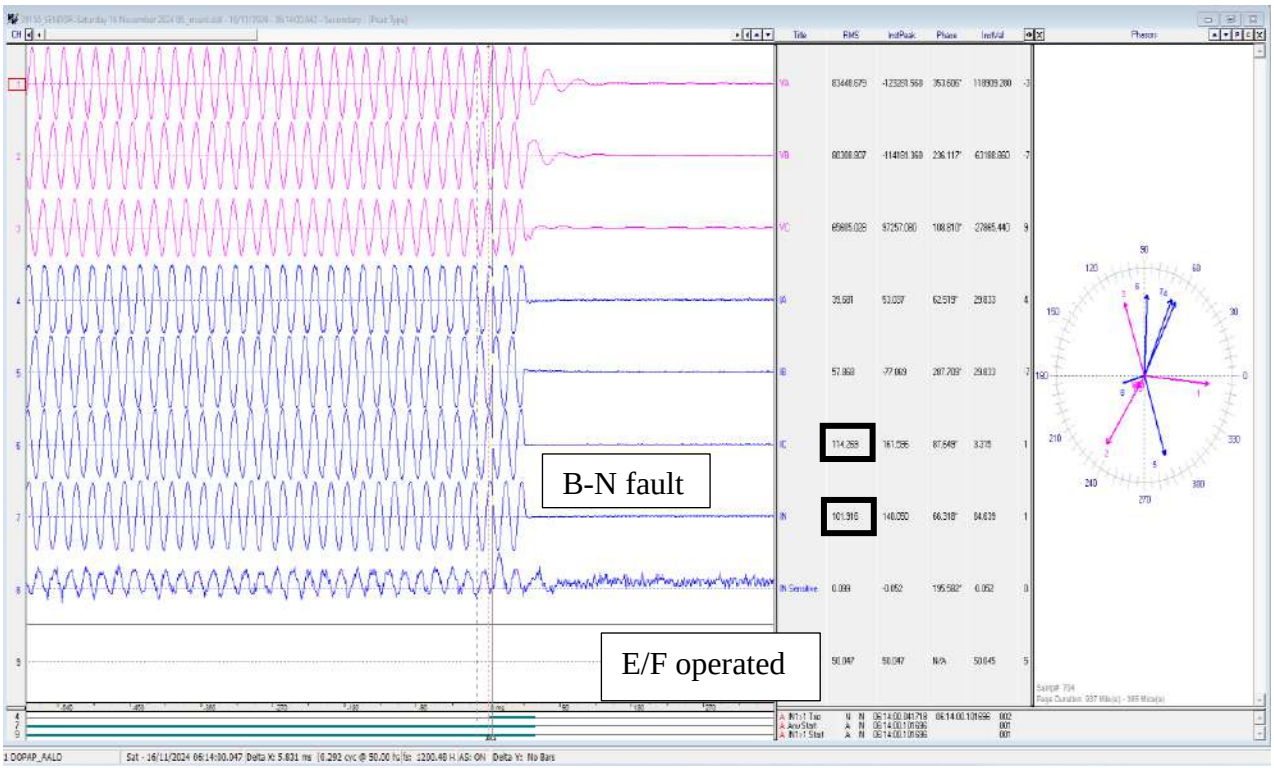
- Proper maintenance related activities as per CEA regulations needs to be carried out.
- Healthiness of protection system of downstream feeders needs to be ensured.

Annexure 1: Sequence of Events as per SCADA

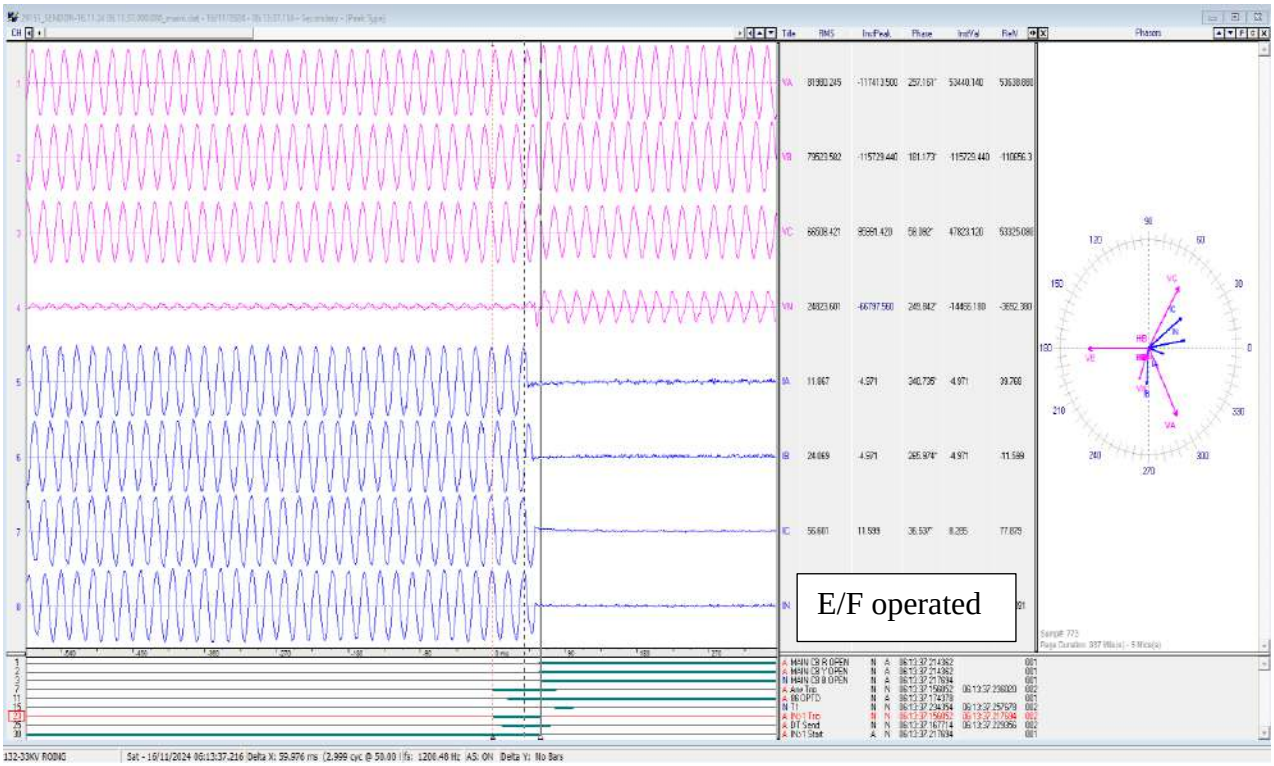
SOE not recorded

Annexure 2: Disturbance recorder snips showing faults and digital signals

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



2.2. 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 Umrangsho area of Assam 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): **06-12-2024**

1. **Event Summary (घटना का सारांश):**

Umrangsho area of Assam Power System was connected with connected to NER Power system via 132 kV Haflong(PG) - Umrangsho Line & 132 kV Khandong - Umrangsho Line.

At 04:55 Hrs of 24.11.2024, 132 kV Haflong(PG) - Umrangsho Line & 132 kV Khandong - Umrangsho tripped due to which Umrangsho area of Assam Power System was isolated from NER Grid and collapsed due to no source available in this area.

Power supply was extended to Umrangsho area of Assam Power System by charging 132 kV Khandong - Umrangsho Line at 05:30 Hrs of 24.11.2024.

2. **Time and Date of the Event** (घटना का स मय और दिनांक**):** 04:55 Hrs of 24-11-2024.

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

4. **Location/Control Area** (स्थान/नियंत्रण क्षेत्र): Umrangsho area of Assam

5. **Antecedent Conditions (पूर्ववर्ती स्थिति):**

	Frequency in Hz	Regional Generation (MW)	Regional Demand (MW)
Pre-Event (घटना पूर्व)	49.98	1861	1556
Post Event (घटना के बाद)	49.98	1862	1541

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 2 MW

3. **Duration of interruption (रुकावट की अवधि): 35 min**

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

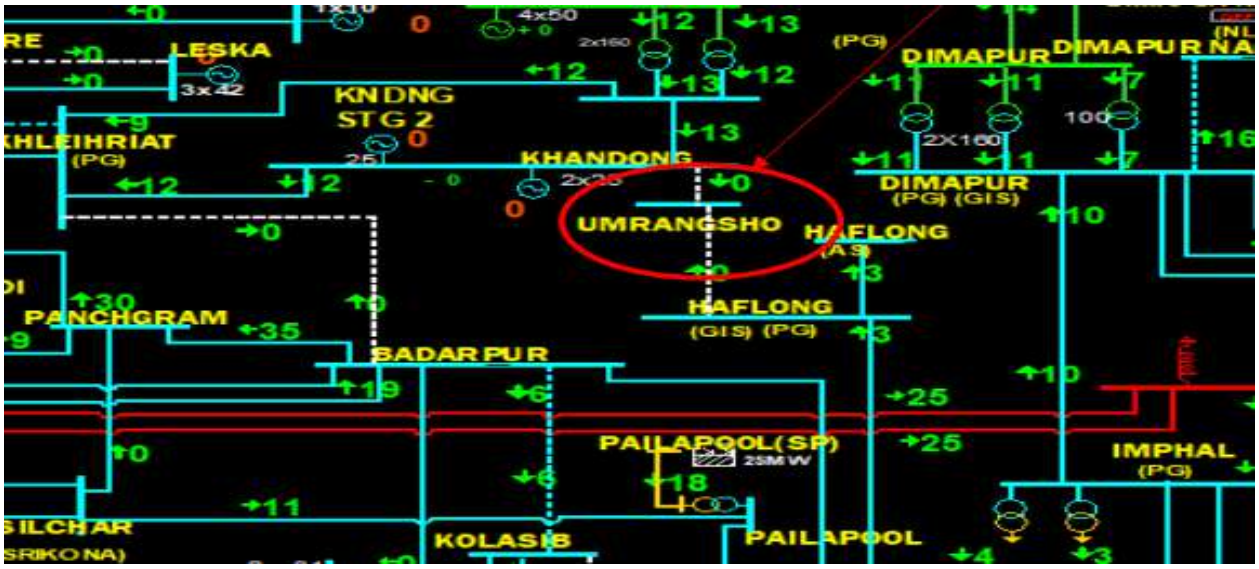


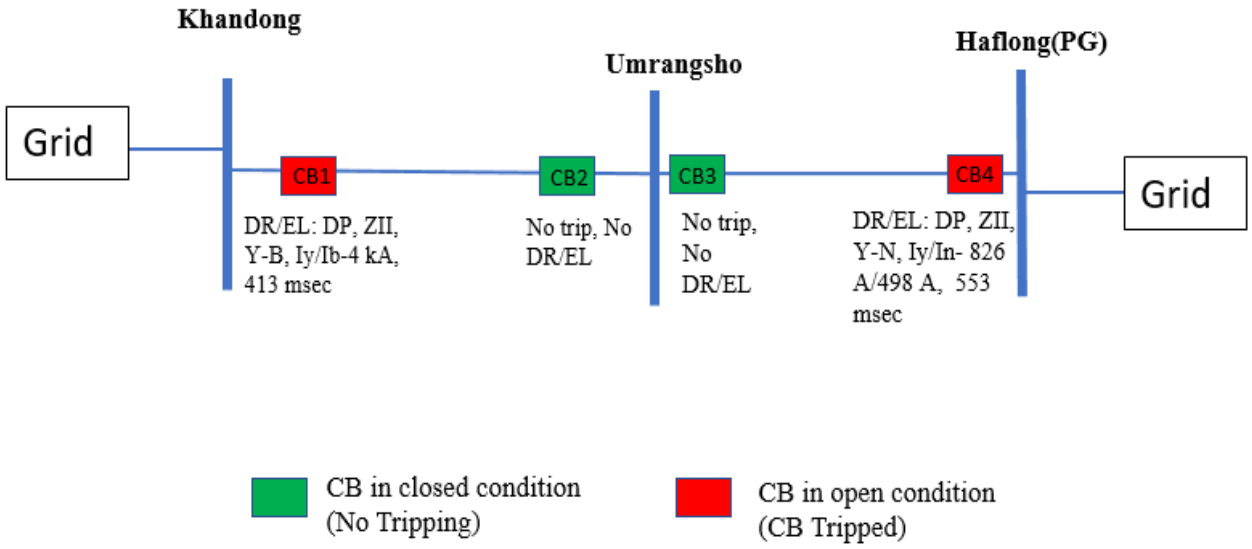
Figure 1: Network across the affected area

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 Haflong(PG)-Umrangsho Line	04:55	-	DP, ZII, Y-N, 47.39 Km	No tripping
2	132 kV Khandong-Umrangsho Line	04:55	05:30	DP, ZII, Y-B, 11.97 Km	No tripping

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



As per DR analysis of 132 kV Khandong-Umrangsho line, Y-B fault (Iy-3.9 kA, Ib-3.9 kA) initiated at 04:55:26.146 Hrs and cleared within 413 msec on operation of DP, ZII from Khandong end.

As per DR analysis of 132 kV Haflong(PG)-Umrangsho line, Y-N fault (Iy-826 A In-498 A) initiated at 04:55:24.959 Hrs and cleared within 553 msec from Haflong(PG) end on operation of DP, ZII.

As informed by AEGCL, fault was between CVT, LA and Gantry point of 132kV Umrangshu – Haflong (PG) line.

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

- Fault in 132 kV Haflong(PG)-Umrangsho line which was not detected at Umrangsho end. The same needs to be checked by AEGCL.

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	**No violation**
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):

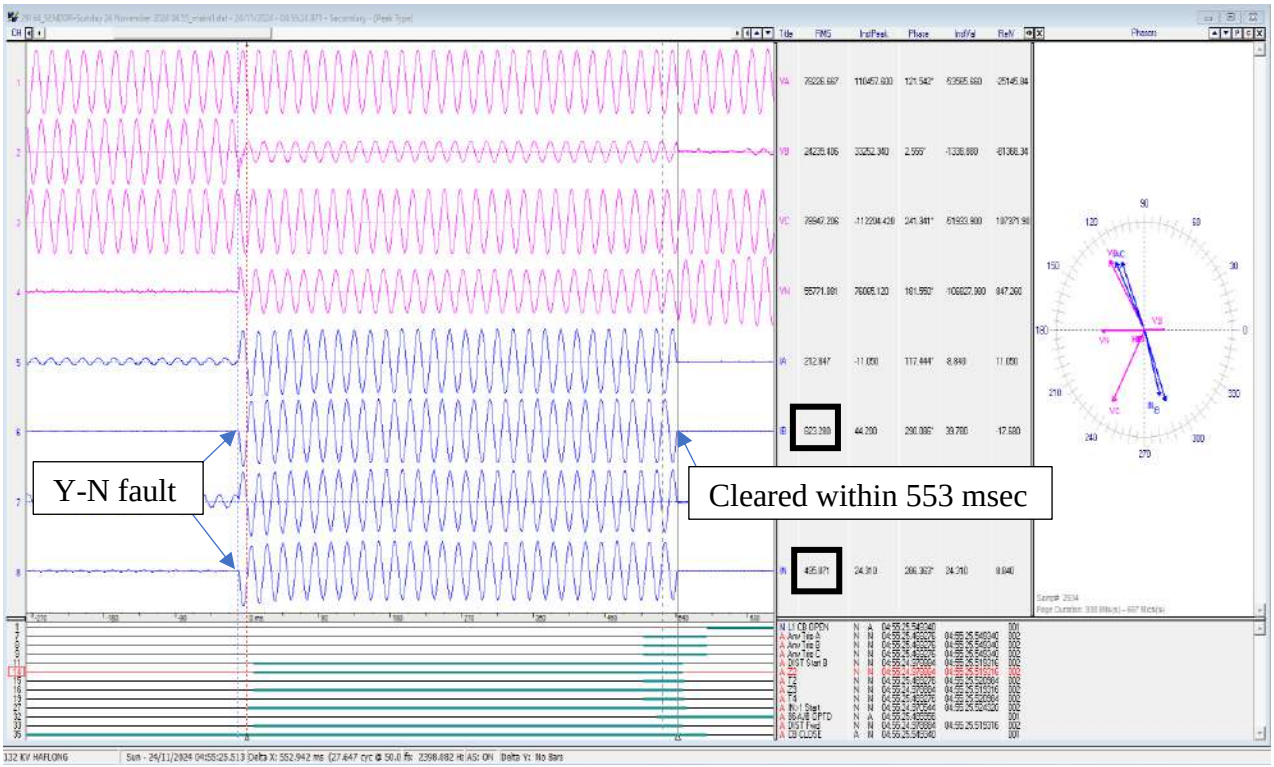
- Proper maintenance related activities as per CEA regulations needs to be carried out.
- Healthiness of protection system of downstream feeders needs to be ensured.

Annexure 1: Sequence of Events as per SCADA

AREA	CATEGORY	LOCATION	TEXT	SYSTEM_TIME	FIELD_TIME	MS
---	---	---	---	---	---	---
AEGCL	1C	HAFLO_PG	HAFLONG CB 132Kv LINE TO UMRAN OPEN	24 Nov 2024 08:15:09:000	03 Aug 2024 23:45:17:000	99000000
AEGCL	1C	HAFLO_PG	HAFLONG CB 132Kv LINE TO UMRAN OPEN	24 Nov 2024 04:55:27:000	04 Aug 2024 05:59:01:000	5.31E+08
AEGCL	1C	HAFLO_PG	HAFLONG CB 132Kv LINE TO UMRAN INVALID	24 Nov 2024 08:12:58:000	04 Aug 2024 06:01:41:000	9.66E+08
AEGCL	1C	BONGA_PG	BONGAIGAON CB 220Kv LINE-2 TO NANGB OPEN	24 Nov 2024 08:18:25:000	02 Nov 2024 14:38:33:000	5.96E+08
AEGCL	1C	UMRAN_AS	UMRANGSHO CB 132Kv LINE TO KHAND CLOSED	24 Nov 2024 05:30:44:000	24 Nov 2024 05:30:34:000	2.81E+08
AEGCL	1C	KHAND_NO	KHANDONG CB 132Kv LINE TO UMRAN OPEN	24 Nov 2024 04:55:31:000	24 Nov 2024 05:33:22:000	8.71E+08
TSECL	1C	ROKHI_TE	ROKHIA CB 11 KV UNIT (G9) OPEN	24 Nov 2024 05:34:45:000	24 Nov 2024 05:34:26:000	2.89E+08
AEGCL	1C	LAKHI_AS	NORTH LAKHIMPUR CB 132Kv LINE TO MAJUL OPEN	24 Nov 2024 06:02:59:000	24 Nov 2024 06:02:29:000	7.46E+08
AEGCL	1C	KHAND_NO	KHANDONG CB 132Kv LINE TO UMRAN CLOSED	24 Nov 2024 05:29:14:000	24 Nov 2024 06:07:05:000	4.5E+08
NAGALD	1C	DIMAP_NA	DIMAPUR NAGARJAN CB 66Kv LINE-2 TO SINJN OPEN	24 Nov 2024 06:09:14:000	24 Nov 2024 06:08:59:000	4.73E+08
AEGCL	1C	JAKSN_AS	JACKSON_SP CB 33/1/1 T5 (TER) CLOSED	24 Nov 2024 11:49:32:000	24 Nov 2024 06:19:21:000	4.08E+08
AEGCL	1C	UMRAN_AS	UMRANGSHO CB 132Kv LINE TO HAFLO CLOSED	24 Nov 2024 16:19:39:000	24 Nov 2024 16:19:22:000	5.56E+08
AEGCL	1C	HAFLO_PG	HAFLONG CB 132Kv LINE TO UMRAN CLOSED	24 Nov 2024 16:20:26:000	24 Nov 2024 16:20:26:000	46000000
AEGCL	1C	KOPIL_NO	KOPILI CB 11 KV UNIT (H03) CLOSED	24 Nov 2024 16:26:30:000	24 Nov 2024 16:26:29:000	80000000
MEECL	1C	UMIA1_ME	UMIAM I CB 132Kv LINE-1 TO UMIAM CLOSED	24 Nov 2024 16:32:38:000	24 Nov 2024 16:32:25:000	5.31E+08

Annexure 2: Disturbance recorder snips showing faults and digital signals

2.1. DR Snapshot of Haflong(PG) for 132 kV Haflong(PG)-Umrangsho Line



2.2. DR Snapshot of Khandong for 132 kV Khandong-Umrangsho Line