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Agenda

for

75th PCCM

Govt. of India

Ministry of Power

North Eastern Regional Power Committee

Shillong

North Eastern Regional Power Committee

Agenda for

75th Protection Coordination Sub-Committee Meeting

Date: 16/01/2025 (Thursday)

Time: 11:00 hrs.

Venue: NERLDC conference Hall, Guwahati

A. CONFIRMATION OF MINUTES

1. CONFIRMATION OF MINUTES OF THE 74th PROTECTION SUB-COMMITTEE MEETING OF NERPC.

Minutes of the 74th PCC Meeting held on 16th December, 2024 (Monday) at NERLDC Conference Hall, Guwahati was circulated vide letter No.: NERPC/SE (O)/PCC/2024/3521-3562 dated 24th December, 2024.

Following comments were received from constituents

Agenda (74th PCCM) and utility	Originally recorded in the minutes	To be modified/comments of the utility
B.5 (point no. 2) Non-operation of auto recloser in 220kV Behiating -Tinsukia line 1 for transient faults in November 2024 - NERPSIP	"NERPSIP to look into the matter as the line is maintained by them as of now"	The line has been handed over to AEGCL, so AEGCL to look into the matter.

The sub-committee may discuss the comments and confirm the minutes of 74th PCCM accordingly.

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 74th PCCM, following points were discussed -

Utilities updated as follow-

Sr No	Utility/Constituents	Internal Audit		External audit	
		Status	**report**	**Status**	**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. Requested NERPC to conduct the audit meanwhile.	NA
2.	Assam	Done for 61 SS	Not yet submitted	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, subject to law and Order situation. Audit of Imphal SS may be done by NERPC team.	NA
4.	Meghalaya	Internal audit of 132kV Nangalbibra, 132kV	Report to be shared shortly	Audit of 6 SS (Killing, EPIP I, EPIP II, NEHU, Mawlai	Report to be shared by end of December'24

		Rongkhon, 132kV Mendipathar, 132kV Ampati and 132kV Umiam SS has been completed between July'24 to October '24. For rest SS, will try to complete by Dec'24.		an Mawphlang) conducted by NERPC on 26th and 27th August'24	
5.	Mizoram	Done for all SS	Report shared	Audit of Luangmual, Zuangtui and Kolasib planned in August'24. List of external agencies awaited. Searching for parties to conduct audit.	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.	To be shared by Jan'25	Jan-Feb'25	NA

		For 66kV SS - audit by Decmber'24.			
8.	Powergrid (NERTS)	POWERGRID has completed & submitted internal protection reports for 18 nos. of substations.	Shared	External audit completed for Misa & Salakati s/s.	
9.	NTL	Utilities to update status			
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 (Palatana)	Done		Done	shared
14.	NTPC (BgTPP)	Done	shared	Done (by CPRI)	Report to be shared in three weeks

15.	NHPC (Loktak)	By Jan'25		To be done after R&M of the plant	
16.	APGCL	Utilities to update status			
17.	TPGCL				
18.	MEPGCL	Audit of Umiam stg I and Stg II was done in 2021, rest under planning	To be shared		

Further discussion-

1. DoP Arunachal Pradesh updated that financial approval for the external audit is pending with higher authorities. Meanwhile DoP AP, requested NERPC to conduct the 3rd Party audit for few substations. Forum opined that NERPC may conduct the audit of critical substations of Ar. Pradesh and the schedule will be decided by NERPC in due course.
2. Forum opined that the audit of Imphal SS (PGCIL) and Yurembam (MA) may be conducted by NERPC at a suitable date by considering the Law-and-order situation. These substations are also critical for Manipur grid.
3. Meghalaya stated that there is urgent requirement of protection audit of Lumshnong substation and requested NERPC to conduct the audit as soon as possible. Forum opined that the audit may be done in Jan'25.
4. It was decided that Audit of the 5 S/S 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 in Jan'25.

Sub-committee may deliberate

B.2 Analysis and Discussion on Grid Disturbances which occurred in NER grid in December'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 December 2024 based on the draft report prepared by NERLDC (**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 December'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 01-12-2024 to 31-12-2024 as on **06-01-2025** 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	4	6	5	5	6	5	5	0	0	0	100	100	100
DEPL	0	0	0	0	0	0	0	0	0	0	No event		
AEGCL	10	16	12	12	14	7	7	2	0	0	88	100	100
APGCL	2	2	2	2	0	0	0	2	2	2	0	0	0
MSPCL	1	1	1	1	1	0	0	0	1	1	100	0	0
MePTCL	1	2	2	2	2	2	2	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	2	4	4	4	4	0	0	0	4	4	100	0	0
TSECL	5	8	8	8	8	8	8	0	0	0	100	100	100
TPGCL	1	1	1	1	0	0	0	1	1	1	0	0	0
POWERGRID	8	18	16	17	18	16	17	0	0	0	100	100	100
NEEPCO (Line/ICT)	3	4	4	4	4	3	3	0	1	1	100	75	75
NEEPCO (Unit)	8	8	5	8	7	4	7	1	1	1	88	80	88
NHPC	0	0	0	0	0	0	0	0	0	0	No event		
NTPC (Unit)	1	1	0	0	1	0	0	0	0	0	0	NA	NA
OTPC	0	0	0	0	0	0	0	0	0	0	No event		
NTL	0	0	0	0	0	0	0	0	0	0	No event		
MUML	0	0	0	0	0	0	0	0	0	0	No event		
KMTL	0	0	0	0	0	0	0	0	0	0	No event		

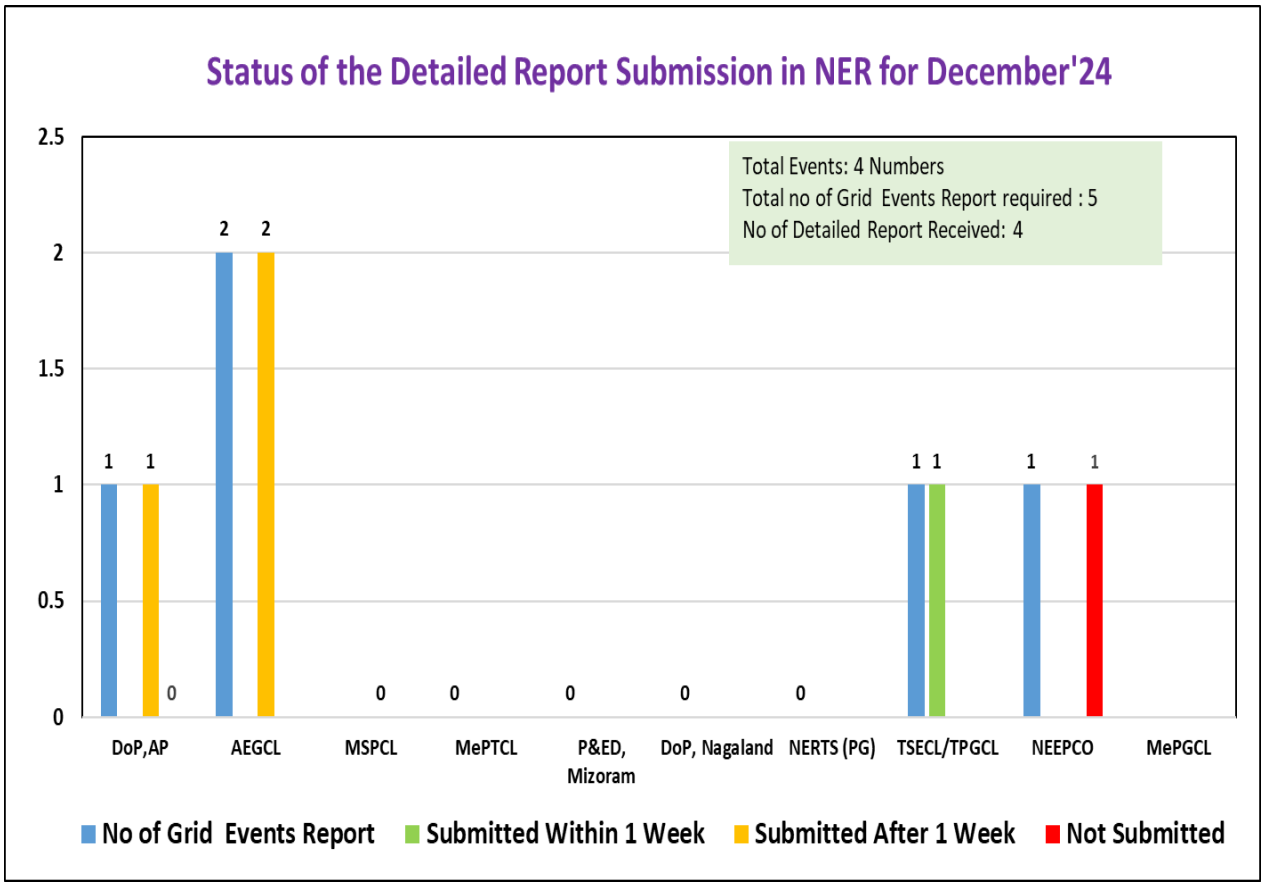
Concerned Utilities are requested to upload Disturbance Recorder (DR), Event Logger (EL) outputs for grid events along with a First Information Report (FIR) in Tripping Monitoring Portal (https://tripping.nerldc.in/Default.aspx) for analysis purpose. In light of the cybersecurity measures implemented 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 **December, 2024** as on **06-01-2025** is shown below:



NEEPCO has not submitted the detailed report of grid disturbances.

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.

Sub-committee may deliberate

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

Sl. No.	Element Name	Tripping Date and Time	RELAY_A	RELAY_B	Auto-Recloser not Operated	Remarks from Utility
1	132 kV Bokajan-Sarupathar Line	28-12-2024 12:52	DP, ZI, Y-B, FD: 1.7 Km	DP, ZI, Y-B	Both ends	

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 12th of every month for previous month indices, which shall be reviewed by the RPC.

As on 06.01.2025, **NETC, AEGCL, OTPC, NTL, NEEPCO (Monarchak and Kopili) and DoP Arunachal Pradesh** has submitted protection performance indices for the month of December'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 Dec'24
3	NTL	-	-	-	No tripping during Dec'24
4	AEGCL	1	0.786	0.786	• Unwanted tripping of 220 kV Tinsukia-AGBPP II line on 23-12-2024. (No indication from Tinsukia end) • Unwanted tripping of 220/132 kV ICT-II at

					Mariani on 25-12-2024 on spurious buccholz trip.
5	NEEPCO (Monarchak & Kopili)	1	1	1	
6	DoP Arunachal Pradesh	0.8	1	0.8	Tripping of 132 kV Along-Basar line from Basar end on ZI. Along end CB failed to open despite issuance of trip command. The LBB initiation command was also triggered at Along, however the Pasighat line breaker did not open.

Protection Performance Indices not received from transmission utilities such as **POWERGRID, MSPCL, MePTCL, DoP Nagaland and TSECL.** Also, not received from Generating companies such as **APGCL, TPGCL, NTPC and NEEPCO (AGTCCPP)**. 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 **12th** of every month for previous month indices in compliance with IEGC.

Sub-committee may deliberate

B.7 <u>Tripping of 132 kV Dimapur-Doyang I line on 09-Nov-24:</u>

At 08:34 Hrs of 09-11-2024, 132 kV Dimapur-Doyang I tripped.

As per submitted DR, there was no fault in the system. At 08:34:42.728 Hrs, Bus Bar protection operated at Doyang end and CB open at 08:34:42.758 Hrs. There was no tripping from Dimapur (PG) end.

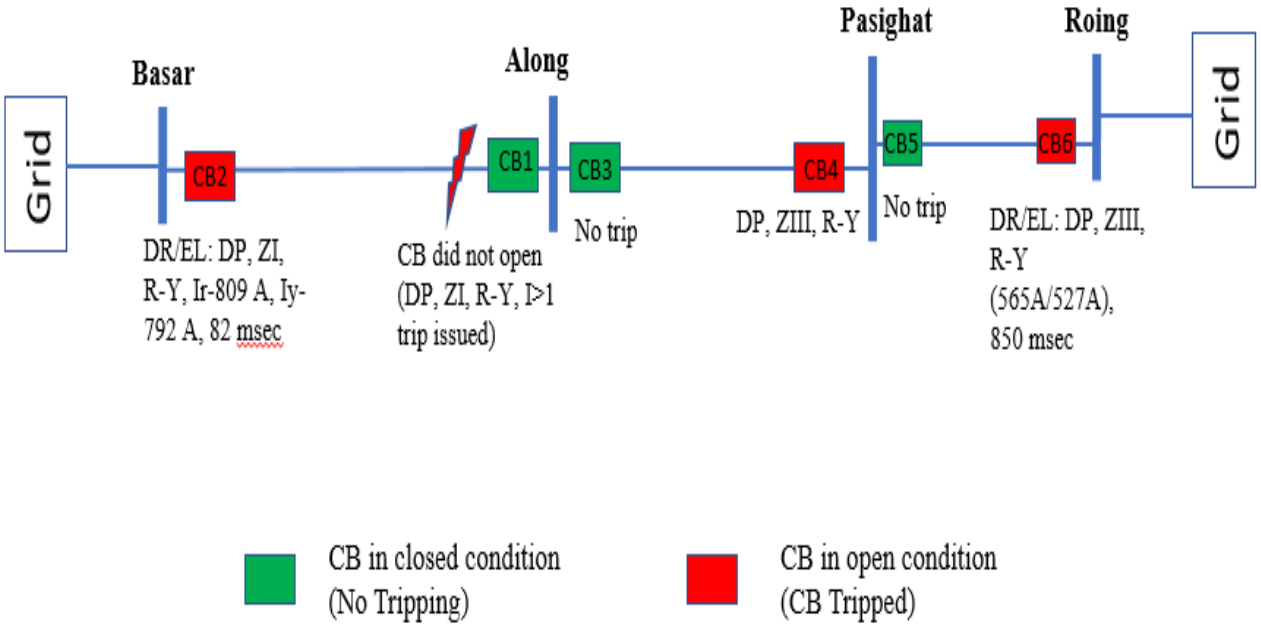
NEEPCO is requested to furnish the reason of Bus bar protection operation at Doyang end and its remedial measures.

Sub-committee may deliberate

B.8 <u>Grid Disturbance in Along and Pasighat areas of Arunachal Pradesh on 08-12-2024:</u>

Along and Pasighat areas of Arunachal Pradesh Power System were connected with rest of NER Grid through 132 kV Along-Basar & 132 kV Roing-Pasighat lines.

At 03:46 Hrs of 08-12-2024, 132 kV Along-Basar line, 132 kV Along-Pasighat Line and 132 kV Roing-Pasighat line tripped resulting in grid disturbance in Along and Pasighat areas of Arunachal Pradesh. Load loss of 2 MW occurred.



As per DR analysis, R-Y fault (Ir-809 A, Iy-792 A) in 132 kV Along-Basar line initiated at 03:46:30.091 Hrs which was cleared within 82 msec from Basar end on operation of DP, ZI. ZI started from Along end and trip command issued. Also, I>1 trip command issued after 793 msec. However, CB at Along did not open resulting in clearing of fault by tripping of 132 kV Roing-Pasighat line on operation of DP, ZIII from Roing end within 850 msec.

Following observations:

- Non-opening of CB at Along for 132 kV Along-Basar line despite issuance of ZI trip command. Reason of the same needs to be investigated by DoP Arunachal Pradesh.
- I>1 trip command issued after 793 msec at Along end for 132 kV Along-Basar line. O/C setting at Along for 132 kV Along-Basar line needs to be coordinated with ZII setting as per NERPC protection philosophy.
- At 03:46:11.476 Hrs, after 300 msec of initiation of fault, LBB initiation command was triggered at Along end. However, Pasighat line breaker did not open. LBB time delay setting needs to be reviewed.
- SOE not recorded for tripping of any of the elements. The same needs to be checked by DoP AP/SLDC AP/POWERGRID for ensuring IEGC compliance.
- Time drift of 10 min observed at Pasighat end for 132 kV Roing-Pasighat line which need to be sync with GPS.

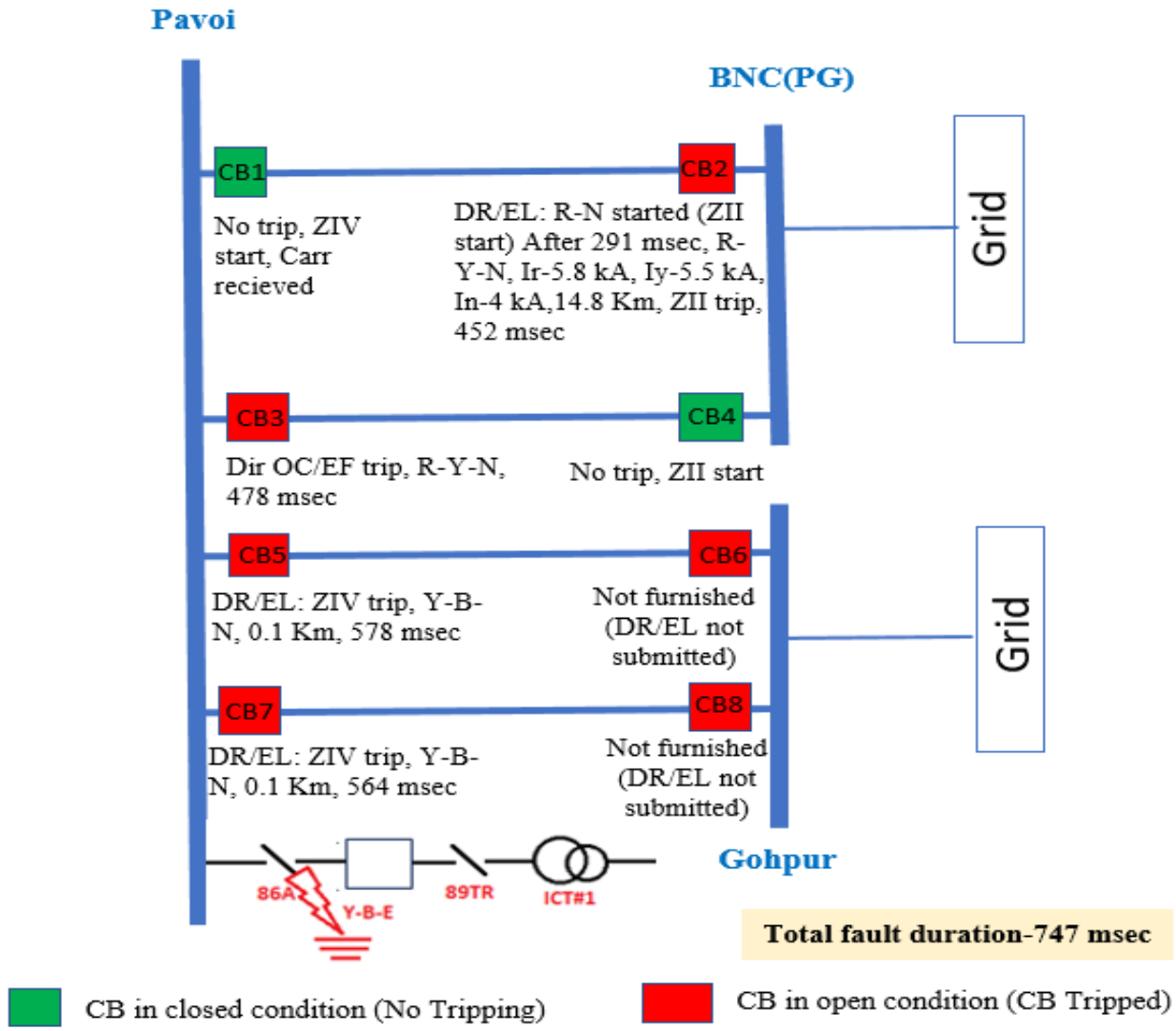
DoP Arunachal Pradesh is requested to:

- Share the root cause and remedial measures taken.
- Furnish the reason of non-opening of CB at Along for 132 kV Along-Basar line.
- Check/review the O/C setting at Along for 132 kV Along-Basar line.
- Furnish reason for failure of LBB at Along to isolate the fault by disconnecting 132 kV Along-Pasighat line. Also, LBB time delay setting at Along needs to be reviewed and set as per protection philosophy.
- Rectify the DR time drift at Pasighat end for 132 kV Roing-Pasighat line.

Sub-committee may deliberate

B.9 Grid disturbance in Pavoi area of Assam on 16-12-2024:

Pavoi (BNC) area of Assam Power System was connected with rest of NER Grid through 132 kV BNC-Pavoi 1 &2 & 132 kV Gohpur-Pavoi 1 & 2 lines.
At 15:43 Hrs of 16-12-2024, 132 kV BNC-Pavoi 1 &2 & 132 kV Gohpur-Pavoi 1 & 2 lines tripped resulting in blackout of Pavoi S/S. Load loss of 11 MW occurred.



Root cause: The 132/33kV Transformer-1 at Pavoi was under shutdown during the event. A flashover at Bus Isolator of Transformer-1 (Y-B-E fault) was witnessed during isolator Open/Close operation. The fault was cleared by tripping of all 132kV Lines (Fault feeding sources) at local and remote ends.

Following observations:

- Solid R-N fault (Ir-2.9 kA, In-2.9 kA) initiated at 15:42:34.450 Hrs and ZII/ZIII start. After around 291 msec, R-N fault converted into R-Y-N fault (Ir-5.8 kA, Iy-5.5 kA, In-4 kA) which was cleared within 452 msec on operation of DP, ZII from BNC end. Total fault duration-747 msec.
- For 132 kV BNC-Pavoi I line at Pavoi end, ZIV start and Carrier recieved signal was high. However, there was no tripping observed from Pavoi end.
- For 132 kV BNC-Pavoi II line at BNC end, ZII pickup and “Aided 1 Send” high. However, at Pavoi end, Carrier was received and no tripping observed. CB3 opened on Directional OC/EF trip.

- Tripping of 132 kV BNC-Pavoi II line from Pavoi end on directional OC/EF within 478 msec for reverse fault is inferred unwanted. AEGCL needs to review the backup protection setting and check directionality of the B/U relay.
- DR/EL not submitted CB6 & CB8.
- Time drift of 9 min observed in Pavoi end DR for 132 kV BNC-Pavoi II line.

AEGCL is requested to provide update on the above-mentioned issues.

Sub-committee may deliberate

B.10 <u>Mock testing of System Protection Scheme (SPS):</u>

As per Clause 16.2 of IEGC 2023, mock testing of SPS for reviewing SPS parameters & functions should be conducted at least once in a year.

In order to compliance the above clause, it has been planned to conduct mock testing of SPS:

i) Related to the tripping of Bus Reactors at 400 kV Imphal (PG)
ii) Related to Outage of 400 kV Palatana – Surajmani Nagar line (charged at 132 kV)
iii) Related to Outage of both 400/132 kV, 2x125 MVA ICTs at Palatana

POWERGRID and OTPC is requested to provide the tentative dates for mock testing of SPS in the month of January'25.

Sub-committee may deliberate

B.11 <u>Modification related to the reporting of GD-1 due to outage of 132 kV radial system with negligible load or generation loss (in case of NER): (Agenda of NPC meeting)</u>

In case of North Eastern region, 132 kV power system consist of many radial feeders. Further the load loss due to tripping of such feeders are almost negligible as compared to the regional antecedent generation or load which resulted into the reporting of higher numbers of Grid Events per month as compared to other regions.

During April'24 to September'24, 46% of the Grid Events reported with Load/Generation loss upto 10 MW and 32% of the Grid Events reported which was radially fed area through single feeder only (Loss upto 10 MW)

As per minutes of 15th NPC meeting, outage of 132 kV system in the NER should not be excluded from the GD-1 category; which is necessary for improvement of performance of NER system. Grid incidents should be closely monitored and reporting should also be done for further reduction and improvement. Further, the Committee advised to identify the root cause of the Grid failure and take measures to minimize their occurrence.

Sub-committee may deliberate

B.12 <u>System Protection Scheme (SPS) Document of North Eastern Region:</u>

A draft document on System Protection Schemes of North Eastern Region is prepared by NERLDC which comprises of details of all the SPS available in NER.

The Summary of System Protection Schemes (SPS) both inter/Intra regional including cross border SPS which are in service, and no of schemes Approved and no of schemes under discussion stage are detailed below: -

Sl. No	**Region**	**No. of Schemes in service**	**No. of Schemes approved (yet to be operationalized)**	**No of schemes under discussion**
1	SPS in NER under operation	20	2	0
2	SPS related to Bangladesh	2	1	-
	TOTAL	22	3	0

Draft SPS document will be shared by NERLDC on **10th of January, 2025.**

All the utilities are requested to review the document and furnish comments if any to NERLDC by ***17th of January, 2025.***

Sub-committee may deliberate

B.13 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)	

Display of SPS SCADA Mapping

At present, there are 22 numbers of SPS under operation and 3 numbers 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 side breaker of 2x125 MVA, 400/132 kV ICT at Palatana	After commissioning of 400 kV Palatana - Surajmaninagar line-1, there is no requirement of this SPS and hence, it is to be kept OFF. However, the	Done

		SPS at Palatana is to be kept ON during shut down of 400 kV Palatana-Surajmaninagar(ISTS) line-1	
2	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
3	**Related to the safe evacuation of power from BgTPP(NTPC) generation -** BGTPP generation reduction to 600 MW	-	Done
4	**Related to Generation evacuation from Monarchak(NEEPCO) Power Plant -** Tripping of STG at Monarchak under outage of any one circuit of 132 kV Monarchak – Rokhia line & 132 kV Monarchak-Udaipur	Commissioning of 132 kV Monarchak-Surajmaninagar line	By Nov'24
5	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
6	**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

7	**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	-	15th Dec'24
8	**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
9	**Related to Outage of any one of the 400/132kV 2x360MVA ICTs at Panyor Lower Hydro Power Station** - Disconnection of One Unit of Panyor (135 MW) and One Unit of Pare (55 MW)	After restoration of 132 kV Panyor -Itanagar & 132 kV Panyor -Pare line (expected by 31st Mar'24)	By Nov'24
10	**SPS related to outage of 220 kV Azara-Sarusajai DC** - **On tripping of 220 kV Azara-Sarusajai D/C:** 140-150 MW load disconnection is to be done at Sarusajai and Kahilipara areas	Commissioning of 400 kV Sonapur Substation. LILO of 400 kV Bongaigaon-Byrnihat Line at Sonapur.	
11	**SPS related to outage of 220 Misa-Samaguri DC:** **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.	By Dec'24

11	**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
12	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
13	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
14	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 300 Amps. , 8-10 MW of load at 132kV Rupai GSS will be shed.	i) Commissioning of 220kV Kathalguri-Namsai D/C ii) Reconductoring of 132kV Tinsukia-Ledo and 132kV Tinsukia - Rupai Lines	Done
15	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	By Dec'24
16	Related to outage of any one circuit of 132 kV Leshka – Khliehriat D/C	Reconductoring of 132 kV Khliehriat – Leshka D/C	By Dec'24

17	Related to 132kV SM Nagar(ISTS) - SM Nagar line to prevent Overloading	i) Commissiong of 132kV Monarchak - SM Nagar D/C ii)HTLS Reconductoring of 132kV SM Nagar(ISTS) - SM Nagar, 132kV SM Nagar(ISTS) - Budhjungnanagar, 132kV PK Bari(ISTS) - Ambasa and 132kV PK Bari(ISTS) - PK Bari	By Jan'25
18	SPS at Tezu substation to prevent under voltage issue prior to connection of Niglok load at Pasighat area of Arunachal Power System		
19	SPS at Namsai substation to prevent under voltage issue prior to connection of Niglok load at Pasighat area of Arunachal Power System		
20	**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)	Upgradation of 132 kV Surajmaninagar(TSECL) to 400 kV	Done
21	**Related to Outage of both 400/132 kV, 2x125 MVA ICTs at Palatana** - Entire load disconnection of South Comilla by	Upgradation of 132 kV Surajmaninagar(TSECL) to 400 kV	Done

	way of tripping of 132kV SM Nagar-South Comilla D/C		
Sl. No.	**SPS under implementation**	**Long term measures**	
1	SPS at Pasighat substation for preventing Overloading of 132 kV Tinsukia-Rupai/Tinsukia-Ledo Lines in the event of a tripping on the 132 kV Paynor-Ziro Line	Commissioning of 220kV Kathalguri – Namsai D/C lines	
2	SPS related to overloading of 2x160 MVA 220/132 kV ICTs at BTPS		
3	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	

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 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.

In 74th PCCM, the forum strongly urged to the concerned States to send the monthly progress report timely so as NERPC would submit the progress report.

Sub-committee may deliberate

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:

Utilities updated in 74th PCCM as provided in the table below:

Sl No	**Element Name**	**Tripping date and time**	**Relay End1**	**Relay End2**	**A/R not Operated**	**Remarks from Utility (74th PCCM)**
1	132 kV Agartala - Surajmaninagar 2 Line	17-11-2023 15:10	DP,ZI,Y-B,FD:5.81 km, AR successfu l	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	completed
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 on 20.12.2024
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 this month and update by next PCC
6	132 kV Aizawl - Tipaimukh Line	02-11-2024 10:22	DP, ZII,Y-E, FD: 32.4 KM, Carrier received after CB opening ,	LLG fault. IL1 1.06kA IL2 0.88 kA FD: 63.3 km (A/R	Aizawl(PGCIL)	PGCIL informed that carrier from Tipamukh was received only after tripping of CB, so no Carrier

			No Carrier aided tripping	Successful)		aided tripping occurred, so no AR. MSPCL to check the time delay settings for sending carrier at Tipaimukh
7	220 kV Behiating - Tinsukia 1 Line	02-11-2024 10:32	DP, ZI, B-E, 1.1 kA	DP, ZI, B-E	Both ends	AEGCL to look into the matter as the line is maintained by them as of now
8	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)	To be rectified in upcoming shutdown on 20th Dec'24
9	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	AR in disabled mode at both ends. To be enabled after CT replacement at Lumshnonng end by MePTCL by Jan'25
10	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)	Pailapool end AR block high due to no CB status Issue resolved now

11	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)	To be checked by AEGCLshortly

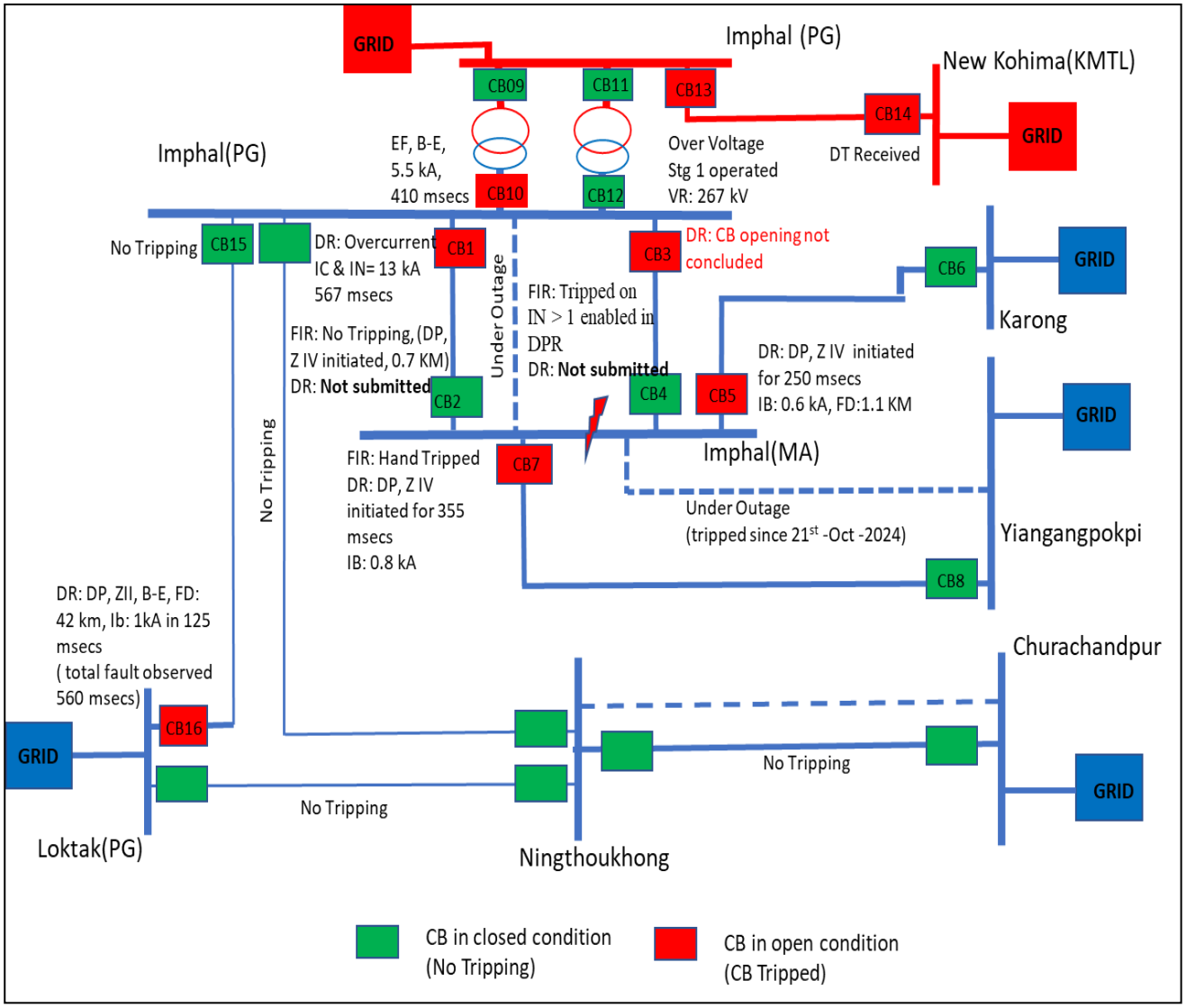
Utilities may further update

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.

In 74th PCCM, NERPC updated that the PSAG meeting would be held shortly to deliberate the matter for further analysis and finalization of remedial actions.

PSAG may update

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.

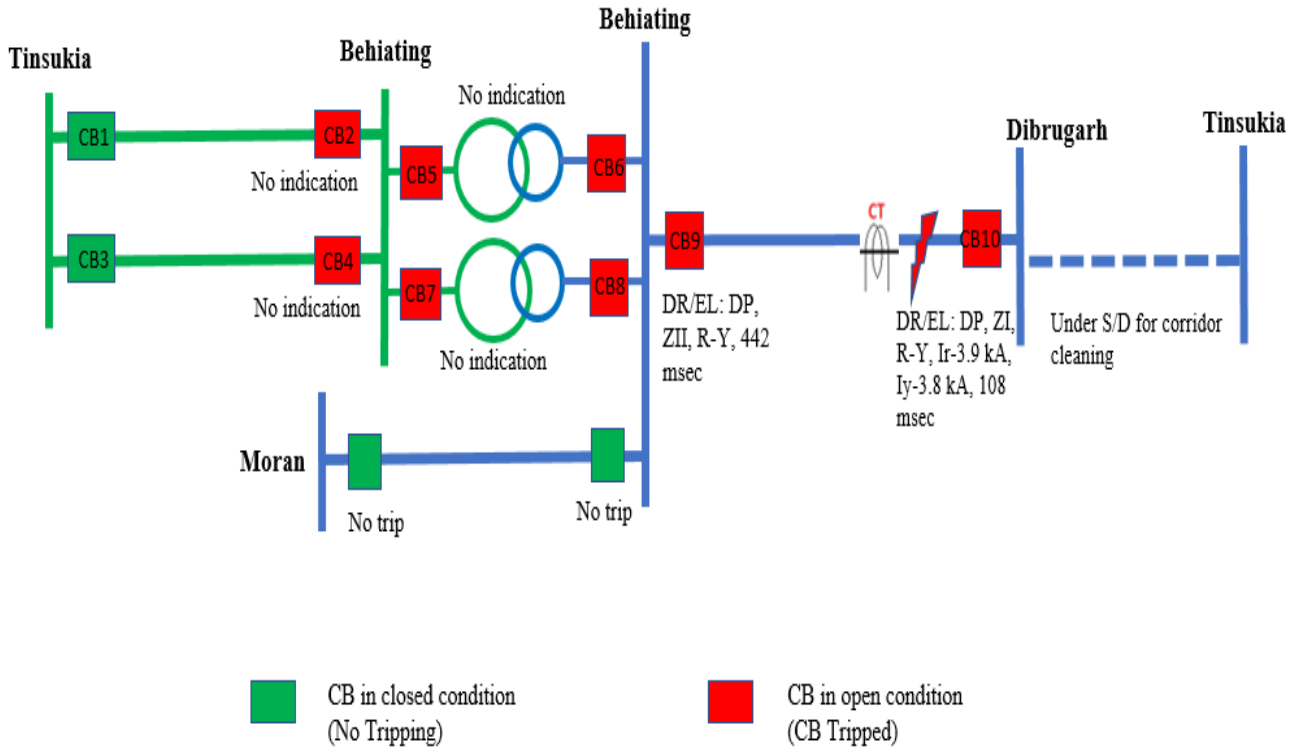
In 73rd PCCM, M/s PRDC updated that the training could not be conducted in Nov'24 owing to server and power supply related issues. He further stated that the training will be conducted in Jan'25.
In 74th PCCM, NERPC updated that the training would be conducted in Jan'25 by M/s PRDC.

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.

In 74th PCCM, AEGCL apprised that the protection system at Behiating was maintained by NERPSIP. Forum advised AEGCL to review the settings of Behiating in coordination with NERPSIP, NERPC and NERLDC.

Regarding the absence of carrier aided tripping scheme, AEGCL assured to look into the matter shortly and would update in next PCC meeting.

AEGCL may update

C.6 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 been constituted

in 71st PCCM for the purpose and the first meeting of the sub-group will be held shortly.

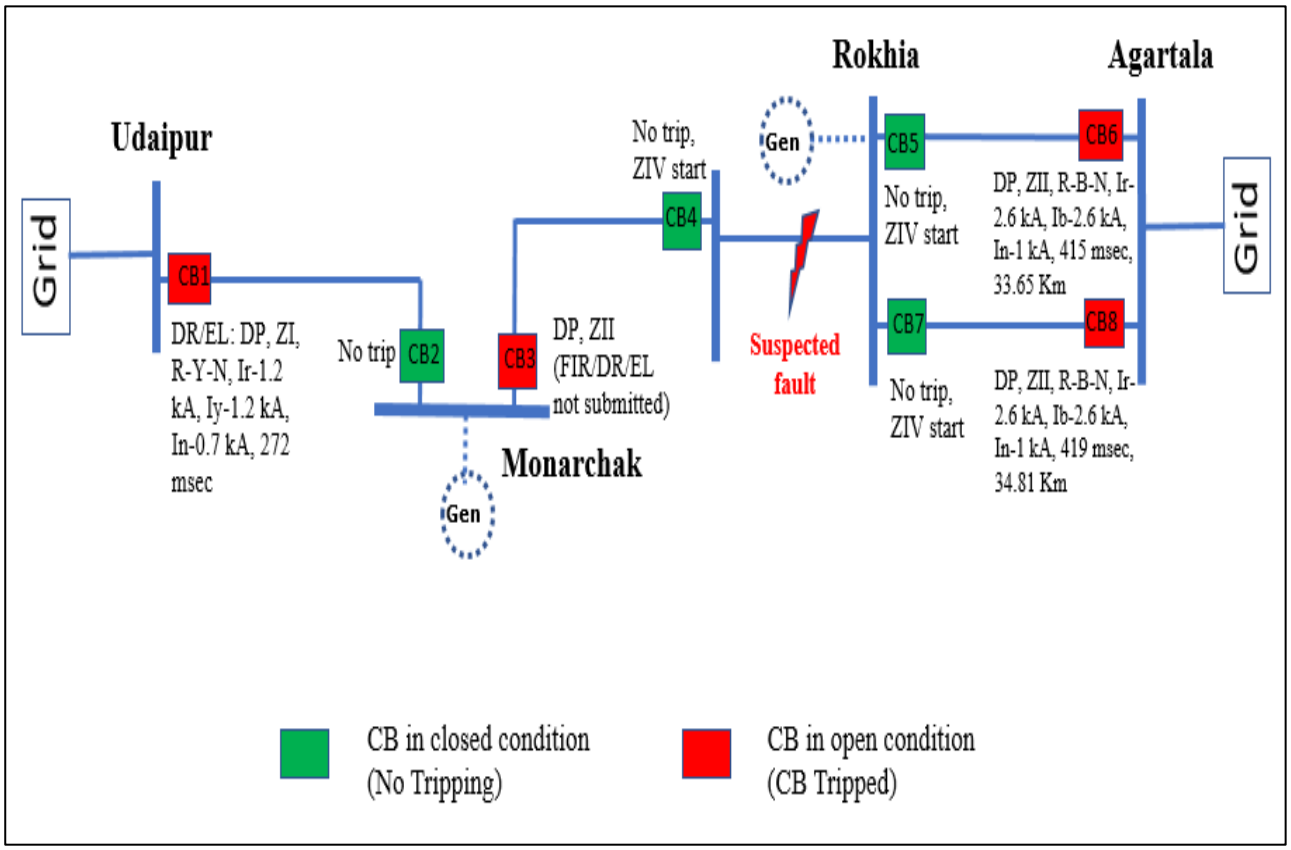
In 74th PCCM, Forum requested NERPC sub-committee (which has been formed to review setting of Protection protocol in NER) to review the settings of Tripura State power system and submit the report in next PCC meeting.

Sub-committee may deliberate

C.7 Grid Disturbance in Monarchak and Rokhia areas of Tripura on 06-12-2024:

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.

Deliberation of the 74th PCCM

1. TSECL informed that fault was near the main bus at Rokhia S/S as a CCTV cable snapped and came near the bus and flashover occured.
2. Regarding the Line Differential Protection on the Rokhia-N.Rokhia link, Tripura updated that the commissioning is underway and would be completed shortly.
3. *NERPC stated that 132 kV generating station should have provision of Double Main Bus scheme to ensure necessary reliability. Forum urged the all the utilities to take necessary action in this regard.*
4. Regarding tripping of AGTCCPP units 2 and 6, NEEPCO informed that the tripping occurred due to relay maloperation. He further informed that the relay panels were old and replacement of the relays, by numerical ones, was being planned.
5. *Forum advised Tripura to provide analysis report on zone 1 operation at Udaipur for Monarchak line.*

Tripura may update

C.8 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).

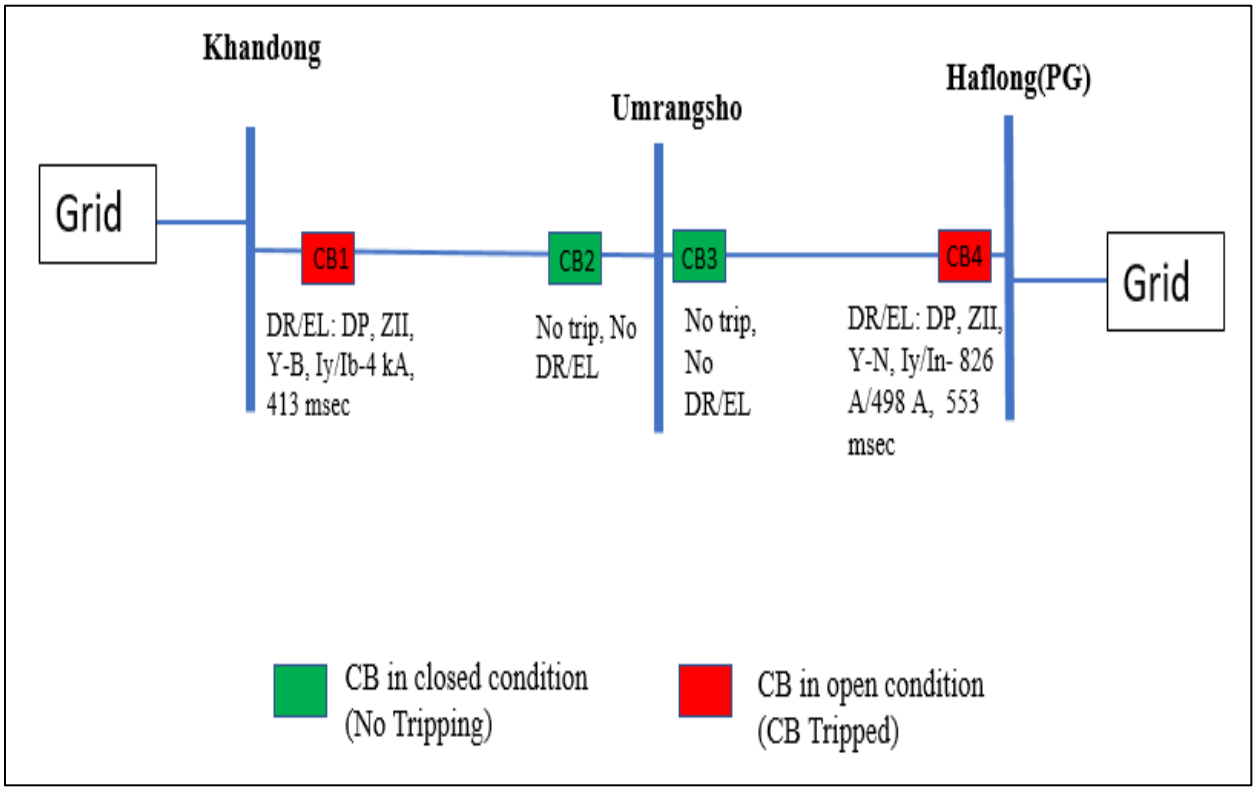
In 74th PCCM, the forum advised NERLDC to prepare a google sheet with substation wise and feeder wise details and update in that sheet.

Sub-committee may deliberate

C.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.

In 74th PCCM, AEGCL informed that jumper of Haflong feeder at Umrangsho end snapped which caused the fault. He added that CB3 was non-operational and the fault could not get cleared timely. Further he informed that the CB would be checked in the upcoming shutdown of the line.

Forum advised AEGCL to provide DR/EL and root cause analysis report by next PCCM.

AEGCL may update

C.10 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 B.14A** & **Annexure B.14B**.

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

Deliberation of the 74th PCCM

Regarding the SPS 1, the forum opined that there is requirement of further study of voltage profile of Tezu and Namsai area in case of various contingencies. Further the forum requested NERLDC to undertake the study before commissioning the SPS.

Regarding the SPS 2, the forum approved the SPS. DoP, Arunachal Pradesh informed that the SPS would be implemented by Jan'25.

Sub-committee may deliberate

C.11 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.

In 74th PCCM, the forum requested all the utilities to update the relay settings of 66 kV and above elements in the PDMS portal at the earliest.

Utilities may 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 74th PCCM

Sl no	State	Important Transmission lines where AR has to be enabled at the earliest	Status (73rd/72nd PCCM)	Status as per 74th 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	220 kV -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.	132 kV – 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 74th PCCM -

Name of utility	**Last updated status (73rd/72nd PCCM)**	**Status as per 74th 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 74th PCCM:

Sl No	Details of the events(outage)	Remedial action suggested	Name of the utility & previous update	Status as per 74th 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

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GRID CONTROLLER OF INDIA LIMITED

Formerly Power System Operation Corporation Limited

North Eastern Regional Load Despatch Centre, Shillong

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

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

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Sl No	Area Affected	GD/GI/Near miss	Date & Time	Page No
1	Grid Disturbance in Monarchak and Rokhia S/S of Tripura Power System	GD-I	13:06 Hrs of 06-12-2024	3-10
2	Grid Disturbance in Along and Pasighat areas of Arunachal Pradesh power system	GD-I	03:46 Hrs of 08-12-2024	11-17
3	Grid Disturbance in Pavoi area of Assam power system	GD-I	15:43 Hrs of 16-12-2024	18-25
4	Grid Disturbance in Sonabil, Ghoramari, Depota, Dhekiajuli and Rowta areas of Assam power system	GD-I	15:04 Hrs of 20-12-2024	26-30

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 Monarchak and Rokhia S/S of Tripura 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):20-12-2024

1. Event Summary (घटना का सारांश):

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

At 13:06 Hrs of 06.12.2024, 132 kV Monarchak – Udaipur Line, 132 kV Monarchak – Rokhia line and 132 kV Rokhia – Agartala D/C lines tripped along with Rokhia unit-9 due to which Monarchak and Rokhia areas of Tripura Power System got isolated from NER Grid and collapsed due to no source available in these areas.

Power supply was extended to Monarchak area of Tripura Power System by charging 132 kV Monarchak – Udaipur Line at 13:28 Hrs of 06.12.2024 and power extended to Rokhia S/S by charging 132 kV Monarchak-Rokhia line at 14:05 Hrs of 06.12.2024.

2. Time and Date of the Event (घटना का स मय और दिनांक): 13:06 Hrs of 06-12-2024.

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

4. Location/Control Area (स्थान/नियंत्रण क्षेत्र): Monarchak and Rokhia S/S of Tripura Power System

5. Antecedent Conditions (पूर्ववर्ती स्थिति):

	Frequency in Hz	Regional Generation (MW)	Regional Demand (MW)
Pre-Event (घटना पूर्व)	49.94	1550	1980
Post Event (घटना के बाद)	49.94	1570	1971

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 Monarchak Plant was under OCC approved Planned Shutdown wef 00:07 Hrs of 18-10-2024
Weather Condition (मौसम स्थिति)	Normal

1. **Load and Generation loss (लोड और जेनरेशन हानि):** Load loss of 8 MW and generation loss of 17 MW occurred.
2. **Duration of interruption (रुकावट की अवधि): 59 min**
3. **Network across the affected area (प्रभावित क्षेत्र का नक्शा):**

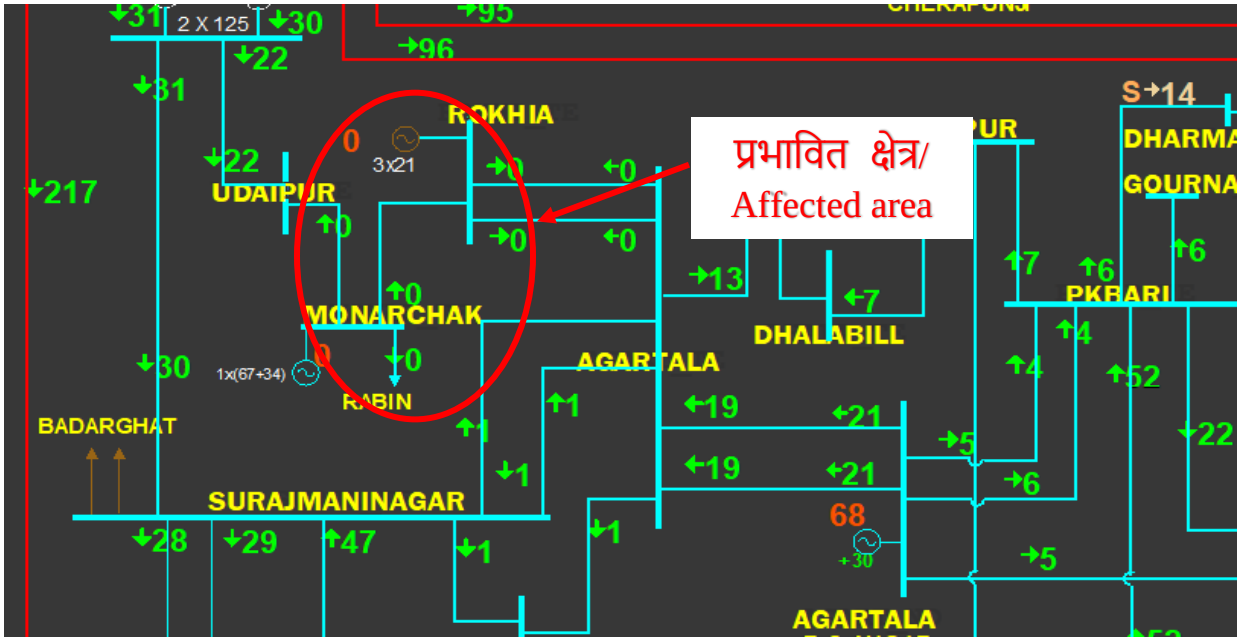


Figure 1: Network across the affected area

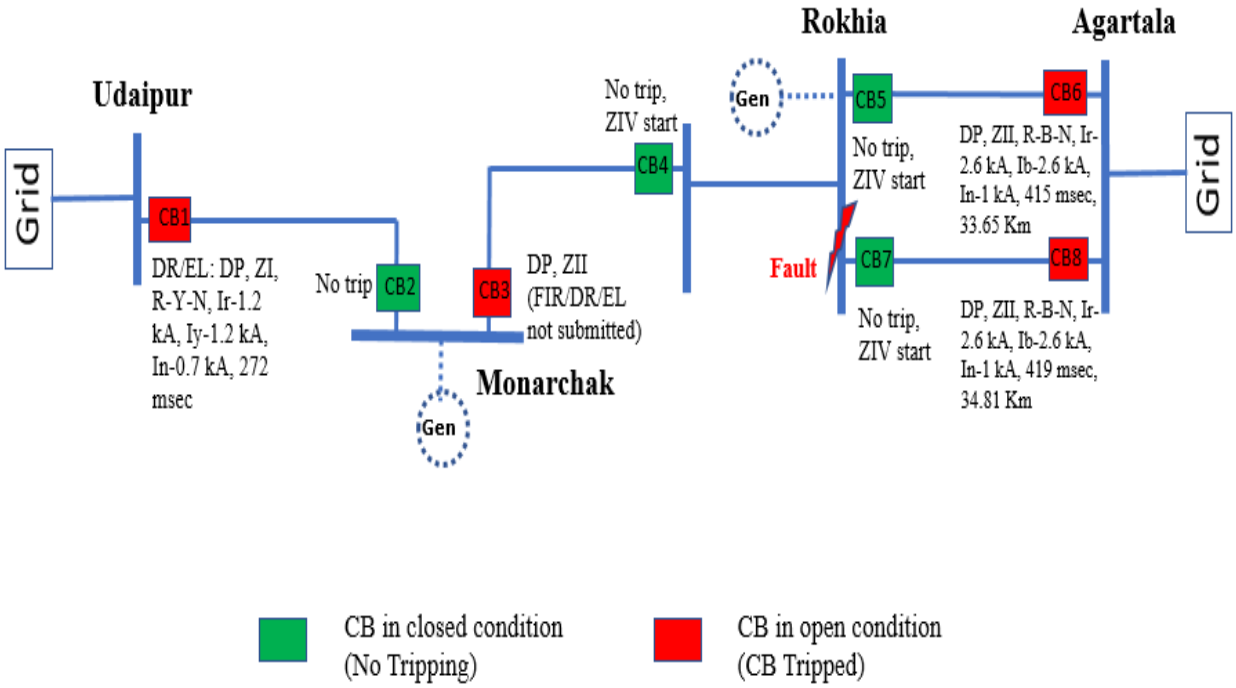
4. **Details of Equipment Failure (if any during the event) (उपकरण विफलता का विवरण): NIL**
5. **Major Elements Tripped (प्रमुख ट्रिपिंग):**

Sl. No.	नाम	Trip time (hh:mm:ss)	Restoration time	उप केंद्र 1 रिले संकेत	उप केंद्र 2 रिले संकेत
1	132 kV Monarchak-Udaipur Line	13:06	13:28	DP, ZI, R-Y-N (ZIII start initially)	No tripping
2	132 kV Monarchak-Rokhia Line	13:06	14:05	As per FIR, ZII operated (tripping not clear from DR)	No tripping, ZIV start
3	132 kV Rokhia-Agartala I Line	13:06	16:40	No tripping, ZIV start	DP, ZII, R-B-N

4	132 kV Rokhia-Agartala II Line	13:06	16:53	No tripping, ZIV start	DP, ZII, R-B-N
5	Rokhia Unit-9	13:06	14:23	Loss of evacuation path	

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

Analysis based on DR:



132 kV Agartala-Rokhia I line:

Agartala: R-B-N fault (Ir-2.6 kA, Ib-2.6 kA, In-1 kA) initiated at 13:05:19.698 Hrs and cleared within 415 msec on operation of DP, ZII.

Rokhia: No tripping, ZIV start

132 kV Agartala-Rokhia II line:

Agartala: R-B-N fault initiated at 13:05:14.729 Hrs and cleared within 419 msec on operation of DP, ZII.

Rokhia: No tripping, ZIV start

132 kV Monarchak-Rokhia Line:

Monarchak: DR/EL not submitted

Rokhia: R-Y-N fault, No tripping, ZIV start

132 kV Monarchak-Udaipur Line:

Udaipur: Initially Y-N fault (Iy-1 kA, In-0.7 kA) initiated at 13:05:30.550 Hrs. After 163 msec, R-Y-N fault (Ir-1.2 kA, Iy-1.2 kA, In-0.7 kA) appeared and cleared within 112 msec on operation of DP, ZI. (initially ZII/ZIII start) Fault duration:

Monarchak: No tripping

Root cause: TSECL informed that a CCTV cable got snapped from gantry structure and came closer to 132 kV Main Bus at Rokhia and flashover occurred.

PMU snapshot of 400 kV PK Bari-Surajmaninagar I line at PK Bari end

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

- Fault in 132 kV Rokhia Main Bus which was cleared by tripping of healthy lines 132 kV Monarchak-Rokhia line & 132 kV Agartala-Rokhia D/C lines on ZII from remote ends. Non-availability of Bus bar protection at 132 kV Rokhia S/S. Bus bar protection needs to be implemented in all generating station switchyards as per NPC Uniform Protection protocol.
- 132 kV Monarchak-Udaipur line tripped on ZI from Udaipur end which is inferred unwanted. The protection setting at Udaipur needs to be checked by TSECL.
- At the same time, AGTCCPP Unit-2 & 6 tripped which seems to be misoperation.

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

- Regarding tripping of 132 kV Monarchak-Udaipur line from Udaipur end on ZI, TSECL informed that shutdown of 132 kV Monarchak-Udaipur line will be availed for checking and testing of the same.

- Regarding tripping of AGTCCPP Unit-2&6, NEEPCO informed that this tripping occurred due to relay maloperation at AGTCCPP. He informed that relay panels at AGTCCPP are old and static in nature which will be replaced with numerical relay tentatively by Jan'25.

9. 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)	**TSECL**
2.	**Whether DR/EL provided within 24 Hours?**	1. IEGC section 37.2 (c) 2. CEA grid Standard 15.3	**NEEPCO, TPGCL**
3.	**Detailed Report received within 7 days?**	IEGC section 37.2 (e)	**TSECL, NEEPCO**
4.	**DR Time Synchronization Issues**	IEGC section 17.3	**No violation**
5.	**Any other non-compliance**		-

10. Key Lessons Learnt (प्रमुख अधिगम बिंदु):

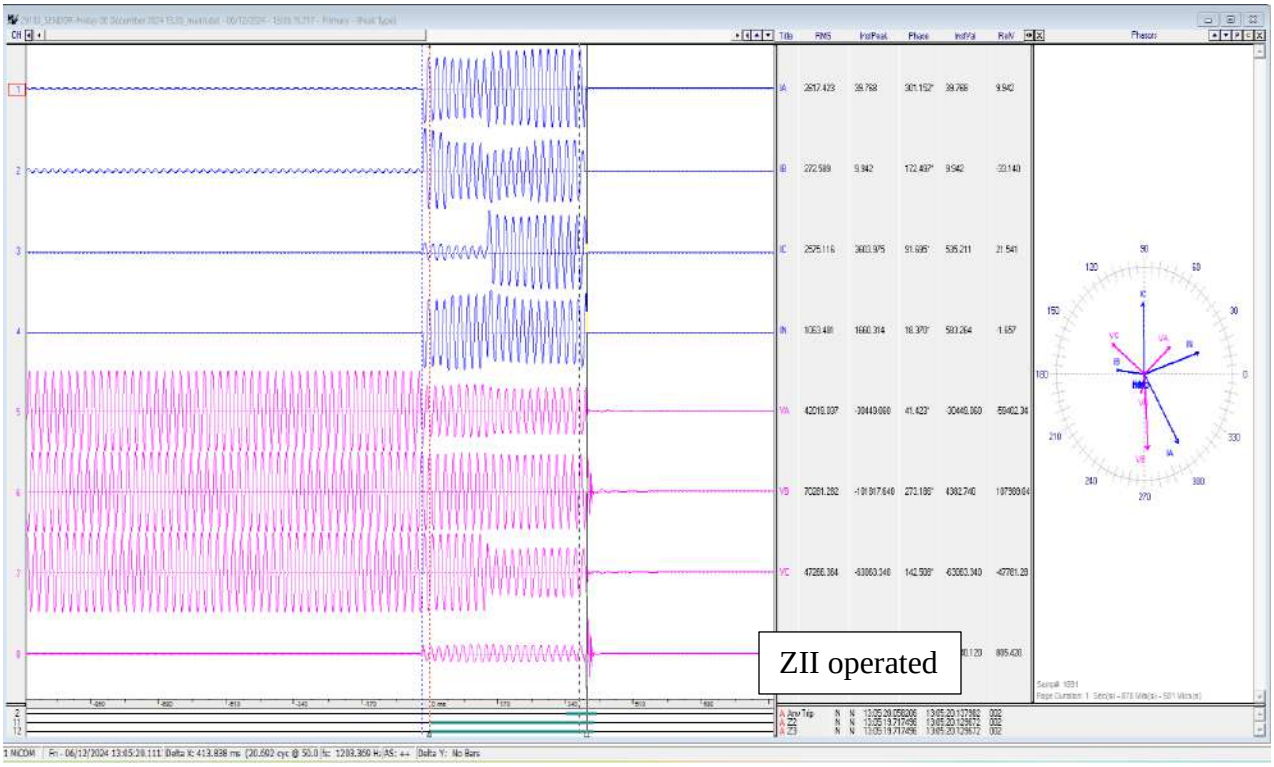
- Proper maintenance related activities as per CEA regulations needs to be carried out.
- Healthiness of protection system needs to be ensured at all times.

Annexure 1: Sequence of Events as per SCADA

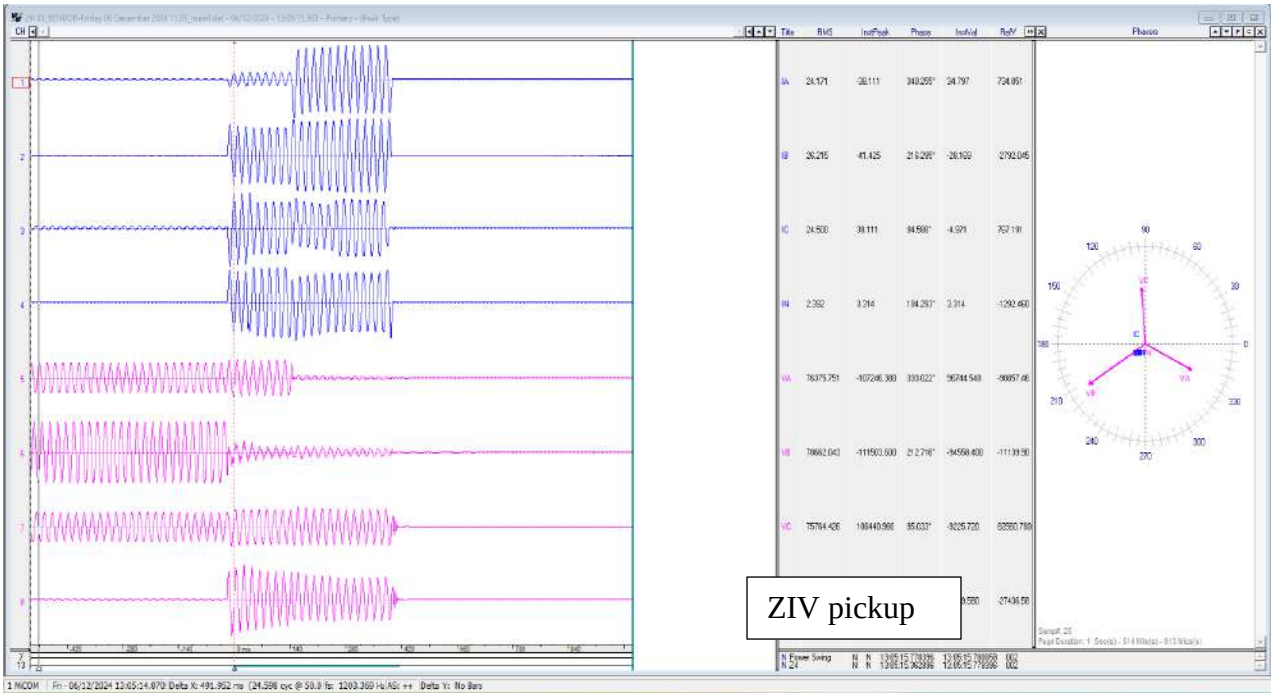
AREA	CATEGORY	LOCATION	TEXT	SYSTEM_TIME	FIELD_TIME	MS
NAGALD	1C	DIMAP_NA	DIMAPUR NAGARJAN CB 33Kv LOAD-1 OPEN	06 Dec 2024 22:53:29:000	24 Feb 2015 13:52:12:000	2.58E+08
NAGALD	1C	DIMAP_NA	DIMAPUR NAGARJAN CB 33Kv LOAD-1 CLOSED	06 Dec 2024 23:51:39:000	24 Feb 2015 14:50:10:000	7.63E+08
TSECL	1C	ROKHI_TE	ROKHIA CB 11 KV UNIT G9 CLOSED	06 Dec 2024 14:23:12:000	17 May 2017 14:51:59:000	2.63E+08
TSECL	1C	ROKHI_TE	ROKHIA CB 11 KV UNIT G9 OPEN	06 Dec 2024 13:07:12:000	17 May 2017 14:51:59:000	2.63E+08
AEGCL	1C	LANGP_AS	KARBI LONGPI CB 11 KV UNIT (G2) OPEN	06 Dec 2024 00:11:44:000	06 Dec 2024 00:11:23:000	7.4E+08
MIZORM	1C	KOLAS_MI	KOLASIB CB 132Kv LINE-1 TO BADAR CLOSED	06 Dec 2024 13:23:09:000	06 Dec 2024 13:01:53:000	9.74E+08
TSECL	1C	UDAIP_TE	UDAIPUR CB 132Kv LINE-1 TO MONAR OPEN	06 Dec 2024 13:06:39:000	06 Dec 2024 13:06:09:000	6.67E+08
TSECL	1C	RABIN_TE	RABINDRANAGAR CB 132/33 T5 (PRIM) OPEN	06 Dec 2024 13:06:39:000	06 Dec 2024 13:06:11:000	6.35E+08
TSECL	1C	MONAR_TE	MONARCHAK CB 132Kv LINE-1 TO ROKHI OPEN	06 Dec 2024 13:06:39:000	06 Dec 2024 13:06:12:000	7.28E+08
TSECL	1C	AGART_NO	AGARTALA CB 11 KV UNIT (G02) OPEN	06 Dec 2024 13:06:31:000	06 Dec 2024 13:06:28:000	8.5E+08
TSECL	1C	MONAR_TE	MONARCHAK CB 132Kv LINE-1 TO UDAIP INVALID	06 Dec 2024 13:21:16:000	06 Dec 2024 13:20:40:000	1.9E+08
TSECL	1C	UDAIP_TE	UDAIPUR CB 132Kv LINE-1 TO MONAR CLOSED	06 Dec 2024 13:22:34:000	06 Dec 2024 13:21:49:000	4.93E+08
AEGCL	1C	SARUS_AS	SARUSAJAI CB 220/132 T2 (SEC) CLOSED	06 Dec 2024 13:23:52:000	06 Dec 2024 13:23:20:000	9.39E+08
MSPCL	1C	IMPHA_PG	IMPHAL CB 400/132 T3 (SEC) OPEN	06 Dec 2024 13:29:29:000	06 Dec 2024 13:29:27:000	6.68E+08
TSECL	1C	ROKHI_TE	ROKHIA CB 132Kv LINE-1 TO MONAR OPEN	06 Dec 2024 13:36:45:000	06 Dec 2024 13:36:11:000	8.43E+08
TSECL	1C	ROKHI_TE	ROKHIA CB 132Kv LINE-2 TO AGART BETWEEN	06 Dec 2024 13:36:45:000	06 Dec 2024 13:36:11:000	8.43E+08
NAGALD	1C	MOKOK_NA	MOKOKCHUNG CB 66Kv LINE-1 TO ZUHEN CLOSED	06 Dec 2024 14:00:23:000	06 Dec 2024 13:59:56:000	9.27E+08
TSECL	1C	MONAR_TE	MONARCHAK CB 132Kv LINE-1 TO ROKHI CLOSED	06 Dec 2024 14:04:13:000	06 Dec 2024 14:03:38:000	2.97E+08
AEGCL	1C	SARUS_AS	SARUSAJAI CB 220/132 T2 (SEC) OPEN	06 Dec 2024 14:04:17:000	06 Dec 2024 14:04:10:000	9000000
TSECL	1C	ROKHI_TE	ROKHIA CB 132Kv LINE-1 TO MONAR CLOSED	06 Dec 2024 14:05:45:000	06 Dec 2024 14:05:11:000	4.28E+08
AEGCL	1C	GOHPU_AS	GOHPUR CB 132Kv LINE-2 TO LAKHI CLOSED	06 Dec 2024 14:08:50:000	06 Dec 2024 14:06:35:000	9.98E+08
NAGALD	1C	DOYAN_NO	DOYANG CB 11 KV UNIT (H01) CLOSED	06 Dec 2024 16:46:34:000	06 Dec 2024 16:46:27:000	5.6E+08
TSECL	1C	ROKHI_TE	ROKHIA CB 132Kv LINE-2 TO AGART CLOSED	06 Dec 2024 16:53:19:000	06 Dec 2024 16:51:49:000	4.88E+08
ARUNCH	1C	PARE__NO	PARE CB 11 KV UNIT (G02) CLOSED	06 Dec 2024 16:52:42:000	06 Dec 2024 16:52:37:000	3.8E+08

Annexure 2: Disturbance recorder snips showing faults and digital signals

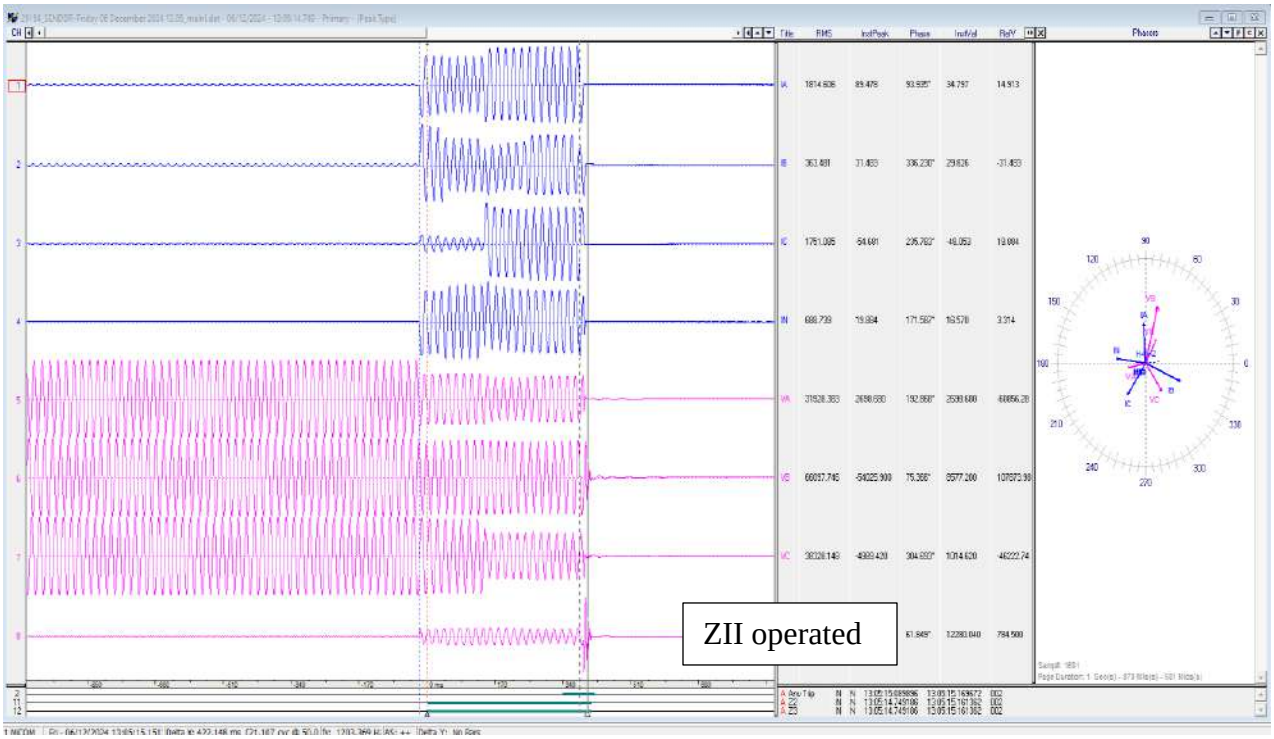
2.1. DR Snapshot of Agartala for 132 kV Rokhia-Agartala I Line



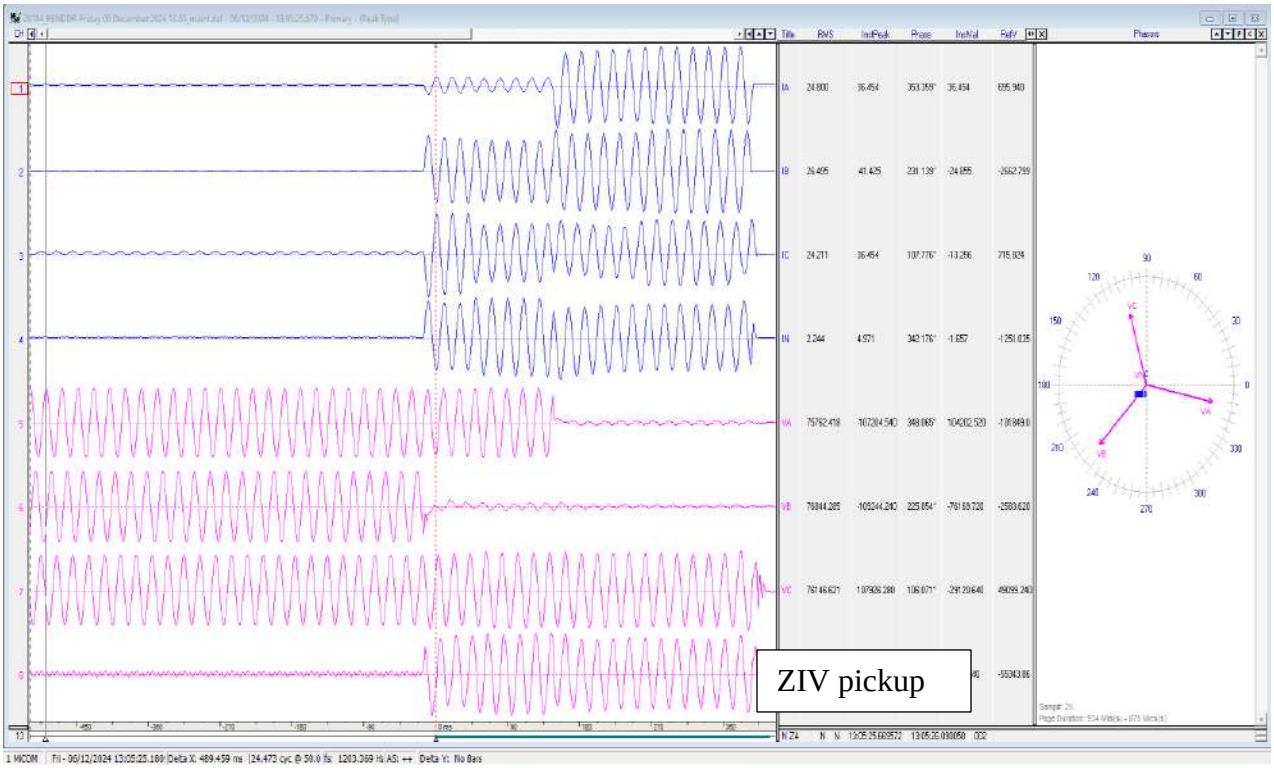
2.2. DR Snapshot of Rokhia for 132 kV Rokhia-Agartala II Line



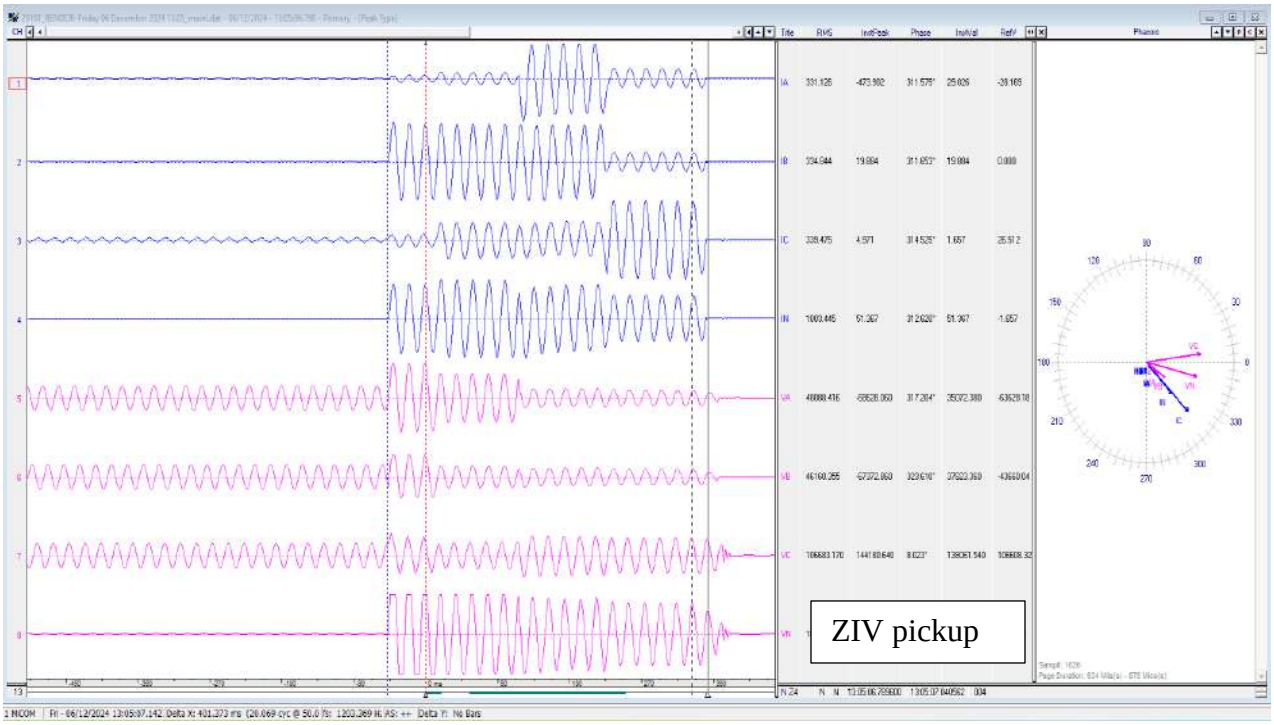
2.3. DR Snapshot of Agartala for 132 kV Rokhia-Agartala II Line



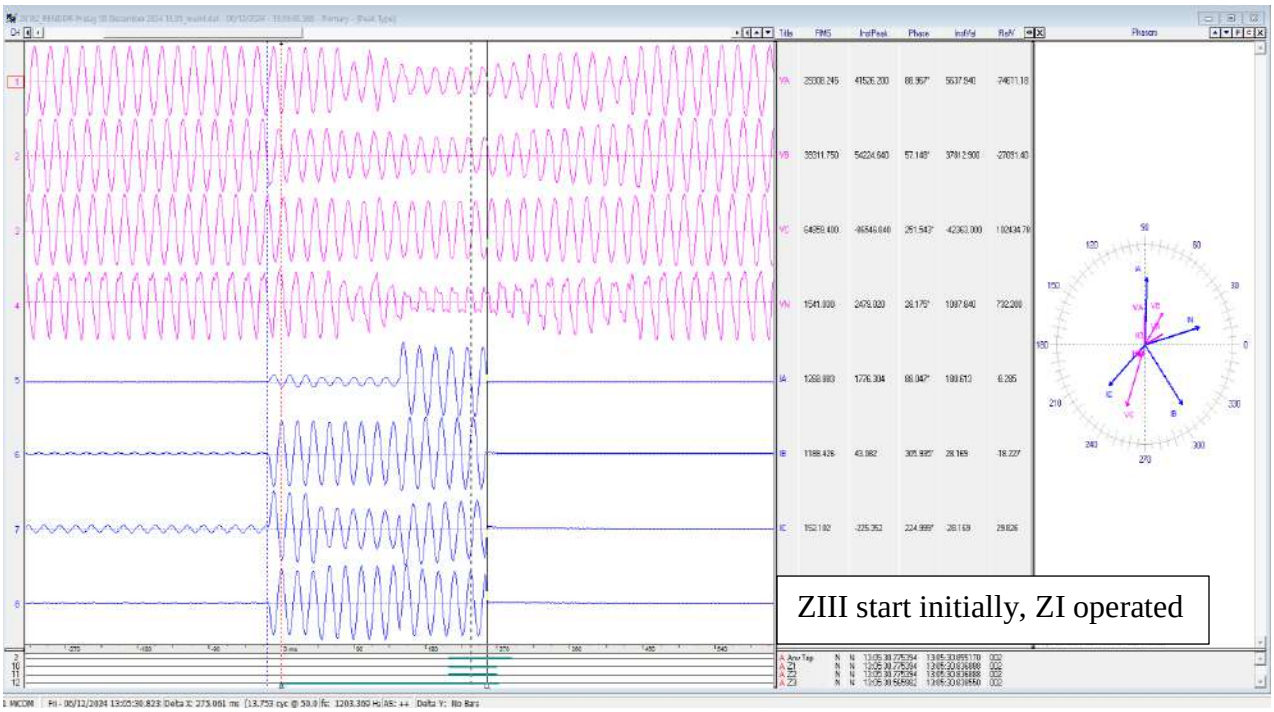
2.4. DR Snapshot of Rokhia for 132 kV Rokhia-Agartala II Line



2.5. DR Snapshot of Rokhia for 132 kV Monarchak-Rokhia Line



2.6. DR Snapshot of Udaipur for 132 kV Monarchak-Udaipur 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 Along and Pasighat 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):22-12-2024

1. Event Summary (घटना का सारांश):

Along and Pasighat areas of Arunachal Pradesh Power System were connected with rest of NER Grid through 132 kV Along-Basar & 132 kV Roing-Pasighat lines.

At 03:46 Hrs of 08-12-2024, 132 kV Along-Basar line, 132 kV Along-Pasighat Line and 132 kV Roing-Pasighat line tripped. Due to tripping of these elements, Along and Pasighat areas of Arunachal Pradesh Power System got isolated from NER Grid and collapsed due to no source available in these areas.

Power supply was extended to Along and Pasighat areas of Arunachal Pradesh Power System by charging 132 kV Roing-Pasighat Line at 05:12 Hrs of 08-12-2024.

2. Time and Date of the Event (घटना का स मय और दिनांक): 03:46 Hrs of 08-12-2024

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

4. Location/Control Area (स्थान/नियंत्रण क्षेत्र): 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)	49.99	1632	1448
Post Event (घटना के बाद)	49.99	1623	1481

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

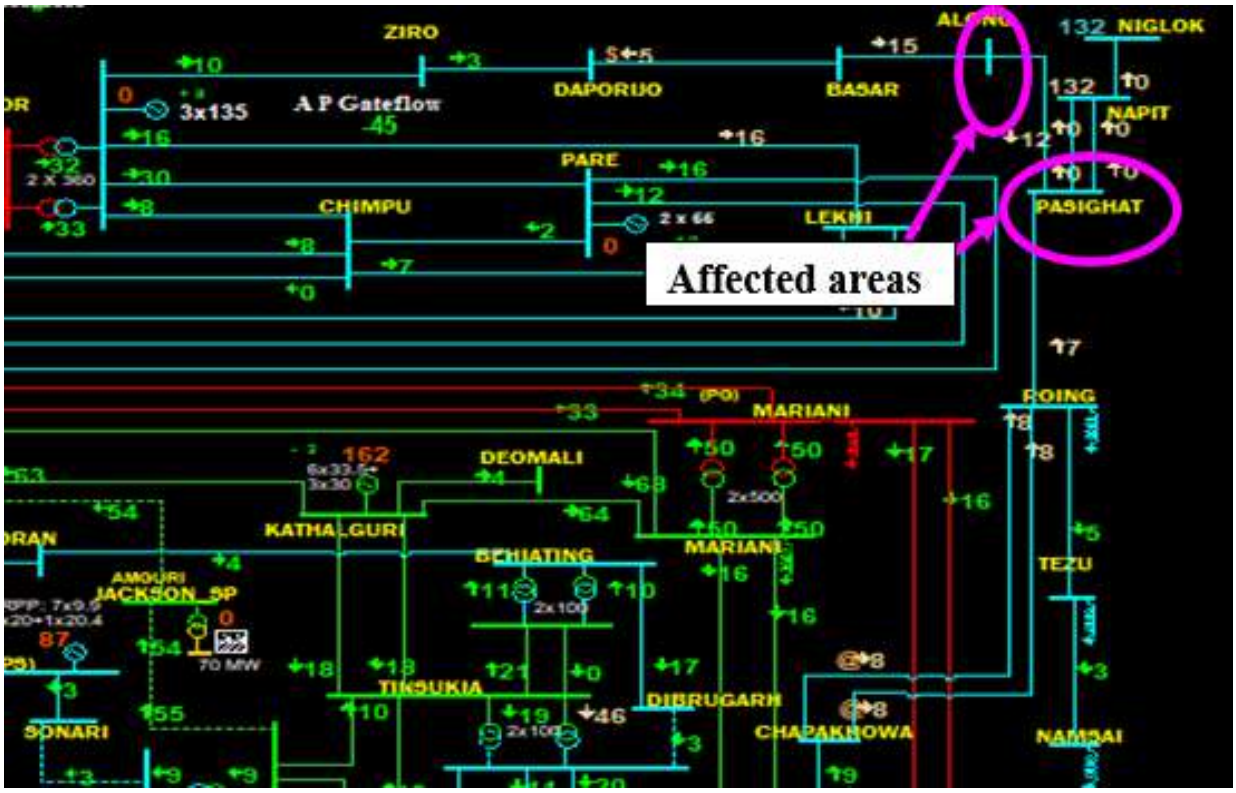
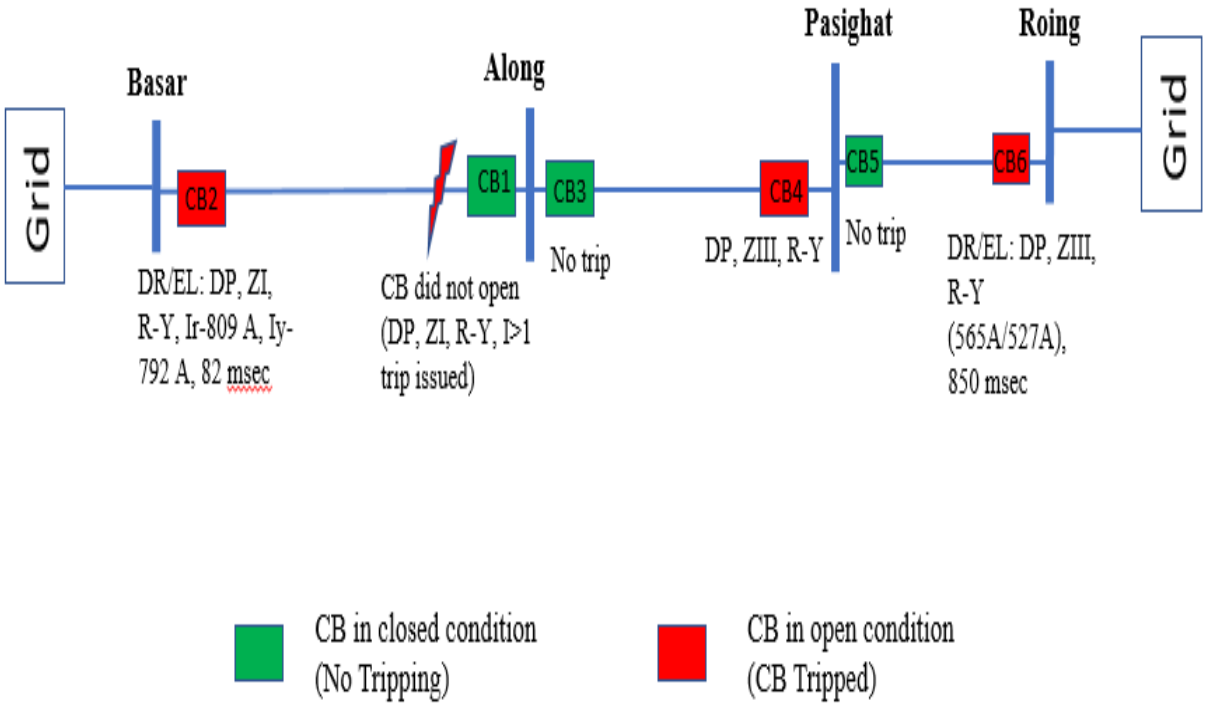


Figure 1: Network across the affected area

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 Along-Basar Line	03:46	21:09 Hrs of 11.12.2024	DP, ZI, R-Y, I>1 trip issued, 19.1 Km, LBB operated (However, CB did not open)	DP, ZI, R-Y
2	132 kV Roing-Pasighat Line	03:46	05:12	DP, ZIII, R-Y	No tripping
3	132 kV Along-Pasighat Line	03:46	05:44	No tripping	DP, ZIII, R-Y, 84.5 Km

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



As per DR analysis, R-Y fault (Ir-809 A, Iy-792 A) in 132 kV Along-Basar line initiated at 03:46:30.091 Hrs which was cleared within 82 msec from Basar end on operation of DP, ZI. ZI started from Along end and trip command issued. Also, I>1 trip command issued after 793 msec. However, CB at Along did not open resulting in clearing of fault by tripping of 132 kV Roing-Pasighat line on operation of DP, ZIII from Roing end within 850 msec. At 03:46:11.478 Hrs, after 300 msec of initiation of fault, LBB initiation command was also triggered at Along, however the Pasighat line breaker did not open.

For 132 kV Along-Pasighat line, tripping occurred from Pasighat end on ZIII. No tripping from Along end.

Root cause: A tree fell on the 132 kV Along-Basar line causing the conductors to snap at a distance of 19.11 km from Along towards Basar. The effective distance of the fault from Pasighat is 85 km i.e. 128% of the principal line – Pasighat-Along and therefore minutely beyond Zone-2 (120%). The fault distance is 185 km from Roing i.e. 185% of the principal line – Roing-Pasighat and within Zone-3 (199%).

PMU snapshot of 132 kV North Lakhimpur-Pare I line at North Lakhimpur end

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

- Non-opening of CB at Along for 132 kV Along-Basar line despite issuance of ZI trip command. Reason of the same needs to be investigated by DoP Arunachal Pradesh.
- O/C setting at Along for 132 kV Along-Basar line needs to be coordinated with ZII setting.
- At 03:46:11.476 Hrs, after 300 msec of initation of fault, LBB initiation command was triggered at Along end. However, Pasighat line breaker did not open. The reason for the failure of LBB at Along to isolate the fault by disconnecting Pasighat needs to be investigated.
- LBB time delay setting at Along end needs to be reviewed and set as per Protection philosophy.
- SOE not recorded for tripping of any of the elements. The same needs to be checked by DoP AP/SLDC AP/POWERGRID.

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

- The snapped conductors of the Along-Basar line are being replaced. The replacement of Basar feeder CB at Along Substation is being proposed.
- The Pneumatic type Circuit Breaker of Basar feeder at Along Substation which is reported to be in poor working condition needs to be replaced immediately.

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 (submitted on 06.01.2025)**
4.	**DR Time Synchronization Issues**	IEGC section 17.3	**Time drift of 10 min at Pasighat end for 132 kV Roing-Pasighat line**
5.	**Any other non-compliance**		-

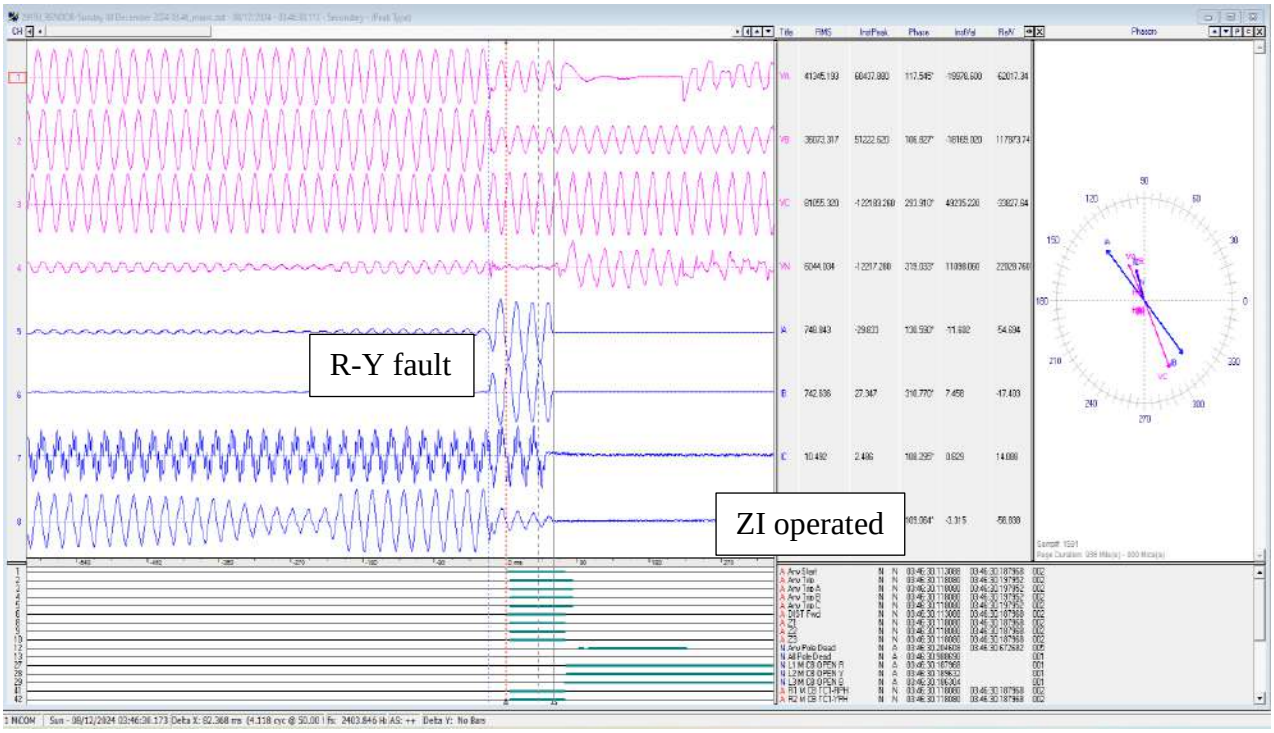
11. Key Lessons Learnt (प्रमुख अधिगम बिंदु):

- 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- SOE not recorded

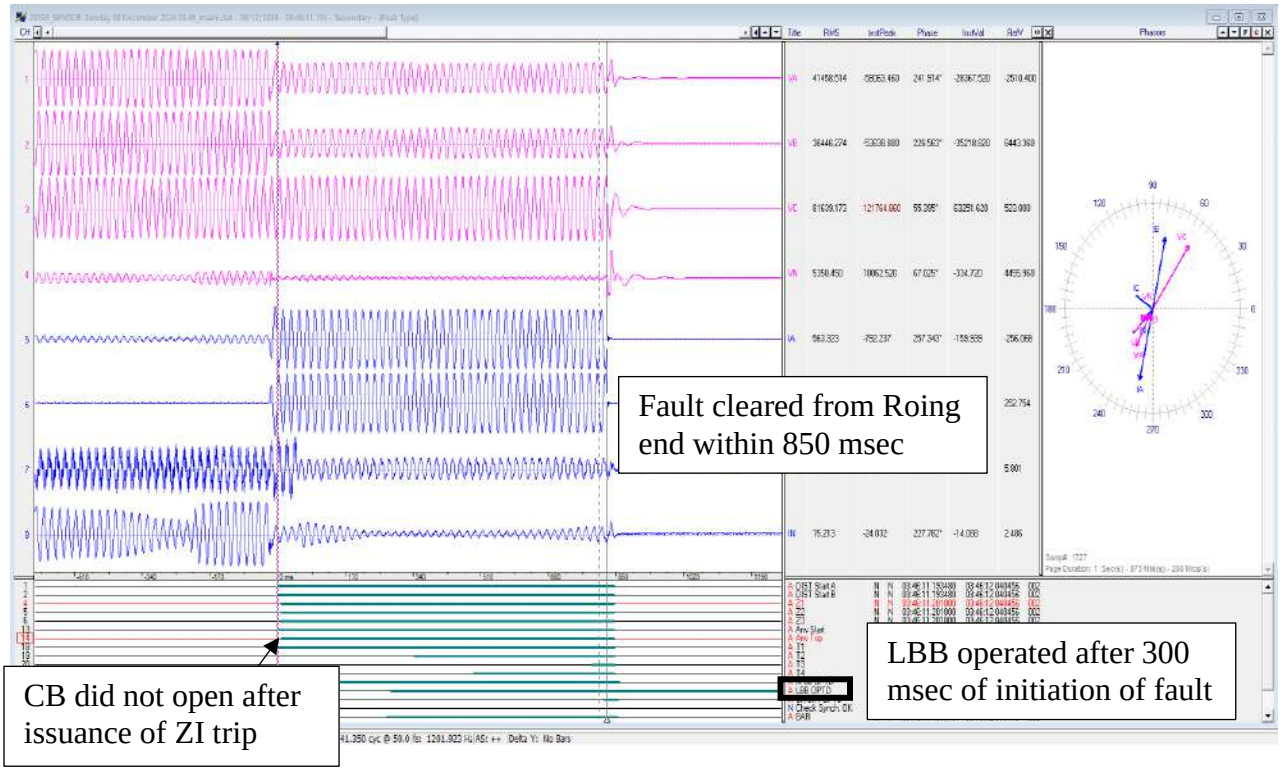
Annexure 2: Disturbance recorder snips showing faults and digital signals

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

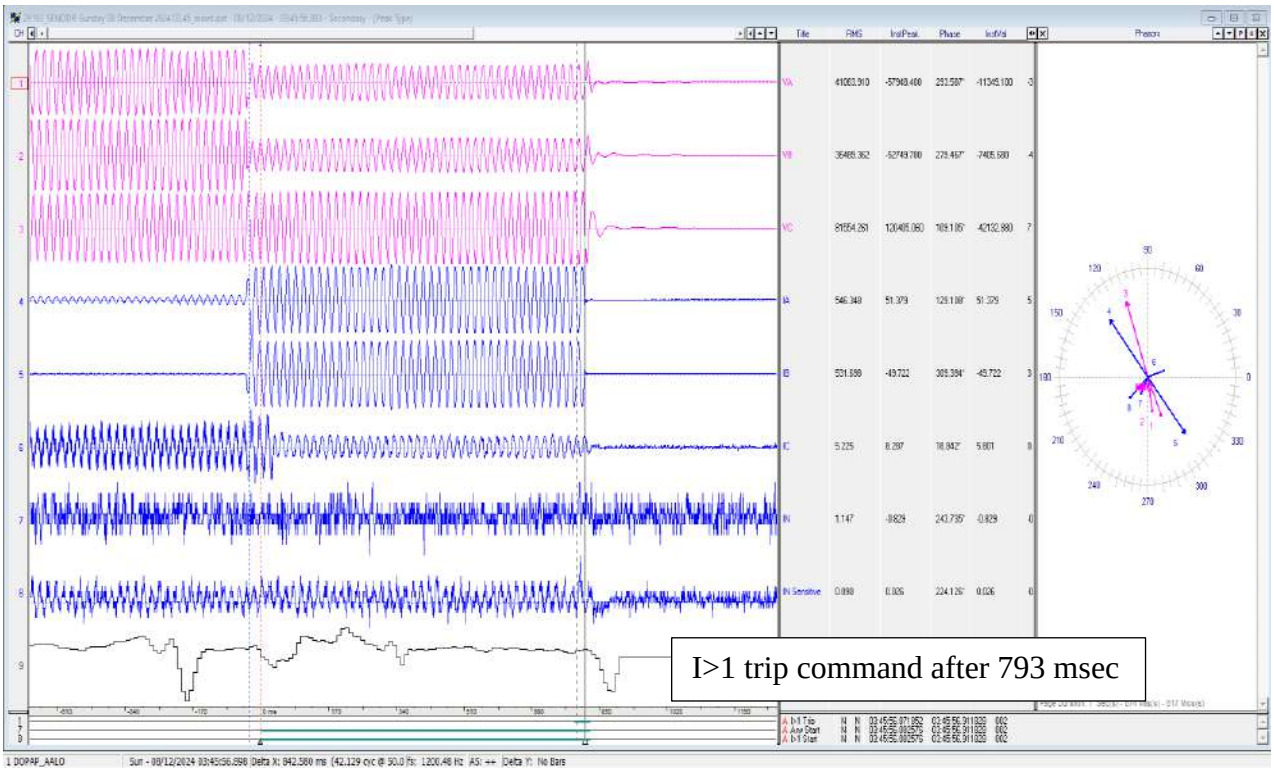


2.2. DR Snapshot of Along for 132 kV Along-Basar Line

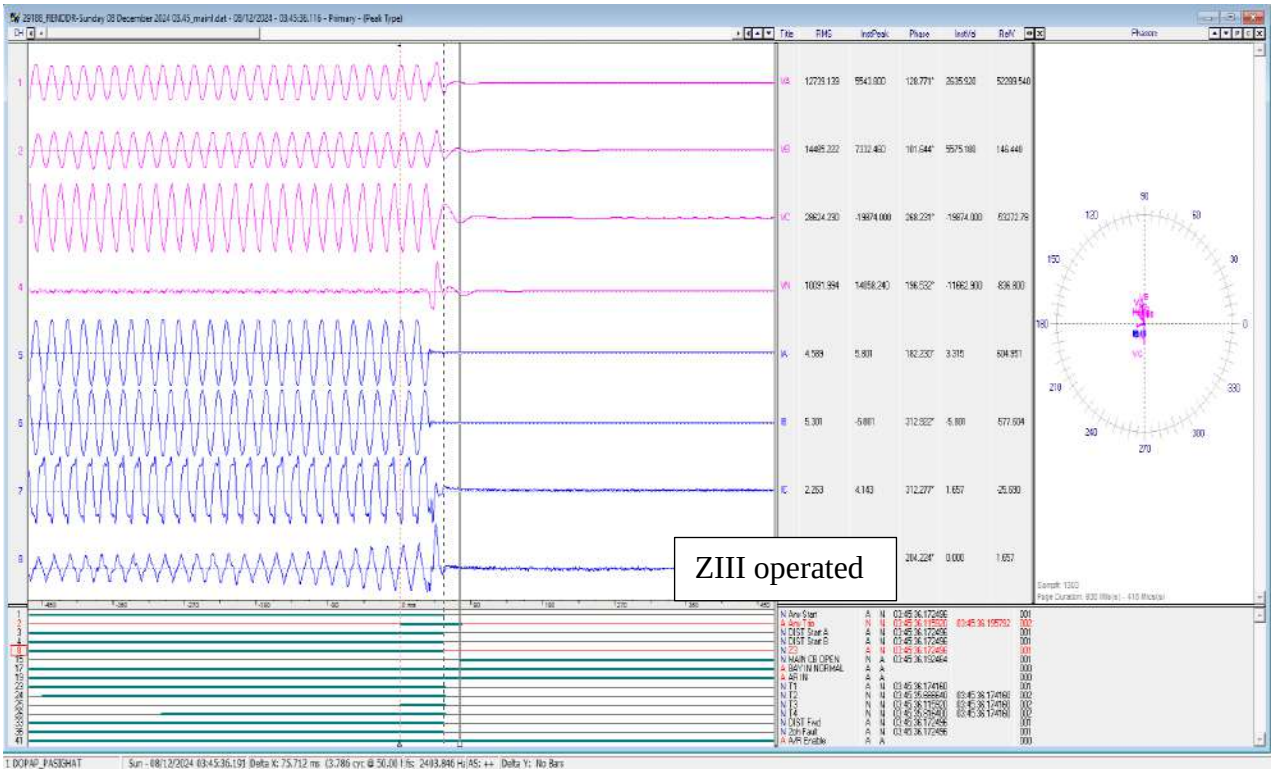
Distance Protection DR



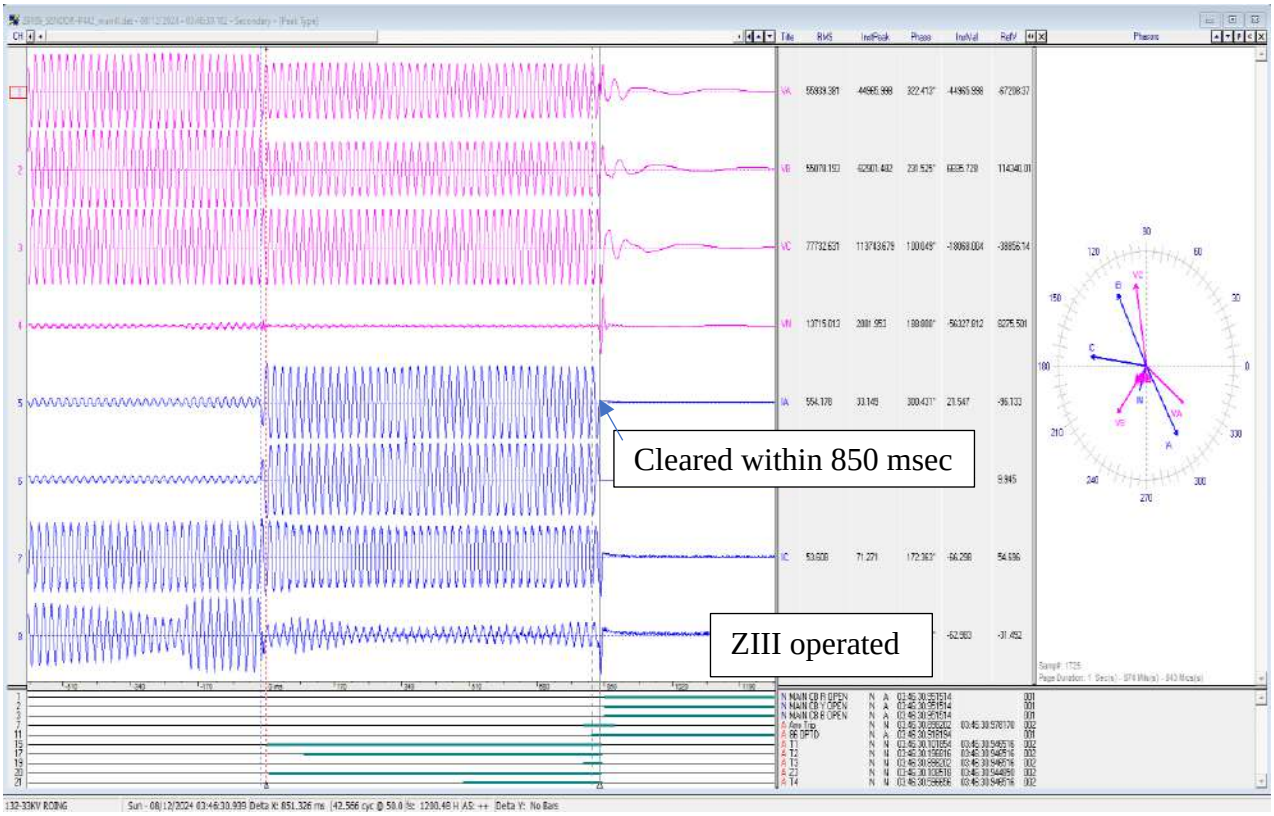
Backup Protection DR



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



2.4. 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 Pavoi 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):30-12-2024

1. Event Summary (घटना का सारांश):

Pavoi (BNC) area of Assam Power System was connected with rest of NER Grid through 132 kV BNC-Pavoi 1 &2 & 132 kV Gohpur-Pavoi 1 & 2 lines.

At 15:43 Hrs of 16-12-2024, 132 kV BNC-Pavoi 1 &2 & 132 kV Gohpur-Pavoi 1 & 2 lines tripped. Due to tripping of these elements, Pavoi area of Assam Power System got isolated from NER Grid and collapsed due to no source available in this area.

Power supply was extended to Pavoi area of Assam Power System by charging 132 kV Gohpur-Pavoi 1 & 2 lines at 16:23 Hrs of 16-12-2024.

2. Time and Date of the Event (घटना का स मय और दिनांक): 15:43 Hrs of 16-12-2024

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

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

5. Antecedent Conditions (पूर्ववर्ती स्थिति):

	Frequency in Hz	Regional Generation (MW)	Regional Demand (MW)
Pre-Event (घटना पूर्व)	50.13	1954	2070
Post Event (घटना के बाद)	50.13	1965	2046

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(	132/33kV Transformer-1 at Pavoi
Weather Condition (मौसम स्थिति)	Normal

2. **Load and Generation loss (लोड और जेनरेशन हानि):** Load loss of 11 MW

3. **Duration of interruption (रुकावट की अवधि): 41 min**

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

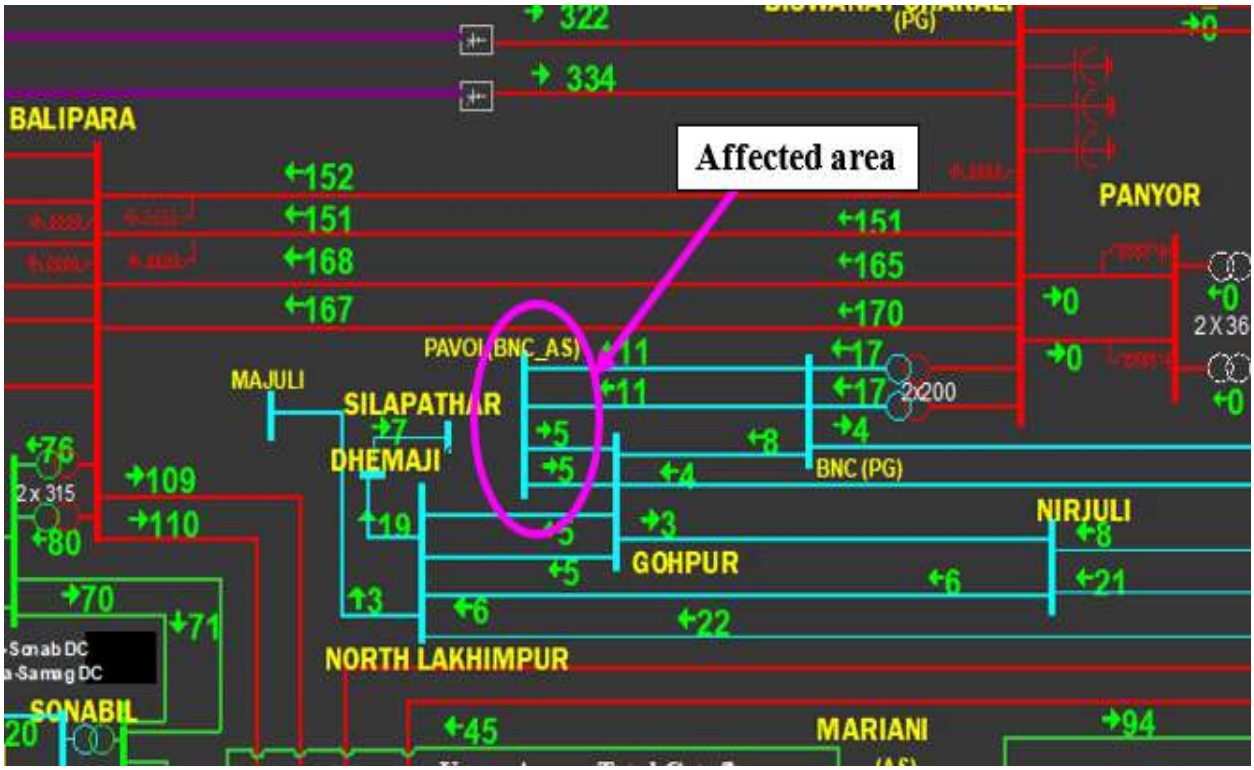


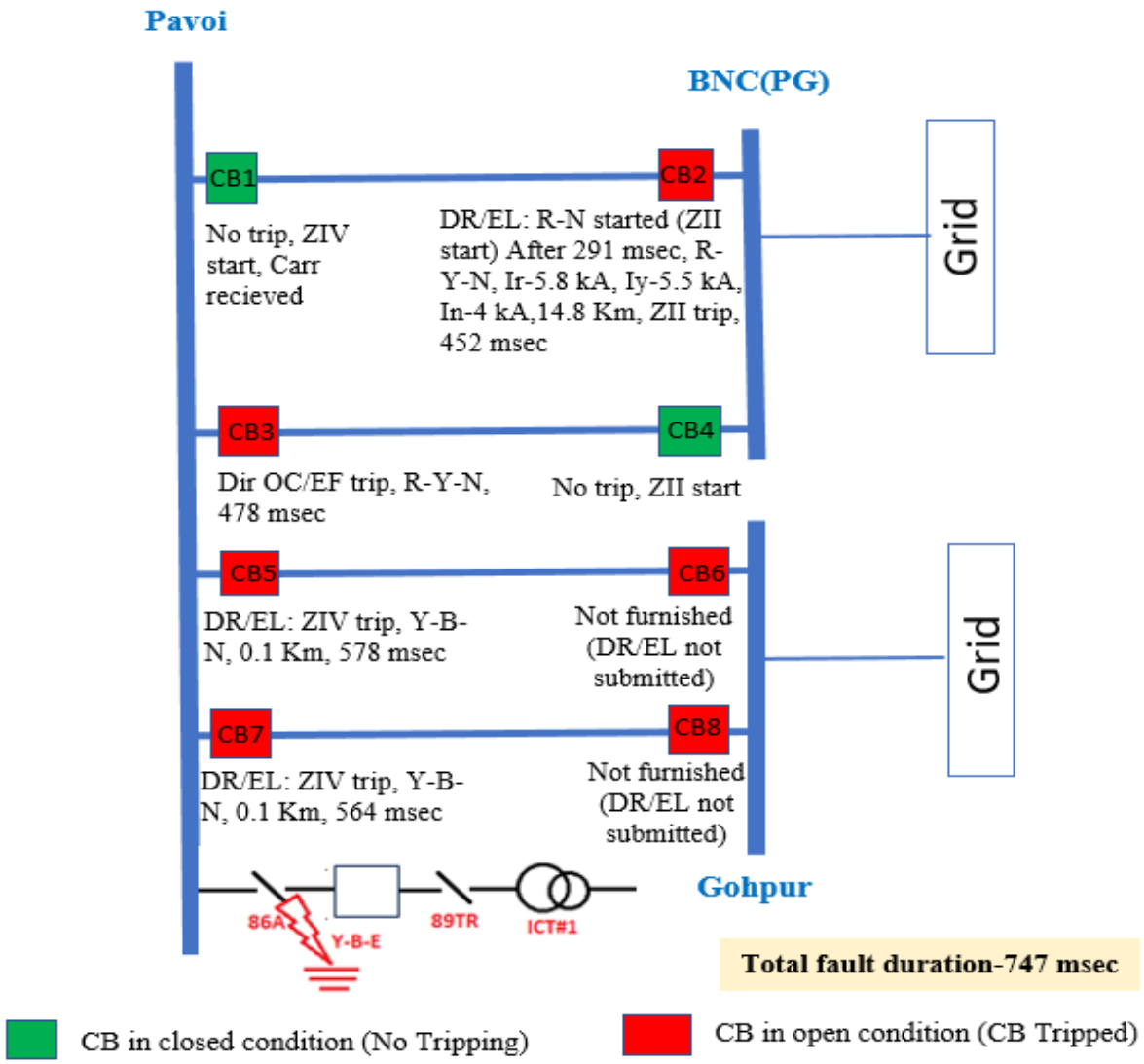
Figure 1: Network across the affected area

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 BNC-Pavoi I line	15:43	16:43	DP, ZII, R-Y-N, Carrier send, 14.8 Km	No tripping, ZIV start (Carrier recieved)
2	132 kV BNC-Pavoi II line	15:43	16:43	No tripping, ZII/ZIII start	Dir OC/EF trip, R-Y-N
3	132 kV Gohpur-Pavoi I line	15:43	16:23	Not furnished	ZIV operated, Y-B-N, 0.1 Km
4	132 kV Gohpur-Pavoi II line	15:43	16:23	Not furnished	ZIV operated, Y-B-N, 0.1 Km

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



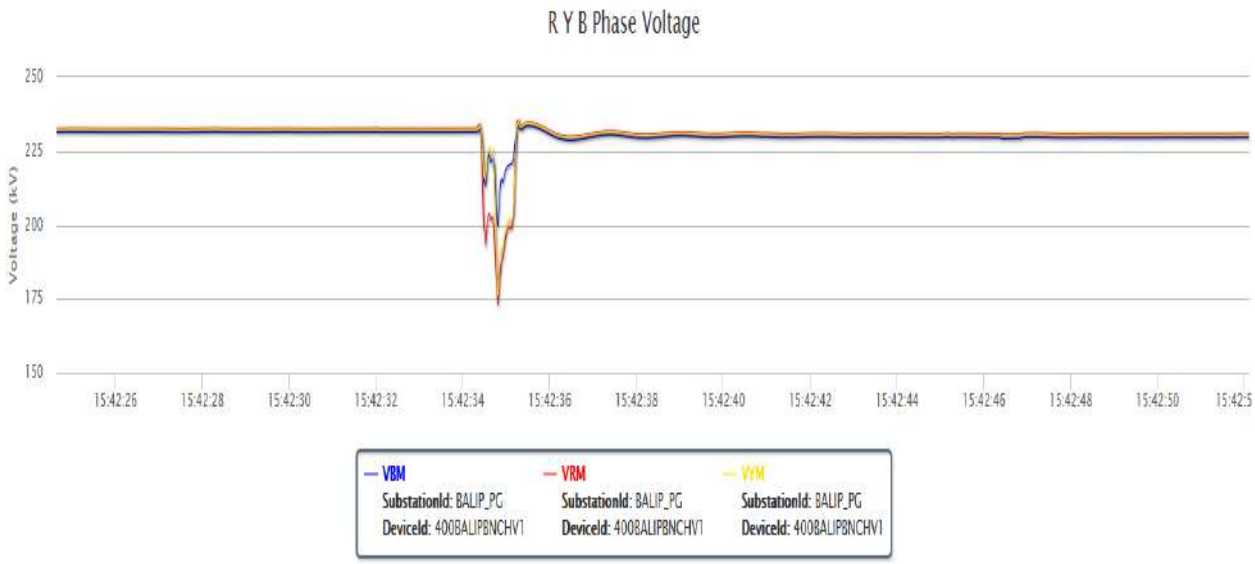
As per DR analysis of 132 kV BNC-Pavoi I line, solid R-N fault (Ir-2.9 kA, In-2.9 kA) initiated at 15:42:34.450 Hrs and ZII/ZIII start. After around 291 msec, R-N fault converted into R-Y-N fault (Ir-5.8 kA, Iy-5.5 kA, In-4 kA) which was cleared within 452 msec on operation of DP, ZII from BNC end. Total fault duration-747 msec. At Pavoi end, ZIV start and Carrier recieved signal was high. However, there was no tripping observed from Pavoi end.

As per DR analysis of 132 kV BNC-Pavoi II line, fault cleared from Pavoi end within 478 msec on operation of Directional OC/EF. There was no tripping from BNC end despite ZII pickup.

As per DR analysis of 132 kV Gohpur-Pavoi I & II, fault cleared within 578 msec from Pavoi end on operation of ZIV. DR/EL of Gohpur end not submitted.

Root cause: The 132/33kV Transformer-1 at Pavoi was under shutdown during the event. A flashover at Bus Isolator of Transformer-1 (Y-B-E fault) was witnessed during isolator Open/Close operation. The fault was cleared by tripping of all 132kV Lines (Fault feeding sources) at local and remote ends.

PMU snapshot of 400 kV Balipara-BNC I line at Balipara end



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

- For 132 kV BNC-Pavoi I line at Pavoi end, ZIV start and Carrier recieved signal was high. However, there was no tripping observed from Pavoi end. The same needs to be checked by AEGCL.
- Non-tripping of 132 kV BNC-Pavoi II line from BNC end despite ZII pickup.
- Tripping of 132 kV BNC-Pavoi II line from Pavoi end on directional OC/EF within 478 msec for reverse fault is inferred unwanted. AEGCL needs to review the backup protection setting and check directionality of the B/U relay.
- Time drift of 9 min observed in Pavoi end DR for 132 kV BNC-Pavoi II line.

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)	**AEGCL**

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 (submitted on 01.01.2025)**
4.	**DR Time Synchronization Issues**	IEGC section 17.3	**Time drift of 9 min observed in Pavoi end DR for 132 kV BNC-Pavoi II line**
5.	**Any other non-compliance**		

11. Key Lessons Learnt (प्रमुख अधिगम बिंदु):

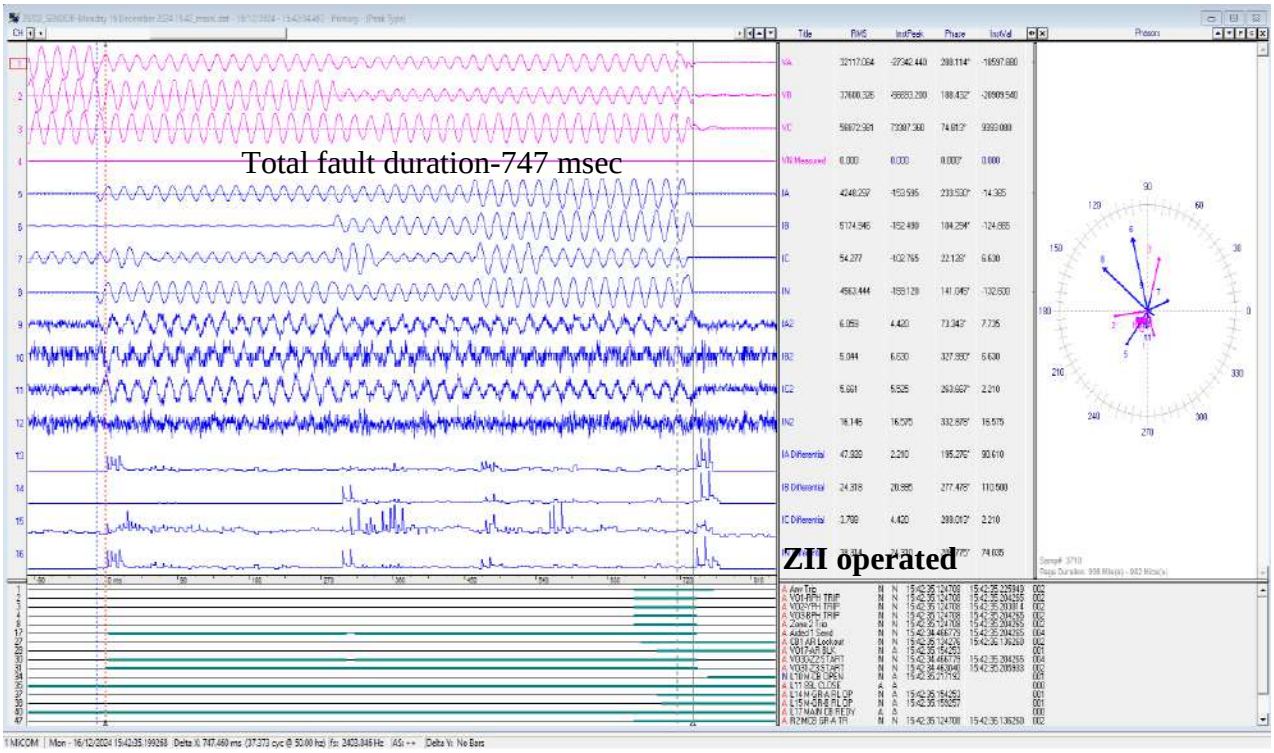
- Proper maintenance related activities as per CEA regulations needs to be carried out.
- Healthiness of protection system needs to be ensured at all times.

Annexure 1: Sequence of Events as per SCADA

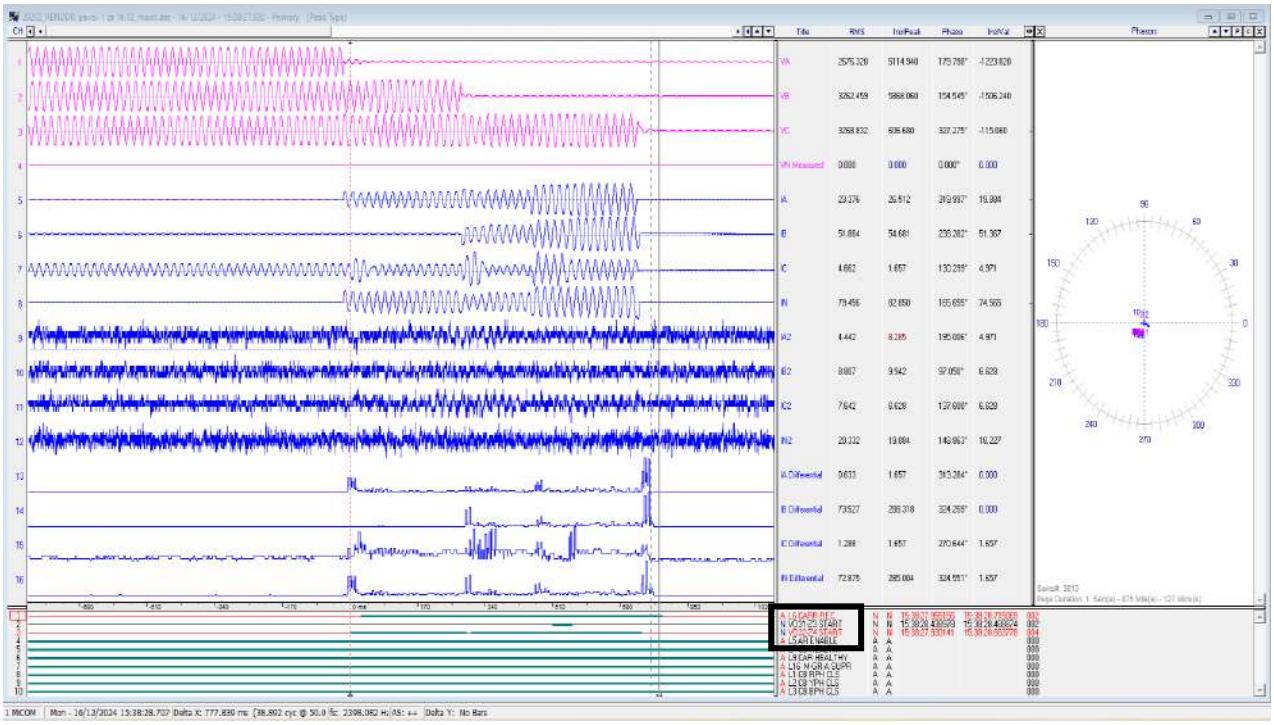
AREA	CATEGORY	LOCATION	TEXT	SYSTEM_TIME	FIELD_TIME	MS
AEGCL	1C	RNG22_AS	RANGIA220 CB 132Kv LINE TO NATHK CLOSED	16 Dec 2024 15:22:57:000	16 Dec 2024 15:22:20:000	4.63E+08
AEGCL	1C	BTPS__NT	BGTPP PLANT BTPS CLOSED	16 Dec 2024 15:30:48:000	16 Dec 2024 15:30:34:000	6.1E+08
AEGCL	1C	GOHPU_AS	GOHPUR CB 132Kv LINE-1 TO BNC__ OPEN	16 Dec 2024 15:43:00:000	16 Dec 2024 15:38:45:000	4.09E+08
AEGCL	1C	BNCHV_PG	BISWANAT CHARALI CB 132Kv LINE-1 TO BNC__ OPEN	16 Dec 2024 15:42:37:000	16 Dec 2024 15:42:35:000	2.08E+08
ARUNCH	1C	PARE__NO	PARE CB 132Kv LINE TO RANGA OPEN	16 Dec 2024 15:42:37:000	16 Dec 2024 15:42:35:000	10000000
AEGCL	1C	GOHPU_AS	GOHPUR CB 132Kv LINE-2 TO BNC__ OPEN	16 Dec 2024 15:43:00:000	16 Dec 2024 15:42:36:000	3.69E+08
AEGCL	1C	BORDU_AS	BORDUBI CB 132 KV COUPLER (05) BETWEEN	16 Dec 2024 16:28:49:000	16 Dec 2024 15:43:14:000	3.74E+08
AEGCL	1C	KOPIL_NO	KOPILI CB 11 KV UNIT (H01) CLOSED	16 Dec 2024 16:12:20:000	16 Dec 2024 16:12:19:000	1.2E+08
MEECL	1C	NWUMT_ME	NEW UMTRU CB 132 KV UNIT (H01) CLOSED	16 Dec 2024 16:32:24:000	16 Dec 2024 16:15:06:000	90000000
AEGCL	1C	BNCHV_PG	BISWANAT CHARALI CB 132Kv LINE-2 TO BNC__ OPEN	16 Dec 2024 16:16:04:000	16 Dec 2024 16:16:01:000	8.3E+08
AEGCL	1C	GOHPU_AS	GOHPUR CB 132Kv LINE-1 TO BNC__ CLOSED	16 Dec 2024 16:22:29:000	16 Dec 2024 16:18:02:000	3.74E+08
ARUNCH	1C	PARE__NO	PARE CB 132Kv LINE TO RANGA BETWEEN	16 Dec 2024 16:22:02:000	16 Dec 2024 16:21:58:000	8.77E+08
ARUNCH	1C	PARE__NO	PARE CB 132Kv LINE TO RANGA CLOSED	16 Dec 2024 16:22:07:000	16 Dec 2024 16:21:58:000	8.87E+08
AEGCL	1C	BNC___AS	B. CHARIALI CB 132Kv LINE-1 TO GOHPU CLOSED	16 Dec 2024 16:23:24:000	16 Dec 2024 16:23:12:000	8.82E+08
AEGCL	1C	GOHPU_AS	GOHPUR CB 132Kv LINE-2 TO BNC__ CLOSED	16 Dec 2024 16:23:24:000	16 Dec 2024 16:23:15:000	9.73E+08
AEGCL	1C	BALIP_PG	BALIPARA CB CB BNC 1 & MISA 1 CLOSED	16 Dec 2024 16:23:40:000	16 Dec 2024 16:23:31:000	2.48E+08
AEGCL	1C	BORNA_AS	BORNAGAR CB 132Kv LOAD RLWAY OPEN	16 Dec 2024 16:42:51:000	16 Dec 2024 16:42:30:000	7.02E+08
AEGCL	1C	BNCHV_PG	BISWANAT CHARALI CB 132Kv LINE-1 TO BNC__ CLOSED	16 Dec 2024 16:43:08:000	16 Dec 2024 16:43:07:000	6.41E+08
AEGCL	1C	DHALI_AS	DHALIGAON CB 132Kv LINE TO BORNA OPEN	16 Dec 2024 16:43:15:000	16 Dec 2024 16:43:13:000	3.37E+08
AEGCL	1C	BNCHV_PG	BISWANAT CHARALI CB 132Kv LINE-2 TO BNC__ CLOSED	16 Dec 2024 16:43:56:000	16 Dec 2024 16:43:56:000	1.7E+08
ARUNCH	1C	ITANA_AR	CHIMPU CB 132Kv LINE-1 TO LEKHI CLOSED	16 Dec 2024 16:44:52:000	16 Dec 2024 16:44:35:000	1.49E+08
AEGCL	1C	DHALI_AS	DHALIGAON CB 132Kv LINE TO BORNA CLOSED	16 Dec 2024 16:46:26:000	16 Dec 2024 16:46:19:000	7.47E+08

Annexure 2: Disturbance recorder snips showing faults and digital signals

2.1. DR Snapshot of BNC for 132 kV BNC-Pavoi I Line

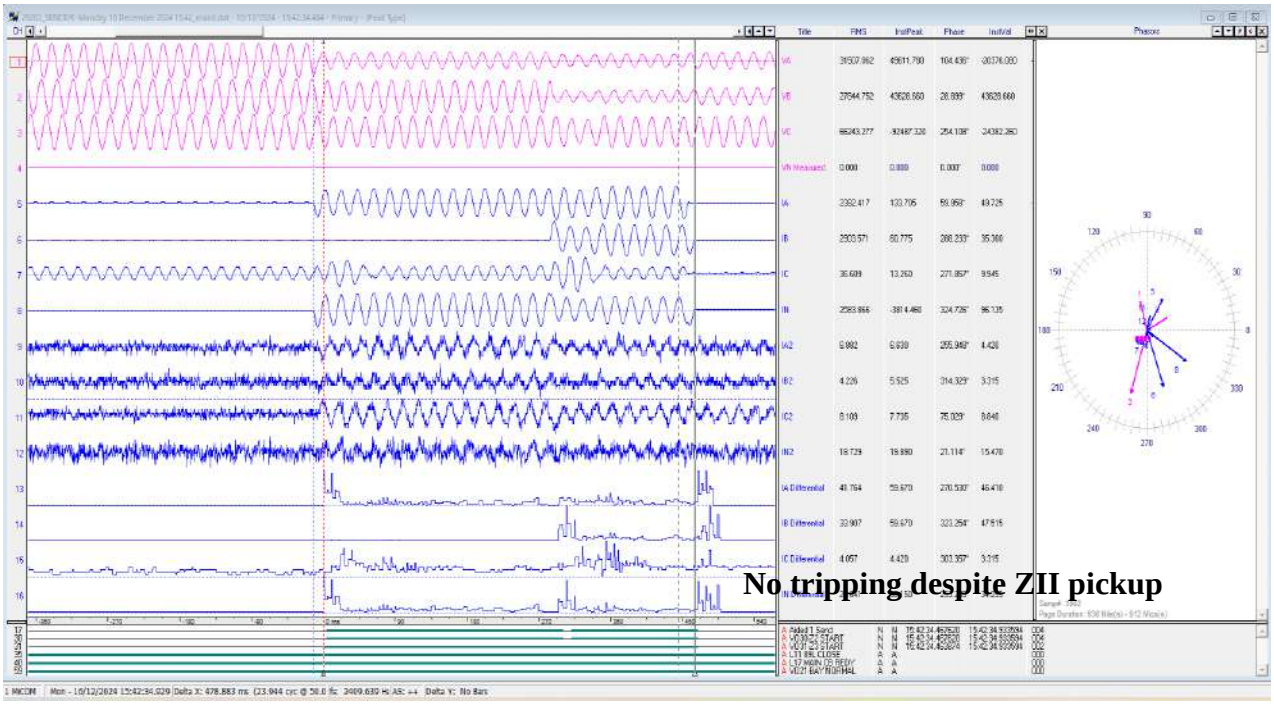


2.2. DR Snapshot of Pavoi for 132 kV BNC-Pavoi I Line

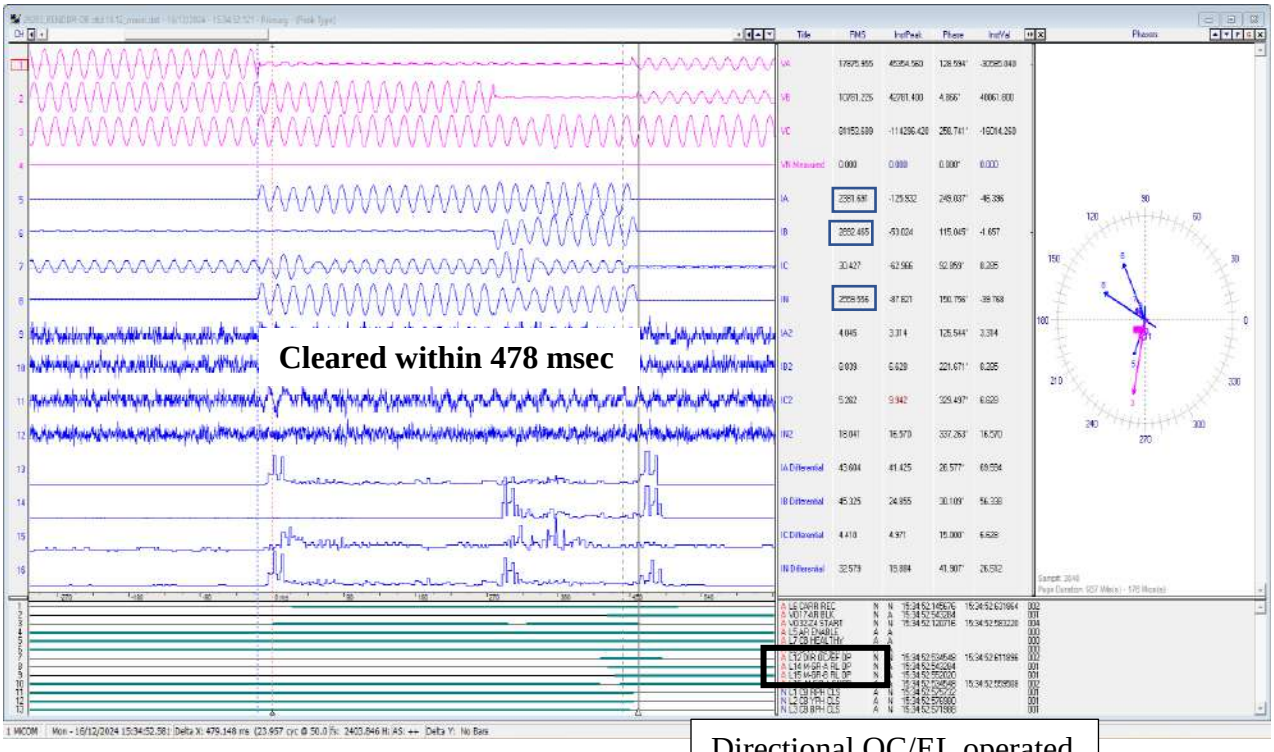


No tripping, ZIV start, Carrier received. However, CB did not open

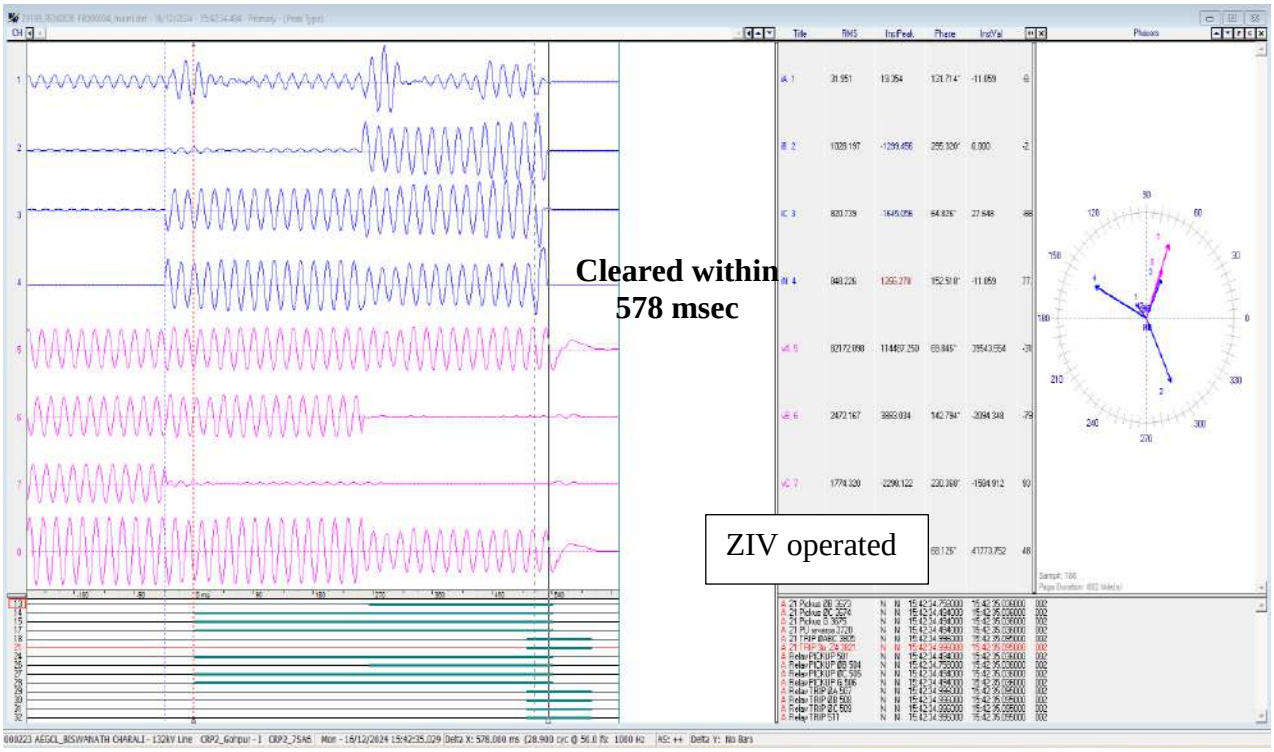
2.3. DR Snapshot of BNC for 132 kV BNC-Pavoi II Line



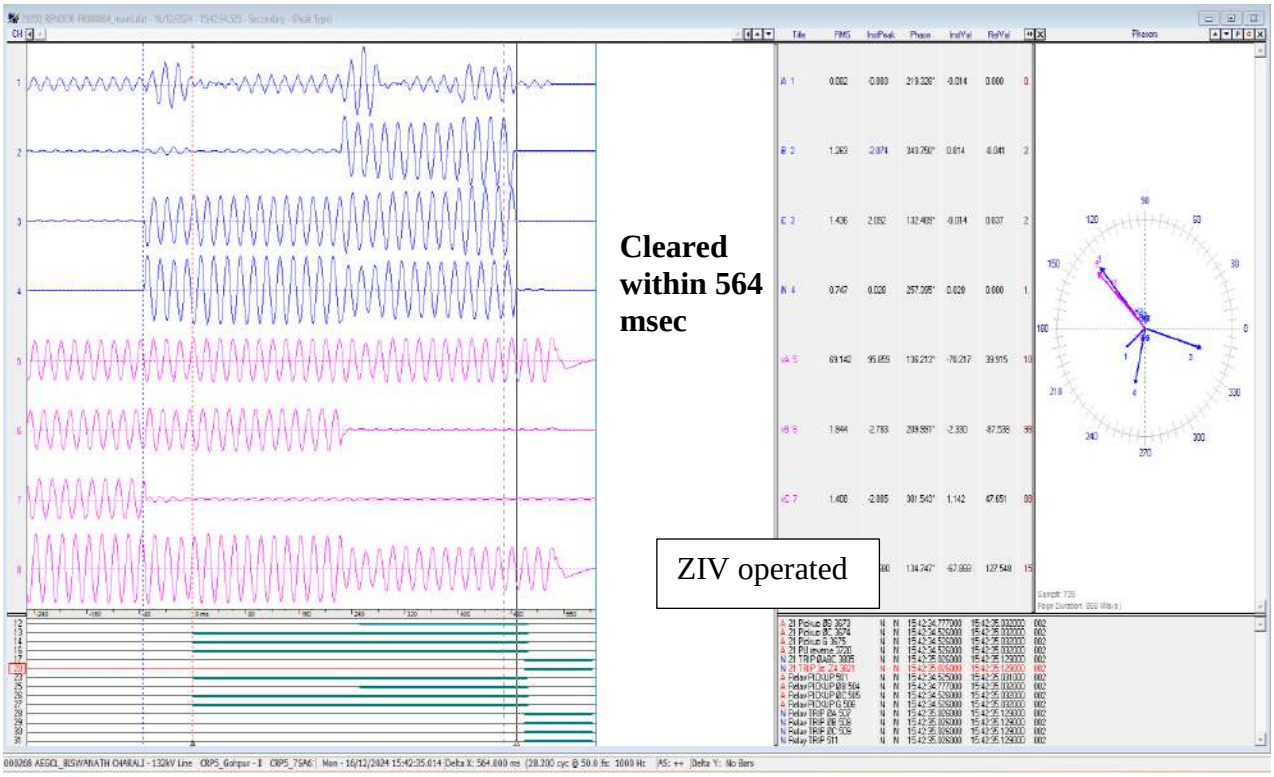
2.4. DR Snapshot of Pavoi for 132 kV BNC-Pavoi II Line



2.5. DR Snapshot of Pavoi for 132 kV Gohpur-Pavoi I Line



2.6. DR Snapshot of Pavoi for 132 kV Gohpur-Pavoi II 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 Sonabil, Ghoramari, Depota, Dhekiajuli and Rowta areas 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):01-01-2025

1. Event Summary (घटना का सारांश):

Sonabil, Ghoramari, Depota, Dhekiajuli and Rowta areas of Assam Power System was connected with rest of NER Grid through 220 kV Balipara-Sonabil II line. Prior to the event, 220 kV Balipara-Sonabil I line was under shutdown. 132 kV Rowta-Siphajhar and 132 kV Rowta-Tangla lines was open due to system requirement.

At 15:04 Hrs of 20-12-2024, 220 kV Balipara-Sonabil II line tripped and SPS at Sonabil operated successfully which caused tripping of 220/132 kV, 100 MVA ICT-I & II at Sonabil. Due to tripping of these elements, Sonabil, Ghoramari, Depota, Dhekiajuli and Rowta areas of Assam Power System got isolated from NER Grid and collapsed due to no source available in these areas.

Power supply was extended to the affected areas by charging 220/132kV Sonabil ICT#1 & 2 at 15:24 Hrs of 20-12-2024.

2. Time and Date of the Event (घटना का स मय और दिनांक): 15:04 Hrs of 20-12-2024

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

4. Location/Control Area (स्थान/नियंत्रण क्षेत्र): Sonabil, Ghoramari, Depota, Dhekiajuli and Rowta areas of Assam Power System

5. Antecedent Conditions (पूर्ववर्ती स्थिति):

	Frequency in Hz	Regional Generation (MW)	Regional Demand (MW)
Pre-Event (घटना पूर्व)	49.95	2051	2044
Post Event (घटना के बाद)	49.95	2048	2040

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(	220 kV Balipara-Sonabil I was under shutdown
Weather Condition (मौसम स्थिति)	Normal

2. **Load and Generation loss (लोड और जेनरेशन हानि):** Load loss of 57 MW
3. **Duration of interruption (रुकावट की अवधि): 25 min**
4. **Network across the affected area (प्रभावित क्षेत्र का नक्शा):**

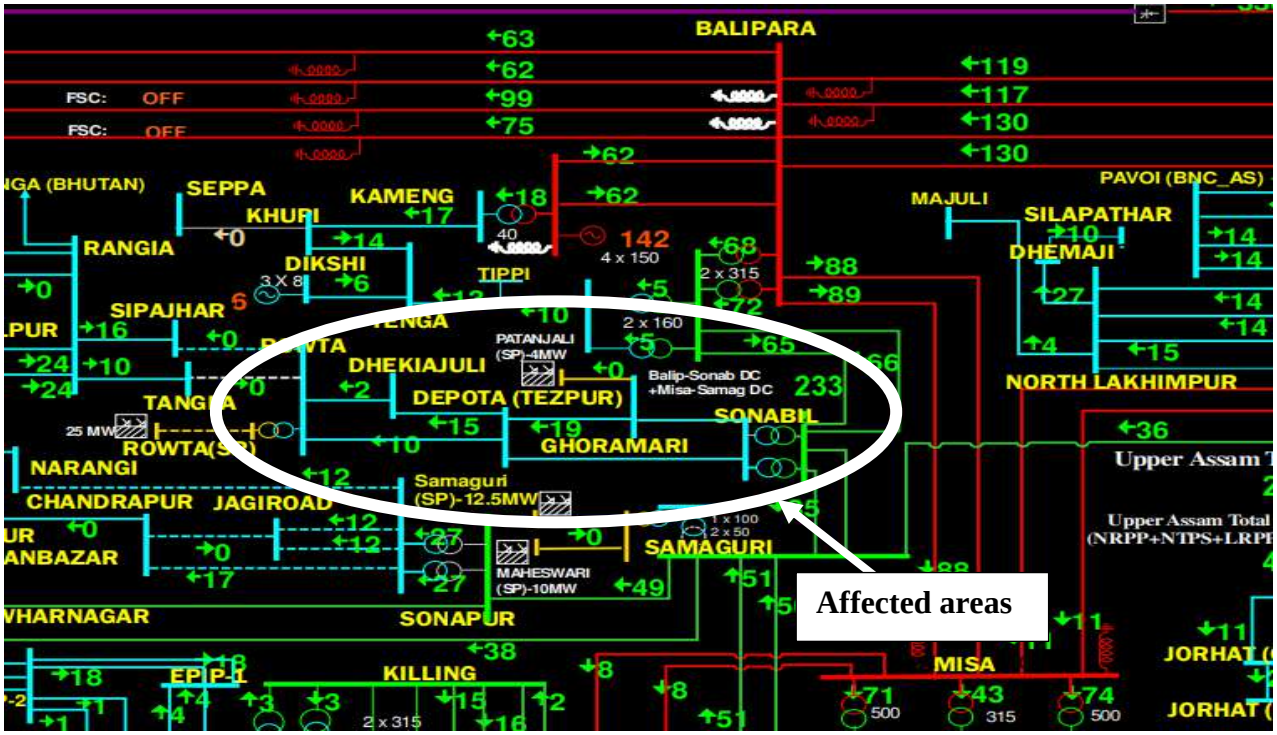
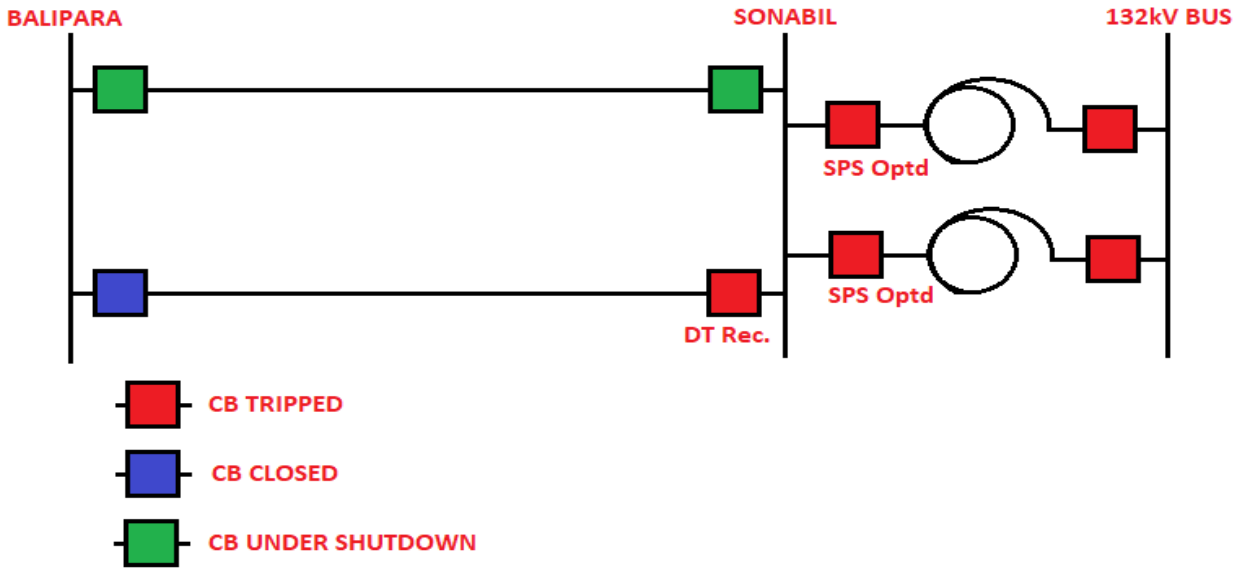


Figure 1: Network across the affected area

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	220 kV Balipara-Sonabil II line	15:04	16:25	No tripping	DT recieved
2	100MVA, 220/132kV ICT#1 at Sonabil	15:04	15:24	SPS Operated(Triggering criteria-2)	
3	100MVA, 220/132kV ICT#2 at Sonabil	15:04	15:24	SPS Operated(Triggering criteria-2)	

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



220 kV Balipara-Sonabil II line tripped on DT received at Sonabil end. No tripping observed from Balipara end.

"DT Rec." at Sonabil end was found "high" due to DC earth fault. As a result, the CB at Sonabil tripped. SPS Triggering Criteria-II was fulfilled and both the 100 MVA ICTs at Sonabil tripped resulting in blackout of Sonabil, Ghoramari, Depota, Dhekiajuli and Rowta areas of Assam Power System.

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

- Spurious DT received at Sonabil for 220 kV Balipara-Sonabil II line.
- SOE not recorded for tripping of 220 kV Balipara-Sonabil II line and ICTs at Sonabil.

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

- The DC earth fault has been resolved.

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)	**AEGCL**
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 (submitted on 01.01.2025)**

4.	**DR Time Synchronization Issues**	IEGC section 17.3	**No violation**
5.	**Any other non-compliance**		

11. Key Lessons Learnt (प्रमुख अधिगम बिंदु):

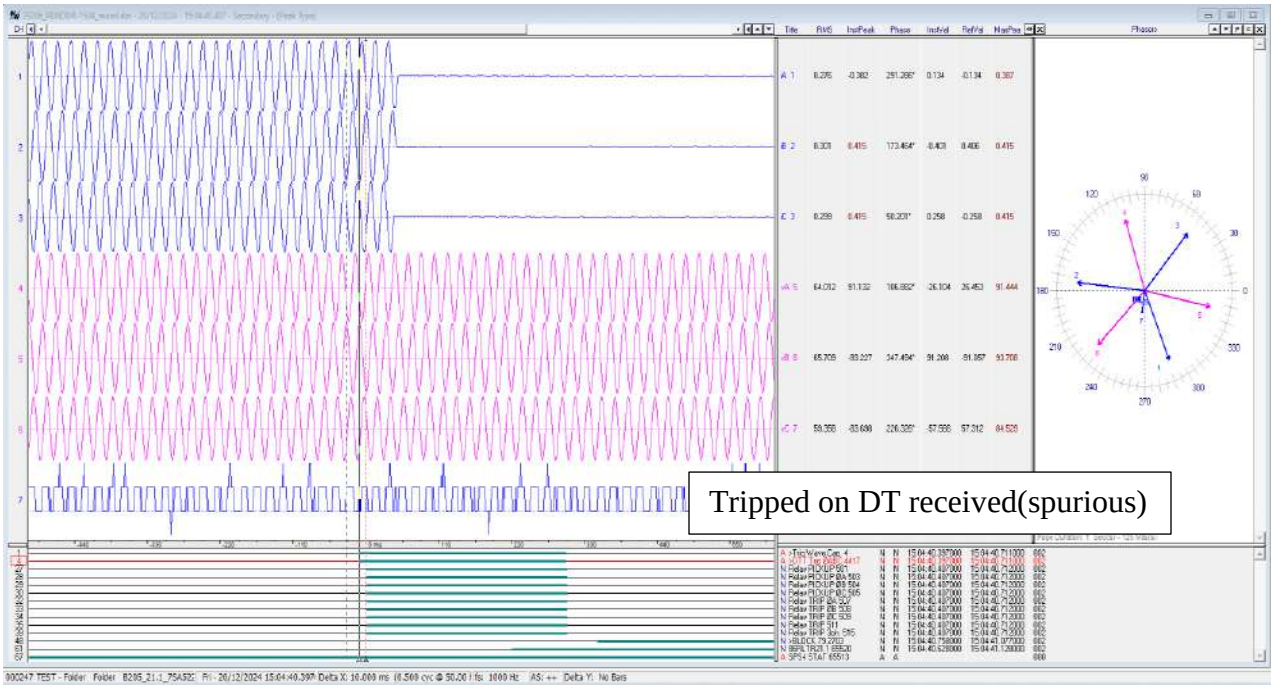
- Proper maintenance related activities as per CEA regulations needs to be carried out.
- Healthiness of protection system needs to be ensured at all times.

Annexure 1: Sequence of Events as per SCADA

AREA	CATEGORY	LOCATION	TEXT	SYSTEM_TIME	FIELD_TIME	MS
AEGCL	1C	SAMAG_AS	SAMAGURI CB 132Kv LINE-1 TO LANKA OPEN	20 Dec 2024 09:41:52:000	20 Dec 2008 05:11:45:000	9.57E+08
AEGCL	1C	DEPOT_AS	DEPOTA (TEZPUR) CB 132Kv LINE TO GHORA CLOSED	20 Dec 2024 15:35:59:000	20 Dec 2024 15:41:40:000	9.13E+08
AEGCL	1C	SONAB_AS	SONABIL CB 220Kv LINE-2 TO BALIP CLOSED	20 Dec 2024 16:26:25:000	20 Dec 2024 15:44:04:000	5.33E+08
AEGCL	1C	SILCR_PG	SILCHAR CB 132Kv LINE-2 TO MELRI CLOSED	20 Dec 2024 15:44:43:000	20 Dec 2024 15:44:41:000	5.43E+08
AEGCL	1C	MISA__PG	MISA CB TIE G8 - CB F_G8 OPEN	20 Dec 2024 15:44:47:000	20 Dec 2024 15:44:45:000	7.41E+08
AEGCL	1C	BALIP_PG	BALIPARA CB MN CB KAMENG 2 OPEN	20 Dec 2024 15:45:59:000	20 Dec 2024 15:45:57:000	5.08E+08
AEGCL	1C	BALIP_PG	BALIPARA CB CB BW KMENG 2 & BONGA 3 OPEN	20 Dec 2024 15:45:59:000	20 Dec 2024 15:45:57:000	5.11E+08
AEGCL	1C	PTNGH_AS	PATANJALI GRM CB 33/11 T2 (SEC) CLOSED	20 Dec 2024 15:47:50:000	20 Dec 2024 15:47:44:000	9.05E+08

Annexure 2: Disturbance recorder snips showing faults and digital signals

2.1. DR Snapshot of Sonabil for 220 kV Balipara-Sonabil II Line



2.2. EL Snapshot of Sonabil for 220 kV Balipara-Sonabil II Line

Trip Log - 000244 / 20-12-2024 15:04:40.407 - TEST / Folder / Folder / B205_21.1_7SA522 V4.7/7SA522

Number	Indication	Value	Date and time	Cause	State
00301	Power System fault	244 - ON	20.12.2024 15:04:40.407		
00302	Fault Event	248 - ON	20.12.2024 15:04:40.407		
04435	DTT TRIP command Phases ABC	ON	0 ms		
00536	Relay Definitive TRIP	ON	0 ms		
00533	Primary fault current Ia	0.22 kA	4 ms		
00534	Primary fault current Ib	0.24 kA	4 ms		
00535	Primary fault current Ic	0.24 kA	4 ms		
00511	Relay GENERAL TRIP command	OFF	305 ms		