

सत्यमेव जयते

Agenda for 73rd PCCM



Govt. of India Ministry of Power North Eastern Regional Power Committee Shillong

Agenda | 73rd PCCM | 26th November 2024 | Shillong

North Eastern Regional Power Committee

Agenda for

73rd Protection Coordination Sub-Committee Meeting

Date: 26/11/2024 (Tuesday)

Time: 11:00 hrs.

Venue: NERPC conference Hall, Shillong

A. CONFIRMATION OF MINUTES

1. <u>CONFIRMATION OF MINUTES OF THE 72nd PROTECTION SUB-</u> <u>COMMITTEE MEETING OF NERPC.</u>

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

No comments were received from constituents

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

B. ITEMS FOR DISCUSSION

B.1 <u>Protection Audit of NER:</u>

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

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

		October	
audit plan		submitted to RPC by 31 st	
Annual	All users	Annual audit plan to be	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 70th and 69th PCCM, following points were discussed

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

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

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

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

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

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		Rest done	to be	be submitted by	audit pending. Schedule to be	
				December'24	decided afterwards.	
2.	Assam	Done f	for 61	To be submitted by Aug end	NERPC conducted audit of 6 SS in Jan to June'24. Other SS done in 2021-22. Only Karimganj	submitted
3.	Manipur	Done s	for all	Submitted	left. 8 SS to be done, Schedule to be decided.	NA
4.	Meghalaya	No aud yet in 2024-2	n FY	NA	Audit of 6 SS (Killing, EPIP I, EPIP II, NEHU, Mawlai an MAwphlang) conducted by NERPC on 26 th and 27 th August'24	Report to be shared by end of October'24
5.	Mizoram	Done 1 SS	for all	Report shared	AuditofLuangmual,ZuangtuiandKolasibplannedinAugust'24.Listcontextagenciesawaited	NA
6.	Nagaland	Done fo SS	or four	Report shared	Audit of 5 ss to be done in Mid of November'24.	NA

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

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

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Following points were discussed in the 72nd PCC meeting

- 1. Forum requested users to update the proposed date for Internal Audit & Third-party Audit in the spreadsheet shared by NERLDC as soon as possible.
- 2. Forum requested users to update the next year Internal Audit & Third-party Audit plan and also requested to send the last 5-years Internal Audit & Thirdparty Audit list to NERPC and NERLDC as soon as possible.
- 3. AEGCL updated that the internal audit of 61 substations has been completed and report has been submitted. AEGCL also updated that for Third-party Audit of 132 kV Karimganj substation is yet to be done.
- 4. TSECL updated that the internal audit of 11 substations has been completed and rest would be completed by Sept.'24 and would share the report at earliest. He also informed the forum that Third-party Audit would be planned after Oct'24.
- 5. Manipur informed that Protection audit committee had been formed and the audit schedule, for external audit, would be decided shortly.
- 6. DoP Arunachal Pradesh updated that the external audit is planned to be conducted in Nov'24.
- 7. Mizoram informed the forum that they were planning Third-party Audit through recognized auditor and for the same they were waiting for the CEA recognized auditor list.
- NTPC informed that 3rd party audit had been awarded and would be done in 3rd week of September.

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

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

B.2 <u>Analysis and Discussion on Grid Disturbances which occurred in NER grid</u> in September'24 in compliance with IEGC 2023:

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- <mark>1/GI-</mark> 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

TABLE 8 : REPORT SUBMISSION TIMELINE

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

The forum may deliberate upon the GD/GI/near miss events that occurred in September 2024 based on the draft report prepared by NERLDC (attached as **annexure B.2**).

Sub-committee may deliberate

NERLDC Agenda

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

In line with regulation 12 (1) of CEA Grid Standards Regulations and IEGC-23 provision under clause 37.2 (c), FIR and DR & EL Outputs for each grid events are required to be submitted by concerned utilities to NERLDC for detailed investigation and analysis.

Status of uploading of FIR, DR & EL outputs in Tripping Monitoring Portal for events from 01-10-2024 to 31-10-2024 as on **11-11-2024** is given below:

Name of Utility	No. of	Total FIR to	Total DR to	Total EL to	al EL to Total FIR, DR & EL submitted		Total FIR, 1	DR & EL not	submitted	%	Submissior	ı of	
Ivanie of Othity	trippings	be submitted	be submitted	be submitted	FIR	DR	EL	FIR	DR	EL	FIR	DR	EL
DoP, Arunachal Pradesh	2	4	4	4	4	3	4	0	0	0	100	100	100
DEPL	0	0	0	0	0	0	0	0	0	0		No event	
AEGCL	25	50	37	37	50	37	37	0	0	0	100	100	100
APGCL	1	1	1	1	1	1	0	0	0	0	100	100	100
MSPCL	8	20	17	17	18	13	13	2	4	4	90	76	76
MePTCL	2	2	2	2	2	2	2	0	0	0	100	100	100
MePGCL	4	4	0	0	4	0	0	0	0	0	100	NA	NA
P&ED, Mizoram	0	0	0	0	0	0	0	0	0	0		No event	
DoP, Nagaland	6	13	13	13	12	10	11	1	3	2	92	77	85
TSECL	3	5	5	5	3	5	5	2	0	0	60	100	100
TPGCL	0	0	0	0	0	0	0	0	0	0		No event	
POWERGRID	23	50	48	48	44	41	36	6	7	12	88	85	75
NEEPCO	29	33	27	31	26	19	23	7	8	8	79	70	74
NHPC	4	6	4	3	6	3	2	0	0	0	100	100	100
NTPC	0	0	0	0	0	0	0	0	0	0		No event	
OTPC	3	3	2	2	3	2	2	0	0	0	100	100	100
NTL	5	4	4	4	4	4	4	0	0	0	100	100	100
MUML	0	0	0	0	0	0	0	0	0	0		No event	
KMTL	1	1	1	1	1	1	1	0	0	0	100	100	100

Concerned Utilities are requested to upload Disturbance Recorder (DR), Event Logger (EL) outputs for grid events along with a First Information Report (FIR) in Tripping Monitoring Portal (<u>https://tripping.nerldc.in/Default.aspx</u>) for analysis purpose. In light of the cybersecurity measures implemented by Grid India to safeguard sensitive information, NERLDC has created the email address <u>nerldcso3@gmail.com</u>. 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 <u>nerldcprotection@grid-india.in</u>.

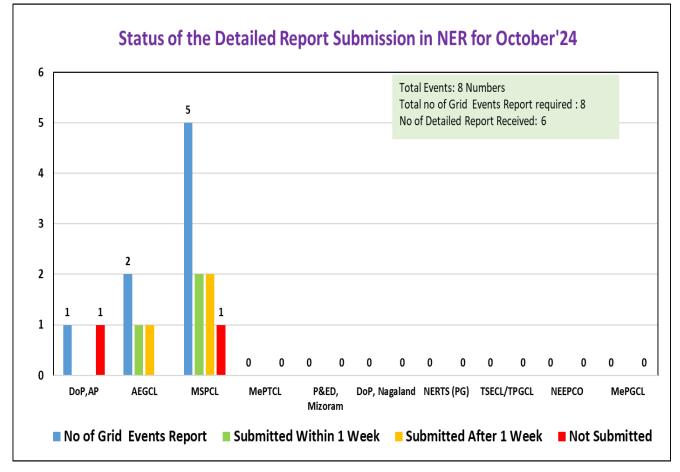
Also, all utilities are requested to nominate a nodal officer responsible for the submission of FIR,DR & EL in Tripping Monitoring Portal (<u>https://tripping.nerldc.in/Default.aspx</u>)

Members may discuss.

B.4 <u>Submission of Flash Report and Detailed Report by User/SLDC as per</u> <u>IEGC-2023:</u>

As per IEGC-2023, all User/SLDCs are requested to prepare and share **Flash Report** and **Detailed Report** with **NERLDC** and **NERPC** following any Grid Events as per the timeline mentioned in the cl 37.2(f).

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



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

Member may discuss

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

S1. No	Element Name	Tripping Date and Time	RELAY_A	RELAY_B	Auto- Recloser not Operated	Remarks from Utility
1	400 kV PK Bari-Silchar I Line	06:26 Hrs of 01-10- 2024	DP, ZI, R-N, A/R successful	DP, ZI, Y-N	Silchar	
2	132 kV Dimapur(PG)- Kohima Line		DP, ZI, B-N	A/R successful	Dimapur(P G)	
3	132 kV Jiribam- Loktak Line		DP, ZI, R-Y- B-N, A/R successful	DP, ZII, R- Y-B-N (DR not opening)	Loktak	
4	220 kV Agia- Boko Line	11:20 Hrs of 12-10- 2024	DP, ZI, B-N	DP, ZI, B- N, A/R successful	Agia	
5	132 kV Dimpaur- Imphal Line	02:59 Hrs of 25-10- 2024	DP, ZII, B-N, Carrier aided tripping	DR not submitted	1 /	
6	132 kV AGTCCPP-PK Bari II Line	08:59 Hrs of 28-10- 2024	DP, ZII, B-N, Carrier aid trip, A/R successful	DP, ZI, B-N	PK Bari	

Utilities may update

B.6 <u>Submission of Protection Performance Indices by Transmission Utilities:</u> As per Regulation No. 15(6), Protection Code - Users shall submit the following protection performance indices of previous month to their respective RPC and RLDC on monthly basis for 220 kV and above (132 kV and above in NER) system by 10th of every month for previous month indices, which shall be reviewed by the RPC. As on 11.11.2024, **NETC, MUML, DoP Nagaland, OTPC, TPTL, MePGCL, MePTCL, AEGCL and NERTS** has submitted protection performance indices for the month of October'24.

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

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

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

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

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

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

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

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

As informed by NEEPCO, there was sparking observed in Bus isolator at Kopili. *NEEPCO is requested to share the root cause and remedial measures taken.*

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

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

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

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

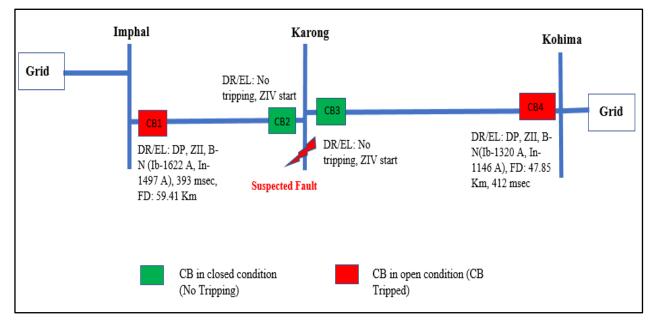
NEEPCO is requested to:

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

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

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

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



Following observations:

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

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

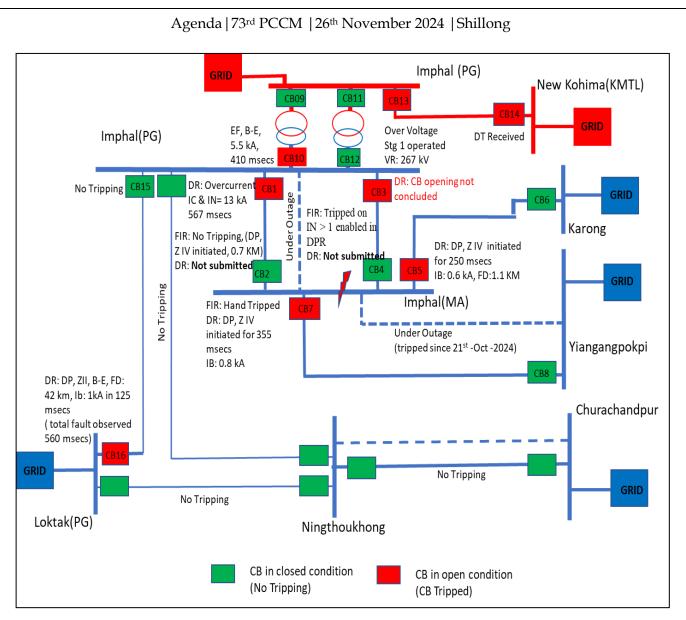
MSPCL is requested to update the root cause of the event and remedial measures taken.

B.10 <u>Grid Disturbance in the Imphal (Yurembam) substation of Manipur power</u> 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:

- 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.
- 315 MVA ICT I at Imphal(PG) tripped at 132 kV side on Backup E/F in 410 msecs on reverse fault. Directionality of the LV side backup relay need to be rectified by NERTS.
- High Voltage of Vre: 267 kV observed in the Imphal(PG) end of the 400 kV Imphal(PG) - New Kohima 1 Line after the tripping of Tie CB of 315 MVA, ICT-

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

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

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

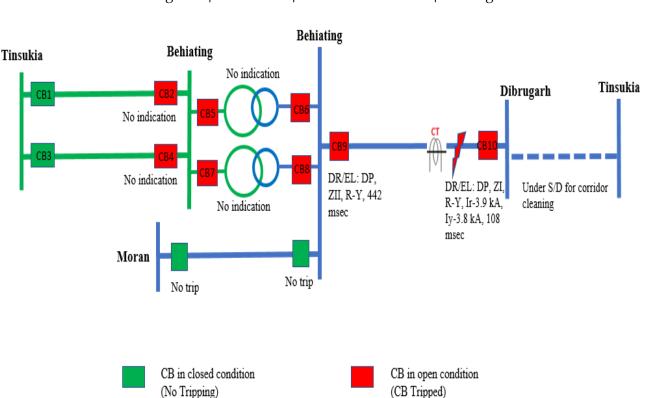
Also, **NERTS & NHPC** is requested to provide update on the above-mentioned issues.

Members may discuss

B.11 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:

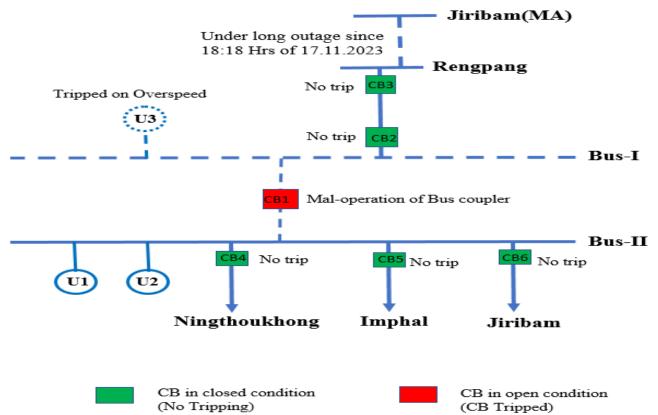
- 220 kV Behiating-Tinsukia I & II lines tripped from Behiating end within 265 msec of inception of fault. It is unclear which protection system operated at Behiating.
- 2. 220/132 kV Behiating ICT-I&II tripped. As per EL, O/C started at 09:05:53.386 Hrs. HV side CB open at 09:05:53.600 Hrs.
- Tripping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

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

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

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

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



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

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

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

The details of tripping are shown below:

	Agentui 175 - I Celvi 126 - November 2021 [Shinong				
Sl. No.	Name of element	Tripping time	Reason		
1	400 kV Silchar-Misa I line	00:07 Hrs of 08.09.2024	AR operated successfully both ends		
2	400 kV Silchar-Misa II line	06:04 Hrs of 08.09.2024	Phase-phase fault cleared within 51 msec on ZI from both ends		
3	400 kV Silchar-Misa II line	09:09 Hrs of 21.10.2024	Phase-Earth fault. AR attempted at both ends after 1.25 sec and tripped on reclaim time		
4	400 kV Silchar-Misa II line	09:30 Hrs of 22.10.2024	AR operated successfully both ends		
5	400 kV Silchar-Misa II line	01:25 Hrs of 24.10.2024	AR operated successfully both ends		
6	400 kV Silchar-Misa II line	17:39 Hrs of 24.10.2024	AR operated successfully both ends		

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

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

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

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

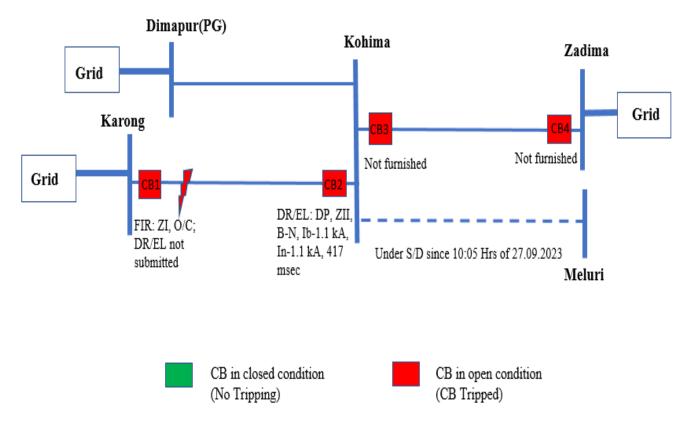
During both the instances, loading of 132 kV Tinsukia-Rupai line exceeded the predefined loading limit as per SPS for reliable power supply to Arunachal Pradesh via Chapakhowa-Roing line. Subsequently, SPS operation signals were triggered and received at 132 kV Rupai GSS. However, due to non-healthiness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

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

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

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

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



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

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

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

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

B.16 Mock Testing of SPS in NER:

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

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

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

S1. No.	Scheme	Remarks
1	SPS related to the outage of 132 kV PanyorHEP-ZiroLinedisconnection of 33kV Load at Ziro	Operated Correctly in April'24
2	Outage of 220 kV BTPS (Salakati) – Rangia I & II - load shedding	Operated Correctly in Aug'24
3	Related to Generation evacuation from Monarchak(NEEPCO) Power Plant - Tripping of STG at Monarchak	Operated Correctly in July'24

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4	Related to outage of any one circuit of 220 kV Balipara-Sonabil D/C	Operated Correctly in Mar'24 (Triggering criteria 2)						
5	SPS related to reliable power supply toArunachal Pradesh from Assam through theRoing-ChapakhowaDCDCline:Triggeringcriteria-1:Tripping of either 132KV Tinsukia-Ledo or132KV Tinsukia-Rupailine with currentexceeding 300A in 132kV Tinsukia - Ledo or132KVTinsukiaTriggering criteria-2:Overloading of 132 kVTinsukia-Rupailine when current in the linecrosses 300Amps. , 8-10 MW of load at 132kVRupai GSS will be shed.	Operated Correctly in Sep'24 (Triggering criteria 2)						
6	Tripping of 400kV Palatana-Silchar D/C- when both modules of Palatana are in service causes tripping of HV side breaker of 2x125 MVA, 400/132 kV ICT at Palatana	SPS is kept OFF						
7	SPS related to overloading of 220kV BTPS- Salakati D/C- Tripping of 220kV Agia – Boko and 220kV Agia – Mirza	SPS is kept OFF						
8	Reverse power flow more than 60 MW from LV to HV side of 2 X 315 MVA, 400/220 kV Azara ICTs causes tripping of 400/220 kV, 2x315 MVA ICTs at Azara (AEGCL)	SPS is kept OFF (operated in May'24)						
9	Tripping of 132 kV Umiam Stg-I to Umiam Stg- III D/C lines causes instantaneous load shedding near Mawphlang area	SPS is kept OFF (operated in May'24)						
10	Related to the tripping of Bus Reactors at 400 kV Imphal (PG)							

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

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

Agenda from NLDC

B.17 Uniform Protection protocol

The Uniform Protection Protocol has been approved by 15th NPC on 14.11.24 It is requested to please include following agendas from NLDC:

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

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

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

Sub-committee may deliberate

B.18 parameter standardization of Disturbance Recorder (DR)

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

Sub-committee may deliberate

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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
	198/MP/2020	DoP, Arunachal Pradesh
08-Nov-2023	259/MP/2020	DoP, Nagaland
	539/MP/2020	MSPCL
27-Oct-2023	535/MP/2020	TPTL/TSECL
2. 000 2020	540/MP/2020	P&ED, Mizoram

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

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

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

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

In this regard, Member Secretary stated that the monthly progress reports will be monitored at PCC forum. He requested the States to send monthly progress report and action plan accordingly.

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

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

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

S1 N O	Element Name	Trippin g date and time	Relay End1	Relay End2	A/R not Operated	Remarks from Utility (72 nd PCCM)
1	132 kV Agartala - Surajmanina gar 2 Line	17-11- 2023 15:10	DP,ZI,Y- B,FD:5.81 km, AR successfu 1	DP,ZI,R- Y,FD:11.98 KM	Surajman inagar	ARwithoutcarriertobeenabledshortly.TheRelayTesting kit hasbeenreceivedlast week.ARtobeenabledafter Diwali

As updated in 72nd PCCM

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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 Sucessful ly	AGBPP	order placed, work to be done next month	
4	132 kV Badarpur - Karimganj Line	05-05- 2024 13:48	DP, ZII, Y- E, FD:27.25K M, Carrier Aided tripping & AR Operated Successfull y	DP, ZI, Y- E, FD: 0.2km	Karimganj	Relay shifting, from Jorhat, to be done by next PCC meeting.	
5	400 kV Byrnihat- Silchar Line	02-09- 2024 16:53	DP, ZII, Y- N	DP, ZI, B- N, Carrier send	Both ends	Sil: tie breaker stuck, LBB operated so no AR. Byrnihat: will update	
6	220 kV Mariani- Samaguri Line	13-09- 2024 12:17	DP, ZI, B- N, AR successful	DP, ZII, B- N, Carrier aided trip	Samaguri	Spring charge status high, so no AR attempt. Issue in the contactor. Contactor may be changed.	

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

Utilities may further update

C.3 PLCC issues follow up:

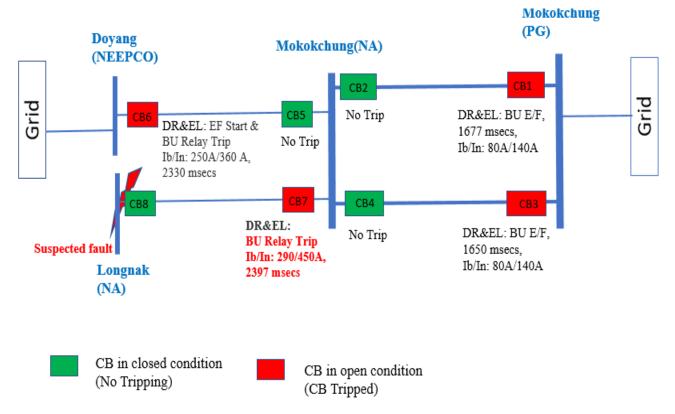
Update as provided by utilities in 72nd PCCM

Sl.	Line	Utility	Update
No		5	1
_			
1	132 kV Dimapur-Kohima	DoP	DPR (for DTPC) is completed except
		Nagaland	for budgetary offer. Offer has not
			been received from Hitachi yet.
2	132 kV Melriat-Zemabawk	Mizoram	For Wave Trap order has been placed
			with GE. Order will be received after
			4 months as communicated by GE.
			Forum had suggested that both
			PLCC and DTPC has to be enabled.
			POWERGRID shall install only the
			PLCC. CVT installed.
			Regarding the DTPC, DPR to be
			finalized, one quotation received,
			waiting for another one
3	132 kV Roing-Pashighat	DoP Ar.	DoP Ar. Pradesh updated that 48 V
		Pradesh	battery has been commissioned.
			PGCIL to commission the PLCC link

Utilities may further update

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

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



Analysis based on DR signal:

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

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

Following observations:

- Protection system of 132/33 kV ICT-II at Longnak failed to isolate fault in ICT which was cleared by operation of Backup Relay at Mokokchung(PG), Doyang(NEEPCO) & Mokokchung(NL). The same needs to be checked by DoP Nagaland.
- 2. 132 kV Mokokchung(NL)-Longnak line tripped from Mokokchung(NL) end within 2.4 sec for fault in 132/33 kV Longnak ICT-II. As per existing setting, B/U EF pickup 75A, TMS: 0.20. With this setting the fault should clear from Mokokchung SS (for 132 kV Longnak Line) within 767 msec with neutral current of 450 A. NERLDC has already shared mail on 16th September'24 to DoP Nagaland to carry out the following-

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

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

Similar incident occurred at 21:36 Hrs of 07.09.2024.

DoP Nagaland may update.

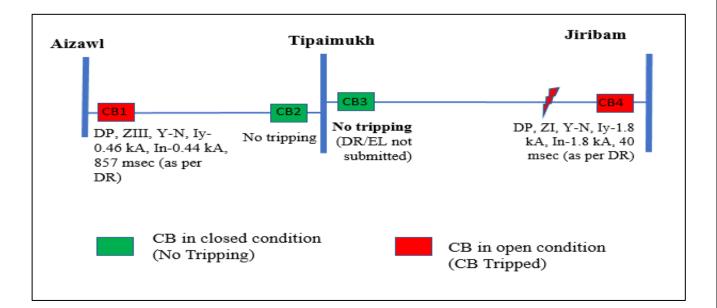
In 72nd PCCM, Nagaland informed that the fault was in the 132/33kV transformer at the Longnak SS. The forum noted –

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

DoP Nagaland may further update

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

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



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

Similar incident occurred on 25.08.2024.

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

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

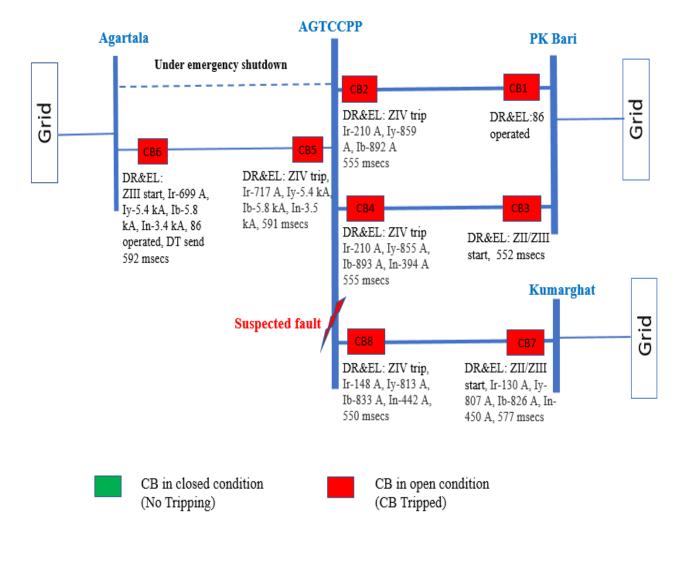
Forum requested Mizoram & NERTS to provide necessary support to Manipur at earliest.

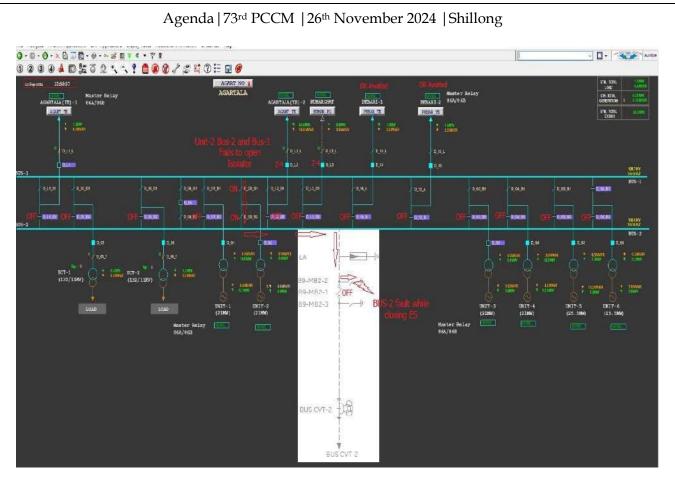
In 73rd PCCM, MSPCL informed that support from PGCIL and Mizoram is required to access the site. Mizoram and PGCIL requested MSPCL to formally initiate the request to them for the support.

MSPCL may update

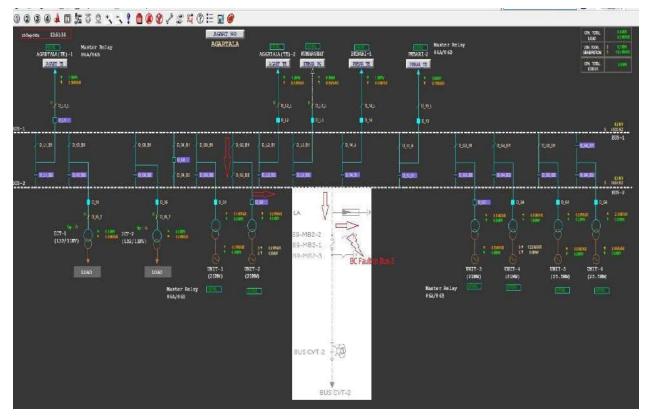
C.6 Grid Disturbance in AGTCCPP generating station of NEEPCO on 12-09-2024:

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





SLD during fault



SLD during blackout Analysis based on DR:

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

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

POWERGRID/NEEPCO is requested to:

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

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

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

PSAG may update

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

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

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

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

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

M/s PRDC may update

C.8 Mapping of SPS in the SCADA Display for real time monitoring of all SPS:

NLDC has submitted the Guidelines on "Interfacing Requirements" after stakeholder consultation for approval of the Commission as mentioned in the Regulation 7.4, read with Regulation 14.2 of the Communication System for inter-State transmission of electricity) Regulations,2017. On dated 19-Jan-2024, CERC approved the guideline on "Interfacing Requirements" prepared by NLDC in consultation with the stakeholder. As per the Guideline, real time telemetered is SPS Signal need to be monitored. The digital status shall be as per IEC standard. Digital Status for circuit breaker must be double point while isolator status can be either single point or double point as per end device. All users shall comply with interface requirements as specified and shall share interface details with respective Control Centre.

S1.	Description	Analog	Digital Points		Protection
No.		Points			Signal
1	SPS Signal		DIGITAL	STATUS:	
			Enable/Disable,	,	
			Operated/No	Operated	
			(Condition/Logi	c Wise)	

At present, there are 19 numbers of SPS under operation and 1 number of SPS under implementation as listed tabulated below:

S1. No.	SPS under operation	Long term measures	SPS mapping status in SCADA (YES/No) as per 69 th PCCM
	Tripping of 400kV Palatana-	After commissioning of 400	
1	Silchar D/C-	kV Palatana -	
1	when both modules of Palatana are in service causes tripping of HV	Surajmaninagar line-1, there is no requirement of	Done

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	side breaker of 2x125 MVA,	this SPS and hence, it is to			
	400/132 kV ICT at Palatana	be kept OFF. However, the			
		SPS at Palatana is to be			
		kept ON during shut down			
		of 400 kV Palatana-			
		Surajmaninagar(ISTS) line-			
		1			
	Reverse power flow more than 60	After upgradation of 220			
	MW from LV to HV side of 2 X 315	kV BTPS-Salakati D/C			
2		lines.			
4	MVA, 400/220 kV Azara ICTs	(Need to disable after			
	causes tripping of 400/220 kV,	system study of the present			
	2x315 MVA ICTs at Azara (AEGCL)	condition)			
		After commissioning of 220			
	Tripping of 132 kV Umiam Stg-I to	kV Killing-Mawngap D/C			
3	Umiam Stg-III D/C lines causes	lines and re-conductoring			
0	instantaneous load shedding near	of 132kV Lumshnong-			
	Mawphlang area	Panchgram line, SPS is			
		kept OFF	done		
	SPS related to overloading of 220kV	After upgradation of 220			
4	BTPS- Salakati D/C- Tripping of	kV BTPS-Salakati D/C			
	220kV Agia – Boko and 220kV Agia	lines, this SPS is kept OFF			
	– Mirza		done		
	Related to the safe evacuation of				
5	power from BgTPP(NTPC)	-			
	generation - BGTPP generation				
	reduction to 600 MW		Done		
	Related to Generation evacuation				
	from Monarchak(NEEPCO) Power	Commissioning of 132 kV			
6	<u>Plant</u> - Tripping of STG at				
	Monarchak under outage of any one	Surajmaninagar line			
	circuit of 132 kV Monarchak –		By Oct'24		

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	Agenua 75 ¹⁴ PCCM 26 th NO	vember 2024 Smilong			
	Rokhia line & 132 kV Monarchak-				
	Udaipur				
		a			
		Commissioning of 400 kV			
7	Outage of 220 kV BTPS (Salakati) -				
	Rangia I & II - load shedding	kV Bongaigaon-Balipara 1			
		& 2 Line at Rangia.	done		
	Related to the tripping of Bus		Facing		
	Reactors at 400 kV S M Nagar		SCADA		
	(ISTS) - Tripping of both circuits of		integration		
8	400 kV SM Nagar-PK Bari D/C will	_	issue at P		
	trip 2 x 125 MVAR Bus Reactors at		K Bari. To		
	SM Nagar (ISTS) to prevent under		be done by		
	voltage situation		15 th		
	Voltage officiation		Dec'24		
	Related to the tripping of Bus				
	Reactors at 400 kV P K Bari				
	(ISTS) -				
9	Tripping of both circuits of 400kV				
5	PK Bari (ISTS) – Silchar(PG) D/C				
	will trip 2 x 125 MVAR Bus Reactors				
	at P K Bari(ISTS) to prevent under		Same as		
	voltage situation		point 8		
	Related to the tripping of Bus				
	Reactors at 400 kV Imphal (PG) -				
	Tripping of 400 kV New Kohima -				
10	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		
	Related to Outage of any one of	After restoration of 132 kV			
11	the 400/132kV 2x360MVA ICTs	Panyor -Itanagar & 132 kV			
11	at Panyor Lower Hydro Power	Panyor -Pare line			
	Station -	(expected by 31st Mar'24)	By Nov'24		
l		1			

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	Disconnection of One Unit of		
	Panyor (135 MW) and One Unit of		
	Pare (55 MW)		
	SPS related to outage of 220 kV		
	Azara-Sarusajai DC/220 kV Misa-		
	Samaguri DC -		
	1) On tripping of 220 kV Azara-	Commissioning of 400 kV	
12	Sarusajai D/C: 140-150 MW load	Sonapur Substation. LILO	
12	disconnection is to be done at	of 400 kV Bongaigaon-	
	Sarusajai and Kahilipara areas	Byrnihat Line at Sonapur.	1. This
	2) On tripping of 220 kV Misa-		month
	Samaguri DC: Load reduction of		2. By
	50-60 MW at Samaguri area		Dec'24
	SPS related to the outage of 132		
	<u>kV Panyor HEP-Ziro Line</u> -	Commissioning of 132 kV	
13	Tripping of 132 kV Panyor-Ziro will	Khupi - Along Link/220 kV	
	cause disconnection of 33kV Load	AGBPS-Namsai D/C	
	at Ziro		done
	Related to outage of any one circuit	Reconductoring of 132 kV	
14	of 132 kV Dimapur(PG)-	Dimapur(PG)-	Done
	Dimapur(NA) D/C	Dimapur(NA) D/C	
		Reconductoring of 220 kV	
		Balipara-Sonabil D/C lines	
15	Related to outage of any one circuit	with higher ampacity and	
	of 220 kV Balipara-Sonabil D/C	Utilisation of 2 X 160 MVA	
		ICTs at Balipara	By Dec'24
	Related to Outage of 400 kV		
	<u> Palatana – Surajmani Nagar line</u>	Unerrodotics of 100 1V	
16	(charged at 132 kV) - Tripping of	Upgradation of 132 kV	
16	400 kV SM Nagar – Comilla D/C	Surajmaninagar(TSECL) to	
	(charged at 132 kV) during outage	400 kV	
	of 400 kV Palatana – SM		Done

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	Nagar(TSECL) line (charged at 132 kV)		
	Related to Outage of both		
17	400/132 kV, 2x125 MVA ICTs atPalatana-Entireloaddisconnection of South Comilla byway of tripping of 132kV SM Nagar-South Comilla D/C	Upgradation of 132 kV Surajmaninagar(TSECL) to 400 kV	Will check
	Related to the outage of any one	Reconductoring of 132 KV	
18	circuit of the 132 KV Khliehriat	Khliehriat (PG)-Khliehriat	This
	(PG)- Khliehriat D/C line	D/C line	month
19	Related to outage of any one circuit	Reconductoring of 132 kV	
17	of 132 kV Leshka – Khliehriat D/C	Khliehriat – Leshka D/C	Not done
20	SPS related to reliable power supply to Arunachal Pradesh from Assam through the Roing-Chapakhowa DC line: Triggering criteria-1: Tripping of either 132KV Tinsukia- Ledo or 132KV Tinsukia-Rupai line with current exceeding 300A in 132kV Tinsukia - Ledo or 132KV Tinsukia - Rupai line, Triggering criteria-2: Overloading of 132 kV Tinsukia-Rupai line when current in the line crosses 300Amps. , 8-10 MW of load at 132kV Rupai GSS will be shed.		
21	SPSrelatedto132kVSurajmaninagar(ISTS)-Surajmaninagar(TSECL)linetoprevent overloading		

S1. No.	SPS under implementation	Long term measures
1	Related to Outage of one circuit of 400 kV Surajmani Nagar (TSECL)- South Comilla line (Charged at 132 kV)	Upgradation of Comilla SS to 400 kV

Utilities may further update

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D. ITEMS FOR STATUS UPDATE

D.1. <u>Status of auto-reclosure on z-1 operation for important lines:</u>

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.

S1	State	Important	Status (69 th /68 th	Status as per 72 nd
no		Transmission	PCCM)	РССМ
		lines where AR		
		has to be enabled		
		at the earliest		
1.	Arunachal	132kV Balipara-	PLCC	3 Ph AR has been
	Pradesh	Tenga, 132kV Ziro-	implementation	enabled on the lines.
		Daporijo-Along-	under PSDF	
		Pashighat link	underway.	
			SPAR have been	
			enabled on the	
			lines without	
			PLCC	
			3-Ph AR will be	
			enabled by	
			March'24.	

Status as updated in 72nd PCCM

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

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				DPR for PLCC under preparation. To be completed shortly.	
4.	Meghalaya	Annexure (D.1)	August'24. Forum requested Meghalaya to provide monthly work progress report (around 25 number of 132kV line)	thoroughly discussed in State protection committee. Report of the meeting	
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	

Utilities may further update

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

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

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

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

Status as updated in 72^{nd} PCCM -

Name of utility	Last updated status (70 th	Status as per 72 nd PCCM
	/69 th /68 th PCCM)	
AEGCL	AEGCL updated that PSDF	MS, NERPC stated that
	monitoring group has suspended	funding for the LDP
	funding for LDP for 1 year. AEGCL	considering the special
	requested MS, NERPC to take up	case of NER will be taken
	with NPC, CEA to provide funding	up as resolution by RPC
	for the same considering the	forum
	special case of NER	
MSPCL	DPR under preparation, to be	DPR has been approved &
	submitted within one month.	NIT to be floated
MePTCL	LDP operation for 9 feeders.	Regarding OPGW
	For Neighrims-NEHU line, waiting	installation, MePTCL
	for dark fiber.	updated that DPR has
	For other lines, OPGW not	been prepared and it
	available	would be submitted to
	commissioned after OPGW link is	PSDF committee for
	established. (Annexure D.2)	funding by next month for
	7 Feeder operational for rest	inclusion in reliable
	OPGW work is pending	communication scheme.
	OPGW to be installed on 16 lines.	For NEHU-NEighrims line,
	LDP will be enabled after that.	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	Mizoram stated that DPR
	- Khawiva. DPR being revised.	in final stage. Price offer

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

Utilities may further upadte

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

Status as updated in the 72^{nd} PCCM:

S1	Details of the	Remedial action	Name of the	Status as per
No	events(outage)	suggested	utility &	72 nd PCCM
			previous update	
1.	132 kV Balipara-Tenga	Carrier aided inter-	DoP, Arunachal	DoP updated
	line in May and June	tripping to be	Pradesh.	that PSDF
		implemented for	PLCC panels	funding will be
		132kV Balipara-	received.	short closed
		Tenga-Khupi at the		due to long
		earliest		pending
		(PLCC has to be		payment issues
		installed on the link.		and delays. He
		Under consideration		further stated
		of the higher		that State is
		authorities)		considering
				funding of the
				project through
				its own
				funding. PLCC
				work to be
				tentatively
				completed by
				end of this
				year.
2.	132 kV	Carrier inter-trip for	DoP Nagaland	Offer from
	DoyangMokokchung	132kV DHEP-	(DPR is under	Hitachi is still
	line 132 kV	Mokokchung to be	preparation for	awaited.
	Mokokchung -	implemented by DoP	PLCC, by July'24	
	Mokokchung (DoP,	Nagaland (NO PLCC		
	Nagaland) D/C lines on	on the line. Matter		
	30th July	under consideration of		
		Higher authorities)		
3.	Leshka-Khleihriat DC	TLSA installation	MePTCL	DPR returned
	multiple tripping in April	along the line to be		by PSDF.
	to September	done by MePTCL		

Iine, 132 kV Loktak- Imphalline, 132 kV Transformer) to be repaired TX manufacturing underway. To be completed by due tu Iine, 132 kV Loktak- Rengpang line & Loktak TRAFO panel to be repaired by NHPC TX manufacturing underway. To be due tu 5. Grid Disturbance at Loktak HEP on 03rd Aug'22 NHPC-Loktak NHPC R & M work t and the same shall be commissioned by Mar'23 NHPC. R & M work t start in Nov'24 and to be completed by 6. Outage of 220 KV Bus Bar Protection Scheme at 400/220/132 KV Killing SS Bus-Bar protection of at 400/220/132 KV SS Bus-Bar protection of Order placed in or June'24 MeTCL 1.Card arrived in India, bu not received yet. 6. Outage of 220 KV Bus Bar Protection Scheme at 400/220/132 KV Killing SS Bus-Bar protection of or June'24 MeTCL 1.Card arrived in India, bu not received yet. 6. Outage of 220 KV Bus Bar Protection Scheme at 400/220/132 KV SS MeTCL 1.Card arrived in around 7 months, i.e. by May 6. Outage of 220 KV Bus Bar Protection Scheme at 400/220/132 KV SS MeTCL 1.Card arrived in around 7 months, i.e. by May 6. Outage of 220 KV Bus Bar Protection Scheme at 400/220/132 KV SS MeTCL 1.Card arrived in around 7 months, i.e. by May 2. Meanwhil provide card t<		Agenda	73 rd PCCM 26 th Novembe	er 2024 Shillong	
4. 132 kV Loktak-Jiribam line, 132 kV Loktak- Imphalline, 132 kV > 5MVA TRAFO (Aux. Transformer) to be repaired ->5MVA Auxiliary Loktak-Ningthoukhong line, 132 kV Loktak- Rengpang line & Loktak Units 1,2 and 3 on 3rdAug NHPC TX manufacturing underway. To be completed by Dec'24 National and the state to the paired by NHPC 5. Grid Disturbance at Loktak HEP on 03rd Aug'22 NHPC-Loktak informed that LBB has been included commissioned by Mar'23 NHPC R & M work t 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 SS 1.Card arrived provide card t MePTCL 6. Outage of 220 KV Bus Bar Protection Scheme at 400/220/132 KV Killing SS Bus-Bar protection of Car23, will arrive provide card t MePTCL Dec'24 6. Outage of 220 KV Bus Bar Protection Scheme at 400/220/132 KV Killing SS Bus-Bar protection of Car23, will arrive provide card t MePTCL Dec'24				(DPR submitted,	
Iine, 132 kV Loktak- Imphalline, 132 kV Loktak- Ningthoukhong line, 132 kV Loktak- Rengpang line & Loktak Units 1,2 and 3 on 3rdAugTransformer) to be repaired TRAFO panel to be repaired by NHPCTX manufacturing underway. To be completed by Dec'24due tandslide issue anderway. To be completed by Dec'245.Grid Disturbance at Loktak HEP on 03rd Aug'22NHPC-Loktak informed that LBB has been included commissioned by Mar'23NHPCR & M work t start in Nov'24 and to be completed by Oct. 25. Forum stressed to take LBB on priority.6.Outage of 220 KV Bus Bar Protection Scheme at 400/220/132 KV Killing SSBus-Bar protection of SSMeTCL SS1.Card arrived in around 7 months, i.e. by May or June'241.Card arrived available. NERTS assured the forum that				Approval pending.)	
Imphalline, 132 kV repaired TX manufacturing landslide issue Loktak-Ningthoukhong ->5MVA Auxiliary underway. To be completed by Rengpang line & Loktak TRAFO panel to be repaired by NHPC Dec'24 additional starts in Nov'24 5. Grid Disturbance at NHPC-Loktak NHPC R & M work to Aug'22 has been included under R&U scheme and the same shall be commissioned under R&U project) Aug'22 Mar'23 Mar'23 Oct.'25. Forum start in Nov'24 and 6. Outage of 220 KV Bus Bus-Bar protection of MePTCL I.Card arrived Bar Protection Scheme 220kV bus at Killing SS Order placed in not received in around 7 Z. Meanwhil Forum requested NERTS assured in available. NERTS assured NERTS assured NERTS assured He forum tha	4.	132 kV Loktak-Jiribam	> 5MVA TRAFO (Aux.	NHPC	Not received yet
Loktak-Ningthoukhong ->5MVA Auxiliary underway. To be completed by line, 132 kV Loktak- Rengpang line & Loktak TRAFO panel to be repaired by NHPC completed by 5. Grid Disturbance at Loktak NHPC-Loktak NHPC R & M work to start in Nov'24 Aug'22 has been included under R&U scheme and the same shall be commissioned by Mar'23 NHPC R as M work to start in Nov'24 and to be completed by Oct.'25. Forum stressed to take LBB on priority. 6. Outage of 220 KV Bus Bas-Bar protection of at 400/220/132 KV Killing SS Bus-Bar protection of Scheme at 400/220/132 KV SS MePTCL 1.Card arrived in not requested NERTS to months, i.e. by May or June'24 Milling SS SS SS SS Mentry to the forum that the start in Nov'24 and to be completed by Oct.'25. Forum stressed to take the the forum that the start in Nov'24 and to be completed by Oct.'25. Forum stressed to take the the forum that the start in Nov'24 and to be completed the the forum that the start in Nov'24 and to be completed by Oct.'25. Forum stressed to take the the forum that the start in Nov'24 and to be completed the start the start in Nov'24 and to be completed the start the start in Nov'24 and to be completed the start in N		line, 132 kV Loktak-	Transformer) to be		due to
line, 132 kV Loktak- Rengpang line & Loktak Units 1,2 and 3 on 3rdAug TRAFO panel to be repaired by NHPC completed by Dec'24 by Dec'24 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 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 SS MePTCL SS 1.Card arrived in around 7 uor June'24 6. Outage of 220 KV Bus Bar Protection Scheme at 400/220/132 KV Killing SS SS MePTCL SS 1.Card arrived in around 7 uor June'24 6. Outage of 220 KV Bus Bar Protection Scheme at 400/220/132 KV Killing SS SS MePTCL in around 7 uor June'24 1.Card arrived in India, bu or June'24 6. Outage of 220 KV Bus Killing SS SS MePTCL in around 7 uor June'24 1.Card arrived in India, bu or June'24		Imphalline,132 kV	repaired	TX manufacturing	landslide issue.
Rengpang line & Loktak Units 1,2 and 3 on 3rdAug repaired by NHPC Dec'24 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 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 SS MePTCL Bar Protection Scheme at 400/220/132 KV Killing SS I.Card arrived morths, i.e. by May or June'24 I.Card arrived morths, i.e. by May or June'24		Loktak-Ningthoukhong	->5MVA Auxiliary	underway. To be	
Units 1,2 and 3 on 3rdAug NHPC-Loktak NHPC R & M work to to be 5. Grid Disturbance at Loktak HEP on 03rd NHPC-Loktak NHPC R & M work to start in Nov'24 Aug'22 has been included under R&U scheme and the same shall be commissioned by commissioned start in Nov.'24 and to be completed by Oct.'25. Forum stressed to take LBB on priority. 1.Card arrived in India, bu order placed in or June'24 6. Outage of 220 KV Bus Bar Protection Scheme at 400/220/132 KV Killing SS Bus-Bar protection of SS MePTCL 1.Card arrived in around 7 months, i.e. by May or June'24 6. Outage of 220 KV Bus Bar Protection Scheme at 400/220/132 KV Killing SS SS 0rder placed in or June'24 Neerrs to provide card to MePTCL in available. NERTS to provide card to MePTCL NEERTS assured the forum that		line, 132 kV Loktak-	TRAFO panel to be	completed by	
3rdAug Image: Start and the same shall be commissioned under R&U scheme under R&U project) and the same shall be commissioned by start in Nov.24 and to be completed by Oct.25. Forum stressed to take LBB on priority. 1.Card arrived traited traded traited traited traited traded traited traited trai		Rengpang line & Loktak	repaired by NHPC	Dec'24	
5. Grid Disturbance at Loktak HEP on 03rd Aug'22 NHPC-Loktak NHPC R & M work to start in Nov'24 Aug'22 has been included under R&U scheme and the same shall be commissioned by Mar'23 commissioned under R&U project) and the same shall be commissioned 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 SS MePTCL 1.Card arrived in India, bu Order placed in Oct'23, will arrive in around 7 1.Card arrived pet. 6. Outage of 220 KV Bus Bar Protection Scheme at 400/220/132 KV Killing SS SS Order placed in Oct'23, will arrive in around 7 1.Card arrived pet. 6. NERTS to provide card to MePTCL NERTS to provide card to MePTCL NERTS assured the forum that		Units 1,2 and 3 on			
Image: Loktak HEP on 03rd Aug'22informed that LBB has been included under R&U scheme and the same shall be commissioned by Mar'23(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.Start in Nov.'24 relevant to be completed by Oct.'25. Forum stressed to take LBB on priority.1.Card arrived in India, bu Order placed in or June'246.Outage of 220 KV Bus Bar Protection Scheme at 400/220/132 KV Killing SSBus-Bar protection of SSMePTCL BBR Order placed in or June'241.Card arrived in India, bu Order placed in or June'246.Outage of 220 KV Bus Bus-Bar protection of Killing SSBus-Bar protection of SSMePTCL in around 71.Card arrived in India, bu Order placed in or June'247.S.Nemme Forum requested NERTS assured the forum thatNERTS assured the forum that		3rdAug			
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 and the same shall be commissioned by Mar'23 6. Outage of 220 KV Bus Bus-Bar protection of Bar Protection Scheme 220kV bus at Killing at 400/220/132 KV SS Killing SS Killing SS A 400/220/132 KV SS A 400/220/142 KV SS<td></td><td>Aug'22</td><td>has been included</td><td>commissioned</td><td></td>		Aug'22	has been included	commissioned	
commissioned by Mar'23 start in Nov.'24 and to be completed by Oct.'25. Forum stressed to take LBB on priority. 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 1.Card arrived in India, bu Order placed in Oct'23, will arrive in around 7 6. Outage of 220 KV Bus Bar Protection Scheme SS Order placed in Oct'23, will arrive in around 7 1.Card arrived in India, bu Order placed in Oct'23, will arrive yet. 6. Outage of 220 KV Bus Bar Protection Scheme SS Order placed in Oct'23, will arrive in around 7 1.Card arrived in India, bu Order placed in Oct'23, will arrive in around 7 6. NERTS In Around In India, bu Order placed in Oct'23, will arrive in around 7 1.Card arrived in India, bu Order placed in Oct'23, will arrive in around 7 7. Meanwhile NERTS Forum In Around In Around In India, bu Order placed in NERTS NERTS In Around In India, bu Order placed in NERTS			under R&U scheme	under R&U project)	
Mar'23 to be completed by Oct.'25. Forum stressed to take LBB on priority. 6. Outage of 220 KV Bus Bus-Bar protection of 220kV bus at Killing Bar Protection Scheme at 400/220/132 KV Killing SS Bus-Bar protection of 220kV bus at Killing BBR defective. 1.Card arrived in India, bu order placed in oct'23, will arrive in around 7 6. Outage of 220 KV Bus SS Order placed in oct'23, will arrive in around 7 1.Card arrived potential oct'23, will arrive in around 7 7. Meanwhile Months, i.e. by May or June'24 Forum requested NERTS 8. NERTS to provide card to MePTCL 8. NERTS assured the forum that			and the same shall be	Renovation would	
6. Outage of 220 KV Bus Bus-Bar protection of MePTCL 1.Card arrived Bar Protection Scheme 220kV bus at Killing BBR defective. in India, bu at 400/220/132 KV SS Oct.'23, will arrive yet. in around 7 2. Meanwhile months, i.e. by May Forum or June'24 requested NERTS to NERTS assured the forum that			commissioned by	start in Nov.'24 and	
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	Agenda 73rd PCCM 26th November 2024 Shillong					
				card and		
				update		
7.	Non-operation of AR for	Rectification of PLCC	MePTCL			
	various lines at	issues by MePTCL		OEM visited,		
	Byrnihaat end on 25^{th}		Visit of OEM next	PLCC defective,		
	and 26 th June'23	Consultation with	week. To be	will procure at		
		OEM underway for	completed by	earliest		
		resolution	May'24			
8.	Tripping of 132kV	BB protection to be	AEGCL	New bays have		
	Kahilipara- Sarusajai 1,	implemented at	DPR is under	to be integrated		
	2 and 3 line, 132kV	Kahilipara with	preparation for	to ABB relay, so		
	Kahilipara Main bus 1,	procurement of 5 core	PSDF.	new cards have		
	132kV Kahilipara	CTs	CT under	to be procured,		
	transfer Bus 1 and		procurement, to be	commissioning		
	132kV Kahilipara-		completed by end	may go beyond		
	Kamalpur line on		of this year	Dec'24		
	2.08.2021					
9.	AR issue at Gohpur end	Panel replacement	AEGCL -	Done, Agenda		
	for 132kV Nirjuli-	underway	By April'24	may be		
	Gohpur line			dropped		
10.	Non-operation of AR at	Pneumatic CBs to be	NEEPCO-	March'25		
	Doyang HEP	replaced	August 2024			
11.	Generation evacuation	SPS to be	MePGCL to	Done, Agenda		
	issue at Leshka due to	implemented	implement the SPS	may be		
	tripping of any line of		by May'24	dropped		
	132kV Leshka-					
	Khliehriat DC line					
12	Multiple trippings fn the	Differential protection	MePGCL	DPR has been		
	lines connected to	on the link line to be	To be discussed in	prepared and		
	Leshka station in	implemented.	internal OCC	submitted to		
	April'24 have been	Also, AR on the link	meeting first.	higher		
	observed due to delayed	line to be implemented	DPR under	authority		
	clearance of faults in the		preparation, to be			
	link line (GT to		prepared within			
	Switchyard, 550 meters)		one month			

	Agenda	73 rd PCCM 26 th Novembe	r 2024 Shillong	
13	Multiple tripping of 132	B/U protection	MePTCL	Done, Agenda
	kV Panchgram-	settings coordination	To be done shortly	may be
	Lumshnonong line in	for the 132kV		dropped
	April'24 has been	downstream		
	observed due to delayed	industrial feeders has		
	clearance of	to be done		
	downstream fault in			
	Lumshnong			
14	Issue with CB at P K	Pneumatic CB at P K	TSECL	NERPSIP
	Bari end for	Bari end to be	(Work in progress)	informed the
	Dharmangar line	replaced with spring		forum that M/s
	(agenda item C.5 of 69^{th}	charging type CB		Siemens was
	PCCM.)			working and
	Powergrid has reduced			work would be
	timing of zone settings			completed
	at Kumaraghat end for P			within one
	K Bari line. The settings			month
	will be reverted as soon			
	as the breaker issues is			
	resolved by TSECL			
15	At 12:38 Hrs of	Pneumatic CBs at	DoP Ar. Pradesh	Covered under
	09.07.2024, 132 kV	0	· -	PSDF scheme
	Along - Pasighat Line,	-	within 2 months)	& parallelly
	132 kV Roing-Pasighat			exploring for
	Line & 132 kV Along-	Ũ		State funding
	Basar Line tripped	rectified at Along SS		also
	leading to blackout of			
	Along & Pasighat areas			
	of Arunachal Pradesh			
16.	At 14:56 Hrs of 17-07-	Neigrihms end for	MePTCL	
	2024, 132 kV NEHU-	NEHU line Relay to be		
	NEIGRIHMS line & 132	replaced shortly		
	kV Khleihriat-			
	NEIGRIHMS line tripped			
	leading to blackout of			
	NEIGRIHMS area.			
		52		

Utilities may further update

Amesureds

Name of the line	Status as updated in 56/57th	Latest Status
	PCC meeting	
132 kV Agia - Mendipathar		
132 kV EPIP II - Byrnihat D/C		
132 kV EPIP II - Umtru D/C		
132 kV Kahilipara - Umtru D/C		
132 kV Khliehriat – Mustem		
132 kV Mustem - NEHU line	PLCC works completed.	
132 kV Khliehriat (MePTCL) - Khliehriat	AR operation configuration to	
(PG) Ckt#II	commence from March'22.	
132 kV Khliehriat- NEIGRIHMS	Latest Status to be intimated.	
132 kV NEHU – Mawlai		
132 kV Mawlai - Umiam Stage I		
132 kV Mawphlang - Nongstoin		
132 kV Mawphlang - Umiam Stg I D/C		
132 kV Mawphlang- Mawlai		
132 kV Mendipathar – Nangalbibra		
132 kV Myntdu Leshka - Khleihriat D/C		
132 kV Nangalbibra – Nongstoin		
132 kV NEHU – NEIGRIHMS		
132 kV NEHU – Umiam		
132 kV Sarusajai - Umtru D/C		
132 kV Umiam - Umiam St I		
132 kV Umiam St I - Umiam St II		
132 kV Umiam St I - Umiam St III D/C		
132 kV Umiam St III -Umiam St IV D/C	By March'22	
132 kV Umiam St III - Umtru D/C		
132 kV Umtru - Umiam St IV D/C		

<u>MePTCL</u>

SL N	Feeder Name	Installation			1
1	FPIP-I - EPIP II Line I	End A	End B	Commissioning	Remarks
2	EPIP-I - EPIP II Line II	Completed	Completed	Completed	
-	CP II - I - CP IP II Line II	Completed	Completed	Completed	
4	EPIP -I - Killing Line I	Completed	Completed	Not Completed	
5	EPIP -1 - Killing Line 11	Completed	Completed	Not Completed	Fiber Network Not
5	EPIP -I - M/S Maithan Alloy	Completed	Completed	Not Completed	Available
7	EPIP -1 - Shyam Century	Completed	Completed	Not Completed	-
8	EPIP-II - Umtru Line I	Completed	Completed	Completed	
9	EPIP-II - Umtru Line II	Completed	Completed	Completed	
10.00	EPIP II - New Umtru	Completed	Completed	Completed	
10	EPIP II - Killing Line I	Completed	Completed	Not Completed	Fiber Network Not
11	EPIP II - Killing Line II	Completed	Completed	Not Completed	Available
12	Umtru- New Umtru	Completed	Completed	Completed	
13	LUMSHNONG- M/S MCL	Completed	Completed	Not Completed	
14	LumSHNONG- M/S ACL	Completed	Completed	Not Completed	Fiber Network Not
15	Lumshoong - M/S MPL	Completed	Completed	Not Completed	Available
16	UMIAM - Stage I	Completed	Completed	Not Completed	
17	Umiam - NEHU	Completed	Completed	Completed	
18	UMIAM STAGE-I - Umiam Stage II	Completed	Completed	Not Completed	Fiber Network Not Available
19	NEHU - NEIGHRIMS	Completed	Completed	Not Completed	Awaiting for Commissioning of fiber under NERFO
20	NEHU - MAWLAI	Completed	Completed	Completed	
21	KHLII HRIAT (MePTCL)- KHLIEHRIAT(PG) line-II	Completed	Completed	Completed	
22	Stage-III - Stage IV Line I	Completed	Completed	Not Completed	Fiber Network Not
	Stage-III - Stage IV Line II	Completed	Completed	Not Completed	Available

Annexure B.2

ग्रिड कंट्रोलर ऑफ इंडिया लिमिटेड

GRID CONTROLLER OF INDIA LIMITED

Formerly Power System Operation Corporation Limited

North Eastern Regional Load Despatch Centre, Shillong



<u>अक्टूबर, 2024 माह के लिए ग्रिड घटना की विस्तृत</u> <u>विश्लेषण रिपोर्ट</u>

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

Table of Contents

Sl No	Area Affected	GD/GI/Near miss	Date & Time	Page No
1	Pailapool area of Assam Power System	GD-I	13:21 Hrs of 02-10-2024	3-8
2	Karong area of Manipur Power System	GD-I	02:32 Hrs of 04-10-2024	9-11
3	Karong area of Manipur Power System	GD-I	23:37 Hrs of 13-10-2024	12-17
4	Along, Basar and Pasighat area of Arunachal Pradesh Power System	GD-I	14:44 Hrs of 17-10-2024	18-21
5	Rengpang area in Manipur Power system	GD-I	10:28 Hrs of 19-10-2024	22-25
6	Dibrugarh area of Assam Power System	GD-I	09:05 Hrs of 28-10-2024	26-32
7	Imphal(Yurembam) area of Manipur Power system	GD-I	13:30 Hrs of 28-10-2024	33-41
8	Rengpang area of Manipur Power system	GD-I	22:26 Hrs of 29-10-2024	42-45



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

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

Date (दिनांक):09-10-2024

1. Event Summary (घटना का सारांश):

Pailapool area of Assam Power System was connected with rest of NER Power system through 132

kV Pailapool - Srikona Line & 132 kV Pailapool – Jiribam(PG) Line.

At 13:21 Hrs of 02-10-2024, 132 kV Pailapool - Srikona Line & 132 kV Pailapool – Jiribam(PG)

Line tripped. Due to tripping of these elements, Pailapool area of Assam Power System was isolated

from NER Grid and collapsed due to load-generation mismatch in this area.

Power supply was extended to Pailapool area of Assam Power System by charging 132 kV Pailapool

- Srikona Line at 13:44 Hrs of 02-10-2024.

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

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

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

5. Antecedent Conditions (पूर्ववर्ती स्थिति):

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

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

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

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

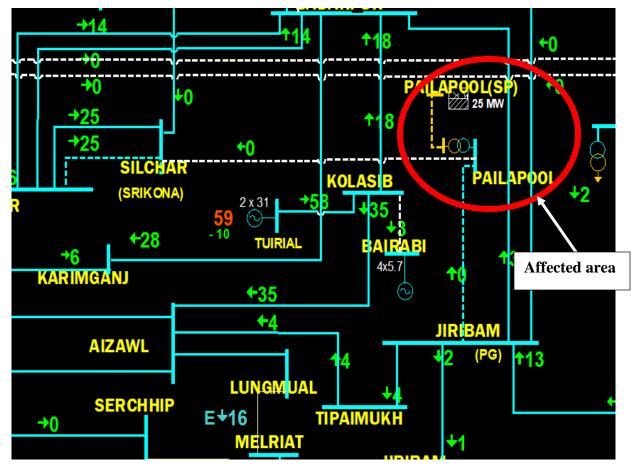
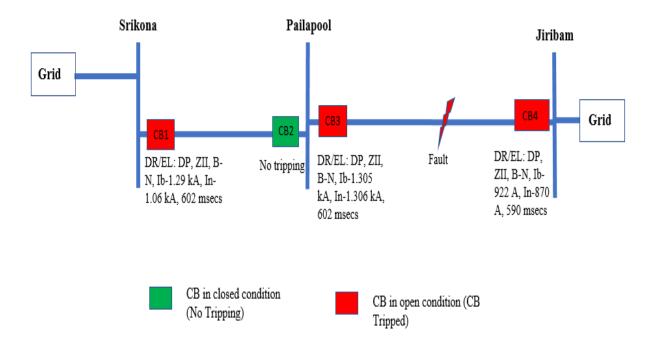


Figure 1: Network across the affected area

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

6. Major Elements Tripped (प्रमुख ट्रिपिंग):

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



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

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

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

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

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

- The Zone-2 delay at Pailapool end for 132kV Pailapool Jiribam line and at Srikona for 132 kV Srikona-Pailapool line was kept at 250 ms. (This was as per PGCIL request during previous PCCMs to counteract against high resistive fault in Meghalaya system)
- 9. Action Taken/Remedial Measures (सुधारात्मक उपाय):
- Maintenance work was carried out and the line was restored successfully.
- The Zone-2 time delay at Pailapool for 132kV Pailapool Jiribam line is updated to 350ms.

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

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

10. <u>Non-compliance observed (विनियमन का गैर-अनुपालन):</u>

11. Key Lessons Learnt (प्रमुख अधिगम बिंदु):

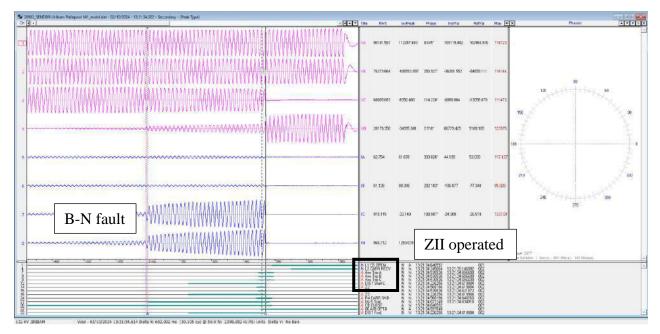
• Proper patrolling and maintenance related activities as per CEA regulations needs to be carried out.

Annexure 1: Sequence of Events as per SCADA

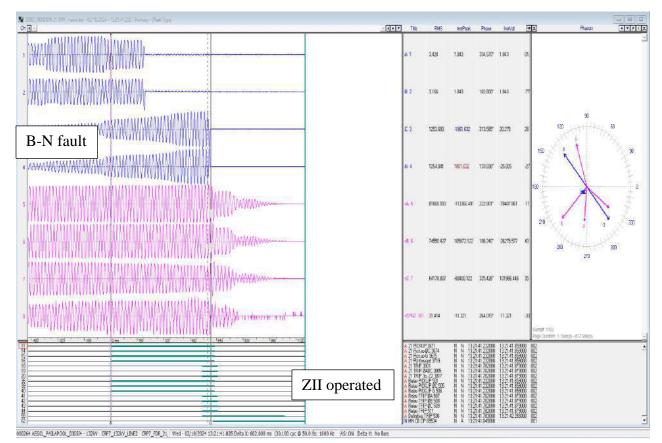
AREA	CATEGORY	LOCATION	TEXT	SYSTEM_TIME	FIELD_TIME	MS
AEGCL	1C	SONAB_AS	SONABIL CB 220Kv LINE-1 TO SAMAG CLOSE	02 Oct 2024 13:22:26:000	02 Oct 2024 13:20:44:000	6.64E+08
AEGCL	1C	SONAR_AS	SONARI CB 132Kv LINE TO LAKWA CLOSED	02 Oct 2024 13:21:02:000	02 Oct 2024 13:20:57:000	5.29E+08
MSPCL	1C	JIRIB_PG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

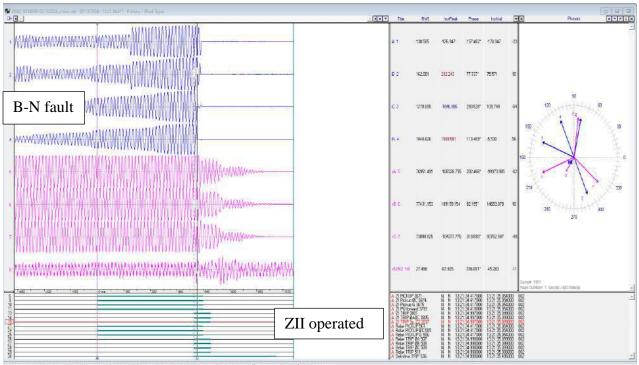
Annexure 2: Disturbance recorder snips showing faults and digital signals

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



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





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

001141 AEGOL \$70K0N4 - 132KV - CRP3 PLP FCF_21_7; Wed - 02/10/2024 13:21:35:018 Deta X: 604:001 ms (30:200 cy: @ 50:01%: 1000 Hz | A5: CN | Deta Y: No Bes



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

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

Date (दिनांक):18-10-2024

1. Event Summary (घटना का सारांश):

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

At 02:32 Hrs of 04-10-2024, 132kV Kohima-Karong line tripped. Due to tripping of this element,

Karong area of Manipur Power System was isolated from NER Grid and collapsed due to no source available in this area.

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

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

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

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

5. Antecedent Conditions (पूर्ववर्ती स्थिति):

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

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

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

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

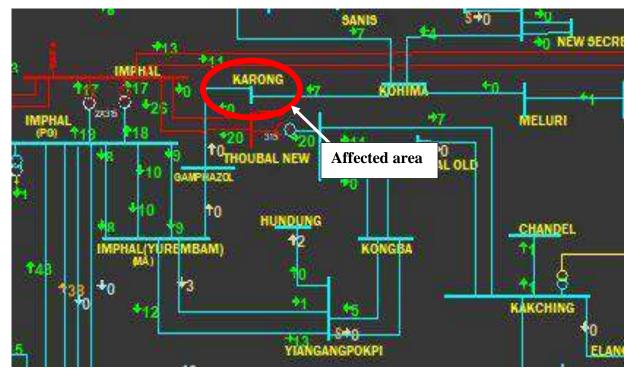


Figure 1: Network across the affected area

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

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

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

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

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

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

10. <u>Non-compliance observed (विनियमन का गैर-अनुपालन):</u>

11. Key Lessons Learnt (प्रमुख अधिगम बिंदु):

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

Annexure 1: Sequence of Events as per SCADA

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



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

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

Date (दिनांक):18-10-2024

1. Event Summary (घटना का सारांश):

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

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

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

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

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

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

5. Antecedent Conditions (पूर्ववर्ती स्थिति):

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

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

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

- 2. Load and Generation loss (लोड और जेनरेशन हानि): Load loss of 7 MW and 0.0035 MU
- 3. Duration of interruption (रुकावट की अवधि): 30 min
- 4. <u>Network across the affected area (प्रभावित क्षेत्र का नक्शा):</u>

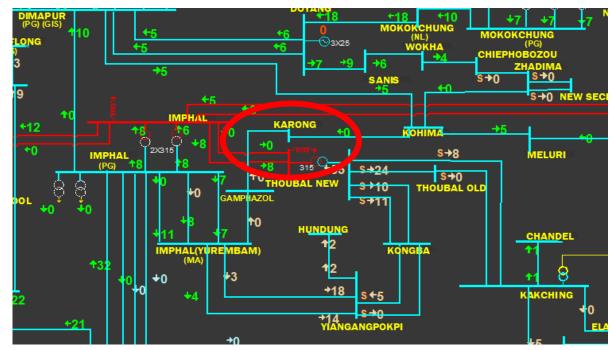
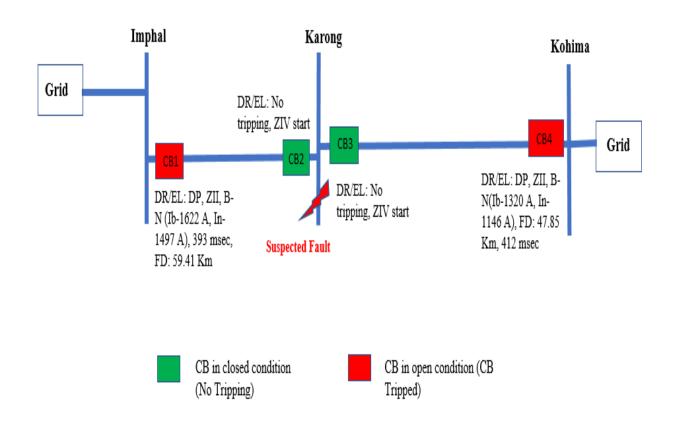


Figure 1: Network across the affected area

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

6. Major Elements Tripped (प्रमुख ट्रिपिंग):

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



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

Analysis based on DR:

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

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

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

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

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

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

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

10. <u>Non-compliance observed (विनियमन का गैर-अनुपालन):</u>

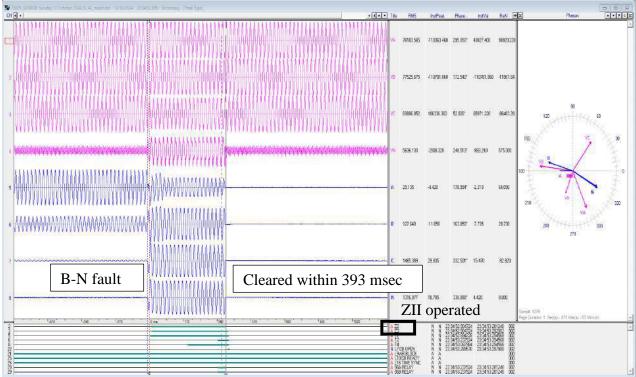
11. Key Lessons Learnt (प्रमुख अधिगम बिंदु):

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

Annexure 1: Sequence of Events as per SCADA

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

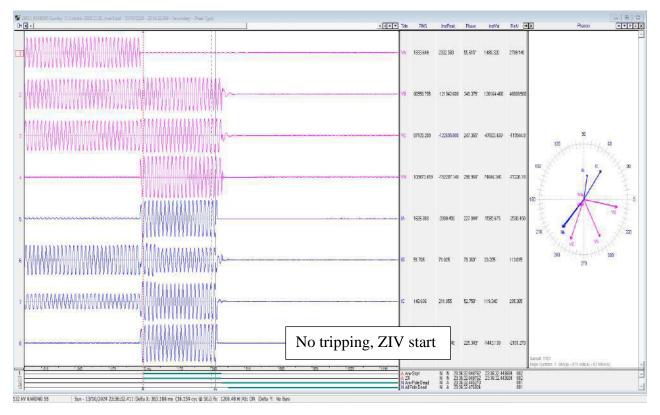
Annexure 2: Disturbance recorder snips showing faults and digital signals

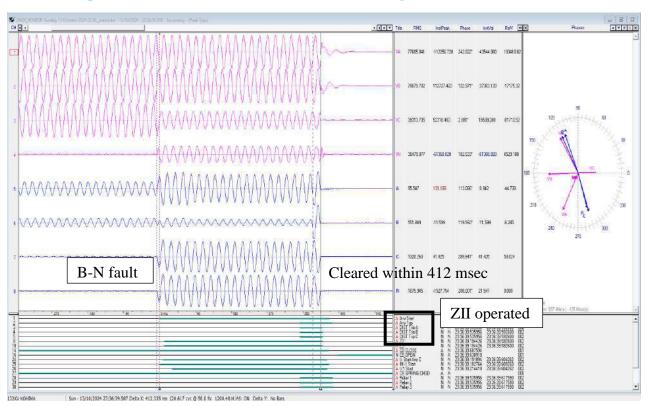


2.1. DR Snapshot of Imphal for 132 kV Imphal – Karong Line

132 KV BAY -03 Sun - 13/10/2024 23:34:53.279 Deta X: 394.842 ms (19.742 cvc @ 50.0 fs: 1200.48 H 45: ON Deta Y: No Bas

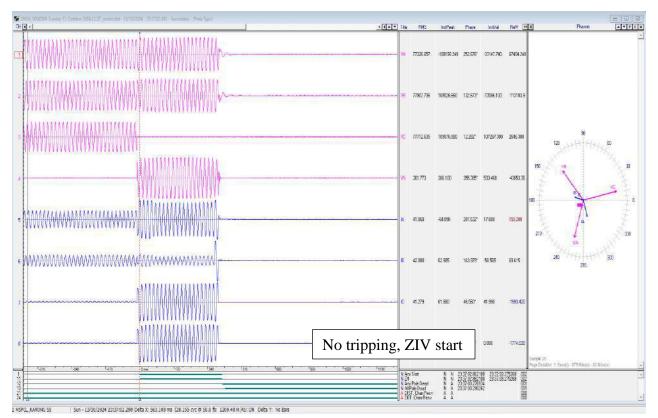
2.2. DR Snapshot of Karong for 132 kV Imphal – Karong Line





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







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

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

Date (दिनांक):18-10-2024

1. Event Summary (घटना का सारांश):

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

At 14:44 Hrs of 17-10-2024, 132 kV Roing-Pasighat line tripped. Due to tripping of this element,

Basar, Along and Pasighat areas of Arunachal Pradesh Power System were isolated from NER Grid and collapsed due to no source available in these areas.

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

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

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

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

5. Antecedent Conditions (पूर्ववर्ती स्थिति):

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

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

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

2. Load and Generation loss (लोड और जेनरेशन हानि): Load loss of 8.3 MW (Pasighat: 4.1

MW, Along: 2.9 MW, Basar: 1.3 MW)

3. Duration of interruption (रुकावट की अवधि): 1 Hr 40 min

4. <u>Network across the affected area (प्रभावित क्षेत्र का नक्शा):</u>

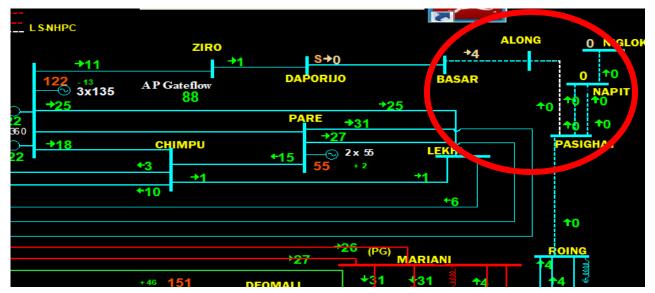


Figure 1: Network across the affected area

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

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

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

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

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

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

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

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

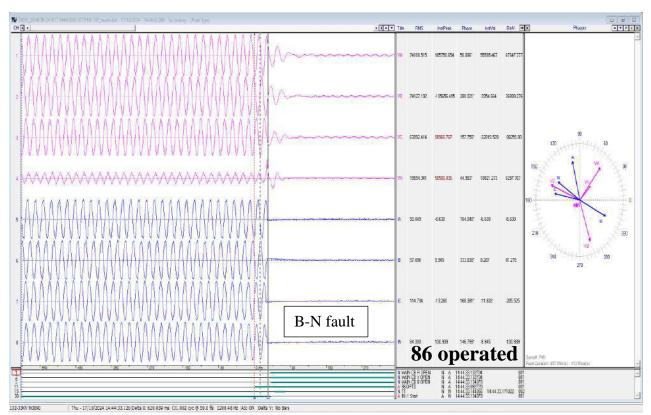
10. <u>Non-compliance observed (विनियमन का गैर-अनुपालन):</u>

11. Key Lessons Learnt (प्रमुख अधिगम बिंद्र):

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

Annexure 1: Sequence of Events as per SCADA

AREA	CATEGORY	LOCATION	TEXT	SYSTEM_TIME	FIELD_TIME	MS
MSPCL	1C	IMPHA_PG	IMPHAL CB TIE CB CLOSED	25 Sep 2024 16:19:13:000	23 Sep 2024 21:09:12:000	5900000
ARUNCH	1C	ROING_PG	ROING CB 132Kv LINE-1 TO PASIG OPEN	25 Sep 2024 01:17:03:000	24 Sep 2024 12:46:59:000	6.58E+08
ARUNCH	1C	ROING_PG	ROING CB 132Kv LINE-1 TO PASIG CLOSED	25 Sep 2024 01:56:09:000	24 Sep 2024 13:26:06:000	8.52E+08
ARUNCH	1C	ROING_PG	ROING CB 132Kv LINE-1 TO PASIG OPEN	25 Sep 2024 03:47:37:000	24 Sep 2024 15:17:32:000	4.26E+08
ARUNCH	1C	ROING_PG	ROING CB 132Kv LINE-1 TO PASIG CLOSED	25 Sep 2024 03:47:39:000	24 Sep 2024 15:17:34:000	31000000
ARUNCH	1C	ROING_PG	ROING CB 132Kv LINE-1 TO PASIG OPEN	25 Sep 2024 03:47:41:000	24 Sep 2024 15:17:34:000	4.87E+08
ARUNCH	1C	ROING_PG	ROING CB 132Kv LINE-1 TO PASIG CLOSED	25 Sep 2024 04:32:05:000	24 Sep 2024 16:02:03:000	1.57E+08
AEGCL	1C	SISHU_AS	SISHUGRAM CB 33 KV CP 2 1 CB CLOSED	25 Sep 2024 07:52:04:000	24 Sep 2024 17:26:22:000	2.39E+08
ARUNCH	1C	ROING_PG	ROING CB REACTOR D_R1_BR CB OPEN	25 Sep 2024 11:13:24:000	24 Sep 2024 22:43:22:000	2.38E+08
ARUNCH	1C	RANGA_NO	PANYOR CB 11 KV UNIT (H02) OPEN	25 Sep 2024 00:01:29:000	25 Sep 2024 00:01:28:000	3.62E+08



Annexure 2: Disturbance recorder snips showing faults and digital signals

ROING PG	Click for SORT with Field Time							VOLTAGE	Click below for SOE and click ALL for all events
Time Fi	eid Thoe 📮	Message	Fre	xm Field Time	From Tim	e Text	ALL	SHOW	FILTER
10/24 14:44:32	17-Oct-2024 09:14:33: 178000000	0 KOING132	107 L0	And the State of Contract of Contract	In Contraction of the	DT SEND CH 2 RST	(III)		
10/24 14:44:32	17-Oct-2024 09:14:33: 128000000	0 KROING132	107 CE	10752(D)	PASIG_ROIN	G) OPEN			
10/24 14:44:32	17-Oct-2024 09:14:33: 128000000	🕕 🌒 🖈 ROING132	107 CE	3 10752(1) 1	PASIG ROIN	G) B PHASE OPEN			
110/24 14:44:32	17-Dct-2024 09:14:33: 127000000	() KOING132	107 CI	3 10752(0 1	PASIG ROIN	G) R PHASE OPEN			
2(10)24 14:44:32	17-Oct-2024-09:14:33: 126000000	C KOING132	107 CI	3 10752(D	PASIG ROIN	G) Y PHASE OPEN			
7/10/24 14:44:32	17-Oct-2024 09:14:33: 146000000	B KROING132	107 B		PASIG RO	ING) OPERATION PER	MITTED		
7/10/24 14:44:32	17-Oct-2024 09:14:33: 146000000	ROING132	107 LI	S 10789L(D	PASIG ROL	NG) OPERATION PERI	MITTED		
17/10/24 14:44:32	17-Oct-2024 09:14:33: 96000000	€ KROING132	107 C	B 10752(D	PASIG ROIN	G) OPERATION NOT I	PERMIT		
17/10/24 14:44:32	17-Oct-2024 09:14:33: 96000000	0 KROING132	107 U	D PASIGHAT	T_LINE	M2 AR BLOCK			
17/10/24 14:44:32	17-0c1-2024 09:14:33: 96000000	0 CO KROING132	107 L	D PASIGHAT	T_LINE	AR UNSUCCESSFUL			
17/10/24 14:44:32	17-Oct-2024 09:14:33: 137000000	B KN KROING132	107 £	D PASIGHAT	LINE	MI DEF PROTN RESET			
17/10/24 14:44:32	17-Oct-2024 09:14:33: 78000000	B C LROING132	107 L	D PASIGHA	T_LINE	OT SEND CH 2	SPAN		
17/10/24 14:44:32	17-0c1-2024 09:14:33; 77000000	🚯 📫 🕽 🗽 ROING132	107 L	D PASIGHA	I_LINE	M1 DEF PROTN OPTD			
17/10/24 14:44:32	17-Oct 2024 09:14:33: 89000000	🚯 🏚 🗼 ROING132	107 L	D PASIGHA	T_LINE	86A TRIP REV OPT			

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



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

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

Date (दिनांक): 03-10-2024

1. Event Summary (घटना का सारांश):

Rengpang area of Manipur Power System was connected with rest of NER Grid through 132 kV

Loktak – Rengpang line. 132 kV Jiribam -Rengpang line was under outage since 18:18 Hrs of 17.11.2023.

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

Power supply was extended to Rengpang area of Manipur Power System by charging 132 kV

Loktak – Rengpang line at 10:56 Hrs on 19-10-2024.

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

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

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

5. Antecedent Conditions (पूर्ववर्ती स्थिति):

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

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

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

- 2. Load and Generation loss (लोड और जेनरेशन हानि): Load loss of 1 MW.
- 3. Duration of interruption (रुकावट की अवधि): 28 min
- 4. <u>Network across the affected area (प्रभावित क्षेत्र का नक्शा):</u>

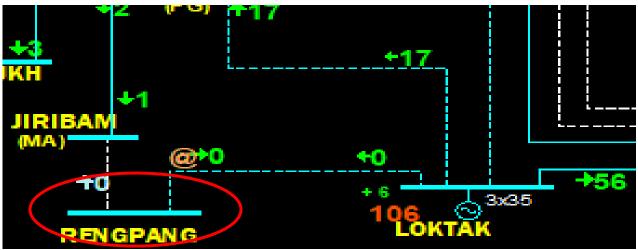


Figure: Network across the affected area

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

6. Major Elements Tripped (प्रमुख ट्रिपिंग):

SI.	नाम	Trip time	Restoration	उप केंद्र 1	उप केंद्र 2
No.		(hh:mm:ss)	time	रिले संकेत	रिले संकेत
1	132 kV Loktak-Rengpang Line	10:28	10.26	DP, ZI, B-N, FD: 32.59 Km	No tripping(radial)

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

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

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

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

• Jungle clearance was done by MSPCL.

10. <u>Non-compliance observed (विनियमन का गैर-अनुपालन):</u>

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

11. Key Lessons Learnt (प्रमुख अधिगम बिंदु):

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

Annexure 1: SOE

AREA	CATEGORY	LOCATION	TEXT	SYSTEM_TIME	FIELD_TIME	MS
MEECL	1C	KILLI_ME	KILLING CB 132Kv LINE-1 TO EPIP1 OPEN	19 Oct 2024 00:50:55:000	19 Oct 2024 00:50:51:000	198000000
MEECL	1C	KILLI_ME	KILLING CB 132Kv LINE-1 TO EPIP1 CLOSED	19 Oct 2024 00:51:02:000	19 Oct 2024 00:51:00:000	263000000
MSPCL	1C	LOKTA_NH	LOKTAK CB 132Kv LINE TO RENGP OPEN	19 Oct 2024 10:28:17:000	19 Oct 2024 00:58:56:000	622000000
MEECL	1C	LESKA_ME	LESKA CB 132 KV UNIT (H03) OPEN	19 Oct 2024 01:03:31:000	19 Oct 2024 01:03:25:000	356000000
NAGALD	1C	NWKOH_KT	NEW KOHIMA(KMTL) CB 405 TIE CB CLOSED	19 Oct 2024 01:17:43:000	19 Oct 2024 01:17:42:000	717000000
MSPCL	1C	LOKTA_NH	LOKTAK CB 132Kv LINE TO RENGP CLOSED	19 Oct 2024 10:56:01:000	19 Oct 2024 01:26:41:000	30700000
MEECL	1C	KILLI_ME	KILLING CB 132Kv LINE-1 TO EPIP1 OPEN	19 Oct 2024 01:31:33:000	19 Oct 2024 01:31:22:000	1400000
MEECL	1C	KILLI_ME	KILLING CB 132Kv LINE-1 TO EPIP1 CLOSED	19 Oct 2024 01:31:40:000	19 Oct 2024 01:31:35:000	663000000

Annexure 2: DR/EL snapshot

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

🚋 📃 Saturday 19 October 2024 10:28:15.249	Any Trip ON
🗄 📃 Saturday 19 October 2024 10:28:15.249	Any Trip A ON
🗄 📃 Saturday 19 October 2024 10:28:15.249	DIST Sig. Send ON
🗄 🚽 Saturday 19 October 2024 10:28:15.249	Z1 ON
🗄 🚽 Saturday 19 October 2024 10:28:15.249	Any Trip B ON
🗄 🚽 Saturday 19 October 2024 10:28:15.249	SOTF/TOR Trip ON
🗄 🚽 Saturday 19 October 2024 10:28:15.249	Output Contacts1
🗄 🚽 Saturday 19 October 2024 10:28:15.249	Any Trip C ON
🗄 🚽 Saturday 19 October 2024 10:28:15.249	3P Trip ON
🗄 🚽 Saturday 19 October 2024 10:28:15.242	DIST Fwd ON
🗄 🚽 Saturday 19 October 2024 10:28:15.242	DIST Start C ON
🗄 🚽 Saturday 19 October 2024 10:28:15.237	Any Start ON
🗄 🚽 Saturday 19 October 2024 10:28:15.237	I>1 Start ON
🖃 🚽 Saturday 19 October 2024 10:28:15.213	I> Start Any C ON

Saturday 19 October 2024 10:28:16.075	Fault Recorded						
Description	NPS JIRIBAM 1						
Plant reference	JIRIBAM 1 LPS						
Model number	P442312B1A0070B						
Address	003 Column:01 Row:00						
Event type	Fault record						
Event Value	0						
Active Group	1						
Faulted Phase	111100						
🖮 Start Elements	0100000000000011						
Tripped Elts	000010000000000000000000000000000000000						
Time Stamp Saturday 19 Octobe	10:28:15.237						
🖮 Fault Alarms	10000000						
System Frequency	50 19 Hz						
Fault Duration	73.18ms Fault clearing time						
Relay Trip Time	79.84ms						
Fault Location	32.59km						
IA	5.797 A						
TR	19 45 A						
IC	1200 A B phase fault						
VAN	/4.03KV						
VBN	68.95kV						
VCN	79.69kV						
Fault Resistance 85.76	Ohm ZI operated						
Fault in Zone Zone	1						



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

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

Date (दिनांक):07-11-2024

1. Event Summary (घटना का सारांश):

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

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

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

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

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

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

5. Antecedent Conditions (पूर्ववर्ती स्थिति):

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

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

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

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

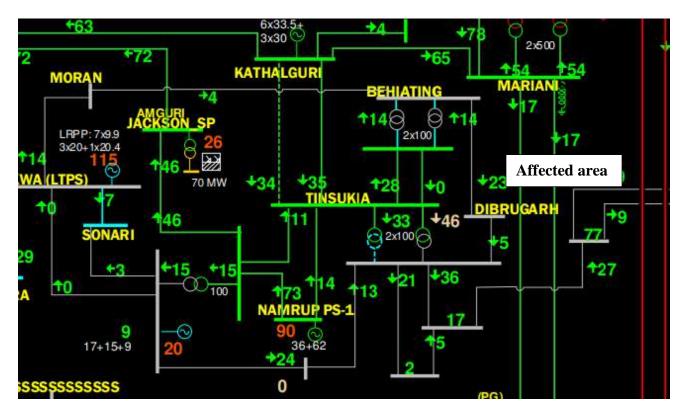


Figure 1: Network across the affected area

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

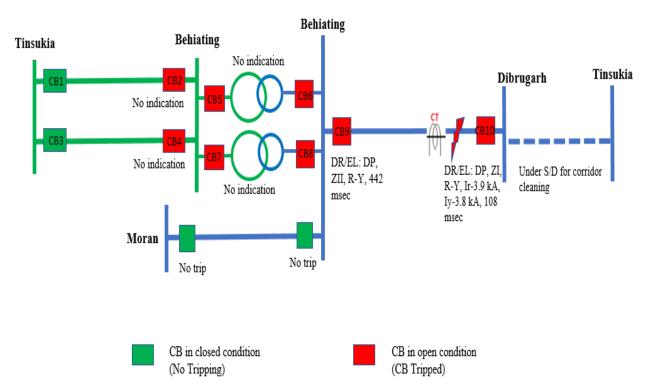
at Jumpers behind CT

6. Major Elements Tripped (प्रमुख ट्रिपिंग):

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

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

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



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

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

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

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

As informed by AEGCL, fault is between CT and Line Isolator $(R\emptyset-Y\emptyset)$ of 132 kV Dibrugarh – Behiating Line.

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

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

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

10. <u>Non-compliance observed (विनियमन का गैर-अनुपालन):</u>

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

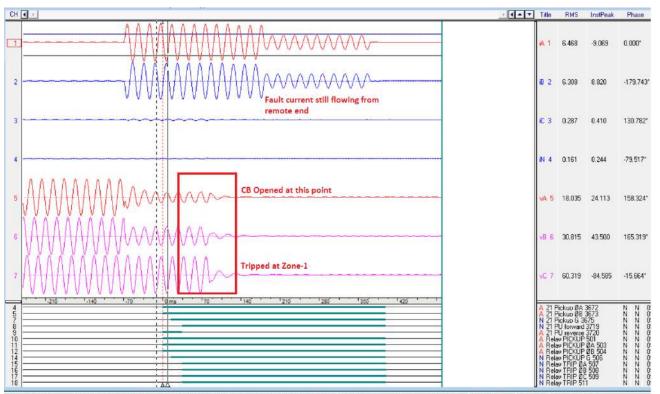
11. Key Lessons Learnt (प्रमुख अधिगम बिंदु):

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

Annexure 1: Sequence of Events as per SCADA

AREA	CATEGORY	LOCATION	TEXT	SYSTEM_TIME	FIELD_TIME	MS
AEGCL	1C	BIHIA_AS	BEHIATING CB 132Kv LINE TO DIBRU OPEN	28 Oct 2024 09:06:04:000	28 Oct 2024 09:05:53:000	783000000
AEGCL	1C	BIHIA_AS	BEHIATING CB 220 KV COUPLER (BC) OPEN	28 Oct 2024 09:05:57:000	28 Oct 2024 09:05:53:000	591000000
AEGCL	1C	BIHIA_AS	BEHIATING CB 220Kv LINE-1 TO TINSU OPEN	28 Oct 2024 09:05:57:000	28 Oct 2024 09:05:53:000	592000000
AEGCL	1C	BIHIA_AS	BEHIATING CB 220/132 T1 (PRIM) OPEN	28 Oct 2024 09:05:57:000	28 Oct 2024 09:05:53:000	595000000
AEGCL	1C	BIHIA_AS	BEHIATING CB 220/132 T2 (PRIM) OPEN	28 Oct 2024 09:05:57:000	28 Oct 2024 09:05:53:000	59000000
AEGCL	1C	DIBRU_AS	DIBRUGARH CB 132Kv LINE TO BIHIA OPEN	28 Oct 2024 09:06:02:000	28 Oct 2024 09:05:57:000	636000000
AEGCL	1C	DIBRU_AS	DIBRUGARH CB 132/33 T1 (PRIM) OPEN	28 Oct 2024 09:08:13:000	28 Oct 2024 09:08:08:000	376000000
AEGCL	1C	KOPIL_NO	KOPILI CB 132Kv LINE-1 TO KHLEI CLOSED	28 Oct 2024 09:30:28:000	28 Oct 2024 09:30:27:000	6000000
AEGCL	1C	JAWHR_AS	JAWHARNAGAR CB 220/33 T1 (PRIM) OPEN	28 Oct 2024 09:31:51:000	28 Oct 2024 09:31:47:000	398000000
AEGCL	1C	BIHIA_AS	BEHIATING CB 220Kv LINE-1 TO TINSU CLOSED	28 Oct 2024 09:33:56:000	28 Oct 2024 09:33:50:000	691000000
MEECL	1C	LESKA_ME	LESKA CB 132 KV UNIT (H03) CLOSED	28 Oct 2024 09:39:36:000	28 Oct 2024 09:39:09:000	447000000
MEECL	1C	LESKA_ME	LESKA CB 132 KV UNIT (H03) OPEN	28 Oct 2024 09:41:24:000	28 Oct 2024 09:41:08:000	22000000
AEGCL	1C	BIHIA_AS	BEHIATING CB 220/132 T1 (PRIM) CLOSED	28 Oct 2024 09:41:31:000	28 Oct 2024 09:41:17:000	716000000
MEECL	1C	LESKA_ME	LESKA CB 132 KV UNIT (H03) CLOSED	28 Oct 2024 09:41:35:000	28 Oct 2024 09:41:21:000	623000000
MEECL	1C	LESKA_ME	LESKA CB 132 KV UNIT (H03) OPEN	28 Oct 2024 09:41:47:000	28 Oct 2024 09:41:38:000	453000000
AEGCL	1C	DIBRU_AS	DIBRUGARH CB 132Kv LINE TO BIHIA CLOSED	28 Oct 2024 09:42:03:000	28 Oct 2024 09:41:55:000	638000000
AEGCL	1C	DIBRU_AS	DIBRUGARH CB 132/33 T2 (PRIM) CLOSED	28 Oct 2024 09:43:33:000	28 Oct 2024 09:43:24:000	823000000
AEGCL	1C	BIHIA_AS	BEHIATING CB 220/132 T2 (PRIM) CLOSED	28 Oct 2024 09:48:31:000	28 Oct 2024 09:48:26:000	26000000
MEECL	1C	GANOL_ME	GANOL SHEP CB 132 KV UNIT (H01) OPEN	28 Oct 2024 09:49:46:000	28 Oct 2024 09:49:41:000	80300000

Annexure 2: DR snapshot 2.1 DR snapshot of Dibrugarh end for 132 kV Behiating-Dibrugarh Line



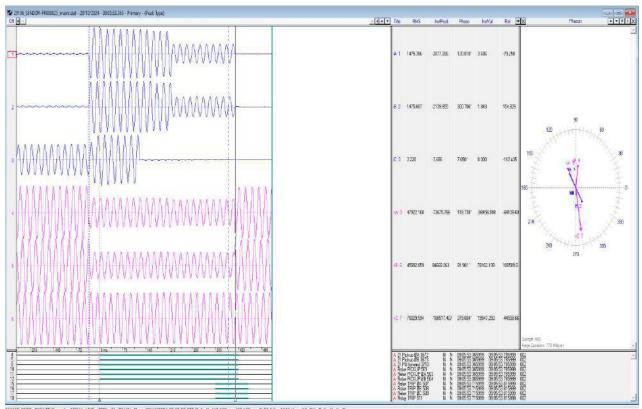
100200 AEGCL Dibrugash / 132KV 132KVLn1 Dibru-Beh CRP3 FDR 21 75A6 Mon - 28/10/2024 09:05:53.412000 Delta X: 9.000 ms (0.450 cvc @ 50.00 hz) fs: 1000 Hz AS: Units Delta Y: 10.617 A

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

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

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

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

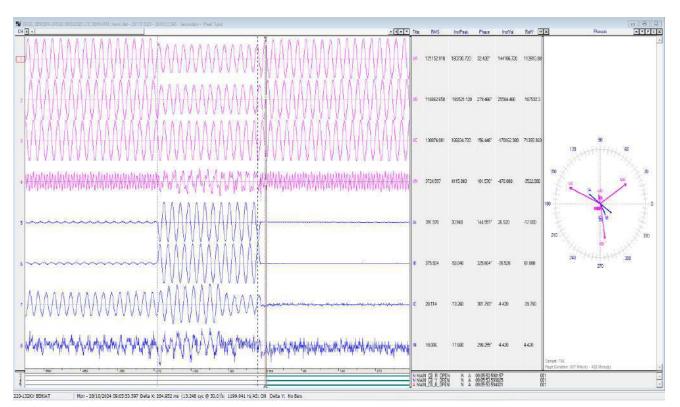


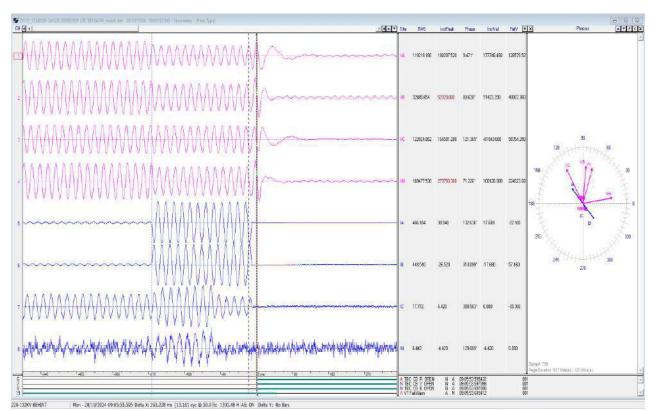
000163 AEGCL_BIHIATDVG ctp 1 - 132kV - LINE 0891 21_254601 Hot - 28/10/2024 09:05:53:775 Deta X: 442.000 mt (22.100 ctp: 0-50.0/is: 1000 Hz AS: ON Deta Y: No Ban

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

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

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





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

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

4	> ([A] 7	T Ris	RVS	IncPeal.	Phase	in:Nal	θX	Phason A T
		94.1	42.825	53.040	28.045	-26.520	39	
		81	296%	53.848	179.331*	44.200	35.	
mannanan	and the second	£1	5.338	8.940	224.59E*	-8.940	4.4	
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n provide a provident and the second	ndurter an angewerke provide and the second strain and attended to a second strain strain and the	62	0.863	2.466	248.045*	0.000	8.8	
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	and the second sec	W.G	72102	67.821	177.625*	64,623	64.	80 100 - 100
	and the second sec	69	69.163	-92.792	14,339*	62.966	57	285 1785
mmmmmmmmm-		63	5.639	6.628	49.751*	-3.314	1.5	150 3
por any particular and a second par	wanter and provide the provided the second work of the rest of the provided the second s	N 3	0.718	1.857	98.375'	0.000	16	
		IA CIFF	8.010	100	295.7051	0.005	0.0	4 1
		8 OFF	8.013	0.014	45.000*	0.014	8.0	1
	~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~	100FF	0.004	0.009	14639*	0.109	8.0	2 3 3
N		IA Et4S	1.897	2.096	277.841*	0.207	8.2	210 2
Y		16-80AS	1.836	2.728	277,243*	0.191	0.1	
		10.81AS	8.072	0102	273.529*	0.007	0.0	240 300
		LizPEF D FF-IN	4.485	7 365	291.106*	1.473	1;4	270
		LOTREFEIAS HV	249.634	368 250	378.887*	26.514	28.	
		LOTREFDIFFLY	12954	13,258	315,000*	13.258	13.	
	and many the second	LISZREF BIAS LV	414.429	613.275	277.223*	45.305	45.	
	month water and the	Lozher Off-TV	0.650	0.276	118.094*	0.829	8.8	
		EXCREFIELAS-TV.	0.952	0552	56,528*	0.352	85	
	- MAR I P. M. WAY AND IN P. A. P. P. S. M. M. M.	YH .	14,240	17.440	307.002"	17,440	-17	
		Fequency	50.010	50.010	116A	50.010		nu# 108
	1.2							e Dundur: 537 MB(a) = 125 Mica(a)

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

1		+ 4 - 7	îte	RMS	InsPeak	Phase	Instial	97	X Practs I
	hannananah	1	164	139.052	-61,880	358,151*	-39,760	4.4	
			64	128.351	57,400	169.340"	26.520	43	
λαλαλλαλα	mmmm		D4	14.464	4.420	156.502*	4.420	35	
american interview on our fundation and provident states	mula physican had a surprise and more him	and market and the second of t	164	3720	4.420	349.556*	4.420	44	
		and a serie suger and a serie of the second second on the second s		0.009	0.003	41.728	-0.003	80	
		a fran se wind for a state of the for the for the state of the for the state of the		0.003	0.003	49.746*	0.003	0.0	
		the operation of the second and the second and the second s		0.003	9.008	358.535*	0.000	0.0	
		and have we we we have the providence of the second second		0.003	0.000	113,765*	0.003	0.0	
and a reaction of the second			18-3	229,692	87.82i	167.715	67.337	-23.	90
	<u> </u>		B-3	214,687	-69.478	350.523*	-53.024	12	120
MMMMMM	maaaaa		10-9	24,005	1.657	339.276*	0.000	-73	101
		an have a second of the second of a standard and a second and	N-2	1.942	1.857	182.577*	-1 657	0.0	E X
			NA-DIFF	0.019	0.025	247,859'	0.009	0.0	-f 200
			6-DIFF	0.021	0.025	233.925*	0.000	0.0	180
and the the second	mannen		IC-DIFF	0.005	0.005	335.254*	0.008	80	F 1
	/		IA-BAS	2.087	2.838	274,258*	0.412	0.1	210
	X	<u></u>	15-BIAS	2.015	2.737	274.454*	0.373	0.1	
	i~i		IC-BIAS	0.085	0.110	263:303*	0.039	0.1	240 44444447 300
			Lozpef-OPF-HV	9.798	13 257	295.9711	4,419	8.9	270
	×		L&FEF-BIASHN	276.357	374.142	274.391*	53.028	20.	
			LAZFEFOIFFUV	9.041	6.629	189.252*	11.600	9.3	
			LAZFEFEIAGLV	456.751	619.905	274.367*	s <b>7</b> .295	22	
mann	manmant	man man man	LAZFEF DIFF-TV	0.708	0.149	103.344*	0.833	0.2	
monum	man	mummers	Lozfef 8145-TV	0.320	0.142	86.725*	0.457	0.1	
WALKAN AN AN AN AN	AMARAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA	5 1, to by notice they that	Ve	7.120	17.449	304.868*	0.000	0.0	
1			Fiequency	50.015	50,015	NIA	50.015	50.	
1.440 1.440 1.340	5770 · 188 · 40	0 ms. 100 1200	A HV T CB OPEN		09.05.53.6				Sarg# 206 Page Danitor: 507 Wis(s) - 125 Wis(s)



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

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

Date (दिनांक): 05-11-2024

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

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

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

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

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

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

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

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

# 5. Antecedent Conditions (पूर्ववर्ती स्थिति):

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

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

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

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

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

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

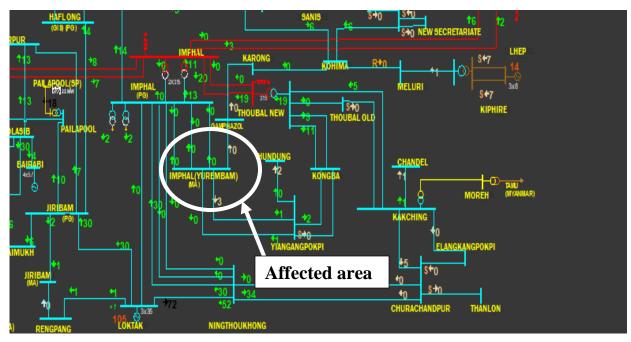


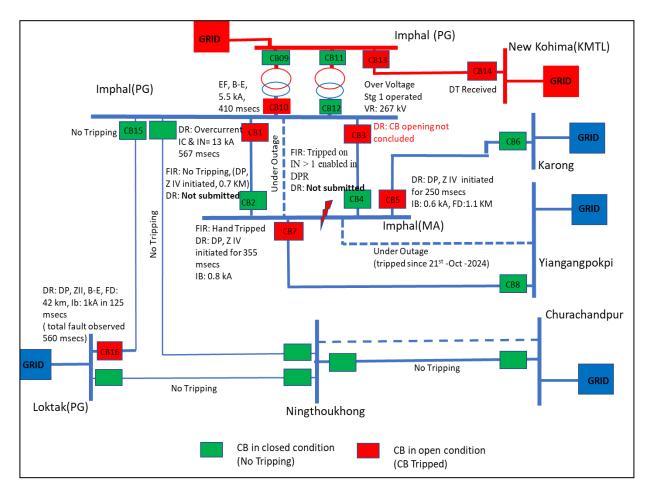
Figure: Network across the affected area

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

# 6. Major Elements Tripped (प्रमुख ट्रिपिंग):

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

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



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

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

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

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

# 10. <u>Non-compliance observed (विनियमन का गैर-अनुपालन):</u>

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

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

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

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

# **Annexure 1: SOE**

AREA	CATEGORY	LOCATION	TEXT	SYSTEM_TIME	FIELD_TIME	MS
MEECL	1C	KHLEI_ME	KHLEIHRIAT CB 132Kv LINE-2 TO LESKA CLOSED	28 Oct 2024 14:04:03:000	28 Oct 2024 13:04:40:000	6.09E+08
TSECL	1C	AGART_NO	AGARTALA CB 11 KV UNIT (G01) OPEN	28 Oct 2024 13:07:48:000	28 Oct 2024 13:07:46:000	1.13E+08
MSPCL	1C	LOKTA_NH	LOKTAK CB 132Kv LINE-1 TO IMPHA OPEN	28 Oct 2024 13:30:41:000	28 Oct 2024 13:24:16:000	4.8E+08
AEGCL	1C	LANKA_AS	LANKA (S.NAGAR) CB 132Kv LINE TO DIPHU CLOSED	28 Oct 2024 13:27:20:000	28 Oct 2024 13:27:16:000	6.61E+08
MSPCL	1C	NINGT_MA	NINGTHOUKHONG CB 132/33 T1 (PRIM) OPEN	28 Oct 2024 13:30:55:000	28 Oct 2024 13:30:39:000	4E+08
MSPCL	1C	IMPHA_MA	IMPHAL(YUREMBAM) CB 132Kv LINE-1 TO KARON OPEN	28 Oct 2024 13:30:44:000	28 Oct 2024 13:30:39:000	5.01E+08
MSPCL	1C	IMPHA_MA	IMPHAL(YUREMBAM) CB 132Kv LINE-1 TO IMPHA OPEN	28 Oct 2024 13:30:49:000	28 Oct 2024 13:30:39:000	6.33E+08
NAGALD	1C	DIMAP_NA	DIMAPUR NAGARJAN CB 66Kv LINE-1 TO SINJN OPEN	28 Oct 2024 13:30:42:000	28 Oct 2024 13:30:39:000	5.06E+08
MSPCL	1C	IMPHA_PG	IMPHAL CB TIE CB 400/132 ICT 1 OPEN	28 Oct 2024 13:30:39:000	28 Oct 2024 13:30:39:000	5.26E+08
MSPCL	1C	IMPHA_PG	IMPHAL CB MAIN CB 400/132 ICT 1 OPEN	28 Oct 2024 13:30:39:000	28 Oct 2024 13:30:39:000	5.25E+08
MSPCL	1C	IMPHA_PG	IMPHAL CB 400/132 T4 (SEC) OPEN	28 Oct 2024 13:30:39:000	28 Oct 2024 13:30:39:000	5.3E+08
MSPCL	1C	KAKCH_MA	KAKCHING CB 132/33 T2 (PRIM) OPEN	28 Oct 2024 13:30:49:000	28 Oct 2024 13:30:40:000	1.56E+08
MSPCL	1C	YIANG_MA	YIANGANGPOKPI CB 132Kv LINE-1 TO IMPHA BETWEEN	28 Oct 2024 13:30:49:000	28 Oct 2024 13:30:41:000	4.66E+08
MSPCL	1C	IMPHA_PG	IMPHAL CB Kohim1 CB OPEN	28 Oct 2024 13:30:55:000	28 Oct 2024 13:30:45:000	1.1E+08
NAGALD	1C	NWKOH_KT	NEW KOHIMA(KMTL) CB 402 TIE CB OPEN	28 Oct 2024 13:30:55:000	28 Oct 2024 13:30:45:000	1.49E+08
NAGALD	1C	NWKOH_KT	NEW KOHIMA(KMTL) CB MN CB IMP-1 OPEN	28 Oct 2024 13:30:55:000	28 Oct 2024 13:30:45:000	1.5E+08
MSPCL	1C	IMPHA_PG	IMPHAL CB Kohim1 CB OPEN	28 Oct 2024 18:10:35:000	28 Oct 2024 13:30:45:000	1.1E+08
TSECL	1C	BADHA_TE	BADHARGHAT CB 66Kv LINE-1 TO GKNGR CLOSED	28 Oct 2024 15:57:13:000	28 Oct 2024 14:56:43:000	5800000
MSPCL	1C	LOKTA_NH	LOKTAK CB 132Kv LINE-1 TO IMPHA CLOSED	28 Oct 2024 15:07:10:000	28 Oct 2024 15:00:44:000	8.78E+08
MIZORM	1C	ZUANG_MI	ZUANGTUI CB 132Kv LINE TO SERCH CLOSED	28 Oct 2024 16:04:15:000	28 Oct 2024 15:04:58:000	4.66E+08
AEGCL	1C	MYNT2_AS	MYNTRIANG II CB 3.3 KV UNIT (G3) CLOSED	28 Oct 2024 15:12:35:000	28 Oct 2024 15:12:30:000	8000000
AEGCL	1C	SNESP_AS	STRCEM NE LTD SP CB 220Kv LINE TO SONAP CLOSED	28 Oct 2024 17:41:09:000	28 Oct 2024 17:41:04:000	7.21E+08
MSPCL	1C	IMPHA_MA	IMPHAL(YUREMBAM) CB 132Kv LINE-1 TO YIANG CLOSED	28 Oct 2024 17:41:52:000	28 Oct 2024 17:41:45:000	3.56E+08
MSPCL	1C	YIANG_MA	YIANGANGPOKPI CB 132Kv LINE-1 TO IMPHA CLOSED	28 Oct 2024 17:42:27:000	28 Oct 2024 17:42:20:000	6.85E+08

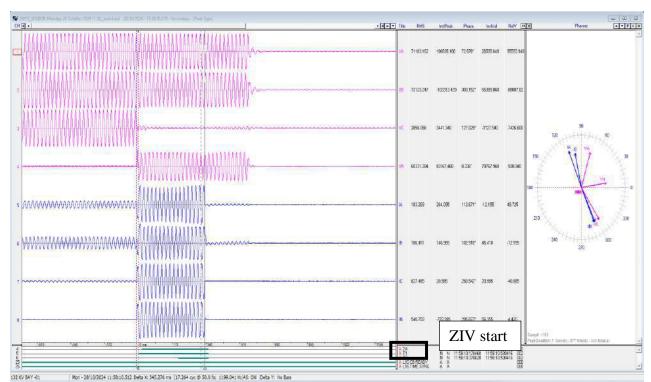
# Annexure 2: Disturbance recorder snips showing faults and digital signals

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

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

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

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

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

2.6 DR Snapshot of Imphal(PG) for 400 kV Imphal(P(

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28/10/2024 13:30:45.119	KOHIMA.400KV.B403_IMP HAL LINE-1.AR FUNCTION.BLOCK	KOHIMA.400KV.B4 03_IMPHAL LINE- 1.AR FUNCTION	BLOCK	RESET -> OPERATED	STAT E_CH ANG E	i	cBSig	B40: 1	зкон		NOT SUPPORTED
28/10/2024 13:30:45.118	KOHIMA.400KV.B402_TIE. AR FUNCTION.BLOCK	KOHIMA.400KV.B4 02_TIE.AR FUNCTION	BLOCK	RESET -> OPERATED	STAT E_CH ANG E	1	cBSig	B403	2TIE		NOT SUPPORTED
28/10/2024 13:30:45.118	KOHIMA.400KV.R403_P44 4_21M1.INPUTS.86A SUPERVISION	KOHIMA.400KV.R4 03_P444_21M1.INP UTS	86A SUPERVISION	HEALTHY -> UNHEALTHY	STAT E_CH ANG E	i	cBSig	R40 1	321M		NOT SUPPORTED
28/10/2024 13:30:45.118	KOHIMA.400KV.R403_P14 1_50BF.INPUTS.LBB INITIATION (86A/86B) 3- PH	KOHIMA.400KV.R4 03_P141_50BF.INP UTS		RESET -> OPERATED	STAT E_CH ANG E	i	cBSig	R40 F	350B		NOT SUPPORTED
28/10/2024 13:30:45.118	KOHIMA.400KV.R402_P14 1_50BF.INPUTS.LBB INITIATION (86A/86B) 3- PH	KOHIMA.400KV.R4 02_P141_50BF.INP UTS		RESET -> OPERATED	STAT E_CH ANG E	i	cBSig	R40 F	250B		NOT SUPPORTED
28/10/2024 13:30:45.117	KOHIMA.400KV.R403_P44 4_21M1.INPUTS.DIRECT TRIP CH-1	KOHIMA.400KV.R4 03_P444_21M1.INP UTS	DIRECT TRIP CH-1	NORMAL -> RECEIVED	STAT E_CH ANG E	i	cBSig	R40 1	321M		NOT SUPPORTED
28/10/2024 13:30:45.116	KOHIMA.400KV.R403_D60 _21M2.INPUTS.86B	KOHIMA.400KV.R4 03_D60_21M2.INP UTS	86B	RESET -> OPERATED	STAT E_CH ANG E	i	cBSig	R40 2	321M		NOT SUPPORTED
28/10/2024 13:30:45.112	KOHIMA.400KV.B403_IMP HAL LINE-1.52.86B SUPERVISION	KOHIMA.400KV.B4 03_IMPHAL LINE- 1.52	86B SUPERVISION	HEALTHY -> UNHEALTHY	STAT E_CH ANG E	i	cBSig	B40: 1	зкон		NOT SUPPORTEE
28/10/2024 13:30:39.688	KOHIMA.400KV.R406_P44 4_21M1.PROTECTION.DI RECTIONAL E/F START	KOHIMA.400KV.R4 06_P444_21M1.PR OTECTION	DIRECTIONAL E/F START	OPERATED -> RESET	STAT E_CH ANG E	1	cBSig	R40 1	621M		NOT SUPPORTEE
28/10/2024 13:30:39.685	KOHIMA.400KV.R403_P44 4_21M1.PROTECTION.DI RECTIONAL E/F START	KOHIMA.400KV.R4 03_P444_21M1.PR OTECTION	DIRECTIONAL E/F START	OPERATED -> RESET	STAT E_CH ANG E	i	cBSig	R40 1	321M		NOT SUPPORTEE
28/10/2024 13:30:39.128	KOHIMA.400KV.R403_P44 4_21M1.PROTECTION.DI RECTIONAL E/F START	KOHIMA.400KV.R4 03_P444_21M1.PR OTECTION	DIRECTIONAL E/F START	RESET -> OPERATED	STAT E_CH ANG E	i	cBSig	R40 1	321M		NOT SUPPORTED
28/10/2024 13:30:39.127	KOHIMA.400KV.R406_P44 4_21M1.PROTECTION.DI RECTIONAL E/F START	KOHIMA.400KV.R4 06_P444_21M1.PR OTECTION	DIRECTIONAL E/F START	RESET -> OPERATED	STAT E_CH ANG E	i	cBSig	R40 1	621M		NOT SUPPORTEE

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

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

🛓 👡 Monday 28 October 2024 13:30:39.677 Monday 28 October 2024 13:30:39.677 • Monday 28 October 2024 13:30:39.659 • Monday 28 October 2024 13:30:39.626 Monday 28 October 2024 13:30:39.624 🛓 📃 Monday 28 October 2024 13:30:39.624 🛓 📃 Monday 28 October 2024 13:30:39.624 🛓 📃 Monday 28 October 2024 13:30:39.624 Monday 28 October 2024 13:30:39.624 🛓 🔣 Monday 28 October 2024 13:30:39.624 🛓 🔣 Monday 28 October 2024 13:30:39.624 Monday 28 October 2024 13:30:39.624 🛓 📃 Monday 28 October 2024 13:30:39.624 🛓 📃 Monday 28 October 2024 13:30:39.549 🛓 📃 Monday 28 October 2024 13:30:39.540 Monday 28 October 2024 13:30:39.475 🛓 🔣 Monday 28 October 2024 13:30:39.475 🛓 🔣 Monday 28 October 2024 13:30:39.143 🛓 😡 Monday 28 October 2024 13:30:39.142 🛓 📃 Monday 28 October 2024 13:30:39.140 🛓 📃 Monday 28 October 2024 13:30:39.137 Monday 28 October 2024 13:30:39.137 Monday 28 October 2024 13:30:39.137 Monday 28 October 2024 13:30:39.128 image: Monday 28 October 2024 13:30:39.127 🛓 📃 Monday 28 October 2024 13:30:39.127 🛓 📃 Monday 28 October 2024 13:30:39.127 • Monday 28 October 2024 13:30:39.118

Z2 OFF DIST Start C OFF Logic Inputs 1 AR Lockout Shot> ON DIST Trip C ON Any Trip ON DIST Trip A ON DIST Trip B ON Any Trip A ON 3P Trip ON Output Contacts1 Any Trip B ON Any Trip C ON Z2 ON **Z3 OFF** A/R Trip 3P ON A/R Lockout ON TOC Start C ON I>1 Start ON V< Start Any B ON IN>1 Start ON V< Start Any C ON V<2 Start ON **Z3 ON** Any Start ON DIST Fwd ON DIST Start C ON I> Start Any C ON



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

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

Date (दिनांक): 05-11-2024

1. Event Summary (घटना का सारांश):

Rengpang area of Manipur Power System was connected with rest of NER Grid through 132 kV

Loktak – Rengpang line. 132 kV Jiribam -Rengpang line was under outage since 18:18 Hrs of 17.11.2023.

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

Power supply was extended to Rengpang area of Manipur Power System by charging 132 kV

Loktak – Rengpang line at 23:27 Hrs on 29-10-2024.

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

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

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

5. Antecedent Conditions (पूर्ववर्ती स्थिति):

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

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

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

- 2. Load and Generation loss (लोड और जेनरेशन हानि): Load loss of 1 MW.
- 3. Duration of interruption (रुकावट की अवधि): 1 Hr 1 min
- 4. <u>Network across the affected area (प्रभावित क्षेत्र का नक्शा):</u>

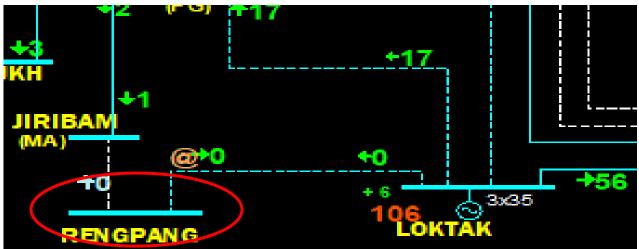
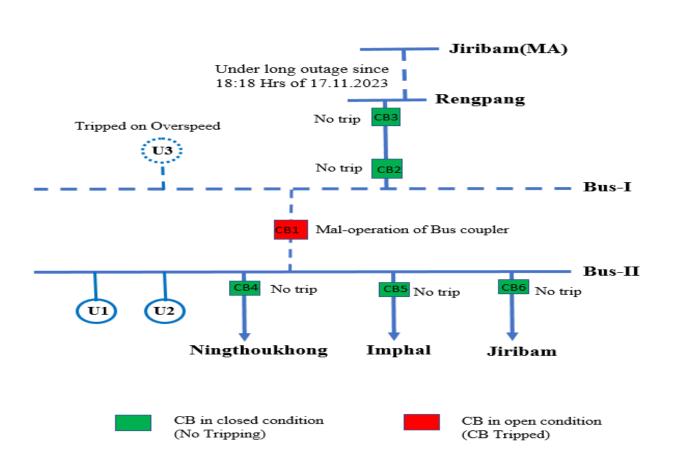


Figure: Network across the affected area

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

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

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



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

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

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

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

10. <u>Non-compliance observed (विनियमन का गैर-अनुपालन):</u>

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

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

11. Key Lessons Learnt (प्रमुख अधिगम बिंदु):

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

Annexure 1: SOE

AREA	CATEGORY	LOCATION	TEXT	SYSTEM_TIME	FIELD_TIME	MS
TSECL	1C	UDAIP_TE	UDAIPUR CB 132Kv LINE-1 TO MONAR OPEN	29 Oct 2024 12:58:02:000	29 Oct 2024 12:56:20:000	332000000
TSECL	1C	MONAR_TE	MONARCHAK CB 132Kv LINE-1 TO UDAIP INVALID	29 Oct 2024 12:57:06:000	29 Oct 2024 12:56:49:000	407000000
MSPCL	1C	LOKTA_NH	LOKTAK CB 11 KV UNIT (H03) OPEN	29 Oct 2024 22:26:29:000	29 Oct 2024 12:57:09:000	76000000
AEGCL	1C	BALIP_PG	BALIPARA CB CB BNC 1 & MISA 1 CLOSED	29 Oct 2024 13:14:48:000	29 Oct 2024 13:14:37:000	559000000
AEGCL	1C	KOPIL_NO	KOPILI CB 11 KV UNIT (H04) CLOSED	29 Oct 2024 13:56:04:000	29 Oct 2024 13:56:02:000	90000000
MSPCL	1C	LOKTA_NH	LOKTAK CB 132Kv LINE TO RENGP CLOSED	29 Oct 2024 23:27:33:000	29 Oct 2024 13:58:13:000	13000000
AEGCL	1C	KOPIL_NO	KOPILI CB 220/132 T1 (PRIM) BETWEEN	29 Oct 2024 13:59:54:000	29 Oct 2024 13:59:52:000	560000000
MEECL	1C	MAWLA_ME	MAWLAI CB 132/33 T2 (PRIM) CLOSED	29 Oct 2024 14:12:33:000	29 Oct 2024 14:12:24:000	1000000
MEECL	1C	MAWLA_ME	MAWLAI CB 132/33 T2 (PRIM) OPEN	29 Oct 2024 14:12:45:000	29 Oct 2024 14:12:38:000	132000000
MSPCL	1C	LOKTA_NH	LOKTAK CB 11 KV UNIT (H03) CLOSED	29 Oct 2024 23:43:48:000	29 Oct 2024 14:14:29:000	522000000
TSECL	1C	ROKHI_TE	ROKHIA CB 132 KV COUPLER (10) BETWEEN	29 Oct 2024 14:17:49:000	29 Oct 2024 14:17:35:000	446000000
TSECL	1C	ROKHI_TE	ROKHIA CB 132Kv LINE-1 TO MONAR BETWEEN	29 Oct 2024 14:17:49:000	29 Oct 2024 14:17:37:000	26000000
ARUNCH	1C	PARE_NO	PARE CB 11 KV UNIT (G01) OPEN	29 Oct 2024 22:04:49:000	29 Oct 2024 22:04:42:000	770000000
MSPCL	1C	LOKTA_NH	LOKTAK CB 132 KV COUPLER (05) OPEN	29 Oct 2024 22:26:27:000	29 Oct 2024 22:25:49:000	744000000
MSPCL	1C	LOKTA_NH	LOKTAK CB 132/11 T1 (PRIM) CLOSED	29 Oct 2024 22:26:29:000	29 Oct 2024 22:25:51:000	39000000
MSPCL	1C	LOKTA_NH	LOKTAK CB 132/11 T1 (PRIM) BETWEEN	29 Oct 2024 22:26:58:000	29 Oct 2024 22:26:20:000	827000000