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Agenda for 67th PCCM



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

North Eastern Regional Power Committee

Agenda for

67th Protection Coordination Sub-Committee Meeting

Date: 16/05/2024 (Thursday)

Time: 11:30 hrs

Venue: NERPC conference Hall, Shillong

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

1. CONFIRMATION OF MINUTES OF THE 66th PROTECTION SUB-COMMITTEE MEETING OF NERPC.

Minutes of the 66th PCC Meeting held on 23rd April, 2024 (Tuesday) at NERPC Conference Hall, Shillong was circulated vide letter No.: NERPC/SE (O)/PCC/2023/342-383 dated 8th May, 2024.

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

The Sub-committee may confirm the minutes of 66th PCCM

B. ITEMS FOR DISCUSSION

B.1 Protection Audit of NER:

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

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

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.

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

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 65th PCCM, the following was discussed regarding audit schedules -

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

In 66th PCCM, following points were discussed -

Regarding audit of substations of Nagaland (Dimapur, Kohima, Sanis, Wokha, Mokokchung) and substations of NERTS in (Mokokchung, Dimapur and New Mariani), Member Secretary, NERPC stated that the audit can be conducted between 1st and 3rd May'24.

Regarding schedules of internal and third-party protection audit –

1. NERLDC informed that NEEPCO, Meghalaya and NERTS have provided the audit schedule for internal as well as external audit in the google spreadsheet
2. NTPC stated that external audit of BGTPP will be carried out in June'24.
3. AEGCL representative stated that third party audit will be planned after completion of internal audit in June'24. The forum requested Assam to share internal audit report to NERPC and also plan third party audit as early as possible and update the google spreadsheet with schedules of internal as well as third party audit
4. MS, NERPC strongly urged all other constituents to provide the schedules of internal and external protection audits at the earliest.

Sub-committee may deliberate

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

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

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

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

In 65th PCCM, MePTCL updated that a revised list of prioritized substations which includes 18 substations has been submitted to NERPC. Member Secretary, NERPC Stated that conducting audit by NEPRC team at these 18 substations may not be feasible and advised MePTCL to send a list of 4-5 substations for which protection audit may be conducted by NERPC.

Also, in 65th PCCM, AEGCL requested NERPC to conduct audit at the substations as SCADA system and relay system are obsolete at the substations and PSDF funding is required for the renovation of the systems. NERLDC highlighted that the Karim Ganj GSS is less than 10 years old so it may not be eligible for PSDF funding. After detailed deliberation, NERPC decided that protection audit of JawaharNagar, KLHEP and Gauripur substations of Assam will tentatively be carried out in 1st week of May'24

In 66th PCCM following points were discussed

Meghalaya

MePTCL updated that a list of 5 substations where third party protection audit has to be urgently carried out will be shared to NERPC within a week.

Assam

MS, NERPC stated that audit of Jawaharnagar GIS, KLHEP GSS and Gauripur GSS may be conducted by NERPC by end of May'24. NERTS added that audit of Misa SS may be clubbed with that of KLHEP and audit of Salakati SS may be clubbed with Gauripur SS due to physical proximity. The forum agreed for the same.

Sub-committee may deliberate

B.3 Detailed system study to review the protection settings of NER grid as per IEGC 2023

As per regulation 14(1) of IEGC 2023, “RPCs shall undertake review of the protection settings, assess the requirement of revisions in protection settings and revise protection settings in consultation with the stakeholders of the respective region, from time to time and at least once in a year. The necessary studies in this regard shall be carried out by the respective RPCs. The data including base case (peak and off-peak cases) files for carrying out studies shall be provided by RLDC and CTU to the RPCs”

In this regard, each State has to carry out the detailed system of their grid, once a year, in order to holistically overview the protection settings in the State and present the study report to NERPC and NERLDC. States may use the PDMS and PSCT software platforms to carry out the studies.

In 66th PCCM, NERPC stated that the States may carry out the necessary studies by using the PSCT and PDMS software of M/s PRDC.

Assam stated that for training of the software is required to impart necessary skills to the personnel of the State.

PRDC representative assured that necessary training session will be conducted for all the States. He, further highlighted that before carrying out the studies Protection settings database of the software has to be updated.

MS, NERPC directed M/s PRDC to update the database in coordination with NERPC, NERLDC and concerned utilities.

NERLDC highlighted the need to update the database in PDMS software from time to time and also requested PRDC team to model the entire power system of NER in PSCT tool for setting calculation considering recent network changes.

States further requested that a user manual of the PSCT and PDMS software may be provided for easy reference during carrying out the studies. M/S PRDC assured to provide the same at the earliest.

Sub-committee may deliberate

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

TABLE 8 : REPORT SUBMISSION TIMELINE

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

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

The forum may deliberate upon the GD/GI/Near miss events that occurred in April 2024 based on the draft reports prepared by NERLDC. The list of events and draft report of NERLDC is attached as **Annexure B.4**

Sub-committee may deliberate

Agenda items from NERLDC**B.5 Status of submission of FIR, DR & EL outputs for the Grid Events for the month of April'2024**

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

Status of uploading of FIR, DR & EL outputs in Tripping Monitoring Portal for events from 01-04-2024 to 30-04-2024 as on **09-05-2024** is given below:

Name of Utility	Total FIR/ DR/EL to be submitted	Total FIR to be submitted			Total FIR, DR & EL submitted			% Submission of		
		FIR	DR	EL	FIR	DR	EL	FIR	DR	EL
DoP, Arunachal Pradesh	20	20	20	20	20	17	19	100	100	100
DEPL	0	-	-	-	-	-	-	-	-	-
AEGCL	114	114	105	107	110	7	65	96	99	96
APGCL	3	3	3	3	0	0	0	0	0	0
MSPCL	66	66	64	64	64	23	26	97	58	58
MePTCL	61	61	59	57	60	56	56	98	98	98
MePGCL	27	27	27	27	19	20	16	70	74	59
P&ED, Mizoram	7	7	7	7	3	2	2	43	29	29
DoP, Nagaland	38	38	38	38	38	27	27	100	100	100
TSECL	38	38	38	38	34	32	34	89	89	89
TPGCL	7	7	7	7	0	0	0	0	0	0
POWERGRID	163	163	157	154	162	153	146	99	99	99
NEEPCO	52	52	48	50	37	33	32	71	69	64
NHPC	11	11	11	11	9	9	8	82	91	82
NTPC	0	0	0	0	0	0	0	-	-	-
ERTS	4	4	4	4	0	0	0	0	0	0
OTPC	8	8	8	3	8	8	2	100	100	67
NTL	15	15	13	13	15	13	13	100	100	100
MUML	-	-	-	-	-	-	-	-	-	-
KMTL	1	1	1	1	1	1	1	100	100	100

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

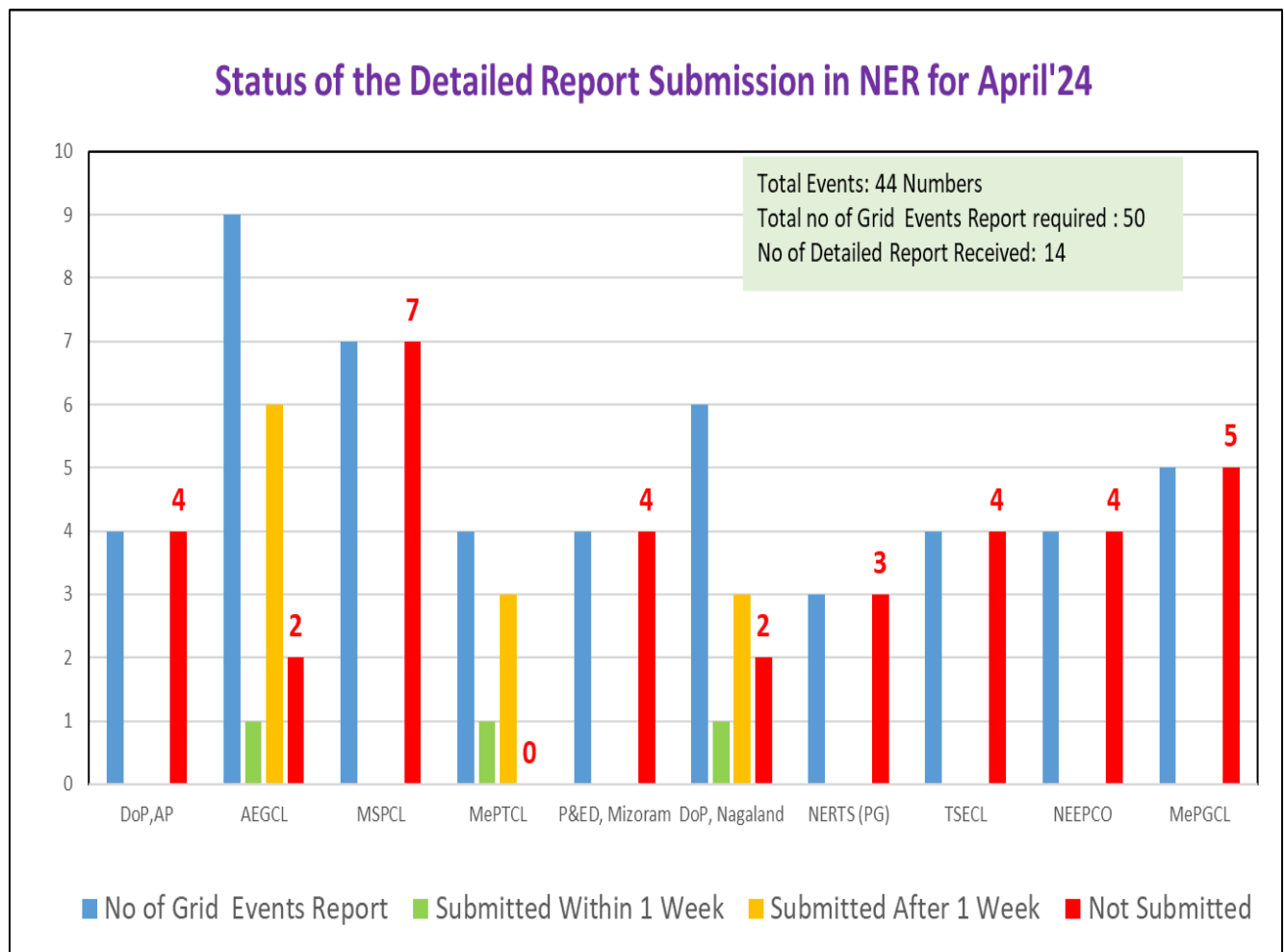
the secure exchange of DR and EL files that have previously faced blockage when sent to nerldcprotection@grid-india.in.

Sub-committee may deliberate

B.6 Submission of Flash Report and Detailed Report by User/SLDC as per IEGC-2023:

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

Status of submission of the same for the month of **April, 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.

Sub-committee may deliberate**B.7 Submission of Protection Performance Indices by Transmission Utilities:**

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

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

Where,

N_c : number of correct operations at internal power system faults

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

N_u : Number of unwanted operations.

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

NTL, ENICL, DoP, Nagaland, NETC & NERTS submitted the Protection Performance Indices for the month of **April**, 2024 as follows:

SN	Name of Transmission Licencee	D= $(N_c / (N_c + N_f))$	S= $(N_c / (N_c + N_u))$	R= $(N_c / (N_c + N_i))$	Remarks
1	NETC	-	-	-	No bays owned by NETC
2	ENICL	-	-	-	No Tripping during April'24
3	NTL	1	0.85	0.85	S & R value <1 due to <u>400/132kV 315 MVA ICT-01 at Surajmani Nagar tripped on 25-04-24, PRV operation & 132kV AGTPP(NEEPCO) - P.K.Bari Ckt-1&2 tripped on 20-04-2024, tripped from NEEPCO end only, during</u>

					ongoing wiring work at the NEEPCO end, team mistakenly opened the B-phase CB at the NEEPCO end. This resulted in a pole discrepancy and the subsequent opening of the circuit breaker at the NEEPCO end.
4	DoP, Nagaland	1.000	0.941	0.970	<p>S & R value <1 due to tripping of 132 kV Sanis – Wokha line on 17.04.24 & 18:20 Hrs due to fault in 132kV Wokha-Chiephebozou T/L.</p> <p><u>Remedial Measures:</u></p> <p>Back-up OC & EF were enabled in Primary/Distance Protection (Alstom P442 series relay) on 18.04.2024. The same has been intimated to NERPC/NERLDC on 23.04.2024.</p>
5	NERTS	1.000	0.981	0.981	<p>S & R value <1 due to tripping of 50 MVAR, BUS REACTOR-2 at BONGAIGAON at 12:36 01-04-2024: Bus reactor tripped on LBB re-trip function due to mal operation (spurious distance protection trip) of main</p>

					bay LBB Relay (GE P441) of BR#2. As re-trip configured to group relay operation instead Main Bay CB trip coils led to tripping of BR-2. The LBB relay replaced with P141 relay and re-trip configured to Main Bay CB trip coils.
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It has been observed that Protection Performance Indices are not being submitted by all the users. Therefore, all Users are requested to furnish performance indices (Dependability-D, Security-S, Reliability-R) with regards to the tripping of elements to NERPC & NERLDC positively **by 10th of every month for previous month indices.**

B.8 Grid Disturbance in New Umtru of Meghalaya on 15-April-24:

New Umtru Generating Station of Meghalaya Power System was connected with rest of NER Grid through 132 kV Umtru – New Umtru and 132kV New Umtru – EPIP II lines.

At **14:52 Hrs of 15-04-2024**, 132 kV Umtru – New Umtru line and 132 kV New Umtru – EPIP II line. Due to tripping of these elements blackout of New Umtru Generating Station of Meghalaya Power system occurred.

Sl. No.	Name	Trip time (hh:mm:ss)	Restoration time	Relay indication end 1	Relay indication end 2
1	132 kV Umtru – New Umtru line	14:52	15:05	LDP, Y-B	LDP, Y-B
2	132kV New Umtru – EPIP II line	14:52	15:03	LDP, Y-B	LDP, Y-B

Similar Event also occurred at 08:58 Hrs of **16-April-2024**

MePTCL/MePGCL is requested to root cause and actual fault location.

Detailed Report may be shared covering the analysis and action taken.

B.9 Frequent tripping of GT-III at AGTCCPP:

On 5th May'24:

From 19:34:23.460 Hrs to 19:34:23.532 Hrs of 05/05/2024, Voltage and current imbalance observed in A and C phase with $I_a=3.3\text{ kA}$, $I_c=4\text{ kA}$ and $V_{ae}=4.3\text{ kV}$, $V_{ce}=4.2\text{ kV}$ for about 72 msec.

As per GT-3 DR signal, at 19:34:23. 656 Hrs, **L18 digital channel Protection** voltage balance signal high was observed with $V_{ae}=V_{be}=V_{ce}=6.1\text{ kV}$ and $i_a=i_b=i_c=1\text{ kA}$ and any trip command issued and trip the CB.

Observation:

- Which protection issued trip signal was not clear from the submitted DR data. Requested to share B/U protection DR and Event file for further needful.
- No voltage and current imbalance was observed at the time of tripping. It indicates there was no fault. Reason of tripping of Unit may be checked immediately to prevent repetition.
- From the start of DR, Rev power enable signal high was recorded even after CB open. The same may be checked.

Similar incident also occurred on 6th May'24.

NEEPCO may share the root cause for the repeated unit tripping.

B.10 Frequent Grid disturbances in Myntdu Leshka HEP of Meghalaya Power System:

132kV Myntdu Leshka - Khlieriat D/C lines play a crucial role in power evacuation from Leshka Generation. In the recent past it has been observed that 132 kV Myntdu Leshka-Khleihriat 1 & 2 lines has tripped **four** times in a short interval of time i.e from April 15th to April 29th, 2024 (*informed vide letter **NERLDC/SOII/14/6166***

Date:01/05/24)

Also, 3 more GD's on May'24 (05-May-2024 16:06 Hrs, 02-May-2024 04:10 Hrs and 02-May-2024 00:45 Hrs)

Frequent tripping of the above lines is a matter of serious concern, and it signals that there is the requirement of proper and regular maintenance of these transmission elements. Moreover, it impacts the lifespan of machine in long run and reduces the reliability of evacuation path of Leshka HEP of Meghalaya Power System.

Therefore, MePTCL is requested to ensure that patrolling related activities are undertaken as per CEA (Grid Standard) Regulation, 2010 on regular basis and measures may be identified and implemented at the earliest so as minimize tripping of these lines. A copy of measures taken in this regard may be shared to NERPC & NERLDC.

Further, following observations needs early redressal

1. There was no Auto reclose attempt observed. The auto-reclose (A/R) scheme should be inspected and activated to ensure the safe evacuation of Leshka generation by reclosing the line in case of single phase fault.
2. DR channels needs to be standardized both ends:
 - DR time duration of 500 msec appears to be insufficient at Khlieriat. It should be extended to 3 seconds, with a pre-fault time of 500 milliseconds and a post-fault time of 2.5 seconds.
 - DR time not synchronised, exhibiting a time drift issue of 39 minutes at Leshka and 1 minute at Khlieriat.
 - CB status is currently not allocated in the DR digital channel. It's essential for MePTCL and MePGCL to include CB ON/OFF status in DR channels at both ends for fruitful analysis of events

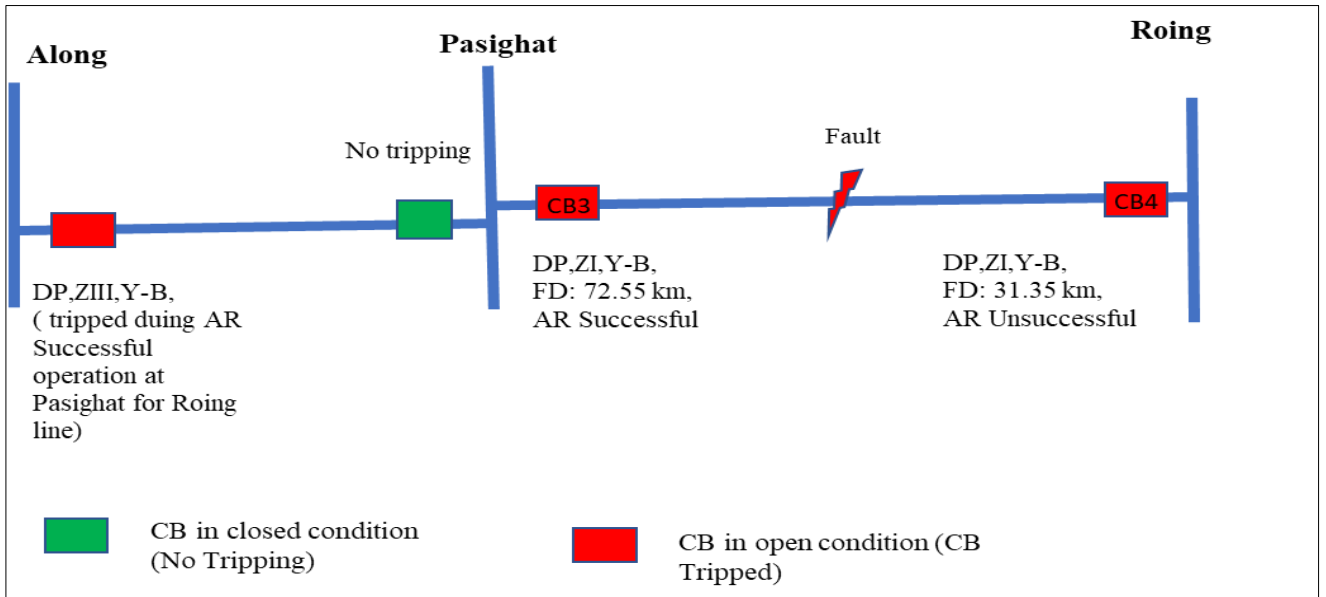
MePTCL may update the root cause and remedial measures taken.

B.11 Grid Disturbance in Pasighat area of Arunachal Pradesh on 02-April-24:

Pasighat area of Arunachal Pradesh Power System was connected with rest of NER Grid through 132 kV Pasighat- Roing line & 132 kV Along - Pasighat line.

At 21:55 Hrs of 02-04-2024, 132 kV Pasighat- Roing line & 132 kV Along - Pasighat line tripped.

Power was extended to Pasighat area of Arunachal Pradesh Power System, by charging 132 kV Pasighat- Roing line at 22:57 Hrs of 02-04-2024.



As per DR analysis, Y-B phase fault initiated at 21:55:22.428 Hrs in 132 kV Pasighat- Roing line which was cleared on operation of DP, ZI within 65 msecs & 75 msecs from Pasighat and Roing end.

At Roing end, AR attempted after the dead time of 1500 msecs and the CB tripped immediately due to persistent fault.

At Pasighat end, AR attempted after the dead time of 2000 msecs and the CB remained closed (i.e. Successful AR operation at Pasighat).

However, fault current of 400 A still persistent in the Y&B phases which not detected by the DP relay at Pasighat and the fault persistent for next 884 msecs until the fault is cleared by opening of 132 kV Along- Pasighat line at Along end on operation of DP, ZIII after 884 msecs.

NERTS may update the reason for such AR during persistent fault.

B.12 Backup Relay Coordination related Issue observed at Rupai SS on 07-04-2024:

At 19:45 Hrs of 07-04-2024, 132 kV Chapakowa-Rupai tripped.

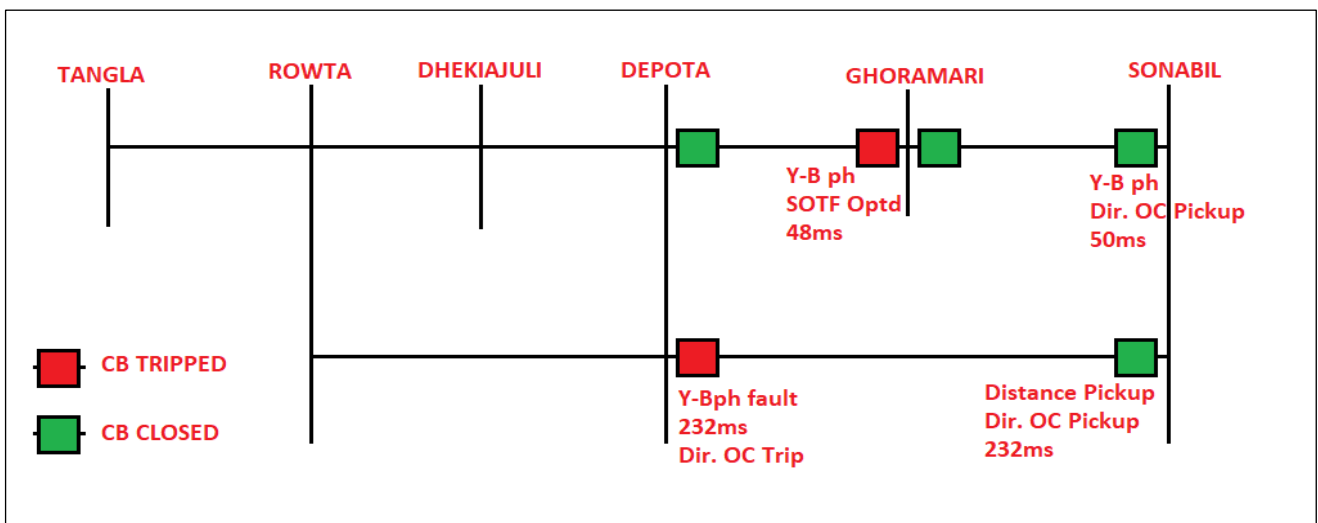
Sl. No.	नाम	Trip time (hh:mm:ss)	Restoration time	उप केंद्र 1 रिले संकेत	उप केंद्र 2 रिले संकेत
1	132 kV Chapakowa-Rupai line	19:45	22:12	DT received	EF operated, DP, ZII initiated

132 kV Chapakowa-Rupai line sensed B-E fault at 19:43:14.845 hrs from Rupai end and cleared the fault on operation Backup in 220 msec which seems backup setting coordination issue.

AEGCL may update the root cause and remedial measures.

B.13 Grid Disturbance in Depota, Rowta, Dhekiajuli, and Tangla areas of Assam on 07-04-2024:

At 13:29 Hrs of 07-04-2024, 132kV Depota – Sonabil and 132kV Depota – Ghoramari line tripped resulted into the GD.



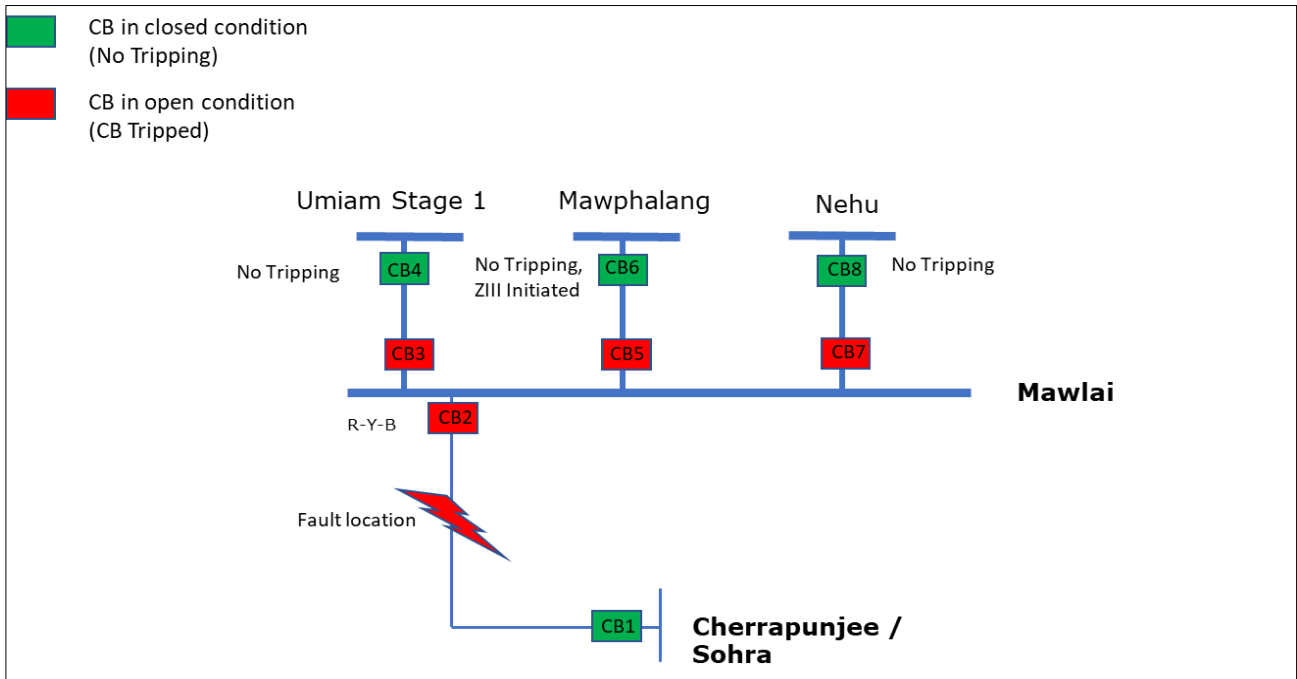
Y-B fault was in the 132kV Depota – Ghoramari Line.

The relay at Depota end of Depota – Sonabil line had sensed the backward fault in forward direction. This was due to phase sequence error between Y and B phases of current with respective voltages in the Backup OC and EF relay and the same has been rectified by AEGCL.

Spurious SOTF operation at Ghoramari for 132kV Depota – Ghoramari Line need to be rectified by AEGCL as soon as possible to avoid unwanted operation as similar SOTF operation also observed at **02:14 Hrs of 17-04-2024**.

B.14 LBB operation at Mawlai SS of Meghalaya on 14-04-2024:

Mawlai & Cherapunji areas of Meghalaya Power System were connected with rest of NER Grid through 132 kV Mawlai - Mawngap line, 132 kV Mawlai - NEHU line & 132 kV Mawlai -UMIAM 1 line



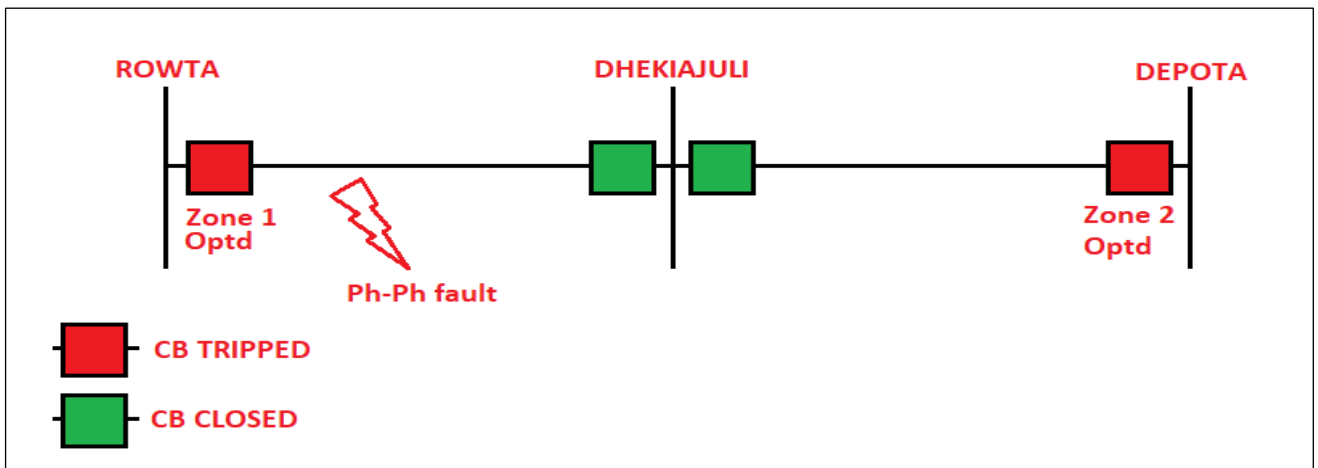
As per DR analysis, R-Y-B phase fault ($I_r=I_y=I_b=1.4$ kA) initiated at 17:13:24.164 Hrs in 132 kV Mawalai- Cherapunji Line which was cleared on operation of DP, ZI within 64 msecs from Mawlai end by opening the CB at Mawlai.

However, after 564 msecs, Y-E fault ($I_y=0.8$ kA, $I_n=0.4$ kA) appears in the system and the same is being cleared at Mawlai end on operation of LBB which resulted into the tripping of rest of the 3 feeders from Mawlai end.

LBB relay time delay is found to be more than 300 msecs which need to be changed to 200 msecs as per NER protection Philosophy.

B.15 Grid Disturbance in Dekhijuli area of Assam on 17-April-24:

At 01:16 Hrs of 17-04-2024, 132 kV Depota - Dhekiajuli and 132 kV Rowta - Dhekiajuli Line tripped. Due to tripping of this element Dhekiajuli area of Assam Power System was isolated from NER Grid.

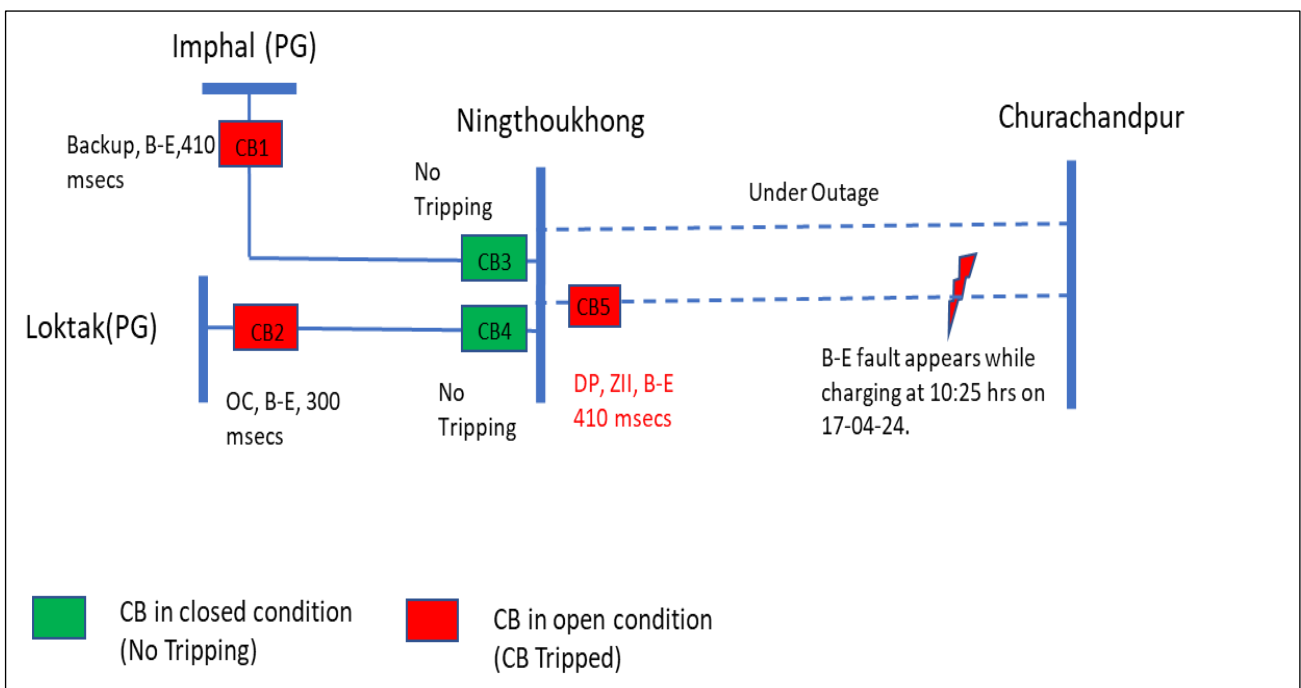


Reason for non-operation of the protection system at Dhekiajuli need to be updated by AEGCL.

B.16 Grid Disturbance in Ningthoukhong area of Manipur on 17-April-24:

Ningthoukhong area of Manipur Power System were connected with rest of NER Grid through 132 kV Loktak- Ningthoukhong and 132kV Imphal(PG)- Ningthoukhong lines. 132 kV Ningthoukhong - Churachandpur 1 Line was under tripped condition from 15:21 Hrs of 26.03.2024 and 132 kV Ningthoukhong - Churachandpur 2 Line was under tripped condition from 09:25 Hrs of 17.04.2024

At 10:25 Hrs of 17-04-2024, GD occurred at Ningthoukhong while charging while charging 132 kV Ningthoukhong - Churachandpur 2 Line as shown below:



As per DR signal from Ningthoukong, B-E (with Ib:2.5 kA, Vbe:38 kV) solid fault start in 132 kV Ningthoukong-CCpur-2 Line and fault was cleared with Z-II from the system in 410 msec.

At the same time, as per DR signal from Imphal for Ningthoukong line, B-E fault (Ib:1.34 kA, Vbe:66 kV) detected by the relay and fault was cleared from the system within 410 msec.

Observation:

MSPCL is requested to check the PSL logic and also incorporate CB OPEN/CLOSE status in the DR digital channel for fruitful analysis purpose.

Also, do necessary maintenance activities on the line to prevent repeated tripping in future course of time.

NERTS:

- From the start of DR signal, Any start/Trip/Dist Trip A signal high was observed;
- DEF channel received/DEF start C high was also recorded;
- CB Open status may be included in the DR digital channel for fruitful analysis purpose.
- B/U OC EF setting may be checked and it is to be coordinated in line with NERPC protection philosophy

Loktak(NHPC):

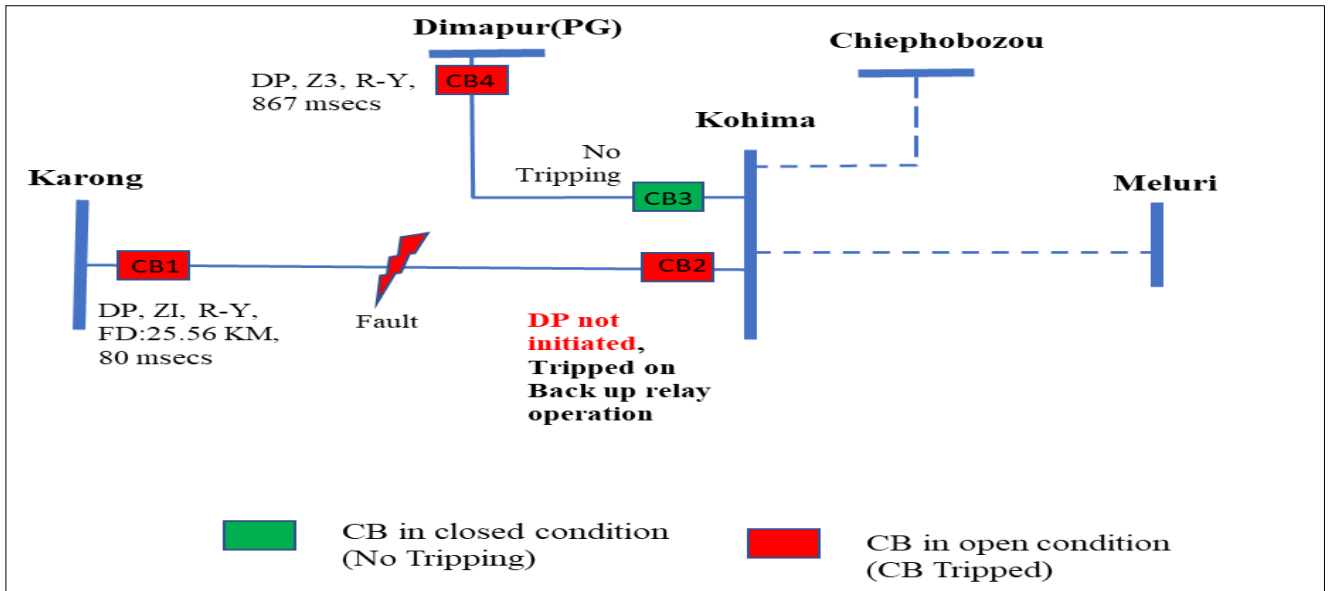
- Overcurrent tripping at Loktak in 300 msec seems incorrect. Settings need to be coordinated to avoid misoperation.

B.17 Grid Disturbance in Kohima area of Nagaland on 21-April-24:

At 12:11 Hrs of 21-04-2024, 132 kV Kohima - Dimapur & 132 kV Kohima - Karong line tripped. Due to tripping of these element, as 132 kV Kohima - Meluri line and 132 kV Kohima - Chiephobozou line were already under outage prior to tripping of the above lines, Kohima area of Nagaland Power System was isolated from NER Grid and collapsed due to no source available in this area.

Sl. No.	नाम	Trip time (hh:mm:ss)	Restoration time	उप केंद्र 1 रिले संकेत	उप केंद्र 2 रिले संकेत

1	132 kV Kohima - Dimapur line	12:11	12:56	No Tripping	RY-ph, Z3, 1.5kA
2	132 kV Kohima - Karong line	12:11	-	Over Current, R-B	DP, ZI, R-Y, FD:25.56 KM, 80 msecs



Tripping at Kohima (CB2) & Dimapur (CB4) occurred almost at the same time. DP not operated at Kohima for Karong line during R-Y fault seems unwanted.

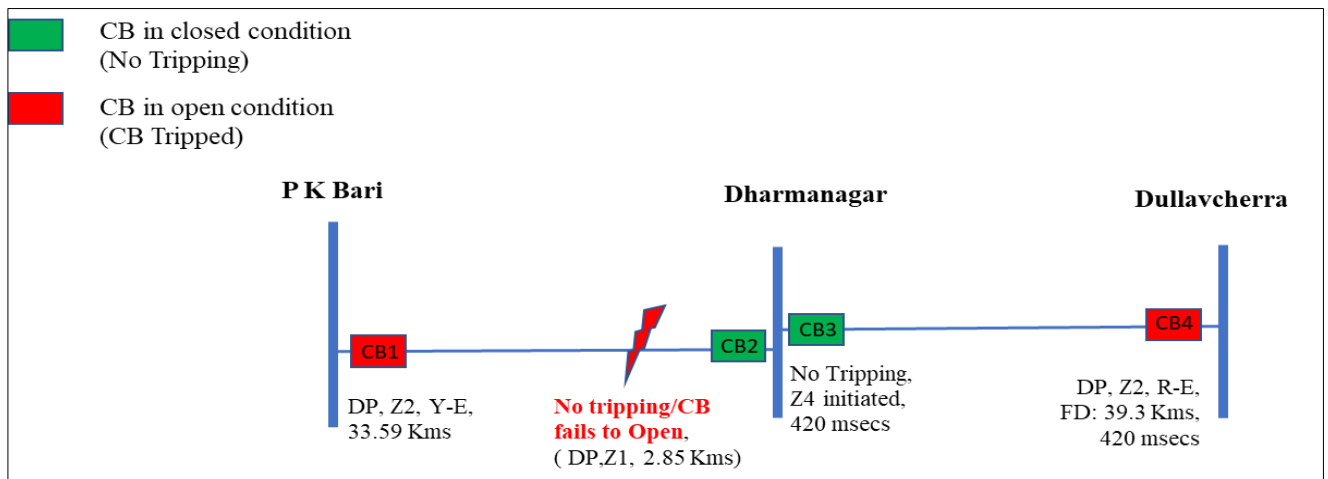
Similar incident also occurred on 29-04-2024.

Distance & Backup setting calculated based on CTR 600/1 at Kohima for 132 kV Karong Line and shared with DoP, Nagaland for implementation.

DoP, Nagaland may update the status for implementation.

B.18 Grid Disturbance in Dharmanagar area of Tripura on 22-04-2024:

At 01:14 Hrs of 22.04.2024, 132kV PK Bari - Dharmanagar and 132kV Dharmanagar -Dullavcherra lines tripped.



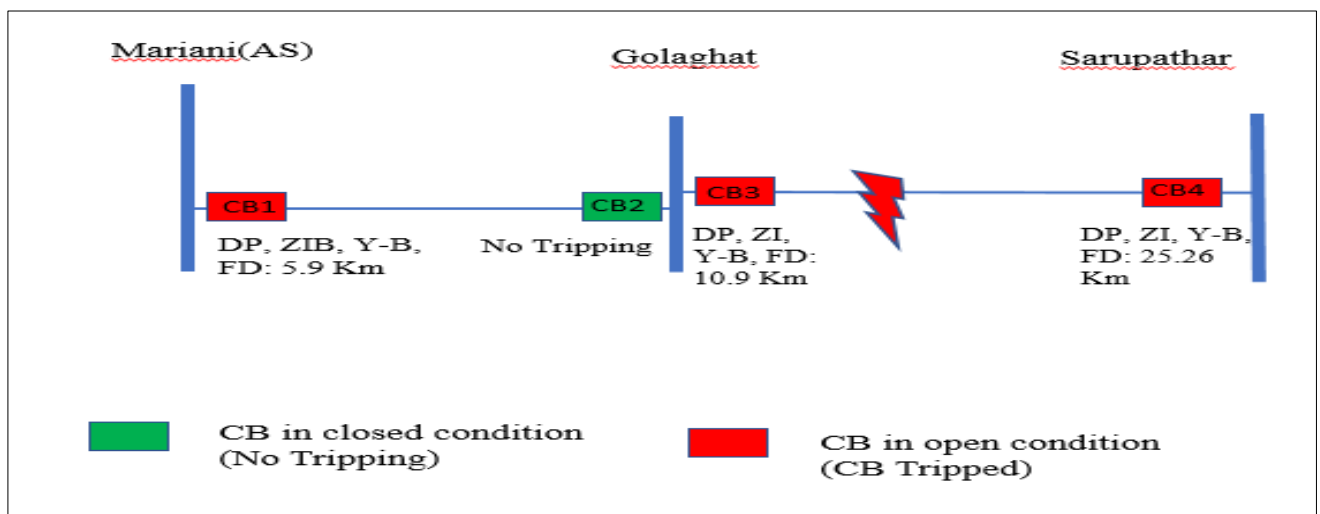
As per DR analysis, R-E fault appears in 132 kV PK Bari – Dharmanagar cleared from P K Bari end only. CB at Dharmanagar, detected in ZI & issued trip command immediately. However, CB fail to open till 420 msec resulted into ZII tripping at Dullavcherra end.

Similar issue is also observed on 10th and 16th March 2024.

Tripura may update the remedial measures taken.

B.19 Grid Disturbance in Golaghat area of Assam on 28-04-2024:

At 12:44 Hrs of 28-04-2024, 132 kV Golaghat – Sarupathar line and 132 kV Golaghat-Mariani(AS) tripped



Tripping of 132 kV Golaghat-Mariani(AS) Line from Mariani end on ZI (extended zone) seems unwanted. AEGCL needs to incorporate time delay in ZI (extended zone) protection to avoid unwanted tripping of elements.

AEGCL may update root cause and remedial measures taken.

C. FOLLOW - UP AGENDA ITEMS

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

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

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

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

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

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

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

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

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

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

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

In 65th PCCM, NERLDC updated as follow –

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

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

In 66th PCCM, MS, NERPC exhorted DoP Arunachal Pradesh to nominate the nodal officer at the earliest. He further requested all the States to submit monthly work progress report till March'24 to NERPC and NERLDC within one week.

He further stated that NERPC will submit the quarterly work progress report to CERC very soon.

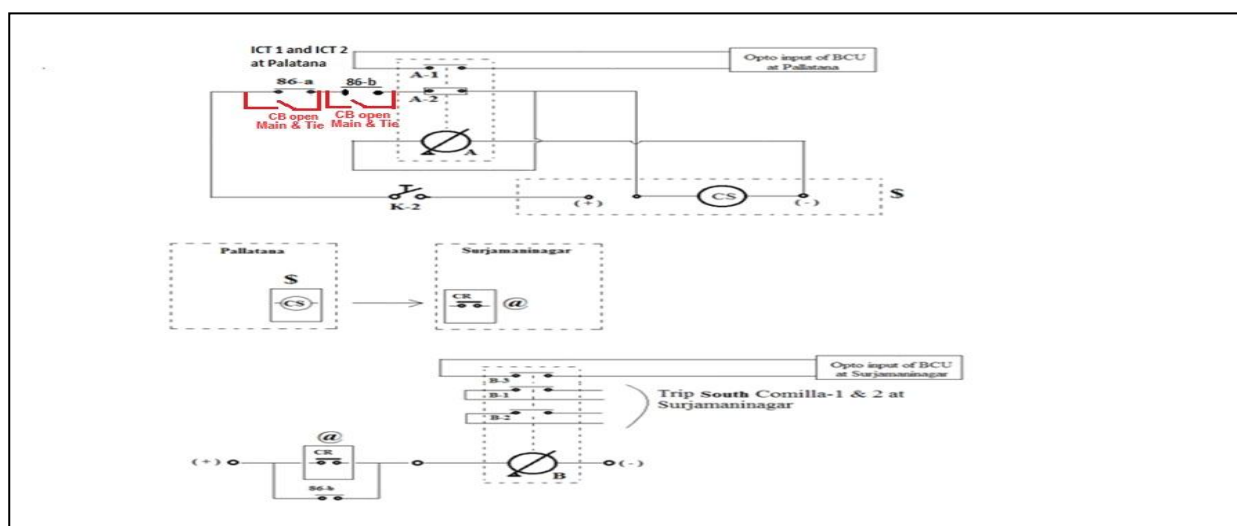
C.2 Modification of SPS at Palatana due to outage of both the ICT's:

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

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

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

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



In 65th PCCM, the forum noted the modification in SPS as suggested by NERLDC. NERTS stated that for CB status BCU output contacts may be used. OTPC stated that they will study the modifications as suggested by NERLDC and NERTS and will implement the same accordingly.

In 66th PCCM, following points were discussed -

OTPC stated that it is being considered internally to continue with the existing system wherein 86 relay status is bypassed manually before taking any ICT under shutdown.

NERLDC stated that with the scheme as proposed by them manual intervention will not be required and SPS failure due to manual error will be alleviated.

NERTS suggested that zero power flow signal may be configured in BCU which may be taken as input signal in the SPS.

After detailed deliberations the forum request OTPC to finalize a solution in coordination with NERLDC and NERTS.

Sub-committee may deliberate

C.3 Requirement of SPS for generation evacuation from Leshka HEP (MePGCL)

Reporting Party: MePGCL

Classification: SPS related to safe evacuation of Generation

Operation: Generation Rejection

Scheme-

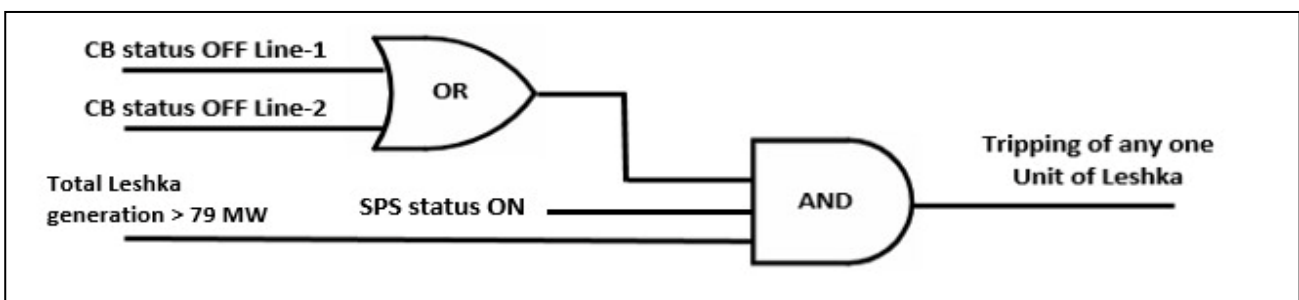
1. Right now Leshka with an installed capacity of $42 \times 3 = 126$ MW connected with rest of Grid via 132 kV Leshka-Khlieriat (MePTCL) D/C Line. If one circuit of 132 kV Leshka – Khliehriat (MePTCL) D/C trips/goes under outage, the full generation could not be evacuated via a single line of 132 kV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

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

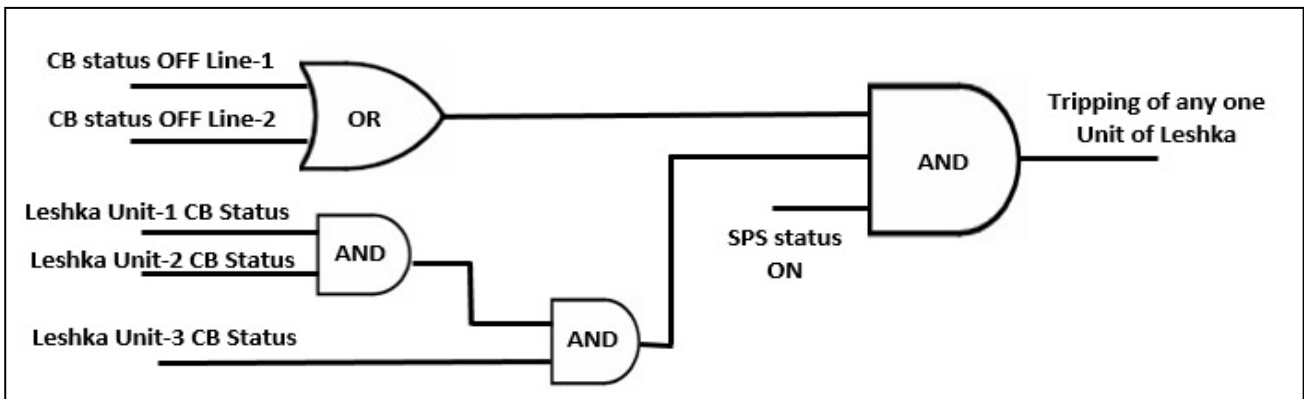
- OR

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

The schematics of the SPS is attached for reference.



OR



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

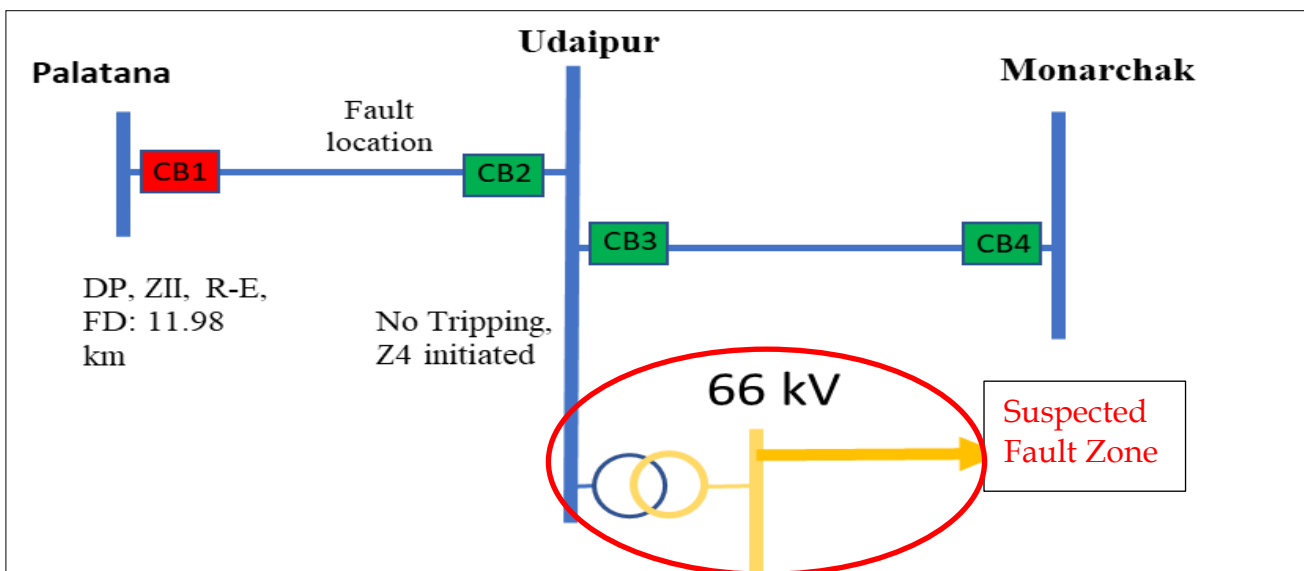
In 65th PCCM, MePGCL noted the SPS scheme as suggested by NERLDC and stated that the same will be put up for approval of higher authority.

In 66th PCCM, MePGCL updated that approval will be obtained by May'24.

MePGCL may update

C.4 Fault in downstream system of Udaipur area of Tripura power system on 31-Mar-2024:

132 kV Udaipur SS is connected through 132 kV Palatana-Udaipur & 132 kV Monarchak- Udaipur Line.



At 07:37 Hrs on 31-03-2024, 132 kV Palatana – Udaipur line tripped at Palatana end on operation of DP, ZII, R-E, FD: 11.98 Km.

However, no tripping & DP, Z4 initiation (reverse fault) at the Udaipur end indicates the fault was in the downstream of the Udaipur SS.

Therefore, TPTL/TSECL is requested to inform the root cause and remedial measures that has been taken to prevent reoccurrence of the event.

In 66th PCCM, NERPC highlighted that for downstream fault at Udaipur, CB3 should also show ZIV. Matter could not be further discussed as TSECL was not present in the meeting. MS, NERPC exhorted TSECL to provide detailed report and action taken report on the matter at the earliest to NERPC and NERLDC.

TSECL may update

C.5 Mapping of SPS in the SCADA Display for real time monitoring of all SPS:

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

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

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

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

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

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

SPS mapping status as update by utilities in 66th PCCM

Sl. No.	SPS under operation	Long term measures	SPS mapping status in
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			SCADA (YES/No)
1	<p><u>Tripping of 400kV Palatana-Silchar D/C-</u></p> <p>when both modules of Palatana are in service causes tripping of HV side breaker of 2x125 MVA, 400/132 kV ICT at Palatana</p>	<p>After commissioning of 400 kV Palatana - Surajmaninagar line-1, there is no requirement of this SPS and hence, it is to be kept OFF. However, the SPS at Palatana is to be kept ON during shut down of 400 kV Palatana-Surajmaninagar(ISTS) line-1</p>	OTPC to do shortly
2	<p>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)</p>	<p>After upgradation of 220 kV BTPS-Salakati D/C lines. (Need to disable after system study of the present condition)</p>	AEGCL to do shortly
3	<p>Tripping of 132 kV Umiam Stg-I to Umiam Stg-III D/C lines causes instantaneous load shedding near Mawphlang area</p>	<p>After commissioning of 220 kV Killing-Mawngap D/C lines and re-conductoring of 132kV Lumshnong-Panchgram line, SPS is kept OFF</p>	
4	<p>SPS related to overloading of 220kV BTPS- Salakati D/C- Tripping of 220kV Agia – Boko and 220kV Agia – Mirza</p>	<p>After upgradation of 220 kV BTPS-Salakati D/C lines, this SPS is kept OFF</p>	
5	<p><u>Related to the safe evacuation of power from BgTPP(NTPC) generation</u> - BGTPP generation reduction to 600 MW</p>	-	SPS is ON. NTPC assured to do mapping shortly.

6	<u>Related to Generation evacuation from Monarchak(NEEPCO) Power Plant</u> - Tripping of STG at Monarchak under outage of any one circuit of 132 kV Monarchak – Rokhia line & 132 kV Monarchak- Udaipur	Commissioning of 132 kV Monarchak-Surajmaninagar line	
7	Outage of 220 kV BTPS (Salakati) – Rangia I & II - load shedding	Commissioning of 400 kV Rangia SS and LILO of 400 kV Bongaigaon-Balipara 1 & 2 Line at Rangia.	
8	<u>Related to the tripping of Bus Reactors at 400 kV S M Nagar (ISTS)</u> - Tripping of both circuits of 400 kV SM Nagar-PK Bari D/C will trip 2 x 125 MVAR Bus Reactors at SM Nagar (ISTS) to prevent under voltage situation	-	NTL assured to do by 15 th May'24.
9	<u>Related to the tripping of Bus Reactors at 400 kV P K Bari (ISTS)</u> - Tripping of both circuits of 400kV PK Bari (ISTS) – Silchar(PG) D/C will trip 2 x 125 MVAR Bus Reactors at P K Bari(ISTS) to prevent under voltage situation	-	NTL assured to do by 15 th May'24.
10	<u>Related to the tripping of Bus Reactors at 400 kV Imphal (PG)</u> - Tripping of 400 kV New Kohima – Imphal D/C during outage of 400 kV Silchar – Imphal D/C will lead to the tripping of 125 MVAR and 80 MVAR Bus Reactor at Imphal(PG)	-	NERTS assured to do shortly.
11	<u>Related to Outage of any one of the 400/132kV 2x360MVA ICTs at Panyor Lower Hydro Power Station</u> - Disconnection of One Unit of Panyor	After restoration of 132 kV Panyor -Itanagar & 132 kV Panyor -Pare line (expected by 31st Mar'24)	

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

17	<u>Related to Outage of both 400/132 kV, 2x125 MVA ICTs at Palatana</u> - Entire load disconnection of South Comilla by way of tripping of 132kV SM Nagar-South Comilla D/C	Upgradation of 132 kV Surajmaninagar(TSECL) to 400 kV	
18	Related to the outage of any one circuit of the 132 KV Khliehriat (PG)-Khliehriat D/C line	Reconductoring of 132 KV Khliehriat (PG)-Khliehriat D/C line	Meghalaya to do shortly

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

In 65th PCCM, NERLDC gave a ppt presentation on the guideline on interfacing requirement as approved by CERC. Forum noted the guidelines and requested the concerned stakeholders to take necessary measures to ensure mapping of SPS signals in SCADA for real time monitoring.

Utilities may update

C.6 Mock testing of the System Protection Scheme (SPS) of the NER:

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

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

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

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

In 65th PCCM, AEGCL updated that required shutdown has been planned on 7th April to carry out the SPS testing

In 66th PCCM, AEGCL stated that APDCL will give the consent for shutdown only after 7th May. The mock testing will be done accordingly.

AEGCL may update

C.7 Status on remedial measures actions on Non-operation of auto recloser in Important Grid Elements for transient faults occurred in last few four months:

As updated in 66th PCCM

Sl No	Element Name	Time	Relay End1	Relay End2	A/R not Operated	Remarks from Utility(66th PCCM)
1	220 kV NTPS - Tinsukia 1 Line	26-10-2023 16:37	DP,Z1,Earth fault,39km	B-Eph, Z-1, LA burst	No details provided	Planning completed, Implementation by May'24.
2	132 kV Agartala - Surajmaninagar 2 Line	17-11-2023 15:10	DP,ZI,Y-B,FD:5.81 km, AR successful	DP,ZI,R-Y,FD:11.98 KM	Surajmani nagar	Will be implemented by May'24.
3	220 kV Mariani (AEGCL) - Samaguri Line	29-11-2023 15:10	DP, ZI, B-E	DP, ZI, B-E, FD: 16 km	Samaguri	Panel retrofitting at Mariani under PSDF. AR will be enabled within 2 months, by June'24

Sl No	Element Name	Time	Relay End1	Relay End2	A/R not Operated	Remarks from Utility
4	132 kV Along-Pasighat Line	01-01-2024 04:48	DP, ZI, R-E, FD: 47.52 Km	DP, ZI, R-E, FD: 19.57 Km	Both ends	AS updated in 65 th PCCM, CB spring charging

						motor issue at Along SS, to be rectified by March'24. DoP Ar. Padesh absent in 66 th PCCM
6	132 kV Balipara - Tenga Line	04-01- 2024 22:51	DP, ZI, R-Y, FD: 40.36 Km	DP, ZI, R-Y, FD: 37.30 Km	Both ends	Single phase AR enabled, but 3 phase faults occurred. Three phase AR to be enabled by March'24
7	220 kV AGBPP- Mariani(PG) Line	12-12- 2023 12:29	DP,ZI,B- E,FD: 44.9 Km, (No DR submitted)	DP,ZI,B- E,FD: 110.9 KM, A/R successful	AGBPP	No DR available to analyze the fault, However AR is functional.

SL No	Element Name	Tripping Date and Time	Relay Details_A	Relay Details_B	AR not Operated	Remarks from utility (66 th PCCM)
8	220 kV Amguri - NTPS Line	02-02- 2024 09:51	DP, ZI, B- E,FD: 81.89km	DP, ZI, B-E	Amguri & NTPS	AR not configured at NTPS end, so kept off at Amguri end. To be configured within 2 months.
10	220 kV Samaguri - Sonabil 2 Line	08-02- 2024 05:37	DP, ZI, Y-E, FD: 10.4 Kms	DP, ZI, Y-E, FD:45.8km	Both ends	AR configuration not yet done. Shutdown required. To be

						done by next PCCM.
12	220 kV Byrnihat - Misa 2 Line	23-02- 2024 04:39	DP,ZI, Y-E, FD: 59.54 Km	DP,ZI, Y-E, FD: 81.019km (AR Successful)	Byrnihat	OEM to arrive in 1 st week of May to resolve the issue.
13	220 kV Byrnihat - Misa 1 Line	26-02- 2024 06:41	DP, ZI, R-E, FD: 55.27 Kms	DP,ZI, R-E, FD: 61.69 km	Both Ends	Same as 12

SL No	Element Name	Tripping Date and Time	Restoration Date and Time	Relay _A	Relay _B	Auto- Recloser not Operated	Remarks as per 66 th PCCM
1	220 kV BALIPARA - SONABIL 2	POWERGRID & AEGCL	04-03- 2024 13:06	04-03- 2024 15:13	02:07: 00	Sonabil	DT configuration is such that on 3 ph tripping DT is sent. Forum requested AEGCL to disable this DT logic in compliance with NER protection Philosophy. Further, AEGCL informed the forum that end to end testing with AR testing shall be carried out in next opportunity outage.

2	220 kV BTPS - Rangia 1	17-03-2024 12:08	17-03- 2024 12:44	DP,ZII,B -E	DP,ZI, B-E	Rangia	Delayed Zone 1 detection and tripping due to week fault current. So no AR operated.
3	400 kV Byrnihat - Silchar	23-03-2024 16:06	23-03- 2024 17:11	DP,ZI, Y-E,FD: 39 KM	DP,ZI, Y-E, FD:17 0 KM	Both ends	MePTCL updated that AR goes under lock out condition due to hydraulic pressure issue after every tripping, so DT is sent to other end. Forum requested MePTCL to resolve the matter at the earliest. POWERGRID mentioned that the DT receipt is causing unwanted 3 pole tripping of CB at Silchar end which is causing mechanical stress on CB. Further, NERLDC mentioned that as AR at Byrnihat end is not enabled,

							hence, till resolution of the same, DT send may be kept in service.
4	132 kV Hailakandi - Silchar 2	23-03-2024 21:13	23-03- 2024 22:00	DP, ZI, Y- E,FD:8. 3 KM	DP, ZI, Y- E,FD: 24.69 KM	Hailak andi	AR failed due to CB unhealthy issue. The same has been resolved
5	132 kV Dimapur (PG) - Kohima	25-03-2024 15:38	25-03- 2024 17:02	DP,ZI, B-E, FD: 42.73 Kms	DP,ZI, B-E	Kohim a	
6	132 kV Haflong - Jiribam	26-03-2024 01:26	26-03- 2024 01:51	DP, ZI, R-E, FD: 71.554K M	DP, ZI, R-E, FD: 5.95K M	Haflon g	AR attempted but line tripped for fault in reclaim time which is as per standard logic.
7	132 kV Jiribam - Pailapool	26-03-2024 01:29	26-03- 2024 01:55	DP,ZI, R-Y, FD:8.84 KM	DP, ZI, R-Y, FD: 4.2km	Both ends	
8	132 kV Nirjuli- North Lakhimpur 1	26-03-2024 04:18	26-03- 2024 05:11	DP, ZI, B-E, FD: 18.67 KM	DP, ZI, B-E, FD: 45 KM	Both ends	AR failed due to Check Sync fail at Nirjuli. Initial voltage was beyond sync level.
9	132 kV Nirjuli - Pare	26-03-2024 04:18	26-03- 2024 05:11	DP,ZI,B -E, FD:8.35 KM,FC: 2.0KA	DP,ZI, B- E,FD:1 6.88 KM	Both ends	DT received at Nirjuli. NEEPCO informed that the same shall

							be rectified during outage.
10	132 kV Gohpur - North Lakhimpur 1	26-03-2024 05:55	26-03-2024 06:12	DP,ZI,R-E, FD: 4.1km	DP,ZI, R-E	Both ends	
11	132 kV Tenga - Khupi	26-03-2024 07:35	26-03-2024 12:25	DP,ZI, R-B-E, FD: 30km	DP,ZI, R-B-E,FD:4 .9km	Khupi	
12	220 kV Agia - BTPS 1	26-03-2024 08:17	26-03-2024 08:54	DP,ZI, Y-E, FD:17.2 Km	DP,ZI, Y-E	BTPS	
13	220 kV Mawngap - New Shillong 1	26-03-2024 12:22	26-03-2024 19:31	DP,ZI, Y-E, FD: 27.82 Km	DP,ZI, Y-E	Mawng ap	
14	132 kV Gohpur - North Lakhimpur 2	28-03-2024 09:19		DP,ZI, B-E (B-ph LA Blast)	R-Y-B-ph, Z-2, 96.1 km	Both Ends	
15	132 kV Dimapur - Doyang 2	29-03-2024 13:10	29-03-2024 13:31	DP, Z1,R-Y,FD: 72.6km	DP,Z1, R-Y	Doyan g	
16	220 kV Byrnihat - Misa 2	31-03-2024 05:21	31-03-2024 06:12	DP,ZI,R-E, FD: 50.38km	R-G , Z1. 2.445 KA, 68.508 KMS	Byrnihat	

17	220KV- MAWNGAP- BYRNIHAT (KILLING)-1	31-03-2024 16:31	31-03- 2024 17:35	DP, ZII, Y-E, FD: 70.65K m(Carrier Aided Tripping)	DP, ZI, B-E, FD: 14.4 Km	Both Ends	
18	400 kV Byrnihat - Silchar	31-03-2024 20:51	31-03- 2024 22:29	DP,ZI, Y-E, FD: 68.7 km	DP,ZI, Y- E,FD: 175.11 KM	Both Ends	AR failed due to DT receipt at Silchar end

Utilities may update

C.8 132 kV Kumarghat - P.K. Bari issue

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

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

Tripura may please confirm the healthiness of the CBs (PK Bari end CB for Kumarghat PK Bari & P.K. Bari end CB for P.K. Bari-Dharmanagar feeder) otherwise forum may allow continuing the above Time delay setting for respective Zones of Distance Protection in 132kV Kumarghat-P K Bari Line at Kumarghat end.

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

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

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

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

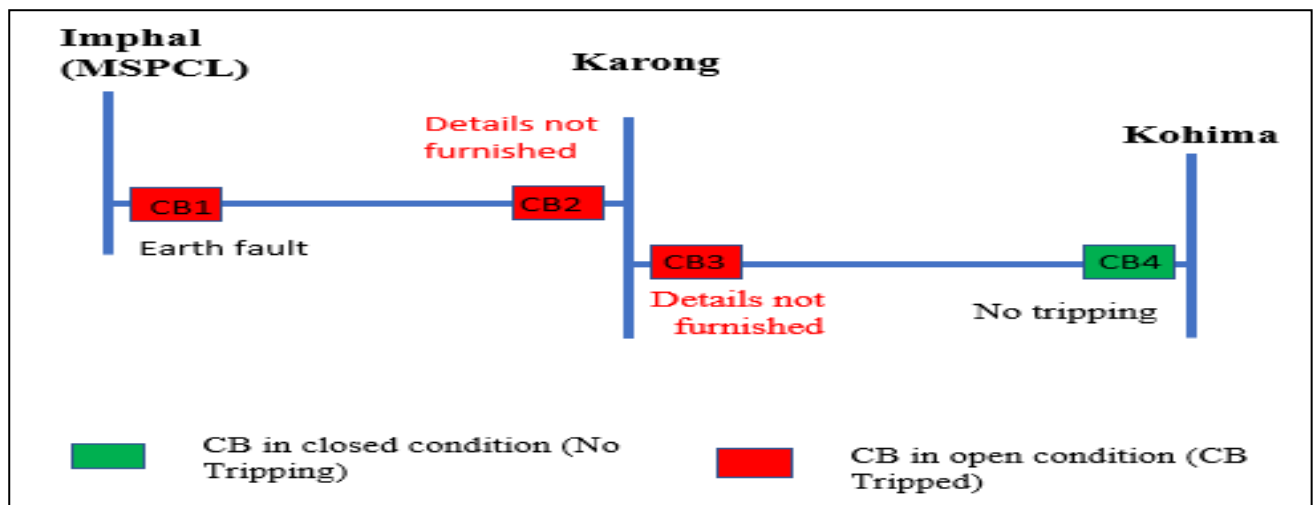
In 64th PCCM, TSECL stated that protection team will visit P K Bari substation in Feb'24 to inspect and rectify the issue.

In 65th PCCM, TSECL updated that shutdown of the PK Bari-Dharmanagar line is scheduled in March'24, required work will be carried out during the shutdown.

TSECL may update

C.9 Grid Disturbance at Karong area of Manipur power system on 28-02-2024:

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



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

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

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

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

In 65th PCCM, MSPCL stated that root cause of the problem is blasting of CT at Imphal substation. Further he stated that maloperation of CB3 (as shown in the picture above) could not be analyzed as Karong substation lies in the buffer zone and reachability to the substation is severely hampered.

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

Manipur may update

C.10 PLCC issues follow up:

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

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

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

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

Update as provided by utilities in 66th PCCM

Sl. No	Line	Utility	Update
1	132 kV Dimapur-Kohima	DoP Nagaland	As per 65th PCCM DPR, for DTPC installation, to be prepared by March'24.

			DoP Nagaland was absent,so no further update.
2	132 kV Nirhuli-Lekhi	DoP Ar. Pradesh	NERTS stated that one spare PLCC is available. Availability of WT and CVT to be confirmed with DoP Arunachal Pradesh but DoP Arunachal Pradesh was absent.
3	132 kV Melriat-Zemabawk	Mizoram	NERTS updated that PLCC is available, Mizoram stated that order has been issued for WT and CVT.
4	400 kV Mariani-Kohima ckt 2		KMTL was not present for update.
5	132 kV Roing-Pashighat	DoP Ar. Pradesh	DoP Ar. Pradesh not present in the meeting.

Utilities may update

D. ITEMS FOR STATUS UPDATE

D.1. Status of auto-reclosure on z-1 operation for important lines:

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

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

In the 57th and 56th PCC meeting the forum approved the implementation of Auto-Reclosure on Z-1 without carrier check for all lines except the lines with generating stations at both the ends and requested the utilities to implement the AR scheme at the earliest.

Status as updated in 66th PCCM

Sl no	State	Important Transmission lines where AR has to be enabled at the earliest	Status (65th PCCM)	status as per 66th PCCM
1.	Arunachal Pradesh	132kV Balipara-Tenga, 132kV Ziro-Daporijo-Along-Pashighat link	PLCC implementation under PSDF underway. SPAR have been enabled on the lines without PLCC 3-Ph AR will be enabled by March'24.	Absent
2.	Assam	All 220kV and 132kV lines	220 kV bays Work to be completed except for some bays at Kathalguri 132 kV bays All work to be completed by June'24	For 220kV Some bays at Tinsukia, NTPS and Kathalguri remaining, to be done soon For 132kV bays

				Testing and enabling of AR is being done gradually, to be completed by Jne'24
3.	Manipur	132kV Imphal-Ningthoungkong	DPR preparation underway, to be prepared by March'24	Absent
4.	Meghalaya	Annexure (D.1)	August'24. Forum requested Meghalaya to provide monthly work progress report (around 25 number of 132kV line)	By August'24, will share the work progress report shortly
5.	Tripura	132kV Agartala-S M Nagar (TSECL), 132kV Agartal-Rokhia DC, 132kV, 132kV Agartala-Budhjungnagar	To be done during internal audit.	Absent

Utilities may 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 66th PCCM

Name of utility	Last updated status (65th PCCM)	status as per 66th PCCM
AEGCL	DPR sent. AEGCL requested NEPRC to take up with MoP regarding expediting PSDF funding for LDP.	AEGCL updated that PSDF monitoring group has suspended funding for LDP for 1 year. AEGCL requested

		MS, NERPC to take up with NPC, CEA to provide funding for the same considering the special case of NER
MSPCL	DPR under preparation, to be submitted within one month.	Absent
MePTCL	LDP operation for 9 feeders. For Neighrims-NEHU line, waiting for dark fiber. For other lines, OPGW not available commissioned after OPGW link is established. (Annexure D.2) 7 Feeder operational for rest OPGW work is pending OPGW to be installed on 16 lines. LDP will be enabled after that.	Regarding OPGW installation, MePTCL updated that DPR is being prepared for inclusion in reliable communication scheme. For NEHU-NEighrims line, fiber has to be laid by PowerGrid NERPSIP.
P&ED Mizoram	Lines identified 132kV Khamzawl - Khawiva. DPR being revised. Mizoram requested for assistance in preparation of DPR. Forum requested Assam to provide assistance to Mizoram in this regard.	Mizoram stated that DPR is under preparation assistance of Assam is required. Assam stated that no communication form Mizoram yet. Forum asked Mizoram to coordinate with Assam
DoP Nagaland	LDP Doyang-Sanis line, LDR to be installed by NEEPCO. NEEPCO updated that LDR has been collected, commissioning target is April'24. However, testing has to be done to ensure healthiness of the line.	NEEPCO stated that LDR is available with NEEPCO, however, healthiness of the OPGW link on the line has to be checked first. Forum asked DoP Nagaland to coordinate with NEEPCO in this regard
TSECL	132kV 79 Tilla-Budhjungnagar. DPR to be prepared. Cost estimate	Absent

	submitted to TIDC to arrange for ADB funding. TIDC approval is still awaited for fund.	
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Utilities may update

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

Status as updated in the 66th PCCM:

Sl No	Details of the events(outage)	Remedial action suggested	Name of the utility & previous update	status as per 66 th PCCM
1.	132 kV Balipara-Tenga line in May and June	Carrier aided inter-tripping to be implemented for 132kV Balipara-Tenga-Khupi at the earliest (PLCC has to be installed on the link. Under consideration of the higher authorities)	DoP, Arunachal Pradesh. PLCC panels received. For further work PSDF payment issue. Matter to be taken up with PSDF	Absent
2.	132 kV DoyangMokokchung line 132 kV Mokokchung - Mokokchung (DoP, Nagaland) D/C lines on 30th July	Carrier inter-trip for 132kV DHEP-Mokokchung to be implemented by DoP Nagaland (NO PLCC on the line. Matter under consideration of Higher authorities)	DoP Nagaland (DPR is under preparation for PLCC, by March'24	Absent
3.	Leshka-Khleihriat DC multiple tripping in April to September	TLSA installation along the line to be done by MePTCL	MePTCL (DPR submitted, Approval pending.)	No communication yet form PSDF on the matter
4.	132 kV Loktak-Jiribam line, 132 kV Loktak-Imphalline,132 kV Loktak-Ningthoukhong line, 132 kV Loktak-Rengpang line &Loktak Units 1,2 and 3 on 3rdAug	> 5MVA TRAFO (Aux. Transformer) to be repaired ->5MVA Auxiliary TRAFO panel to be repaired by NHPC	NHPC Tender awarded, Order placed, manufacturing underway.	Same status

5.	Grid Disturbance at Loktak HEP on 03rd Aug'22	NHPC-Loktak informed that LBB has been included under R&U scheme and the same shall be commissioned by Mar'23	NHPC (LBB to be commissioned under R&U project) Renovation would start in Nov.'24 and to be completed by Oct.'25. Forum stressed to take LBB on priority.	Same status, Forum requested to expedite it
8.	Outage of 220 KV Bus Bar Protection Scheme at 400/220/132 KV Killing SS	Bus-Bar protection of 220kV bus at Killing SS	MePTCL Order given to ABB. Visit of OEM next week. To be completed by April'24	BBR defective. Order placed in Oct'23, will arrive in around 7 months, i.e. by May or June'24
10.	Non-operation of AR for various lines at Byrnihaat end on 25 th and 26 th June'23	Rectification of PLCC issues by MePTCL Consultation with OEM underway for resolution	MePTCL Visit of OEM next week. To be completed by April'24	By May'24
11.	Tripping of 132kV Kahilipara- Sarusajai 1, 2 and 3 line, 132kV Kahilipara Main bus 1, 132kV Kahilipara transfer Bus 1 and 132kV Kahilipara-Kamalphur line on 2.08.2021	BB protection to be implemented at Kahilipara with procurement of 5 core CTs	AEGCL DPR is under preparation for PSDf. CT under procurement, to be completed by end of this year	Same status
13.	AR issue at Gohpur end for 132kV Nirjuli-Gohpur line	Panel replacement underway	AEGCL - By April'24	By May'24
14.	Non-operation of AR at Doyang HEP	Pneumatic CBs to be replaced	NEEPCO- August 2024	August'24

Utilities may update

DATE AND VENUE OF NEXT PROTECTION SUB- COMMITTEE MEETING

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

Annexure D.1
Annexure C.1

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

MePTCL

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