

## North Eastern Regional Power Committee

### **MINUTES OF THE 51st PROTECTION COORDINATION**

#### **SUB-COMMITTEE MEETING OF NERPC**

**Date** : 09/08/2018 (Thursday)  
**Time** : 10:00 hrs  
**Venue** : "Hotel Nandan", Guwahati.

The List of Participants in the 51st PCC Meeting is attached at **Annexure – I**

Shri P.K. Mishra, Member Secretary, NERPC welcomed all the participants to the 51<sup>st</sup> PCC meeting. He noted the presence of participants from all the utilities except Arunachal Pradesh, Nagaland and NTPC. On behalf of the forum he expressed deep concerned at the continued absence of Ar. Pradesh and NTPC from PCC meetings. He informed the house that the Tender for PDMS has been floated and is available in the Public Domain. Thus he requested the members of the Tender Evaluation Committee to be actively and enthusiastically involved in the process. He also mentioned that the 3<sup>rd</sup> Party Protection Audit Phase –I has to be concluded so that the next Phase can be improved based on the feedback of Phase –I. He requested all the participants to actively participate in the discussion for fruitful deliberation.

Thereafter he requested Shri B. Lyngkhoi, Director(O&P) to take up the agenda items for discussion.

Shri B. Lyngkhoi, Director(O&P), NERPC informed that the Pre-Bid meeting for PDMS tender is scheduled to be held on 16.08.2018 and requested the members to be available for the meeting.

#### **A. CONFIRMATION OF MINUTES**

#### **CONFIRMATION OF MINUTES OF 50<sup>th</sup> MEETING OF PROTECTION SUB-COMMITTEE OF NERPC.**

The minutes of 50<sup>th</sup> meeting of Protection Sub-committee held on 10<sup>th</sup> May, 2018 at Guwahati were circulated vide letter No. NERPC/SE/PCC/2018/2565-589 dated 23<sup>rd</sup> May, 2018.

***The Sub-committee confirmed the minutes of 50<sup>th</sup> PCCM of NERPC as no comments/observations were received from the constituents.***

<b>ITEMS FOR DISCUSSION</b>
-----------------------------

**1. FOLLOW UP OF REMEDIAL ACTIONS:**

The suggested measures as per 50th PCC:

Sl. No	Name of element	Actions to be taken	Concerned Utilities	Status as per 50th PCC Meeting	Status as per 51st PCC Meeting
1	133 kV Lekhi - Nirjuli Line	Checking of healthiness of Protection System (Relays, Circuit breaker, DC system etc) of downstream substations	DoP, AP	Status could not be updated due to absence by DoP, AP	Status could not be updated due to absence by DoP, AP
2	132 kV Agia - Medipathar I line and 132 kV Mawngap - Nongstoin I line	Healthiness of Protection System at Nongstoin for 132 kV Mawngap - Nongstoin Line to be done by MePTCL.	MePTCL	Under PSDF works By Nov'18	Under PSDF works By Nov'18
3	133 kV Agia - Medipathar I line and 132 kV Mawngap - Nongstoin I line	Checking of healthiness of Protection System (Relays, Circuit breaker, DC system etc) of downstream substations	MePTCL	Under PSDF works By Nov'18	Under PSDF works By Nov'18
4	132 kV Kolasib-Badarpur line & 132 kV Kolasib-Aizwal line	Relay Coordination to be done at Kolasib & downstream substations of Kolasib by P&ED Mizoram.	P & ED Mizoram, NERTS	POWERGRID & P &ED Mizoram to co-ordinate the settings.	By 17.08.18
5	133 kV Aizawl - Zungtui Line	Checking of healthiness of Protection System (Relays, Circuit breaker, DC system etc) of downstream substations	P&ED Mizoram	P&ED Mizoram would revert back with the exact status.	Checked and found healthy. <b>To be dropped.</b>
6	400 kV Azara - Bongaigaon Line	AEGCL(Azara) to keep the fault clearing time within 100 msec.	POWERGRID & AEGCL	Mail sent on 09.05.18. NERTS & AEGCL to revert back.	Settings revised. No recurrence. <b>To be dropped.</b>
7	132 kV AGTCCPP-Agartala	Over-reach of DPR at AGTCCPP. Setting to be revised after HTLS upgradation.	NEEPCO	Settings sent to NERTS. Conductor parameters to be confirmed and setting is to	NEEPCO to revise settings upon discussion with

				be changed accordingly.	NERTS by Aug'18.
8	132 kV Rangia - Motonga	Checking of relay settings at Rangia	NERTS	NERPC written to NLDC vide letter dtd.07.05.18 AEGCL to provide DR and Relay flag of Rangia end of this line henceforth.	**
9	400kV Balipara-BNC I&II	POR settings to be disabled. <del>Till SVC is in service</del> Z-I to be kept at 80%	NERTS	Oct'18	Oct'18
10	220/132kV Dimapur ICT-1	Backup O/C, E/F settings to be reviewed such that it operates before Z-III at Misa	NERTS	May'18	Completed. <b>To be dropped.</b>
11	220kV Dimapur-Misa -2	Z-III protection timing to be reviewed such that it operates after operation of backup of ICT at Dimapur	NERTS	May'18	Completed. <b>To be dropped.</b>
12	132kV Bus Bar at Palatana	Healthiness/operation of bus bar protection need to be reviewed	OTPC	May'18.	By 1 <sup>st</sup> week of Sep'18.
13	220 kV BTPS - Salakati	05.04.2018 14:24 hrs. Root cause not concluded due to unavailability of DR / EL outputs. Unwanted operation of Trip relay at BTPS to be investigated by AEGCL	AEGCL/ NERTS	DR erased due to frequent pickup of Earth fault function. Y-ph current pickup but not trip. NERTS to check and revert back.	Completed. To be dropped.
14	Blackout of 220 kV Mariani(PG) on 06.03.18	POWERGRID to review over voltage setting at Mariani and Mokokchung SS and time grading may be provided.** Issue of non-tripping at AGBPP end of Mariani(PG)-AGBPP line & at Misa end of Mariani(PG)-Misa line are to be attended.	NERTS/NEEPC O	No trip at AGBPP & Misa due to carrier not being in service. Both implementations of O/V settings (settings suggested by subgroup) and attending issue with the carrier by May'18.	Setting revised. Carrier to be checked by 15.09.18.

15	Disturbance in Tripura on 22nd, 26th & 31st Mar'18 and 30th Apr'18 Fault in 132 kV Rokhia - Agartala D/C. Delayed fault clearance due to absence of DPR.	Status of Installation of DPR in 132 kV Rokhia - Agartala D/C	TSECL	Aug'18	By 15.10.18
		O/C & E/F co-ordination after installation of DPR		Aug'18	By 15.10.18
		Review of Z-II (to be 150% of line length) settings at SM Nagar for Agartala D/C		May'18	By 31.08.18
		R & B phase analog DR input to be reversed at SM Nagar.		May'18	By 31.08.18
		Review of Z-II (to be 120% of line length) settings at Budhaj Nagar for Agartala line		May'18	By 31.08.18
		Review of Z-II & Z-III settings at Palatana for SM Nagar line. Adopted CT ratio & CT ratio in relay settings at Palatana for SMNagar line to be checked.	OTPC	May'18	By 10.09.18
16	132 kV AGTCCPP - Agartala D/C on 31.03.18	Installation of Line Differential in 132 kV AGTCCPP - 79 Tilla D/C & Review of impedance setting of both ends as a temporary measure.	NERTS/NEEPCO	LDP 132kv AGTCCPP-79Tilla D/C - Dec'18 Review of settings after confirmation of impedance, by May'18.	LDP - Jun'19(LO A date) Settings by 31.08.18.
17	132 kV Khliehriat (MePTCL) - Khliehriat (PG) 2 Line	Healthiness of Protection System at Khliehriat end & Leshka end of 132 kV Khliehriat - Leshka D/C line to be ensured, Z-II settings at KHL(MePTCL) for Leshka lines to be reduced.	MePTCL	By May'18	Completed. <b>To be dropped.</b>

18	400 kV Balipara - Biswanath Chariali 4 Line	Review of DPR settings to clear the fault within limits allowed in CEA standards	NERTS	By May'18	Completed
----	---	--	-------	-----------	-----------

**Deliberation of the sub-Committee:**

\*\*Regarding frequent trippings of 132kV Rangia - Motonga NERLDC informed that though DR is being received periodically, DR channels are not standardised. Director (O&P) stated that since it is international matter, pending issues should be co-ordinated by NLDC for resolution. The forum concurred.

Director(O&P) thanked the members for the swift action, thus resolving more than half of the pending actions. He hoped that the remaining recommended actions would be completed as per schedule.

***The Sub-Committee noted as above.***

***Action: All utilities.***

**A.1 Third Party Protection audit of NER Sub-Stations**

The 48<sup>th</sup> PCC Forum decided that Report of 1st Phase of 3rd Party Protection Audit of NER Substations has to be completed by the Committee formed during Subgroup Meeting held on 06.12.17 by 31.01.18, only after which the 2nd Phase of 3rd Party Protection Audit shall be started. DGM, NERLDC informed the Forum that the report shall comprise of both recommendations as well as action plans. Corrective actions that are taken by Power Utilities against observations of audit team may be monitored in the PCC Meeting.

The Forum discussed the audit procedures followed for +/- 800 kV Biswanath Chariali HVDC Station as it is different from other substations. NERLDC expressed that the DC protection part is complex and would need more than 1 day to audit the entire Substation.

Member Secretary, NERPC requested POWERGRID to find out the audit procedures of other HVDC stations outside NER like +/- 500 kV Rihand – Dadri, +/- 500 kV Talcher – Kolar HVDC Station etc, which can be practiced in NER as well.

Member Secretary informed the forum that proposal has been sent recently for obtaining Protection Database Management System (PDMS) from PSDF. PDMS will comprise of mainly 2 parts: i) Collection of data from all stations of NER and ii)

Collection of Settings. This will make the auditing practice easier as unavailability of Data and Settings is one of the common issues that has been observed during 1st phase of 3rd Party Protection Audit.

Also, NERLDC informed the forum that as per draft "Reliability Standard for Protection System", periodic protection audit has to be conducted once in year for critical substation and once in four years other substations. Subgroup had discussed to find out the list of critical substations in the Meeting held on 6th December, 2017. After detailed deliberation, forums finalized the critical substations of NER and are as follows:

- a. POWERGRID: 400/220/33 kV Balipara, 400/132 kV Biswanath Chariali, 400/220/33 kV Bongaigaon, 400/220/33 kV Misa, 400/132/33 kV Silchar, 220/132 kV Dimapur, 220 kV Mariani (PG), 220/132 kV Salakati.
- b. NEEPCO: 400/132 kV Ranganadi, 220/132 kV AGBPP
- c. OTPC: 400/132 kV Palatana
- d. NTPC: 400/220 kV BgTPP
- e. AEGCL: 400/220 kV Azara, 220/132/66/33 kV Agia, 220/132/33 kV BTPS, 220/132/66/33 kV Mariani, 220/132/33 kV Samaguri, 220/132/33 kV Sarusajai, 220/132 kV Sonabil
- f. MePTCL: 400/220/132 kV Byrnihat (Killing)
- g. TSECL: 132/33/11 kV Agartala (79 Tilla), 132/33 kV Surajmani Nagar

In 49<sup>th</sup> PCC, Member Secretary enquired about the status of the Audit Report. It was intimated that the First Phase Audit report is in final stage and would be submitted by 31.03.2018. EE (System Protection), MePTCL informed the forum that the First Phase Audit report and Template settings as per Ramakrishna Task Force Committee is completed and will be submitted to the Convener Audit Protection for approval. MS, NERPC opined that upon his visit to +/-800kV HVDC it was observed that only audit of AC system is possible.

DGM(SO-II), NERLDC suggested forum to arrange a separate meeting to discuss the observations and recommendations of 3<sup>rd</sup> Party Protection Audit Report before next PCC Meeting for fruitful deliberation in the PCC Meeting.

EE(System Protection), MePTCL has already submitted the Audit Report for Meghalaya and Mizoram.

In 50<sup>th</sup> PCCM CM, NERTS informed that the all audit reports have been completed except Assam. AM, AEGCL informed that Assam Audit Report would be submitted by 10.05.2018.

SE(O&P), NERPC informed that a meeting would be convened tentatively in the last week of May'18 to discuss the findings of the Protection Audit. He requested concerned members to attend the meeting, date and venue of which would be intimated in due course of time.

**Deliberation of the sub-Committee:**

Director(O&P), NERPC updated the status of the third party protection audit. He informed that a comparative summary (detailing 2012-13 audit status & 2017-18 audit) has been circulated to all the utilities, for updation of latest status and timeline. The forum requested all the utilities to submit the status and timeline for completion of suggested remedial actions by 31.08.2018.

***The Sub-Committee noted as above.***

***Action: All concerned utilities.***

**A.2 Standardization of Disturbance Recorder Channels:**

AEGCL informed the forum that they have implemented the standardization of DR channel in all lines connected to other utilities. AEGCL will intimate the updated status through mail.

MePTCL informed the forum that they have standardized DR channels for Micom relay. They are facing problem for ABB relay and referred to NERTS, POWERGRID for help. The Forum requested POWERGRID to assist on this matter.

NERLDC requested all power utilities to provide DR output (DAT and CFG file) of all the transmission elements for verification.

In 49<sup>th</sup> PCCM, AEGCL representative informed that for remaining 6 sub-stations standardization would be completed by May'18. E E (System Protection), MePTCL informed that after obtaining the ABB software from AEGCL, the standardisation for remaining stations of Mendipathar SS, Killing SS, Stage III PS and Stage IV PS will be completed by 30.04.2018. The forum requested NERLDC to circulate the DR template to all concerned utilities.

SE(O&P), NERPC suggested that during erection works under R&U scheme the commissioning engineers should do the work of DR channel standardization.

In 50th PCCM,NERLDC informed the forum that list of elements for which DR standardization has been completed will be circulated to all constituents. Forum requested all constituents to update the status.

SE(O&P),NERPC requested other utilities to submit a schedule in alignment with R&U works.

Format for DR standardization (formulated by POWERGRID) is for One and Breaker scheme and DMT scheme. Few modifications are required for other bus schemes.

**Deliberation of the sub-Committee:**

NERLDC informed the forum that draft DR standardized format for MT scheme has been formulated( attached at **Annexure-A.2**). The forum requested all the utilities to submit their comments as well as schedule for DR standardization at the earliest.

***The Sub-committee noted as above.***

***Action: All utilities as above.***

**A.3 Implementation of SPAR**

In 48<sup>th</sup> PCCM, NTPC informed the forum that they are having problem with implementation of the scheme due to coordination issue between differential and distance protection. POWERGRID informed that they will take up the issue.

NERLDC suggested to the forum that Single Phase/Three Phase Auto-reclosing scheme as applicable considering breaker mechanism has to be implemented in all the lines to ensure reliability. For Single pole breaker, Single Phase Auto reclosing scheme has to be enabled for maintaining synchronism through other healthy phases. Also, priority scheme is to be ensured in one and half breaker scheme.

In 49<sup>th</sup> PCCM, DM(E/M), NEEPCO enquired whether there are any specific guidelines regarding activation of A/R for lines connecting two generating stations e.g. 132kV Khandong-Kopili D/C.

NERLDC informed the forum that as per Central Electricity Authority (Technical Standards for Construction of Electrical Plants and Electric Lines) Regulations, 2010, 3 ph A/R should be in place for 132 kV lines.

EE, System Protection, MePTCL informed that a feasibility report regarding implementation of A/R in MePTCL system would be submitted by Apr'18. The forum decided that availability of A/R facility would be specifically mentioned in the Protection Audit Report. It was also discussed that once installation of Numerical



Relays under PSDF scheme is done, the implementation of Auto-reclosing schemes in all the states can be done more effectively.

In 50<sup>th</sup> PCCM DM(E/M), NEEPCO once again re-iterated that for 132kV Khandong-Kopili D/C a detailed study is required regarding which end should be dead sync and which end check sync as both end involve generator. He informed that it would be a retrograde step to implement 3-ph A/R for 132kV Khandong-Kopili D/C.

OTPC representative also expressed similar concerns regarding 132kV Palatana - SMNagar because of poor fault clearing times at 132kV SM.Nagar and beyond.

DGM(SO-II), NERLDC informed that as per CEA (Technical Standards for Construction of Electric Plants and Lines) Regulations, 2010 it is mandatory to implement A/R for all 132kV and above lines. Members noted the concern of OTPC & NEEPCO and decided that the matter would be referred to CEA/NPC with 3-ph fault levels of the respective buses.

A list detailing the status of implementation of A/R for different lines is attached at **Annexure-A.3**. SE(O&P),NERPC requested all the utilities to update the status in the attached list before the next meeting.

**Deliberation of the sub-Committee:**

Director(O&P), NERPC informed the forum of the decision conveyed by NPC for implementation of A/R for lines connecting two generating stations. Considering stress on generators it is recommended not to implement A/R for lines connecting two generating stations. So A/R is not to be implemented for 132kV Khandong-Kopili D/C. DGM(AM), NERTS opined that SPAR should not be allowed for lines connecting two generating stations as that may allow flow of negative sequence current to generators. Forum requested OTPC to keep auto recloser in auto mode for 132 kV S M Nagar – Palatana line at Palatana. Palatana confirmed that Auto-reclose will be enabled by 10.09.18. Meanwhile, OTPC was requested to revert back with the study for implementation of 3-ph- A/R for 132kV Palatana-SMNagar. The forum once again requested all the utilities to update the status of A/R wherever information is not yet available as per format attached as **Annexure A3**.

***The Sub-committee noted as above.***

***Action: All state transmission utilities/OTPC.***

#### **A.4 Disturbance in Tripura System**

As discussed in previous PCC meeting there have been a number of disturbances in Tripura system. However no fruitful resolution was achieved due to non-participation by TSECL. Brief recommendations of 48<sup>th</sup> PCC are as follows:

- Non-directional E/M relays for O/C, E/F at PKBari to be made directional
- Installation of Numerical relay at 132kV PKBari
- Installation of Line differential relay for 132kV PKBari - Kumarghat

These are to be addressed immediately.

Further Kumarghat blackout happened on 04.02.18. This could not be analyzed in the Sub-group meeting on 06.03.18 due to absence of DR/EL outputs from Tripura.

In 49<sup>th</sup> PCCM DGM(AM),NERTS informed that line differential relay for 132kV P.K.Bari-Kumarghat would be installed at both ends by NERTS. The Sub-Committee decided that TSECL would hand over spare NR at 132kV PKBari to NEEPCO for installation at AGTCCPP for 132 kV AGTCCPP – Kumarghat line.

DGM(SO-II),NERLDC informed that a team from NERLDC would visit Rokhia, 79Tilla, Udaipur, Monarchak to co-ordinate downstream relay settings.

In 50<sup>th</sup> PCCM Sr. Manager, TSECL informed that R&U works have been taken up in earnest. He informed that works at 79Tilla, Rokhia, Udaipur and PKBari would be carried out with utmost priority. The approximate timeline agreed by TSECL is as follows:

<b><i>Name of sub-station</i></b>	<b><i>Time of completion</i></b>
79Tilla	Jul'18
Rokhia	Aug'18
Udaipur	Oct'18
PKBari	Oct'18

Members requested that in view of the large number of grid incidences concerning Tripura, the R&U works be expedited ASAP. Forum requested TSECL to ensure installation of DPR at both ends of the lines emanating from these substations.

CM, NERTS informed that Line Differential Relay for 132kV PK.Bari-Kumarghat and 132kV AGTCCPP-Agartala D/C would be commissioned by Dec'18.

#### **Deliberation of the sub-Committee:**

Sr.Manager, TSECL informed that R&U works for 79Tilla, Rokhia, Udaipur and PKBari would be complete by 15.10.2018.

*The Sub-committee noted as above.*

**Action: TSECL, NERTS.**

**A.5. Identification of short lines to install line differential protection**

As per deliberation of 47th PCC Meeting of NERPC, it was decided to change the criterion for installation of Line Differential Protection (LDP) in 132 kV lines from 5 kms to 10 kms to cover important lines of NER like 132 kV AGTCCPP – Agatala D/C.

During 47th PCC Meeting of NERPC, Member Secretary, NERPC requested all constituents make a list of following information:

List of all short lines.

List of lines where differential protection was commissioned.

List of all short lines where differential protection was installed but not commissioned.

List of all short lines where installation of differential protection is envisaged

The forum requested all states to make the above-mentioned list and make DPR for PSDF funding for installation of differential protection.

In 50<sup>th</sup> PCCM Sr. Manager, TSECL informed that 132kV 79Tilla-Bodhjannagar is to be included in the list of lines for Line Differential Protection. CM, NERTS stated that FO between two stations are essential for implementing Line Differential Protection in the line. In this regard SE(O&P), NERPC requested all states to approach for PSDF funding under 'Reliable Communication' category. He also requested all STUs to kindly prepare a list of lines of length less than 10km and submit before next PCCM. NERLDC informed that a list has been prepared for important grid elements under the category of short lines and the same is attached at **Annexure A.5** for reference.

SE (O&P) requested all states to identify short lines in their power system for installation of LDP. MePTCL representative informed that MePTCL has already submitted DPR for Line Differential Protection and Reliable Communication factoring in the FO and allied materials required for line differential protection and both DPRs are awaiting approval of Appraisal Committee. NERTS informed that 15 Nos. of lines has been identified for installation of LDP and expected to be commissioned by Dec'18. However, for Reliable Communication there is an issue over 100% funding .The matter will be placed in the next TCC/NERPC meeting at Imphal.

**Deliberation of the sub-Committee:**

DGM(AM), NERTS stated that 220kV transmission lines with length less than 10km has been considered by NERTS for installation of LDP. He opined that for 132kV lines

impedance is to be matched with 220kV lines and then only decision may be taken for installation of LDP. The forum requested all the state utilities to accordingly conduct the exercise and revise the list ASAP with revision of DPR if necessary.

***The Sub-committee noted as above.***

***Action: All state transmission utilities/NERTS.***

**A.6 Tripping of 400kV BgTPP-Bongaigaon-I on 08.05.18:**

400 kV Bongaigaon - BgTPP Line I tripped at 17:39 Hrs on 08.05.18 due to DT Received from Bongaigaon.

400 kV Bongaigaon - BgTPP I Line had also tripped on 06.10.17 at 15:50 Hrs due to DT received at BgTPP end and no tripping at Bongaigaon.

Tripping of 400 kV Bongaigaon - BgTPP I and II Lines is a very critical issue and pose a threat to the security and reliability of the grid.

In 50<sup>th</sup> PCCM CM, NERTS informed that on 08.05.18 due to Main DC(+/- 220V) Mixing, DT was send to BgTPP from the respective PLCC panel. Mixing of DC (220 V & 48 V) occurred due to DC earth fault at Bongaigaon(PG). AGM(OS), NTPC opined that since the problem was recurring in nature, PLCC panels may be checked immediately. He also suggested that inter-trip for main protection may be shifted to OFC for Line Differential protection, by using the spare core. It was decided that NERTS would investigate the issue thoroughly and rectify the issue at the earliest.

**Deliberation of the sub-Committee:**

NERTS informed that the DC earth fault issue has been rectified. Members decided to drop the agenda item.

***The Sub-committee noted as above.***

**A.7 Technical presentation in PCCM:**

In 50<sup>th</sup> PCCM SE(O&P), NERPC stated that as decided in earlier PCC meeting; technical presentation would be given on important topics once PCC deliberations are completed. It was decided that on the 51<sup>st</sup> PCC meeting, presentations on (1)Ramakrishna Task Force Recommended settings by NERTS (2) D/R inference and analysis will be given by NERTS.

**Deliberation of the sub-Committee:**

DGM(AM), NERTS gave a presentation on the various 'Bus Bar Schemes' and their functionality. The forum unanimously appreciated the lucid, detailed and insightful presentation given by DGM(AM). Member Secretary requested NERTS again to give a

presentation on the Ramakrishna Task Force Recommended Settings in the next PCCM.

**The Sub-committee noted as above.**

**Action: NERTS.**

**B.1 Actions recommended by Sub-group:**

The Sub-group in its meeting held on 29.06.18 & 02.08.2018 recommended actions based on tripping. The latest status is as follows:

Sl. No	Brief details of the disturbance/incidence	Actions to be taken	Concerned Utilities	Status as per 51 <sup>st</sup> PCC
1	220kV Misa blackout and loss of generation of Khandong and Kopili on 21.05.18	ICT-2 at Misa delayed fault clearance is to be analysed.	NERTS	To be analysed again in Sub-group
		O/C settings for 132 kV Khliehriat – Khandong -I to be checked.	NERTS/NEEPCO	O/C setting- 320A Operation - 340A No change required. <b>To be dropped.</b>
		Z-2 overlapping of 220 kV Misa - Samaguri and 220 kV Samaguri -Sarusajai to be checked.	AEGCL/NERTS	By Aug'18
2	Faults in 132kV 79Tilla-Rokhia D/C	Rokhia E/F relay to be made directional. OR Directional Earth Fault function of DPR is to be enabled and then disable backup earth fault relay (EM).	TSECL	After DPR installation. By Oct'18
3	Tripping of 400kV Silchar-Byrnihat and 400kV Silchar-Azara on 18.06.18	Tower top patrolling to be undertaken to identify the exact location of the fault.	NERTS	By Aug'18(Chemical Earthing in process).
		Reason for DPR (Main-2) overreach at Bongaigaon is to be investigated	NERTS	Rectified
		A separate group of settings for Micom P 444 to be activated with Zone 1 setting =60% when the parallel circuit is earthed at both ends for maintenance.	NERTS	Completed. To be dropped

		Reasons for non-operation of R-ph CB for 132kV Dimapur-Imphal to be investigated	NERTS	Rectified.
4	Repeated trippings of 132kV Doyang-Mokokchung and 132kV Mokokchung-Mokokchung D/C	Timings at 132 kV Mokokchung(PG) and 132kV Doyang to be increased.	NERTS/NEEPCO	By Aug'18
		Relay and protection system healthiness of all elements to be checked at Mokokchung(NAG).	DoP Nagaland	No representative
5	Tripping of 132kV Khliehriat-Khliehriat D/C on 09.05.18	Reasons for non-tripping of 132 kV NEHU-Khliehriat line from NEHU end and 132 kV Mustem – Khliehriat line from Mustem end are to be investigated.	MePTCL	Mustem-Khliehriat Line at Mustem SS has been reduced from 0.35 and 0.5 to 0.3 & 0.45 Sec on the 2nd June 2018 as informed during the Sub-Group Committee and the recently concluded PCC meeting.
		Reasons for non-operation of bus bar protection at Khliehriat(ME).	MePTCL	Bus bar protection not in scheme.
		Z-III timing of 132 kV Khliehriat (PG) for 132 kV Khliehriat-Khliehriat Line 2 is to be checked	NERTS	Completed To be dropped
6	Jiribam blackout on 06.06.18	Z-III timing at Jiribam reduced to 200ms for 132kV Jiribam-Pailapol.	NERTS	Completed To be dropped.
		Downstream settings at Pailapol to be coordinated if not done	AEGCL	By 28.08.2018
		Protection settings and relay healthiness for 132kV Pailapol-Srikona at Pailapol to be ensured	AEGCL	By 28.08.2018
7	Tripping of 400kV Palatana-Silchar D/C on 11.05.18	Non attempt of Auto recloser at Palatana of 400 kV Silchar – Palatana 2 line to be investigated	OTPC	By Aug'18

8	Tripping of 220kV Misa-Byrnihat-I on 09.05.18	Maloperation of Earth Fault relay at Misa to be attended	NERTS	By Aug'18
9	Repeated trippings of Silchar ICT-I in June	Opto i/ps to Main protection becoming high upon relay restart. Matter has been referred to OEM. Meanwhile to prevent such mal operation, delay of 19 mS has been introduced to all binary inputs.	NERTS	Replacement of P663 Relay at Silchar by 30 <sup>th</sup> Apr'19
10	Tripping of ICT at Bongaigaon and 400kV Bongaigaon-BgTPP-II	Due to DC earth fault.	NERTS	Rectified.
11	Repeated tripping of 400kV Palatana-Silchar-2	Maloperation of B/U impedance relay. DT sent due to relay restart/self-restart to be investigated.	NERTS	OEM visited. Detailed report to be given by 15 <sup>th</sup> Sep'18.
12	Tripping of ICT-II at BgTPP on 30.07.2018	Reasons for PRV operation to be intimated.	NTPC	No representative
13	Tripping of Balipara ICT on 04.07.18	Maloperation of R-ph WTI & OTI due to burning of control wires in the marshalling box. Proper covers to be provided.	NERTS	Already completed.
14	Tripping of 400kV Balipara-Bongaigaon-3 on 26.07.18	Maloperation of O/C relay at Bongaigaon	NERTS	By Aug'18
15	Repeated tripping of 400kV Balipara-Bongaigaon-3	Resistive reach to be reviewed at both ends	NERTS	Done
16	Tripping of 220kV Misa-Samaguri-2 on 02.07.18	SOTF operation while transferring from one bus to another (non-operation of changeover switch) at Samaguri.	AEGCL	Fault in relay rectified by NERTS. AEGCL-By Aug'18
17	Aizawl blackout on 12.08.18	CT blast in one of the 33kV feeders at Kolasib. Healthiness of protection system of faulty 33kV feeder to be checked.	P&ED Mizoram	33kV Feeder CT healthy. Fault in 132V line CT. 132kV Defective CT repaired.
		LBB operation at Aizawl due to non-extension of relay trip signal. Old 7SA51 relay at Aizawl to be replaced.	NERTS	Completed
18	Tripping of 132kV Bus-B at RHEP due to bus	Failure of bus post insulator of 132kV	NEEPCO	Done

	differential on 07.07.18	RHEP-Chimpu. To be replaced.		
		Bus bar protection to be configured in DR of all elements at RHEP.	NEEPCO	By Sep'18
19	Repeated Tripping of 132kV Palatana-SMNagar and 132kV SMNagar-Comilla	DPR at Palatana over-reached. Settings to be reviewed and DPR tested.	OTPC	By 10.09.2018
20	Tripping of 132kV Rangia-Motonga-I on 20.07.18	DR standardization to be done at Rangia.	NERTS	To be taken up with NLDC by NERPC
21	Repeated tripping of 400kV Silchar-Azara	Resistive reach of DPR to be reviewed at both ends.	NERTS	vegetation at Loc 365-366 to be cleared by 15.09.18

**Deliberation of the sub-Committee:**

The forum thanked respective utilities for providing clear timeline against various corrective actions.

***The Sub-committee noted as above.***

***Action: All utilities as above.***

**B.2 Tripping due to downstream fault or fault beyond the lines:**

In the deliberations of the Sub-group it has been observed that a number of lines are being tripped due to downstream fault or fault beyond the lines. The list is enumerated below:

- 132kV Silchar(PG)-Hailakandi(AS) D/C
- 132kV Khliehriat(PG) - Khliehriat(MEG)-II
- 132kV Imphal(PG) - Imphal(MAN) -D/C
- 132kV Haflong(PG) - Haflong(AS)
- 132kV Pare(NEEPCO) - Lekhi(AP)
- 132kV Doyang(NEEPCO) - Mokokchung(NAG)
- 132kV Doyang(NEEPCO) - Sanis(NAG)

Concerned utilities may kindly submit the status for (i) relay setting co-ordination with downstream, (ii) healthiness of protection system for downstream feeders.

**Deliberation of the sub-Committee:**

Director(O&P) informed that the frequent tripping of 132kV Imphal-Imphal D/C has once again recurred. The forum requested MSPCL to review the downstream settings or keep it the same as of when NERTS visited Imphal(MAN).



ED, NERLDC suggested that audit of Substations in Imphal may be done first during second phase of 3<sup>rd</sup> party protection audit to attend the issue of downstream problems as well. Also,

Director(O&P) suggested that due to absence of people from distribution wing, the issues related to downstream problems cannot be discussed. Hence, a special meeting may be called involving all distribution wing to discuss and resolve the issue. For the other lines the forum requested the concerned utilities to take necessary action.

***The Sub-committee noted as above.***

***Action: AEGCL, MePTCL, MSPCL, DoP Ar.Pradesh, DoP Nagaland.***

### **B.3 Repeated trippings due to vegetation:**

In the deliberations of the Sub-group it has been observed that a number of lines are tripping due to vegetation overgrowth i.e. transient tripping almost continuously throughout the year.

Month	Name of line/ No. of trippings		
	132kV Balipara-Khupi	132kV Dimapur-Kohima	132kV Aizawl-Kumarghat
Jan'18	2	1	1
Feb'18	1	1	2
Mar'18	3	4	1
Apr'18	4	1	2
May'18	0	0	4
June'18	4	6	3
July'18	6	4	4

For this patrolling reports and self-certification of vegetation clearance is to be submitted by the concerned utilities. The item has been included in the 147<sup>th</sup> OCCM also.

Also the following lines have been observed to have tripped frequently on transient faults due to vegetation in the months of May-Jul'18:

- 400kV Balipara- Biswanath Chariali -II
- 400kV Silchar - Azara
- 400kV Balipara - Bongaigaon-III

### **Deliberation of the sub-Committee:**

Director(O&P) stated that repeated trippings due to vegetation is not desired. DGM(AM),NERTS opined that it is doubtful that 132kV Aizawl-Kumarghat has tripped so many times due to vegetation. Further he stated that 400kV Balipara-Biswanath

Charili shares corridor with 800kV HVDC. So there are many RoW issues and this is hampering vegetation clearance. After detailed deliberation the forum decided the following:

- NERTS, NEEPCO and DoP Nagaland to furnish patrolling report and vegetation clearance self-certificate by 15.09.18
- Reasons for A/R non-operation in case of 132kV Aizawl-Kumarghat for vegetative tripping to be investigated by 15.09.18.
- DoP Nagaland to give the status of installation of A/R for 132kV Dimapur-Kohima ASAP.

All constituents are requested to submit patrolling report of previous month by 15<sup>th</sup> of the month.

***The Sub-committee noted as above.***

***Action: NERTS, NEEPCO, DoP Nagaland.***

#### **B.4 Approval of protection settings to be adapted by NERPC secretariat for 1st time charging of any new elements to the grid**

Before 1st time charging of any new elements to the grid, applicant must apply for approval of protection settings to be adapted to NERPC secretariat.

For ensuring the safe and secure operation of the grid, 1st time charging request will be processed by NERLDC after implementation of approved settings.

**Deliberation of the sub-Committee:**

The forum concurred.

***The Sub-committee noted as above.***

***Action: All utilities.***

#### **B.4 Protection database**

For preparation of a basic protection database of North Eastern region, Power Utilities of NER are requested to check and verify the following details attached as **Annexure-I**. Updated Annexure-I will be presented in the meeting.

SI No	Details Required	Remarks
1	Adopted CT Ratio, PMS and TMS of Over Current Relay, Current Rating of Terminal Equipments (Isolator, wavetrapped etc), Conductor Type & any other limitations, if any	To calculate the Max. allowable Line Loading

3	Availability of DR & EL (Element wise & Protection wise in case of stand-alone DR & EL not available ) and DR standardization	For event analysis
5	Details of Polymer Insulator, TLSA of lines	
6	Relay Details with present settings , Auto Recloser facility in lines	

Utilities are requested to check and verify the data provided in the Annexure-I and also provide the data is missing.

Utilities are requested to update the document and email to NERLDC ([nerldcprotection@posoco.in](mailto:nerldcprotection@posoco.in)) by 31<sup>st</sup> Aug'18.

**Deliberation of the sub-Committee:**

Director(O&P), NERPC informed that PDMS is slated for commencement in Oct'18. He stated that the presently available data be integrated in PDMS. Remaining data would be collected from site by the vendor. The forum decided to drop the agenda item.

***The Sub-committee noted as above.***

***Action: All utilities.***

**B.5 Tripping Monitoring System Web portal for DR & EL output and FIR**

Web portal has been developed by POSOCO for furnishing DR & EL outputs and FIR along with documentary evidences for each grid events by concerned utilities. Tripping of important grid elements will be made available in the web portal by NERLDC.

Utilities are requested to upload DR & EL outputs and FIR along with documentary evidences for the events pertaining to them through this web portal within 24 Hours of an grid event.

NERLDC will explain the procedure for uploading DR & EL outputs and FIR to constituents in the meeting.

**Deliberation of the sub-Committee:**

GM, NERLDC updated the members of the tripping web portal designed by NERLDC. He requested all the utilities to upload DR, EL and FIR in the portal available @ [www.nerldc.org](http://www.nerldc.org) within 24hrs of the incident w.e.f 1<sup>st</sup> of Sep'18. Members welcomed the initiative and hoped that this would enable speedy analysis of any tripping.

***The Sub-committee noted as above.***

***Action: All utilities.***

**B.6 Analysis & Discussion on Events, Grid Incidences, Grid Disturbances which occurred in NER Grid w.e.f 1<sup>st</sup> May 2018 – 31<sup>st</sup> July 2018.**

The following numbers of Grid Disturbances (GD) & Grid Incidents (GI) occurred during the period w.e.f 1<sup>st</sup> May 2018 – 31<sup>st</sup> July 2018:

Sl. No.	Control Area	Grid Incidents in nos. (May'18 to Jul'18)	Grid Disturbance in nos. (May'18 to Jul'18)	Grid Incidents in nos. (Jan'18 to Jul'18)	Grid Disturbance in nos. (Jan'18 to Jul'18)
1	Palatana	7	1	12	1
2	AGBPP	8	0	21	0
3	AGTPP	4	1	28	2
4	Ranganadi	0	0	0	0
5	Kopili	5	1	10	1
6	Khandong	6	2	7	2
7	Doyang	2	1	2	1
8	Loktak	0	1	0	1
9	BgTPP	9	0	18	0
10	Pare	4	0	4	0
11	Arunachal Pradesh	3	12	3	29
12	Assam	0	16	0	25
13	Manipur	0	13	0	15
14	Meghalaya	0	9	0	9
15	Mizoram	0	6	0	13
16	Nagaland	0	17	0	31
17	Tripura	0	11	0	25

Sl. No.	Category of GD / GI	Grid Disturbance in nos.	
		May'18 to Jul'18	Jan'18 to Jul'18
1	GI-I	16	53
2	GI-II	29	49
3	GD 1	72	127
4	GD 2	0	1
5	GD 3	1	1
6	GD 4	0	0
7	GD 5	0	0
8	<b>Total GI</b>	<b>45</b>	<b>102</b>
9	<b>Total GD</b>	<b>73</b>	<b>129</b>

**Deliberation of the sub-Committee:**

NERLDC informed the forum that there were several cases of tripping reported due to LBB operation, relay mal-operation and mal-operation of Buchholz relay, WTI, PRD for the period w.e.f 1<sup>st</sup> May'18 to 31<sup>st</sup> Jul'18:

SI No	Description	Number of Incidents
1	LBB Operation	3
2	Buchholz/WTI/PRD Mal-operation	9
3	Due to relay mal-operation	9

These events pose a serious threat to the safe and secure operation of the grid. Concerned Utilities are requested to attend the issues at the earliest so that recurrence of these events can be prevented.

NERTS, POWERGRID informed that issues associated with LBB operation have been attended. Canopy is to be provided for all ICTs owned by POWERGRID by Sep'18 to avoid mal-operation of Buchholz/WTI/PRD. POWERGRID informed that P663 relay has been replaced in all other regions due to frequent malfunctioning. In NER, malfunctioning has been observed at 400 kV Silchar S/S. Forum requested NERTS to intimate the total no of P663 relays in NER and action plan for replacement by 31<sup>st</sup> Aug'18.

***The Sub-Committee noted as above.***

#### **B.7 Non-furnishing of DR/EL:**

DR/EL are not being furnished timely or not at all by various utilities. The status is given at **Annexure-B.7**.

#### **Deliberation of the sub-Committee:**

The forum took serious note of the non-furnishing of DR/EL. After detailed deliberation it was decided that before Sub-group meeting mail would be sent to respective utilities for non-furnishing of DR/EL and root cause for all GD-I and above incidents.

Director(O&P), NERPC requested NERLDC to intimate NERPC the non compliance by any of the utility so that he can take up with their Management to furnish the DR/EL on time for analyzing the incidences.

MEPTCL has already instructed ISTS Resident Engineers to send the DR after every tripping to NERLDC

***The Sub-committee noted as above.***

***Action: All utilities.***

**B.8 Installation of Line Differential Relays in Transmission Line length less than 10 Km.**

In various PCC Meetings, deliberations in regard to installation of Line Differential Relays for short lines was done and finally, in 50<sup>th</sup> PCC Meeting it has been decided to install Line Differential Relays for lines having length less than 10 Km. Accordingly, following lines are worked out for installation of Line Differential Relays:

SN	Line	Length (CKm)
1	132kV D/C RC Nagar – Agartala - I	8.38
2	132kV D/C RC Nagar – Agartala - II	8.38
3	132kV D/C Mokokchung – Mokokchung - I	1.70
4	132kV D/C Mokokchung – Mokokchung - II	1.70
5	132kV S/C Aizawl – Melriat	12.00
6	132kV S/C Badarpur – Badarpur	1.02
7	132kV S/C Imphal – Imphal - I	1.50
8	132kV S/C Imphal – Imphal - II	1.50
9	132kV S/C Kumarghat – PK Bari	5.00
10	132kV S/C Khliehriat – Khliehriat - I	7.8
11	132kV S/C Dimapur (PG) – Dimapur (S) - Old	0.65
12	132kV S/C Dimapur (PG) – Dimapur (S) - New	0.65
13	220kV S/C Balipara - Tezpur	8.62
14	220kV Salakati – BTPS - I	2.70
15	220kV Salakati – BTPS - II	2.70

The tentative expenditure for **(1) Procurement of Relays, FO Cables, Connectors etc.** and **(2) OPGW for lines in SN 8 & 12** will be approximately **Rs. 1.70 Crores (One Crores Seventy Lakhs Only)**. POWERGRID proposes to execute the job and recover the expenditure on PoC Mechanism obtaining approval of TCC & NERPC.

**Deliberation of the sub-Committee:**

DGM(AM), NERTS informed that of the above list of lines 132kV Imphal-Imphal-II is a state line, for which NERTS would install LDP since Ckt#I is ISTS. Also 220kV

Balipara-Tezpur line, where Balipara bay is owned by POWERGRID After detailed deliberation the forum approved the above.

***The Sub-committee noted as above.***

***Action: NERTS.***

### **B.9 Status of Installation of Line Differential Relays in Transmission Line length less than 10 Km.**

Following is the list of lines where it is proposed to install Line Differential Relays:

SN	Line	Length (CKm)
1	132kV D/C RC Nagar – Agartala - I	8.38
2	132kV D/C RC Nagar – Agartala - II	8.38
3	132kV D/C Mokokchung – Mokokchung - I	1.70
4	132kV D/C Mokokchung – Mokokchung - II	1.70
5	132kV S/C Aizawl – Melriat	12.00
6	132kV S/C Badarpur – Badarpur	1.02
7	132kV S/C Imphal – Imphal - I	1.50
8	132kV S/C Imphal – Imphal - II	1.50
9	132kV S/C Kumarghat – PK Bari	5.00
10	132kV S/C Khliehriat – Khliehriat - I	7.8
11	132kV S/C Dimapur (PG) – Dimapur (S) - Old	0.65
12	132kV S/C Dimapur (PG) – Dimapur (S) - New	0.65
13	220kV S/C Balipara - Tezpur	8.62
14	220kV Salakati – BTPS - I	2.70
15	220kV Salakati – BTPS - II	2.70

### **Status of Relays**

Schedule for procurement of Line Differential Relays, FO Cables, Connectors etc. is as below:

- T&A Approval : 31.08.2018
- NIT : 30.09.2018 (After approval of NERPC)
- OBD : 15.01.2019
- LOA : 15.02.2019

### **Status of OPGW**

The status of OPGW of various lines for installation of Line Differential Relays is as below:

S N	Transmission Lines	Name of Project	Completion Status
1	132KV D/C RC Nagar-Agartala-I	NERFO Expansion	Completed

S N	Transmission Lines	Name of Project	Completion Status
2	132KV D/C RC Nagar-Agartala-II	NERFO Expansion	Completed
3	132KV D/C Mokokchung – Mokokchung - I	MW Vacation	WIP Nov'18
4	132KV D/C Mokokchung – Mokokchung - II	MW Vacation	WIP Nov'18
5	132 KV S/C Aizwal - Melriat	MW Vacation	Completed
6	132KV S/C Badarpur - Badarpur	MW Vacation	Completed
7	132 KV S/C Imphal - Imphal-I	MW Vacation	WIP October'18
8	132 KV S/C Imphal - Imphal-II	To be awarded	January 2019
9	132 KV S/C Kumarghat - PK Bari	Tripura state line	NA
10	132 KV S/C Khliehriat-Khliehriat-I	NERFO Expansion	WIP November'18
11	132KV Dimapur (PG)-Dimapur (S) - Old	NERFO Expansion	WIP November'18
12	132KV Dimapur (PG)-Dimapur (S) - New	To be awarded	February 2019
13	220 KV S/C Balipara-Tezpur	AEGCL	NA
14	220KV Salakati-BTPS-I	NERFO Expansion	Yet to Start August'19
15	220KV Salakati-BTPS - II	NERFO Expansion	Yet to Start August'19

***The Sub-committee noted as above.***

***Action: NERTS.***

#### **B.10 Draft Reliability Standards:**

The draft reliability standards are available at:

[http://www.cea.nic.in/reports/committee/nrce/rel\\_stand\\_pcs\\_minutes-5.pdf](http://www.cea.nic.in/reports/committee/nrce/rel_stand_pcs_minutes-5.pdf)

[http://www.cea.nic.in/reports/committee/nrce/rel\\_stand\\_pcs\\_minutes-4.pdf](http://www.cea.nic.in/reports/committee/nrce/rel_stand_pcs_minutes-4.pdf)

[http://www.cea.nic.in/reports/committee/nrce/rel\\_stand\\_pcs\\_minutes-3.pdf](http://www.cea.nic.in/reports/committee/nrce/rel_stand_pcs_minutes-3.pdf)

[http://www.cea.nic.in/reports/committee/nrce/rel\\_stand\\_pcs\\_minutes-2.pdf](http://www.cea.nic.in/reports/committee/nrce/rel_stand_pcs_minutes-2.pdf)

[http://www.cea.nic.in/reports/committee/nrce/rel\\_stand\\_pcs\\_minutes-1.pdf](http://www.cea.nic.in/reports/committee/nrce/rel_stand_pcs_minutes-1.pdf)



**Deliberation of the sub-Committee:**

NERPC requested all the concerned utilities to kindly peruse the reliability standards and submit their comments.

***The Sub-committee noted as above.***

***Action: All utilities.***

**ADDITIONAL AGENDA ITEMS**

**B.11 Protection System w.r.t. 132kV Balipara-Khaligaon**

Director(O&P) informed that though necessary sanction has been given to connect 132kV Balipara-Khaligaon radially the protection system is not in place. AEGCL informed that necessary changes in settings at 132kV Balipara has been completed and protection system is ensured to be healthy. It was decided that AEGCL would submit the revised settings to NERPC by 31.08.2018.

***The Sub-committee noted as above.***

**ADDITIONAL AGENDA ITEM FROM NERLDC:**

**B.12 Aizwal black out on 4<sup>th</sup> Aug'18**

NERLDC gave a presentation on this event and requested POWERGRID & MSPCL to take necessary actions at the earliest. Presentation is attached as **Annexure B.12**.

After detailed discussion, this event was referred to subgroup meeting. Also, MSPCL was requested to send the DR and EL output for proper analysis of the event. Director (O&P) informed the forum that finding of subgroup to be circulated to members for their comments.

***The Sub-committee noted as above.***

**B.13. Status of SPS 1 and SPS 4 and Island No 2 reviewed in System Studies Meeting on 10.05.2018**

Design of SPS 1 and SPS 4 and Island No 2 was reviewed in System Studies Meeting on 20.05.18. The following modifications were decided:

**SPS-1**

- Tripping of 132 kV Silchar - Srikona D/C from Silchar End (already functioning)
- Tripping of 132 kV Badarpur – Panchgram S/C from Badarpur End after receiving signal from Silchar End (to be implemented)

- Tripping of 132 kV Silchar – Hailakandi D/C from Silchar End (1 ckt functioning & to be implemented in other ckt)

➤

**SPS-4**

- Tripping of 132 kV Silchar - Srikona D/C from Silchar End (already functioning)
- Tripping of 132 kV Badarpur – Panchgram S/C from Badarpur End after receiving signal from Silchar End (to be implemented)
- Tripping of 132 kV Silchar – Hailakandi D/C from Silchar End (1 ckt functioning & to be implemented in other ckt)

NERTS informed that these modifications will be implemented by Jun'18.

Review of Island No 2 comprising of generating units of AGTPP (Gas), Monarchak(Gas), Baramura (Gas), Rokhia (Gas) & Gumati (Hydro) and loads of Tripura system & Dullavcherra area (Assam):

It was deliberated in the meeting that as per new system conditions the generation in the island is 260MW approx. while load is 360MW(including Bangladesh load). So additional shedding through UFR to the tune of 100MW is required. Sr. Manager, TSECL informed that shedding at Udaipur (40MW approx.) and 79 Tilla (50-60MW approx.) may be done, however exact details he would revert back at the earliest.

The concerned utilities may intimate the present status of work regarding SPS 1, SPS 4 and Island No 2.

**Deliberation of the sub-Committee:**

NERTS informed that necessary changes for SPS -1 and SPS -4 has been done in soft logic and suitable date may be fixed for testing the same. The Forum tentatively decided that the testing may be carried out during testing of events.

***The Sub-committee noted as above.***

**Date & Venue of next PCC meeting**

It is proposed to hold the 52nd PCC meeting of NERPC on second week of November, 2018. However, the exact date and venue will be intimated in due course.

The meeting ended with thanks to the Chair.

\*\*\*\*\*

**Annexure-I****List of Participants in the 51<sup>st</sup> PCC Meeting held on 09/08/2018**

SN	Name & Designation	Organization	Contact No.
	<b>No Representative</b>	<b>Ar. Pradesh</b>	
1.	Sh. Abhishek Kalita, Asst. Manager	Assam	08486213068
2.	Sh. Nishanta Baruah, Asst. Manager	Assam	08473036988
3.	Sh. S. Kripachariya, Manager	Manipur	08413948551
4.	Sh. Roshan Oinam, Manager, SLDC	Manipur	09863895218
5.	Sh. A.G. Tham, AEE, MePTCL	Meghalaya	09774664034
6.	Sh. Zoramdina Ralte	Mizoram	08415901755
	<b>No Representative</b>	<b>Nagaland</b>	-
7.	Sh. Sankars Choudhuri, SM	Tripura	09436503239
8.	Sh. T.S. Singh, ED	NERLDC	09436302717
9.	Sh. V. Suresh, GM	NERLDC	09449599156
10.	Sh. Amaresh Mallick, DGM (SO-II)	NERLDC	09436302720
11.	Sh. Ankit Jain, Sr. Engineer	NERLDC	09436335381
12.	Sh. Jerin Jacob, Engineer	NERLDC	09402120113
13.	Sh. Chitra Bahadur Thapa, Engineer	NERLDC	08135989964
14.	Sh. Ashim Kr. Sarmah,	NEEPCO	09435078860
15.	Sh. P. Kanungo, DGM (AM)	PGCIL	09436302823
16.	Sh. N. Yugandhar, Manager (EM)	NHPC	09800003819
17.	Sh. Mitangshu Saha, Sr. Executive	OTPC	-
	<b>No Representative</b>	<b>NTPC</b>	-
18.	Sh. P.K. Mishra, MS	NERPC	09968380242
19.	Sh. B. Lyngkhai, Director/S.E (O)	NERPC	09436163419
20.	Sh. S. Mukherjee, AD-I/AEE	NERPC	08794277306

## ANNEXURE-A.2

Disturbance Recorder for Lines for MT Scheme		
A	Configuration of ANALOG CHANNELS	
S.No.	Channel Description	Standardized Channel Name
1	R Phase Current	I-R PH.
2	Y Phase Current	I-Y PH.
3	B Phase Current	I-B PH.
4	Neutral Current	I-N PH
5	R Phase Voltage	V-R PH.
6	Y Phase Voltage	V-Y PH.
7	B Phase Voltage	V-B PH.
8	Open Delta Voltage	V-N-Open Delta

Note : Analog Channels after 8th channel and Digital channels after 32nd channel if available shall be optional.

B	Configuration of Digital Channels for 32 channels				
S.No.	Channel Description	(Limited to 16 Characters)	7 characters	Triggers	COMMENTS
1	MAIN CB R-PHASE OPEN	MAIN_CB_R_OPEN	M CB_RO	Y	
2	MAIN CB Y-PHASE OPEN	MAIN_CB_Y_OPEN	M CB_YO	Y	
3	MAIN CB B-PHASE OPEN	MAIN_CB_B_OPEN	M CB_BO	Y	
4	TBC CB R-PHASE OPEN	TBC_CB_R_OPEN	T CB_RO	Y	
5	TBC CB Y-PHASE OPEN	TBC_CB_Y_OPEN	T CB_YO	Y	
6	TBC CB B-PHASE OPEN	TBC_CB_B_OPEN	T CB_BO	Y	
7	MAIN TRIP	MAIN_TRIP	M_TRIP	Y	
8	BACKUP TRIP	BACKUP_TRIP	B_TRIP	Y	
9	AUTO RECLOSE OPTD MAIN CB	MAIN_CB_A/R_OPTD	M CB_AR	Y	
10	MAIN CB AR LOCKOUT	MAIN_CB_AR_LO	MCB_AR_LO	N	
11	MAIN CARRIER RECEIVE	MAIN_CARR_REC	M_CR	N	
12	3 PH. GROUP A/B OPERATED	3PH_GR_A/B_OPTD	GRA/B_OPD	Y	
13	POWER SWING BLOCK OPERATED	PS_BLK_OPTD	PSB_OP	N	
14	MAIN VT FUSE FAIL	VT_FUS_FAIL_M	VT_FF_M	N	
15	BUSBAR OPERATED (M1/M2)	BUSBAR_OPTD	BB_OPD	Y	
16	MAIN/TBC LBB OPERATED	M/T_LBB_OPTD	M/T_LBB	Y	
17	MAIN 1 ZONE-1 OPTD.	MAIN_Z1_OPTD	MZ1_OP	Y	
18	MAIN 1 ZONE-2 START	MAIN_Z2_START	MZ2_ST	N	
19	MAIN 1 ZONE-2 OPTD.	MAIN_Z2_OPTD	MZ2_OP	Y	
20	MAIN 1 ZONE-3 START	MAIN_Z3_START	MZ3_ST	N	
21	MAIN 1 ZONE-3 OPTD.	MAIN_Z3_OPTD	MZ3_OP	Y	
22	MAIN 1 REVERSE ZONE OPTD	MAIN_ZR_OPTD	MZR_OP	Y	
23	MAIN SOTF OPTD	M_SOTF_OPD	M12SOTF	Y	
24	MAIN CARR. SEND	M_CARR_SEND	MCRSD	N	
25	CARRIER AIDED TRIP	CARR_AID_TRIP	CAR_AID	Y	
26	MAIN/TBC CB POLE DISCREPANCY	M/T_CB_POLE_DISC	M/T_PLDSC	N	
27	OPTIONAL				
28	OPTIONAL				
29	OPTIONAL				
30	OPTIONAL				
31	OPTIONAL				
32	OPTIONAL				

Configuration of Digital Channels for 16 channels				
S.No.	DIGITAL CHANNELS	(Limited to 16 Characters)	7 characters	Triggers
1	MAIN CB R-PHASE OPEN	MAIN_CB_R_OPEN	M CB_RO	Y
2	MAIN CB Y-PHASE OPEN	MAIN_CB_Y_OPEN	M CB_YO	Y
3	MAIN CB B-PHASE OPEN	MAIN_CB_B_OPEN	M CB_BO	Y
4	TBC CB R-PHASE OPEN	TBC_CB_R_OPEN	T CB_RO	Y
5	TBC CB Y-PHASE OPEN	TBC_CB_Y_OPEN	T CB_YO	Y
6	TBC CB B-PHASE OPEN	TBC_CB_B_OPEN	T CB_BO	Y
7	MAIN TRIP	MAIN_TRIP	M_TRIP	Y
8	BACKUP TRIP	BU_TRIP	B_TRIP	Y
9	AUTO RECLOSE OPTD M/T CB	M/T_CB_A/R_OPTD	M/TCBAR	Y
10	MAIN CARRIER RECEIVE	MAIN_CARR_REC	M_CR	N
11	MAIN DEF OPTD	DEF_OPD	DEF_OPD	Y
12	SOTF OPERATED	SOTF_OPTD	STF_OPD	Y
13	BUSBAR OPERATED (M1/M2)	BUSBAR_OPTD	BB_OPD	Y
14	MAIN/TBC CB LBB OPERATED	M/T_LBB_OPTD	M/T_LBB	Y
15	MAIN CARRIER RECEIVE	MAIN_CARR_REC	M_CR	N
16	MAIN CARR. SEND	M_CARR_SEND	MCRSD	N

**Details of Auto Recloser of Lines in North Eastern Regional Grid**

**Annexure-A.3**

<i>Sl No</i>	<i>Voltage Level</i>	<i>Name of Element (Emanating - Terminating)</i>	<i>Ckt ID</i>	<b>Tower Configuration (S/C or D/C)</b>	<b>Agency at End 1</b>	<b>Agency at End 2</b>	<b>Line Length in km</b>	<b>Owner</b>	<b>AR Details (SPAR/3-Ph AR/Not Available/Information not Available)</b>	<b>Remarks</b>
1	132 kV	132 kV South Comilla (Bangladesh) - Surajmani Nagar	1	D/C	PGCB	TSECL	47.0	POWERGRID	Information not Available	
2	132 kV	132 kV South Comilla (Bangladesh) - Surajmani Nagar	2	D/C	PGCB	TSECL	47.0	POWERGRID	Information not Available	
1	132 kV	132 kV Gelyphu (Bhutan) - Salakati	1	S/C	BPCL	POWERGRID	49.2	POWERGRID	SPAR in service	
2	132 kV	132 kV Motonga (Bhutan) - Rangia	1	S/C	BPCL	AEGCL	49.0	POWERGRID & BPC	Information not Available	
1	400 kV	400 kV Azara - Bongaigaon	1	D/C	AEGCL	POWERGRID	162.9	NETC(1.8%) & AEGCL (98.2%)	SPAR in service	
2	400 kV	400 kV Azara - Silchar	1	D/C	AEGCL	POWERGRID	256.0	NETC(37.5%) & AEGCL(62.5%)	SPAR in service	
3	400 kV	400 kV Balipara - Biswanath Chariali	1	D/C	POWERGRID	POWERGRID	60.0	POWERGRID	SPAR in service	
4	400 kV	400 kV Balipara - Biswanath Chariali	2	D/C	POWERGRID	POWERGRID	60.0	POWERGRID	SPAR in service	
5	400 kV	400 kV Balipara - Biswanath Chariali	3	D/C	POWERGRID	POWERGRID	57.1	POWERGRID	SPAR in service	
6	400 kV	400 kV Balipara - Biswanath Chariali	4	D/C	POWERGRID	POWERGRID	57.1	POWERGRID	SPAR in service	
7	400 kV	400 kV Balipara - Bongaigaon	1	D/C	POWERGRID	POWERGRID	289.7	POWERGRID	SPAR in service	
8	400 kV	400 kV Balipara - Bongaigaon	2	D/C	POWERGRID	POWERGRID	289.7	POWERGRID	SPAR in service	
9	400 kV	400 kV Balipara - Bongaigaon	3	D/C	POWERGRID	POWERGRID	304.6	POWERGRID	SPAR in service	
10	400 kV	400 kV Balipara - Bongaigaon	4	D/C	POWERGRID	POWERGRID	304.6	POWERGRID	SPAR in service	
11	400 kV	400 kV Balipara - Misa	1	D/C	POWERGRID	POWERGRID	95.9	POWERGRID	SPAR in service	
12	400 kV	400 kV Balipara - Misa	2	D/C	POWERGRID	POWERGRID	95.9	POWERGRID	SPAR in service	

### Details of Auto Recloser of Lines in North Eastern Regional Grid

### Annexure-A.3

Sl No	Voltage Level	Name of Element (Emanating - Terminating)	Ckt ID	Tower Configuration (S/C or D/C)	Agency at End 1	Agency at End 2	Line Length in km	Owner	AR Details (SPAR/3-Ph AR/Not Available/Information not Available)	Remarks
13	400 kV	400 kV Biswanath Chariali - Ranganadi	1	D/C	POWERGRID	NEEPCO	131.0	POWERGRID	SPAR in service	
14	400 kV	400 kV Biswanath Chariali - Ranganadi	2	D/C	POWERGRID	NEEPCO	131.0	POWERGRID	SPAR in service	
15	400 kV	400 kV Bongaigaon - Byrnihat	1	D/C	POWERGRID	MePTCL	203.5	NETC(97.91 %) & MePTCL(2.09%)	SPAR in service	
16	400 kV	400 kV Binaguri - Bongaigaon	1	D/C	POWERGRID	POWERGRID	218.0	POWERGRID	SPAR in service	
17	400 kV	400 kV Binaguri - Bongaigaon	2	D/C	POWERGRID	POWERGRID	218.0	POWERGRID	SPAR in service	
18	400 kV	400 kV Alipurduar - Bongaigaon	1	D/C	POWERGRID	POWERGRID	106.0	ENICL	SPAR in service	
19	400 kV	400 kV Alipurduar - Bongaigaon	2	D/C	POWERGRID	POWERGRID	106.0	ENICL	SPAR in service	
20	400 kV	400 kV BgTPP - Bongaigaon	1	D/C	NTPC	POWERGRID	3.1	POWERGRID	SPAR Available	Due to LDP, SPAR is not attempting
21	400 kV	400 kV BgTPP - Bongaigaon	2	D/C	NTPC	POWERGRID	3.1	POWERGRID	SPAR Available	Due to LDP, SPAR is not attempting
22	400 kV	400 kV Byrnihat - Silchar	1	D/C	MePTCL	POWERGRID	217.0	NETC(98.06%)& MePTCL(1.94%)	SPAR in service	
23	400 kV	400 kV Pallatana - Silchar	1	D/C	OTPC	POWERGRID	247.0	NETC	SPAR in service	
24	400 kV	400 kV Pallatana - Silchar	2	D/C	OTPC	POWERGRID	247.0	NETC	SPAR in service	
1	220 kV	220 kV AGBPP - Mariani	1	S/C	NEEPCO	AEGCL	162.9	POWERGRID	Information not available	AGBPP-SPAR enabled, Mariani end-POWERGRID may intimate
2	220 kV	220 kV AGBPP - Mariani(PG)	1	S/C	NEEPCO	POWERGRID	160.5	POWERGRID	SPAR in service	
3	220 kV	220 kV Mariani - Misa	1	S/C	AEGCL	POWERGRID	220.0	POWERGRID	Information not available	POWERGRID may intimate the status
4	220 kV	220 kV Mariani (PG) - Misa	1	S/C	POWERGRID	POWERGRID	222.7	POWERGRID	SPAR in service	
1	132 kV	132kV Imphal - Silchar	1	D/C	POWERGRID	POWERGRID	166.5	POWERGRID	SPAR in service	
2	132 kV	132kV Imphal - Silchar	2	D/C	POWERGRID	POWERGRID	166.5	POWERGRID	SPAR in service	
3	132 kV	132kV P K Bari - Silchar	1	D/C	TSECL	POWERGRID	127.2	POWERGRID	SPAR in service	
4	132 kV	132kV P K Bari - Silchar	2	D/C	TSECL	POWERGRID	127.2	POWERGRID	SPAR in service	
1	220 kV	220 kV AGBPP - Deomali	1	S/C	NEEPCO	DoP, Arunachal Pradesh	19.0	DoP, Arunachal Pradesh	Information not available	DoP AP may intimate the status
2	220 kV	220 kV AGBPP - Tinsukia	1	S/C	NEEPCO	AEGCL	24.6	AEGCL	SPAR not in service	SPAR available at both ends, but is not enabled at AGBPP as per Audit report

**Details of Auto Recloser of Lines in North Eastern Regional Grid**

**Annexure-A.3**

<i>Sl No</i>	<i>Voltage Level</i>	<i>Name of Element (Emanating - Terminating)</i>	<i>Ckt ID</i>	<b>Tower Configuration (S/C or D/C)</b>	<b>Agency at End 1</b>	<b>Agency at End 2</b>	<b>Line Length in km</b>	<b>Owner</b>	<b>AR Details (SPAR/3-Ph AR/Not Available/Information not Available)</b>	<b>Remarks</b>
3	220 kV	220 kV AGBPP - Tinsukia	2	S/C	NEEPCO	AEGCL	24.6	AEGCL	SPAR not in service	SPAR available at both ends, but is not enabled at AGBPP as per Audit report
4	220 kV	220 kV Agia - Azara	1	D/C	AEGCL	AEGCL	107.0	AEGCL	Not Available	SPAR available at Azara, Agia end will be done in R&M works
5	220 kV	220 kV Agia - Boko	1	D/C	AEGCL	AEGCL	70.0	AEGCL	Not Available	SPAR will be done in R&M works
6	220 kV	220 kV Agia - BTPS	1	D/C	AEGCL	AEGCL	62.5	AEGCL	Not Available	SPAR will be done in R&M works
7	220 kV	220 kV Agia - BTPS	2	D/C	AEGCL	AEGCL	62.5	AEGCL	Not Available	SPAR will be done in R&M works
8	220 kV	220 kV Azara - Boko	1	D/C	AEGCL	AEGCL	38.0	AEGCL	Not Available	SPAR available at Azara, other end will be done in R&M works
9	220 kV	220 kV Azara - Sarusajai	1	D/C	AEGCL	AEGCL	24.0	AEGCL	Not Available	SPAR available at Azara, other end will be done in R&M works
10	220 kV	220 kV Azara - Sarusajai	2	D/C	AEGCL	AEGCL	24.0	AEGCL	Not Available	SPAR available at Azara, other end will be done in R&M works
11	220 kV	220 kV Balipara - Sonabil	1	S/C	POWERGRID	AEGCL	10.0	AEGCL	SPAR in service	AEGCL & POWERGRID may confirm
12	220 kV	220 kV Alipurduar - Salakati	1	D/C	POWERGRID	POWERGRID	100.6	POWERGRID	SPAR in service	
13	220 kV	220 kV Alipurduar - Salakati	2	D/C	POWERGRID	POWERGRID	100.6	POWERGRID	SPAR in service	
14	220 kV	220 kV BTPS - Salakati	1	D/C	AEGCL	POWERGRID	2.7	POWERGRID	SPAR in service	AEGCL & POWERGRID may confirm
15	220 kV	220 kV BTPS - Salakati	2	D/C	AEGCL	POWERGRID	2.7	POWERGRID	SPAR in service	AEGCL & POWERGRID may confirm
16	220 kV	220 kV Dimapur - Misa	1	D/C	POWERGRID	POWERGRID	123.5	POWERGRID	SPAR in service	
17	220 kV	220 kV Dimapur - Misa	2	D/C	POWERGRID	POWERGRID	123.5	POWERGRID	SPAR in service	
18	220 kV	220 kV Jawaharnagar - Samaguri	1	D/C	AEGCL	AEGCL	119.0	AEGCL	Not Available	SPAR available at JawaharNagar, other end will be done in R&M works

**Details of Auto Recloser of Lines in North Eastern Regional Grid**

**Annexure-A.3**

<i>Sl No</i>	<i>Voltage Level</i>	<i>Name of Element (Emanating - Terminating)</i>	<i>Ckt ID</i>	<b>Tower Configuration (S/C or D/C)</b>	<b>Agency at End 1</b>	<b>Agency at End 2</b>	<b>Line Length in km</b>	<b>Owner</b>	<b>AR Details (SPAR/3-Ph AR/Not Available/Information not Available)</b>	<b>Remarks</b>
19	220 kV	220 kV Jawaharnagar - Sarusajai	1	D/C	AEGCL	AEGCL	11.0	AEGCL	Not Available	SPAR available at JawaharNagar, other end will be done in R&M works
20	220 kV	220 kV Karbi Langpi - Sarusajai	1	S/C	APGCL	AEGCL	108.0	AEGCL	Not Available	SPAR will be done in R&M works
21	220 kV	220 kV Karbi Langpi - Sarusajai	2	S/C	APGCL	AEGCL	108.0	AEGCL	Not Available	SPAR will be done in R&M works
22	220 kV	220 kV Byrnihat - Misa	1	S/C	MePTCL	POWERGRID	113.4	MePTCL	SPAR in service	
23	220 kV	220 kV Byrnihat - Misa	2	S/C	MePTCL	POWERGRID	113.4	MePTCL	SPAR in service	
24	220 kV	220 kV Kopili - Misa	1	D/C	NEEPCO	POWERGRID	73.0	POWERGRID	SPAR in service	
25	220 kV	220 kV Kopili - Misa	2	D/C	NEEPCO	POWERGRID	73.0	POWERGRID	SPAR in service	
26	220 kV	220 kV Kopili - Misa	3	S/C	NEEPCO	POWERGRID	75.8	POWERGRID	SPAR in service	
27	220 kV	220 kV Mariani (AEGCL) - Samaguri	1	S/C	AEGCL	AEGCL	168.0	AEGCL	Not Available	will be done in PSDF scheme
28	220 kV	220 kV Mariani (PG) - Mokokchung (PG)	1	D/C	POWERGRID	POWERGRID	48.8	POWERGRID	SPAR in service	
29	220 kV	220 kV Mariani (PG) - Mokokchung (PG)	2	D/C	POWERGRID	POWERGRID	48.8	POWERGRID	SPAR in service	
30	220 kV	220 kV Misa - Samaguri	1	D/C	POWERGRID	AEGCL	34.4	POWERGRID	Information not available	POWERGRID may intimate the status
31	220 kV	220 kV Misa - Samaguri	2	D/C	POWERGRID	AEGCL	34.4	POWERGRID	Information not available	POWERGRID may intimate the status
32	220 kV	220 kV NTPS - Tinsukia	1	D/C	AEGCL	AEGCL	39.8	AEGCL	Not Available	will be done in PSDF scheme
33	220 kV	220 kV NTPS - Tinsukia	2	D/C	AEGCL	AEGCL	39.8	AEGCL	Not Available	will be done in PSDF scheme
34	220 kV	220 kV Samaguri - Sarusajai	1	D/C	AEGCL	AEGCL	130.0	AEGCL	Not Available	AEGCL may intimate the plan of action
35	220 kV	220 kV Samaguri - Sarusajai	2	D/C	AEGCL	AEGCL	130.0	AEGCL	Not Available	will be done in PSDF scheme
35	220 kV	220 kV Samaguri - Sonabil	1	S/C	AEGCL	AEGCL	56.0	AEGCL	Not Available	Due to problem at Samaguri end. Implemented in R&M scheme funded from PSDF
36	220 kV	220 kV Samaguri - Sonabil	2	S/C	AEGCL	AEGCL	56.0	AEGCL	Not Available	Due to problem at Samaguri end. Implemented in R&M scheme funded from PSDF



### Details of Auto Recloser of Lines in North Eastern Regional Grid

### Annexure-A.3

<i>Sl No</i>	<i>Voltage Level</i>	<i>Name of Element (Emanating - Terminating)</i>	<i>Ckt ID</i>	<b>Tower Configuration (S/C or D/C)</b>	Agency at End 1	Agency at End 2	<b>Line Length in km</b>	<b>Owner</b>	<b>AR Details (SPAR/3-Ph AR/Not Available/Information not Available)</b>	<b>Remarks</b>
1	132 kV	132 kV Agartala - AGTCCPP	1	D/C	TSECL	NEEPCO	8.4	POWERGRID	Not Available	SPAR available at AGTCCPP, PLCC is not in service
2	132 kV	132 kV Agartala - AGTCCPP	2	D/C	TSECL	NEEPCO	8.4	POWERGRID	Not Available	SPAR available at AGTCCPP, PLCC is not in service
3	132 kV	132 kV Agartala - Bodhjannagar	1	S/C	TSECL	TSECL	8.0	TSECL	Not Available	TSECL may intimate the plan of action
4	132 kV	132 kV Agartala - Dhalabil	1	S/C	TSECL	TSECL	45.0	TSECL	Not Available	TSECL may intimate the plan of action
5	132 kV	132 kV Agartala - Rokhia	1	D/C	TSECL	TSECL	35.0	TSECL	Not Available	TSECL may intimate the plan of action
6	132 kV	132 kV Agartala - Rokhia	2	D/C	TSECL	TSECL	35.0	TSECL	Not Available	TSECL may intimate the plan of action
7	132 kV	132 kV Agia - Mendipathar	1	S/C	AEGCL	MePTCL	31.3	MePTCL	Not Available	Agia end: 3-ph AR will be implemented under R&M works, <b>Mendipathar-MePTCL may intimate the status</b>
8	132 kV	132 kV AGTCCPP - Kumarghat	1	S/C	NEEPCO	POWERGRID	7.8	POWERGRID	Not Available	AGTCCPP end: Single pole CB, E/M AR relay available; <b>Kumarghat end: Gang operated CB</b>
9	132 kV	132 kV Aizawl - Jiribam	1	S/C	POWERGRID	POWERGRID	172.3	POWERGRID	3-Ph AR in service	

### Details of Auto Recloser of Lines in North Eastern Regional Grid

### Annexure-A.3

Sl No	Voltage Level	Name of Element (Emanating - Terminating)	Ckt ID	Tower Configuration (S/C or D/C)	Agency at End 1	Agency at End 2	Line Length in km	Owner	AR Details (SPAR/3-Ph AR/Not Available/Information not Available)	Remarks
10	132 kV	132 kV Aizawl - Kolasib	1	S/C	POWERGRID	P&ED, Mizoram	66.1	POWERGRID	3-Ph AR in service	POWERGRID may confirm
11	132 kV	132 kV Aizawl - Kumarghat	1	S/C	POWERGRID	POWERGRID	132.9	POWERGRID	3-Ph AR in service	
12	132 kV	132 kV Aizawl - Luangmual	1	S/C	POWERGRID	P&ED, P&ED, Mizoram	0.8	P&ED, Mizoram	Not Available	
13	132 kV	132 kV Aizawl - Melriat(PG)	1	S/C	POWERGRID	POWERGRID	6.7	POWERGRID	Not Available	
14	132 kV	132 kV Ambasa - Gamaitila	1	S/C	TSECL	TSECL	25.0	TSECL	Information not available	TSECL may intimate the status
15	132 kV	132 kV Ambasa - Kamalpur	1	S/C	TSECL	TSECL	31.0	TSECL	Information not available	TSECL may intimate the status
16	132 kV	132 kV Ambasa - P K Bari	1	S/C	TSECL	TSECL	45.0	TSECL	Information not available	TSECL may intimate the status
17	132 kV	132 kV Badarpur - Jiribam	1	S/C	POWERGRID	POWERGRID	67.2	POWERGRID	Information not available	POWERGRID may intimate the status
18	132 kV	132 kV Badarpur - Kolasib	1	S/C	POWERGRID	P&ED, Mizoram	107.2	POWERGRID	Information not available	POWERGRID may intimate the status
19	132 kV	132 kV Badarpur - Kumarghat	1	S/C	POWERGRID	POWERGRID	118.5	POWERGRID	3-Ph AR in service	
20	132 kV	132 kV Badarpur - Panchgram	1	S/C	POWERGRID	AEGCL	1.0	POWERGRID	Information not available	POWERGRID may intimate the status, Panchgram end: 3 ph AR will be implemented under R&M
21	132 kV	132 kV Badarpur - Silchar	1	D/C	POWERGRID	POWERGRID	19.2	POWERGRID	Information not available	Silchar end: AR in BCU available, AEGCL may intimate the status
22	132 kV	132 kV Badarpur - Silchar	2	D/C	POWERGRID	POWERGRID	19.2	POWERGRID	Information not available	Silchar end: 3-ph AR in BCU available, AEGCL may intimate the status
23	132 kV	132 kV Balipara - Bhalukpong	1	S/C	POWERGRID	DoP, Arunachal Pradesh		NEEPCO & DoP, Arunachal Pradesh	Not Available	
24	132 kV	132 kV Balipara - Depota	1	S/C	POWERGRID	AEGCL	29.8	AEGCL	Not Available	AEGCL&POWERGRID may intimate the plan of action
25	132 kV	132 kV Balipara - Sonabil	1	S/C	AEGCL	AEGCL	10.0	AEGCL	Information not available	Sonabil end: 3-ph AR available, Balipara end: POWERGRID may intimate

**Details of Auto Recloser of Lines in North Eastern Regional Grid**

**Annexure-A.3**

<i>Sl No</i>	<i>Voltage Level</i>	<i>Name of Element (Emanating - Terminating)</i>	<i>Ckt ID</i>	<b>Tower Configuration (S/C or D/C)</b>	<b>Agency at End 1</b>	<b>Agency at End 2</b>	<b>Line Length in km</b>	<b>Owner</b>	<b>AR Details (SPAR/3-Ph AR/Not Available/Information not Available)</b>	<b>Remarks</b>
26	132 kV	132 kV Baramura - Gamaitilla	1	S/C	TSECL	TSECL	14.0	TSECL	Not Available	TSECL may intimate the status
27	132 kV	132 kV Baramura - Jirania	1	S/C	TSECL	TSECL	12.6	TSECL	Not Available	TSECL may intimate the status
28	132 kV	132 kV Bhalukpong - Khupi	1	S/C	DoP, Arunachal Pradesh	NEEPCO		NEEPCO & DoP, Arunachal Pradesh	Not Available	
29	132 kV	132 kV Biswanath Chariali - Pavoi	1	D/C	POWERGRID	AEGCL	12.9	POWERGRID	Not Available	Pavoi end- 3-ph AR will be implemented, BNC: POWERGRID may intimate the status
30	132 kV	132 kV Biswanath Chariali - Pavoi	2	D/C	POWERGRID	AEGCL	12.9	POWERGRID	Not Available	Pavoi end- 3-ph AR will be implemented, BNC: POWERGRID may intimate the status
31	132 kV	132 kV Pavoi - Sonabil	1	S/C	AEGCL	AEGCL	39.0	AEGCL	Not available	Sonabil end: 3-ph AR available, <b>Pavoi end: 3-ph AR under R&amp;M</b>
32	132 kV	132 kV Bodhjannagar - Jirania	1	S/C	TSECL	TSECL	13.5	TSECL	Not Available	TSECL may intimate the status
33	132 kV	132 kV Bokajan - Dimapur	1	S/C	AEGCL	POWERGRID	26.4	AEGCL	Not available	
34	132 kV	132 kV Bokajan - Golaghat	1	S/C	AEGCL	AEGCL	15.0	AEGCL	Not available	AEGCL may intimate the plan of action
35	132 kV	132 kV BTPS - Dhaligaon	1	D/C	AEGCL	AEGCL	21.5	AEGCL	Not available	3-ph AR under R&M
36	132 kV	132 kV BTPS - Dhaligaon	2	D/C	AEGCL	AEGCL	21.5	AEGCL	Not available	3-ph AR under R&M
37	132 kV	132 kV BTPS-Kokrajhar	1	S/C	AEGCL	AEGCL	10.3	AEGCL	Not available	AEGCL may intimate the plan of action
38	132 kV	132 kV Bilashipara-Kokrajhar	1	S/C	AEGCL	AEGCL	24.2	AEGCL	Not available	AEGCL may intimate the plan of action
39	132 kV	132 kV Bilashipara-Gauripur	1	S/C	AEGCL	AEGCL	37.6	AEGCL	Not available	AEGCL may intimate the plan of action
40	132 kV	132 kV Bornagar - Dhaligaon	1	S/C	AEGCL	AEGCL	41.3	AEGCL	Not available	AEGCL may intimate the plan of action
41	132 kV	132 kV Bornagar - Rangia	1	S/C	AEGCL	AEGCL	85.7	AEGCL	Not available	AEGCL may intimate the plan of action

### Details of Auto Recloser of Lines in North Eastern Regional Grid

### Annexure-A.3

Sl No	Voltage Level	Name of Element (Emanating - Terminating)	Ckt ID	Tower Configuration (S/C or D/C)	Agency at End 1	Agency at End 2	Line Length in km	Owner	AR Details (SPAR/3-Ph AR/Not Available/Information not Available)	Remarks
42	132 kV	132 kV Budhjangnagar - Surjamaninagar	1	D/C	TSECL	TSECL	18.3	TSECL	Not available	
43	132 kV	132 kV Budhjangnagar - Surjamaninagar	2	D/C	TSECL	TSECL	18.3	TSECL	Not available	
44	132 kV	132 kV Dhalabil - Kamalpur	1	S/C	TSECL	TSECL	32.0	TSECL	Not available	
45	132 kV	132 kV Dhaligaon-Gossaigaon	1	S/C	AEGCL	AEGCL	64.0	AEGCL	Not available	AEGCL may intimate the plan of action
46	132 kV	132 kV Dharmanagar - Dullavcherra	1	S/C	TSECL	AEGCL	29.0	AEGCL	Not available	AEGCL&TSECL may intimate the plan of action
47	132 kV	132 kV Dullavcherra - Hailakandi	1	S/C	AEGCL	AEGCL	33.8	AEGCL	Not available	AEGCL may intimate the plan of action
48	132 kV	132 kV Dharmanagar - P K Bari	1	S/C	TSECL	TSECL	36.5	TSECL	Not available	
49	132 kV	132 kV Dimapur - Doyang	1	D/C	POWERGRID	NEEPCO	92.5	POWERGRID	SPAR in service	
50	132 kV	132 kV Dimapur - Doyang	2	D/C	POWERGRID	NEEPCO	92.5	POWERGRID	SPAR in service	
51	132 kV	132 kV Dimapur - Imphal	1	S/C	POWERGRID	POWERGRID	168.9	POWERGRID	SPAR in service	
52	132 kV	132 kV Dimapur (PG) - Dimapur (DoP, Nagaland)	1	S/C	POWERGRID	ED, DoP, Nagaland	0.5	DoP, Nagaland	Not Available	DoP Nagaland may please intimate the plan of action
53	132 kV	132 kV Dimapur (PG) - Dimapur (DoP, Nagaland)	2	S/C	POWERGRID	ED, DoP, Nagaland	0.5	DoP, Nagaland	Not Available	DoP Nagaland may please intimate the plan of action
54	132 kV	132 kV Dimapur (PG) - Kohima	1	S/C	POWERGRID	ED, DoP, Nagaland	45.0	DoP, Nagaland	Not Available	DoP Nagaland may please intimate the plan of action
55	132 kV	132 kV Doyang - Mokokchung (DoP, Nagaland)	1	S/C	NEEPCO	ED, DoP, Nagaland	30.1	DoP, Nagaland	Not Available	DoP Nagaland may please intimate the plan of action
56	132 kV	132 kV Doyang - Sanis	1	S/C	NEEPCO	DoP, Nagaland	6.4	DoP, Nagaland	Not Available	NEEPCO & DoP Nagaland may please intimate the plan of action
57	132 kV	132 kV EPIP II - Byrnihat	1	D/C	MePTCL	MePTCL	10.3	MePTCL	Not Available	
58	132 kV	132 kV EPIP II - Byrnihat	2	D/C	MePTCL	MePTCL	10.3	MePTCL	Not Available	
59	132 kV	132 kV EPIP II - Umtru	1	D/C	MePTCL	MePTCL	0.7	MePTCL	Not Available	
60	132 kV	132 kV EPIP II - Umtru	2	D/C	MePTCL	MePTCL	0.7	MePTCL	Not Available	

**Details of Auto Recloser of Lines in North Eastern Regional Grid**

**Annexure-A.3**

<i>Sl No</i>	<i>Voltage Level</i>	<i>Name of Element (Emanating - Terminating)</i>	<i>Ckt ID</i>	<i>Tower Configuration (S/C or D/C)</i>	<i>Agency at End 1</i>	<i>Agency at End 2</i>	<i>Line Length in km</i>	<i>Owner</i>	<i>AR Details (SPAR/3-Ph AR/Not Available/Information not Available)</i>	<i>Remarks</i>
61	132 kV	132 kV Gauripur-Gossaigaon	1	S/C	AEGCL	AEGCL	63.0	AEGCL	Not available	AEGCL may intimate the plan of action
62	132 kV	132 kV Gohpur - Pavoi	1	S/C	AEGCL	AEGCL	51.0	AEGCL	Not available	AEGCL may intimate the plan of action
63	132 kV	132 kV Gohpur - Nirjuli	1	S/C	AEGCL	POWERGRID	42.5	POWERGRID	Not available	AEGCL may intimate the plan of action
64	132 kV	132 kV Golaghat - Mariani (AEGCL)	1	S/C	AEGCL	AEGCL	45.0	AEGCL	Not available	AEGCL may intimate the plan of action
65	132 kV	132 kV Haflong - Jiribam	1	S/C	POWERGRID	POWERGRID	100.6	POWERGRID	Not available	AEGCL may intimate the plan of action
66	132 kV	132 kV Haflong - Umranshu	1	S/C	AEGCL	POWERGRID	8.2	AEGCL	Not available	AEGCL may intimate the plan of action
67	132 kV	132 kV Imphal (MSPCL) - Imphal (PG)	1	S/C	MSPCL	POWERGRID	1.5	POWERGRID	Not available	AEGCL may intimate the plan of action
68	132 kV	132 kV Imphal (MSPCL) - Imphal (PG)	2	S/C	MSPCL	POWERGRID	2.3	POWERGRID & MSPCL	Not available	AEGCL may intimate the plan of action
69	132 kV	132 kV Imphal (MSPCL) - Karong	1	S/C	MSPCL	MSPCL	60.0	MSPCL	Not Available	AEGCL may intimate the plan of action
70	132 kV	132 kV Imphal (PG) - Ningthoukong	1	S/C	POWERGRID	MSPCL	27.5	MSPCL	Not Available	AEGCL may intimate the plan of action
71	132 kV	132 kV Imphal (PG) - Loktak	1	S/C	POWERGRID	NHPC	35.0	POWERGRID	SPAR in service	
72	132 kV	132 kV Jiribam - Loktak	2	S/C	POWERGRID	NHPC	82.4	POWERGRID	SPAR in service	
73	132 kV	132 kV Jiribam - Pailapool	1	S/C	POWERGRID	AEGCL	15.0	AEGCL/ MSPCL	Not Available	POWERGRID & AEGCL may intimate the plan of action
74	132 kV	132 kV Jiribam(PG) - Jiribam(MA)	1	S/C	POWERGRID	MSPCL	1.0	MSPCL	Not available	AEGCL may intimate the plan of action
75	132 kV	132 kV Jorhat - Mariani	1	S/C	AEGCL	AEGCL	19.5	AEGCL	Not Available	AEGCL may intimate the plan of action
76	132 kV	132 kV Jorhat - Mariani	2	S/C	AEGCL	AEGCL	19.5	AEGCL	Not Available	AEGCL may intimate the plan of action
77	132 kV	132 kV Jorhat - Nazira	1	S/C	AEGCL	AEGCL	69.0	AEGCL	Not Available	AEGCL may intimate the plan of action
78	132 kV	132 kV Kahilipara - Kamalpur	1	S/C	AEGCL	AEGCL	57.0	AEGCL	Not Available	AEGCL may intimate the plan of action
79	132 kV	132 kV Kamalpur - Rangia	1	D/C	AEGCL	AEGCL		AEGCL	Not Available	AEGCL may intimate the plan of action
80	132 kV	132 kV Kamalpur - Rangia	2	D/C	AEGCL	AEGCL		AEGCL	Not Available	AEGCL may intimate the plan of action
81	132 kV	132 kV Kahilipara - Sarusajai	1	D/C	AEGCL	AEGCL	3.5	AEGCL	Not Available	AEGCL may intimate the plan of action
82	132 kV	132 kV Kahilipara - Sarusajai	2	D/C	AEGCL	AEGCL	3.5	AEGCL	Not Available	AEGCL may intimate the plan of action

**Details of Auto Recloser of Lines in North Eastern Regional Grid**

**Annexure-A.3**

<i>Sl No</i>	<i>Voltage Level</i>	<i>Name of Element (Emanating - Terminating)</i>	<i>Ckt ID</i>	<b>Tower Configuration (S/C or D/C)</b>	<b>Agency at End 1</b>	<b>Agency at End 2</b>	<b>Line Length in km</b>	<b>Owner</b>	<b>AR Details (SPAR/3-Ph AR/Not Available/Information not Available)</b>	<b>Remarks</b>
83	132 kV	132 kV Kahilipara - Sarusajai	3	D/C	AEGCL	AEGCL	3.9	AEGCL	Not Available	AEGCL may intimate the plan of action
84	132 kV	132 kV Sarusajai - Sishugram	1	D/C	AEGCL	AEGCL	3.9	AEGCL	Not Available	AEGCL may intimate the plan of action
85	132 kV	132 kV Kamalpur - Sishugram	1	S/C	AEGCL	AEGCL		AEGCL	Not Available	AEGCL may intimate the plan of action
86	132 kV	132 kV Kahilipara - Umtru	1	D/C	AEGCL	MePTCL	11.0	MePTCL	Not Available	
87	132 kV	132 kV Kahilipara - Umtru	2	D/C	AEGCL	MePTCL	11.0	MePTCL	Not Available	
88	132 kV	132 kV Kamalpur - P K Bari	1	S/C	TSECL	TSECL	31.0	TSECL	Not Available	
89	132 kV	132 kV Karong - Kohima	1	S/C	DoP, Nagaland	MSPCL	50.0	MSPCL(65.3%) / DoP, Nagaland(34.7%)	Not Available	
90	132 kV	132 kV Khandong - Khliehriat	1	S/C	NEEPCO	POWERGRID	42.5	POWERGRID	SPAR in service	
91	132 kV	132 kV Khandong - Khliehriat	2	S/C	NEEPCO	POWERGRID	40.9	POWERGRID	Information not available	POWERGRID may intimate the status
92	132 kV	132 kV Khandong - Kopili	1	S/C	NEEPCO	NEEPCO	10.9	POWERGRID	SPAR in service	
93	132 kV	132 kV Khandong - Kopili	2	S/C	NEEPCO	NEEPCO	11.6	POWERGRID	Not Available	Gang operated CB at Kopili end (Owner:POWERGRID)
94	132 kV	132 kV Khandong - Umranshu	1	S/C	NEEPCO	AEGCL	11.4	POWERGRID & AEGCL	Not Available	Due to problem at Umrangshu end, Single pole CB, AR relay available at Khandong end
95	132 kV	132 kV Khliehriat - Badarpur	1	S/C	POWERGRID	POWERGRID	76.7	POWERGRID	3-Ph AR in service	
96	132 kV	132 kV Khliehriat - Mustem	1	S/C	MePTCL	MePTCL	15.7	MePTCL	Not available	
97	132 kV	132 kV Mustem - NEHU line	1	S/C	MePTCL	MePTCL	41.9	MePTCL	Not available	
98	132 kV	132 kV Khliehriat (MePTCL) - Khliehriat (PG)	1	S/C	MePTCL	POWERGRID	7.8	POWERGRID	Not available	
99	132 kV	132 kV Khliehriat (MePTCL) - Khliehriat (PG)	2	S/C	MePTCL	POWERGRID	5.4	MePTCL	Not available	
100	132 kV	132 kV Khliehriat- NEIGRIHMS	1	S/C	MePTCL	POWERGRID	62.8	MePTCL	Not available	

**Details of Auto Recloser of Lines in North Eastern Regional Grid**

**Annexure-A.3**

<i>Sl No</i>	<i>Voltage Level</i>	<i>Name of Element (Emanating - Terminating)</i>	<i>Ckt ID</i>	<b>Tower Configuration (S/C or D/C)</b>	<b>Agency at End 1</b>	<b>Agency at End 2</b>	<b>Line Length in km</b>	<b>Owner</b>	<b>AR Details (SPAR/3-Ph AR/Not Available/Information not Available)</b>	<b>Remarks</b>
101	132 kV	132 kV Kumarghat - P K Bari	1	S/C	POWERGRID	TSECL	1.0	TSECL	Not Available	Scheme not available at PK Bari end; PLCC not available
102	132 kV	132 kV Lekhi - Nirjuli	1	S/C	DoP, Arunachal Pradesh	POWERGRID	9.5	DoP, Arunachal Pradesh & POWERGRID	Information not available	DoP, Arunachal Pradesh & POWERGRID may please intimate the status
103	132 kV	132 kV Lekhi - Ranganadi	1	S/C	DoP, Arunachal Pradesh	NEEPCO	24.0	DoP, Arunachal Pradesh & POWERGRID	SPAR in service	
104	132 kV	132 kV Loktak - Ningthoukhong	1	S/C	NHPC	MSPCL	10.5	MSPCL	Not Available	
105	132 kV	132 kV Loktak - Rengpang	1	S/C	NHPC	MSPCL	35.0	MSPCL	Not Available	
106	132 kV	132 kV LTPS - Mariani	1	S/C	AEGCL	AEGCL	80.0	AEGCL	Not Available	AEGCL may intimate the plan of action
107	132 kV	132 kV LTPS - Moran	1	S/C	AEGCL	AEGCL	39.0	AEGCL	Not Available	AEGCL may intimate the plan of action
108	132 kV	132 kV LTPS - Nazira	1	D/C	AEGCL	AEGCL	22.0	AEGCL	Not Available	AEGCL may intimate the plan of action
109	132 kV	132 kV LTPS - Nazira	2	D/C	AEGCL	AEGCL	22.0	AEGCL	Not Available	AEGCL may intimate the plan of action
110	132 kV	132 kV LTPS - NTPS	1	D/C	AEGCL	AEGCL	60.0	AEGCL	Not Available	AEGCL may intimate the plan of action
111	132 kV	132 kV LTPS - Sonari	1	D/C	AEGCL	AEGCL	30.0	AEGCL	Not Available	AEGCL may intimate the plan of action
112	132 kV	132 kV Mariani (AEGCL) - Mokokchung ( DoP, Nagaland)	1	S/C	AEGCL	ED, DoP, Nagaland	50.0	AEGCL(40%)/ DoP, Nagaland(60%)	Not Available	
113	132 kV	132 kV NEHU - Mawlai	1	S/C	MePTCL	MePTCL	7.9	MePTCL	Not available	MePTCL may intimate the plan of action
114	132 kV	132 kV Mawlai - Umiam Stage I	2	S/C	MePTCL	MePTCL	12.1	MePTCL	Not available	MePTCL may intimate the plan of action
115	132 kV	132 kV Mawphlang - Nongstoin	1	S/C	MePTCL	MePTCL	56.3	MePTCL	Not available	MePTCL may intimate the plan of action
116	132 kV	132 kV Mawphlang - Umiam Stg I	1	D/C	MePTCL	MePTCL	33.1	MePTCL	Not available	MePTCL may intimate the plan of action
117	132 kV	132 kV Mawphlang - Umiam Stg I	2	D/C	MePTCL	MePTCL	33.1	MePTCL	Not available	MePTCL may intimate the plan of action
118	132 kV	132 kV Mawphlang- Mawlai	1	S/C	MePTCL	MePTCL	20.9	MePTCL	Not available	MePTCL may intimate the plan of action

**Details of Auto Recloser of Lines in North Eastern Regional Grid**

**Annexure-A.3**

<i>Sl No</i>	<i>Voltage Level</i>	<i>Name of Element (Emanating - Terminating)</i>	<i>Ckt ID</i>	<b>Tower Configuration (S/C or D/C)</b>	<b>Agency at End 1</b>	<b>Agency at End 2</b>	<b>Line Length in km</b>	<b>Owner</b>	<b>AR Details (SPAR/3-Ph AR/Not Available/Information not Available)</b>	<b>Remarks</b>
119	132 kV	132 kV Melriat(PG) - Zuangtui	1	S/C	POWERGRID	P&ED, Mizoram	10.2	POWERGRID	Not Available	POWERGRID may intimate the status
120	132 kV	132 kV Mendipathar - Nangalbibra	1	S/C	MePTCL	MePTCL	65.2	MePTCL	Not available	
121	132 kV	132 kV Mokochung (PG) - Mokochung (DoP, Nagaland)	1	D/C	POWERGRID	DoP,Nagaland	1.4	POWERGRID	Information not available	
122	132 kV	132 kV Mokochung (PG) - Mokochung (DoP, Nagaland)	2	D/C	POWERGRID	DoP,Nagaland	1.4	POWERGRID	Information not available	
123	132 kV	132 kV Monarchak - Rokhia	1	S/C	NEEPCO	TSECL	29.0	TSECL	Not Available	TSECL may intimate the plan of action
124	132 kV	132 kV Monarchak - Udaipur	1	S/C	NEEPCO	TSECL	41.5	TSECL	Not Available	TSECL may intimate the plan of action
125	132 kV	132 kV Myntdu Leshka - Khleihriat	1	D/C	MePTCL	MePTCL	26.5	MePTCL	Not available	MePTCL may intimate the plan of action
126	132 kV	132 kV Myntdu Leshka - Khleihriat	2	D/C	MePTCL	MePTCL	26.5	MePTCL	Not available	MePTCL may intimate the plan of action
127	132 kV	132 kV Nangalbibra - Nongstoin	1	S/C	MePTCL	MePTCL	57.1	MePTCL	Not available	MePTCL may intimate the plan of action
128	132 kV	132 kV NEHU - NEIGRIHMS	1	S/C	MePTCL	MePTCL	6.7	MePTCL	Not available	MePTCL may intimate the plan of action
129	132 kV	132 kV NEHU - Umiam	1	D/C	MePTCL	MePTCL	6.2	MePTCL	Not available	MePTCL may intimate the plan of action
130	132 kV	132 kV NTPS - Tinsukia	1	S/C	AEGCL	AEGCL	43.0	AEGCL	Not Available	AEGCL may intimate the plan of action
131	132 kV	132 kV NTPS - Sonari	1	D/C	AEGCL	AEGCL	30.0	AEGCL	Not Available	AEGCL may intimate the plan of action
132	132 kV	132 kV Pailapool - Srikona	1	D/C	AEGCL	AEGCL	34.5	AEGCL	Not Available	AEGCL may intimate the plan of action
133	132 kV	132 kV Palatana - Surjamaninagar	1	D/C	OTPC	TSECL	37.2	POWERGRID	Not Available	Gang operated CB at Palatana end
134	132 kV	132 kV Palatana - Udaipur	1	S/C	TSECL	TSECL	11.1	TSECL	Not Available	Gang operated CB at Palatana end
135	132 kV	132 kV Hailakandi - Silchar	1	S/C	AEGCL	POWERGRID	30.3	POWERGRID	Information not available	Silchar end: AR in BCU available, AEGCL may intimate the status
136	132 kV	132 kV Panchgram - Srikona	1	S/C	AEGCL	AEGCL	19.1	AEGCL	Not Available	Will be implemented under R&M works funded from PSDF
137	132 kV	132 kV Ranganadi - Ziro	1	S/C	NEEPCO	POWERGRID	44.5	POWERGRID	SPAR in service	
138	132 kV	132 kV Roing - Pasighat	1	S/C	POWERGRID	POWERGRID		POWERGRID	Information not available	POWERGRID may intimate the status
139	132 kV	132 kV Roing - Tezu	1	S/C	POWERGRID	POWERGRID		POWERGRID	Information not available	POWERGRID may intimate the status



**Details of Auto Recloser of Lines in North Eastern Regional Grid**

**Annexure-A.3**

<i>Sl No</i>	<i>Voltage Level</i>	<i>Name of Element (Emanating - Terminating)</i>	<i>Ckt ID</i>	<b>Tower Configuration (S/C or D/C)</b>	Agency at End 1	Agency at End 2	<b>Line Length in km</b>	<b>Owner</b>	<b>AR Details (SPAR/3-Ph AR/Not Available/Information not Available)</b>	<b>Remarks</b>
140	132 kV	132 kV Sarusajai - Umtru	1	D/C	AEGCL	MePTCL	37.0	MePTCL	Not Available	Not available at both ends

**Details of Auto Recloser of Lines in North Eastern Regional Grid**

**Annexure-A.3**

<i>Sl No</i>	<i>Voltage Level</i>	<i>Name of Element (Emanating - Terminating)</i>	<i>Ckt ID</i>	<b>Tower Configuration (S/C or D/C)</b>	<b>Agency at End 1</b>	<b>Agency at End 2</b>	<b>Line Length in km</b>	<b>Owner</b>	<b>AR Details (SPAR/3-Ph AR/Not Available/Information not Available)</b>	<b>Remarks</b>
141	132 kV	132 kV Sarusajai - Umtru	2	D/C	AEGCL	MePTCL	37.0	MePTCL	Not Available	Not available at both ends
142	132 kV	132 kV Silchar - Srikona	1	D/C	POWERGRID	AEGCL	1.2	POWERGRID	Information not available	Silchar end: AR in BCU available, <b>AEGCL may intimate the status</b>
143	132 kV	132 kV Silchar - Srikona	2	D/C	POWERGRID	AEGCL	1.2	POWERGRID	Information not available	Silchar end: AR in BCU available, <b>AEGCL may intimate the status</b>
144	132 kV	132 kV Umiam - Umiam St I	1	S/C	MePTCL	MePTCL	5.1	MePTCL	Not Available	MePTCL may intimate the plan of action
145	132 kV	132 kV Umiam St I - Umiam St II	1	S/C	MePTCL	MePTCL	3.0	MePTCL	Not Available	MePTCL may intimate the plan of action
146	132 kV	132 kV Umiam St I - Umiam St III	1	D/C	MePTCL	MePTCL	17.5	MePTCL	Not Available	MePTCL may intimate the plan of action
147	132 kV	132 kV Umiam St I - Umiam St III	2	D/C	MePTCL	MePTCL	17.5	MePTCL	Not Available	MePTCL may intimate the plan of action
148	132 kV	132 kV Umiam St III - Umiam St IV	1	D/C	MePTCL	MePTCL	8.0	MePTCL	Not Available	MePTCL may intimate the plan of action
149	132 kV	132 kV Umiam St III – Umiam St IV	2	D/C	MePTCL	MePTCL	9.7	MePTCL	Not Available	MePTCL may intimate the plan of action
150	132 kV	132 kV Umiam St III - Umtru	1	D/C	MePTCL	MePTCL	41.1	MePTCL	Not Available	MePTCL may intimate the plan of action
151	132 kV	132 kV Umiam St III - Umtru	2	D/C	MePTCL	MePTCL	41.1	MePTCL	Not Available	MePTCL may intimate the plan of action
152	132 kV	132 kV Umtru - Umiam St IV	1	D/C	MePTCL	MePTCL	29.9	MePTCL	Not Available	MePTCL may intimate the plan of action
153	132 kV	132 kV Umtru - Umiam St IV	2	D/C	MePTCL	MePTCL	29.9	MePTCL	Not Available	MePTCL may intimate the plan of action

**List of Lines in North Eastern Regional Grid**

**Annexure-A.5**

<i>Sl No</i>	<i>Name of Element (Emanating - Terminating)</i>	<i>Ckt ID</i>	<b>Tower Configuration (S/C or D/C)</b>	<b>Agency at End 1</b>	<b>Agency at End 2</b>	<b>Line Length in km</b>	<b>Type of Conductor</b>	<b>Owner</b>
<b>C. 400 kV Lines</b>								
1	BgTPP - Bongaigaon	1	D/C	NTPC	POWERGRID	3.1	ACSR Twin Moose	POWERGRID
2	BgTPP - Bongaigaon	2	D/C	NTPC	POWERGRID	3.1	ACSR Twin Moose	POWERGRID
<b>F. 220 kV Lines</b>								
1	Balipara - Sonabil	1	S/C	POWERGRID	AEGCL	10.0	ACSR Zebra	AEGCL
2	BTPS - Salakati	1	D/C	AEGCL	POWERGRID	2.7	ACSR Zebra	POWERGRID
3	BTPS - Salakati	2	D/C	AEGCL	POWERGRID	2.7	ACSR Zebra	POWERGRID
<b>G. 132 kV Lines</b>								
1	Agartala - AGTCCPP	1	D/C	TSECL	NEEPCO	8.4	AAAC Panther	POWERGRID
2	Agartala - AGTCCPP	2	D/C	TSECL	NEEPCO	8.4	AAAC Panther	POWERGRID
3	Agartala - Bodhjannagar	1	S/C	TSECL	TSECL	8.0	AAAC Panther	TSECL
4	AGTCCPP - Kumarghat	1	S/C	NEEPCO	POWERGRID	7.8	ACSR Panther	POWERGRID
5	Aizawl - Luangmual	1	S/C	POWERGRID	P&ED, P&ED, Mizoram	0.8	ACSR Panther	P&ED, Mizoram
6	Aizawl - Melriat(PG)	1	S/C	POWERGRID	POWERGRID	6.7	ACSR Panther	POWERGRID

**List of Lines in North Eastern Regional Grid**

**Annexure-A.5**

<i>Sl No</i>	<i>Name of Element (Emanating - Terminating)</i>	<i>Ckt ID</i>	<b>Tower Configuration (S/C or D/C)</b>	<b>Agency at End 1</b>	<b>Agency at End 2</b>	<b>Line Length in km</b>	<b>Type of Conductor</b>	<b>Owner</b>
7	Badarpur - Panchgram	1	S/C	POWERGRID	AEGCL	1.0	AAAC Panther	POWERGRID
8	Balipara - Sonabil	1	S/C	AEGCL	AEGCL	10.0	AAAC Panther	AEGCL
9	EPIP II - Umtru	1	D/C	MePTCL	MePTCL	0.7	ACSR Panther	MePTCL
10	EPIP II - Umtru	2	D/C	MePTCL	MePTCL	0.7	ACSR Panther	MePTCL
11	Haflong - Umranshu	1	S/C	AEGCL	POWERGRID	8.2	ACSR Panther	AEGCL
12	Imphal (MSPCL) - Imphal (PG)	1	S/C	MSPCL	POWERGRID	1.5	ACSR Panther	POWERGRID
13	Imphal (MSPCL) - Imphal (PG)	2	S/C	MSPCL	POWERGRID	2.3	ACSR Panther	POWERGRID & MSPCL
14	Kahilipara - Sarusajai	1	D/C	AEGCL	AEGCL	3.5	ACSR Panther	AEGCL
15	Kahilipara - Sarusajai	2	D/C	AEGCL	AEGCL	3.5	ACSR Panther	AEGCL
16	Kahilipara - Sarusajai	3	D/C	AEGCL	AEGCL	3.9	ACSR Panther	AEGCL
17	Sarusajai - Sishugram	1	D/C	AEGCL	AEGCL	3.9	ACSR Panther	AEGCL
18	Khliehriat (MePTCL) - Khliehriat (PG)	1	S/C	MePTCL	POWERGRID	7.8	ACSR Panther	POWERGRID
19	Khliehriat (MePTCL) - Khliehriat (PG)	2	S/C	MePTCL	POWERGRID	5.4	ACSR Panther	MePTCL
20	Kumarghat - P K Bari	1	S/C	POWERGRID	TSECL	1.0	ACSR Panther	TSECL
21	Lekhi - Nirjuli	1	S/C	DoP, Arunachal Pradesh	POWERGRID	9.5	ACSR Panther	DoP, Arunachal Pradesh & POWERGRID
22	NEHU - Mawlai	1	S/C	MePTCL	MePTCL	7.9	ACSR Panther	MePTCL

**List of Lines in North Eastern Regional Grid**

**Annexure-A.5**

<i>Sl No</i>	<i>Name of Element (Emanating - Terminating)</i>	<i>Ckt ID</i>	<b>Tower Configuration (S/C or D/C)</b>	<b>Agency at End 1</b>	<b>Agency at End 2</b>	<b>Line Length in km</b>	<b>Type of Conductor</b>	<b>Owner</b>
23	Mokochung (PG) - Mokochung (DoP, Nagaland)	1	D/C	POWERGRID	DoP,Nagaland	1.4	ACSR Zebra	POWERGRID
24	Mokochung (PG) - Mokochung (DoP, Nagaland)	2	D/C	POWERGRID	DoP,Nagaland	1.4	ACSR Zebra	POWERGRID
25	NEHU - NEIGRIHMS	1	S/C	MePTCL	MePTCL	6.7	ACSR Panther	MePTCL
26	NEHU - Umiam	1	D/C	MePTCL	MePTCL	6.2	ACSR Panther	MePTCL
27	Ranganadi - Pare	1	S/C	NEEPCO	NEEPCO	9.0	ACSR Panther	POWERGRID
28	Silchar - Srikona	1	D/C	POWERGRID	AEGCL	1.2	ACSR Panther	POWERGRID
29	Silchar - Srikona	2	D/C	POWERGRID	AEGCL	1.2	ACSR Panther	POWERGRID
30	Umiam - Umiam St I	1	S/C	MePTCL	MePTCL	5.1	ACSR Panther	MePTCL
31	Umiam St III - Umiam St IV	1	D/C	MePTCL	MePTCL	8.0	ACSR Panther	MePTCL
32	Umiam St III – Umiam St IV	2	D/C	MePTCL	MePTCL	9.7	ACSR Panther	MePTCL

## Annexure-B.7

**Pending DR and EL output for the period w.e.f 1st May'18 to 31st Jul'18**

Sl. No	Name of the Utility	No. of DR and EL output which are not furnished		
		May'18	Jun'18	Jul'18
1	POWERGRID	40	45	40
2	DoP, Arunchal Pradesh	2	0	6
3	Assam	16	18	12
4	MSPCL	1	9	4
5	MePTCL	5	1	2
6	P&ED, Mizoram	1	1	1
7	DoP, Nagaland	5	3	8
8	TSECL	26	0	5
9	Palatana, OTPC	1	0	0
10	BgTPP	0	0	1
11	NEEPCO	20	4	18
12	NHPC	0	0	0
	<b>Total Pending DR</b>	117	81	97
	<b>Total no of element tripping</b>	143	111	101

**Pending DR and EL output for the month of May'18**

Event ID	Name of tripping element (End A - End B)	मालिक / Owner of the element	Date & Time of Event	Date & Time of Restoration	Relay indications		DR to be furnished by
					End A	End B	
1	132 kV Jiribam (PG) - Jiribam (MA) 1 Line	MSPCL	01-05-2018 05:40:00	01-05-2018 10:52:00	Tripped	No tripping	Jiribam(PG),
2	220 kV Killing (Byrnihat) - Misa 2 Line	MePTCL	01-05-2018 14:20:00	01-05-2018 14:37:00	DP, ZI, B-E	DP, ZI, B-E	Byrnihat, Misa
3	400 kV Azara - Silchar 1 Line	NETC & AEGCL	02-05-2018 01:25:00	02-05-2018 01:50:00	DP, ZI, Y-E	DP, ZI, Y-E	Azara
4	132 kV Mokokchung (PG) - Mokokchung (DoP, Nagaland) 1 Line	POWERGRID	02-05-2018 13:41:00	02-05-2018 13:57:00	Earth Fault	No tripping	Mokokchung (PG),
5	132 kV Mokokchung (PG) - Mokokchung (DoP, Nagaland) 2 Line	POWERGRID	02-05-2018 13:41:00	02-05-2018 13:54:00	Earth Fault	No tripping	Mokokchung (PG),
6	132 kV Dimapur (PG) - Kohima (DoP, Nagaland) 1 Line	POWERGRID & DoP, Nagaland	02-05-2018 14:24:00	02-05-2018 18:43:00	Earth Fault	No tripping	Dimapur(PG),
7	132 kV Bokajan - Dimapur(PG) 1 Line	AEGCL	02-05-2018 14:34:00	03-05-2018 14:25:00	No tripping	DP, ZII, B-E	Dimapur
8	132 kV Doyang - Mokokchung (DoP, Nagaland) 1 Line	POWERGRID	04-05-2018 13:09:00	04-05-2018 13:35:00	No tripping	Earth Fault	Mokokchung (DoP, Nagaland)
9	132 kV Badarpur - Jiribam 1 Line	POWERGRID	05-05-2018 21:45:00	06-05-2018 21:56:00	DP, ZI, B-E	DP, ZI, B-E	Jiribam
10	132 kV Mokochung (PG) - Mokokchung (DoP, Nagaland) 1 Line	POWERGRID	06-05-2018 10:07:00	06-05-2018 10:43:00	Earth Fault	No tripping	Mokokchung(PG)
11	132 kV Mokochung (PG) - Mokokchung (DoP, Nagaland) 2 Line	POWERGRID	06-05-2018 10:07:00	06-05-2018 10:44:00	Earth Fault	No tripping	Mokokchung(PG)
12	132 kV Doyang - Mokokchung (DoP, Nagaland) 1 Line	DoP, Nagaland	06-05-2018 10:06:00	06-05-2018 10:50:00	DP, ZI, R-E	No tripping	Doyang
13	132 kV Doyang - Mokokchung (DoP, Nagaland) 1 Line	DoP, Nagaland	06-05-2018 12:13:00	06-05-2018 19:55:00	DP, ZI, R-E	No tripping	Doyang
14	132 kV Mokokchung (PG) - Mokokchung (DoP, Nagaland) 1 Line	POWERGRID	06-05-2018 12:13:00	06-05-2018 12:30:00	Earth Fault	No tripping	Mokokchung(PG)
15	132 kV Mokokchung (PG) - Mokokchung (DoP, Nagaland) 2 Line	POWERGRID	06-05-2018 12:13:00	06-05-2018 12:31:00	Earth Fault	No tripping	Mokokchung(PG)
16	420 kV Silchar - Azara Line Reactor 1	POWERGRID	06-05-2018 13:11:00	06-05-2018 16:24:00	Bucholz relay optd		Silchar
17	420 kV Silchar - Azara Line Reactor 1	POWERGRID	06-05-2018 16:42:00	06-05-2018 16:52:00	Bucholz relay optd		Silchar
18	220 kV Misa - Byrnihat 1 Line	MePTCL	07-05-2018 17:44:00	07-05-2018 17:53:00	Earth Fault	No tripping	Misa
19	220 kV Killing (Byrnihat) - Misa 1 Line	MePTCL	07-05-2018 17:55:00	07-05-2018 18:06:00	No tripping	Earth Fault	Misa
20	132 kV Kumarghat - P K Bari 1 Line	TSECL	08-05-2018 04:30:00	08-05-2018 05:08:00	DP, ZIII, Y-B-E	No tripping	Kumarghat
21	132 kV Dharmanagar - P K Bari 1 Line	TSECL	08-05-2018 04:30:00	10-05-2018 18:54:00	No tripping	Over current	PK Bari
22	132 kV Dharmanagar - Dullavcherra 1 Line	AEGCL & TSECL	08-05-2018 04:30:00	08-05-2018 05:38:00	No tripping	Tripped	Dullavcherra
23	400 kV Azara - Bongaigaon 1 Line	NETC & AEGCL	08-05-2018 17:39:00	08-05-2018 17:56:00	DP, ZI, R-E	DP, ZI, R-E	Azara,
24	400 kV Balipara - Bongaigaon 4 Line	POWERGRID	09-05-2018 03:21:00	09-05-2018 03:51:00	DP, ZII, Y-E	DP, ZI, Y-E	Balipara(wrong DR submitted)
25	220 kV Killing (Byrnihat) - Misa 1 Line	MePTCL	09-05-2018 03:53:00	09-05-2018 04:16:00	Earth Fault	No tripping	Byrnihat

POWERGRID	
DoP, Arunchal Pradesh	
AEGCL	
MSPCL	
MePTCL	
P&ED, Mizoram	
DoP, Nagaland	
TSECL	
BgTPP	
NEEPCO	
Palatana	

**Pending DR and EL output for the month of May'18**

Event ID	Name of tripping element (End A - End B)	मालिक / Owner of the element	Date & Time of Event	Date & Time of Restoration	Relay indications		DR to be furnished by
					End A	End B	
26	132 kV Khliehriat (MePTCL) - Khliehriat (PG) 2 Line	MePTCL	09-05-2018 05:33:00	09-05-2018 05:44:00	Not Furnished	DP, ZI, B-E	Khliehriat(PG)
27	400 kV Bongaigaon - Killing (Byrnihat) 1 Line	NETC & MePTCL	09-05-2018 05:06:00	09-05-2018 05:34:00	DP, ZII, R-B-E	DP, ZI, B-E	Byrnihat
28	132 kV Dimapur (PG) - Dimapur (Nagaland) 1 Line	DoP,Nagaland	09-05-2018 12:36:00	09-05-2018 12:53:00	Earth Fault	No tripping	Dimapur(PG)
29	132 kV Dimapur (PG) - Dimapur (Nagaland) 2 Line	DoP,Nagaland	09-05-2018 12:36:00	09-05-2018 15:11:00	Earth Fault	No tripping	Dimapur(PG)
30	132 kV Dharmanagar - Dullavcherra 1 Line	AEGCL & TSECL	09-05-2018 13:15:00	09-05-2018 13:42:00	Tripped	Earth Fault	Dharmanagar, Dullavcherra
31	132 kV Mokochung (PG) - Mokochung (Nagaland) 1 Line	POWERGRID	09-05-2018 13:21:00	09-05-2018 13:26:00	Earth Fault	Earth Fault	Mokokchung(PG), Mokochung(DoP, Nagaland)
32	132 kV Mokochung (PG) - Mokochung (Nagaland) 2 Line	POWERGRID	09-05-2018 13:21:00	09-05-2018 13:28:00	Earth Fault	No tripping	Mokokchung(PG)
33	132 kV Doyang - Mokochung (Nagaland) 1 Line	Nagaland	09-05-2018 13:28:00	09-05-2018 13:50:00	Tripped	DP	Doyang, Mokochung(DoP, Nagaland)
34	132 kV Loktak - Ningthoukhong 1 Line	MSPCL	09-05-2018 13:28:00	09-05-2018 17:27:00	No tripping	Earth Fault	Ningthoukhong
35	400 kV Palatana - Silchar 1 Line	NETCL	09-05-2018 13:45:00	09-05-2018 13:59:00	DP, ZI, B-E	DP, ZI, B-E	Palatana
36	132 kV Jiribam - Pailapool 1 Line	AEGCL & MSPCL	09-05-2018 13:46:00	09-05-2018 14:40:00	DP, ZI, B-E	No tripping	Jiribam
37	132 kV Dimapur (PG) - Dimapur (Nagaland) 1 Line	DoP, Nagaland	09-05-2018 13:30:00	09-05-2018 14:42:00	Earth Fault	No tripping	Dimapur(PG)
38	132 kV Kamalpur - P K Bari 1 Line	TSECL	09-05-2018 14:33:00	09-05-2018 14:35:00	Earth Fault	No tripping	Kamalpur
39	132 kV Agartala - Dhalabil Line	TSECL	09-05-2018 14:33:00	10-05-2018 00:39:00	Earth Fault	No tripping	Agartala
40	132 kV Dimapur (PG) - Dimapur (Nagaland) 1 Line	DoP Nagaland	09-05-2018 14:45:00	09-05-2018 17:19:00	Earth Fault	No tripping	Dimapur(PG)
41	132 kV Dimapur (PG) - Dimapur (Nagaland) 2 Line	DoP, Nagaland	09-05-2018 15:40:00	09-05-2018 16:22:00	Earth Fault	No tripping	Dimapur(PG)
42	132 kV Doyang - Mokochung (Nagaland) 1 Line	DoP, Nagaland	09-05-2018 15:40:00	09-05-2018 18:35:00	Over current	No tripping	Doyang
43	132 kV Dimapur (PG) - Dimapur (Nagaland) 1 Line	DoP, Nagaland	09-05-2018 14:45:00	09-05-2018 17:19:00	Earth Fault	-	Dimapur(PG)
44	132 kV Dimapur (PG) - Kohima 1 Line	DoP, Nagaland	09-05-2018 16:08:00	09-05-2018 16:30:00	DP, ZI, B-E	No tripping	Dimapur(PG)
45	132 kV Dharmanagar - Dullavcherra 1 Line	AEGCL & TSECL	10-05-2018 07:45:00	10-05-2018 08:15:00	Earth Fault	Earth Fault	Dharmanagar, Dullavcherra
46	132 kV Agartala - Rokhia 1 Line	TSECL	10-05-2018 12:04:00	10-05-2018 16:53:00	Earth Fault	Earth Fault	Agartala, Rokhia
47	132 kV Agartala - Rokhia 2 Line	TSECL	10-05-2018 12:04:00	10-05-2018 12:24:00	No tripping	Earth Fault	Rokhia
48	132 kV Agartala - Dhalabil Line	TSECL	10-05-2018 12:04:00	10-05-2018 12:52:00	Earth Fault	Earth Fault	Agartala, Dhalabil
49	132 kV AGTPP - Kumarghat 1 Line	POWERGRID	10-05-2018 13:03:00	10-05-2018 13:12:00	DP, ZII, B-E	DP, ZI, R-E	AGTCCPP

--	--



**Pending DR and EL output for the month of May'18**

Event ID	Name of tripping element (End A - End B)	मालिक / Owner of the element	Date & Time of Event	Date & Time of Restoration	Relay indications		DR to be furnished by
					End A	End B	
50	132 kV Kumarghat - P K Bari 1 Line	TSECL	10-05-2018 13:03:00	10-05-2018 13:34:00	DP, ZIII, B-E	Not Furnished	Kumarghat
51	132 kV Kamalpur - P K Bari Line	TSECL	10-05-2018 13:03:00	10-05-2018 3:29:00	Earth Fault	No tripping	Kamalpur
52	132 kV Ambassa - P K Bari Line	TSECL	10-05-2018 13:03:00	10-05-2018 13:35:00	Earth Fault	Earth Fault	Ambassa, PK Bari
53	132 kV Aizawl - Kolasib 1 Line	POWERGRID	10-05-2018 13:53:00	10-05-2018 14:43:00	DP, ZI, B-E	Not Furnished	Aizawl
54	132 kV Aizawl - Jiribam 1 Line	POWERGRID	10-05-2018 14:23:00	10-05-2018 14:40:00	No tripping	DP, ZII, R-Y-E	Jiribam
55	132 kV Imphal - Silchar 2 Line	POWERGRID	10-05-2018 16:04:00	10-05-2018 16:15:00	DP, ZI, B-E	DP, ZI, B-E	Imphal, Silchar
56	400/132/33 kV, 200 ICT II at Silchar	POWERGRID	11-05-2018 01:18:00	11-05-2018 18:11:00	Bucholtz Operated		Silchar
57	132 kV Kumarghat - P K Bari 1 Line	TSECL	11-05-2018 08:17:00	11-05-2018 08:40:00	DP, ZIII, Y-E	No tripping	Kumarghat
58	132 kV Dharmanagar - Dullavcherra 1 Line	AEGCL & TSECL	11-05-2018 08:17:00	11-05-2018 10:21:00	Earth Fault	Earth Fault	Dharmanagar, Dullavcherra
59	132 kV Ranganadi - Pare 1 Line	POWERGRID	11-05-2018 11:09:00	11-05-2018 11:26:00	Earth Fault	Earth Fault	Ranganadi, Pare
60	132 kV Ranganadi - Pare 1 Line	POWERGRID	11-05-2018 13:04:00	11-05-2018 14:32:00	Earth Fault	Over current	Ranganadi, Pare
61	220 kV Samaguri - Sarusajai 2 Line	AEGCL	13-05-2018 11:50:00	13-05-2018 11:58:00	DP, ZI, Y-B-E	DP, ZI, R-B-E	Samaguri, Sarusajai
62	132 kV Bokajan - Dimapur(PG) 1 Line	AEGCL	14-05-2018 11:35:00	14-05-2018 12:05:00	Earth Fault	DP, ZI, B-E	Bokajan, Dimapur
63	132 kV Khandong - Kopili 1 Line	POWERGRID	14-05-2018 13:59:00	14-05-2018 14:09:00	DP, ZIII, R-Y-B-E	Over current	Khandong, Kopili
64	220 kV Samaguri - Sarusajai 2 Line	AEGCL	15-05-2018 10:00:00	15-05-2018 17:55:00	Earth Fault, R-E	DP, ZI, R-E	Samaguri, Sarusajai
65	132 kV Doyang - Mokokchung (DoP, Nagaland) 1 Line	DoP, Nagaland	15-05-2018 13:52:00	15-05-2018 18:52:00	No tripping	Earth Fault	Mokokchung(DoP, Nagaland)
66	132 kV Monarchak - Rokhia 1 Line	TSECL	15-05-2018 15:28 :00	16-05-2018 06:30:00	Over Current	Over Current	Monarchak, Rokhia
67	132 kV Khandong - Khliehriat 2 Line	POWERGRID	15-05-2018 18:01:00	15-05-2018 18:12:00	DP, ZII, R-Y-B-E	DP, ZI, R-Y-B-E	Khandong
68	132 kV Bokajan - Dimapur(PG) Line	AEGCL	16-05-2018 09:22:00	16-05-2018 09:47:00	Tripped	DP, ZI, B-E	Bokajan, Dimapur
69	132 kV Bokajan - Golaghat Line	AEGCL	16-05-2018 09:22:00	16-05-2018 09:40:00	Tripped	DP, ZI, B-E	Bokajan, Golaghat
70	220 kV Killing (Byrnihat) - Misa 1 Line	MePTCL	16-05-2018 11:25:00	16-05-2018 11:50:00	DP, ZII, B-E	Auto-reclosure successfully operated	Misa
71	132 kV Monarchak - Udaipur 1 Line	TSECL	16-05-2018 15:30:00	16-05-2018 15:44:00	DP, Z-II, R-E	Earth Fault	Monarchak, Udaipur
72	132 kV Monarchak - Rokhia 1 Line	TSECL	16-05-2018 15:30:00	16-05-2018 15:37:00	Earth Fault	Earth Fault	Monarchak, Udaipur
73	132 kV Lumshnong - Panchgram 1 Line	MePTCL & AEGCL	18-05-2018 06:13:00	Not yet restored	DP, ZI, B-E	No tripping	Lumshnong
74	132 kV Monarchak - Udaipur 1 Line	TSECL	18-05-2018 06:37:00	18-05-2018 07:06:00	No tripping	Earth Fault	Udaipur

--	--

**Pending DR and EL output for the month of May'18**

Event ID	Name of tripping element (End A - End B)	मालिक / Owner of the element	Date & Time of Event	Date & Time of Restoration	Relay indications		DR to be furnished by
					End A	End B	
75	132 kV Monarchak - Rokhia 1 Line	TSECL	18-05-2018 06:37:00	18-05-2018 08:51:00	DP, ZII, R-Y-B-E	Earth Fault	Monarchak, Udaipur
76	132 kV Monarchak - Udaipur 1 Line	TSECL	18-05-2018 11:50:00	18-05-2018 16:37:00	DP, ZII, R-E	Earth Fault	Monarchak, Udaipur
77	132 kV Monarchak - Rokhia 1 Line	TSECL	18-05-2018 12:24:00	18-05-2018 14:58:00	DP, ZII, R-E	Earth Fault	Monarchak, Rokhia
78	132 kV Agartala - Rokhia 1 Line	TSECL	20-05-2018 06:02:00	20-05-2018 06:22:00	Earth Fault	Earth Fault	Agartala, Rokhia
79	132 kV Agartala - Rokhia 2 Line	TSECL	20-05-2018 06:02:00	20-05-2018 06:22:00	Earth Fault	Earth Fault	Agartala, Rokhia
80	132 kV Monarchak - Rokhia 1 Line	TSECL	20-05-2018 06:02:00	20-05-2018 06:25:00	No tripping	Earth Fault	Rokhia
81	220 kV Kopili - Misa 1 Line	POWERGRID	21-05-2018 16:34:00	21-05-2018 18:48:00	Bus Bar Protection, Zone-B	Bus Bar Protection, Zone-B	Kopili
82	220 kV Misa - Samaguri 1 Line	POWERGRID	21-05-2018 16:34:00	21-05-2018 18:01:00	Pole Discrepancy operated	Bus Bar Protection, Zone-B	Samaguri
83	220 kV Killing (Byrnihat) - Misa 2 Line	MePTCL	21-05-2018 16:34:00	21-05-2018 18:43:00	DP, Z-II, B-E	No tripping	Killing
84	220 kV Misa - Samaguri 1 Line	POWERGRID	24-05-2018 11:33:00	24-05-2018 12:01:00	DP, ZI, R-E	DP, ZI, R-E	Samaguri
85	132 kV Doyang - Mokokchung (DoP, Nagaland) 1 Line	DoP, Nagaland	24-05-2018 14:09:00	24-05-2018 17:59:00	No tripping	Earth Fault	Mokokchung(DoP, Nagaland)
86	132 kV Doyang - Sanis Line	DoP, Nagaland	24-05-2018 14:09:00	24-05-2018 15:20:00	DP, Z-I, R-Y-E	Earth Fault	Doyang
87	132 kV Balipara- Khupi line	NEEPCO & DoP, AP	24-05-2018 16:04:00	24-05-2018 16:33:00	DP, ZI, Y-B-E	Not Furnished	Balipara
88	400/132/33 kV, 200 MVA ICT II Silchar	POWERGRID	25-05-2018 16:32:00	25-05-2018 17:40:00	Buchholz relay operated		Silchar
89	132 kV Khandong - Khliehriat 2 Line	POWERGRID	25-05-2018 22:26:00	25-05-2018 22:44:00	DP, ZII, R-Y-B-E	DP, ZI, R-Y-B-E	Khandong
90	132 kV Badarpur - Kolasib 1 Line	POWERGRID	26-05-2018 17:24:00	26-05-2018 17:35:00	No tripping	Earth Fault	Kolasib
91	220 kV Agia - BTPS 1 Line	AEGCL	27-05-2018 11:20:00	27-05-2018 11:40:00	No tripping	Earth Fault	BTPS
92	132 kV Pasighat - Roing Line	POWERGRID	29-05-2018 11:20:00	29-05-2018 11:55:00	DP, ZI, Y-B-E	No tripping	Pasighat
93	132 kV Along - Pasighat Line	DoP, Arunachal Pradesh	30-05-2018 12:15:00	30-05-2018 12:58:00	No tripping	Over current	Pasighat

--	--

## DR and EL output not furnished for the month of June'18

Event ID	Name of tripping element (End A - End B)	Date & Time of Event	Date & Time of Restoration	Relay indications		DR and EL output to be furnished by
				End A	End B	
1	132 kV Motonga - Rangia Line	02-06-2018 11:05:00	02-06-2018 11:45:00	Not Furnished	Distance Protection	<b>Rangia</b>
2	132 kV Kamalpur - Kahilipara 1 Line	02-06-2018 11:05:00	02-06-2018 11:45:00	DP, ZI, R-E	DP, ZI, R-E	<b>Kamalpur, Kahilipara</b>
3	132 kV Imphal (Manipur) - Imphal (PG) 2 Line	03-06-2018 10:31:00	03-06-2018 10:53:00	No tripping	Over current	<b>Imphal(PG)</b>
4	132 kV Imphal (Manipur) - Imphal (PG) 1 Line	03-06-2018 10:31:00	03-06-2018 10:51:00	Earth Fault	No tripping	<b>Imphal(Manipur)</b>
5	132 kV Biswanath Chariali - Pavo 1 Line	04-06-2018 09:26:00	04-06-2018 09:55:00	No tripping	Earth Fault	<b>Pavo</b>
6	132 kV Gelyphu - Salakati 1 Line	04-06-2018 13:36:00	04-06-2018 19:09:00	Not Furnished	Earth Fault, Y-E	<b>Salakati</b>
7	132 kV Haflong (AS) - Haflong(PG) 1 Line	05-06-2018 13:57:00	05-06-2018 14:37:00	Earth Fault	No tripping	<b>Haflong(AS)</b>
8	132 kV Aizawl - Jiribam 1 Line	06-06-2018 01:42:00	06-06-2018 01:55:00	Earth Fault	No tripping	<b>Aizawl</b>
9	132 kV Dharmanagar - Dullavcherra Line	06-06-2018 02:20:00	06-06-2018 2:45:00	No tripping	Earth Fault	<b>Dullavcherra</b>
10	132 kV Khandong - Khliehriat 1 Line	06-06-2018 06:53:00	06-06-2018 07:18:00	DP, ZI, R-Y-B-E	No tripping	<b>Khandong</b>
11	132 kV Imphal (MSPCL) - Imphal (PG) 1 Line	06-06-2018 10:54:00	06-06-2018 11:10:00	Earth Fault, B-E	Earth Fault	<b>Imphal(PG), Imphal(MSPCL)</b>
12	132 kV Imphal (MSPCL) - Imphal (PG) 2 Line	06-06-2018 10:54:00	06-06-2018 11:47:00	Earth Fault, B-E	Earth Fault	<b>Imphal(PG), Imphal(MSPCL)</b>
13	132 kV Doyang - Mokochung (DoP, Nagaland) 1 Line	06-06-2018 21:14:00	06-06-2018 21:29:00	DP, ZI, R-E	Earth Fault	<b>Mokochung(DoP, Nagaland)</b>
14	132 kV Khandong - Khliehriat 1 Line	07-06-2018 14:23:00	07-06-2018 14:37:00	DP, ZII, R-Y-B-E	DP, ZI, R-Y-B-E	<b>Khandong</b>
15	132 kV Khliehriat (MePTCL) - Khliehriat (PG) 1 Line	07-06-2018 14:26:00	07-06-2018 14:37:00	DP, ZI, R-Y-B	DP, ZI, Y-E	<b>Khliehriat(MePTCL), Khliehriat(PG)</b>
16	132 kV Khandong - Khliehriat 2 Line	08-06-2018 14:25:00	08-06-2018 14:46:00	Earth Fault	DP, ZI, Y-B-E	<b>Khandong</b>
17	132 kV Aizawl - Kolasib 1 Line	09-06-2018 02:33:00	09-06-2018 03:21:00	DP, ZI, R-E	DP, ZI, R-E	<b>Aizawl, Kolasib</b>
18	132 kV Balipara - Khupi 1 Line	09-06-2018 11:16:00	09-06-2018 11:34:00	Earth Fault	No tripping	<b>Balipara</b>
19	132 kV Dimapur (PG) - Kohima 1 Line	09-06-2018 13:46:00	09-06-2018 13:51:00	Earth Fault	No tripping	<b>Dimapur</b>

**POWERGRID**

**Assam**

**MSPCL**

**MePTCL**

**P&ED, Mizoram**

**DoP, Nagaland**

**NEEPCO**

## DR and EL output not furnished for the month of June'18

Event ID	Name of tripping element (End A - End B)	Date & Time of Event	Date & Time of Restoration	Relay indications		DR and EL output to be furnished by
				End A	End B	
20	132 kV Dharmanagar - Dullavcherra 1 Line	09-06-2018 17:56:00	09-06-2018 18:15:00	No tripping	Earth Fault	Dullavcherra
21	132 kV Kumarghat - P K Bari 1 Line	09-06-2018 17:56:00	09-06-2018 18:04:00	DP, ZIII, R-E	No tripping	Kumarghat
22	132 kV Motonga - Rangia 1 Line	10-06-2018 18:28:00	10-06-2018 21:10:00	Not Furnished	DP, ZI, R-Y-B-E	Rangia
23	400 kV Azara - Silchar Line	11-06-2018 01:49:00	11-06-2018 02:27:00	DP, ZI, Y-B	DP, ZII, R-B	Azara
24	132 kV Loktak - Ningthoukhong Line	12-06-2018 06:38:00	12-06-2018 08:31:00	No tripping	Earth Fault	Ningthoukhong
25	132 kV Haflong (AS)-Haflong(PG) Line	12-06-2018 22:50:00	12-06-2018 23:01:00	No tripping	Earth Fault	Haflong(PG)
26	132 kV Khliehriat (MePTCL) - Khliehriat (PG) 2 Line	13-06-2018 04:45:00	13-06-2018 05:00:00	No tripping	DP, ZIII, B-E	Khliehriat(PG)
27	132 kV Haflong (AS)-Haflong(PG) Line	13-06-2018 21:36:00	13-06-2018 21:52:00	Over current, R ph	Over current, RYB ph	Haflong(PG), Haflong(AS)
28	132 kV Khliehriat (MePTCL) - Khliehriat (PG) 2 Line	14-06-2018 00:50:00	14-06-2018 00:57:00	No tripping	DP, ZIII, R-Y	Khliehriat(PG)
29	132 kV Khliehriat (MePTCL) - Khliehriat (PG) 2 Line	14-06-2018 01:24:00	14-06-2018 01:28:00	No tripping	DP, ZIII, B-E	Khliehriat(PG)
30	132 kV Khliehriat (MePTCL) - Khliehriat (PG) 2 Line	14-06-2018 01:42:00	14-06-2018 01:59:00	No tripping	DP, ZIII, B-E	Khliehriat(PG)
31	132 kV Imphal (Manipur) - Imphal (PG) 1 Line	14-06-2018 03:32:00	14-06-2018 04:13:00	Earth Fault	No tripping	Imphal(Manipur)
32	132 kV Imphal (Manipur) - Imphal (PG) 2 Line	14-06-2018 03:32:00	14-06-2018 04:13:00	Earth Fault	DP, ZI, B-E	Imphal(Manipur). Imphal(PG)
33	132 kV Daporijo - Ziro 1 Line	14-06-2018 05:00:00	15-06-2018 15:07:00	Tripped(no indication recorded), conductor snapped	DP, R-E, conductor snapped	Ziro
34	220 kV Samaguri - Sonapur Line	16-06-2018 04:10:00	16-06-2018 04:30:00	DP, ZI, B-E	Tripped(no indication recorded)	Samaguri
35	132 kV P.K.Bari - Silchar 1 Line	18-06-2018 01:40:00	18-06-2018 02:34:00	Master Relay	Over voltage	Silchar

### DR and EL output not furnished for the month of June'18

Event ID	Name of tripping element (End A - End B)	Date & Time of Event	Date & Time of Restoration	Relay indications		DR and EL output to be furnished by
				End A	End B	
36	132 kV P.K.Bari - Silchar 2 Line	18-06-2018 01:40:00	18-06-2018 02:18:00	Master Relay	Over voltage	Silchar
37	132 kV Imphal (MSPCL) - Imphal (PG) 1 Line	18-06-2018 10:29:00	18-06-2018 10:54:00	Earth Fault	Earth Fault	Imphal(MSPCL), Imphal(PG)
38	132 kV Imphal (MSPCL) - Imphal (PG) 2 Line	18-06-2018 10:29:00	18-06-2018 10:42:00	Earth Fault	Earth Fault	Imphal(MSPCL), Imphal(PG)
39	132 kV Haflong (AEGCL) - Haflong(PG) Line	20-06-2018 21:21:00	20-06-2018 21:34:00	Over current, RY ph	No tripping	Haflong(AEGCL)
40	220 kV Misa - Samaguri 2 Line	21-06-2018 12:16:00	21-06-2018 12:25:00	DP, ZI, R-E	DP, ZI, R-E	Samaguri
41	132 kV Haflong (AEGCL) - Haflong(PG) 1 Line	21-06-2018 20:37:00	21-06-2018 20:49:00	No tripping	Earth Fault	Haflong(PG)
42	132 kV Khliehriat (MePTCL) - Khliehriat (PG) 2 Line	22-06-2018 03:36:00	22-06-2018 04:00:00	No tripping	DP, ZIII, R-Y-B-E	Khliehriat(PG)
43	132 kV Lekhi - Pare Line	21-06-2018 23:30:00	21-06-2018 23:55:00	No tripping	Over current	Pare
44	132 kV Imphal (MSPCL) - Imphal (PG) 1 Line	23-06-2018 10:04:00	23-06-2018 10:14:00	No tripping	Earth Fault	Imphal(PG)
45	132 kV Imphal (MSPCL) - Imphal (PG) 2 Line	23-06-2018 10:04:00	23-06-2018 10:15:00	No tripping	Earth Fault	Imphal(PG)
46	132 kV Balipara - Khupi 1 Line	23-06-2018 12:45:00	23-06-2018 13:02:00	DP, ZI, R-B-E	No tripping	Balipara
47	132 kV Dimapur (PG) - Kohima Line	23-06-2018 12:45:00	23-06-2018 13:06:00	Earth Fault, R-ph	No tripping	Dimapur
48	132 kV Balipara - Sonabil Line	24-06-2018 01:21:00	25-06-2018 14:14:00	DP, ZI, Y-E	DP, ZI, R-Y-B-E	Balipara, Sonabil
49	132 kV Dimapur (PG) - Kohima Line	24-06-2018 12:10:00	24-06-2018 12:21:00	DP, ZI, B-E	DP, ZI, R-Y-B	Dimapur, Kohima
50	132 kV Dimapur (PG) - Kohima Line	24-06-2018 12:49:00	24-06-2018 12:58:00	DP, ZI, B-E	DP, ZI, B-E	Dimapur, Kohima
51	132 kV Aizawl - Kumarghat 1 Line	25-06-2018 13:32:00	25-06-2018 13:47:00	DP, ZI, R-B	DP, ZI, R-B	Aizawl
52	400/132/33kV, ICT II at Silchar	25-06-2018 14:58:00	25-06-2018 15:15:00	WTI Trip		Silchar
53	220 kV AGBPP - Tinsukia 1 Line	25-06-2018 17:42:00	25-06-2018 20:03:00	No tripping	Tripped	Tinsukia
54	400/132/33kV, ICT I at Silchar	25-06-2018 18:09:00	25-06-2018 18:58:00	OTI Trip		Silchar
55	400/132/33kV, ICT I at Silchar	25-06-2018 14:58:00	25-06-2018 15:15:00	WTI Trip		Silchar

### DR and EL output not furnished for the month of June'18

Event ID	Name of tripping element (End A - End B)	Date & Time of Event	Date & Time of Restoration	Relay indications		DR and EL output to be furnished by
				End A	End B	
56	132 kV Imphal (MSPCL) - Imphal (PG) 2 Line	26-06-2018 11:30:00	26-06-2018 11:44:00	Earth Fault	Earth Fault	Imphal(MSPCL), Imphal(PG)
57	132 kV Balipara - Khupi 1 Line	27-06-2018 04:39:00	27-06-2018 05:21:00	DP, ZI, R-B	No tripping	Balipara
58	132 kV Lumshnong - Panchgram 1 Line	27-06-2018 10:58:00	27-06-2018 16:25:00	No tripping	Over current	Panchgram
59	220 kV Jawaharnagar - Samaguri Line	27-06-2018 17:50:00	28-06-2018 15:20:00	DP, Z-I, B-E	DP, Z-I, R-E	Jawaharnagar, Samaguri
60	132 kV Imphal (MSPCL) - Imphal (PG) 2 Line	29-06-2018 01:50:00	29-06-2018 02:18:00	No tripping	Earth Fault	Imphal(PG)
61	132 kV Imphal (MSPCL) - Imphal (PG) 2 Line	29-06-2018 02:22:00	29-06-2018 02:41:00	No tripping	Earth Fault	Imphal(PG)
62	132 kV Ranganadi - Ziro 1 Line	29-06-2018 18:40:00	29-06-2018 18:48:00	No tripping	Over current	Ziro
63	132 kV Haflong - Jiribam 1 Line	30-06-2018 15:00:00	30-06-2018 15:10:00	DP, ZII, R-Y	DP, ZI, R-Y	Haflong, Jiribam
64	132 kV Haflong (AEGCL) - Haflong(PG) 1 Line	30-06-2018 06:29:00	30-06-2018 06:34:00	No tripping	Earth Fault	Haflong(PG)
65	132 kV Haflong (AEGCL) - Haflong(PG) 1 Line	30-06-2018 08:14:00	30-06-2018 08:23:00	No tripping	Over current	Haflong(PG)
66	132 kV Balipara - Khupi 1 Line	30-06-2018 13:59:00	30-06-2018 14:22:00	DP, ZI, R-B	No tripping	Balipara

**DR and EL output not furnished for the month of July'18**

Sl.No	Name of tripping element (End A - End B)	मालिक / Owner of the element	Date & Time of Event	Date & Time of Restoration	Relay indications		DR and EL output to be furnished by
					End A	End B	
1	132 kV Haflong (AEGCL) - Haflong(PG) 1 Line	AEGCL	01-07-2018 04:36:00	01-07-2018 05:02:00	No tripping	Over current	Haflong(PG)
2	132 kV Haflong (AEGCL) - Haflong(PG) 1 Line	AEGCL	01-07-2018 05:59:00	01-07-2018 06:13:00	No tripping	Over current	Haflong(PG)
3	220 kV Balipara - Sonabil 1 Line	POWERGRID & AEGCL	01-07-2018 13:02:00	01-07-2018 13:21:00	DP, ZII, R-Y-E	DP, ZI, R-Y-B	Balipara, Sonabil
4	132 kV Dimapur (PG) - Kohima 1 Line	POWERGRID & DoP, Nagaland	01-07-2018 12:54:00	01-07-2018 13:10:00	DP, ZI, B-E	No tripping	Dimapur
5	220 kV Misa - Samaguri 2 Line	POWERGRID	02-07-2018 09:55:00	02-07-2018 14:22:00	No tripping	SOTF	Samaguri
6	132 kV Balipara - Khupi Line	NEEPCO & DoP, AP	02-07-2018 16:12:00	02-07-2018 16:28:00	DP, ZI, R-E	No tripping	Balipara
7	400 kV Bongaigaon - New Siliguri (Binaguri) 1 Line	POWERGRID	04-07-2018 07:43:00	04-07-2018 09:13:00	PRV & Bucholz of Line Reactor at Bongaigaon	Direct Trip received	Bongaigaon
8	400/220 kV, 315 MVA ICT 1 at Balipara	POWERGRID	04-07-2018 14:24:00	04-07-2018 15:22:00	R phase OTI & WTI		Balipara
9	132 kV Dimapur (PG) - Kohima Line	POWERGRID & DoP, Nagaland	05-07-2018 10:00:00	05-07-2018 15:10:00	DP, ZI, B-E	No tripping	Dimapur
10	132 kV Motonga - Rangia Line	POWERGRID	05-07-2018 12:35:00	05-07-2018 13:03:00	No tripping	Over current	Rangia
11	132 kV Balipara - Khupi Line	NEEPCO & DoP, AP	06-07-2018 08:48:00	06-07-2018 09:03:00	Earth Fault	No tripping	Balipara
12	132 kV Kumarghat - P K Bari Line	TSECL	06-07-2018 12:10:00	06-07-2018 12:25:00	DP, ZIII, R-Y-E	No tripping	Kumarghat
13	132 kV Pasighat - Roing Line	POWERGRID	06-07-2018 12:55:00	06-07-2018 13:40:00	DP, ZI, Y-B-E	No tripping	Pasighat
14	132 kV Silchar - Hailakandi 1 Line	POWERGRID	07-07-2018 05:48:00	07-07-2018 06:16:00	DP, ZIII, Y-E	DP, ZI, Y-E	Hailakandi
15	132 kV Doyang - Mokokchung (DoP, Nagaland) 1 Line	DoP, Nagaland	07-07-2018 10:34:00	07-07-2018 11:00:00	DP, ZI, B-E	Over current	Doyang, Mokokchung
16	132 kV Balipara - Khupi Line	NEEPCO & DoP, AP	07-07-2018 11:28:00	07-07-2018 11:42:00	DP, ZI, B-E	No tripping	Balipara

POWERGRID

DoP, Arunchal Pradesh

AEGCL

MSPCL

MePTCL

P&ED, Mizoram

DoP, Nagaland

TSECL

BgTPP

NEEPCO

17	132 kV Ranganadi - Pare 1 Line	POWERGRID	07-07-2018 13:32:00	07-07-2018 13:54:00	Bus differential operated (Bus -B)	No tripping	Ranganadi
18	400/132/33 kV, 360 MVA ICT 2 at Ranganadi	NEEPCO	07-07-2018 13:32:00	07-07-2018 13:42:00	Bus Bar Differential operated (Bus B)		Rangandi
20	220 kV Samaguri - Sonabil 2 Line	AEGCL	08-07-2018 09:02:00	08-07-2018 09:21:00	DP, ZI, R-Y-B	DP, ZI, R-Y-B	Samaguri, Sonabil
21	220 kV Samaguri - Sonabil 2 Line	AEGCL	08-07-2018 10:56:00	09-07-2018 11:02:00	DP, ZI, R-Y-B	DP, ZI, R-Y-B	Samaguri, Sonabil
22	132 kV Imphal (MSPCL) - Imphal (PG) 1 Line	POWERGRID	11/07/2018 10:55:00	11/07/2018 11:09:00	Over current	No tripping	Imphal(MSPCL)
23	132 kV Imphal (MSPCL) - Imphal (PG) 2 Line	POWERGRID & MSPCL	11/07/2018 10:55:00	11/07/2018 11:11:00	Over current	No tripping	Imphal(MSPCL)
24	132 kV Dimapur (PG) - Kohima 1 Line	POWERGRID & DoP, Nagaland	11/07/2018 11:26:00	11/07/2018 11:38:00	DP, ZI, B-E	No tripping	Dimapur
25	400 kV Balipara - Bongaigaon 3 Line	POWERGRID	11/07/2018 13:58:00	11/07/2018 14:12:00	Directional Earth Fault	Direct Trip received	Balipara, Bongaigaon
26	400 kV Bongaigaon - Alipurduar 2 Line	ENICL	11/07/2018 14:04:00	11/07/2018 15:13:00	DP, ZII, Y-E	Not Furnished	Bongaigaon
27	132 kV Lekhi - Pare 1 Line	NEEPCO, DoP, AP & POWERGRID	11/07/2018 14:25:00	11/07/2018 14:35:00	Over current	No tripping	Lekhi
28	400 kV Balipara - Bongaigaon 3 Line	POWERGRID	11/07/2018 17:39:00	11/07/2018 17:55:00	Direct Trip received	GRP A & B Relay operated	Balipara, Bongaigaon
29	400 kV Balipara - Bongaigaon 3 Line	POWERGRID	11/07/2018 18:03:00	11/07/2018 19:02:00	Direct Trip received	GRP A & B Relay operated	Balipara, Bongaigaon
30	132 kV Doyang - Mokokchung (DoP, Nagaland) 1 Line	DoP, Nagaland	11/07/2018 22:34:00	11/07/2018 22:49:00	No tripping	Over current	Mokokchung(DoP, Nagaland)
31	220 kV Mariani (PG) - Mokokchung (PG) 2 Line	POWERGRID	11/07/2018 22:32:00	12/07/2018 13:14:00	DP, ZI, Y-E	DP, ZI, Y-E	Mokokchung
32	132 kV Aizawl - Melriat 1 Line	POWERGRID	12/07/2018 13:53:00	12/07/2018 14:17:00	Over current	Earth Fault	Aizawl, Melriat
33	132 kV Lekhi - Pare 1 Line	NEEPCO, DoP, AP & POWERGRID	12/07/2018 14:07:00	12/07/2018 14:50:00	Over current	No tripping	Lekhi
34	132 kV Aizawl - Kolasib 1 Line	POWERGRID	12/07/2018 16:16:00	12/07/2018 19:27:00	DP, ZII, R-E, LBB operated	Not Furnished	Aizawl, Kolasib
35	132 kV Doyang - Wokha 1 Line	DoP, Nagaland	13/07/2018 12:00:00	13/07/2018 13:27:00	DP, ZI, Y-B-E	Not Furnished	Doyang
36	132 kV Balipara - Khupi 1 Line	DoP, AP & POWERGRID	13/07/2018 14:48:00	13/07/2018 15:10:00	DP, ZI, B-E	No tripping	Balipara
37	132 kV Kumarghat - P K Bari 1 Line	TSECL	14/07/2018 09:26:00	14/07/2018 09:42:00	No tripping	Earth Fault	PK Bari
38	132 kV Doyang - Wokha 1 Line	DoP, Nagaland	14/07/2018 13:19:00	14/07/2018 13:35:00	DP, ZI, Y-E	Over current	Doyang, Wokha
39	132 kV Dimapur - Doyang 1 Line	POWERGRID	14/07/2018 23:26:00	15/07/2018 00:00:00	DP, ZI, B-E	DP, ZI, B-E	Dimapur, Doyang
40	Doyang - Mokokchung (DoP,Nagaland)	DoP, Nagaland	14/07/2018 23:26:00	15/07/2018 10:40:00	DP, ZI, B-E	DP, ZI, B-E	Doyang, Mokochung
41	132 kV Doyang - Wokha 1 Line	DoP, Nagaland	15/07/2018 04:35:00	15/07/2018 04:50:00	DP, Z-I, B-E	No tripping	Doyang
42	132 kV Kumarghat - P K Bari 1 Line	TSECL	15/07/2018 12:45:00	15/07/2018 12:49:00	No tripping	Earth Fault	PK Bari
43	132 kV Aizawl - Kumarghat 1 Line	POWERGRID	15/07/2018 16:00:00	15/07/2018 16:21:00	RYB Ph, 78 km	RYB Ph, 61 km	Kumarghat
44	132 kV Balipara - Khupi 1 Line	NEEPCO & DoP, AP	16-07-2018 11:52:00	16-07-2018 12:10:00	DP, ZII, B-E	No tripping	Balipara

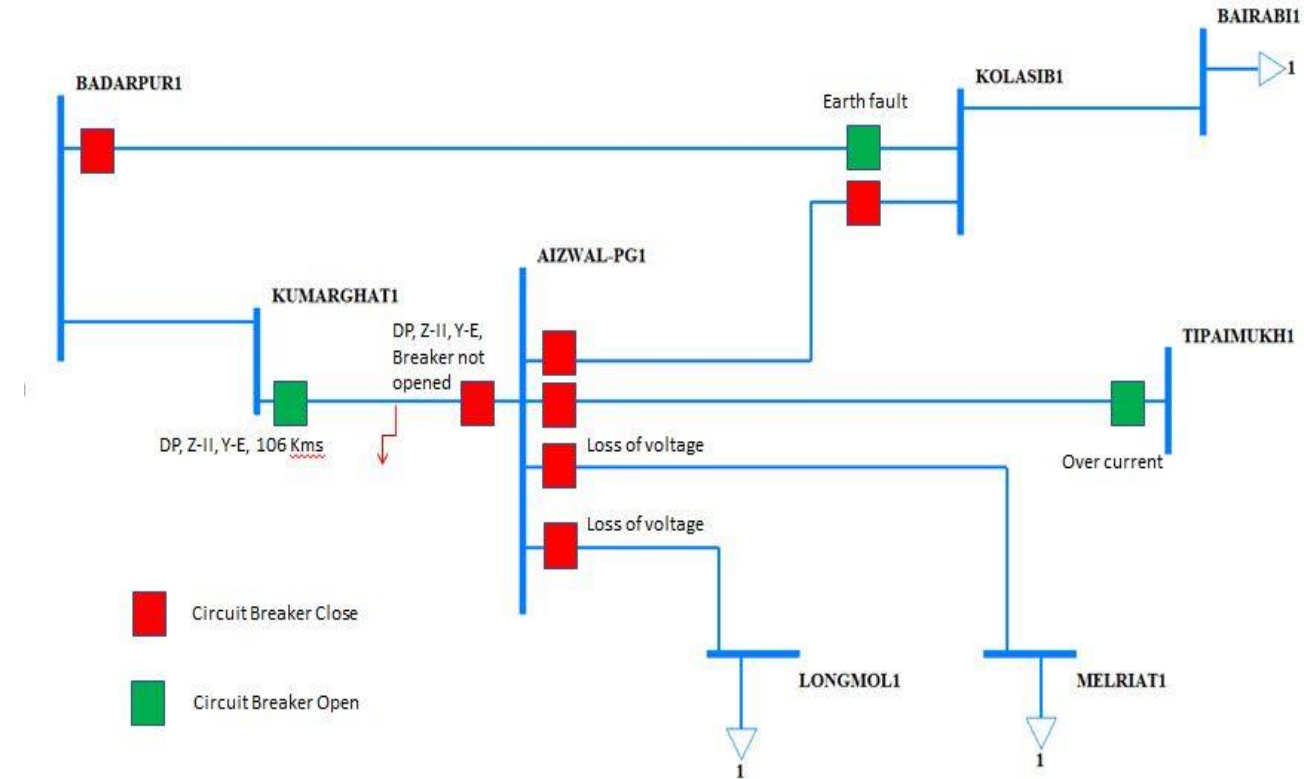


45	+/- 800 kV Biswanath Chariali - Agra 2 HVDC	POWERGRID	17-07-2018 12:27:00	17-07-2018 13:01:00	DC Line Fault	No tripping	Biswanath Chariali	
46	132 kV Dharmanagar - Dullavcherra 1 Line	AEGCL & TSECL	17-07-2018 12:40:00	17-07-2018 12:53:00	Earth Fault	Earth Fault	Dharmanagar, Dullavcherra	
47	132 kV Doyang - Sanis 1 Line	DoP, Nagaland	18-07-2018 12:33:00	18-07-2018 13:09:00	Earth Fault	Earth Fault	Doyang	
48	132 kV Doyang - Sanis 1 Line	DoP, Nagaland	18-07-2018 19:30:00	18-07-2018 20:30:00	Earth Fault	No tripping	Doyang	
49	132 kV Monarchak - Udaipur 1 Line	TSECL	19/07/2018 10:40:00	19/07/2018 11:05:00	No tripping	tripped	Udaipur	
50	132 kV Monarchak - Rokhia 1 Line	TSECL	19/07/2018 10:40:00	19/07/2018 11:06:00	No tripping	tripped	Udaipur	
51	132 kV Doyang - Mokokchung (DoP, Nagaland) 1 Line	DoP, Nagaland	19-07-2018 10:50:00	19-07-2018 11:25:00	No tripping	Earth Fault	Mokokchung(DoP, Nagaland)	
52	132 kV Doyang - Sanis 1 Line	DoP, Nagaland	19-07-2018 17:20:00	19-07-2018 17:30:00	DP, Z-III, Y-B-E	Over current	Doyang	
53	132 kV Lumshnong - Panchgram 1 Line	AEGCL & MePTCL	19-07-2018 14:10:00	20-07-2018 12:05:00	Earth Fault	Not Furnished	Lumshnong	
54	132 kV Motonga - Rangia 1 Line	POWERGRID	20-07-2018 12:47:00	20-07-2018 13:23:00	Not Furnished	Tripped	Rangia	
55	220 kV AGBPP - Tinsukia 2 Line	AEGCL	20-07-2018 13:10:00	20-07-2018 14:15:00	DP, ZI, B-E	DP, ZI, B-E	AGBPP, Tinsukia	
56	132 kV Khliehriat (MePTCL) - Khliehriat (PG) 2 Line	MePTCL	20-07-2018 14:44:00	20-07-2018 15:28:00	Earth Fault	DP, ZI, R-Y-E	Khliehriat(MePTCL), Khliehriat	
57	132 kV Khandong - Khliehriat 1 Line	POWERGRID	20-07-2018 14:51:00	20-07-2018 14:57:00	DP, ZII, R-Y-B-E	Not Furnished	Khliehriat	
58	132 kV Lekhi - Nirjuli 1 Line	DoP, AP & POWERGRID	21-07-2018 00:53:00	21-07-2018 02:30:00	Not Furnished	No tripping	Lekhi	
59	132 kV Gelyphu - Salakati 1 Line	POWERGRID	21-07-2018 01:24:00	21-07-2018 01:45:00	DP, ZI, Y-E	DP, Z-I, Y-B-E	Salakati	
60	132 kV Loktak - Ningthoukhong 1 Line	MSPCL	21-07-2018 12:40:00	21-07-2018 15:52:00	DP, ZI, B-E	Earth Fault	Ningthoukhong	
61	132 kV Doyang - Sanis 1 Line	DoP, Nagaland	21-07-2018 13:18:00	21-07-2018 13:44:00	DP, Z-III, Y-B-E	Earth Fault	Doyang	
62	132 kV Doyang - Sanis 1 Line	DoP, Nagaland	21-07-2018 13:57:00	21-07-2018 14:48:00	DP, Z-III, Y-B-E	Earth Fault	Doyang	
63	132 kV Along - Daporijo 1 Line	DoP, Arunachal Pradesh	22-07-2018 23:35:00	23-07-2018 18:06:00	No tripping	Earth Fault	Daporijo	
64	132 kV Doyang - Sanis Line	DoP, Nagaland	25-07-2018 10:40:00	25-07-2018 11:04:00	Earth Fault	No tripping	Doyang	
65	132 kVJiribam - Tipaimukh Line	POWERGRID	25-07-2018 22:05:00	25-07-2018 22:34:00	DP, ZI, R-E, 0.1 Kms	DP, ZII, R-E, 66 Kms	Jiribam , Tipaimukh	
66	400 kV Balipara - Bongaigaon 3 Line	POWERGRID	26-07-2018 08:23:00	26-07-2018 08:32:00	Relay maloperation	Direct trip received	Balipara, Bongaigaon	
67	132 kV Badarpur - Kolasib Line	POWERGRID	26-07-2018 10:00:00	26-07-2018 10:18:00	DP, ZII, Y-E	Earth Fault	Badarpur	
68	132 kV Balipara - Khupi Line	NEEPCO & DoP, AP	27-07-2018 18:38:00	27-07-2018 19:20:00	DP, Z-II, Y-E	No tripping	Balipara	
69	132 kV Motonga - Rangia Line	POWERGRID	27-07-2018 18:29:00	27-07-2018 19:41:00	Not Furnished	DP, R-Y-B	Rangia	
70	132 kV Pare - Itanagar 1 Line	NEEPCO & DoP, AP	28-07-2018 01:25:00	28-07-2018 11:23:00	Over current	Over current	Pare, Itanagar	
71	132 kV Doyang - Sanis Line	DoP, Nagaland	29-07-2018 07:13:00	29-07-2018 07:21:00	Distance Protection operated	Earth Fault	Doyang, Sanis	

72	800 kV Biswanath Chariali - Agra 2 HVDC	POWERGRID	30-07-2018 04:03:00	30-07-2018 05:58:00	Not Furnished	due to Fire Trip(VESDA Zone-3)	Biswanath Chariali
73	400kV BGTPP - Transformer 2 Transformer	NTPC	30-07-2018 11:20:00	31-07-2018 13:53:00	Tripped on PRV		BgTPP
74	400 kV Palatana - Silchar 2 Line	NETCL	30-07-2018 17:57:00	30-07-2018 18:22:00	Direct Trip received	No tripping	Silchar
75	400 kV Palatana - Silchar 2 Line	NETCL	30-07-2018 22:09:00	30-07-2018 22:29:00	Direct Trip received	No tripping	Silchar
76	132 kV Doyang - Sanis Line	DoP, Nagaland	31/07/2018 05:35:00	31/07/2018 05:58:00	Over current	Not Furnished	Doyang
77	132 kV Kohima - Wokha 1 Line	DoP, Nagaland	31-07-2018 12:30:00	31-07-2018 16:25:00	Earth Fault	No tripping	Kohima
78	132 kV Dimapur - Kohima Line	POWERGRID & DoP, Nagaland	31/07/2018 16:20:00	Not restored yet	Over current	Earth Fault	Dimapur, Kohima

# Aizawl Blackout on 4<sup>th</sup> Aug'18

- As per DR output of 132 kV Aizwal – Kumarghat line, Y-E fault was in detected in Z-II from both ends
  - Gradual increase in fault current (Kum-0.7 kA, Aiz-0.6 kA),
  - High fault voltage (Kum-69 kV, Aiz-40 kV) &
  - Angle between  $V_y$  &  $I_y \sim 25$ -26 degrees
- a, b & c indicate **high resistive fault due to vegetation**
- After 560 msec, 132 kV Badarpur – Kolasib line tripped at Kolasib end.**
- Subsequently, 132 kV Aizawl – Tipaimukh line tripped at Tipaimukh end.**
- Then, Breaker of 132 kV Aizwal – Kumarghat line tripped at Kumarghat end and cleared the fault
- Fault Clearance Time:  $\sim 1$  sec**



- Reason for **non-operation of breaker** at Aizwal (PG) (NERTS)
- Status of **implementation of POR scheme** in 132 kV Aizwal – Kumarghat line (NERTS)
- Status of **installation of distance protection at Kolasib** (132 kV grid connected lines) (NERTS)
- Review of earth fault relay at Kolasib (NERTS)
- MSPCL is requested to furnish **DR & EL output of Tipaimukh substation**

# PMU Plots

