

North Eastern Regional Power Committee

**MINUTES OF THE 39th PROTECTION COORDINATION
SUB-COMMITTEE MEETING OF NERPC**

Date : 23/11/2015 (Monday)
Time : 18:00 hrs
Venue : "State Guest House", Tawang.

The List of Participants in the 39th PCC Meeting is attached at **Annexure - I**

Shri P.K. Mishra, Member Secretary, NERPC welcomed all the participants to the 39th PCC meeting. He expressed concern that inspite of assurance of TCC/RPC members at the 15th TCC/RPC meeting, constituents are not participating regularly in the sub-committee meetings. He mentioned that representatives from Mizoram & Nagaland were again absent in the meeting and hence any items pertaining to them will not be able to conclude. He requested members to intensely participate in the meeting in the backdrop of proposed Power transfer to Bangladesh.

Member Secretary stated that as requested by PCC/OCC members to host the meetings at Tawang to have a good interaction with various Officers of Power Dept. for better coordination, the same could be made with the support of Dept. of Power, Ar. Pradesh. He expressed his sincere thanks to Dept. of Power, Govt. of Arunachal Pradesh especially Shri N. Perme, EE, SLDC & Shri Tarik Mize, EE (Tawang) for providing logistic support to the members of the Sub-committee.

Thereafter, Member Secretary, NERPC requested Shri B. Lyngkhoi, Director/SE(O) to take up the Agenda items.

A. CONFIRMATION OF MINUTES

CONFIRMATION OF MINUTES OF 38th MEETING OF PROTECTION SUB-COMMITTEE OF NERPC.

The minutes of 38th meeting of Protection Sub-committee held on 8th October, 2015 at Guwahati were circulated vide letter No. NERPC/SE (O)/PCC/2015/ dated 20/10/2015.

The Sub-Committee confirmed the minutes of 38th PCCM of NERPC with the above correction as no observations or comments were received from the constituents.

ITEMS FOR DISCUSSION

A.1 Implementation of 3-Phase Auto Reclosure Scheme of Radially fed 132kV Lines connected to Ranganadi HEP:

At present, the power flows to Nirjuli, Gohpur and Ziro radially from Ranganadi HEP and any transient fault in line causes undesirable outages. Hence, to avoid outages during transient fault it is essential to implement 3- Phase Dead Line charging of following 132kV Lines.

- a) 132kV Ranganadi – Nirjuli Line (Dead Line Charging at RHEP)
- b) 132kV Nirjuli – Gohpur Line (Dead Line Charging at Nirjuli)
- c) 132kV Ranganadi – Ziro Line (Dead Line Charging at RHEP)

During 38th PCC meeting, POWERGRID stated that they will extend help to incorporate 3-phase dead-line charging at RHEP end in EPAC Relay. For this NEEPCO will arrange for S/D with due consent of Arunachal Pradesh and intimate POWERGRID in advance. Meanwhile NEEPCO informed that new relay for Nirjuli & Ziro Line has been ordered and expected delivery is November, 2015 and the same will be installed by NEEPCO at RHEP by December 2015. Accordingly, it has been decided to commission the scheme once the new relay is installed and proposal of implementation of the scheme through EPAC relay is dropped.

Deliberation of the sub-Committee

NEEPCO informed the forum that material has already been dispatched for the scheme and installation would be completed by 31/12/2015. SE(O) concluded that based on the delivery schedule date would be finalized for joint inspection.

The sub-committee noted as above.

Action: NEEPCO, PGCIL & Ar. Pradesh

A.2 Implementation of 3-phase Auto Reclosure Scheme in all lines associated with Khandong and Kopili HEP:

For reliable operation of Power system it is required to implement 3-Phase Auto Reclosure Scheme in all the 132kV lines associated with Kopili and Khandong HEP of NEEPCO. The lists of such lines are:

- a) 132kV Khandong – Umrangso - Halflong
- b) 132kV Kopili – Khandong #1

During 38th PCC meeting, DGM (AM), NERTS informed that inspite of repeated efforts AEGCL was not able to provide manpower for joint inspection due to their busy schedule and hence requested NERPC to co-ordinate with AEGCL for finalization of date for checking of carrier inter-trip signal between Khandong – Umrangso – Halflong line. However relay portion of the work regarding implementation of 3-phase AR scheme has to be done by AEGCL.

Deliberation of the sub-Committee

AEGCL informed the forum that SAMA Power would do the work through ERL, who have been instructed to complete by 31/12/2015. DGM (AM), NERTS reminded that carrier inter-tripping needs to be checked jointly as decided during earlier meetings. However, commissioning of 3-phase AR scheme lies with AEGCL. It was decided that a joint visit for this purpose would be conducted by POWERGRID & AEGCL at a suitable date which would be intimated to POWERGRID 3 days in advance.

The sub-committee noted as above.

Action: POWERGRID, NEEPCO & Assam

A.3 Implementation of the recommendations of the Protection Audit:

As per SI. no 9.1.1 & 9.1.4 of Report on Enquiry Committee on Grid Disturbance in Northern Region on 30th July 2012 and in Northern, Eastern & North-Eastern Region on 31st July 2012, thorough Third Party protection audit needs to be carried out periodically along with independent audit of Fault Recording Instruments.

The status as intimated by NERLDC during the 39th PCC meeting is as given below:

<i>Status of submission of data related to Third Party Protection Audit</i>			
<i>Name of Constituent</i>	<i>As per format of Task Force</i>	<i>As per format of NERPC</i>	<i>Remarks</i>
<i>DoP,</i>	<i>Not submitted</i>	<i>Submitted</i>	<i>By 23.12.2015</i>

Ar. Pradesh			
AEGCL	Yes (only checklist submitted)	Not submitted	By 30.11.2015
MSPCL	Submitted	Submitted	
P&E Dept. Mizoram	Not Submitted	Submitted	By 15.12.2015
DoP, Nagaland	Yes (Kohima, Wokha, Meluri, Kiphire, Dimapur, Mokokchung)	Yes (Kohima, Wokha, Meluri, Kiphire, Dimapur, Mokokchung)	By 15.12.2015
TSECL	Not submitted	Submitted	By 30.11.2015
NEEPCO	AGTPP Not submitted	AGTPP Not submitted	By 30.11.2015
NTPC	Submitted	Submitted	
NHPC	Not submitted	Not submitted	By 30.11.2015

After detailed deliberation, the Sub-committee had decided that those who have not submitted the data as per format of Task Force in Annexure A.2 (II) & also, as per the format of NERPC in Annexure A.2 (i) for 3rd Party Protection Audit are requested to furnish these data **by 15.12.15 positively**. SE(O) informed participants about draft report of Protection Audit by Tractabel and invited necessary corrections to be given by 28/11/2015.

The Sub-committee noted as above.

Action: All remaining utilities as above.

A.4 Status of R&M Implementation of NER from PSDF:

The Sub-committee requested all the constituents to intimate the status of progress to NERPC regularly so that the same could be intimated to CERC.

Deliberation in the Meeting:

The Status as intimated during 39th PCC meeting is attached at **Annexure – A.4.**

The Sub-committee requested all constituents to complete the proactive actions like taking Board's approval, floating of NITs, selection of bidders etc., as directed by the Hon'ble CERC.

Action: All 7 NER States.

A.5 Installation of PLCC Panel and Commissioning of SPAR in Loktak – Ningthoukhong 132kV Feeder (MSPCL):

NHPC informed that keeping in view of Power Evacuation, Loktak – Ningthoukhong 132 kV Feeder (MSPCL) is very essential feeder for Loktak Power Station. Since No PLCC Panel has been installed in this feeder, therefore no SPAR (Single Pole Auto Reclosure) has been installed. It is well known that maximum nature of fault occurred in the feeders are temporary in nature.

In order to increase the reliability of this feeder, MSPCL is requested to install PLCC Panels at the both ends so that necessary SPAR can be commissioned.

During 38th PCC meeting, MSPCL informed that provision for installation of PLCC panels is included in R&M and within 30/11/2015 commissioning of PLCC panels will be completed.

Deliberation in the Meeting:

MSPCL informed the forum that it would not be possible to complete the R&M works within 30/11/2015 and would intimate revised schedule later on.

The Sub-committee noted as above.

Action: MSPCL.

A.6 Implementation of 3-Ph Auto Reclosure in 132 kV Loktak-Jiribam, (PG):

NERTS informed that on every tripping of 132 kV Loktak-Jiribam (PG) line Auto Reclosure is successful from Loktak end but, at Jiribam (PG) end the CB is of gang (3 pole) operated. Accordingly, NHPC may implement 3-Ph Auto Reclosure with check sync at Loktak end with 1.40 sec dead time and Jiribam (PG) end dead line charging with 0.80 sec dead time.

During 37th PCC meeting, NHPC requested that OEM is to be called for relay configuration and testing so that smooth implementation can be carried out.

DGM (AM), NERTS stated that the same work has been carried out by them in many locations and the same will be implemented by themselves.

During 38th PCC meeting, NHPC agreed to POWERGRID's offer. POWERGRID informed that work would be completed within a month subject to finalization of date.

Deliberation in the Meeting:

During deliberation NHPC disagreed for support from POWERGRID. Subsequently, after detailed deliberation it was agreed that representative of POWERGRID will visit

LHEP on receipt of official communication from NHPC for implementation of the scheme.

The Sub-committee noted as above.

Action: NHPC, POWERGRID.

A.7 Grid Incidences during October, 2015:

The following numbers of Grid Disturbances (GD) occurred during the period w.e.f 1st October, 2015 to 31st October, 2015:-

SI No	Control Area	Grid Disturbance in nos.	
		1 st October, 2015 to 31 st October, 2015	1 st January, 2015 to 31 st October, 2015
1	Palatana	0	7
2	AGBPP	0	1
3	AGTPP	0	8
4	Ranganadi	0	4
5	Kopili	0	2
6	Khandong	0	3
7	Doyang	0	5
8	Loktak	0	10
9	Arunachal Pradesh	4	73
10	Assam	4	73
11	Manipur	2	61
12	Meghalaya	9	51
13	Mizoram	1	14
14	Nagaland	2	33
15	Tripura	0	8

SI No	Category of GD	Grid Disturbance in nos.	
		1 st October, 2015 to 31 st October, 2015	1 st January, 2015 to 31 st October, 2015
1	GD 1	22	219
2	GD 2	0	3
3	GD 3	0	1
4	GD 4	0	1
5	GD 5	0	1
	Total	22	225

This is for information to the members. Remedial actions are to taken by the concerned power utilities of NER

The Sub-committee noted as above.

A.8 Root cause analysis of tripping in Southern Part of NER on 08.08.2015 and 24.09.2015 & Remedial Measures:

Remedial Measures suggested by sub group members at the meeting held at

NERPC on 29.09.15

The autoreclose schemes at Azara (AEGCL) and Byrnihat (MePTCL) are to be checked at the earliest so as to prevent tripping of 400 kV Silchar – Azara and 400 kV Silchar – Byrnihat lines in case of transient fault.

It was decided that till restoration of Autoreclosure at Azara and Byrnihat ends of 400 kV Silchar – Azara and 400 kV Silchar – Byrnihat lines, the Autoreclosure at Silchar ends are to be kept in non-Auto mode so that tripping signal to SPS-3 related to generation reduction of Palatana upon tripping of 400 kV Silchar – Byrnihat and 400 kV Silchar – Azara lines is generated in case of such events.

Deliberation in the Meeting:

POWERGRID informed that Auto-reclosures at Azara and Byrnihat has already been implemented by them.

It was decided that tower footing resistance of 400 kV Silchar – Azara and 400 kV Silchar – Byrnihat lines are to be brought within permissible limits at around 10 towers on either side close to location of faults and Tower top patrolling around 10 towers on either side close to the location of faults are to be carried out.

Deliberation in the Meeting:

DGM (AM), NERTS informed that flash points due to lightning flashover (suspected) has been observed. NERTS is also in the process of procuring tower footing resistance (online) meter which would help in detecting failures. Further, he stated that tower footing resistance, the process is on and the status will be intimated in due course.

From the relay flags received from Azara for 400 kV Silchar – Azara line, it was evident that there is mismatch in phase marking which needs to be changed at Azara by AEGCL.

Deliberation in the Meeting:

AEGCL assured that the work will be completed by 30.11.2015.

The islanding scheme of AGTPP with Tripura system is to be reviewed so as to ensure successful islanding in such cases of isolation in NER Grid.

During 38th PCC meeting, the Sub-Committee decided that in addition to the recommendations of the sub-group the following should be implemented ASAP:

1. Modification to SPS-1 at Palatana: Unit-I and II to be put in AND logic so that SPS-1 would operate.

Deliberation in the Meeting:

OTPC informed that the work has already been completed.

2. 400 kV Silchar-P.K.Bari D/C lines (charged at 132 kV) to be added to Islanding Scheme-2 for UFR based load shedding at 48.8 Hz.

POWERGRID informed that they had implemented the scheme.

Root Cause Analysis & Remedial Measures by sub group members at the meeting held at NERPC on 18.11.15 regarding Non-Tripping of Azara-Bongaigoan as raised by AEGCL:

Cause: As per information given by POWERGRID, the incidences above are due to high arcing faults.

Remedial Measures:

- a. Explore to increase the resistive reach of Z-2 and Z-3.
- b. DEF characteristics should be IDMT in place of definite time with 1100msec opening time at maximum fault level
- c. Further, Z-3 setting should be 1000msec and necessary co-ordination is required for associated lines.
- d. NERPC Secretariat may extend help wherever necessary Administrative coordination is required for clearance of faults.

Deliberation in the Meeting:

POWERGRID requested AEGCL to implement Zone 3 setting as per the recommendation of task force. Also DEF delay setting should be 100ms more than Zone 3 setting with IDMT characteristics. AEGCL proposed for review of Zone 3 setting as recommended by task force. However, POWERGRID opined that there is no scope for review as it is the matter for implementation. AEGCL insisted for joint meeting for which POWERGRID sought agenda from AEGCL. The Sub-committee requested NERPC to invite AEGCL during the monthly Sub-

committee meeting to discuss about various grid incidences being held every month by NERPC along with above issues of Assam.

Action: NERPC.

A.9 Protection System in Tripura, OTPC & POWERGRID System for reliable power supply to Bangladesh:

It is understood that Tripura is going to sell power to Bangladesh through 132 kV Surjamaninagar (TSECL) – Comilla (Bangladesh) D/C lines from December, 2015.

In view of the above, TSECL, OTPC & POWERGRID are requested to provide the status of protection system in their respective substations for providing reliable power supply to Bangladesh.

Deliberation in the Meeting:

OTPC informed that the 125 MVA 400/132 kV ICT at Palatana can be loaded maximum upto 115 MW. Since auxiliary consumption of Palatana is around 10-15 MW maximum 100-105 MW can be allowed to flow through 132 kV Palatana - SMNagar and 132kV Palatana - Udaipur lines. TSECL opined that upto March 2016 Palatana generation would be sufficient and after that Tripura might have to shed its own load to provide 100 MW to Bangladesh. The forum requested TSECL to implement distance protection for 132kV S.M. Nagar- Agartala D/C before power supply to Bangladesh and requested to check healthiness of distance protection relay of other lines from S M Nagar. SE(O) concluded that TSECL is to submit detailed protection action plan within 10/12/2015.

TSECL informed that POWERGRID will take care of all protection system pertaining to 132kV S.M. Nagar to Commilla South.

The sub-committee also requested to TSECL to reduce their drawl to maintain loading of 400/132 kV, 125 MVA ICT at Palatana.

The Sub-committee noted as above.

Action: TSECL & POWERGRID.

A.10 Finalization of operational protocols for operation of line for supply of power to Bangladesh:

It is anticipated that power supply to Bangladesh from Surjamaninagar sub-station of Tripura will commence from middle of December, 2015. The power will be transmitted through international line jointly owned by India (India portion) & Bangladesh (for Bangladesh portion).

Before commencement of power supply it is essential that the following operational protocols are finalized:

Real time operation –

1. Issuance of code for charging of the line after tripping due to some fault.
2. Routing of proposals for shutdown both planned & emergency and issuance of code for the purpose opening & closing after return of shutdown
3. Co-ordination for dealing with any overdrawal issue
4. Co-ordination for contingency situations.
5. Restoration after grid disturbance and related co-ordination etc. etc

Deliberation in the Meeting:

After detailed deliberation it was decided that:

- a. Code for charging to be given by NLDC India.
- b. Proposals for planned shutdown to be routed through OCC forum of RPC to NLDC India and code to be given by NLDC India.
- c. Overdrawal issue to be dealt by Tripura.
- d. For item 4 & 5 procedures to be drawn up after detailed study of existing ones of ER - Bangladesh power transfer.

NERLDC requested TSECL to assist quick restoration of power supply to Comilla (South), Bangladesh in case of grid disturbance.

GM, NERLDC concluded that any other modalities would be worked out by NERLDC considering ER Bangladesh procedure.

The Sub-committee noted as above.

Action: NERLDC, TSECL & POWERGRID.

A.11 Root cause analysis of tripping during October, 2015:

A. Disturbance in Meghalaya System:

- a. **At 1545 Hrs on 01.10.15**, 132 kV Khliehriat (PG) - Khliehriat (MePTCL) I & II lines (Line 1: Khliehriat (PG) - DP, ZII, R-Y-B & Khliehriat (MePTCL)- No

tripping and Line 2: **Khliehriat (PG) - DP, ZII, R-Y-B & Khliehriat (MePTCL)- No tripping**) tripped. 132 kV Khliehriat (PG)- Khandong (PG)- I (**Khliehriat(PG)- No tripping & Khandong(PG)- Over Current**) also tripped. There was also tripping of Leshka Units

Load loss: 66 MW in Meghalaya

Generation Loss: 88 MW in Meghalaya (Leshka)

- b. **At 1351 Hrs on 05.10.15**, 132 kV Khliehriat (PG) - Khliehriat (MePTCL) I & II lines (Line 1: **Khliehriat (PG) – Not Furnished & Khliehriat (MePTCL)- No tripping** and Line 2: **Khliehriat (PG)- Not furnished & Khliehriat (MePTCL)- No tripping**) tripped. There was also tripping of Leshka Units

Load loss: 45 MW in Meghalaya

Generation Loss: 42 MW in Meghalaya (Leshka)

- c. **At 1312 Hrs on 06.10.15**, 132 kV Khliehriat (PG) - Khliehriat (MePTCL) I & II lines (Line 1: **Khliehriat (PG) – Over current & Khliehriat (MePTCL)- No tripping** and Line 2: **Khliehriat (PG) - Over current & Khliehriat (MePTCL)- No tripping**) tripped. 132 kV Khliehriat (PG)- Khandong (PG)- I (**Khliehriat(PG)- Not furnished & Khandong(PG)- Not Furnished**) also tripped. There was also tripping of Leshka Units

Load loss: 49 MW in Meghalaya

Generation Loss: 35 MW in Meghalaya (Leshka)

- d. **At 1343 Hrs on 06.10.15**, 132 kV Khliehriat (PG) - Khliehriat (MePTCL) I & II lines (Line 1: **Khliehriat (PG) – DP, ZIII, B-E & Khliehriat (MePTCL)- No tripping** and Line 2: **Khliehriat (PG) - DP, ZIII, B-E & Khliehriat (MePTCL)- No tripping**) tripped.

Load loss: 4 MW in Meghalaya

- e. **At 0630 Hrs on 07.10.15**, 132 kV Khliehriat (PG) - Khliehriat (MePTCL) I & II lines (Line 1: **Khliehriat (PG) – DP, ZIII, Y-B-E & Khliehriat (MePTCL)- No tripping** and Line 2: **Khliehriat (PG) - DP, ZIII, R-Y-B & Khliehriat (MePTCL)- No tripping**) tripped. There was also tripping of Leshka Units

Load loss: 61 MW in Meghalaya

Generation Loss: 42 MW in Meghalaya (Leshka)

- f. **At 1353 Hrs on 07.10.15**, 132 kV Khliehriat (PG) - Khliehriat (MePTCL) I & II lines (Line 1: **Khliehriat (PG) – DP, ZIII, B-E & Khliehriat (MePTCL)- No tripping** and Line 2: **Khliehriat (PG) - DP, ZIII, R-Y-B & Khliehriat (MePTCL)- No tripping**) tripped. There was also tripping of Leshka Units

Load loss: 23 MW in Meghalaya

Generation Loss: 70 MW in Meghalaya (Leshka)

- g. **At 1616 Hrs on 11.10.15**, 132 kV Khliehriat (PG) - Khliehriat (MePTCL) I & II lines (Line 1: **Khliehriat (PG) – DP, ZIII, R-Y-B & Khliehriat (MePTCL)- No tripping** and Line 2: **Khliehriat (PG) - DP, ZIII, R-Y-B & Khliehriat (MePTCL)- No tripping**) tripped.

Load loss: 41 MW in Meghalaya

h. At 1145 Hrs on 15.10.15, 132 kV Khliehriat (PG) - Khliehriat (MePTCL) I & II lines (Line 1: **Khliehriat (PG) – DP, ZIII, R-E & Khliehriat (MePTCL)- No tripping** and Line 2: **Khliehriat (PG) - DP, ZII, R-Y-E & Khliehriat (MePTCL)- No tripping**) tripped. There was also tripping of Leshka Units

Load loss: 63 MW in Meghalaya

Generation Loss: 42 MW in Meghalaya (Leshka)

i. At 1344 Hrs on 31.10.15, 132 kV Khliehriat (PG) - Khliehriat (MePTCL) I & II lines (Line 1: **Khliehriat (PG) – DP, ZIII, Y-E & Khliehriat (MePTCL)- No tripping** and Line 2: **Khliehriat (PG) - DP, ZI, Y-E & Khliehriat (MePTCL)- No tripping**) tripped.

Load loss: 65 MW in Meghalaya

Category as per CEA Standards: GD-I

Root Cause Analysis & Remedial Measures by sub group members at the meeting held at NERPC on 18.11.15:

Cause: As informed by MePTCL, distance protection relays at Khliehriat (MePTCL) end are absent as of now. In such case, the fault gets picked up by distance relays at Khliehriat (PG) end and Khandong (NEEPCO) end resulting in undesirable tripping.

Remedial:

The distance relays at Khliehriat (MePTCL) end are to be restored to take care of faults within Meghalaya system.

Till such time the distance relays at Khliehriat (MePTCL) end are restored, the reach of Zone-1 of Distance Protection relays at Khliehriat (PG) end of 132 kV Khliehriat (PG) – Khliehriat (MePTCL) D/C lines would be increased by NERTS so as to cover faults in Meghalaya system also and prevent widespread tripping.

Accordingly, POWERGRID has implemented faster isolation at their Khliehriat end.

The Sub-committee requested MePTCL to carry out Line section patrolling to check for line infringements due to vegetation and vegetation clearing to be done on regular basis till the Distance Protection relays at Khliehriat (MePTCL) are restored.

Deliberation in the Meeting:

The sub-committee decided that remedial measures are to be implemented as soon as possible.

The Sub-committee noted as above.

Action: MePTCL.

B. Disturbance in Manipur System.

- a. At 1511 Hrs on 02.10.15, due to tripping of 132 kV Imphal (PG)- Imphal (MSPCL) I & II lines (**Line 1: Imphal (PG)- Earth Fault & Imphal (MSPCL)- Not Furnished and Line 2: Imphal (PG)- Earth Fault & Imphal (MSPCL)- Not Furnished**) power supply to Capital area of Manipur interrupted.

Load loss: 40 MW in Manipur.

- b. At 1410 Hrs on 16.10.15, due to tripping of 132 kV Imphal (PG)- Imphal (MSPCL) I & II lines (**Line 1: Imphal (PG)- Earth Fault & Imphal (MSPCL)- Not Furnished and Line 2: Imphal (PG)- Earth Fault & Imphal (MSPCL)- Not Furnished**) power supply to Capital area of Manipur interrupted..

Load loss: 35 MW in Manipur.

Category as per CEA Standards: GD-I

Root Cause Analysis & Remedial Measures by sub group members at the meeting held at NERPC on 18.11.15:

Similarly, POWERGRID has implemented faster isolation at their Imphal end.

The Sub-committee requested MSPCL to carry out Line section patrolling to check for line infringements due to vegetation and vegetation clearing to be done on regular basis.

Deliberation in the Meeting:

MSPCL informed the forum that Imphal I & II lines tripped on 02/10/2015 due to fault arising from 33kV Noney line (O/C) and that on 16/10/2015 was due to test charging of 132 kV Yurembam- Yaingangpokpi Ckt -II.

The Sub-committee requested MSPCL to carry out Line section patrolling to check for line infringements due to vegetation and vegetation clearing to be done on regular basis.

The Sub-committee noted as above.

Action: MSPCL.

C. Disturbance in Nagaland system:

- a. At 1109 Hrs on 06.10.15, 132 kV Dimapur(PG)- Kohima (**Dimapur(PG)- DP, ZI, B-E & Kohima- No tripping**) line tripped. Due to tripping of this element, Capital area of Nagaland separated from rest of NER Grid and subsequently collapsed due to no source in this area.

Load loss: 14 MW in Nagaland

Generation loss: 24 MW in Nagaland (Likimro)

- b. At 1158 Hrs on 07.10.15, 132 kV Dimapur(PG)- Kohima (**Dimapur(PG)- Not furnished & Kohima- No tripping**) line tripped. Due to tripping of this element, Capital area of Nagaland separated from rest of NER Grid and subsequently collapsed due to no source in this area.

Load loss: 15 MW in Nagaland

Generation loss: 24 MW in Nagaland (Likimro)

Category as per CEA Standards: GD-I

Root Cause Analysis & Remedial Measures by sub group members at the meeting held at NERPC on 18.11.15:

POWERGRID informed that GIS was not the cause of frequent tripping as anticipated by them. But now after they have put into their system, the GIS is under stress due to frequent tripping of the lines.

The Sub-committee requested Nagaland to carry out Line section patrolling to check for line infringements due to vegetation and vegetation clearing to be done on regular basis.

The Sub-committee noted as above.

Action: DoP Nagaland.

D. Disturbance in Arunachal Pradesh system:

- a. **At 1653 Hrs on 05.10.15**, 132 kV Ranganadi- Lekhi (**Ranganadi- Not furnished & Lekhi- Over Current**) line tripped. Due to tripping of this element, Lekhi & Nirjuli area of Arunachal Pradesh separated from rest of NER Grid and subsequently collapsed due to no source in this area.

Load loss: 37 MW in Arunachal Pradesh

- b. **At 1322 Hrs on 30.10.15**, 132 kV Ranganadi- Lekhi (**Ranganadi- DP, Z1, B-E & Lekhi- Not furnished**) line tripped. Due to tripping of this element, Lekhi & Nirjuli area of Arunachal Pradesh separated from rest of NER Grid and subsequently collapsed due to no source in this area.

Load loss: 42 MW in Arunachal Pradesh

Category as per CEA Standards: GD-I

Root Cause Analysis & Remedial Measures by sub group members at the meeting held at NERPC on 18.11.15:

Joint inspection to be carried out by POWERGRID, Assam & Ar. Pradesh to be carried out at the earliest.

Deliberation in the Meeting:

DGM, NERTS informed the forum that tripping on O/C is happening due to non-directionality. It was decided that joint inspection is not required in the meantime; if situation persists it would be decided later on.

The Sub-committee noted as above.

Action: DoP Ar. Pradesh, POWERGRID.

E. Disturbance in Assam system:

- a. **At 2053 Hrs on 04.10.15**, 132 kV Silchar- Dullavcherra (**Silchar- DP, Z1, R-E and Dullavcherra- No tripping**) line tripped. Due to tripping of this element, Dullavcherra area of Assam separated from rest of NER Grid and subsequently collapsed due to no source in this area.

Load loss: 20 MW in Assam

- b. **At 2255 Hrs on 04.10.15**, 132 kV Dharmanagar- Dullavcherra (**Dharmanagar- No tripping and Dullavcherra- DP, Z1, R-E**) line tripped. Due to tripping of this element, Dullavcherra area of Assam separated from rest of NER Grid and subsequently collapsed due to no source in this area.

Load loss: 12 MW in Assam

- c. **At 1243 Hrs on 16.10.15**, 132 kV Silchar- Panchgram (**Silchar- Not furnished and Panchgram- No tripping**), 132 kV Badarpur- Panchgram (**Badarpur- Not furnished and Panchgram- No tripping**) 132 kV Silchar- Srikona I & II (**Line 1: Silchar- Not furnished and Srikona- No tripping and Line 2: Silchar- Not furnished and Srikona- No tripping**) lines tripped. Due to tripping of these elements, Panchgram area of Assam separated from rest of NER Grid and subsequently collapsed due to no source in this area.

Load loss: 64 MW in Assam

- d. **At 1742 Hrs on 18.10.15**, 132 kV Sarusajai- Kahilipara I , II, III & IV (**Line 1: Sarusajai- Not furnished and Kahilipara- DP, ZII, R-Y-B, (Line 2: Sarusajai- Not furnished and Kahilipara- DP, ZII, R-Y-B, (Line 3: Sarusajai- Not furnished and Kahilipara- DP, ZII, R-Y-B and (Line 4: Sarusajai- Not furnished and Kahilipara- DP, ZII, R-Y-B)**) lines tripped. Due to tripping of these elements, Capital area of Assam separated from rest of NER Grid and subsequently collapsed due to no source in this area.

Load loss: 130 MW in Assam

Category as per CEA Standards: GD-I

Deliberation in the Meeting:

AEGCL informed the forum that GD on 18/10/2015 was due to CT failure at Kahilipara S/S.

The Sub-committee noted as above.

Action: AEGCL.

Date and Venue of next PCC

It is proposed to hold the 40th PCC meeting of NERPC in the third week of December, 2015. The exact venue will be intimated in due course.

The meeting ended with thanks to the chair

List of Participants in the 39th PCC Meetings held on 23/11/2015

SN	Name & Designation	Organization	Contact No.
1.	Sh. B.S. Kaneri, S.E.(E), PED	Ar. Pradesh	bskaneri@gmail.com
2.	Sh. Nangkong Perme, EE, SLDC	Ar. Pradesh	09436288643
3.	Sh. T. Mize, EE, PED	Ar. Pradesh	09436059758
4.	Sh. Sang Dorjee, AE(E), PED	Ar. Pradesh	09402878344
5.	Sh. M.K. Bordoloi, CGM, SLDC	Assam	09435203996
6.	Sh. M.K. Adhikary, GM(TRC)	Assam	09864049287
7.	Sh. K. Goswami, DGM(COM)	Assam	09864020019
8.	Sh. G.K. Bhuyan, AGM, AEGCL	Assam	09854015601
9.	Sh. K. Sharma, AGM(E)	Assam	09435013532
10.	Sh. B.C. Borah, AGM, SLDC	Assam	09435119248
11.	Sh. J.K. Baishya, AGM, SLDC	Assam	09435041494
12.	Sh. Adahrii Kayina, Dy. Manager, MSPCL	Manipur	08132823793
13.	Sh. G. Tapan Kumar Sharma, Manager	Manipur	08974138850
14.	Sh. C. Thangkiew. EE	Meghalaya	09436109140
15.	Sh. T. Gidon, EE	Meghalaya	09774479956
16.	No Representative	Mizoram	
17.	No Representative	Nagaland	
18.	Sh. M. Paul, Manager	Tripura	09436137022
19.	Sh. T.S. Singh, GM	NERLDC	09436302717
20.	Sh. A. Mallick, DGM (SO-II)	NERLDC	09436302720
21.	Sh. Anupam Kumar, Sr. Engineer	NERLDC	09436335379
22.	Sh. B.R. Meena, Sr. engineer	NERLDC	
23.	Sh. D. Bhattacharjee, GM, RHEP	NEEPCO	
24.	Sh. Abhijit Kalita, Sr. Manager	NEEPCO	
25..	Sh. N. Medhi, Sr. Manager	NEEPCO	
26.	Sh. Tanya Taji, Sr. Manager	NEEPCO	09436042053
27.	Sh. Engullie, DGM	NTPC	09435139531
28.	Sh. R. K. Tenzing, Engineer	NHPC	09436894885
29.	Sh. P. Kanungo, DGM (AM)	PGCIL	09436302823
30.	Sh. M. Madhavanand, Manager	PGCIL	09436335250
31.	Sh. narendra Gupta, manager	OTPC	09774233426
32.	Sh. T. Karmakar, Asst. Manager (E)	OTPC	09435239314
33.	Sh. P.K. Mishra, MS	NERPC	
34.	Sh. B.Lyngkhoi, Director/S.E (O)	NERPC	09436163419
35.	Sh. S. Mukherjee, AEE	NERPC	08794277306