North Eastern Regional Power Committee

Agenda
For
37th PCC Sub-Committee Meeting

Time of meeting : 10:00 Hrs.

Date of meeting : 10th September, 2015 (Thursday)

Venue : "Hotel Nandan", Guwahati.

A. CONFIRMATION OF MINUTES

CONFIRMATION OF MINUTES OF 36th MEETING OF PROTECTION SUB-COMMITTEE OF NERPC.

The minutes of 35th meeting of Protection Sub-committee held on 06th August, 2015 at Guwahati were circulated vide letter No. NERPC/SE (O)/PCC/2015/4520-4555 dated 28th August, 2015.

No observations or comments were received from the constituents. The Sub-committee may discuss & confirm minutes of 36th PCCM of NERPC.

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 35th PCC meeting, EE, SLDC, Ar. Pradesh requested NEEPCO to intimate their plan atleast one week in advance so that necessary action can be taken by them.

During 36th PCC meeting, Sr. Manager, NEEPCO informed that M/s Alstom has given the tentative dates of 25th & 26th August, 2015 to visit the site and requested DOP, Arunachal Pradesh to give the consent since the dates have intimated to them well in advance.

EE, SLDC, Arunachal Pradesh agreed to the proposal and requested NEEPCO to confirm the dates in advance for necessary action.

NEEPCO/Ar. Pradesh may kindly intimate the status.

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

After detailed deliberation in the 36th PCC meeting, it was once again agreed that joint inspection comprising of POWERGRID, NEEPCO and Assam will be carried out soon for carrier inter-trip signal between Halflong-Umranso-Khandong.

NEEPCO, NERTS & Assam may kindly intimate the status.

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

As per Sl. 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 36th PCC meeting is given below:

Status of submission of data related to Third Party Protection Audit			
Name of Constituent	***As per format of Task Force***	***As per format of NERPC***	***Remarks***
DoP, Ar. Pradesh	***Not submitted***	***Not submitted***	***By 31.08.2015***

AEGCL	*Yes (only checklist submitted)*	***Not submitted***	*By 31.08.2015*
MSPCL	*Submitted*	*Submitted*	***Details of Protection as per Task Force Format not submitted***
MePTCL	***Not submitted***	*Submitted*	*By 31.08.2015*
P&E Dept. Mizoram	***Not submitted***	*Submitted*	*By 31.08.2015*
DoP, Nagaland	*Submitted*	*Submitted*	
TSECL	*Submitted*	*Submitted*	
POWERGRID	***Not received***	***Not received***	*By 31.08.2015*
NEEPCO	***Yes (AGBPP, RHEP, Doyang, Kopili & Khandong)***	***Yes (RHEP, Doyang, Khandong & Kopili)***	***AGTPP not submitted, AGBPP not submitted as per NERPC format***
NTPC	*Submitted*	***Not submitted***	*By 31.08.2015*
NHPC	***Not submitted***	***Not submitted***	*By 31.08.2015*
OTPC	*Submitted*	*Submitted*	

Constituents/NERLDC may kindly intimate the status.

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.

Latest available status is enclosed at **Annexure - A.4.**

Constituents may kindly intimate the status.

A.5 Furnishing Protection Details of Transmission Lines, Transformers, Reactors and Bus Bars:

The status as intimated by NERLDC during 36th PCC meeting is as given below:

Status of submission of data related to Protection Systems as per CEA regulations							
Sl No	**Name of Constituent**	**Transmission Line**	**Transformers**	**Reactor**	**Bus-Bar & LBB**	**Bus Coupler**	**Remarks**
1	**DoP, Arunachal Pradesh**	**Not submitted**	**Not submitted**	Not Applicable	**Not submitted**	**Not submitted**	**By 31.08.15**
2	**NEEPCO**	Submitted	Submitted	Submitted	Submitted	Submitted	**Details of Khupi & Doyang – By 31.08.15**
3	**NTPC**	**Not submitted**	**Not submitted**	Not Applicable	**Not submitted**	**Not submitted**	**By 31.08.15**

Constituents/NERLDC may kindly intimate the status.

A.6 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.

Members may like to discuss

A.7 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.

Members may like to discuss and NHPC may deliberate.

A.8 Tripping of 132 kV Khliehriat- Khliehriat # I & II lines due to Meghalaya downstream faults 132 kV Khliehriat- Khandong # I circuit also tripping on O/C & E/F tripping (as reported by NERLDC).

NERTS informed that as per the DRs of Khliehriat SS no undesired delay is persisting at Khliehriat (PG) SS, moreover no tripping observed in other Khliehriat (PG) connected lines like 132 kV Kliehriat- Khandong 3 I, 132 kV Khliehriat-Badarpur. During last visit by Manager (AM) POWERGRID on 11.06.2015 to

Khandong- Badarpur HEP, P442 (Distance protection) relay is having E/F settings of PSM: 0.2, TMS: 0.15, with the settings the relay is operating with in 200 to 300 mS time for Zone-2 fault (Zone-2 time delay is 500 mS) leading to frequent tripping of 132 kV Khliehriat- Khandong #I ckt at Khandong HEP only. Accordingly, the setting was revised to PSM: 0.2, TMS: 0.2 and the feeder did not trip in next Meghalaya downstream fault. But, similar trippings are taking place again in the same line.

NEEPCO may please elaborate.

A.9 Frequent tripping of 132 kV Ranganadi- Lekhi, 132 kV Lekhi- Nirjuli lines on O/C & E/F observed and POWERGRID section of line no infringement observed still feeders are tripping regularly.

NERTS, POWERGRID informed that in order to avoid system interruption they always took lead to patrol DOP, Arunachal Pradesh line section and infringement observed, the same was communicated to NERPC vide e-mail dt: 14.07.2015. Further, it was also observed that, no distance protection is installed in the lines and only O/C & E/F protection is installed to protect the lines. Whereas for 132 kV lines shall have 1 No Numerical distance protection and 1 No Back up protection. This is leading to frequent tripping of feeders and loss of load to Nirjuli area in Arunachal Pradesh.

DOP, Arunachal Pradesh may please elaborate.

A.10 Non Operation of SPS-I while tripping of Palatana Module I

During the month of August, 2015 there were total 4 nos of Tripping of Palatana Module I Generation. Details of these events are as follows:

SN	Name of Units	Date & time of Tripping	Details of SPS
1	Palatana GTG I	01-08-15 17:59	SPS not operated
	Palatana STG I	01-08-15 17:59	
2	Palatana GTG I	11-08-15 02:55	SPS not operated
	Palatana STG I	11-08-15 02:55	
3	Palatana GTG I	19-08-15 23:02	SPS not operated
	Palatana STG I	19-08-15 23:02	
4	Palatana GTG I	28-08-15 07:41	SPS not operated
	Palatana STG I	28-08-15 07:41	

OTPC & NERTS POWERGRID is requested to furnish details regarding non-operation of SPS- I.

A.11 Grid Incidences during August, 2015:

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

Sl No	Control Area	Grid Disturbance in nos.	
		1st August, 2015 to 31st August, 2015	1st January, 2015 to 31st August, 2015
1	Palatana	1	6
2	AGBPP	0	1
3	AGTPP	1	6
4	Ranganadi	0	4
5	Kopili	1	2
6	Khandong	1	2
7	Doyang	2	5
8	Loktak	3	9
9	Arunachal Pradesh	13	58
10	Assam	11	56
11	Manipur	6	47
12	Meghalaya	5	34
13	Mizoram	1	10
14	Nagaland	4	24
15	Tripura	2	7

Sl No	Category of GD	Grid Disturbance in nos.	
		1st August, 2015 to 31st August, 2015	1st January, 2015 to 31st August, 2015
1	GD 1	31	151
2	GD 2	0	3
3	GD 3	1	1
4	GD 4	0	0
5	GD 5	0	1
	Total	32	**156**

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

A.12 Root cause analysis of tripping during August, 2015:

A. System Isolation on 08.08.15

The Southern part of NER Grid was connected to rest of NER Grid through vital links of 400 kV Silchar – Azara – Bongaigaon S/C and 400 kV Silchar – Byrnihat – Bongaigaon S/C and 132 kV Kopili – Khandong I & II lines and 132 kV Dimapur – Imphal line.

At **0019 Hr on 08/08/15,** 400 kV Silchar- Azara **(Silchar – DP, B-E, Z-2, 350.5 km, Azara – DP, Y-E ,Z-1, 64.2 km)** and 400 kV Silchar- Byrnihat **(Silchar – DP, B-E, Z-2, 239.2 km, Byrnihat – DP, B-E, Z-1, 16.18 km)**

tripped. Due to the tripping of above two 400 kV lines, the power evacuation from southern part of NER grid shifted to 132 kV Khandong – Kopili D/C and 132 kV Dimapur - Imphal lines. At that time, Meghalaya was injecting around 100 MW to the grid at Khliehriat (PG) due to high generation at Leshka HPP. Due to high evacuation of power from southern part of the grid, both 132 kV Kopili - Khandong D/C and 132 kV Dimapur - Imphal lines tripped on over current.

Load loss: 375 MW
Generation Loss: 863 MW

Category as per CEA Standards: GD-III

Analysis of events:

After tripping of 400 kV Silchar-Azara**,** 400 kV Silchar- Byrnihat, SPS-3 related to reduction of generation from Palatana to 200 MW should have operated, but the SPS was not in service. After tripping of 132 kV Khandong – Kopili D/C and 132 kV Dimapur - Imphal lines southern part of NER grid comprising of Tripura, Mizoram, Manipur, South Assam, AGTPP, Loktak and Palatana system was isolated from rest of the main grid.

The frequency of the isolated system shoot upto 53.4 Hz (as reported by TSECL) resulting immediate tripping of STG II of Palatana, AGTPP and Tripura generation. Subsequently, during the black starting of AGTPP units, Palatana GTG II tripped causing frequency dip to 47 Hz of the isolated system and isolated system collapsed due to load –generation mismatch at 0031 Hrs on 08/08/15. After tripping of GTG II of Palatana SPS- 1 & 2 operated.

As reported by TSECL, there was UFR based load shedding to the tune of around 20 MW in 3 feeders at around 00:23 Hrs, as frequency was declining in the isolated part of NER Grid.

From the relay flags from Silchar, it is seen that fault locations of 400 kV Silchar-Azara line & 400 kV Silchar- Byrnihat line are different. However the relay flags from Azara & Byrnihat, fault locations of 400 kV Silchar-Azara line & 400 kV Silchar- Byrnihat line may be same.

From DR received from Silchar (PG) for 400 kV Silchar- Azara line, maximum current observed in B-phase is 0.74 kA and similar current is observed in neutral also. Fault clearing time is 330 ms.

From DR received from Silchar (PG) for 400 kV Silchar- Byrnihat line, maximum current observed in B-phase is 1.06 kA and 1.16 kA current is observed in neutral. Fault clearing time is 548 ms.

From DR received from Khandong for 132 kV Khandong- Kopili I & II lines, maximum current is observed as 806 A.

Patrolling Report from NETC not yet received.

NETC & NERTS, POWERGRID are requested to elaborate the incidence.

B. Disturbance in Meghalaya System.

i. **At 0858 Hrs on 10.08.15,** 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: 58 MW in Meghalaya
Generation Loss: 67 MW in Meghalaya (Leshka)

ii. **At 1000 Hrs on 15.08.15,** 132 kV Khliehriat (PG) - Khliehriat (MePTCL) I & II lines **(**Line 1: **Khliehriat (PG) - DP, ZII, R-Y-E & Khliehriat (MePTCL)- No tripping** and Line 2: **Khliehriat (PG) - DP, ZIII, R-B-E & Khliehriat (MePTCL)- No tripping)** tripped. There was also tripping of Leshka Units.

Load loss: 60 MW in Meghalaya
Generation Loss: 121 MW in Meghalaya (Leshka)

iii. **At 1157 Hrs on 19.08.15,** 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, ZIII, Y-E & Khliehriat (MePTCL)- No tripping)** tripped. There was also tripping of Leshka Units.

Load loss: 52 MW in Meghalaya
Generation Loss: 121 MW in Meghalaya (Leshka)

iv. **At 0708 Hrs on 23.08.15,** 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, ZIII, Y-E & Khliehriat (MePTCL)- No tripping)** tripped. There was also tripping of Leshka Units.

Load loss: 64 MW in Meghalaya
Generation Loss: 121 MW in Meghalaya (Leshka)

Category as per CEA Standards: GD-I

Analysis of events:

In most of the cases, due to tripping of 132 kV Khliehriat (PG)- Khliehriat (MePTCL) D/C lines power supply to Khliehriat & Lumshong area of Meghalaya was interrupted. It is suspected that there may be uncleared fault in Meghalaya system or delayed fault clearance. There was also tripping of Leshka machines. Relay flag details and DR output at both ends of above elements required for proper analysis of the events.

As discussed in 36th PCCM of NERPC, MePTCL is requested to inform the status of the meeting regarding earthing problem and the status of recommendation given by POWERGRID. It is also to be informed that letter regarding furnishing of details of event is being sent by NERLDC on weekly basis but no information is being received.

MePTCL, MePGCL & NERTS, POWERGRID may elaborate.

C. Disturbance in Manipur system:

a. At **0924 Hrs on 01.08.15**, 132 kV Imphal (PG)- Imphal (MSPCL) II line **(Imphal (PG)- No Tripping & Imphal (MSPCL)- Overcurrent)** tripped.

Load loss: 25 MW in Manipur. 132 kV Imphal(PG)- Imphal(MA) I was under continuous shutdown since 0818 Hrs of 11.07.15. Due to tripping of these elements power supply ti Capital area of Manipur interrupted.

Load loss: 30 MW in Manipur.

b. At **1019 Hrs on 03.08.15**, due to tripping of 132 kV Loktak- Ningthoukhong line **(Loktak – Not furnished & Ningthoukhong – Earth fault)** & 132 kV Ningthoukhong - Imphal (PG) line **(Ningthoukhong – Earth Fault & Imphal (PG) – Not furnished),** power supply to Ningthoukong area of Manipur interrupted.

Load loss: 21 MW in Manipur.

c. At **1649 Hrs on 03.08.15**, due to tripping 132 kV Ningthoukhong - Imphal (PG) line **(Ningthoukhong – Not furnished & Imphal (PG) – Earth Fault),** power supply to Ningthoukong area of Manipur interrupted. 132 kV Loktak- Ningthoukhong line was not restored after tripping at 1019 Hrs on 03.08.15.

Load loss: 22 MW in Manipur.

d. At **0808 Hrs on 24.08.15**, due to tripping 132 kV Loktak- Ningthoukhong line **(Loktak – Over current & Ningthoukhong – Not furnished),** power supply to Ningthoukong area of Manipur interrupted. 132 kV Ningthoukhong- Imphal (PG) line was open since 1247 Hrs of 14.08.15.

Load loss: 58 MW in Manipur.

e. At **1030 Hrs on 26.08.15**, due to tripping 132 kV Loktak- Ningthoukhong line **(Loktak – No tripping & Ningthoukhong – Over current),** power supply to Ningthoukong area of Manipur interrupted. 132 kV Ningthoukhong- Imphal (PG) line was open since 1247 Hrs of 14.08.15.

Load loss: 29 MW in Manipur.

Category as per CEA Standards: GD-I

Analysis of events:

The relay setting of 132 kV Imphal(PG)- Imphal (MSPCL) D/C at Imphal (MSPCL) & 132 kV Loktak- Ningthoukhong line at Ningthoukhong (MSPCL) is to be checked. It is also to be checked whether these tripping are due to vegetation problem. DR output at both ends of above elements required for proper analysis of the events. FIR in line Clause No. 5.9 of IEGC (Event Information) is to be sent by MSPCL.

As discussed in 36th PCCM of NERPC, proper patrolling are to be done after tripping any elements and patrolling reports are to be submitted by the concerned utility to NERLDC & NERPC. No patrolling report is being received. It is also to be informed that letter regarding furnishing of details of event is being sent by NERLDC on weekly basis but no information is being received.

NHPC, MSPCL, & NERTS, POWERGRID may elaborate.

D. <u>Disturbance in Capital Area of Arunachal Pradesh and Gohpur area of Assam</u>

a. **At 1825 Hrs on 11.08.15,** 132 kV Ranganadi- Lekhi **(Ranganadi- No tripping & Lekhi- Over current)** line tripped. Due to tripping of this element, Lekhi & Nirjuli area of Arunachal Pradesh and Gohpur area of Assam separated from rest of NER Grid and subsequently collapsed due to no source in this area.

   Load loss: 94 MW in Arunachal Pradesh & Assam

b. **At 0505 Hrs on 15.08.15,** 132 kV Lekhi- Nirjuli **(Lekhi- Over current & Nirjuli- No tripping)** line tripped. Due to tripping of this element, Nirjuli area of Arunachal Pradesh and Gohpur area of Assam separated from rest of NER Grid and subsequently collapsed due to no source in this area.

   Load loss: 33 MW in Arunachal Pradesh & Assam

c. **At 0906 Hrs on 25.08.15,** 132 kV Ranganadi- Lekhi **(Ranganadi- DP, ZI, R-E& Lekhi- Not furnished)** line tripped. Due to tripping of this element, Lekhi & Nirjuli area of Arunachal Pradesh and Gohpur area of Assam separated from rest of NER Grid and subsequently collapsed due to no source in this area.

   Load loss: 65 MW in Arunachal Pradesh & Assam

d. **At 1135 Hrs on 26.08.15,** 132 kV Gohpur- Nirjuli **(Gohpur- No Tripping & Nirjuli- DP, ZI, R-Y-E)** line tripped. Due to tripping of this element, Gohpur area of Assam separated from rest of NER Grid and subsequently collapsed due to no source in this area.

   Load loss: 26 MW in Assam

e. **At 0140 Hrs on 27.08.15,** 132 kV Ranganadi- Lekhi **(Ranganadi- No tripping & Lekhi- Earth fault)** line tripped. Due to tripping of this element, Lekhi & Nirjuli area of Arunachal Pradesh and Gohpur area of Assam separated from rest of NER Grid and subsequently collapsed due to no source in this area.

   Load loss: 45 MW in Arunachal Pradesh & Assam

f. **At 1227 Hrs on 28.08.15,** 132 kV Ranganadi- Lekhi **(Ranganadi- No tripping & Lekhi- Overcurrent)** line tripped. Due to tripping of this element, Lekhi & Nirjuli area of Arunachal Pradesh and Gohpur area of Assam separated from rest of NER Grid and subsequently collapsed due to no source in this area.

Load loss: 92 MW in Arunachal Pradesh & Assam

g. **At 1840 Hrs on 28.08.15,** 132 kV Ranganadi- Lekhi **(Ranganadi- No tripping & Lekhi- Earth Fault)** line tripped. Due to tripping of this element, Lekhi & Nirjuli area of Arunachal Pradesh and Gohpur area of Assam separated from rest of NER Grid and subsequently collapsed due to no source in this area.

Load loss: 52 MW in Arunachal Pradesh & Assam

Category as per CEA Standards: GD-I

Analysis of Events:

Relay settings of 132 kV Ranganadi- Lekhi – Nirjuli line at both ends are to be checked. It is also to be checked whether these tripping are due to vegetation problem. DR output at both ends of above elements required for proper analysis of the events. FIR in line Clause No. 5.9 of IEGC (Event Information) is to be sent by AEGCL, DoP, Arunachal Pradesh & POWERGRID.

AEGCL & DoP, Arunachal Pradesh, is requested to furnish the status of Relay setting checking as discussed in 36th PCCM of NERPC. As discussed in 36th PCCM of NERPC, proper patrolling are to be done after tripping any elements and patrolling reports are to be submitted by the concerned utility to NERLDC & NERPC. No patrolling report is being received.

AEGCL, DoP, Arunachal Pradesh & NERTS, POWERGRID may elaborate.

E. Disturbance in Nagaland system:

a. **At 1139 Hrs on 14.08.15,** 132 kV Dimapur(PG)- Kohima **(Dimapur(PG)- DP, ZI, R-E & Kohima- Not furnished)** 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: 7 MW in Nagaland

b. **At 1345 Hrs on 19.08.15,** 132 kV Dimapur(PG)- Kohima **(Dimapur(PG)- Earth fault & 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: 8 MW in Nagaland

Category as per CEA Standards: GD-I

Analysis of Events:

It is to be checked whether these tripping are due to vegetation problem. Relay flag details at Kohima end and DR output at both ends of above elements required for proper analysis of the events. FIR in line Clause No. 5.9 of IEGC (Event Information) is to be sent by DoP, Nagaland & POWERGRID.

As discussed in 36th PCCM of NERPC, proper patrolling are to be done after tripping any elements and patrolling reports are to be submitted by the concerned utility to NERLDC & NERPC. No patrolling report is being received.

DoP, Nagaland & NERTS, POWERGRID may elaborate.

F. Tripping of Doyang Generation:

a. **At 1100 Hrs on 22.08.15,** 132 kV Dimapur(PG) - Doyang I & II **(Line 1: Dimapur (PG) – Earth fault & Doyang- No tripping and Line 2: Dimapur (PG) – Earth fault & Doyang- No tripping)** and 132 kV Doyang – Mokokchung (Nagaland) **(Doyang – Not Furnished & Mokokchung (Nagaland)- Not furnished)** lines tripped. Doyang Unit 3 also tripped.

   Load loss: 3 MW in Nagaland
   Generation Loss: 21 MW in Doyang

b. **At 1108 Hrs on 27.08.15,** 132 kV Dimapur(PG) - Doyang II **(Dimapur (PG) – No tripping & Doyang- Back-up earth fault)** and 132 kV Doyang – Mokokchung (Nagaland) **(Doyang – Overcurrent & Mokokchung (Nagaland)- No tripping)** lines tripped. Doyang Unit 1, 2 & 3 also tripped. 132 kV Dimapur (PG) - Doyang I was under shutdown w.e.f 0955 Hrs of 27.08.15.

   Load loss: 20 MW in Nagaland
   Generation Loss: 64 MW in Doyang

   Category as per CEA Standards: GD-I

Analysis of Events:

Due to tripping of all outgoing feeders from Doyang, there was Black out in Doyang Power Station. And due to tripping of 132kV Doyang- Mokokchung (Nagaland) line, power supply to Mokokchung area of Nagaland interrupted. It is also to be checked whether these tripping are due to vegetation problem. DR output at both ends of above elements required for proper analysis of the events. DR has been received from Dimapur(PG) for the event on 22.08.15. FIR in line Clause No. 5.9 of IEGC (Event Information) is to be sent by NEEPCO & POWERGRID.

As discussed in 36th PCCM of NERPC, proper patrolling are to be done after tripping any elements and patrolling reports are to be submitted by the concerned utility to NERLDC & NERPC. No patrolling report is being received.

DoP, Nagaland, NEEPCO & NERTS, POWERGRID may elaborate.

G. Tripping of Loktak Generation:

At 1156 Hrs on 02.08.15, 132 kV Loktak- Imphal (PG) **(Loktak- Earth fault & Imphal- No tripping),** 132 kV Loktak- Ningthoukhong **(Loktak- DP, ZI, Y-E & Ningthoukhong- Not furnished)** lines tripped. 132 kV Loktak-Jiribam was open since 0546 Hrs of 31.07.15. Loktak Unit 1, 2 & 3 also tripped on overspeed protection.

Generation Loss: 101 MW in Loktak

Category as per CEA Standards: GD-I

Analysis of Events:

Due to tripping of all the outgoing feeders from Loktak, all the running units of Loktak tripped due to loss of evacuation path. It is to be checked whether these tripping are due to vegetation problem. DR output at Imphal (PG) & Ningthoukhong required for proper analysis of the events. FIR in line Clause No. 5.9 of IEGC (Event Information) is to be sent by NEEPCO & POWERGRID.

As discussed in 36th PCCM of NERPC, proper patrolling are to be done after tripping any elements and patrolling reports are to be submitted by the concerned utility to NERLDC & NERPC. No patrolling report is being received.

NHPC, MSPCL & NERTS, POWERGRID may elaborate.

A.7 Implementation of activities decided in joint meeting among NERLDC, NERPC & constituents of NER on 29.12.14

A meeting was held at NERLDC between NERPC, NERLDC and constituents of NER as per directive of Hon'ble CERC in response to Petition No. 113/MP/2014 on 29.12.14.

The constituents of NER agreed upon the following:

a. Testing of all existing relays and schemes within 2 months by all constituents to assess the healthiness of existing protective relays
b. Review of relay settings based on history of tripping and non-availability of Distance Protection Relays would be done.
c. Attempts would be made to avoid any tripping on account of vegetation growth, which is frequent in NER
d. Single Phase / Three phase Auto Reclose Scheme of transmission lines of voltage level 132 kV and above under List of Important Grid Elements of NER are to be adopted, wherever available. The status of implementation will be monitored in monthly OCC/PCC meetings.

It is requested to power utilities of NER to intimate the latest status of the above activities.

Many of tripping of transmission & distribution lines occurred due to vegetation problem. Tripping of transmission & distribution lines can be reduced if bush/jungle cutting done regularly. It was observed that number of tripping of transmission & distribution lines increases during the period of monsoon.

During 35th PCC meeting, it was requested to all the constituents to send monthly status report of the activities decided during joint meeting among NERLDC, NERPC & constituents of NER on 29.12.14. It was suggested that proper patrolling are to be done after tripping any elements and patrolling reports are to be submitted by the concerned utility to NERLDC & NERPC. It was requested to all transmission utilities of NER for furnishing monthly report on trimming of trees.

The Sub-committee once again requested all the constituents to carry out the above suggestions as decided earlier for safety of the grid.

Members may like to discuss.

A.8 Up-gradation of 220/132kV Salakati Sub-station from Conventional to SAS on completion of 25 years age and Capitalization during Tariff Block (2014-2019)

220/132kV Salakati Sub Station was commissioned in the year 1987 and thus, completed 28 years which is 3 years more than the age of Substation. At present, the condition of various equipments / items like LTAC, DCDB, Battery Banks, Power & Control Cable, CT, CVT, Isolator, Bus Post Insulators, String insulators, C&R Panels etc. have deteriorated considerably and requires replacement for further extension of Substation life. Meanwhile, only obsolete ABCBs are replaced with SF_6CBs.

In view of above, it is proposed to replace all the above mentioned obsolete equipments / items and up-grade the Substation from conventional to SAS on completion of 25 Years under PoC Mechanism. The tentative expenditure will be around Rs 10.00 Crores.

Members may like to discuss.

A.9 Up-gradation of 132kV Halflong, 132kV Jiribam, 132kV Kumarghat and 132kV Aizawl Sub-station on completion of 25 years age and Capitalization during Tariff Block (2014-2019)

The up-gradation of Haflong, Jiribam, Kumarghat and Aizawl sub stations on completion of 25 Years from AIS to GIS/Hybrid with Double Bus Bar Arrangement, Bus Bar Protection and LBB Scheme in SAS configuration to enhance reliability / continuity of power supply has already been approved in 15th NERPC Meeting at Guwahati on 21st August 2015.

Accordingly, a committee of POWERGRID representatives from Region and Corporate Engineering & AM Department visited Aizawl Sub Station to explore the possibility of up-gradation from AIS to GIS/Hybrid without interruption of power flow during up-gradation works. After detailed study it is found that conversion to GIS will be preferable to Hybrid under following consideration:

(a) Up-gradation to GIS will have minimum outage compared to Hybrid. In case of GIS outage will be only during changeover of primary connection. However, in case of Hybrid, the outage will be during installation as well as changeover of Primary and secondary connection.

(b) Up-gradation to GIS will generate more space for future expansion which is non-existing in case of Hybrid. Further, due to space saving in case of GIS one transformer 132/33kV can be installed additionally for dedicated station supply.

Hence, it is proposed to up-grade the above stations from AIS to GIS in line with the approval during 15th NERPC Meeting. The tentative cost for Up-gradation will be Rs. 20.00 – Rs. 22.00 Crores for each station.

This for information and endorsement during 16th NERPC Meeting

A.10 Exemption of Telemetry & Speech for commissioning of Pasighat-Roing-Teju-Namsai – Provisional Clearance:

It may be noted that construction works of Passighat--Roing-Teju-Namsai(1) is going on through POWERGRID. Telemetry data of the same is not possible until Passighat-Along-Daporizo-Ziro(A) or Namsai-Rupai-Tinsukia(B) communication link is made available there with provision of optical/plcc which is presently not available. Also GPRS connectivity is not OK at these locations.

Hence it is proposed for provisional permission of commissioning of the above substations without Telemetry data (provisional clearance for1.5 year or connecting comm-link line readiness whichever is earlier). However, voice connectivity will be provided through Mobile phone while commissioning itself.

Members may like to discuss.

It is proposed to hold the 38th PCC meeting of NERPC on first week of October, 2015. The exact venue will be intimated in due course.

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Annexure – A.4

Rs. In Crore.

State	Name of Entity	Status	Funding Sought by Entity	Quantum of funding approved by Appraisal Committee (AC)	Quantum of funding approved by Monitoring Committee (MC)	Remarks/Actions taken by the States
Ar. Pradesh	DoP, AP	DPR submitted to CEA/NLDC- under examination of CEA – now it will be taken up in next meeting of the techno-economic sub-group	33.45	-	-	-
Assam	AEGCL	Scheme already approved by Monitoring Committee – MoP sanctioned awaited	382.48	299.37	299.37	NIT has already been called/published
Manipur	MSPCL	DPR submitted to CEA/NLDC- under examination of CEA – now it will be taken up in next meeting of the techno-economic sub-group	66.58	-	-	-
Meghalaya	Me. PTCL	Scheme already approved by Appraisal Committee & approval by Monitoring Committee is awaited	102.8	69.19 and recommended to MC	69.19	NIT is in progress and will be called/published soon
	Me. PGCL	DPR submitted to CEA/NLDC- under examination of CEA – now it will be taken up in next meeting of the techno-economic sub-group	48.16	-	-	-
Mizoram	DoP, Mizoram	Revised DPR submitted to CEA/NLDC- under examination of CEA – now it will be taken up in next meeting of the techno-economic sub-group	31.38	-	-	-
Nagaland	DoP, Nagaland	Scheme already approved by Monitoring Committee – MoP sanctioned awaited	39.96	39.96	39.96	NIT is in progress and will be called/published soon
Tripura	TSECL	Revised DPR submitted to CEA/NLDC- under examination of CEA – now it will be taken up in next meeting of the techno-economic sub-group	34.26			