North Eastern Regional Power Committee

MINUTES OF THE 125th OPERATION COORDINATION SUB-COMMITTEE MEETING OF NERPC

Date : 14/09/2016 (Wednesday)

Time : 10:00 hrs

Venue : "Hotel Nandan", Guwahati.

The List of Participants in the 125th OCC Meeting is attached at **Annexure – I**

Shri P.K. Mishra, Member Secretary, NERPC welcomed all the participants to the 125th OCC meeting. He noted the presence of participants from all the utilities and congratulated them. He requested that in future participation like this should be ensured for fruitful deliberation.

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

A. CONFIRMATION OF MINUTES

CONFIRMATION OF MINUTES OF 124th MEETING OF OPERATION SUB-COMMITTEE OF NERPC.

The minutes of 124th meeting of Operation Sub-committee held on 08th August, 2016 at Guwahati were circulated vide letter No. NERPC/SE (O)/OCC/2016/4556-4591 dated 18th August, 2016.

The Sub-committee confirmed the minutes of 124th OCCM of NERPC as no comments/observations were received from the constituents.

ITEMS FOR DISCUSSION

B.1. OPERATIONAL PERFORMANCE AND GRID DISCIPLINE DURING AUGUST, 2016

As per the data made available by NERLDC, the grid performance parameters for August, 2016 are given below:

NER PERFORMANCE DURING AUGUST, 2016

	Demand Met (MW)		w.r.t. June,16 % inc (+) /dec (-)	Demand in (MW)		w.r.t. June,16 % inc (+) /dec (-)	% inc (+) /dec (-) of Demand vs met. In Aug, 16
States	**Aug-16**	**July-16**		**Aug-16**	**July-16**		
Ar. Pradesh	140	135	3.7	148	136	9.2	-6.07
Assam	1633	1547	5.6	1661	1591	4.4	-1.74
Manipur	145	141	2.8	145	141	2.8	0.03
Meghalaya	296	293	1.0	296	292	1.3	0.04
Mizoram	81	79	2.5	83	80	3.5	-2.20
Nagaland	116	119	-2.5	117	120	-2.8	-0.59
Tripura	266	258	3.1	265	259	2.4	0.28
Region	**2387**	**2391**	**-0.2**	**2435**	**2474**	**-1.6**	**-2.01**

	Energy Met (MU)		w.r.t. June,16 % inc (+) /dec (-)	Energy Reqr. (MU)		w.r.t. June,16 % inc (+) /dec (-)	% inc (+) /dec (-) of energy reqr vs met. In Aug, 16
States	**Aug-16**	**July-16**		**Aug-16**	**July-16**		
Ar. Pradesh	60.69	55.79	8.8	62.07	56.95	9.0	-2.28
Assam	938.61	778.51	20.6	970.62	814.66	19.1	-3.41
Manipur	57.73	57.93	-0.3	59.84	62.99	-5.0	-3.64
Meghalaya	138.11	148.91	-7.3	138.11	148.91	-7.3	0.00
Mizoram	39.70	40.1	-1.0	40.73	41.3	-1.4	-2.60
Nagaland	67.28	64.08	5.0	68.59	65.36	4.9	-1.93
Tripura	118.64	114.81	3.3	121.10	115.95	4.4	-2.07
Region	**1420.77**	**1260**	**12.7**	**1461.06**	**1306.12**	**11.9**	**-2.84**

REGIONAL GENERATION & INTER-REGIONAL EXCHANGE IN MU

Month---->	**Aug-16**	**July-16**
Total Generation in NER (Gross)	1470.87	1671.34
Total Central Sector Generation (Gross)	1137.48	1292.75
Total State Sector Generation (Gross)	333.39	378.58
Inter-Regional Energy Exchange		
(a) NER-ER	**0.56**	182.10
(b) ER-NER	**496.58**	79.53
(c)NER-NR	**454.64**	336.32
(d)NR-NER	0.00	0.00
© Net Import	41.38	-438.89

AVERAGE FREQUENCY (Hz)

Month---->	**Aug-16**	**July-16**
	% of Time	% of Time
Below 49.9 Hz	5.94	3.87
Between 49.9 to 50.05 Hz	73.06	71.78
Above 50.05 Hz	21.00	24.30
Average	50.00	50.01
Maximum	50.35	50.35
Minimum	49.65	49.69

Manager, NERLDC through a presentation highlighted the following w.r.t. Grid operation:

- Frequent O/D beyond allowable 12% of schedule, by the constituent states inspite of repeated deviation violation message and zero crossing violation message.
- Huge amount of outstanding DSM payable by the constituent states as well as NTPC.
- Both under-requisitioning and overdrawal at the same time.
- Non-requisitioning of URS power and simultaneous O/D from the grid.

As the matter had been previously deliberated in OCC forum, he requested that forum may investigate the reasons so that they may be communicated to CERC/MoP when required.

EE, SLDC, DoP Ar. Pradesh informed that Ranganadi generation is sudden and since Ar. Pradesh has the maximum entitlement from RHEP this is resulting in non-adherence to the twelve percent DSM band.

DGM, SLDC, AEGCL submitted that in case of Assam the following are the main reasons:

- Gas supply has been reduced/ stopped for LTPS,NTPS for many months. Especially Namrup generation is almost zero. This has increased dependence upon grid power to a great extent.
- For quite a number of months RTUs are not functioning properly resulting in faulty SCADA data and reduced visibility of the state grid. Also SEM figures which have been used for the analysis are not available in real time.
- In many instances URS power has been requisitioned but has not been scheduled.
- ICCP link failure resulting in non-availability of Central sector data at SLDC.
- Inadvertent and un-predictable weather conditions resulting in poor load forecasting.
- And lastly political imperatives hampering real time load management.

SE, SLDC, MeECL submitted that in case of Meghalaya the following are the main reasons:

- Umiam Stg #III is under breakdown resulting in low generation.
- In the months of May-June due to congestion in Eastern region committed

banking had to be curtailed. So now that has to be honored no matter what.

- Load shedding was not approved by the competent authority resulting in poor load management.

Sr. Manager, SLDC, TSECL informed that BgTPP power is scheduled randomly, thus distorting schedule. Tripura is always giving zero requisition for BgTPP power but in order to satisfy technical minimum BgTPP power is scheduled suddenly. He requested NERLDC to refrain from such actions in future. NERLDC intimated that this happened due to submission of under requisition by other constituents from BgTPP. The methodology of scheduling was already discussed & approved by the forum regarding technical minimum of power plant.

All the states unanimously voiced the non-availability of real-time data in NERLDC website. Keeping in mind that SLDCs in Ar. Pradesh, Manipur, Mizoram and Nagaland are still under execution stage, the forum viewed the matter seriously and requested NERLDC to make real time data available in website forthwith. NERLDC intimated that due to migration from old to New SCADA system the real time data was presently not available in NERLDC website for temporary basis. Once migration is complete data from new SCADA system will be available in Website. NERLDC expressed their concern about the justification of violation of regulation done by the constituents citing the non-availability of real time data in NERLDC website. Moreover the constituents who are having full-fledged SLDC are responsible for their own real time data.

S.E.(O),NERPC requested all the states to give their advice and solutions.

DGM, SLDC, AEGCL suggested that commissioning of AMR should be expedited and hoped that it would solve the problem to a large extent. He also voiced that issues like gas supply, RTU non-reporting etc. are to be resolved as early as possible. He further requested NERPC to raise the issue in forthcoming TCC/RPC meeting keeping the political angle in perspective.

Sr. Manager, SLDC, TSECL informed that Bangladesh drawal at S.M. Nagar is unpredictable resulting in poor management.

Other constituent states were of the view that proper load forecasting & real time data availability would result in better grid management as a whole.

The Sub-committee noted as above.

Action: All concerned utilities, NERLDC.

ITEMS FOR DISCUSSION

C.1 Status of Generating Units, Transmission Lines in NER:

During 124th OCC meeting, the status as informed by NTPC, NEEPCO, POWERGRID, DoP Ar. Pradesh and DOP, Nagaland is as follows:

SN	Items	Status as given in 125th OCC Meeting	Status as given in 124rd OCC Meeting
a. New Projects			
1	Trial operation and CoD of Unit -II of Bongaigoan TPS of NTPC	Synchronization by November, 2016 & CoD by 31.03.2017	Synchronization by November, 2016 & CoD by 31.03.2017
2	400/220kV, 2x315 MVA ICT of NTPC at Bongaigaon	October, 2016	October, 2016
3	Trial operation and CoD 36MW STG of Monarchak GBPP of NEEPCO	December, 2016 (subject to gas availability)	November, 2016 (subject to gas availability)
4	Kameng HEP of NEEPCO two units (2 x 150 MW) Next two units (2x150 MW)	First two units March 2017.	First two units March 2017.
5	Pare HEP of NEEPCO (2 x 55 MW)	June, 2017	June, 2017
6	400 kV D/C Silchar - Melriat line of PGCIL	March, 2017.	March, 2017.
7	220kV Rangia - Salakati of AEGCL	December, 2016	December, 2016
8	132kV Monarchak – Surjamaninagar D/C of TSECL	December, 2016	December, 2016
9	400/132 kV, 2nd 125 MVA ICT at Pallatana	Scheduled to be commissioned on 08.10.2016	September 2016.
10	132kV Pasighat – Aalong of Ar. Pradesh	December, 2016.	December, 2016.
11	132kV Doyang– Wokha	December, 2016.	October, 2016.

12	220 kV, 20 MVAR Bus Reactor& bay at AGBPP	30.09.2016	31.08.2016
13	132kV Surjamaninagar Bay at OTPC	December, 2016. LOA completed.	December, 2016. LOA completed.
14	400kV D/C Balipara – Kameng	December 2016.	December 2016.
15	RHEP 80 MVAR Bus Reactor	Referred to next SCM of CEA.	Referred to next SCM of CEA.
16	SLDCs (Ar. Pradesh, Manipur, Mizoram, Nagaland)	Manipur - Sept'16, Mizoram-Oct'16, Nagaland-handover of building by Dec'16, AP-Work started.	Manipur - Aug'16, Mizoram- Sep'16, Nagaland-handover of building by Dec'16, AP- Work started.
17	400/220 kV 315 MVA ICT-II at Bongaigaon	Work was awarded already to ALSTOM	Work was awarded already to ALSTOM
18	220/132 kV, 2x160 MVA ICTs at Balipara	By 31st August 2017.	By 31st August 2017.
19	220/132 kV, 1x160 MVA ICT with GIS Bay at Kopili	By 31st August 2017.	By 31st August 2017.
20	400/132 kV, 1x315 MVA ICT-III at Silchar	December, 2017.	December, 2017.
21	Replacement of 2x315 MVA ICTs with 2x500 MVA ICTs at Misa (PG)	December, 2017.	December, 2017.
22	400 kV Silchar – Misa D/C	Under TBCB	Under TBCB
23	1x125 MVAR Bus Reactor at 400 kV at Balipara	December, 2017.	December, 2017.
24	1x125 MVAR Bus Reactor at 400 kV Bongaigoan	December, 2017.	December, 2017.
25	Bays at Hailakandi	Completion to match with balance portion of 132kV D/C Silchar-Hailakandi line.	Completion to match with balance portion of 132kV D/C Silchar-Hailakandi line.
b. Elements under breakdown/ upgradation			
26	63MVAR Reactor at Byrnihat of Me.PTCL	LOA has been issued to VMS. May need to be re-tendered.	Forum suggested to MePTCL that it should be sent directly to OEM for repair.

27	Up-gradation of 132 kV Lumshnong-Panchgram line	Reports given to be analyzed by MeECL.	Reports given to be analyzed by MeECL.
28	Switchable line Reactors at 400kV Balipara & Bongaigoan	Balipara - Oct'16 Bongaigaon - Dec'16.	Balipara - Sept'16 Bongaigaon - Dec'16.
29	PLCC Panels at Loktak end of Loktak – Ningthoukhong 132 kV feeder and Loktak - Rengpang 132 kV feeder	MSPCL agreed to revert back with the exact status.	August 2016
30	LILO of 132kV Ranganadi – Nirjuli at Pare of NEEPCO by PGCIL	L.T feeder diversion work done by DoP Ar.Pradesh. Dec'16	September 2016 subject to shifting of LT Line as per D.32.
31	LILO of 132kV Ranganadi – Itanagar (Chimpu) at Pare of Ar. Pradesh	Bay at Pare under construction Bay 1: December 2016 Bay 2: March 2017	Bay at Pare under construction March 2017
32	400KV 80MVAR Bus Reactor at OTPC Palatana	Delayed due to BHEL. OTPC will complete by 31.10.2016 or latest by 15.11.2016.	DGM OTPC informed that the matter will be pursued with MD OTPC so that the reactor is brought into service. To inform the status within a week.

DGM(AM),NERTS opined that the non-returning of Byrnihat reactor into service poses a threat to grid security. So the matter should be placed to TCC/RPC for fruitful resolution.

The Sub-committee noted as above.

C.2 CT Ratio of Transmission Lines & Enhancement of Loadability of lines in NER:

The latest status as informed in 125th OCC meeting is as follows:

Sl.No.	Name of the line	CT Ratio at either end (current)		CT Ratio at either end (required)		No. Of CTs required		Current Status
		Stn A	Stn B	Stn A	Stn B	Stn A	Stn B	
1	132KV D/C RC Nagar-Agartala-I**	600/1	400/1	800/1	800/1	3 by PGCIL	4 by PGCIL	Mar'2017
2	132KV D/C RC Nagar-Agartala-II**	600/1	400/1	800/1	800/1	3 by PGCIL	4 by PGCIL	Mar'2017

3	132 KV S/C Jiribam-Aizwal	400/1	400/1	600/1	600/1	3 by PGCIL	4 by PGCIL	Mar'2017
4	132 KV S/C Jiribam-Haflong	400/1	400/1	600/1	600/1	3 by PGCIL	4 by PGCIL	Mar'2017
5	132KV S/C Khandong - Umrangso-Haflong	300/1	400/1	600/1	600/1	3 at Khandong by NEEPCO, 3 at Umrangso by AEGCL	3 at Umrangso by AEGCL, 3 at Haflong by PGCIL	PGCIL - Mar'2017 AEGCL- Mar'2017 NEEPCO- Mar'2017
6	132 KV S/C Loktak - Imphal-II	400/1	600/1	600/1	600/1	3 by NHPC	0	NHPC- Jan'2017
7	132 KV D/C Doyang - Dimapur	300/1	600/1	300/1	600/1	3 by PGCIL & 6 by NEEPCO	0	PGCIL - March, 2017 **NEEPCO- to be informed**

Further POWERGRID has proposed that all lines where CT ratio up-gradation is to be done, double jumpering is to be ensured.

The forum agreed to the proposal of double-jumpering and recommended double jumpering of bay and line for the above elements before the CT upgradation work is completed, so that full capacity of CTs can be utilized for loading the lines. Forum also agreed to include 132kV Doyang-Dimapur I & II for CT Ratio upgradation.

The Sub-Committee noted as above.

C.3 Finalization of Operating Procedures of State Grid of NER:

As per clause no 5.1.g of IEGC, detailed operating procedures for each state grid shall be developed and maintained by the respective SLDC.

Deliberation of the sub-Committee:

Status as intimated during 125th OCC forum of NERPC is as follow:-

Sl No	Description	Status of approval from OCC forum of NERPC
1	Operating Procedure of Ar. Pradesh 2015	**Draft Submitted**
2	Operating Procedure of Assam 2015	Submitted
3	Operating Procedure of Manipur 2015	Submitted
4	Operating Procedure of Meghalaya 2015	Submitted
5	Operating Procedure of Mizoram 2015	Submitted
6	Operating Procedure of Nagaland 2015	Submitted
7	Operating Procedure of Tripura 2015	**Draft Submitted**

AGM(SO-I),NERLDC enquired whether Tripura has included Power supply to Bangladesh in OP of Tripura grid to which TSECL representative replied in the

negative. The forum requested NERLDC to enquire from ERLDC whether West Bengal has any such clause in their OP regarding power supply to Bangladesh. The Sub-Committee decided to drop the agenda item.

The Sub-committee noted as above.

Action: NERLDC.

C.4 Monthly MU requirement & availability of each state of NER as per format:

The following figures of state wise MU requirement and availability were taken from draft LGBR 2016-17 of NERPC. State wise MU requirement and availability for these months are to be checked. Constituents may kindly verify if the above data are correct.

Requirement:

Name of State	Apr16	May16	Jun16	Jul16	Aug16	Sep16
Ar. Pradesh	67	71	68	73	73	73
Assam	775	791	816	872	872	847
Manipur	82	77	76	80	80	80
Meghalaya	170	175	165	175	175	170
Mizoram	42	42	42	45	45	45
Nagaland	65	68	72	77	77	72
Tripura	112	122	122	122	128	122
NER	**1313**	**1346**	**1361**	**1424**	**1450**	**1409**

Name of State	Oct16	Nov16	Dec16	Jan17	Feb17	Mar17
Ar. Pradesh	73	68	68	68	59	74
Assam	816	714	714	714	648	740
Manipur	85	88	95	92	88	90
Meghalaya	185	195	210	220	185	190
Mizoram	46	46	48	48	42	42
Nagaland	74	68	71	69	68	68
Tripura	133	112	122	128	102	128
NER	**1412**	**1291**	**1328**	**1339**	**1192**	**1332**

Availability:

Name of State	Apr16	May16	Jun16	Jul16	Aug16	Sep16
Ar. Pradesh	46	58	82	92	79	74
Assam	483	544	649	737	703	682
Manipur	58	69	85	108	102	99
Meghalaya	100	149	191	250	258	258
Mizoram	38	44	54	63	59	57
Nagaland	42	51	66	83	79	77
Tripura	185	204	204	222	213	208
NER	**950**	**1119**	**1330**	**1557**	**1493**	**1455**

Name of State	Oct16	Nov16	Dec16	Jan17	Feb17	Mar17
Ar. Pradesh	67	52	54	51	45	55
Assam	648	567	580	567	502	564
Manipur	95	81	76	71	61	69
Meghalaya	209	150	138	125	115	123
Mizoram	54	48	44	43	39	45
Nagaland	71	55	54	50	45	50
Tripura	225	211	224	222	190	217
NER	**1370**	**1163**	**1171**	**1130**	**997**	**1121**

In 121st OCC meeting, NERLDC stated that quantum of power against Bangladesh drawal should be reflected in the table either in Tripura drawal figure or separately. Members agreed to that.

In 123rd OCC meeting, as per suggestion by Member Secretary, NERPC it was decided that a comparison of actual vs figures projected in LGBR 2016-17 is to be prepared from now on.

The comparison of the projected figures as per LGBR (2016-17) and actual figures are given below:

Requirement:

Name of State	Jul16(actual)	Jul16(LGBR)	Aug16(actual)	Aug16(LGBR)
Ar. Pradesh	57	73	62.07	73
Assam	815	872	970.62	872
Manipur	63	80	59.84	80
Meghalaya	149	175	138.11	175
Mizoram	41	45	40.73	45
Nagaland	65	77	68.59	77
Tripura	116	122	121.10	128
NER	**1306**	**1424**	**1461.06**	**1450**

Availability:

Name of State	July16(actual)	July16(LGBR)	Aug16(actual)	Aug16(LGBR)
Ar. Pradesh	56	92	60.69	79
Assam	779	737	938.61	703
Manipur	58	108	57.73	102
Meghalaya	149	250	138.11	258
Mizoram	40	63	39.70	59
Nagaland	64	83	67.28	79
Tripura	115	222	118.64	213
NER	**1260**	**1557**	**1420.77**	**1493**

Deliberation of the sub-Committee:

S.E.(O),NERPC highlighted that in case of Meghalaya the difference is glaring. S.E, SLDC, Meghalaya informed that revised figures for 2016-17 had already been provided to NERPC and requested NERPC to incorporate the same.

The Sub-committee noted as above.

Action: NERPC.

C.5 Monthly MW requirement & availability of each state of NER:

The following figures were taken from LGBR 2016-17 of NERPC. These figures are to be reviewed.

A. Peak Demand in MW

Name of State	Apr16	May16	Jun16	Jul16	Aug16	Sep16
Ar. Pradesh	142	142	137	137	142	147
Assam	1451	1472	1498	1508	1560	1539
Manipur	168	168	168	163	168	163
Meghalaya	320	320	320	320	320	320
Mizoram	90	90	95	90	90	90
Nagaland	125	125	125	140	140	140
Tripura	270	291	296	296	301	291
NER	**2651**	**2693**	**2724**	**2739**	**2801**	**2775**

Name of State	Oct16	Nov16	Dec16	Jan17	Feb17	Mar17
Ar. Pradesh	143	132	132	137	137	147
Assam	1513	1508	1518	1456	1352	1466
Manipur	163	179	184	179	179	173
Meghalaya	370	380	390	390	370	340
Mizoram	95	95	101	101	90	95
Nagaland	140	135	135	135	125	125
Tripura	321	275	260	250	250	281
NER	**2790**	**2749**	**2760**	**2688**	**2558**	**2707**

B. Peak Availability in MW

Name of State	Apr16	May16	Jun16	Jul16	Aug16	Sep16
Ar. Pradesh	127	144	195	165	140	138
Assam	1012	1134	1305	1249	1170	1222
Manipur	131	173	184	196	179	181
Meghalaya	257	304	373	433	455	482
Mizoram	83	100	123	117	108	111
Nagaland	109	129	145	142	134	137
Tripura	324	355	369	365	350	357
NER	**2043**	**2340**	**2695**	**2675**	**2534**	**2627**

Name of State	Oct16	Nov16	Dec16	Jan17	Feb17	Mar17
Ar. Pradesh	154	140	129	128	127	179
Assam	1251	1202	1169	1152	1108	1278
Manipur	188	175	147	151	142	188
Meghalaya	442	360	340	312	346	386
Mizoram	117	109	99	98	101	120
Nagaland	142	129	124	122	120	141
Tripura	386	369	373	370	355	392
NER	**2681**	**2484**	**2381**	**2331**	**2298**	**2682**

C. Off Peak Demand in MW (08:00 Hrs)

Name of State	Apr16	May16	Jun16	Jul16	Aug16	Sep16
Ar. Pradesh	78	78	75	75	78	81
Assam	943	898	944	950	952	939
Manipur	109	109	109	106	109	106
Meghalaya	223	230	230	230	230	230
Mizoram	59	59	62	59	59	59
Nagaland	75	75	75	84	84	84
Tripura	184	198	201	201	205	198
NER	**1670**	**1639**	**1689**	**1698**	**1706**	**1689**

Name of State	Oct16	Nov16	Dec16	Jan17	Feb17	Mar17
Ar. Pradesh	79	73	73	75	75	81
Assam	983	935	956	932	852	909
Manipur	106	116	120	116	116	112
Meghalaya	230	235	240	240	230	230
Mizoram	62	62	66	66	59	62
Nagaland	84	81	81	81	75	75
Tripura	218	187	177	170	170	191
NER	**1760**	**1687**	**1708**	**1677**	**1581**	**1661**

D. Off Peak Availability in MW (08:00 Hrs)

Name of State	Apr16	May16	Jun16	Jul16	Aug16	Sep16
Ar. Pradesh	40	50	99	122	102	100
Assam	734	824	1014	1126	1048	1068
Manipur	65	87	119	168	152	148
Meghalaya	198	230	305	416	428	445
Mizoram	50	61	88	102	93	93
Nagaland	72	84	105	123	115	116
Tripura	362	303	326	345	331	335
NER	**1420**	**1640**	**2054**	**2402**	**2269**	**2304**

Name of State	Oct16	Nov16	Dec16	Jan17	Feb17	Mar17
Ar. Pradesh	81	56	59	57	72	69
Assam	982	927	956	935	927	985
Manipur	132	115	92	84	94	102
Meghalaya	377	295	290	261	303	318
Mizoram	86	75	72	69	78	82
Nagaland	103	89	92	89	93	95
Tripura	343	317	335	329	322	339
NER	**2104**	**1875**	**1896**	**1824**	**1888**	**1989**

A comparison of demand for the month of July and August 2016 is given below:

Name of State	Jul16(act)	Jul16(LGBR)	Aug16(act)	Aug16(LGBR)
Ar. Pradesh	136	137	148	142
Assam	1591	1508	1661	1560
Manipur	141	163	145	168
Meghalaya	292	405	296	400
Mizoram	80	90	83	90
Nagaland	120	140	117	140
Tripura	259	296	265	301
NER	**2474**	**2739**	**2435**	**2801**

The Sub-Committee noted as above.

C.6 Furnishing Reactive Power Absorption Data for last one year:

As per Para no. 9.9.1 of Recommendations of Enquiry Committee on Grid Disturbance, the regulatory provisions regarding absorption of reactive power by generating units needs to be implemented.

It is requested that you may please furnish instances when Reactive Power support was provided by Generators for last one year.

The latest Capability Curve of each generator in Soft Copy may also be provided.

In 124th OCCM, NERLDC informed the following status of furnishing of reactive power absorption data:

AGBPP, AGTPP, Kopili, Khandong	Furnished on Daily basis
BgTPP	Furnished on Monthly basis
Palatana	Furnished but only for 5th, 10th & 15th of every month
Ranganadi	Not furnished/intermittent
Doyang	Furnished but intermittent
Loktak	Not furnished

NEEPCO representative assured that site personnel will be informed about submitting the necessary data and it will be furnished. NEEPCO was requested to use nerldc@yahoo.co.in for sending all reactive power absorption data of generators. It was decided by the forum that NERPC will review the same on weekly basis.

Deliberation of the sub-Committee:

The status of submission as reported in 125th OCC is as follows:

AGBPP, AGTPP, Kopili, Khandong,Kopili Stg-II, Doyang	Furnishing on Daily basis
BgTPP	Submitted for August'16
Palatana	Submitted for July'16
Ranganadi	**Furnished but only for 5th, 10th & 15th of August'16**
Loktak	**Not furnished**

After detailed deliberation forum recommended that RHEP data should be submitted month-wise and not for specific dates only. The forum also viewed very seriously the continuous non-submission of data by Loktak HEP.

The Sub-Committee noted as above.

Action: NEEPCO & NHPC.

C.7 Implementation of Automatic Demand Management Scheme (ADMS)

Hon'ble CERC directed vide order in Petition No. 113/MP/2014 on 31.12.15 to submit PERT charts & action plans for Implementation of Automatic Demand Management Scheme (ADMS) by SLDCs of NER and to implement ADMS by 30.06.16. Hon'ble CERC directed RLDCs to submit the report of status of implementation of Automatic Demand Management Scheme (ADMS) by SLDCs of NER by 31.08.16.

SLDCs of NER are requested to furnish monthly report of status of implementation of Automatic Demand Management Scheme (ADMS) by SLDCs of NER.

In 121st OCC meeting, S.E.(O), NERPC informed that the minutes of the ADMS workshop was issued on 07.04.2016. He suggested that the following works are to be carried out by constituents at the earliest as decided in the ADMS workshop.

1. Identifying minimum two substations from each state to enabled ADMS functionalities on pilot basis.
2. Surveying those substations which are identified for ADMS function to understand the actual status of those stations.
3. Preparing the Bill of materials (BOM) and get the cost estimation from suppliers.

Further, he suggested that software development regarding integration of ADMS with existing SCADA system at SLDC level may be included in SLDC Upgradation Project of

POWERGRID. Members agreed to the proposal and confirmed the minutes of the workshop.

In 122nd OCCM, it was decided that SLDCs would inform the status as soon as possible after due consultation with DISCOMs and vendors. It was also decided that NERPC would write to CMDs of all the utilities in the states i.e. TRANSCO and DISCOMs for conducting internal meetings in this regard periodically.

MS, NERPC stated that as per discussions with CERC in matter of implementation of ADMS in NER, CERC representative suggested that ADMS be installed in at least one substation of each state on pilot basis and thereafter bulky implementation. The forum agreed to implement ADMS in one substation of each state, preferably in state capitals. It was also agreed, that implementation on pilot basis may be taken up in Assam/Meghalaya system to begin with. The funding may be obtained from PSDF.

In 124th OCC meeting, SE (O) informed that as per report furnished by M/s SCOPE to 4 NER States with a copy to NERPC after initial survey for implementation of ADMS as decided in earlier meeting is as below:

Ar. Pradesh – Rs. 2.1 Crores (excluding OPGW link & associates)
Mizoram – Rs. 2.3 Crores (excluding OPGW link & associates)
Nagaland – Rs. 2.13 Crores (excluding OPGW link & associates)
Meghalaya – Rs. 1.5 Crores (no hardware only software part)
The committee requested Assam, Manipur and Tripura to identify one Substation each for the above project.

DGM, AEGCL intimated that Assam have also taken step on their own by calling one firm to discuss about the implementation of the scheme in their system. After detailed discussion the party was requested to submit a detailed scheme along with the cost involvement to fulfill the project. The details still they are awaiting.

NERLDC vide its letter no NERLDC/SOII/5394-401 dtd 16.02.16 requested SLDCs of NER to furnish status report of implementation of ADMS by 15.08.16.

NERLDC informed the forum that the report of status of implementation of Automatic Demand Management Scheme (ADMS) by SLDCs of NER will be submitted to Hon'ble to CERC within 31.08.2016.

If no information received from SLDCs of NER, then status will be indicated as "Not furnished by SLDC".

The committee noted the difficulty faced in implementation by the deadline of 31st August 2016 and requested NERPC to take up the matter with CERC for getting extension till the work is completed.

Deliberation of the sub-Committee:

Member Secretary, NERPC informed the members that upon his interaction with CERC, he apprised them about the difficulties in implementation of ADMS in NER. S.E.(O),NERPC requested Assam, Manipur, Tripura to complete site survey and submit details of estimate as soon as possible.

AGM (SO-I), NERLDC has informed the forum that NERLDC has submitted report to Hon'ble CERC vide letter No. NERLDC/SO-II/4803-12 dated 30.08.16. A copy of the submitted report is attached in Annexure-C.7

The Sub-Committee noted as above.

Action: All state utilities, SLDCs, NERTS, NERLDC/NERPC.

C.8 Transformer Tap optimization

System study was conducted by NERLDC considering load, generation and network pattern of May, 2016 during Peak & Off Peak periods. Suggested taps position of important transformers in NER for maintaining bus voltages within permissible limit as well as to minimize system losses have been circulated earlier.

In 119th OCCM, SE, SLDC, MeECL informed that voltage profile at 400kV Byrnihat S/S would be supplied by MeECL periodically.

In 120th OCCM, DGM(SO-I), NERLDC informed that MeECL is sending the voltage profile regularly and requested to continue. The bus voltage profile of 400kV, 220kV & 132kV buses w.r.t. tap positions as recommended with the help of offline system study are required for assessment of effectiveness of tap change and its impact in voltage profile improvement. SE, SLDC, MeECL stated that to change tap positions regularly approval from competent authority is required and agreed to revert back to the forum.

In 122nd OCCM, SE, SLDC, Meghalaya informed the forum that request has been received and he would revert back to the forum after due discussion with MePTCL.

DGM(AM), NERTS informed that since tap changing would be done offline, there should be no danger in the operation, and necessary checks like ratio test and continuity checks may be done after tap changing to check healthiness before putting

into service. NERLDC informed that similar tap changing has been done in Northern region and the NR grid had been benefitted. Hence, similar exercise should be done for NER to aid in mitigating high voltage conditions. It was agreed that in case SLDC, Meghalaya does not manage to convince MePTCL to perform tap changing at Byrnihat, NERPC may write to MePTCL on behalf of the forum.

In 124th OCCM, the forum requested NERPC to take up the matter with management of Meghalaya since the work is pending for long time.

Deliberation of the sub-Committee:

S.E.(O),NERPC informed that MeECL has agreed and the exercise would be carried out at a suitable date.

The Sub-Committee noted as above.

Action: MeECL, & NERPC.

C.9 Issues related to mismatched figures of installed capacity of NER.

The figures of installed capacity of NER by CEA (As on 31.01.16) is not matching with figures of installed capacity of NER prepared by NERLDC based on data provided by SLDCs of NER. Ministry of Power (MOP) had requested NERLDC to resolve this issue.

The installed capacity of NER prepared by CEA and by NERLDC has been circulated earlier.

During 121st OCCM, Member Secretary, NERPC requested utilities to write to CEA for derating/retiring of units at their generating stations. TSECL informed that three units of Baramura GBPP were not in commercial use. DGM(MO), NERLDC informed that NERLDC is raising NERLDC Fees & Charges for AGTPP-Extn based on name-plate rating of 51 MW, however IC is 46 for all purposes. The forum requested NEEPCO to kindly clarify the same.

During 123rd OCCM, Sr. Manager, NEEPCO informed the forum that though PG test has been successfully completed, detailed calculation has not yet been done. The IC/MCR would be intimated after report is finalized. Regarding the mismatch in case of State sector generating stations it was decided that all SLDCs should refer to CEA report (follow below link) and inform the discrepancies accordingly before next OCCM.
http://cea.nic.in/reports/monthly/generation/2016/May/actual/opm_16.pdf

It was decided that NERPC would take up with CEA to give the station wise break-up of installed capacity, as indicated on CEA website.

NERLDC requested all states / ISGS to ensure that in case their units are retired / Derated, the respective utility may take up with CEA so that installed capacity on CEA website is reflected correctly.

After deliberation in the EPS meeting preceding the 124th OCC meeting, it was decided that states would intimate CEA & NERPC about retired units and plants at the earliest.

Deliberation of the sub-Committee:

After detailed deliberation it was decided that respective states generating companies would write to concerned division of CEA at the earliest about derating of units.

The Sub-Committee noted as above.

Action: All state generating utilities.

C.10 Furnishing of Ramp-Up, Ramp-Down, Technical Minimum of Units :

A meeting of the Sub-Committee on 'Review of 12th Plan and Generation Planning' headed by Member (Planning), CEA was held on 7th March, 2016. During the meeting, CEA projected maximum ramping requirement of 30000-36000 MW/hour for about 60 hours (out of 8760 hours) during 2021-22 in view of increase in solar generation.

It is requested to furnish the unit-wise Ramp-Up, Ramp-Down, Technical minimum of Generating Units.etc based on data provided by manufacturer as per the attached format.

Format for submission of these data mailed to all ISGS of NER & SLDCs of NER on 9th March, 2016. OTPC has already submitted the details. The format was already circulated earlier**.**

In 124th OCCM, AGM (SO-I), NERLDC informed that the above information is required for modelling of all India base case for study of effect of RE integration in the system as per projected quantum of power RE sources. The forum once again requested that the above data may please be submitted for all the generating stations of NER, for both Central Sector as well as State Sector.

It was decided by the forum that NERPC & NERLDC will review the submission of the above data on weekly basis.

Deliberation of the sub-Committee:

The status as informed in 125th OCC is as follows:

Generator	Status
AGBPP, AGTPP	Furnished (as part of Ancillary services)
OTPC	Furnished
Kopili, Khandong	Furnished
BgTPP	Furnished (as part of Ancillary services)
Ranganadi	Furnished
Doyang	Furnished
Loktak	Furnished
AEGCL	Only for LTPS & NTPS furnished.
Meghalaya	Furnished
Tripura	Furnished
Mizoram	Not Furnished
Nagaland	Furnished

The Sub-Committee noted as above.

Action: Assam, & DoP Mizoram.

C.11 Pre monsoon activity of transmission elements:

It was observed that number of tripping of transmission elements in NER increased during monsoon period of last year. For minimization of tripping transmission elements in NER, it is requested to complete all activities (like trimming of trees, vegetation issues etc) of transmission elements before monsoon.

During 122nd OCCM, S.E.(O) once again highlighted the importance of vegetation clearance. He informed that there has been an alarming rise in number of transient trippings during this pre-monsoon period. All the utilities agreed to undertake activities in this regard and submit report to the forum.

In 124th OCCM, all the utilities agreed to submit report to NERPC at the earliest.

Deliberation of the sub-Committee:

SE, SLDC, Meghalaya noted the importance of following up with maintenance activities in respect of transmission elements and requested to rename it as "Preventive Activity of transmission elements". S.E.(O),NERPC once again requested all the constituents to continue sending patrolling reports so that availability may improve.

The Sub-Committee noted as above.

Action: All utilities.

C.12 Procurement of ERS for NER from PSDF funding:

PSDF Secretariat (NLDC, New Delhi) vide. NLDC-PSDF/NPC-CEA/2016-17/60 dtd. 21st April 2016 has intimated that submission and approval of the schemes is governed in accordance with the guidelines for disbursement of funds from PSDF approved by MoP on 18.9.2014. Guidelines are available on http://psdfindia.in/. The schemes have to be submitted as per formats prescribed in guidelines.

In 121st OCCM, POWERGRID agreed to submit the formats/DPR on behalf of NER constituents as soon as possible.

In 122nd OCCM, DGM(AM), NERTS requested NERPC to write to ED,NERTS in this regard, so that DPR may be prepared in earnest. SE(O) informed that letter has already been sent to ED, NERTS for necessary action.

In 123rd OCCM, DGM(AM), NERTS informed that proposal for management approval for procurement of ERS has been sent to POWERGRID Corporate BDD Group.

During 124th OCCM, DGM(AM),NERTS stated that detailed clarification is required with regard to the following:

1. Status of funding from PSDF
2. Ownership of Asset and location of storage.
3. Signing authority for consultancy agreement.

During 124th OCCM, S.E(O),NERPC requested NERTS to carry out the works on behalf of the NER constituents at the earliest and the issue of ownership of asset will be discussed in due course of time. Further, he requested NERTS that all the queries can be sorted out by NERPC & NERTS so that procurement shall not be delayed.

Deliberation of the sub-Committee:

DGM, SLDC, AEGCL opined that signing of consultancy agreement implies consultancy fees to POWERGRID for procurement and objected to payment of any such charges. DGM(AM),NERTS agreed to revert back with the details.

Action: POWERGRID/ NERPC.

D. NEW ITEMS

D.1 Generation Planning (ongoing and planned outages)

NEEPCO/NHPC may kindly intimate the availability for hydro stations:

Generating Station	Units running	MW	MU	Reservoir
Khandong	2		9.99	711.95
Kopili-II	1			
Kopili	4		131.26	608.38
Ranganadi	3		Subject to inflow	
Doyang	3		39.2	324.65
Loktak	3		250	769.01
AGBPP	-	-	-	-
AGTPP	-	-	-	-

Hydro planning

The outage of other generating stations may be approved considering the present level water level in reservoirs.

Deliberation of the sub-Committee:

Sr. Manager, NEEPCO informed that one unit of Khandong was operating round the clock and one unit during peak time. Manager NERLDC suggested that since water level is low in almost all the reservoirs generation is to be reduced keeping the winter season in mind. S.E.(O),NERPC requested NERLDC to kindly carry out necessary exercises on behalf of the Hydro CSGSs' and inform them the calculated DC beforehand.

The Committee discussed and approved the proposed shutdown by Generating Stations and the same is given in Annexure – D.2 (along with trans-element).

D.2 Outage Planning Transmission elements

It was agreed in the 99th OCC meeting that shutdown will be availed only after approval is given by the OCC forum. It was also agreed that deferment/revision of outages elements other than already approved in OCC will be henceforth put/displayed in the website of NERPC (under Operational Activities/OCC Approved shutdown) as per CERC regulations/ CEA guidelines etc for ensuring smooth & secure grid operation.

Furnishing request of shut down of the element, which was approved by NERPC, by Indenting Agency (ISTS licensees/STUs/Generating Companies) to NERLDC: Planned shutdown approved by NERPC shall be considered for implementation by NERLDC on D-3 basis. If an outage is to be availed on say 10th of the month, the shutdown availing agency would reconfirm to NERLDC on 7th of the month by 10:00 Hr. This practice is necessary to ensure optimal capacity utilization and the time required for associated system study/coordination by/amongst RLDC/NLDC.

In 124th OCCM, SE(O) strongly opined that constituents should inform to NERPC/NERLDC in case shutdown is not avail as approved in the OCC meeting and should mention clearly the reason for not availing the shutdown. The full list of shutdown would be placed in the next OCC by NERLDC so that proper record can be made in future for generating units as well as transmission lines. All constituents endorsed the view of SE(O).

Deliberation in the meeting

Manager NERLDC presented a report which is summarized as:

Total No. of S/D Approved	62
Total No. of S/D Availed	42
Total No. of S/D **NOT** Availed	20

The detailed report is attached at **Annexure-II.**

S.E.(O),NERPC concluded that the number of shutdowns not availed is alarming and requested the concerned utilities not to apply for shutdown casually.

The sub-Committee discussed and approved the proposals received from the constituents regarding transmission elements and generating units for August, 2016 - September, 2016 and the same has already been uploaded in website of NERPC.

D.3 Estimated Transmission Availability Certificate (TAC) for the month of April & May, 2016:

NETC and POWERGRID have submitted the outage data for the month of April & May, 2016. So the attributability of outage of the said elements may please be finalized.

In 124th OCCM, the attributability of April/May 2016 could not be finalized due to non-submission of outage data within stipulated time. The forum once again advised NETC&POWERGRID to submit data in a time bound manner as decided previously.

The Sub-Committee noted as above.

D.4 Furnishing of Technical and Commercial data for computation of PoC Charges and Losses for Q4 of 2016-17 (January 2016 – March 2016):

In the 3rd Validation Committee meeting for PoC application period Oct'15-Dec'15, held on 30th September 2015, at NLDC conference Hall, CERC had proposed a methodology for ratification of projected data at RPC form.

In line with the decision in the Validation Committee meeting, Demand and Generation projections w.r.t North Eastern Region constituents as given by Implementing Agency is attached in Annexure D.4 for ratification of members.

In 124th OCCM, members deliberated and reviewed the generation and demand data for Q3 (2016-17) as furnished by NLDC and the same is attached at Annexure – D.4. Figures were discussed and modified as follows:

a) TGBP (Monarchak, NEEPCO) => Due to unavailability of gas figure kept at 0MW
b) BgTPP(NTPC) => 161 MW.
c) Meghalaya => Generation figure is to be 259 MW and demand figure 327 MW.
d) Assam => Demand of Assam to be changed to 1365 MW and generation figure to 270 MW.
e) Manipur => Demand to be kept as 172 MW
f) Ar. Pradesh => Demand to be taken as 132 MW
g) Mizoram => Generation figure is to be 8 MW and demand figure 87 MW.
h) Nagaland => Generation figure is to be 16 MW and demand figure 141 MW.
i) Tripura => Generation figure is to be 86 MW and demand figure 290 MW (including 68 MW of Bangladesh).

Deliberation in the meeting

Engineer, NERLDC requested all the constituents to submit the requisite data within the stipulated time frame.

The Sub-Committee noted as above.
Action: All utilities.

D.5 Assessment of Total Transfer Capability (TTC), Transmission Reliability Margin (TRM) and Available Transfer Capability (ATC) by SLDC on respective Inter-State Transmission Corridor

In 124th OCCM, S.E.(O),NERPC informed that DoP, Ar. Pradesh & Mizoram have returned laptop+2dongles during the 124th OCC meeting. Only AEGCL are yet to return the laptops. DGM (LD&C), Assam informed that the laptops & dongle will be handed over in the next OCC meeting.

Updated Base Cases have been mailed to all the SLDCs on 09.09.16. All SLDCs are requested to assess the Total Transfer Capability (TTC), Transmission Reliability Margin (TRM) and Available Transfer Capability (ATC) using these cases, and submit the study cases to NERLDC for the month of October'16 by 15th September, 2016.

NERLDC has assessed the state control area wise, state subsystem wise and group of control-area wise TTCs for NER Grid, on behalf of SLDCs of NER. The study results conducted by NERLDC will be supplied during the meeting.

SLDCs are requested to check the TTC of their control areas as computed by NERLDC and issue comments, if any by 15th Septemeber'16.

If no comments received from any states, TTC, ATC & TRM figures of State control area and group of control areas as assessed by NERLDC will be considered as final and may be uploaded in NLDC website, if required.

As per discussions in 122nd OCC meeting of NERPC, all SLDCs of NER may host the assessed TTC / ATC / TRM figures on their website for information dissemination.

Deliberation in the meeting

DGM, SLDC, AEGCL informed that four nos. of laptops including dongles have been returned during the course of the meeting. S.E.(O),NERPC acknowledged the receipt of the same and requested all remaining utilities to return the same.

Engineer, NERLDC presented the assessed TTCs for state control areas, state subsystems and group of control-areas. The study results are attached in **Annexure D.5.**

The Sub-Committee noted as above.
Action: MeECL, TSECL.

D.6 Information of Events of Load crash on account of inclement weather conditions:

As per directives of DPE & MoP, Govt. of India, NERLDC have to prepare reports indicating events in the Grid that occurred on account of inclement weather conditions, particularly events involving load crash. For preparation of these reports, the following inputs are required from affected states:

a. Date and Time-frame of such incidence ii. Affected areas
b. Reason for load crash iv. Tripping of LT feeders (33 kV / 11 kV level). SLDCs may indicate affected areas if detailed information is not available.
c. Quantum of load crash and generation loss v. Details of Restoration
d. Any corrective measures (presently taken / suggested for future)

A sample format which is being used by NERLDC for event reporting has been circulated earlier.

As and when such events occur, SLDCs are requested to inform about the event to NERLDC immediately after the incident and prepare a report as per the above format and send the same to NERLDC at rtsdnerldc@gmail.com and nerldc@yahoo.co.in. It is pertinent to mention here that AEGCL, MePTCL & TSECL are sending the Load crash reports to NERLDC on regular basis.

In 123rd OCCM, AEGCL informed that RHEP generation suddenly comes and it is altering the schedule to a great extent. This is resulting in underdrawal at high frequency resulting in penalty for states. The forum suggested that these instances of sudden generation due to inclement weather should also be included in NERLDC report.

NERLDC informed that load crash report for May, 2016 has been submitted by Assam, Manipur, Mizoram, Meghalaya and Tripura. The forum requested other states to kindly submit the report to NERLDC as and when events of load crash were observed by them.

NERLDC also requested all SLDCs to include the restoration time of these events, so as to enable NERLDC to compute the amount of energy un-served on account of these incidences.

In 124th OCCM, AGM (SO-I), NERLDC informed that except DoP Ar. Pradesh and DoP Nagaland Load Crash Report of other States are being submitted periodically. He further requested that all constituents should send data in the event of load crash along with restoration time. (Start time when the load crash happened and end time when it was restored); if there is no load crash a nil load crash report to be sent by15th of every month.

Deliberation in the meeting

The latest status as informed by NERLDC in 125th OCC:

Arunachal Pradesh	Not Furnished
Assam	Furnished for Jul'16 but not in format
Manipur	Furnished for Aug'16 without restoration time
Meghalaya	Only submitting in format
Mizoram	Furnished for Aug'16 without restoration time
Nagaland	Furnished for Aug'16
Tripura	Furnished for Jul'16 but not in format

Engineer, NERLDC informed that restoration details are also to be provided by the concerned utilities in the event of a load crash, so that NERLDC may calculate the load loss. Engineer, NERLDC has also requested all the utilities to furnish load crash reports as per the formats.

The Sub-committee noted as above.

Action: All utilities, NERLDC.

D.7 Installation of spare Transformers in NER:

Recently 132/33 kV, 10 MVA and 16 MVA Transformers at Nirjuli (PG) have been replaced by 2 nos. 50 MVA Transformers. After replacement of the above mentioned transformers, the 10 MVA & 16 MVA Transformers are now Spare Transformers and can be used at other substations. Further in future 220/132 kV, 2x50 MVA Transformers at Balipara (PG) will also be replaced by 2x160 MVA Transformers. Members may please deliberate about optimal utilization of these spare Transformers in NER.

In 123rd OCCM, Sr. Manager NEEPCO informed that NEEPCO is facing capitalization issues for Balipara equipments and decision regarding the handover would be intimated in due course.

Sr. Manager, TSECL requested for the 132/33 kV, 10MVA transformer that has been de-commissioned at Nirjuli. Similarly SE, DoP Mizoram requested for the 16MVA transformer.

DGM(AM),NERTS clarified that first SCM would have to agree for declaring said assets as regional spare to enable POWERGRID to put up to CERC. Members agreed that SCM needs to be conducted urgently and requested NERPC to take necessary action at the earliest. In the meantime TSECL has approached CEA.

Considering TSECL request; CEA vide letter: 89/5/2016/PSPA-2 dated 02.08.16 has given its “in-principle” approval for declaring the 10 MVA, 132/33kV transformer which was de-commissioned at Nirjuli S/Sn as regional spare. It has also given its “in-principle” approval for use of the spare transformer by TSECL for its Gournagar S/S.

Since classification of asset as regional spare is under the ambit of SCM of CEA and Concurrence of CEA in this regard is required. However the use of the transformer by a particular constituent is in purview of RPC and accordingly members may discuss.
During 124th OCCM, On suggestion by SE, DoP Nagaland and DGM, AEGCL, the forum decided that modalities regarding use of assets, transportation, duration of use

etc. may be worked out by a committee constituted by OCC & will be discussed in next OCC. DGM(AM),NERTS informed that CEA & RPC approval is required before approaching CERC. After deliberation it was decided that the Transformers will be spared to any constituents after modalities are worked out.

Deliberation in the meeting

NERTS circulated the draft modalities. The forum deliberated upon the following:

1. Availability of bay equipment like LA, CT, CB etc. in healthy condition to be ensured by testing.
2. Availability and healthiness of differential, restricted E/F, O/C & E/F, overflux etc. relays to be ensured by testing.
3. Availability and healthiness for tripping/annunciation circuits in C&R Panel for Buccholz, OTI, WTI, PRV, MOG etc.
4. Suitability of existing rail base for installation of the transformer where transformer (of lower rating) was installed earlier with lesser weight.
5. Installation of N_2 Injection fire protection system prior to putting the transformer in service.
6. Drying out and re-commissioning of the transformer to be done as per the procedure of POWERGRID and clearance of charging to be obtained from POWERGRID.
7. During service preventive maintenance of the transformer to be carried out as per the procedure and cycle of POWERGRID and test results are to be submitted to AM Department, POWERGRID, Shillong for necessary monitoring and corrective measures, if any.
8. Dismantling, Packing and To-And-Fro transportation of transformer to be done by the requisitioning entity.
9. ALL RISK INSURANCE for transit (both way) and breakdown during service to be taken up by requisitioning entity to meet repairing cost, in case of damage during transit and service.
10. Time frame for returning the transformer may also be obtained from the requisitioning entity.

Manager, TSECL informed that the extent of emergency should be clearly mentioned in the modalities.

S.E.(O),NERPC requested all the constituents to revert back with their comments, so that the modalities may be finalized and approved in next TCC/NERPC meetings.

The Sub-committee noted as above.

Action: All utilities/NERPC.

D.8 Reasons For Demand - Supply Gap And Its Variation:

It was deliberated in the 4th NPC meeting that monthly power supply position prepared & published by CEA based on the data furnished by the states reflected shortages in almost all the states. However, a number of those states intimated adequate availability of power. This meant that the deficit/shortage in such states was actually not the deficit in true sense but demand-supply gap due to reasons other than shortage of power. The other reasons for the demand-supply gap could be inadequate availability of power, transmission constraint, distribution constraint, financial constraint, etc. The reason for demand-supply gap needed to be clearly mentioned to reflect true picture of power supply position in different states and also to invite attention of various agencies including policy makers to the specific problem areas in the power sector for suitable solution.

After deliberation it was decided in the meeting that all the RPCs would advise the states in their respective regions to intimate broad break-up of demand-supply gap due to various reasons, or at least, the main reason(s) for demand-supply gap in each month.

In 122nd OCCM, DGM(SO-I), NERLDC was of the view that constituents may indicate the load-shedding quantum in their systems under different heads appropriately like inadequate availability of power, transmission constraint, distribution constraint, financial constraint, etc. The forum agreed.

In 123rd OCCM, Manager, NERLDC while presenting the monthly Grid Performance for June-2016 highlighted the glaring contradictions as follows:

1) Shortfall figure given by states and corresponding under-drawal from grid.
2) Systematic less requisition from ISGS and over-drawal from grid.
3) Differences between SEM based data and drawal data as provided by states which is reflected in Daily Report of NERLDC.

AEGCL representative stated that they had been facing problems in load management due to error in SCADA which is thus resulting in overdrawal in reality. The forum felt that this is mainly due to non-reporting of RTUs in AEGCL system and is specific to Assam only. Assam was advised to take care of the issue of under-requisition from ISGS coupled with sustained over-drawal which is a violation of Regulatory stipulations.

Regarding mismatch between SEM data and operational data, DGM(MO),NERLDC suggested that analysis of one week's data can be done to identify the nodes from which wrong readings are provided daily. States were advised to take care while submitting previous day data to NERLDC and as far as possible, source of energy data should be SEM. The forum also suggested the state utilities to provide break-up for shortfall figure so that particular cause may be ascertained.

In 124th OCC, Manager, NERLDC presented a report on the discrepancies pertaining to Assam system and highlighted that the main difference is in 220kV Salakati-BTPS D/C. DGM, SLDC, AEGCL informed that operational data source would be verified and he would revert back to the forum. The forum requested NERLDC to further conduct analysis on points of difference for other control areas.

Deliberation in the meeting

Sr. Engineer, NERLDC informed that AEGCL, TSECL are providing the detailed breakup of shortfall figures. Meghalaya and Mizoram are reporting nil shortfall while no figures are being received from DoP, Ar. Pradesh, MSPCL and DoP Nagaland.

The Sub-committee noted as above.

Action: DoP, Ar. Pradesh, MSPCL, DoP Nagaland /NERLDC.

D.11 Reactive Power Planning:

In the 4th meeting of NPC, it had been agreed that states should adopt a proactive approach in the matter of reactive power planning, and that the provisions regarding reactive power planning similar to those mandated in the IEGC for the CTU should be included in the respective State Grid codes.

It was informed in the meeting that Sub-Committee of PSDF had forwarded few schemes of capacitor installation by states to respective RPC for approval of RPCs. It was of the view that RPC might be able to justify the requirement of capacitor installation of state.

After detailed deliberation, it was agreed that the proposal of capacitor installation planning by states/entities would be referred to RPCs and to PSDF Sub-Committee routed through RPCs and the proposal would be vetted by the respective RPC.

In 122nd OCCM, after detailed deliberation it was decided that the SLDCs with due consultation of DISCOMs would revert back to the forum with the requirements.

In 123rd OCCM, EE, Mizoram informed that DPR is being prepared and proposal would be sent after finalization. S.E.(O),NERPC requested other states to kindly estimate requirement and communicate the same.

NERTS also asked states to plan their capacitor requirement taking into account future EHV lines, so that the installation of capacitors does not go waste.

In 124th OCCM, S.E.(O),NERPC requested all states to undertake the study for capacitor requirement taking into account future EHV lines and prepare the DPR so that the same can be endorsed in the next TCC/NERPC meetings.

Deliberation in the meeting

S.E.(O),NERPC once again reiterated the need for this scheme and requested all the states to finalize their estimate before the forthcoming TCC/RPC meetings.

The Sub-committee noted as above.

Action: All utilities, SLDCs.

D.10 Scheme for Storage and Management of Protection System Data Base:

Ramakrishan Task Force Report on Power System Analysis under Contingencies had recommended for creation of data base for relay settings

Quote:

There is also a need for creating and maintaining data base of relay settings. Data regarding settings of relays in their network should be compiled by the CTU and STUs and furnished to the RLDC and SLDC respectively and a copy should also be submitted to RPC for maintaining the data base.

Unquote:

RPC had prepared scheme for above purpose for funding from PSDF. The scheme had been approved by MoP. SRPC submitted the scheme for similar purpose. Other RPCs were also requested to initiate the preparation of above scheme to implement the recommendations of the Ramakrishna Task Force. It was informed that the Ramakrishna task Force report had been accepted by MoP.

NPC advised RPCs to take necessary action for creating and maintaining database of relay setting. RPCs agreed to initiate preparation of the scheme for implementation recommendation of Ramakrishna Task Force.

In 123rd OCCM, S.E.(O),NERPC informed that exercise has already been initiated in this regard and the item may be reviewed periodically in PCC meeting of NERPC.

During 124th OCCM, S.E.(O),NERPC suggested that the firm will be asked to give presentation in the next OCC meeting for protection system database.

Deliberation in the meeting

S.E.(O),NERPC informed that the firm had missed the OCC meeting due to previous commitments and hoped that they would be present for the next OCC meeting.

The Sub-committee noted as above.

Action: NERPC.

D.13 Status of RE generation in NER:

NLDC is compiling details of renewable power plants in India. NERLDC has mailed all the power utilities regarding furnishing of details of RE Generation in NER. All the power utilities are requested to furnish the details of RE Generators currently under operation and also provide information regarding RE Generators expected to be commissioned in future.

In 123rd OCC the format was circulated by NERLDC for submission of information by SLDCs of NER by 31st July 2016.

In 124th OCCM, AGM(SO-I),NERLDC informed that any R.E generation viz. solar, wind projects which are planned or already running are to be provided by state utilities. He also requested MeECL to provide details about 20MW solar project planned at Leshka.

Deliberation in the meeting

EE, SLDC, Ar. Pradesh informed that 5MW Solar project is planned at Roing, however DPR has not yet been prepared. The exact quantum of mini hydro projects in Ar. Pradesh would be informed by him later on. DGM, SLDC, AEGCL informed that the total quantum of RES is 14MW in Assam. S.E.(O), NERPC requested all the utilities to provide the exact details by 30.09.2016.

Engineer, NERLDC has informed the forum that format for furnishing details of RE Generation in NER has already been mailed to all the constituents. It has been requested to furnish the details by 30.09.16.

The Sub-committee noted as above.

Action: All state utilities.

D.12 Furnishing of UFR Report and status of Implementation:

As per recommendation of enquiry Committee, the status of installation of UFR in NER has been circulated earlier. It is gathered that, 17 MW quantum is yet to be implemented in Manipur.

The 123rd OCC forum decided that monthly report is not being furnished. As per clauses of relevant regulations, and Order of Hon'ble CERC in matter of Petition no. 113/MP/2014, NERLDC and NERPC are mandated to submit status of UFR operation and non-operation to CERC. SLDCs were thus requested to submit UFR operation details (feeder-wise quantum of load relief to be indicated) on monthly basis, and even if no UFR operated in particular month, it should indicated as NIL.

In 124th OCCM, MSPCL informed that UFR has been commissioned to shed extra 17MW and details would be provided by 31.08.2016. S.E.(O),NERPC informed that DoP Ar. Pradesh has already achieved the stipulated load relief. He further requested all utilities to kindly submit UFR operation report for the preceding month within the first week.

AGM (SO-I), NERLDC requested all utilities to provide UFR operation data for GD-V on 16th April'16 and GD-IV on 9th July'16 as per format by 20th August'16.

Deliberation in the meeting

The latest status as informed by NERLDC in 125th OCC:

Arunachal Pradesh	Furnished for Aug'16
Assam	Furnished for Aug'16
Manipur	Furnished for Jul'16
Meghalaya	Furnished for Jul'16
Mizoram	Furnished for Aug'16
Nagaland	Furnished for Aug'16
Tripura	Furnished for Aug'16

NERLDC requested Manipur & Meghalaya to submit UFR Report for the month of August, 2016.

The Sub-committee noted as above.

Action: All utilities.

D.13 Updation of SPS Document of NER Grid:

NERLDC is preparing SPS Document of NER Grid. The draft SPS Document has been circulated earlier.

All the concerned utilities are requested to give comments on the document and provide the updated Logic Diagram of SPS by 31st July'16.

The 123rd OCC meeting, OTPC representative informed that on 09.07.2016(GD-IV) SPS-3 did not mal-operate rather it was due improper scheme design. He requested that the matter be discussed in System-Study sub-group. Sr. Engineer, NERLDC did not agree with view of OTPC and informed that as per design of SPS-3, generation at Palatana units to be reduced to 200 MW immediately (within seconds), and requested constituents to review the whole "System Protection & islanding" schemes designed for NER system due to subsequent addition of new Tr. Lines & generation in NER Grid. The matter of redesigning of SPS would be reviewed in next System Study meeting of NER.

The matter of redesigning of SPS would be reviewed in next System Study meeting of NER.

OTPC vide mail dtd. 04.08.16 has written:

"OTPC is repeatedly requesting forum at various platforms(since 117th OCC and 41st PCC meetings held on 7th January 2016) to review this scheme as it was framed considering only ONE Unit of OTPC in operation that time, now both Units of OTPC are in service. OTPC station faced serious on black out leading catastrophic failure of machines twice i.e. on 11th April 2016 and on 9th July 2016 due to SPS-III operation. SPS-III was implemented in January 2016.

In 41st PCC meeting, it was assured that the SPS-III will be reviewed in Systems Study Meeting. But, System Study Meeting is yet not called."

In 124th OCCM, S.E.(O),NERPC informed that the system Study Sub-Group meeting would be convened on August, 2016 and requested all the members to send designated representatives for the same.

Deliberation in the meeting

S.E.(O),NERPC informed that 12th SS meeting was convened on 30.08.16 and revised SPS document had been circulated to all constituents. He requested all concerned to kindly go through the draft and suggest modifications if any. GM,OTPC informed that generation backing down to 240MW (for SPS-3) as decided in the 12th SS meeting has already been implemented on 09.09.16.

The Sub-committee noted as above.

Action: All utilities.

D.14 Furnishing of Black Start Time for Power Plants:

All the power utilities having black start facilities are requested to furnish the time required for Black Start of their Power Plants. These data are required by operators for restoration of Grid after disturbance, scheduling of Power plants etc.

The Power Utilities are also requested to provide the time required to start their generators after Grid power is extended upto their bus.

The 123rd OCC forum requested NERLDC to kindly consult already available data in the form of Ancillary Service etc. and revert back. It was decided that Hydro and Gas stations to give their black start timings, and time required to start their generators after Grid power is extended upto their bus to NERLDC.

AGBPP, AGTPP and BgTPP are furnishing Warm start & Cold start timings as part of Ancillary services data.

In 124th OCCM, DGM, OTPC suggested that the terminology Black Start time is vague and needs to be further categorized into the following:

1. For plants having black start facility
   - Time required to provide power to the grid with grid power made available
   - Time required to provide power to the grid without grid power made available
2. For plants without black start facility and in general for all power plants time required to provide power to the grid with grid power made available.

AGM(SO-I), NERLDC requested OTPC to kindly revert back with the black start timings depending upon the duration in which grid power is made available to Palatana. He also requested NEEPCO (DHEP, RHEP & KHEP) and all state generating utilities to provide the data. The forum also decided the matter to be followed up in a tabular manner in the upcoming meetings.

Deliberation in the meeting

The latest status as informed by NERLDC in 125th OCC:

Sl No.	Gen Station	Whether Black Start Facility Avialable	Plant having Black Start/ Start Up Facility						Plant not having Black Start Facility	
			Time Required if Grid Power made Available				Time Required if Grid Power is not Available		Time Required if Grid Power made Available	
			If Machine tripped		If Machine Desynchronised					
			Cold Start	Warm Start	Cold Start	Warm Start	Cold Start	Warm Start	Cold Start	Warm Start
1	Loktak Unit 1-3	Yes	15	NA	15 min	NA	15 min	NA	-	-
2	AGBPP GTG 1-4	No	-	-	-	-	-	-	28 min	13 min

	AGBPP GTG 5-6	No	-	-	-	-	-	-	22 min	7 min
	AGBPP STG 1-3	No	-	-	-	-	-	-	180 min	150 min
3	AGTPP GTG 1-4	No	-	-	-	-	-	-	25 min	25 min
	AGTPP STG1-2	No	-	-	-	-	-	-	480-600 min	240 min
4	BgTPP Unit 1	No	-	-	-	-	-	-	365 min	240 min
5	Rokhia Unit 4,7,8,9	Yes	35 min	NA	7 min	NA	20 min	NA	-	-
6	Baramura Unit 4-5	Yes	35 min	NA	7 min	NA	20 min	NA	-	-
7	Likimro Unit 1-3	No	-	-	-	-	-	-	15	NA
8	Kopili Unit 1-4									
9	Khandong Unit 1-2									
10	Kopili Stg II Unit 1									
11	RHEP Unit 1-3									
12	DHEP Unit 1-3									
13	Palatana GTG 1-2									
	Palatana STG 1-2									
14	LTPS Unit 1-8									
15	NTPS Unit 1-6									
16	Langpi Unit 1-2									
17	Umiam Stg I Unit 1-4									
18	Umiam Stg II Unit 1-2									
19	Umiam Stg III Unit 1-2									
20	Umiam Stg IV Unit 1-2									
21	Umtru Unit 1-4									
22	Leshka Unit 1-3									
23	Serlui B Unit 1-3									

24	Gumti Unit 1-3									

Kopili, Khandong, Kopili Stg-II has furnished details but not in the above format.

The Sub-committee noted as above.

Action: NEEPCO (Kopili, Khandong, Kopili Stg-II, RHEP, DHEP), AEGCL, MePGCL, P&E, Mizoram, TSECL (Gumti), OTPC, Palatana.

D.15 Load Forecast Error:

At present day-ahead hourly load forecast data on daily basis is being prepared by NERLDC based on the data sent by SLDCs. It has been observed that there is a huge difference between the forecasted load and the actual demand met.

A comparison between the forecasted load and the actual demand met of all the states of NER was circulated earlier.

In 123rd OCC meeting, Sr. Engineer, NERLDC appraised the communication regarding proper load forecasting received from ED, NLDC. It was informed that states have to give 15 min block-wise data by 11:00 Hrs for next day, which would be used by RLDC to develop the 1st line of forecast. The methodology being followed by states for load forecasting was to be discussed and made uniform, so as to prevent wide variations between forecast and actual figures.

Manager, NERLDC informed that states have to give 15 min block-wise data by 11:00 Hrs for next day. At present Mizoram & Meghalaya are furnishing 15 min forecasting data. He also intimated that the new SCADA has a package for load forecasting which may be explored. The load forecast error is attached at **Annexure – D.15.**

During 124th OCCM, after detailed discussion DGM, SLDC, AEGCL informed about the difficulty in forecasting due to unpredictable weather. The forum suggested NERLDC to help constituent in forecasting by suggesting better methods.

AGM (SO-I), NERLDC requested all SLDCs to provide the procedure by which load forecast is currently being done by the SLDCs.

Deliberation in the meeting

AGM (SO-I), NERLDC stated that presently all SLDCs are furnishing day ahead load forecast data and it is observed that these figures vary considerably with actual drawal figures and requested all SLDCs to follow some procedure either with the help of previous day actual drawal pattern or similar day load pattern depending on the weather forecast or any other method which they feel suitable. In real time in case of any unforeseen change the same can be managed by partial requisition or URS

requisition or purchase from market etc., whichever is suitable. He once again requested the SLDCs to provide the procedures being followed.

The Sub-committee noted as above.

Action: NERLDC, All SLDCs.

D.16 Primary Response of generating units:

Primary Response through governor action is expected to be provided by generating units as per section 5.2 (f) to 5.2 (i) of the Indian Electricity Grid Code (IEGC).

NLDC/RLDCs have been evaluating frequency response of all the regional entities due to large contingency in the system leading to load or generation loss. The Median value of FRC of North Eastern Region was of the order of 50 MW/Hz. From the response observed on 9th June'16 for load throw off of 4000 MW, it is apparent that there are scopes for improving of primary response through governor action.

The communication from ED, NLDC is attached at Annexure-D.23. The letter was already forwarded to all the concerned utilities by GM, NERLDC.

All the concerned generating utilities are requested to inform the status of implementation of Primary Response at each Generating Units.

As per, CERC approved Procedure for Assessment of Frequency Response Characteristic (FRC) of Control Areas in Indian Power System, all RLDCs are to submit FRC calculation to CERC if loss of load/generation greater than 1000 MW and frequency change of 0.05 Hz occurs in the Grid. Sometimes it has been observed that whatever correction in frequency is required, the same is done within 10secs. Since SCADA data is available after 10secs, these type of incidents are not captured properly. In other words, accurate value of FRC could not be derived from SCADA data due to its inherent design.

Accordingly, all the generating stations are requested to furnish data from DAS (Data Acquisition system) whenever such type of event occurs. If generating stations have not implemented DAS, it is requested to do so at the earliest.

In 123rd OCC meeting, it was decided all generators should intimate the response by their units in the case of 4000 MW load throw-off on 9th June, 2016 at 14:27 Hrs.

As per information furnish by the ISGSs and States only Umiam stage III and IV which have requested for exemption all are having FMGO/RMGO in position. This may please be confirmed by NEEPCO, NTPC and Meghalaya. In case the FGMO/RGMO

function is not active the same may put into service immediately and a confirmation may kindly be furnished to NERLDC by 16-08-16.

During 124th OCCM, it was discussed that NERLDC will provide format to all generation company. All generating company will provide the required data as mentioned in the format provided. AGM (SO-I), NERLDC requested all the generating utilities to provide data from DAS of the units as proper calculation of FRC with SCADA data, whose update time is 10 secs, is not commensurate with the actual participation of the units.

Deliberation in the meeting

AGM(SO-I),NERLDC informed that AGBPP DAS is not time synchronized and requested NEEPCO to rectify the same at the earliest. He also requested NEEPCO/NHPC to provide list of stations where DAS has been installed/about to be installed. OTPC, Palatana and BgTPP have informed that they are having DAS. NHPC representative informed that DAS installation at Loktak HEP is slated for 2019 alongwith renovation of plant.

The Sub-committee noted as above.

Action: NEEPCO.

D.17 Real-Time Energy Assessment System for effective Grid Management-Software by CDAC

CDAC has submitted a proposal for Real-Time Energy Assessment System for effective Grid Management. The Proposed system has majorly three components namely, real-time data acquisition system, real-time energy assessment system and short term load forecasting. This would be very useful for the SLDCs for forecasting the load and to plan the scheduling accordingly. This would also be useful for the users to have online information of the schedule and UI charges, this would help them to schedule and reduce their penalty and thereby contributing to the Grid stability. The project would approximately cost around 2 crores which would also require user contribution. The detailed proposal has been circulated earlier**.**

Members agreed to study the proposal in detail and revert back.

During 124th OCCM, Member Secretary, NERPC informed that the cost of the software will be borne by CDAC. The cost of hardware needs to be shared by the user. (Constituents' share of cost is 20% of total cost of Rs. 2 Crores i.e. Rs. 40 lakhs approx.)

All constituent appreciated the initiative taken by NERPC/NERLDC and unanimously agreed in principle to avail the above software and requested CDAC to go ahead with their project. However, the financial approval has to be accorded by their managements. They requested NERPC to take up the matter in the next RPC meeting.

Deliberation in the meeting

S.E.(O),NERPC informed that in-principle approval of the constituents has been communicated to CDAC and the matter would be placed in next TCC/RPC.

The Sub-committee noted as above.

Action: All SLDCs, NERPC.

D.18 Certification of Meghalaya state T/L as ISTS line:

Based on initial studies by MeECL the following lines have been found to cater loads of other states in addition to Meghalaya, so they may be declared as ISTS line:

1. 220kV D/C Misa - Killing
2. 132 kV S/C Agia - Nagalbibra
3. LILO of 400kV D/C Pallatana - Bongaigoan at 400/220kV Killing S/S

The matter was discussed in one of the sub-group meetings and it was suggested that NERLDC may conduct studies by WebNet software and inform the members of load flow patterns in 123rd OCC.

During 123rd OCCM, Engineer, NERLDC informed that the study results would be communicated to MeECL/NERPC within 15 day.

In 124th OCCM, Engineer, NERLDC informed that data for 220kV Misa-Killing is required by NLDC for further analysis and requested MeECL to provide at the earliest.

Deliberation in the meeting

NERLDC presented the details of the study results as follows:

400kV Silchar - Byrnihat => 12.9971 %

400kV Bongaigaon - Byrnihat => 10.1268%

220 kV Misa - Byrnihat I => 26.1397%

220 kV Misa - Byrnihat II => 26.1397%

SE, SLDC, MeECL thanked NERLDC for conducting the study and stated that they would approach SERC/CERC accordingly after TCC/RPC approval.

The Sub-committee noted as above.

Action: MeECL/NERPC.

D.19 Prolonged outage of 132 kV Dimapur (PG) – Dimapur (NG) line and Misa Kopili III:

132 kV Dimapur (PG) – Dimapur (NG) II line is not in service since 18th April 2016. Jumper position of 132 kV Dimapu r(PG) – Dimapur (NG) II line has been changed at LILO tower to Kohima station as intimated by POWERGRID & DoP, Nagaland, to feed Capital area of Nagaland. As a result, 132 kV Dimapur (PG) – Dimapur(NG) I line is heavily loaded during peak hours and also not satisfying N-1 criteria. In addition to the above Misa-Kopili III is also out since 27-5-16 after availing emergency shutdown by NEEPCO thereby restricting evacuation system of KOPILI HEP.

In 124th OCCM, DGM(AM),NERTS informed that the outage of 132kV Dimapur-Dimapur is due to GIS switchgear unavailability for Dim-Kohima (refer to Agenda Item **D.35**). The GIS switchgear has now been repaired and may be put into service at a mutually agreeable date. Regarding outage of 132kV Misa-Kopili-III Sr. Manager, NEEPCO informed that Pole CB at Kopili end has become defective and new breaker would be commissioned within 15.09.2016. S.E.(O),NERPC opined that the prolonged outages of T/L is alarming and needs to be monitored monthly. He requested NERLDC to provide no. of S/D not availed, no. of S/D not returned in a tabular summary as well as detailed breakup from now on in every OCC meeting. NERLDC agreed.

Deliberation in the meeting

EE, DoP Nagaland informed that the matter has been resolved. Sr. Manager, NEEPCO also informed that the new pole CB has been commissioned and 132 kV Misa-Kopili-III is now in service. The Sub-Committee decided to drop the agenda item.

The Sub-committee noted as above.

D.20 Multiple occurrence of Oscillations at Doyang HEP:

Several cases of Low Frequency oscillations have been observed in NER Grid, starting from 14th July 2016.

The cases of oscillation are depicted below:

14.07.16 from 13:16 Hrs to 13:20 Hrs

15.07.16 from 20:00:30 Hrs to 20:03:00 hrs

16.07.16 from 18:30 Hrs to 18:33 hrs.

17.07.16 from 07:06 Hrs, 07:26 Hrs, 08:06 Hrs, 10:23 Hrs

18.07.16 from 15:56 Hrs to 15:58 Hrs

19.07.16 from 14:55 Hrs to 14:57 Hrs

25.07.16 from (a) 18:00:40 hrs to 18:03:40 hrs, and (b) 18:19:14 hrs to 18:21:42 hrs
8)31.07.16 from 11:16 Hrs to 11:17 Hrs

In all these case of oscillations, the origination seems to be from Doyang HEP, and oscillation lasted for about 2 minute's duration in majority of the cases.

Besides oscillation at Doyang HEP (Intra-plant), the oscillation was also experienced at Loktak HEP, Khandong HEP, RHEP, Palatana (Inter-Plant). It has been observed through controlled increase of generation of DHEP that the oscillation started when ex-bus generation became more than 68 MW. Hence considering the security of the grid, NERLDC requested DHEP to maintain their ex-bus generation at that level only till the problem is resolved .GM, NERLDC vide his letter No. NERLDC/User_Ne/16-17/4193-96 dtd. 20/07/16 has requested to ED (O&M), NEEPCO to check the various sub-system of Doyang and resolve this issue at the earliest. NEEPCO accepted the proposal. The matter of such recurring oscillation is very serious, and may lead to widespread trippings/ disturbance if not controlled properly.

In 124th OCCM, Engineer, NERLDC through a presentation highlighted the grid conditions prevailing before and after the sustained oscillations and stressed the importance of the event. AGM(SO-I), NERLDC informed that upon observation it has been found that the problem occurs whenever Doyang ex-bus generation becomes more than 68 MW. NERLDC requested that the declared DC of Doyang be reduced to 68 MW for safe operation of grid till the exact cause of problem is found and rectified. He also requested Doyang to provide the data again for analysis as previous data provided inconclusive. Doyang informed that all necessary data will be provided by 16th August, 2016. NERLDC also requested Loktak, Leshka, Khandong and Kopili to furnish the machine data at the earliest since oscillations were also observed in these generating units.

Deliberation in the meeting

Engineer, NERLDC requested NEEPCO to provide details of PSS commissioning at DHEP including the date when it was put into service. Sr. Manager, NEEPCO agreed. She also requested all the generating utilities to submit the dynamic data at the earliest. AGM(SO-I),NERLDC concluded that there are no longer any oscillations at Doyang HEP and the item may be dropped. The members concurred.

AGM, NERLDC also requested all the generating stations having PSS facility to enable them at the earliest.

The Sub-committee noted as above.

D.21 Diversion of one No. LT Line at Village SOPU to enable LILO connection of Ranganadi-Lekhi line at Pare HEP:

The 132 kV Ranganadi – Lekhi line is to be made LILO at Pareh HEP. Erection of the tower No. AP-7 of the LILO portion at SOPU Village, has been affected due to presence of one LT Line of DoP, Arunachal Pradesh near the location. The LT line needs to be diverted away from the location by using 3-4 new poles. DoP, Arunachal Pradesh may expedite diversion of the said LT line to enable erection of the tower at Loc Ap-7 and stringing from the Loc 45 of Nirjuli-Lekhi line to AP-7.

In 124th OCCM, EE, SLDC Ar. Pradesh informed that the task of diversion of LT line will be completed within next 2-3 days.

Deliberation in the meeting

EE,SLDC, Ar.Pradesh informed that as per communication from Distribution Wing received by him on 13.09.2016 the work has already been completed. The forum decided to drop the agenda item.

The Sub-committee noted as above.

D.22 Change of setting of CT ratio for RCNagar-Agartala-I&II at RC Nagar end:

Both the lines tripped number of times due to improper relay setting. On 03.08.2016 132 kV AGTPP-Agartala line-II tripped on two occasions at 1305 &. 1341 Hrs due to overloading after tripping of 132 kV AGTPP-Agartala line-I.

The matter has been raised several times from TSECL to enhance the setting & to replace the CT from 300/1 to 400/1 at R C Nagar end to avoid such un-necessary tripping.

The matter is very serious and required rectification to avoid such events of tripping.

AGM(SO-I),NERLDC has clarified that the CT ratings of AGTPP end are 600-300/1 and present setting is kept at 300/1 whereas CT ratios of Agartala end are 400/1 for both the lines. The present settings at AGTPP is restricting power flow capacity of above lines.

It is therefore requested to change the CT ratio settings to higher ratio at AGTPP end urgently, which will be beneficial for both Tripura & AGTPP and system as a whole.

In 124th OCCM, Sr. Manager, NEEPCO informed that tap-changing work would be completed after availing shutdown on 12.08.16 & 17.08.16.

Deliberation in the meeting

Sr. Manager, NEEPCO informed that the work had been completed on 12.08.16 and 17.08.16. The forum decided to drop the agenda item.

The Sub-committee noted as above.

D.23 Availability of URS power details in NERLDC website:

OTPC vide. OTPC/COMML/T-8/2016-17/180 dtd.27.07.2016 has informed that at present it is not known that which beneficiary state has un-requisitioned power as no details about it are available anywhere on the system. Only the consolidated URS available is known to the generator and names of the states un-requisitioning power is sometimes intimated by NERLDC. It is urgently required that the daily state-wise details of URS power be made available by NERLDC at its website.

During 124th OCCM, the forum requested NERLDC to provide the breakup in its website. NERLDC stated that they will explore the possibility to show the details in present scheduling software.

Deliberation in the meeting

Manager, NERLDC informed that NERLDC is presently using excel-2003 application for preparing energy scheduling activities where they have already reached the limitation. The breakup would be readily available once the WBES software is commissioned. The forum requested NERLDC to kindly provide the breakup details to ISGS on a day-ahead basis at least for now. NERLDC agreed to provide on requirement basis.

The Sub-committee noted as above.

Action: NERLDC.

AGENDA ITEMS FROM NERLDC:

D.24 Submission of data according to Standards of Performance of ISTS Regulations 2012, CERC.

As per Standards of Performance of ISTS Regulations 2012, CERC, the following data are required on monthly basis for computation of Dependability Index, Security Index and Reliability Index:

1. Nc – Number of correct operations during the month
2. Nu - Number of unwanted operations during the month
3. Nf - Number of failures to operate at internal power system faults during the month
4. Ni - Number of incorrect operations during the month

In addition of above data, data of five or more tripping of a transmission element in a month are also required. These data are to be sent to CERC on monthly basis. The matter was also discussed in 91st, 92nd, 94th and 119th OCC Meeting of NERPC.

In this regard, Letters from GM, NERLDC dated 29.08.16; 01.08.13 and 01.07.13 were sent to ISTS licensees to furnish these data. NETC and POWERGRID are requested to furnish the data w.e.f October'12 to July'16 at the earliest.

NETC and POWERGRID are requested to furnish these data for previous month by 10th day of the month regularly.

Deliberation in the meeting

NERTS and NETC agreed to submit the data in a timely manner.

The Sub-committee noted as above.

Action: NERTS, NETC.

D.25 Submission of Weekly Outage Report by Utilities.

NERLDC has provided format for submission of weekly outage report by all utilities of NER. The weekly outage reports are required for analysis of Tripping/ Grid Disturbances by Sub-group Committee of NERPC. In absence of the reports it is very difficult to find out the root cause.

MSPCL, MePTCL, P&E, Mizoram, DoP, Nagaland, BgTPP, AGBPP, AGTPP, DHEP, Loktak, Palatana and Kopili are furnishing the details on weekly basis regularly.

DoP, Arunachal Pradesh, AEGCL Ranganadi and Khandong are not furnishing as per the format. DoP, Arunachal Pradesh, AEGCL Ranganadi and Khandong are requested to furnish the details as per the formats.

TSECL is not furnishing the details. NERLDC has requested TSECL repeatedly to furnish the weekly outage report but till now no report has been received. Many disturbances related to Tripura system cannot be analysed properly in absence of these reports.

Deliberation in the meeting

Sr. Manager, TSECL agreed to submit weekly outage reports to NERLDC. NERLDC requested DoP, Arunachal Pradesh, AEGCL Ranganadi and Khandong to furnish the details as per the formats.

The Sub-committee noted as above.

Action: TSECL.

D26. Standardization of Common formats for reporting.

The issue of standardization of common formats was discussed on 119th OCC meeting where all constituents/ ISGS were requested to furnish daily operational data in a common format devised by NERLDC. The following Constituents/ISGS are yet to furnish the data in the prescribed format despite persuasions several times.

- All NEEPCO Power stations
- BgTpp
- OTPCL
- Arunachal Pradesh
- Mizoram
- POWERGRID

NERLDC is planning to facilitate web based data submission system in near future in the same format. Therefore, it is requested to all to be familiar with the formats so that there will is any problem while entering the data.

Members are requested please co-operate on this issue for successful implementation of the system.

Deliberation in the meeting

Manager, NERLDC presented a glimpse of the web based data submission system. He once again requested all utilities to submit operational data in provided formats. Also he requested the constituents to provide the data by 00:30 hr. so that it could be utilized to prepare daily PSP by 5:30 hr. which is a requirement of MoP.

The Sub-committee noted as above.

Action: NEEPCO, NTPC, OTPC, DoP Ar. Pradesh, DoP Mizoram & POWERGRID.

D27. Over drawal & under requisition.

It is observed that mismatch between SEM & furnished data showing incorrect overdrawal figures of Assam is still continuing. Operational data being furnished by Assam is still not consistent with the realistic SEM figures and as a result data being incorporated by NERLDC in reports still showing very high overdrawal. Assam is once again requested to please furnish realistic drawal figures downloaded from SEM meters on daily basis to avoid the ambiguity. It is to be noted that the overdrawal is getting reported against the back drop of partial requisition by the state from some ISGS. This also holds good for some other states also.

Deliberation in the meeting

Pls refer to discussion in Item **B.1.**

The Sub-committee noted as above.

D28. **Reactive Power Management during winter period.**

As winter is approaching it is expected that high voltage problem may be faced by the grid especially during off peak hours. Therefore, all utilities are requested to maintain all the reactors in healthy condition to address the situation. Moreover NERTS is requested to complete the work of facilitating conversion of line reactors, of 400 kV Balipara- Bongaigaon line I & II, as bus reactors at Balipara end at the earliest. Similarly OTPC is also requested to please restore the faulty bus reactor as early as possible.

Deliberation in the meeting

DGM,SLDC,AEGCL informed that of late it has been observed that due to improper switching/non-switching of reactors at Misa during peak hours voltage profile becomes low. This is affecting low voltage in 33kV distribution. AGM(SO-I),NERLDC stated that RLDC carries out necessary switching when necessitated, he requested all utilities to inform NERLDC whenever there is degradation in voltage profile. The status of reactors stated above may be referred from Item No.**C.1.** AGM(SO-I), NERLDC also requested all the utilities to bring back the reactors which are on long outage before winter. List of reactors out of service are:

1. 50 Mvar line reactor of 400 kV Balipara- Bongaigaon I at Bongaigaon
2. 20 Mvar Bus Reactor at 132 kV Ziro
3. 63 Mvar Bus Reactor at 400 kV Byrnihat
4. 80 Mvar Bus Reactor at 400 kV Palatana

Engineer, NERLDC requested AEGCL to furnish the latest details of capacitors installed in their Grid.

The Sub-committee noted as above.

Action: NERLDC, NERTS, OTPC.

AGENDA ITEMS FROM NERTS:

D29. SHIFTING OF VULNERABLE LOCATION 118 (DB+0) OF ± 800KV HVDC BISWANATH CHARIALI-AGRA TRANSMISSION LINE & LOC.495 (DC+0) OF 400KV D/C BALIPARA-BONGAIGAON(QUAD) TRANSMISSION LINE ON PILE ON ACCOUNT OF UNPREDICTED CHANGE IN RIVER COURSE.

The following tower locations of the transmission lines mentioned alongside have become vulnerable in view of unprecedented flood & resultant change in river course.

SN	Transmission line	Tower Location	River	Photographs
1	400KV D/C Balipara - Bongaigaon (Quad)	495 (DC+0) (Hanapara, Nalbari)	Pagladia	
2	± 800KV HVDC BNC - Agra	118 (DB+0) (Khanamukh, Sonitpur	Maansiri	

It may be mentioned that during construction of the above lines, these rivers were at a safe distance from the locations. However, gradual change in course of the above rivers near the locations have been noticed during the last two Monsoons & particularly during the recent flood in the northern Bank of the River Brahmaputra, these rivers have dangerously eroded the bank on which the tower locations are situated- leaving them in highly endangered condition.

As an immediate action, anti-erosion / bank protection measure have been taken up by POWERGRID for protection of these locations during the current season. However, as long term measure & considering criticality of the above lines for the entire Grid, requirement of shifting these locations on Pile is unavoidably felt.

POWERGRID therefore proposes to proceed with immediate action for shifting the above locations on Pile so that the same can be completed before onset of the next Monsoon (2017). Booking of the expenditure (estimated at 5.5 Crore) is proposed under PoC Mechanism.

Deliberation in the meeting

The forum approved the proposal of NERTS and referred the matter to TCC/RPC for approval.

The Sub-committee noted as above.

Action: NERPC.

AGENDA ITEMS FROM AEGCL:

D30. Persistent low voltage in 220/132kV Samaguri S/S during the month of July and August.

Deliberation in the meeting

Please refer to discussion in agenda item **D.28.**

The Sub-committee noted as above.

Action: AEGCL, NERLDC.

AGENDA ITEMS FROM NTPC:

D31. Changing of Technical Minimum limit of BgTPP from existing 65% to 55%.

As per Central Electricity Regulatory Commission (Indian Electricity Grid Code) (Fourth Amendment) Regulations, 2016 dated: 6th April 2016, it is requested to change the technical minimum limit of BgTPP from the existing 65% to 55%. Accordingly NERLDC may be informed for scheduling process.

Deliberation in the meeting

Sr. Manager, TSECL opined that the technical minimum may be reduced to 55% as early as possible to reduce the burden upon the beneficiaries due to forced scheduling to satisfy technical minimum. GM,OTPC informed that the 4th amendment of IEGC has not yet been gazette notified. In this event it should not be implemented. After detailed deliberation it was decided that NERLDC would implement the 55% technical minimum for BgTPP only after communication is received from NERPC in this regard.

The Sub-committee noted as above.

Action: NERPC.

AGENDA ITEMS FROM NETCL:

D32. Proposal for changing over of foundation form open cast foundation to pile foundation at location No. 1026, anchor tower at Brahmaputra River crossing in right bank near Jogighopa, Goalpara, Assam.

400 kV D/C transmission system from Palatana to Silchar and from Silchar to Bongaigaon was envisaged for evacuation of power from OTPC, Palatana. In the state of Assam the line is crossing Brahmaputra River near at Jogighopa, Goalpara, Assam. The pile foundation location No. 41/0 (final location No. 1025) was 32 m away from the bank edge and anchor tower location no 40B/0(final location no 1026) was 137 mtrs away from river bank edge during 2010.

In this area there is continuous erosion of bank and the distance between bank and tower (1026) is reducing continuously. Flow of water enters towards Loc.1026 and now river bank is around 40 mtrs from the location which was 137 mtrs during 2010. During this year this location was under river water.

Moreover, for unloading of Over Dimensional Cargos a channel has been prepared in between Loc. 1025 and Loc.1026 and as on date water has reached about 10 mtrs from Loc.1026 which was around 14 mtrs during the month of May 2016. This ramp is very close to two legs of tower and erosion of land mass is going on continuously.

Any further shifting of bank line or formation of any whirl pool in this area may cause problem to the stability of tower No. 1026. Inland Waterways Authority of India has also suggested to shift the tower to a safer location.

Under the above circumstances, it is proposed to shift tower at Loc.1026 on a suitable pile foundation for problem free performance and safety of the line. This location has suddenly become very critical and NETC want to complete the shifting work by April 2017.

Estimated cost is around 17.3 crore including cost of pile foundation, de-erection and erection. Complete detail of the condition of tower and estimated cost is attached in **Annexure- D32.**

Submitted for recommendation of the committee for recovery of above cost before CEA and CERC.

Deliberation in the meeting

The forum approved the proposal of NETC and referred the matter to TCC/RPC for approval.

The Sub-committee noted as above.

Action: NERPC.

AGENDA ITEMS FROM NERPC:

D33. Vegetation in LILO section of 132kV Nirjuli-Lekhi in Ar.Pradesh.

NERTS upon line survey has found dense vegetation (alongwith creepers) in Loc. 2, 3, 4 of LILO section in 132kV Nirjuli-Lekhi S/C. DoP Ar. Pradesh is requested to clear the vegetation as early as possible.

This is for information & necessary action please.

ADDITIONAL AGENDA ITEMS:

AGENDA ITEMS FROM TSECL:

D34. Demand Management during Durga Puja:

Estimated peak demand of the state during Durga Puja will be about 300 MW. Availability from own generation will be about 90MW.The balance 210 MW has to be drawn from the grid. Like previous year TSECL needs support from all NER states, NERLDC, NERPC, PGCIL, NEEPCO, OTPC and NHPC. Open access arrangement is being done apart from bilateral drawal from MIZORAM/MEGHALAYA.

Deliberation in the meeting

Members agreed to provide necessary support as always to Tripura during Durga Puja.

The Sub-committee noted as above.

D35. Wrong Scheduling of BgTPP power:

It is observed on 04/09/16 that share from BGTPS has been allotted full to Tripura schedule from BLOCK 01 to Block 39 (from 00:00 hrs to 09:45hrs) .But as per EX-PP RequisitionDt.03.09.2016 for 04.09.2016 it was clearly mentioned that the share of BGTPP shall be zero from block 01 to block 96.The matter was also discussed with the NERLDC in real time followed by e-mail.

Necessary rectification is urgently required so that share from BGTPP stands at zero w.e.f 00 hrs to09:45 hrs of dated 04.09.2016 to avoid unnecessary commercial burden.

Deliberation in the meeting

NERLDC once again reiterated that this was not a wrong scheduling rather the methodology of scheduling which was adopted by the forum regarding technical minimum of power plant where requisition of a constituent would automatically jacked up from a generating plant (gas/coal) once it reaches below its technical minimum limit.

The Sub-committee noted as above.

Action: NERLDC.

D36. Non-availability of SCADA data at SLDC:

Last few months SLDC Tripura is not getting continuous SCADA data from central sector and as well as from state system which creating lots of problem in real time system operation. Also, 400/132 KV 125 MVA Palatana ICT data also not properly reporting to SLDC control room as a result controlling of ICT load is getting very difficult in most cases. For this TSECL wants one of the Power Grid person who is expert in this field should positively be deployed here at SLDC to look after the SCADA issues immediately.

Deliberation in the meeting

The forum referred the matter to NeTEST sub-committee of NERPC.

The Sub-committee noted as above.

Action: NERPC.

Date & Venue of next OCC meeting

It is proposed to hold the 126th OCC meeting of NERPC on second week of October, 2016. However, the exact date and venue will be intimated in due course.

The meeting ended with thanks to the Chair.

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Annexure-I

List of Participants in the 125th OCC Meetings held on 14.09.2016

SN	Name & Designation	Organization	Contact No.
1.	Sh. N. Perme, EE, SLDC	Ar. Pradesh	09436288643
2.	Sh. B. Bordoloi, CGM, SLDC	Assam	-
3.	Sh. I. Tahildar, DM, Com (Tariff)	Assam	09864799857
4.	Sh. A.N. Dev Choudhury, DGM (Com)	Assam	-
5.	Sh. B.C. Borah, AGM,SLDC	Assam	09435119248
6.	Sh. J. K. Baishya, DGM, SLDC	Assam	09435041494
7.	Sh. Karuna Sarma, DGM, AEGCL	Assam	09435013532
8.	Sh. Navajot Patir, DM, SLDC, AEGCL	Assam	09707380294
9.	Ms Khoisnam Steela, Manager	Manipur	-
10.	Ms. Laishram Ritu, Manager, SLDC	Manipur	-
11.	Sh. F.E. Kharshiing, SE, SLDC	Meghalaya	-
12.	Sh. D.J. Lyngdoh, EE (SM), SLDC	Meghalaya	-
13.	Sh. Zoramdina, AE, SLDC	Mizoram	-
14.	Sh. Vanlalrema, SE, SLDC	Mizoram	-
15.	Sh. A. Jakhalu, EE(Trans)	Nagaland	09436002696
16.	Sh. Mrinal Paul, Manager (E)	Tripura	-
17.	Sh. Debabrata Pal, Sr. Manager	Tripura	09436137022
18.	Sh. Joypal Roy. Sr. Mgr. (E/M)	NEEPCO	09435577726
19.	Sh. Suranjan Sarkar, Sr. Mgr. (E/M)	NEEPCO	08974009294
20.	Sh. Bishwajit Medhi, Manager (SO-I)	NERLDC	09436335376
21.	Sh. Mintu Mandal, Sr. Manager	NERLDC	09436335243
22.	Ms. Momai Dey, Engineer (SO-II)	NERLDC	09436302716
23.	Sh. P. Kanungo, DGM (AM)	PGCIL	09436302823
24.	Sh. Sanjeeb Kumar Sahoo, Engineer (E)	NHPC	09485211808
25.	Sh. Arup Ch.Sarmah, GM (Commercial)	OTPC	09871839502
26.	Sh. S.R.Dan, DGM(O)	NTPC	09435325440
27.	Sh. R.V. Patnaik, AGM (OS)	NTPC	09438233243
28.	Sh. N. Chakraborty, Asst. Manager	NETC	07896022335

29.	Sh. P.K. Mishra, MS	NERPC	-
30.	Sh. B. Lyngkhoi, Director/S.E (C&O)	NERPC	09436163419
31.	Sh. S. Mukherjee, AEE	NERPC	08794277306
32.	Sh. A. Agrawal, AEE	NERPC	-

APPROVED SHUTDOWN OF ELEMENTS FOR 125th OCCM- BAR CHART

SN	Name of Element	Sep/16																						Oct/16										Time	
		6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	1	2	3	4	5	6	7	8	9	10		
POWERGRID																																						
	INTER REGION LINK																																					
1	BNG-IV L/R at Binaguri																																				09:00 -17:00	AMP
2	400kV NSLG-Bangaigaon Ckt-1 at Binaguri																																				07:00 -17:00	Insulator replacement in crossings
3	400kV NSLG-Bangaigaon Ckt-2 at Binaguri																																				07:00 -17:00	Insulator replacement in crossings
4	220 KV BIRPARA-SALAKATI# 1 & 2 CKT																																				08:00 -17:00	FOR LILO WORKS AT ALIPURDUAR S/S. AFTER LILO THE ALIPURDUAR S/S WILL BE CHARGED AT 220 KV LEVEL. MODIFIED LINES WILL BE BIRPARA-ALIPURDUAR & ALIPURDUAR-SALAKATI.
5	400 kV BNG-NSLG Ckt #1																																				08:00 to 16:00	For Tightening of all Joints in the Bay, collection of CT oil samples , Internal AR to be implemented in Main 1 and Main 2 Relay
6	220 kV Birpara-Salakhati # 2																																				09:00 to 15:00	OPGW works. During S/D 220 kV Birpara-Salakhati # I Auto Reclosure scheme to be shifted from Auto to Non- Auto mode
7	132kV Lekhi -RHEP TL																																				07:00 to 15:00	Replacement of Peak at Loc. No. 48, 68 and OPGW installation at Loc. 31 to 33.
8	400kV Balipara -Bongaigaon Ckt # 2																																				08:00 to 16:00	Execution of line Bay Modification work for NGR Bypassing Scheme impementation at Balipara Substation.
9	400 KV Kathalguri - New Mariani Ckt # 1																																				08:30 to 11:00	For erection of Bus Bar , in connection with Construction of 20 MVAR Line Reactor Bay at AGBPP, Kathalguri (deposit work of NEEPCO)
10	400 KV Kathalguri - New Mariani Ckt # 1																																				08:30 to 12:30	For connection of jumpers from Line to Bus Bar, in connection with Construction of 20 MVAR Line Reactor Bay at AGBPP, Kathalguri (deposit work of NEEPCO)
11	400 kv BNG-Azara feeder																																				08:00 to 16:00	For replacement of Insulator in Brahmaputra River Crossing Towers damaged in lightining.
12	400 kV BNG - Byrnihat feeder																																				08:00 to 16:00	For replacement of Insulator in Brahmaputra River Crossing Towers damaged in lightining.
13	400kV Ranganadi - BNC Ckt # 2																																				07:00 to 15: 00	Errection of new tower at Loc. 17 completed. Destringing and stringing between Loc. 16 -17 - 18 .
14	400kV Ranganadi - BNC Ckt # 1																																				07:00 to 15: 00	Errection of new tower at Loc. 17 completed. Destringing and stringing between Loc. 16 -17 - 18 .
800 kV BNC HVDC																																						
15	132 KV TBC Bay																																				08:00 to 16:00	AMP of Bay equipments
16	132 KV Pavoi #1 Bay																																				08:00 to 16:00	AMP of Bay equipments , Line shall reamin charged via TBC
17	132 KV Pavoi #2 Bay																																				08:00 to 16:00	AMP of Bay equipments , Line shall reamin charged via TBC
18	132kV side 200MVA ICT # 1 Bay																																				08:00 to 16:00	AMP of Bay equipments , ICT shall reamin charged via TBC
19	132kV side 200MVA ICT # 2 Bay																																				08:00 to 16:00	AMP of Bay equipments , ICT shall reamin charged via TBC
400kV BALIPARA SS																																						
20	400/220 kV, 315MVA, ICT # 1																																				08:00 to 16:00	Rescheduled Annual maintenance activities , ICT shall be out of service.
400KV BONGAIGAON S/S																																						
21	400 kV NSLG Ckt # 2 – BR1 Tie Bay																																				08:00 to 16:00	For Tightening of all Joints in the Bay and collection of CT oil samples
22	400 kV BR # 1 Main Bay																																				08:00 to 16:00	For Tightening of all Joints in the Bay and collection of CT oil samples
23	400 kV BR # 2 Main Bay																																				08:00 to 16:00	For Tightening of all Joints in the Bay and collection of CT oil samples
24	400 kV BNG- NSLG # 3 Main Bay																																				08:00 to 16:00	For Tightening of all Joints in the Bay and collection of CT oil samples
400kV Silchar Substation																																						
25	400kV Palatana # 2 tie Bay																																				10:00 to 15:00	DCRM , CRM testing of CB , Line shall remain charged through Main Bay.
26	400kV Bus # 1																																				08:00 to 15:00	Isolator realignment for remote operation , tightening of bus connectors . All feeder shall remain charged through BUS # 2
27	400kV Bus # 2																																				08:00 to 15:00	Isolator realignment for remote operation , tightening of bus connectors . All feeder shall remain charged through BUS # 1
220kV Mokokchung Substation																																						
28	220/132kV , 30 MVA ICT-II																																				08:00 to 16:00	AMP of ICT & Bays, ICT shall under S/D , Powerflow shall through 30MVA ICT-I
ASSAM																																					09:00 to 04:00	Jumper checking & Jungle cutting
1	220KV Sarusajai-GIS Trans. Line (Sarusajai-Samaguri Ckt-I)																																				09:00 to 04:00	Jumper checking & Jungle cutting
2	220KV Sarusajai Langpi Ckt-II																																				09:00 to 04:00	Jumper checking & Jungle cutting
3	220KV Mirza Agia Transmission line																																				09:00 to 04:00	Jumper checking & Jungle cutting
4	220KV Mirza Boko Transmission Line																																				09:00 to 04:00	Jumper checking & Jungle cutting
5	220KV Sarusajai Azara Transmission line-II																																				09:00 to 04:00	Jumper checking & Jungle cutting
6	132KV Bus Dullacherra Grid Sub-Station																																				09:00 to 17:00	Pre-puja maintenance works
7	220KV Kathalguri-Tinsukia feeder no1 and 2																																				08:00 to 16:00	Preventive maintenance of EHV lines under 220KV Tinsukia GSS
8	132KV Dullavcherra-Silchar(PG) line																																				10:00 to 16:00	charging of Transformers of Hailakandi GSS
9	220KV BTPS-Agia-Boko																																				08:00 to 17:00	Jumper checking & Jungle cutting
10	220KV Sarusajai Azara line-I																																				07:00 to 13:00	Jumper checking & Jungle cutting
11	220KV BTPS-Agia-Azara line																																				08:00 to 17:00	Jumper checking & Jungle cutting
12	220KV Samaguri-Mariani Line																																				08:00 to 16:00	Jumper checking & Jungle cutting
13	Sarusajai, 100MVA ICT-1																																				07:00 to 09:00	AMP, during S/D period power cannot be provided to Meghalaya
14	Sarusajai, 100MVA ICT-2																																				09:00 to 12:00	AMP, during S/D period power cannot be provided to Meghalaya
15	Sarusajai, 100MVA ICT-3																																				07:00 to 19:00	AMP, during S/D period power cannot be provided to Meghalaya
16	220 kV Samaguri Jawaharnagar (GIS)																																				10:00 to 16:00	Pre puja maintenanece
17	220 kV Samaguri- Sarusajai II (GIS)																																				10:00 to 16:00	Pre puja maintenanece
18	132 kV Dullavcherra- Dharmanagar																																				10:00 to 16:00	Pre puja maintenanece

Sl No	Name of Elements	Type of Element	Voltage	Shutdown Availing Agency	Start Date	Start Time	End Date
1	220 kV Mariani - Mokokchung - 1 TL	Line	220kV	POWERGRID	09 August 2016	0800	09 August 2016
2	400 kV Bongaigaon 3 - Line Reactor @ BALIPARA S/S	Line Reactor	400kV	POWERGRID	09 August 2016	0800	19 August 2016
3	132 kV Aizawl - Kolasib TL	Line	132kV	POWERGRID	10 August 2016	0800	10 August 2016
4	400 kV Misa # I - MAIN BAY @ BALIPARA S/S	Main Bay	400kV	POWERGRID	10 August 2016	0800	10 August 2016
5	132 kV RHEP-Ziro TL	Line	132kV	POWERGRID	11 August 2016	0600	13 August 2016
6	400kV Ranganadi-I & Misa -I Tie Bay @ BALIPARA S/S	Tie Bay	400kV	POWERGRID	12 August 2016	0800	12 August 2016
7	400 KV ICT#2 Main I Bay @ Misa S/S	Main Bay	400kV	POWERGRID	12 August 2016	0800	12 August 2016
8	132 KV P.K Bari - Dharmanagar	Line	132kV	TRIPURA	12 August 2016	0900	12 August 2016
9	400kV Ranganadi-II Main Bay @ BALIPARA S/S	Main Bay	400kV	POWERGRID	13 August 2016	0800	13 August 2016
10	132 KV Udaipur - Palatana	Line	132kV	TRIPURA	14 August 2016	0900	14 August 2016
11	132 kV RHEP-Ziro TL	Line	132kV	POWERGRID	16 August 2016	0600	16 August 2016
12	400 kV ICT -1 & Bus Reactor 1 TIE BAY @ BALIPARA S/S	Tie Bay	400kV	POWERGRID	16 August 2016	0800	16 August 2016
13	400 kV BNG-Azara Main Bay @ BONGAIGAON S/S	Main Bay	400kV	POWERGRID	16 August 2016	0800	16 August 2016
14	132kV Badarpur - Jiribam TL	Line	132kV	POWERGRID	17 August 2016	0800	17 August 2016
15	220kV Misa -Samaguri # 1 TL	Line	220kV	POWERGRID	17 August 2016	0800	17 August 2016
16	400kV , 80 MVAR Bus Reactor-1 @ 800 kV BNC HVDC	Bus Reactor	400kV	POWERGRID	17 August 2016	0800	26 August 2016
17	132/33KV 50MVA ICT # I @ Imphal S/S	ICT	132kV	POWERGRID	17 August 2016	0800	17 August 2016
18	AGBPP STG unit 3	Generating Unit	220kV	NEEPCO	17 August 2016	0000	25 September 2016
19	220KV Kathalguri-Tinsukia feeder no 1 & 2	Line	220kV	ASSAM	17 August 2016	0800	17 August 2016
20	132 KV Dharmanagar- Churaibari	Line	132kV	TRIPURA	17 August 2016	0900	17 August 2016
21	400/220kV, 315 MVA , ICT-1 @ BALIPARA S/S	ICT	400kV	POWERGRID	18 August 2016	0800	18 August 2016
22	400 kV BNG-Byrnihat Main Bay @ BONGAIGAON S/S	Main Bay	400kV	POWERGRID	18 August 2016	0800	18 August 2016
23	132 KV P.K Bari - Dharmanagar	Line	132kV	TRIPURA	18 August 2016	0900	18 August 2016
24	400/220kV 315MVA ICT #1 @ Misa S/S	ICT	400kV	POWERGRID	19 August 2016	1000	19 August 2016
25	132kV Imphal -II Bay @ Imphal S/S	Main Bay	132kV	POWERGRID	19 August 2016	0800	19 August 2016
26	220KV Samaguri-Mariani II	Line	220kV	ASSAM	19 August 2016	0800	19 August 2016
27	132Kv Kumarghat - RC Nagar Line TL	Line	132kV	POWERGRID	20 August 2016	0800	20 August 2016
28	400 kV Bongaigaon 1 - Line Reactor @ BALIPARA S/S	Line Reactor	400kV	POWERGRID	20 August 2016	0800	20 August 2016
29	400 kV Byrnihat- BTPS # 1 Tie Bay @ BONGAIGAON S/S	Tie Bay	400kV	POWERGRID	20 August 2016	0800	20 August 2016
30	132 KV P.K Bari - Dharmanagar	Line	132kV	TRIPURA	21 August 2016	0900	21 August 2016
31	400 kV Bongaigaon 2 - Line Reactor @ BALIPARA S/S	Line Reactor	400kV	POWERGRID	22 August 2016	0800	22 August 2016
32	400 kV NSLG# 2 – Bus Reactor # 1 Tie Bay @ BONGAIGAON S/S	Tie Bay	400kV	POWERGRID	22 August 2016	1000	22 August 2016
33	220/132kV 100 MVA ICT-I @ Dimapur S/S	ICT	220kV	POWERGRID	23 August 2016	0800	23 August 2016
34	220kV Kopili - Misa # 1 TL	Line	220kV	POWERGRID	24 August 2016	0800	24 August 2016
35	33kV Tertiary Reactor #1 @ Misa S/S	Tertiary Reactor	33kV	POWERGRID	24 August 2016	0800	24 August 2016
36	132 KV Dharmanagar- Churaibari	Line	132kV	TRIPURA	24 August 2016	0900	24 August 2016
37	220/132KV, 100 MVA ICT # 2 @ Dimapur S/S	ICT	220kV	POWERGRID	25 August 2016	0800	25 August 2016
38	AGBPP STG Unit 1&2	Generating Unit	220kV	NEEPCO	25 August 2016	1000	30 August 2016
39	132kV Palatana - Surjamaninagar TL	Line	132kV	POWERGRID	26 August 2016	0800	26 August 2016
40	220kV Misa -Samaguri # 2 TL	Line	220kV	POWERGRID	26 August 2016	0800	26 August 2016
41	400 kV Bongaigaon 4 - Line Reactor @ BALIPARA S/S	Line Reactor	400kV	POWERGRID	26 August 2016	0800	26 August 2016
42	132KV Leimatak-Rengpang (Jiribam-2) line	Line	132kV	MANIPUR	26 August 2016	0900	29 August 2016
43	132 KV R. C. Nagar - Agartala # 1 TL	Line	132kV	POWERGRID	28 August 2016	0800	28 August 2016
44	132 KV Udaipur - Palatana	Line	132kV	TRIPURA	28 August 2016	0900	28 August 2016
45	132 KV Dharmanagar S/S	S/S	132kV	TRIPURA	28 August 2016	0900	28 August 2016
46	132 kV Agartala-R.C.Nagar Line-2	Line	132kV	TRIPURA	28 August 2016	0900	28 August 2016
47	132kV Mokokchung - Mokokchung # 1 TL	Line	132kV	POWERGRID	29 August 2016	0900	29 August 2016
48	400 kV Bongaigaon 3 & Kameng I Tie Bay @ BALIPARA S/S	Tie Bay	400kV	POWERGRID	29 August 2016	0800	29 August 2016
49	132kV Mokokchung - Mokokchung # 2 TL	Line	132kV	POWERGRID	30 August 2016	0900	30 August 2016
50	220KV Mariani-Kathalguri Ckt	Line	220kV	POWERGRID	30 August 2016	0900	30 August 2016
51	132 KV Dharmanagar- Churaibari	Line	132kV	TRIPURA	30 August 2016	0900	30 August 2016
52	400kV ICT -II & Bus Reactor -II Tie Bay @ BALIPARA S/S	Tie Bay	400kV	POWERGRID	31 August 2016	0800	31 August 2016
53	400 kV Binaguri - Bongaigaon -1 TL	Line	400kV	POWERGRID	01 September 2016	0700	01 September 2016
54	400kV 50 MVAR BUSREACTOR& ITS BAY (Bav - 404 R) @ Misa S/S	Bus Reactor & Bay	400kV	POWERGRID	02 September 2016	0800	02 September 2016
55	400 kV Binaguri - Bongaigaon -2 TL	Line	400kV	POWERGRID	03 September 2016	0700	03 September 2016
56	220 kV BTPS-Agia-Boko-1	Line	220kV	ASSAM	04 September 2016	0800	04 September 2016
57	132 KV P.K Bari - Dharmanagar	Line	132kV	TRIPURA	04 September 2016	0900	04 September 2016
58	132 KV PK Bari S/Stn Main Bus in/c all connected feeders	S/S	132kV	TRIPURA	04 September 2016	0900	04 September 2016
59	132 KV Dharmanagar S/S	S/S	132kV	TRIPURA	04 September 2016	0900	04 September 2016
60	220 kV BTPS-Agia-Azara-II	Line	220kV	ASSAM	05 September 2016	0800	05 September 2016
61	220Kv Transfer Bus Coupler Bay @ Misa S/S	Bus Coupler Bay	220kV	POWERGRID	06 September 2016	0800	06 September 2016
62	132 kV Silchar - Dullavcherra	Line	132kV	ASSAM	06 September 2016	0800	07 September 2016

End Time	Nature Of Shut Down	Type of Shut down	Shutdown Days	Reasons of Shutdown	Shut down approved in/by	Affected Area	Remarks	S/D AVAILED (YES/NO)
1600	Planned	Daily	1	Maintenance of diversion section	124th OCCM			YES
1600	Planned	Continuous	11	Bushinag Tandelta , Annual Maintenance , BR shall be out of Service.	124th OCCM		Subject to availability of other reactors	YES
1600	Planned	Daily	1	OPGW Work	124th OCCM			NO
1600	Planned	Daily	1	CT tandelta , Timing , CRM, Annual Maintenance	124th OCCM			YES
1500	Planned	Daily	3	Replacement of collapsed tower to ERS	124th OCCM			YES
1600	Planned	Daily	1	Tandelta Grading Cap. , Timing , CRM , Annual Maintenance	124th OCCM			NO
1600	Planned	Daily	1	Bay Equipments AMP	124th OCCM			YES
1500	Planned	Daily	1	Pre-Puja Maintenance	124th OCCM			NO
1600	Planned	Daily	1	CT tandelta , Timing , Annual Maintenance	124th OCCM			NO
1500	Planned	Daily	1	Pre-Puja Maintenance	124th OCCM			YES
1500	Planned	Daily	1	Replacement of collapsed tower to ERS	124th OCCM			NO
1600	Planned	Daily	1	CT tandelta , DCRM , Timing , CRM, Annual Maintenance	124th OCCM			NO
1600	Planned	Daily	1	Bay Equipments AMP	124th OCCM			YES
1600	Planned	Daily	1	Annual Maintenance in Bay equipemnt	124th OCCM			YES
1600	Planned	Daily	1	Replacement of Tandelta Violated CT at Samaguri Substation	124th OCCM			YES
1600	Planned	Continuous	10	Replacement of 400 KV OIP Bushings with RIP Bushing (reschedu	124th OCCM		Subject to availability of other reactors	NO
1600	Planned	Daily	1	Annual maintenance activities of ICT & Bays	124th OCCM			YES
2400	Planned	Continuous	40	To carry out Major Overhauling of the unit under the supervision of OEM M/s BHEL, Hyderabad	124th OCCM		Continuous Shutdown for 40days	YES
1600	Planned	Daily	1	For Preventive maintenance of EHV lines under 220KV Tinsukia GSS.	124th OCCM			Fdr 1 - NO , Fdr 2 - YES
1500	Planned	Daily	1	Pre-Puja Maintenance	124th OCCM			NO
1600	Planned	Daily	1	Bushing Tan Delta , Annual Maintenance , ICT shall be out of Service.	124th OCCM			NO
1600	Planned	Daily	1	Bay Equipments AMP	124th OCCM			YES
1500	Planned	Daily	1	Pre-Puja Maintenance	124th OCCM			YES
1100	Planned	Daily	1	Changeover of Units	124th OCCM			YES
1600	Planned	Daily	1	Annual maintenance activities in Bay (State line shall remain under S/D)	124th OCCM			YES
1600	Planned	Daily	1	Corridor cleaning, Jumper checking	124th OCCM			YES
1600	Planned	Daily	1	For shortening and tightening of jumpers at Loc. No.163 and217 res	124th OCCM			YES
1600	Planned	Daily	1	Bushinag Tandelta , Annual Maintenance , BR shall be out of Service.	124th OCCM		Subject to availability of other reactors	NO
1600	Planned	Daily	1	Bay Equipments AMP	124th OCCM			YES
1500	Planned	Daily	1	Pre-Puja Maintenance	124th OCCM			YES
1600	Planned	Daily	1	Bushinag Tandelta , Annual Maintenance , BR shall be out of Service.	124th OCCM		Subject to availability of other reactors	NO
1045	Planned	Daily	1	Bay Equipments AMP	124th OCCM			YES
1600	Planned	Daily	1	Annual maintenance activities	124th OCCM			NO
1600	Planned	Daily	1	For jungle clearing within ROW.	124th OCCM		Subject to availability of other ckts	YES
1600	Planned	Daily	1	Annual maintenance activities	124th OCCM			YES
1500	Planned	Daily	1	Pre-Puja Maintenance	124th OCCM			YES
1600	Planned	Daily	1	AMP of equipment (ICT Shutdown also required.)	124th OCCM			NO
2400	Planned	Continuous	6	To carry out cleaning of CT basin and CW sump which are common system for all the three STG units	124th OCCM			YES
1600	Planned	Daily	1	For repairing of conductor in between location no 92 to 93	124th OCCM			YES
1600	Planned	Daily	1	Annual Maintenance in Bay equipemnt and in line.	124th OCCM			YES
1600	Planned	Daily	1	Bushinag Tandelta , Winding Tan delta, Annual Maintenance , BR shall be out of Service.	124th OCCM		Subject to availability of other reactors	YES
1600	Planned	Daily	4	Trimming of trees along the line	124th OCCM			YES
1600	Planned	Daily	1	conductor replacement work Loc. No 29 - 30 in 'B' ph (33kV , 11kV	124th OCCM			NO
1500	Planned	Daily	1	Pre-Puja Maintenance	124th OCCM			YES
1500	Planned	Daily	1	Pre-Puja Maintenance	124th OCCM			YES
1500	Planned	Daily	1	Pre-Puja Maintenance	124th OCCM			YES
1600	Planned	Daily	1	Annual Maintenance in Bay equipemnt at Nagaland State S/S. (Res	124th OCCM			YES
1600	Planned	Daily	1	CT tandelta , Timing , Annual Maintenance	124th OCCM			YES
1600	Planned	Daily	1	Annual Maintenance in Bay equipemnt at Nagaland State S/S. (Res	124th OCCM			YES
1600	Planned	Daily	1	Annual Maintenance in Bay equipemnt at Mariani AEGCL.	124th OCCM			YES
1500	Planned	Daily	1	Pre-Puja Maintenance	124th OCCM			YES
1600	Planned	Daily	1	CT tandelta , Timing , CRM, Annual Maintenance	124th OCCM			NO
1600	Planned	Daily	1	Insulation replacement in crossing at Binaguri	124th OCCM		Subject to availability of other ckts	NO
1600	Planned	Daily	1	Annual Maintenance activities of Reactor & Bav Eauipment (50 MVAR Bus Reactor will be out of service)	124th OCCM			NO
1600	Planned	Daily	1	Insulation replacement in crossing at Binaguri	124th OCCM		Subject to availability of other ckts	NO
1600	Planned	Daily	1	Jungle clearance	124th OCCM			YES
1500	Planned	Daily	1	Pre-Puja Maintenance	124th OCCM			YES
1500	Planned	Daily	1	Pre-Puja Maintenance	124th OCCM			NO
1500	Planned	Daily	1	Pre-Puja Maintenance	124th OCCM			YES
1600	Planned	Daily	1	Jungle clearance	124th OCCM			YES
1600	Planned	Daily	1	Annual maintenance activities	124th OCCM			NO
1600	Planned	Daily	2	Maintenance Work	124th OCCM			YES

State-wise Transfer Capability

Import Capability

Study Scenario : October 2016

State	OFFPEAK Case			PEAK Case		
	Contingency & Limits	TTC	State Load & Generation in MW	Contingency & Limits	TTC	State Load & Generation in MW
Arunachal Pradesh	N-1 of 132/33 kV, 1x20 MVA Xfmr at Naharlagun, High loading of all other 132/33 kV Xfmrs within Arunachal Pradesh	170	Load: 170 & Generation: NIL	N-1 of 132/33 kV, 1x20 MVA Xfmr at Naharlagun, High loading of all other 132/33 kV Xfmrs within Arunachal Pradesh	170	Load: 170 & Generation: NIL
Assam	N-1 of 220/132 kV, 3x100 MVA Xfmrs at Sarusajai, High loading of other 2x100 MVA, 220/132 kV ICTs at Sarusajai	1621	Load: 1871 & Generation: 250	N-1 of 220/132 kV, 3x100 MVA Xfmrs at Sarusajai, High loading of other 2x100 MVA, 220/132 kV ICTs at Sarusajai	1552	Load: 1835 & Generation: 283

Import Capability

Study Scenario : October 2016

State	OFFPEAK Case			PEAK Case		
	Contingency & Limits	TTC	State Load & Generation in MW	Contingency & Limits	TTC	State Load & Generation in MW
Manipur	**N-1 of 132 kV Imphal (PG) - Imphal D/C lines;** **High loading of other circuit of 132 kV Imphal - Imphal D/C**	**240**	***Load: 260 & Loktak Gen: 103***	**N-1 of 132 kV Imphal (PG) - Imphal D/C lines;** **High loading of other circuit of 132 kV Imphal - Imphal D/C**	**268**	***Load: 268 & Loktak Gen: 106***
Megha-laya	**N-1 of 132 kV Byrnihat-Epip II D/C,** **High loading of other circuit of 132 kV Byrnihat - EPIP II D/C**	**217**	***Load: 455 & Generation: 238***	**N-1 of 132 kV Byrnihat-Epip II D/C,** **High loading of other circuit of 132 kV Byrnihat - EPIP II D/C**	**211**	***Load: 453 & Generation: 242***

Import Capability

Study Scenario : October 2016

State	OFFPEAK Case			PEAK Case		
	Contingency & Limits	TTC	State Load & Generation in MW	Contingency & Limits	TTC	State Load & Generation in MW
Mizoram	**N-1 of 132/33kV, 12.5 MVA Xfmr at Luangmual/ Zimabawk/ Serchip/ Lunglei/ Kolasib,** **High loading of other 132/33 kV Xfmrs within Mizoram**	**123**	***Load: 123 & Generation: 0***	**N-1 of 132/33kV, 12.5 MVA Xfmr at Luangmual/ Zimabawk/ Serchip/ Lunglei/ Kolasib ;** **High loading of other 132/33 kV Xfmrs within Mizoram**	**115**	***Load: 123 & Generation: 8***
Nagaland	**N-1 of 132/66 kV, 100 MVA ICT at Dimapur (Nagaland);** **High loading of 132/33 kV Xfmrs at Mokokchung and Kohima areas of Nagaland**	**69**	***Load: 88 & Generation: 19***	**N-1 of 132/66 kV, 100 MVA ICT at Dimapur (Nagaland),** **High loading of 132/33 kV Xfmrs at Mokokchung and Kohima areas of Nagaland**	**66**	***Load: 88 & Generation: 22***

Import Capability

Study Scenario : October 2016

State	OFFPEAK Case			PEAK Case		
	Contingency & Limits	TTC	State Load & Generation in MW	Contingency & Limits	TTC	State Load & Generation in MW
Tripura (inc. Bangladesh)	**N-1 of 132 kV Palatana - Surjamaninagar S/C;** **High loading of 132 kV Palatana - Udaipur S/C**	**205**	***Load: 288 & Generation: 79***	**N-1 of 132 kV Palatana - Surjamaninagar S/C;** **High loading of 132 kV Palatana - Udaipur S/C**	**210**	***Load: 294 & Generation: 84***

Remarks:

1) **Tripura generation mentioned above is not inclusive of generation from Monarchak.**
2) **In Manipur system, 132 kV Kongba - Kakching line is kept open.**
3) **In Meghalaya system, 132 kV NEHU - Umiam, 132 kV Mawlai - Mawngap, 132 kV Mawlai - Umiam1 are kept open**

State Subsystems Transfer Capability

Arunachal Pradesh

Study Scenario : October 2016

Import Capability

Subsystem	N-0			N-1		
	Limits	TTC	Subsystem Load & Generation	Contingency	TTC	Subsystem Load & Generation
Ziro	132/33 kV Xfmrs at Ziro, Daporizo, Along	38	Load: 38 MW	N-1 of 132/33 kV, 5 MVA Xfmrs at Daporizo	33	Load: 33 MW
Capital	132/33 kV Xfmrs at Naharlagun, Nirjuli	72	Load: 72 MW	N-1 of 132/33 kV, 20 MVA Xfmr at Naharlagun	58	Load: 58 MW
Khupi	132/33 kV Xfmrs at Khupi, Bhalukpong	45	Load: 45 MW	132/33 kV, 30 MVA Xfmr at Bhalukpong	18	Load: 18 MW
Deomali	132/33, 2x16 MVA Xfmrs at Deomali	29	Load: 29 MW	N-1 of 132/33 kV, 16 MVA Xfmr at Deomali	14	Load: 14 MW

Assam

Import Capability

Study Scenario : October 2016

Subsystem	N-0			N-1		
	Limits	TTC	Subsystem Load & Generation	Contingency	TTC	Subsystem Load & Generation
Dhaligaon	220/132 kV 160 MVA and 80 MVA Xfmrs at BTPS	248	Load: 248 MW	N-1 of 220/132 kV, 160 MVA Xfmr at BTPS; High Loading of 220/132 kV, 80 MVA Xfmr at BTPS	80	Load: 80 MW
Capital	220/132 kV, 3x100 MVA Xfmrs at Sarusajai & 220/33 kV, 2x50 MVA Xfmrs at JNagar	303	Load: 404 MW, Generation: 100 MW	N-1 of 220/132 kV, 3x100 MVA Xfmrs at Sarusajai High loading of other 220/132 kV, 3x100 MVA Xfmrs at Sarusajai	172	Load: 272 MW, Generation: 100 MW
Samaguri	220/132 kV, 100 MVA & 2x50 MVA Xfmrs at Samaguri	177	Load: 177 MW	N-1 of 220/132 kV, 100 MVA Xfmrs at Samaguri High loading of 2x50 MVA Xfmrs at Samaguri	92	Load: 92 MW

Assam

Import Capability

Study Scenario : October 2016

Subsystem	N-0			N-1		
	Limits	TTC	Subsystem Load & Generation	Contingency	TTC	Subsystem Load & Generation
Upper Assam	220/132 kV, 2x100 MVA Xfmrs at Mariani (AS) and several 132/33 kV & 66/33 kV Xfmrs	488	Load: 671 MW, Generation: 183 MW	N-1 of 220/132 kV, 2x100 MVA Xfmr at Mariani(AS); High loading of other 220/132 kV Xfmr at Mariani(AS)	308	Load: 491 MW, Generation: 183 MW
BNC, Pavoi, Gohpur & Depota	132 kV BiswanathChariali (PG) - Pavoi D/C	211	Load: 211 MW	N-1 of 132 kV BNC(PG) - Pavoi D/C; High loading of other circuit of 132 kV BNC(PG) - Pavoi D/C	86	Load: 86 MW
South Assam	132/33 kV Transformers at Dullavcherra, Panchgram, PanchgramOld, Srikona, Pailapool	193	Load: 193 MW	N-1 of 132/33 kV, 2x25 MVA Xfmrs at Panchgram / Srikona	170	Load: 170 MW

Manipur

Import Capability

Study Scenario : October 2016

Subsystem	N-0			N-1		
	Limits	TTC	Subsystem Load & Generation	Contingency	TTC	Subsystem Load & Generation
Capital	132/33 kV Xfmrs at Imphal (PG), Yurembam, Karong, Yaingangpokpi	257	*Load: 257 MW*	N-1 of 132 kV Imphal (PG) - Imphal D/C lines; High loading of other circuit of 132 kV Imphal - Imphal D/C	168	*Load: 168 MW*
Ningthou-kong	132 kV Loktak - Ningthoukong S/C	74	*Load: 74 MW*	N-1 of 132/33 kV Xfmr at Kakching / Churachandpur; High loading of other Xfmrs at Kakching,Churachandpur, Ningthoukhong	59	*Load: 59 MW*
Jiribam	132/33 kV Transformers at Jiribam, Rengpang	17	*Load: 17 MW*	N-1 of 132/33 kV, 12.5 MVA Transformer at Rengpang; High loading of 132/33 kV Transformers at Jiribam	5	*Load: 5 MW*

Meghalaya Import Capability Study Scenario : October 2016

Subsystem	N-0			N-1		
	Limits	TTC	Subsystem Load & Generation	Contingency	TTC	Subsystem Load & Generation
Khliehriat	132 kV Khliehriat - Mustem S/C	69	*Load: 204 MW, Gen: 135 MW*	N-1 of 132 kV Khliehriat - Mustem; High loading of 132 kV NEIGRIHMS – Khliehriat	33	*Load: 176 MW; Gen: 143*
Byrnihat	132 kV Byrnihat - EPIP-II D/C	154	*Load: 253 MW, Generation: 99 MW*	N-1 of 132 kV Byrnihat - EPIP-II D/C; High loading of other circuit of 132 kV Byrnihat - EPIP II D/C	79	*Load: 178 MW, Generation: 99 MW*
Nangal-bibra	132 kV Agia – Mendipather S/C	71	*Load: 71 MW*	N-1 of 132/33 kV, 20 MVA Xfmr at Mendipather;	65	*Load: 65 MW*

Mizoram

Import Capability

Study Scenario : October 2016

Subsystem	N-0			N-1		
	Limits	TTC	Subsystem Load & Generation	Contingency	TTC	Subsystem Load & Generation
Zimabawk	132 kV Aizawl - Zimbawk S/C	80	*Load: 80 MW*	N-1 of 132/33kV, 12.5 MVA Xfmr at Zimabawk/ Serchip/ Lunglei; High loading of other Xfmrs	70	*Load: 70 MW*
Luangmual	132/33 kV, 3x12.5 MVA Xfmrs at Luangmual	35	*Load: 35 MW*	N-1 of 132/33 kV, 3x12.5 MVA Xfmrs at Luangmual; High Loading of other Xfmr at Luangmual	23	*Load: 23 MW*
Kolasib	132/33 kV, 12.5 MVA & 132/11 kV, 12.5 MVA Xfmr at Kolasib	15	*Load: 23 MW, Generation: 8 MW*	N-1 of 132/33 kV 12.5 MVA Xfmr at Kolasib; High Loading of other Xfmr at Kolasib	3	*Load: 11 MW, Generation: 8 MW*

Nagaland

Study Scenario : October 2016

Import Capability

Subsystem	N-0			N-1		
	Limits	TTC	Subsystem Load & Generation	Contingency	TTC	Subsystem Load & Generation
Dimapur	132/66 kV, 100 MVA Xfmr at Dimapur (Nagaland)	95	*Load: 95 MW*	N-1 of 132/33 kV, 20 MVA Xfmrs at Dimapur / Chumukedima	78	*Load: 78 MW*
Capital	132/33 kV Xfmrs at Kohima, Meluri and 66/33 kV Xfmr at Khipire	25	*Load: 47 MW, Generation: 22 MW*	N-1 of 132/33 kV 12.5 MVA Xfmr at Meluri	14	*Load: 36 MW, Generation: 22 MW*
Mokok-chung	132/66 kV, 2x25 MVA Xfmrs at Mokokchung (Nagaland)	45	*Load: 45 MW*	N-1 of 132/66 kV, 2x25 MVA Xfmrs at Mokokchung (Nagaland)	24	*Load: 24 MW*

Tripura

Study Scenario : October 2016

Import Capability

Subsystem	N-0			N-1		
	Limits	TTC	Subsystem Load & Generation	Contingency	TTC	Subsystem Load & Generation
Udaipur	132/66 kV Xfmrs at Udaipur	17	*Load: 20 MW, Generation: 3 MW*	N-1 of 132/66 kV, 15 MVA Transfomer at Udaipur	5	*Load: 8 MW, Generation: 3 MW*
Capital & Other areas (including Bangladesh)	400/132 kV Palatana ICT-I	259	*Load: 340 MW, Generation: 81 MW*	N-1 of 132 kV Palatana - Surjamaninagar S/C; High loading of 132 kV Palatana - Udaipur S/C	193	*Load: 274 MW, Generation: 81 MW*

Remarks:

1) In Manipur system, 132 kV Kongba - Yaingangpokpi line is kept open.
2) In Meghalaya system, 132 kV NEHU - Umiam, 132 kV Mawlai - Mawngap, 132 kV Mawlai - Umiam1 are kept open

Group of Control Areas Transfer Capability

Southern Part of NER Grid (Import)

Study Scenario : October 2016

N-0			N-1			N-1-1		
Limits	**TTC**	**Load-Generation in MW**	**Contingency & Limits**	**TTC**	**Load-Generation in MW**	**Contingency & Limits**	**TTC**	**Load-Generation in MW**
400/132 kV, 1x125 MVA ICT at Palatana	**405**	***Load: 864, Loktak: 106, Monarchak: Nil, AGTPP: 108, Tripura: 83***	**N-1 of 400/132 kV, 2x200 MVA ICTs at Silchar (PG)**	**360**	***Load: 799, Loktak: 106, Monarchak: Nil, AGTPP: 108, Tripura: 83***	**N-1-1 of 400/132 kV, 2x200 MVA ICTs at Silchar (PG)**	**235**	***Load: 604, Loktak: 106, Monarchak: Nil, AGTPP: 108, Tripura: 83***

Remarks:

In Study of Import Capability of Southern Part of NER, axis has been considered from 400/132 kV Silchar ICT, 400/132 kV Palatana ICT, 132 kV Khliehriat - Badarpur S/C, 132 kV Haflong - Jiribam S/C, 132 kV Dimapur - Imphal S/C, ; thus NOT including generation from Palatana

Southern Part of NER Grid (Export)

Study Scenario : October 2016

N-0			N-1			N-1-1		
Limits	**TTC**	**Load-Generation in MW**	**Contingency & Limits**	**TTC**	**Load-Generation in MW**	**Contingency & Limits**	**TTC**	**Load-Generation in MW**
No limits	**-**	**-**	**N-1 of 400 kV Silchar - Byrnihat S/C**	**840**	***Load: 165, Gen: 1120; Palatana: 700, Loktak: 106, Monarchak: Nil, AGTPP: 130, Tripura: 83***	**N-1-1 of 400 kV Silchar - Byrnihat and 400 kV Silchar - Azara S/C**	**175**	***Load: 623, Palatana: 480, Loktak: 106, Monarchak: Nil, AGTPP: 130, Tripura: 83***

Remarks:

In Study of Export Capability of Southern Part of NER, axis has been considered from 400 kV Silchar - Byrnihat S/C, 400 kV Silchar - Azara S/C, 132 kV Khliehriat - Badarpur S/C, 132 kV Haflong - Jiribam S/C, 132 kV Dimapur - Imphal S/C, ; thus including generation from Palatana

Generation Projection (Oct'16 - Dec'16)

				Generation declared Commercial from 1st Jan '16 to 30th June '16					Generation declared/expected to be declared Commercial from 1st July'16 to 30th Sep'16								
Sl. No.	Entities	Region	Projections based on 3 Years Data	Bus Name	Unit No.	Installed Capacity	Gen. considered	Sub Total	Bus Name	Unit No.	Installed Capacity	Gen. considered	Sub Total	TOTAL	Comments From DICs /Others (if any)	Figure as per Comments/PoC Data	Projected Generation before normalization w.r.t projected All India Peak Demand
			(MW)			(MW)	(MW)	(MW)			(MW)	(MW)	(MW)	(MW)			(MW)
1	AGTPP, NEEPCO	NER	91											91	As per NEEPCO	78	78
2	AGTPP Extn.	NER		AGTPP Extn	1	46	13	13						13		46	46
3	Doyang, NEEPCO	NER	66											66		54	54
4	Kopili, NEEPCO	NER	207											207		213	213
5	Khandong, NEEPCO	NER	58											58		36	36
6	Ranganadi, NEEPCO	NER	407											407		401	401
7	AGBPP_Kathalguri	NER	233											233		220	220
8	TGBP	NER		TGBP	1	65	18	18						18		65	65
9	Loktak, NHPC	NER	105											105	As per NHPC	105	105
10	Palatana GBPP	NER	490											490	As per OTPC	529	529
11	Bongaigaon_NTPC	NER		Bongaigaon_NTPC	1	250	161	161						161			161
12	Arunachal Pradesh	NER	0											0			0
13	Assam	NER	344											344			344
14	Manipur	NER	0											0			0
15	Meghalaya	NER	229	Meghalaya Power Limited	2	45	29	29						259			259
16	Nagaland	NER	17											17			17
17	Tripura	NER	105											105			105
18	Mizoram	NER	6											6			6
	TOTAL		**2357**					**221**					**0**	**2578**			**2639**

Note:

1. Projections are based on monthly maximum injection in the last 3 years from actual metered data.
2. Generation forecast has been done based on the following criteria
(i) If there is an increasing trend then last year average generation has been considered
(ii) Otherwise average of past three year average generation has been considered
3. In case of new generators where past data was not available following has been assumed
(i) 0.8 plf for hydro generators
(ii) 0.7 plf for thermal generators.
(iii) 0.3 plf for gas stations
4. In case of the re-organized states of Andhra Pradesh and Telangana Generation is divided in the ratio 53.89% for Telangana and 46.11% for Andhra Pradesh for FY 2012-13 and 2013-14.
This is as per letter No.CE/COMML./APPCC/DE-COMML/POC-DATA-15-16/D.No/15 dtd. 09.10.15 as received from APTRANSCO.

DEMAND FORECAST USING PAST 3 YEARS DATA October 2016 - December 2016)

	2013-14			2014-15			2015-16			1	2	3	4	Data given by DICs
	Oct-13	Nov-13	Dec-13	Oct-14	Nov-14	Dec-14	Oct-15	Nov-15	Dec-15	2013-14 Average	2014-15 Average	2015-16 Average	Projected Demand for (October 2016 - Dec2016) before normalization	
Arunachal Pradesh	113	120	124	126	116	117	125	118	132	119	120	125	127	
Assam	1,220	1,155	1,065	1,257	1,250	1,204	1,329	1,378	1,312	1,147	1,237	1,340	1,434	
Manipur	111	123	129	134	138	139	146	163	167	121	137	159	177	
Meghalaya	276	298	312	273	338	367	322	335	348	295	326	335	358	
Mizoram	60	65	79	80	80	86	81	89	96	68	82	89	100	
Nagaland	99	96	104	118	115	123	119	120	138	100	119	126	141	
Tripura	250	207	191	266	222	210	269	242	221	216	233	244	259	
N. Eastern Region	2,048	1,966	1,890	2,141	2,125	2,170	2,301	2,352	2,320					

Notes

1. Projections are based on the past 3 years' monthly Peak Demand Met data available on the website of CEA
2. The above projections are being done for financial year 2016-2017 (Q3) i.e Oct 2016 to Dec 2016
3. Projections are being done based on the forecast function available in MS Office Excel
4. In case of the re-organized states of Andhra Pradesh and Telangana Maximum Demand is divided in the ratio 53.89% for Telangana and 46.11% for Andhra Pradesh for FY 2012-13 and 2013-14.
This is as per letter No.CE/COMML./APPCC/DE-COMML/POC-DATA-15-16/D.No/15 dtd. 09.10.15 as received from APTRANSCO.
4. CEA Reports can be accessed from the following links:

http://www.cea.nic.in/reports/monthly/powersupply/2015/psp_peak-12.pdf
http://www.cea.nic.in/reports/monthly/powersupply/2015/psp_peak-11.pdf
http://www.cea.nic.in/reports/monthly/powersupply/2015/psp_peak-10.pdf
http://www.cea.nic.in/reports/monthly/gm_div_rep/power_supply_position_rep/peak/Peak_2014_12.pdf
http://www.cea.nic.in/reports/monthly/gm_div_rep/power_supply_position_rep/peak/Peak_2014_11.pdf
http://www.cea.nic.in/reports/monthly/gm_div_rep/power_supply_position_rep/peak/Peak_2014_10.pdf
http://www.cea.nic.in/reports/monthly/gm_div_rep/power_supply_position_rep/peak/Peak_2013_12.pdf
http://www.cea.nic.in/reports/monthly/gm_div_rep/power_supply_position_rep/peak/Peak_2013_11.pdf
http://www.cea.nic.in/reports/monthly/gm_div_rep/power_supply_position_rep/peak/Peak_2013_10.pdf

NORTH EAST TRANSMISSION COMPANY LIMITED

Date: 06.09.16

Sub: Proposal for changing over of foundation form open cast foundation to pile foundation at location No. 1026, anchor tower at Brahmaputra River crossing in right bank near Jogighopa, Goalpara, Assam.

A) Introduction:

1.0 400 kV D/C transmission system from Palatana to Silchar and from Silchar to Bongaigaon was envisaged for evacuation of power from 726.6 MW capacity Combined Cycle Gas Turbine Power Project situated at Palatana, Udaipur, Tripura. The survey of the line was carried out during 2005-06. The length of the line is 663 km. The different components of the transmission system were commissioned from 2012-2015.

2.0 In the state of Assam the line is crossing Brahmaputra River near at Jogighopa, Goalpara, Assam. The section length of river crossing stretch is 2.54 Km with 5 Nos. towers. 2Nos. river crossing towers were installed over well foundations, 1 No. over pile foundation and 2 Nos. anchor towers are at both the ends on open foundations. The pile foundation location No. 41/0 (final location No. 1025) was 32 m away from the bank edge and anchor tower location no 40B/0(final location no 1026) was 137 mtrs away from river bank edge during 2010. As the location was far away from the river bank open type foundation with 3 m depth has been casted.

3.0 Brahmaputra river near the port area of IWAI has converged due to presence of Jogighopa hill on right bank and Pancharatna hill on left bank. There are 2 No. parallel transmission lines very close to the port area and parallel to Pancharatna railway cum motor bridge. There is guide bund on right bank area for protection of bridge. These developments are causing disturbances to hormal flow of the river.

B) IWAI Port and DGPS Station:

1.0 Before taking up construction work, approval for lying of the transmission line across Brahmaputra River was obtained from Inland Water Authority of India, Noida. Uttar Pradesh vide letter No. IWAI/PR/2/Nav.cl/2007, dated 15.01.2010 and copy enclosed (**Annexure-I**).

2.0 IWAI is monitoring various behavioral parameters of Brahmaputra River including the shifting of main course of the river with passage of time. In port area near Jogighopa hill huge erosion is taking place since few years ago after construction of line.

3.0 Thereafter expert team of IWAI and Water Resource Dept., Govt. of Assam visited the area to find out ways and means to control the erosion of land mass of port area. Pro-siltation and channelization work on upstream side have been carried out to deflect the flow from right bank and additionally bank protection was also provided to around 600 mtrs from Jogighopa hill side to tower location No. 1025. Bank shifting details is enclosed **(Annexure-II&II-a).**

C) Present Condition of Location no 1026:

1.0 The only unprotected area in right bank is around 400 mtrs from location No. 1025 (pile foundation location) to Guide bank of Pancharatna Bridge. This area is used for shipment of consignment including unloading of over dimensional cargo (ODC). In this area there is continuous erosion of bank and the distance between bank and tower (1026) is reducing continuously. Flow of water enters towards Loc.1026 and now river bank is around 40 mtrs from the location which was 137 mtrs during 2010. During this year this location was under river water.

2.0 Moreover, for unloading of Over Dimensional Cargos a channel has been prepared in between Loc. 1025 and Loc.1026 and as on date water has reached about 10 mtrs from Loc.1026 which was around 14 mtrs during the month of May 2016. This ramp is very close to two legs of tower and erosion of land mass is going on continuously. Sketch and photographs may please be seen (**Annexure-III & III-a**).

D) Justification for pile foundation:

Any further shifting of bank line or formation of any whirl pool in this area may cause problem to the stability of tower No. 1026. Inland Waterways Authority of India has also suggested to shift the tower to a safer location.

Under the above circumstances, it is proposed to shift tower at Loc.1026 on a suitable pile foundation for problem free performance and safety of the line. This location has suddenly become very critical and NETC want to complete the shifting work by April 2017.

E) Cost Estimate:

Estimated cost is around 17.3 crore including cost of pile foundation, de-erection and erection. Detailing has been carried out for pile foundation and cost is coming to be 16.3 crore without soil investigation. In addition to the above for de-erection, erection work lump sum 1 crore has been considered. Detailed cost estimate for pile work is enclosed (**Annexure- IV**).

Submitted for recommendation of the committee for recovery of above cost before CEA and CERC.

Yours faithfully

06/9/16.

(NAROTTAM CHAKRABORTY)
Assistant Manager-Projects
House No.-112, Birubari, Guwahati-16
Email: narottamchakraborty@netcindia.in

Annexure -I

भारतीय अन्तर्देशीय जलमार्ग प्राधिकरण

(पोत परिवहन मंत्रालय, भारत सरकार)

मुख्यालय: ए–13, सैक्टर–1, नोएडा–201 301 (उ.प्र.)

INLAND WATERWAYS AUTHORITY OF INDIA

(Ministry of Shipping, Govt. of India)

Head Office : A-13, Sector-1, Noida-201 301 (U.P.)

Tele: Code-95120 - 2544036, 2521684, 2522798, 2521724 Fax : 2544009, 2544041, 2543973, 2521764

No. IWAI/PR/2/Nav.cl/2007

Date: 15.1.2010

To
The Director (Projects)
North East Transmission Company Ltd.
1st Floor, Ambiance Corporate Tower
Ambience Mall, Ambience Island,
NH-8 Highway, Near Toll Plaza
Gurgaon - 122 001

Kind Attn : Shri R.K. Vohra, Director (Projects)

Sub : 400 KV D/C Palatana-Bongaigaon Transmission line. Navigational Clearance for laying of transmission line over river Brahmaputra (NW-2) upstream of Narnarayan Setu at Jogighopa being developed by North East Transmission Company.

Ref :
1. NETCPL letter no. NIL dated 19.1.2009 addressed to Director, IWAI, Guwahati
2. IWAI, Guwahati letter no. IWAI/Ghy/3(20)/NVCL/2007-08 dated 27.4.2009
3. IWAI OM no. IWAI/PR/2/Nav.cl/2007 dated 27.7.2009
4. Minutes of Meeting dated 24.8.2009 of the Committee at Jogighopa
5. NETC Ltd. letter no. Nil dated 15.10.2009 addressed to Member (Cargo), IWAI
6. NETC Ltd. letter no. Nil dated 17.11.2009
7. NETC letter no. nil dated 7.1.2010

Sir,

Please refer to above letters and the application dated 17.11.2009 requesting clearance for the construction of 400 KV D/C Palatana-Bongaigaon Transmission line and crossing of transmission line over river Brahmaputra (NW-2) upstream of Naranarayan Setu at Jogighopa and your letter dated 15.10.2009 requesting permission for use of IWAI land at Jogighopa IWT terminal for erection of two transmission towers and crossing of conductors.

2. In this regard it is to inform that river Brahmaputra between Dhubri and Sadiya has been declared as National Waterway no. 2 (NW-2) and stretch from Bangladesh border to Dibrugarh of NW-2 has been classified under 'Class VII' of National Waterway as per Gazette "Inland Waterways Authority of India (Classification of Inland Waterways in India) Regulation, 2006". A copy of OM No. IWAI/PL-NW-3/9/98-Vol-I dated 27.8.2007 issued by IWAI is enclosed for your reference and necessary action please.

3. With reference to your application seeking clearance for the construction of 400 KV D/C Palatana-Bongaigaon Transmission line and crossing of transmission line over river Brahmaputra (NW-2) upstream of Naranarayan Setu at Jogighopa, I am directed to inform you that this Authority has no objection for construction of the transmission line across NW-2 with

contd.....2

minimum vertical clearances of 22.00 meter between high flood level (HFL) and the bottom of the conductor and a horizontal clearance of minimum 1000 meters between any two transmission towers within the river portion and 723 m from the bank line at Jogighopa terminal and 565 m from the bank line at Pancharatna side (opposite bank of Jogighopa).

4. Further, you are permitted for erection of two numbers of transmission towers on the land available with this Authority for the purpose of development of inland water transport terminal with the following conditions:

(i) Only two numbers of transmission towers (AP-41/0 and AP-40B as per the coordinates and plan indicated in the drawings submitted by NETC Ltd) are permitted within the IWT terminal land at Jogighopa for which NETC Ltd can use land area of 30 m x 30 m for construction of transmission tower AP-41/0 and 28 m x 28 m for construction of transmission tower AP-40B. Transmission towers shall be sufficiently fenced by NETC Ltd for safety.

(ii) Tower AP 41/0 shall be minimum 32.00 meter away from the bank line and therefore the foreland shall be available to be used for jetty platform and vehicular movement, etc in future without any restriction.

(iii) NETC Ltd or any other statutory authority will not put any restriction in future on use of IWAI land which is falling under the above mentioned transmission line for development of IWT terminal, loaded vehicular movement, storage of cargo etc.

(iv) NETC Ltd. shall also not erect any other temporary or permanent structure within the permitted area.

(v) In case of requirement of the above land in future use by IWAI for important terminal purpose NETC Ltd will shift the tower at their cost to a location which is not causing any obstruction to IWAI activity.

(vi) At the time of construction of tower, position of the tower is to be fixed jointly by IWAI officials and NETC Ltd officials.

(vii) All expenditure for construction and maintenance of the transmission towers and safety provisions shall be made by NETC Ltd.

This issues with the approval of the Vice Chairman, IWAI.

Yours faithfully

(S.S. Pandian)
Chief Engineer

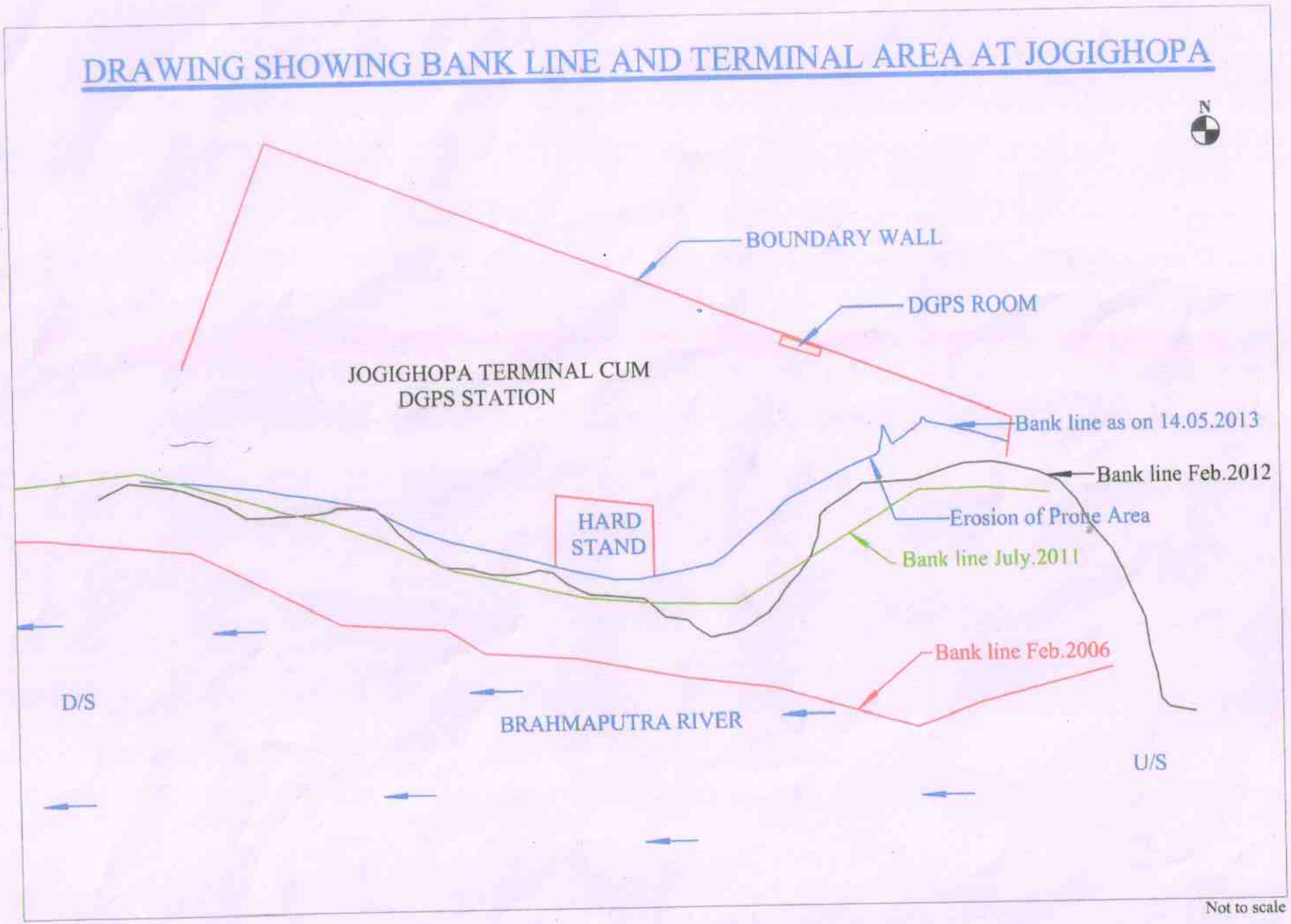
Encl : (i) IWAI OM no. IWAI/PL-NW-3/9/98-Vol-I dated 27.08.2007
(ii) Route alignment drawing.

Copy for information and necessary action to :

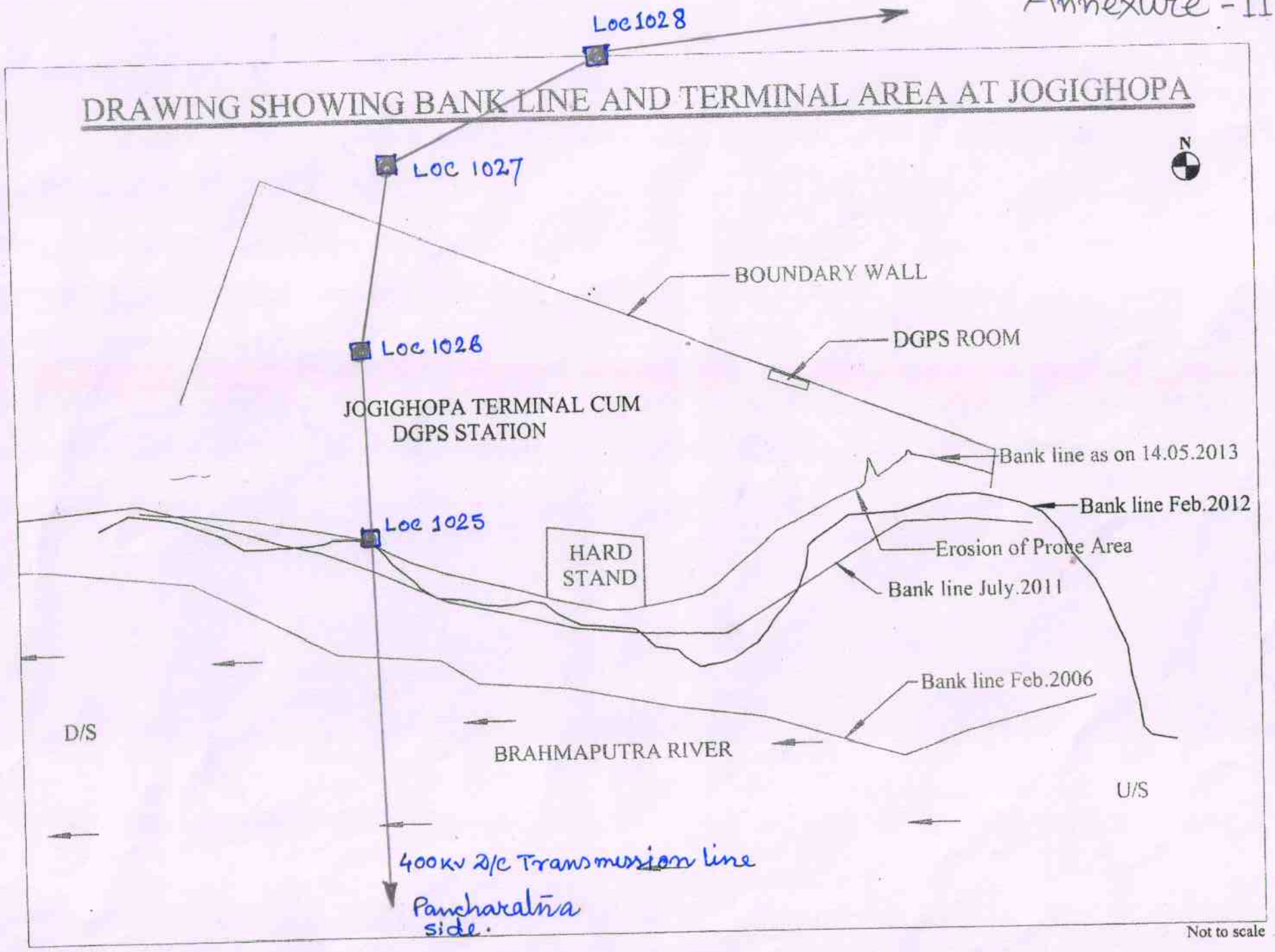
1. Director, IWAI, 5th Floor Parmeshwari Building, Chatribari, A.T. Road, Guwahati-1
2. Hydrographic Chief, IWAI, Noida

Annexure - II

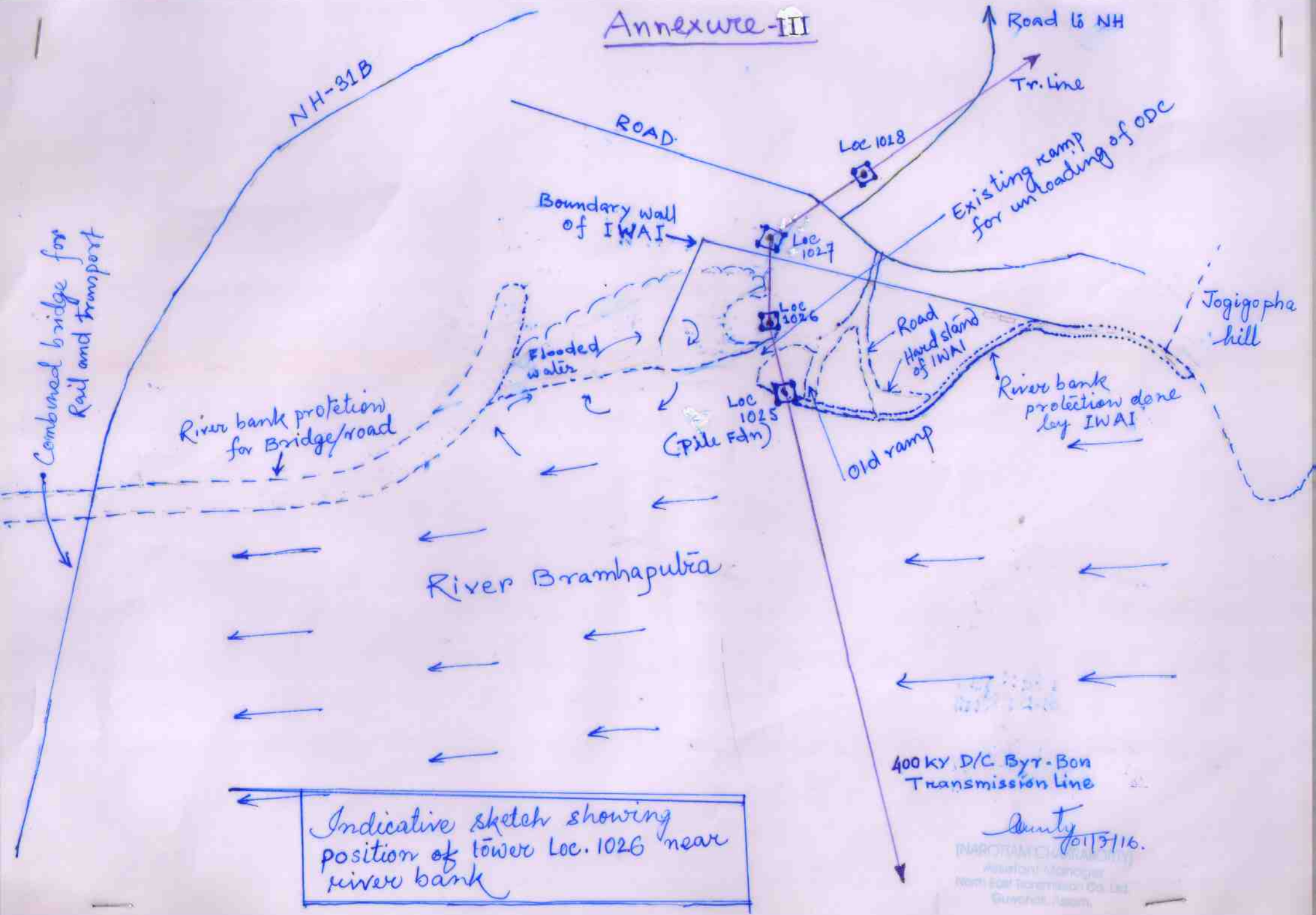
DRAWING SHOWING BANK LINE AND TERMINAL AREA AT JOGIGHOPA



Annexure - II (a)



Annexure-III



Indicative sketch showing position of tower Loc. 1026 near river bank

01/3/16.

Photographs of the location 1026

Annexure-III(a)