

North Eastern Regional Power Committee

Agenda

For

125th OCC Sub-Committee Meeting

Time of meeting : 10:00 Hrs.

Date of meeting : 14th September, 2016 (Wednesday)

Venue : "Hotel Nandan", Guwahati.

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 8th August, 2016 at Guwahati were circulated vide letter No. NERPC/SE (O)/OCC/2016/4556-4591 dated 24th August, 2016.

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

ITEMS FOR DISCUSSION

B. 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

States	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
	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

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States	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
	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

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

C. OLD ITEMS

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

During 125th OCC meeting, the statuses as informed by different beneficiaries are as follows:

SN	Items	Status as given in 125 th OCC Meeting	Status as given in 124 th 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.

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2	400/220kV, 2x315 MVA ICT of NTPC at Bongaigaon		October, 2016.
3	Trial operation and CoD 36MW STG of Monarchak GBPP of NEEPCO		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.
5	Pare HEP of NEEPCO (2 x 55 MW)		June, 2017
6	400 kV D/C Silchar - Melriat line of PGCIL		March, 2017.
7	220kV Rangia - Salakati of AEGCL		December, 2016.
8	132kV Monarchak – Surjamaninagar D/C of TSECL		December, 2016.
9	400/132 kV, 2nd 125 MVA ICT at Pallatana		September 2016.
10	132kV Pasighat – Aalong of Ar. Pradesh		December, 2016
11	132kV Doyang- Wokha		October, 2016.
12	220 kV, 20 MVAR Bus Reactor& bay at AGBPP		31.08.2016
13	132kV Surjamaninagar Bay at OTPC		December, 2016. LOA completed.
14	400kV D/C Balipara – Kameng of Ar. Pradesh		December 2016.
15	RHEP 80 MVAR Bus Reactor		Referred to next SCM of CEA.
16	SLDCs (Ar. Pradesh, Manipur, Mizoram, Nagaland)		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

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18	220/132 kV, 2x160 MVA ICTs at Balipara		By 31 st August 2017.
19	220/132 kV, 1x160 MVA ICT with GIS Bay at Kopili		By 31 st August 2017.
20	400/132 kV, 1x315 MVA ICT-III at Silchar		December, 2017.
21	Replacement of 2x315 MVA ICTs with 2x500 MVA ICTs at Misa (PG)		December, 2017.
22	400 kV Silchar – Misa D/C		Under TBCB
23	1x125 MVAR Bus Reactor at 400 kV Bongaigoan		December, 2017.
24	1x125 MVAR Bus Reactor at 400 kV Balipara		December, 2017.
25	Bays at Hailakandi		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		Forum suggested to MePTCL that winding is to be bought and reactor be repaired at site by selected vendor.
27	Up-gradation of 132 kV Lumshnong-Panchgram line		Line survey work deferred due to bad weather.
28	Switchable line Reactors at 400kV Balipara & Bongaigoan		Balipara - Sept'16 Bongaigaon - Dec'16.
29	PLCC Panels at Loktak end of Loktak – Ningthoukhong 132 kV feeder and Loktak - Rengpang 132 kV feeder		August 2016
30	LILO of 132kV Ranganadi – Nirjuli at Pare of NEEPCO by PGCIL		August 2016

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31	LILO of 132kV Ranganadi – Itanagar (Chimpu) at Pare of Ar. Pradesh		March 2017
32	400KV 80MVAR Bus Reactor at OTPC Palatana		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.

Concerned constituents may kindly intimate the status.

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

The latest status as informed in 124th 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- to be informed
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.

NEEPCO, NHPC, NERTS & NERLDC may kindly intimate the status and members may deliberate.

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.

Latest status of approval of these documents from OCC forum of NERPC is as follow:-

SI 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

NERLDC/NERPC may kindly update the status.

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

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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 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

Members may please discuss.

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	405	405	405	405	400	405
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	415	425	430	430	425	420
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

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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	223	223	223	220	223
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	228	234	237	237	234	231
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

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In 122nd OCC meeting, S.E.(O) informed that CEA has been requested to incorporate 100 MW Bangladesh drawal in LGBR 2016-17.

It was also noted by the 123rd OCC forum that one additional column may be added to above tables to monitor monthly actual versus forecast to bring in accuracy in the forecast.

A comparison of demand for the month of June and July 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

Members may please discuss.

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 5 th , 10 th & 15 th 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.

NEEPCO, NHPC may kindly intimate the status.

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 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.

NERPC had written letter to CERC vide. NERPC/OP/2016 dated 24.08.2016 requesting for extension in deadline for implementation of ADMS in NER.

All concerned utilities, POWERGRID, NERLDC/NERPC may kindly intimate the status.

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 previously.

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.

NERLDC may please deliberate.

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.

In 124th OCCM, it was decided that states would intimate CEA & NERPC about retired units and plants at the earliest.

NERLDC/NEEPCO/Utilities may please intimate the status.

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 ISGSof NER & SLDCs of NER on 9th March, 2016. OTPC has already submitted the details.

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.

The status as informed in 124th 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	Not Furnished
Loktak	Not furnished
AEGCL	Only for LTPS & NTPS furnished.
Meghalaya	Furnished
Tripura	Furnished
Mizoram	Not Furnished
Nagaland	Not Furnished

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

NERLDC may please intimate the status.

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.

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

All concerned utilities may please intimate the status.

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

In 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.

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.

NERTS may please intimate the status.

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				
Kopili				
Kopili-II				
Ranganadi			Subject to inflow	
Doyang				
Loktak				
AGBPP	-	-	-	-
AGTPP	-	-	-	-

Hydro planning

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

The Committee may discuss and approve the proposed shutdown by Generating Stations as given in Annexure - D.2 below.

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).

The sub-Committee may kindly discuss and approve the transmission line outages proposed by Constituents for August, 2016 - September, 2016 at Annexure- D.2. which is available in the 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.

Members may please discuss.

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).

Members may please submit necessary data for Q4 (2016-17).

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.

NERLDC may kindly deliberate on this issue.

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 had been circulated.

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

Agenda for 125th OCC Meeting to be held on 14th September, 2016 and send the same to NERLDC at rtdnerldc@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 124th OCCM, 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 by 15th of every month.

All state utilities, NERLDC may please intimate the status.

D.7 Installation of spare Transformers in NER:

On up-gradation of 132/33kV Nirjuli (PG) Sub Station with 2X50MVA 132/33kV ICT, one of 16MVA 132/33kV ICT (Siemens) & one no. of 10MVA 132/33kV ICT (Andre Yule) has been taken out of service and the same will not be utilized as spare for against POWERGRID asset. However, during discussions held in 122-123rd OCC meetings and 29th CCM; the NER constituents opined and agreed to convert the 16MVA & 10MVA ICT as Regional Spare for the constituents. However, modalities for utilizing the transformers by constituents in terms of exigency, requisition process, transportation, dismantling, erection & maintenance philosophy & other NORMs etc. has not yet been finalized.

In 124th OCCM, as 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.

Hence, it is proposed that the OCC forum may deliver the issue and finalize modalities.

Members may like to discuss.

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 124th OCCM, 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.

NERLDC/AEGCL may please deliberate.

D.9 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 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.

All the utilities may please inform the status.

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

ERPC 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 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.

NERPC may please inform the status.

D.11 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.

All state utilities/NERLDC may please inform the status.

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

As per recommendation of enquiry Committee, the status of installation of UFR in NER was already circulated earlier. It is gathered that, 18.5 MW quantum is yet to be implemented in Arunachal Pradesh & 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.

NERPC/NERLDC may please inform the status.

D.13 Updation of SPS Document of NER Grid:

NERLDC is preparing SPS Document of NER Grid. The draft SPS Document was 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.

In 124th OCC meeting, 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.

The 12th System Studies sub-group meeting was convened on 30.08.2016 and the revised SPS document has been mailed to all concerned for comments.

NERLDC may please inform the status.

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 124th OCC forum 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 as given below:

Generating Station	Plant having Black Start Facility.				Plants without Black Start Facility.	
	Time Required if Grid power made available		Time Required if Grid power made available		Time Required after Grid power is made available	
	Cold Start	Warm Start	Cold Start	Warm Start	Cold Start	Warm Start
AGBPP						
AGTPP						
BgTPP						
Doyang						
Palatana						
Kopili						
Khandong						
Ranganadi						
Leshka						
Loktak						
Nomrup						
Karbi-Langpi						
Monarchak						

Umiam						
Umtru						
Likimro						
Bairabi						
Gumti						
Serlui						
Baramura						
Rokhia						
LTPS						

NERLDC may please deliberate.

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, 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.

NERLDC may please intimate the status.

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.

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 types 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 124th OCC meeting, 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.

All generating utilities, NERLDC may please inform the status.

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.

In 124th OCC meeting, 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.

Members may provide their valuable comments.

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 NLDC/NERLDC may conduct studies by WebNet software and inform the members of load flow patterns in 123rd OCC.

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

NERLDC/MeECL may please intimate the details.

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 Dimapur (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 OCC meeting, DGM(AM), NERTS informed that the outage of 132kV Dimapur-Dimapur is due to GIS switchgear unavailability for Dim-Kohima. 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.

For deliberation and necessary action of members, NEEPCO, POWERGRID and Nagaland are requested to provide the latest status.

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 minutes 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 the 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.

In Sub-Group meeting Sr. Manager, NERLDC informed that PSS tuning for DHEP has been commissioned. DGM(SO-II), NERLDC requested NEEPCO and other generating companies to inform NERLDC about the stations where PSS has been put into service.

For deliberation and necessary action of members.

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.

NERTS may please deliberate.

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 & 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, require rectification to avoid such events of tripping.

DGM(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 please 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.

TSECL, NEEPCO, NERLDC may please deliberate.

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 NERLDC at its website.

In 124th OCC meeting, 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.

NERLDC may please inform the status.

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.

Members may deliberate.

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.

Members may deliberate.

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

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 be any problem while entering the data.

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

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.

Constituents are requested to please deliberate

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.

Members may please deliberate.

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.

PGCIL may please deliberate.

AGENDA ITEMS FROM AEGCL:

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

AEGCL may please deliberate.

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.

NTPC may please deliberate.

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.

NETC may please deliberate.

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.

DoP Ar. Pradesh may please inform the status.

Any other item:

Date and Venue of next OCC

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

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_NT PC	NER		Bongaigaon_NT PC	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 normal 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



(NAROTTAM CHAKRABORTY)

Assistant Manager-Projects

House No.-112, Birubari, Guwahati-16

Email: narottamchakraborty@netcindia.in



भारतीय अन्तर्देशीय जलमार्ग प्राधिकरण

(पोत परिवहन मंत्रालय, भारत सरकार)

मुख्यालय: ए-13, सेक्टर-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

Date: 15.1.2010

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

To
The Director (Projects)
North East Transmission Company Ltd.
1st Floor, Ambience 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 Naranarayan 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

M. Das

contd.....2

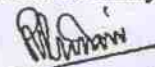
minimum vertical clearances of 22.00 meter between high flood level (HFL) and the bottom of the conductor and a horizontal clearance of minimum 1000 meters between any two transmission towers within the river portion and 723 m from the bank line at Jogighopa terminal and 565 m from the bank line at Pancharatna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

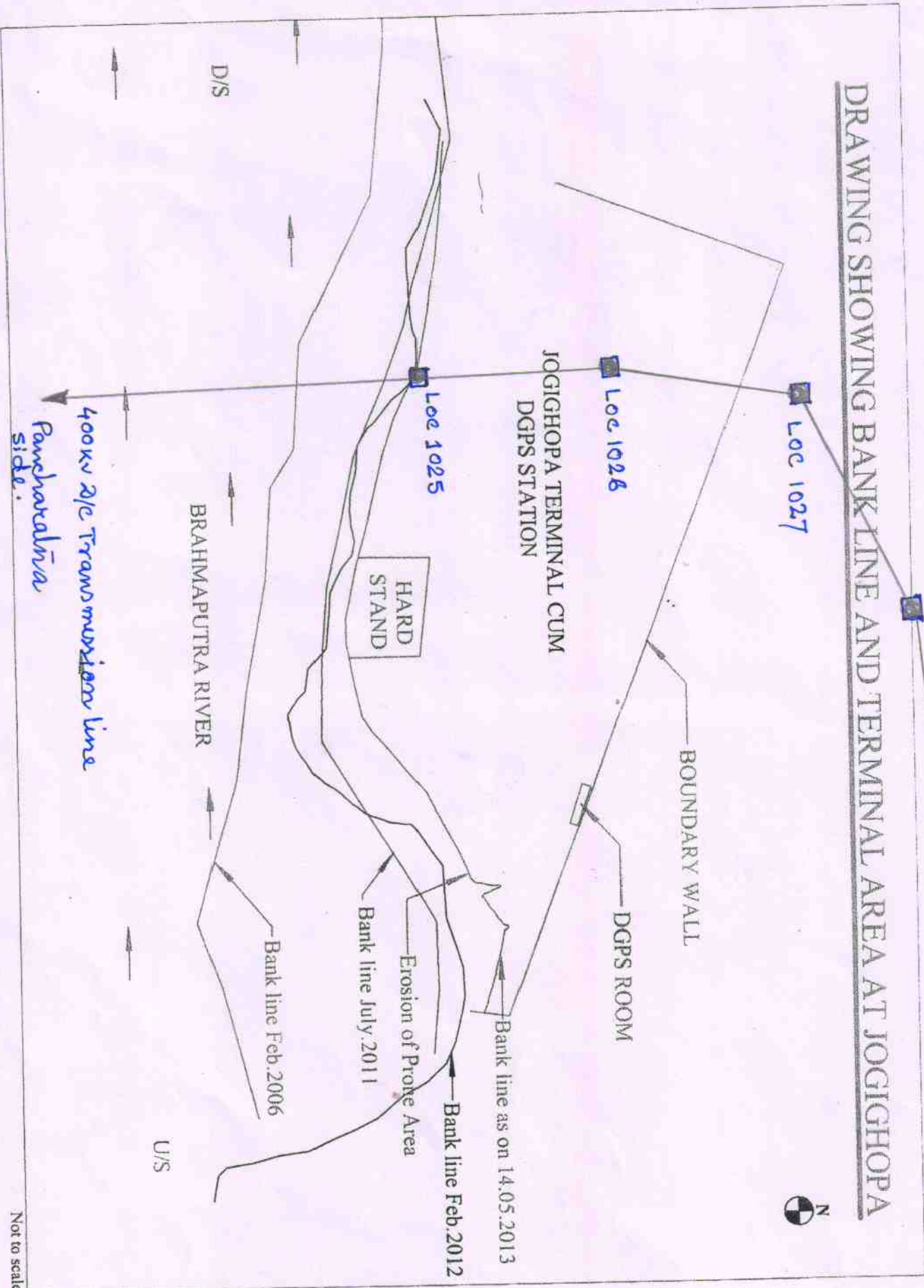
Copy for information and necessary action to :

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

DRAWING SHOWING BANK LINE AND TERMINAL AREA AT JOGIGHOPA

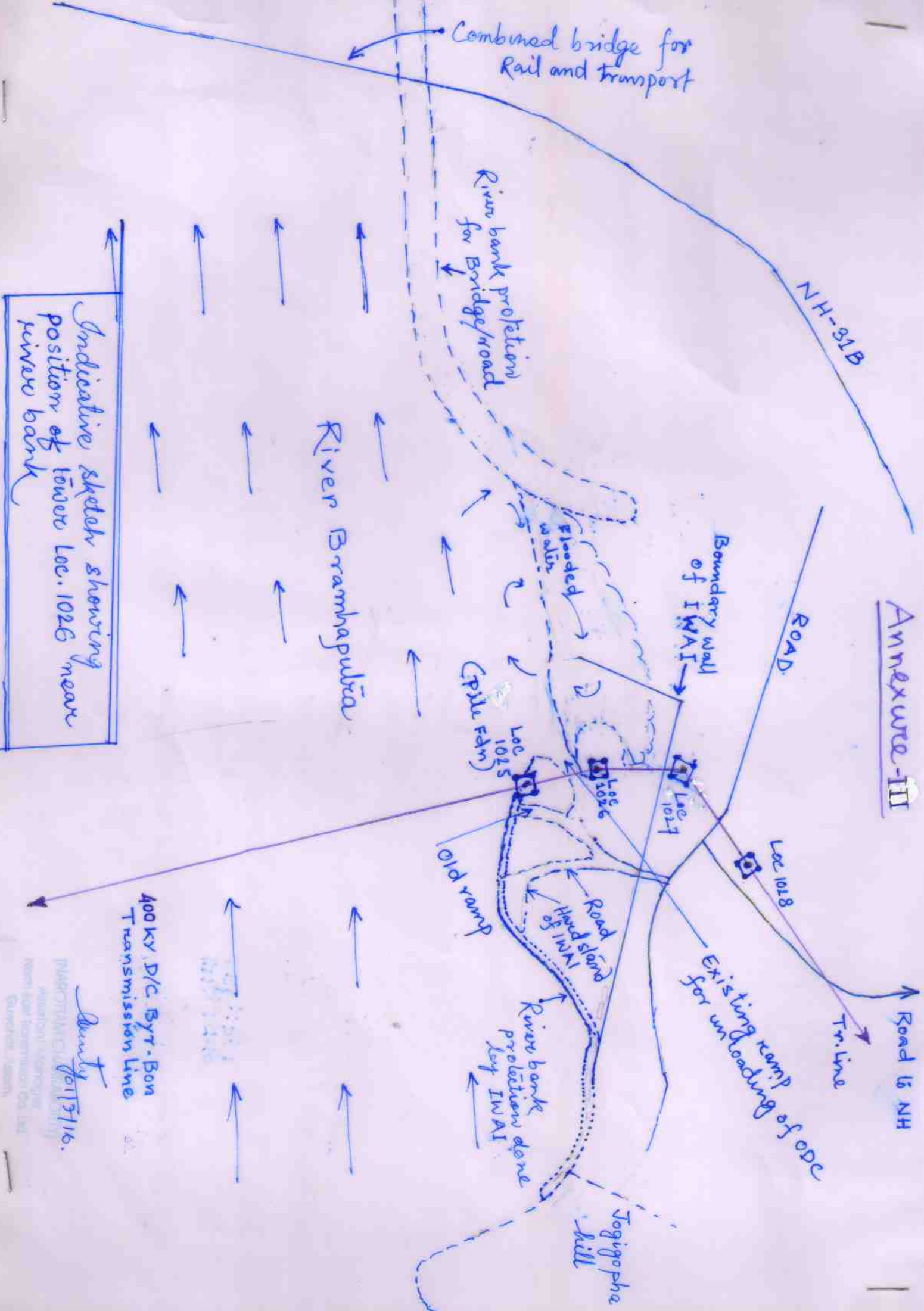


DRAWING SHOWING BANK LINE AND TERMINAL AREA AT JOGIGHOPA



Not to scale

Annexure-III



Combined bridge for Rail and transport

NH-31B

River bank protection for Bridge/Road

River Bramhapurika

Boundary wall of IMAI

ROAD

Loc 1025 (Pillar E/W)

Loc 1026

Loc 1027

Loc 1018

Road is NH

Tr. line

Existing ramp for unloading of odc

Road sland of IMAI

River bank protection done by IMAI

Togigopha Hill

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

400 KV D/C Byr-Bon Transmission Line

Santosh
10/11/16

MAHARAJA GANESHAJI
Assistant Engineer
Power Dept. Government of Karnataka
Goverment, Mysore





