North Eastern Regional Power Committee

MINUTES OF THE 126th OPERATION COORDINATION SUB-COMMITTEE MEETING OF NERPC

Date : 15/11/2016 (Tuesday)

Time : 10:00 hrs

Venue : "Hotel Nandan", Guwahati.

The List of Participants in the 126th OCC Meeting is attached at **Annexure – I**

Shri P.K. Mishra, Member Secretary, NERPC welcomed all the participants to the 126th OCC meeting. He noted the presence of participants from all the utilities except Mizoram. He also noted the presence of officials from M/s PRDC and requested them to kindly give a presentation on their Protection Database Management Software. Representatives from M/s PRDC gave a detailed presentation which can be briefly summarized as follows:

- PDMS would be web based. No specific software would be required to be installed on desktop / laptops.
- Protection settings calculation would be desktop based.
- Link between PDMS and Calculation software would be through ".xml" files.
- Fault analysis would be done through simulation.
- Multiple trippings involving upstream/downstream would be analyzed.
- The total project would be divided into three components: (i) Data collection (ii) Hardware and software installation (iii) 5 year service contract.
- In the 1st phase of implementation, Team of PRDC would visit each substation of NER to collect the relay settings. It was noted that since R&M works from funding of PSDF would be done across NER substations, a nodal person may be assigned for each geographical area of NER to co-ordinate the necessary changes. All constituents to extend their help to the nodal person for speedy implementation of PDMS.
- After the entire network of NER is modeled in PDMS software by PRDC, fault level calculations, suggested relay settings of substations, etc would be available.

- To ensure that random changes in relay settings are not carried out by any constituent without changes in the PDMS database, a change log would be maintained at each substation.

- DGM(AM), NERTS enquired if it was possible that if any relay setting is faulty or not as per recommendation, the software would suggest the same automatically. PRDC said such thing would be possible only if everything is connected on a network like that of PG-NTAMC.

- The cost of project was noted to be approximately Rs.20 crores for 700 substations in Eastern Region, with full support by PRDC for a period of 5 years.

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

A. CONFIRMATION OF MINUTES

CONFIRMATION OF MINUTES OF 125th MEETING OF OPERATION SUB-COMMITTEE OF NERPC.

The minutes of 125th meeting of Operation Sub-committee held on 14th September, 2016 at Guwahati were circulated vide letter No. NERPC/SE (O)/OCC/2016/4556-4591 dated 7th October, 2016.

The Sub-committee confirmed the minutes of 125th OCCM of NERPC as no comments/observations were received from the constituents.

ITEMS FOR DISCUSSION

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

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

NER PERFORMANCE DURING OCTOBER, 2016

	Energy Met (MU)		w.r.t. Sept,16 % inc (+) /dec (-)	Energy Reqr. (MU)		w.r.t. Sept,16 % inc (+) /dec (-)	% inc (+) /dec (-) of energy reqr vs met. In Oct,16
States	**Oct-16**	**Sept-16**		**Oct-16**	**Sept-16**		
Ar. Pradesh	61.67	58.07	6.20	63.04	59.56	5.84	-2.2
Assam	812.85	858.16	-5.28	834.99	888.09	-5.98	-2.7
Manipur	61.72	57.79	6.80	64.22	60.18	6.71	-4.1
Meghalaya	149.79	140.95	6.27	149.79	140.95	6.27	0.0
Mizoram	38.90	35.43	9.79	40.17	36.67	9.54	-3.3
Nagaland	66.71	66.89	-0.27	68.16	68.09	0.10	-2.2
Tripura	130.59	118.67	10.04	131.88	119.72	10.16	-1.0
Region	**1322.23**	**1335.95**	**-1.03**	**1352.26**	**1373.26**	**-1.53**	**-2.3**

	Demand Met (MW)		w.r.t. Sept,16 % inc (+) /dec (-)	Demand in (MW)		w.r.t. Sept,16 % inc (+) /dec (-)	% inc (+) /dec (-) of Demand vs met. In Oct,16
States	**Oct-16**	**Sept-16**		**Oct-16**	**Sept-16**		
Ar. Pradesh	126	136	-7.35	128	143	-10.49	-1.6
Assam	1615	1576	2.47	1673	1616	3.53	-3.6
Manipur	145	148	-2.03	145	151	-3.97	0.0
Meghalaya	301	298	1.01	300	298	0.67	0.3
Mizoram	95	91	4.40	95	92	3.26	0.0
Nagaland	130	121	7.44	130	123	5.69	0.0
Tripura	284	277	2.53	284	277	2.53	0.0
Region	**2439**	**2373**	**2.78**	**2466**	**2430**	**1.48**	**-1.1**

REGIONAL GENERATION & INTER-REGIONAL EXCHANGE IN MU

Month---->	**Oct-16**	**Sept-16**
Total Generation in NER (Gross)	1437.79	1302.97
Total Central Sector Generation (Gross)	1116.88	979.56
Total State Sector Generation (Gross)	320.90	323.41
Inter-Regional Energy Exchange		
(a) NER-ER	**13.15**	2.73
(b) ER-NER	**418.31**	536.97
(c)NER-NR	**396.19**	530.77
(d)NR-NER	10.16	0.00
© Net Import	19.13	3.47

AVERAGE FREQUENCY (Hz)

Month---->	**Oct-16**	**Sept-16**
	% of Time	% of Time
Below 49.9 Hz	5.72	6.17
Between 49.9 to 50.05 Hz	74.78	75.06
Above 50.05 Hz	19.50	18.76
Average	50.00	50.00
Maximum	50.25	50.24
Minimum	49.74	49.67

I T E M S F O R D I S C U S S I O N

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

During 126th 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 126th OCC Meeting	Status as given in 125th 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	December, 2016	October, 2016
3	Trial operation and CoD 36MW STG of Monarchak GBPP of NEEPCO	December, 2016 (subject to gas availability)	December, 2016 (subject to gas availability)
4	Kameng HEP of NEEPCO two units (2 x 150 MW) Next two units (2x150 MW)	Unit #1 Oct'17 Unit #2&#3 Nov'17 Unit #4 Dec'17	First two units March 2017.
5	Pare HEP of NEEPCO (2 x 55 MW)	Unit #1 July'17 Unit #2&#3 Aug'17	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	March, 2017	December, 2016
9	400/132 kV, 2nd 125 MVA ICT at Pallatana	Synchronized on 08.10.2016 COD expected by 25.12.2016	Scheduled to be commissioned on 08.10.2016
10	132kV Pasighat – Aalong of Ar. Pradesh	December, 2016.	December, 2016.
11	132kV Doyang– Wokha	December, 2016. (Nagaland requested NEEPCO to expedite)	December, 2016.

12	220 kV, 20 MVAR Line Reactor& bay at AGBPP on 220 kV NewMariani – AGBPP line	15.12.2016 (Problem with foundation of reactor need to be rectified)	30.09.2016
13	132kV Surjamaninagar Bay at OTPC	March, 2017.	December, 2016. LOA completed.
14	400kV D/C Balipara – Kameng	December 2016.	December 2016.
15	RHEP 80 MVAR Bus Reactor	Approved by SCM/RPC. Tendering to be done.	Referred to next SCM of CEA.
16	SLDCs (Ar. Pradesh, Manipur, Mizoram, Nagaland)	Manipur - Dec'16, Mizoram-Jan'17, Nagaland-handover of building by Dec'16, AP-Work started.	Manipur - Sept'16, Mizoram- Oct'16, Nagaland-handover of building by Dec'16, AP- Work started.
17	400/220 kV 315 MVA ICT-II at Bongaigaon	Manufacturing stage	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 & 132V Silchar-Hailakandi	March, 2017.	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	CGL to visit site.	LOA has been issued to VMS. May need to be re-tendered.

27	Up-gradation of 132 kV Lumshnong-Panchgram line	Reports given to be analyzed by MePTCL.	Reports given to be analyzed by MePTCL.
28	Switchable line Reactors at 400kV Balipara & Bongaigoan	Balipara - Oct'16 Bongaigaon - Dec'16.	Balipara - Oct'16 Bongaigaon - Dec'16.
29	PLCC Panels at Loktak end of Loktak – Ningthoukhong 132 kV feeder and Loktak - Rengpang 132 kV feeder	Work(s) have been included in tender for additional line of 132kV Loktak-Ningthoukong	MSPCL agreed to revert back with the exact status.
30	LILO of 132kV Ranganadi – Nirjuli at Pare of NEEPCO by PGCIL	Dec'16	L.T feeder diversion work done by DoP Ar. Pradesh. Dec'16
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 Bay 1: December 2016 Bay 2: March 2017
32	400KV 80MVAR Bus Reactor at OTPC Palatana	By 31.12.2016	Delayed due to BHEL. OTPC will complete by 31.10.2016 or latest by 15.11.2016.

The Sub-committee noted as above.

C.2 <u>Monthly MU requirement & availability of each state of NER as per format:</u>

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 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.

S.E.(C&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 revised figures for Meghalaya may be made furnished again for incorporation.

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

Requirement:

Name of State	Sept16(actual)	Sept16(LGBR)	Oct16(actual)	Oct16(LGBR)
Ar. Pradesh	59.56	73	63.04	73
Assam	888.09	847	834.99	816
Manipur	60.18	80	64.22	85
Meghalaya	140.95	170	149.79	185
Mizoram	36.67	45	40.17	46
Nagaland	68.09	72	68.16	74
Tripura	119.72	122	131.88	133
NER	1373.26	1409	1352.26	1412

Availability:

Name of State	Sept16(actual)	Sept16(LGBR)	Oct16(actual)	Oct16(LGBR)
Ar. Pradesh	58.07	74	61.67	67
Assam	858.16	682	812.85	648
Manipur	57.79	99	61.72	95
Meghalaya	140.95	258	149.79	209
Mizoram	35.43	57	38.90	54
Nagaland	66.89	77	66.71	71
Tripura	118.67	208	130.59	225
NER	1335.95	1455	1322.23	1370

Deliberation of the sub-Committee:

EE, SLDC, Meghalaya agreed to furnish the revised figures at the earliest.

The Sub-committee noted as above.

Action: MeECL/NERPC.

C.3 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 September & October is given below:

Name of State	Sept16(act)	Sept16(LGBR)	Oct16(act)	Oct16(LGBR)
Ar. Pradesh	143	147	128	143
Assam	1616	1539	1673	1513
Manipur	151	163	145	163
Meghalaya	298	405	300	415
Mizoram	92	90	95	95
Nagaland	123	140	130	140
Tripura	277	291	284	321
NER	2430	2775	2466	2790

The Sub-Committee noted as above.

C.4 <u>Implementation of Automatic Demand Management Scheme (ADMS)</u>

In order to comply the Hon'ble CERC's Order, the OCC of NERPC agreed to implement the ADMS in atleast one sub-station of each state in NER on pilot basis (preferably in State Capitals) initially and accordingly the estimates were prepared and the cost is given as below:

Sr. No	State	Estimated Cost (Crore)	Scope of work
1	Arunachal Pradesh	4.5	Supply, installation and commissioning of RTU System in 1 no. of 132/33kV Substation & 2 no. of 33kV Substations including ADMS Software and hardware with Fibre Optic communication link & accessories between 33kV and 132kV S/Stns - (Chimpu).
2	Nagaland	5.0	Supply, installation and commissioning of RTU System in 1 no. of 132/33kV Substation & 2 no. of 33kV Substations including ADMS Software and hardware with Fibre Optic communication link & accessories between 33kV and 132kV S/Stns- (Nagarjan).
3	Mizoram	5.1	Supply, installation and commissioning of RTU System in 1 no. of 132/33kV Substation & 2 no. of 33kV Substations including ADMS Software and hardware with Fibre Optic communication link & accessories between 33kV and 132kV S/Stns – (Luangmual)
4	Manipur	4.5	Supply, installation and commissioning of RTU System in 1 no.of 132/33kV Substation & 2 no. of 33kV Substations including ADMS Software and hardware with Fibre Optic communication link & accessories between 33kV and 132kV S/Stns – (Kongba) .
5	Tripura	5.0	Supply, installation and commissioning of RTU System in 1 no. of 132/33kV Substation & 2 no. of 33kV Substations including ADMS Software and hardware with Fibre Optic communication link & accessories between 33kV and 132kV S/Stns – (S.M. Nagar).
6	Assam	4.3	Supply, installation and commissioning of RTU System in 1 no. of 132/33kV Substation including ADMS Software and hardware with Fibre Optic communication link & accessories between 33kV and 132kV S/Stns – (Kahilipara).
7	Meghalaya	1.9	Supply and Commissioning of ADMS Software with necessary hardware in SLDC – (NEHU).

The 17th TCC/RPC approved the above estimates and Member Secretary, NERPC requested all NER States to send the proposal to NLDC/CEA at the earliest for funding from PSDF so that ADMS can be implemented in the region as directed by Hon'ble CERC.

Deliberation of the sub-Committee:

S.E.(O),NERPC requested the constituents to once again send their proposals to NLDC/CEA as early as possible.

The Sub-Committee noted as above.

Action: All state utilities, SLDCs.

C.5 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.
In 125th OCCM, it was decided that respective states generating companies would write to concerned division of CEA at the earliest about derating of units.

Deliberation of the sub-Committee:

After detailed deliberation a final list of generating stations (which are currently in operation) with their ICs were compiled. The list is attached in **Annexure C.5**. NERPC was requested to forward the same to CEA, so that records to be updated as such.

NERPC requested Assam and Tripura to write to CEA's Data Management Division regarding decommissioning of units of CTPS (APGCL), Rokhia(TSECL), Baramura (TSECL) to obtain CEA's certification in this regard.

The forum decided to drop the agenda item.

The Sub-Committee noted as above.

Action: NERPC.

C.6 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.

In 125th OCCM, 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.

Deliberation of the sub-Committee:

DGM(AM),NERTS informed that the signing authority would be owner of the asset, and also that consultancy charges may be waived off in case signing authority is NERPC. OCC forum mandated NERPC to be the signing authority and recommended that the matter be put up in the next TCC/RPC meeting for information.

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		21.93	718.9
Kopili-II	1			
Kopili	4		161.52	606.3
Ranganadi	3		Subject to inflow	
Doyang	3		30	322.1
Loktak	3		250	768.91
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:

After detailed deliberation it was decided that Declared Capacity of Kopili, Khandong and Doyang is to be reduced so that falling water level may be conserved.

Members admonished OTPC for applying for shutdown in the lean season, however keeping in mind license issues and inflexible schedule of M/s BHEL the forum approved the shutdown. It also requested to OTPC to squeeze the window wherever possible. The forum unanimously resolved that no thermal power plant(s) shutdown would be approved in the lean hydro season, and no hydro plant(s) shutdown would

be approved in high hydro season.

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(C&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(C&O).

Deliberation in the meeting

S.E.(C&O),NERPC once again requested NERLDC to present the abstract of shutdowns approved/availed in every OCC hereon. NERLDC agreed.

During discussion of list of shutdowns for November-December 2016, it was observed that several Bus / Line reactors were proposed for outage. The forum agreed that all shutdown of major reactors in NER Grid should be availed in High hydro season when the voltage profile of NER Grid is better.

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

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

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

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.

Deliberation in the meeting

Members deliberated and reviewed the generation and demand data for Q4 (2016-17) as furnished by NLDC

Figures were discussed and modified as follows:

a) TGBP (Monarchak, NEEPCO) => Due to unavailability of gas figure kept at 0MW

b) AGTCCPP => 132 MW.

c) Doyang HEP => 41MW.

d) Kopili HEP => 150 MW.

e) Khandong & Kopili Stg-II => 50MW.

f) Ranganadi => 390MW.

g)AGBPP => 220MW.

h) Palatana => 520MW.

i) Meghalaya => Generation figure is to be 256 MW and demand figure 337 MW. The generation figure is on higher side, and will be reviewed again during Validation Committee meeting.

j) Assam => Demand of Assam to be 1365 MW and generation figure to 250 MW.

k) Manipur => Demand to be kept as 160 MW

l) Mizoram => Generation figure is to be 4 MW and demand figure 93 MW.

m) Tripura => Generation figure to be reviewed during Validation Committee meeting and demand figure 250 MW (including Bangladesh).

The Sub-Committee noted as above.
Action: NERPC.

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

Updated Base Cases have been mailed to all the SLDCs on 03.11.16. 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 December'16 by 14th November, 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 20th Novemeber'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.

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

Sr. Engr. (SO-II), NERLDC informed the forum that NERLDC has been assessing TTC/ATC of state control areas on behalf of states. The forum requested NERLDC to circulate the calculations for December 2016 to all SLDCs for comments. If no comments are received, the same shall be taken as final. SLDCs were requested to host the state wise TTC/ATC figures on their website for information dissemination.

S.E(C&O) requested all SLDCs to nominate designated individuals for using PSSE.

The Sub-Committee noted as above.

Action: All SLDCs.

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 126th OCC:

Arunachal Pradesh	Not furnishing	Not Furnished
Assam	Yes	Furnished for Jul'16 but not in format
Manipur	Yes	Furnished for Aug'16 without restoration time
Meghalaya	Yes	Only submitting in format
Mizoram	Yes	Furnished for Aug'16 without restoration time
Nagaland	Yes	Furnished for Aug'16
Tripura	Yes (But not as per format)	Furnished for Jul'16 but not in format

NERLDC requested all the SLDCs to also indicate the restoration details & corrective measures adopted, in the load crash reports.

The Sub-committee noted as above.

Action: All utilities.

D.7 *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.

In 125th OCC, 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.

Deliberation in the meeting

S.E.(C&O),NERPC informed the forum that as per communication received from GM Division CEA, unscheduled load shedding and scheduled load shedding for peak demand met instance is to be provided. Accordingly, all the constituents & NERLDC were requested to indicate the latter from November, 2016 onwards. The forum requested DoP Ar. Pradesh, MSPCL and DoP Nagaland to submit the shortfall figures periodically.

The Sub-committee noted as above.

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

D.8 *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.(C&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.

S.E.(C&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 DPR cost furnished by Mizoram & Nagaland is Rs. 16.87 Cr and 25 Cr respectively and the system study has been carried out by ERDA, New Delhi.

The 17th TCC/RPC approved the above DPR cost of Mizoram & Nagaland.

Member Secretary, NERPC requested Mizoram & Nagaland to send the proposal to NLDC/CEA at the earliest for funding from PSDF.

Deliberation in the meeting

S.E.(C&O),NERPC requested the other states to finalize their proposals and submit the same at the earliest.

The Sub-committee noted as above.

Action: All remaining utilities, SLDCs.

D.9 *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.(C&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.(C&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

Members appreciated the proposal of M/s PRDC and requested NERPC to chalk out future course of action.

The Sub-committee noted as above.

Action: NERPC.

D.10 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. During 125th OCCM, 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.

Deliberation in the meeting

After detailed deliberation it was concluded that details of RES wherever provided in **Annexure C.5.,** maybe considered as installed RES. As to future projects it was decided that NERPC would write to different state generating utilities about the exact status. The forum decided to drop the agenda item in the meantime and agreed to review it later.

The Sub-committee noted as above.

Action: All state generating utilities, NERPC.

D.11 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 126th OCC:

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

NERLDC requested DoP Ar. Pradesh, MSPCL, MeECL and DoP Mizoram to submit the data for Oct'16 forthwith, and also requested all SLDCs to furnish their UFR operation reports in case of Grid Events.

The Sub-committee noted as above.

Action: All utilities as above.

D.12 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.12.**

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.

In 125th OCCM, 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.

Deliberation in the meeting

NERLDC displayed a comparison graph of one particular day in October, depicting the variations in Load forecast versus Actuals. The variations were quite significant, and even the diurnal trend of load was not being captured in the load forecasts.

NERLDC requested all SLDCs to share the forecast methodology being followed, for improvement and bringing in accuracy in the forecasts.

The Sub-committee noted as above.

Action: All SLDCs

D.13 <u>Submission of Weekly Outage Report by Utilities</u>.

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.

In 125th OCCM, 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.

<u>Deliberation in the meeting</u>

The latest status as informed by NERLDC in 126th OCC:

NERLDC intimated that TSECL is presently giving the weekly outage data since 01.09.2016 and had given till last week.

It was, however, noted that the weekly outage report being furnished does not have complete details required for analysis of grid events. The reasons for tripping as per weekly outage report is same as that noted during real-time operations in most cases. NERLDC requested all constituents to provide more relevant data in the weekly outage report.

The Sub-committee noted as above.

Action: All Utilities.

D.14. NER common data centre (DC) and disaster recovery (DR) centre

As per R-APDRP Scheme the cost of DC & DR beyond the sanctioned amount of GOI and other associated costs to run & operate both the DC & DR is to be shared by all the NER States on the basis of No. of Towns approved under the R-APDRP Schemes. It is noticed that there is inordinate delay in receiving the share from various beneficiary states against the claim raised by APDCL & TSECL. This is causing difficulties in managing the regular O & M operation. Matter be discussed for expediting the release of money by all the NER states.

The 17th TCC referred the matter to OCC forum for discussion.

Deliberation in the meeting

Sr. Manager, TSECL informed that since commercial operation of the DR centre at Agartala bills were raised to the other six states but no payment has been made till date, though it was decided at the time of conception that DC&DR centre operating costs are to be shared among all the states. The forum urged TSECL to provide details in elaborate manner. Sr. Manager, TSECL agreed to revert back in next OCC meeting.

The Sub-committee noted as above.

Action: TSECL.

D.15. State-wise energy requirement for 2017-18 and growth w.r.t. 2016-17

CEA vide letter dated. 28.09.2016 stated that as per instructions from MoP the assessment and finalization of generation targets for 2017-18 has been preponed by two months. Considering the urgency it is desired that all SLDCs furnish energy requirement and demand growth for 2017-18.

Deliberation in the meeting

S.E.(C&O),NERPC stated that since members from CEA could not be present due to some preoccupation, the matter be discussed in next OCC meeting.

The Sub-committee noted as above.

D.16. Certification of open cycle generation of AGBPP for FY 15-16:

As per methodology decided in 87th OCC meeting and modus operandi decided in 19th & 20th CCM the open cycle generation of AGBPP for FY 15-16 is to be certified. Accordingly it is requested of NERLDC to kindly verify "the generator operation in OC mode due to some fault and problem is resolved in a reasonable time, with DC revision". After verification by NERLDC, certification would be done by NERPC.

Deliberation in the meeting

The forum requested NERLDC/NERPC to complete the procedure and present the certification in next OCC meeting, so that members may ratify.

The Sub-committee noted as above.
Action: NERLDC/NERPC.

D.17. Outage Coordination of 132 KV line-1 (Palatana-Udaipur line), and 132 KV line-2 (Palatana- SM Nagar line) through SLDC Agartala:

At present scenario we need to coordinate through respective S/S regarding outage, in which mandatory requirement to give name of person responsible for outage, which is not practically possible due to changes in shift in between to outage. The present system creates communication gap and time for outage and restoration.

Deliberation in the meeting

S.E.(C&O),NERPC informed that for outage/restoration only charging code needs to be communicated. After detailed deliberation forum reproached TSECL for non-cooperation with OTPC control room officials and decided to drop the agenda item.

The Sub-committee noted as above.

D.18. SPS- Testing without information on dated 23/08/2016:

At 14:21 Hrs OTPC – Palatana GT-1 & GT-2 Generator Line breaker tripped, and both GT-1 & GT-2 came into House load. On analyzing the tripping event it was found that 400 KV Silcher- Byrnihat trip signal received at Palatana end, that lead to tripping of GT-1 & GT-2 Generator Line breakers on SPS-3 protection.

Deliberation in the meeting

The forum requested NERTS to kindly clarify whether SPS actually operated and whether a mal-operation occurred.

The Sub-committee noted as above.
Action: NERTS.

D.19. Non-availability of real time data in NERLDC website:

S.E.(C&O),NERPC elaborated that the matter had already been clarified by GM,NERLDC at 30th CCM. Real time data is not being made available in website due to security reasons and requested all constituents to kindly make use of the SCADA data

The Sub-committee noted as above.

D.20. Renovation and Modernisation of Umiam Stage-III HEPP (2 x 30 Mw)

In line with the policy for taking up Renovation & Modernisation (R & M) of old hydroelectric power plants initiated by the Ministry of Power, Government of India, MeECL has decided to take up R & M of Umiam Stage-III HEPP (2 x 30 Mw) commissioned in 1979,considering the aggravated condition of the power plant.

Deliberation in the meeting

S.E., MePGCL informed that Umiam Stage-III has already completed its useful life having been in service for 37 years since commissioning. He requested that R&M cost be funded from PSDF.

S.E.(C&O),NERPC informed that R&M of power plants are not specifically funded from PSDF under PSDF regulations. However they may be funded under extraordinary Cl.4.1.(e). He requested MePGCL to submit the proposal at the earliest so that the matter may be followed up with NLDC/CERC.

The Sub-committee noted as above.
Action: MePGCL.

D.21. Submission of data as per 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:

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

In addition to the 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

NERLDC requested NERTS/NETC to furnish the data as per Standards of Performance Regulations 2012 in format devised by NLDC on monthly basis.

It was also intimated that NERLDC is calculating the SOP figures on Transmission Outages from September'16 onwards on monthly basis by 10th of every month, and requested NERTS /NETC to submit their calculations from the beginning.

NERTS agreed to furnish the data periodically.

The Sub-committee noted as above.
Action: NERTS, NETC.

D.22. Reporting of commissioned transmission elements for TARANG App.

TARANG (Transmission App for Real Time Monitoring and Growth) Mobile App & Web Portal has been developed by REC Transmission Projects Company Ltd (RECPTL) for progress monitoring of transmission systems on Pan-India basis, which was launched by Hon'ble Minister of State for Power on 17th August 2016. The app can be downloaded on smartphones or be accessed through its website (www.tarang.website). As part of the responsibility charter, POSOCO has been assigned the responsibility to update the systems under operation in the 'Completed Transmission Systems' section of the app.

In order to provide this information to the Ministry of Power, it is requested to provide the details of commissioning of transmission elements in respective state for each month by the 3rd day of the next month to NERLDC.

Deliberation in the meeting

Sr. Engineer, NERLDC emphasized the need for furnishing this data for TARANG app devised by Ministry of Power, Govt. of India for information to the public. It was also mentioned that during recent visit to Guwahati on 11.11.2016, the same was emphasized by Joint Secretary (Power). NERLDC requested all utilities to submit the data to: nerldc@yahoo.co.in by 3rd of every month for the previous month.

The Sub-committee noted as above.
Action: All transmission utilities.

D.23. Frequency control through Primary response from governor action on generating units

In continuation to discussions in 125th OCC meeting on this matter, and letter from

ED-NLDC dtd. 10th October'16, it is requested that all generators may take urgent action to ensure Primary response as per stipulation [As per Sec.1(4) of Part-II of CEA's Grid Connectivity standards, 0-10% droop for hydro generator governors ; 3-6% droop for Thermal generator governors].

Also, as per Section 11.2.(i) of CEA's Technical Standards for Construction, all generating stations must store important analog data in 1 seconds interval.

NEEPCO has informed that AGTPP and Ranganadi HEP have properly working DAS, that are capable of storing Machine side data like Voltage, frequency, Active power generation, Reactive power generation, Line currents, etc. Also, it was confirmed in last OCC that DAS at AGBPP is installed but not time-synchronized.

All generating stations may confirm that their governors are properly tuned for giving primary response as per regulations.

Also, NEEPCO may intimate the status of installation of DAS for their remaining generating stations.

Deliberation in the meeting

Sr. Manager, NEEPCO informed that all their plants have DAS installed. AGM(SO-I),NERLDC clarified that in case of oscillations/ disturbance response of generators(in ms) cannot be captured by SCADA due to low resolution of data.

NERLDC requested NEEPCO to ensure that all their installed DAS are time synchronized and data during events is not lost. Also, the resolution of data of DAS to be checked by NEEPCO and ensured that at least 1 sec resolution data is available.

The Sub-committee noted as above.
Action: All generating utilities.

D.24. System Protection scheme (SPS) for 2x125 MVA, 400/132 kV ICTs at Palatana

During Peak hours, in real-time, the 400/132 kV ICTs at Palatana are not safe under N-1 contingency when loading on these ICTs reach around 80 MW / ICT. During Puja 2016, the loading on these ICTs was observed around 100 MW/ICT.

In case of tripping of any ICT, the other is also likely to trip, resulting in major disturbance in Tripura (including Bangladesh) and other areas of Southern part of NER Grid (Mizoram, etc.). With the increase of quantum of power supply to Bangladesh from Tripura, the loading on Palatana ICTs will also increase.

Under this condition it is in interest of the Grid to design an SPS for ensuring security of the ICTs at Palatana.

Studies were conducted for this SPS considering grid conditions as of Puja 2016, and observed that opening of some corridors within Tripura system may be necessary to control the loading of Palatana ICTs to safe levels.
Study results are as per **Annexure-D.24.**

Deliberation in the meeting

The SPS scheme for Palatana ICTs as proposed by OTPC was discussed. Sr. Engineer (SO-II), NERLDC said that the SPS scheme would result in multiple blackouts in Bangladesh load radially fed from Surjamaninagar and hence to be avoided.

He also gave a presentation on studies conducted by NERLDC in this matter, and proposed that in case of overloading of Palatana ICTs or tripping of 1 ICT, the following network configuration changes to be done to prevent tripping of ICTs:

- Disconnection of 132 kV Palatana – Udaipur S/C
- Disconnection of 132 kV Surjamaninagar – Agartala D/C and 132 kV Surjamaninagar – Budhjangnagar D/C.

Under this situation, only bus load of Surjamaninagar and radial load of Bangladesh would continue to be fed by Palatana ICT.

TSECL expressed concern and said that in future with increased supply to Bangladesh amounting to 200 MW (from existing 100 MW), this SPS scheme would not be sufficient. TSECL also requested to hold a special meeting to discuss this matter.

After detailed deliberation the forum referred the matter to the next PCC meeting.

S.E.(C&O),NERPC noted that representatives of TSECL always fail to attend PCC and System Study committee meetings, and are not concerned with the reliability of NER Grid. He requested TSECL to send representative in all forthcoming PCC meetings, which is the common forum of discussion, as has been repeatedly stressed upon.

The Sub-committee noted as above.

D.25. Strengthening of Southern Part of NER Grid:

Major loads in Southern part of NER grid to power systems of South Assam, Tripura (including radial load to Bangladesh), Mizoram & Manipur, are fed through 400/132 kV substation at Silchar (PG).

Also, maximum generation capacity of NER is present in Southern part of NER Grid (Palatana = 726 MW; AGTPP = 130 MW; Loktak = 105 MW; Monarchak = 101 MW Generation capacity of Tripura, Mizoram)

Major upcoming corridors are planned or already under operation / execution to major load centers in Southern part of NER Grid like 400 kV Silchar – Misa D/C, 400 kV Silchar – Melriat D/C, 400 kV Silchar – Palatana D/C, 400 kV Silchar – Byrnihat – Bongaigaon, 400 kV Silchar – Azara – Bongaigaon, 400 kV Silchar – Imphal D/C and 400 kV Silchar – P.K.Bari D/C.

In case of eventuality of 400/132 kV Silchar Sub-station, Southern Part of NER Grid will be insecure.

In view of this issue, it is proposed to implement the following for strengthening of Southern Part of NER Grid:

400 kV Imphal (PG) – Melriat D/C
400 kV Melriat – Palatana D/C
400 kV Surjamaningar – Bangladesh Node – West Bengal Node D/C

Deliberation in the meeting

Sr. Engineer (SO-II), NERLDC said that for Southern part of NER Grid, all the important corridors are originating from 400 kV Silchar substation. In case of any eventuality causing outage of 400 kV Silchar (PG) substation, the entire Southern part of NER Grid would collapse. With increased load being served in utilities of NER, it is necessary to plan a parallel corridor bypassing 400 kV Silchar, so as to ensure security of the entire NER Grid.

The proposal was agreed in principle by the forum.

The forum requested NERLDC to conduct further studies and revert back, so that it can be placed in upcoming SCM of NER.

The Sub-committee noted as above.
Action: NERLDC.

D.26. Standing consent from ISGS/beneficiaries for reallocating URS power to other beneficiaries according to CERC Order on URS power dated 05/10/2015 .

For reallocation of URS power currently NERLDC is taking consent from concerned ISGS and schedule the power to the new party/beneficiary. Consent from beneficiary (1st party) is not taken as the said beneficiary has already been surrendered the power from the said ISGS and this may be treated as standing consent from the 1st beneficiary for any future reference.

Deliberation in the meeting

After detailed deliberation it was decided that clearance given by the 1st. party in case of URS power sale in market/exchange, is to be treated as standing clearance. The 1st. party would not have option to recall once it is sold in market.

The Sub-committee noted as above.

D.27. Revision of restoration procedure documents-furnishing latest updating state network/SLD/DG set details etc.--letter issued from NERLDC on 24/10/16

NERLDC is going for revision of restoration procedure shortly, so it is very important to incorporate all latest state network/SLD/DG set details. A letter in this reference has already been sent but reply from constituents has not received till today. So all are requested to send the information at the earliest.

The Sub-committee noted as above.
Action: All concerned utilities.

D.28. Apply for S/d request by D+3 basis after getting approved in OCCM.

Request for S/D message is required to be sent to NERLDC by D+3 basis(3 days before the S/D) even if the shutdowns are approved in OCC meeting which are not being followed currently and creating problem for real time S/D management. So it is requested all to maintain the D+3 message module else NERLDC will consider that S/D will not be taken.

Also as discussed earlier in several occasion S/D coordinator name from all constituents are needs to be given to NERLDC for proper management of S/D.

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

D.29. Additional – Transformer Tap Optimisation for October-March'17 period

NERLDC informed the forum that in keeping with the upcoming lean hydro season of NER, Transformer Tap Optimization study has been conducted for improving the overall voltage profile of NER.

The forum requested NERLDC to circulate the results of this study to all constituents. NERLDC requested that constituents extend their help in changing tap-positions of transformers offline, for overall improved voltage profile of the Grid.

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

Date & Venue of next OCC meeting

It is proposed to hold the 127th OCC meeting of NERPC on second week of December, 2016. However, the exact date and venue will be intimated in due course.

The meeting ended with thanks to the Chair.

*****

Annexure-I

List of Participants in the 126th OCC Meetings held on 15.11.2016

SN	Name & Designation	Organization	Contact No.
1.	Sh. N. Perme, EE, SLDC	Ar. Pradesh	09436288643
2.	Sh. J. K. Baishya, DGM, SLDC	Assam	09435041494
3.	Sh. I. Tahlukdar, DM, Com (TRC)	Assam	09864799857
4.	Sh. Dipesh Ch. Das, AGM, LD Com	Assam	09954110254
5.	Sh. B.C. Borah, AGM,SLDC	Assam	09435119248
6.	Sh. Th. Sushanta, DM, SLDC, MSPCL	Manipur	09402404857
7.	Sh. G. Tapan Kumar Sharma, Mgr MSPCL	Manipur	08974138850
8.	Sh. H.F. Shangpliang, SE	Meghalaya	09863315562
9.	Sh. L. Shilla, SE (Gen-I), Umiam	Meghalaya	09612170906
10.	Sh. T. Gidon, EE SLDC	Meghalaya	09774479956
11.	Sh. W. Khyriem, EE, GSPD, Sumer	Meghalaya	09856007107
12.	Sh. B. Nikhla, EE	Meghalaya	09436314163
13.	Sh. B. Kharkamni, AEE, SLDC	Meghalaya	09863444525
14.	Sh. A. G. Tham, AEE	Meghalaya	09774664034
15.	Sh. K. Kynjing, AE	Meghalaya	-
	No Representatives	**Mizoram**	**-**
16.	Sh. A. Jakhalu, EE(Trans)	Nagaland	09436002696
17.	Sh. Sankar Chaudhuri, Sr. Manager	Tripura	-
18.	Sh. Debabrata Pal, Sr. Manager	Tripura	09436137022
19.	Sh. Joypal Roy. Sr. Mgr. (E/M)	NEEPCO	09435577726
20.	Sh. D.Baishya, Sr. Mgr. (E/M)	NEEPCO	-
21.	Sh. Prasenjit Phookan, DGM (E/M)	NEEPCO	-
22.	Sh. Sundar Moni Mohan, Dy.Mgr (E/M)	NEEPCO	-
23.	Sh. N.R. Paul, AGM (SO-I)	NERLDC	-
24.	Sh. Rahul Chakraborti, Sr. Manager (SO-II)	NERLDC	09402507543
25.	Sh. Ankit Jain, Sr. Engineer (SO-I)	NERLDC	09436335381
26.	Sh. R.Sutradhar, DGM	NERLDC	09436302714
27.	Sh. P. Kanungo, DGM (AM)	PGCIL	09436302823

28.	Sh. Chitta Ranjan Das, Chief Engineer (E)	NHPC	09599318483
29.	Sh. Jitendra Behera, E (E)	NHPC	09436061400
30.	Sh. Thakor Prasad Pandey, DGM (O&M)	OTPC	09402144712
31.	Sh. Kangkan Paul, Asst. Manager	NTPC	09435029230
32.	Sh. Venkatesh, GM	PRDC	09845009162
33	Sh. Debarati Basu, GM	PRDC	-
34	Sh. Debarata Paul, Manager	PRDC	-
35	Sh. P.K. Mishra, MS	NERPC	-
36	Sh. B. Lyngkhoi, Director/S.E (C&O)	NERPC	09436163419
37	Sh. S. Mukherjee, AEE	NERPC	08794277306
38	Sh. S. Ranjan, AE	NERPC	08794276168

Installed Capacity in NER (As on 15.11.16)

ANNEXURE- C.5

Isolated Capacity	
Utility / Mode	**Capacity in MW**
State Sector	
Arunachal Pradesh	
Micro Hydel	66.49
Solar	0.26
Wind	0.02
Total Arunachal Pradesh	**66.77**
Assam	
Micro Hydel	0.00
Diesel	0.00
Total Assam	**0.00**
Manipur	
Micro Hydel	0.60
Diesel/Heavy Fuel	36.26
Solar	-
Total Manipur	**36.86**
Mizoram	
Solar	0.27
Diesel	0.50
Total Mizoram	**0.77**
Nagaland	
Micro Hydel	2.00
Diesel	0.00
Total Nagaland	**2.00**
Tripura	
Diesel (for Important state buildings)	1.00
Solar PV	3.00
Total Tripura	**4.00**
Total Isolated	**110**

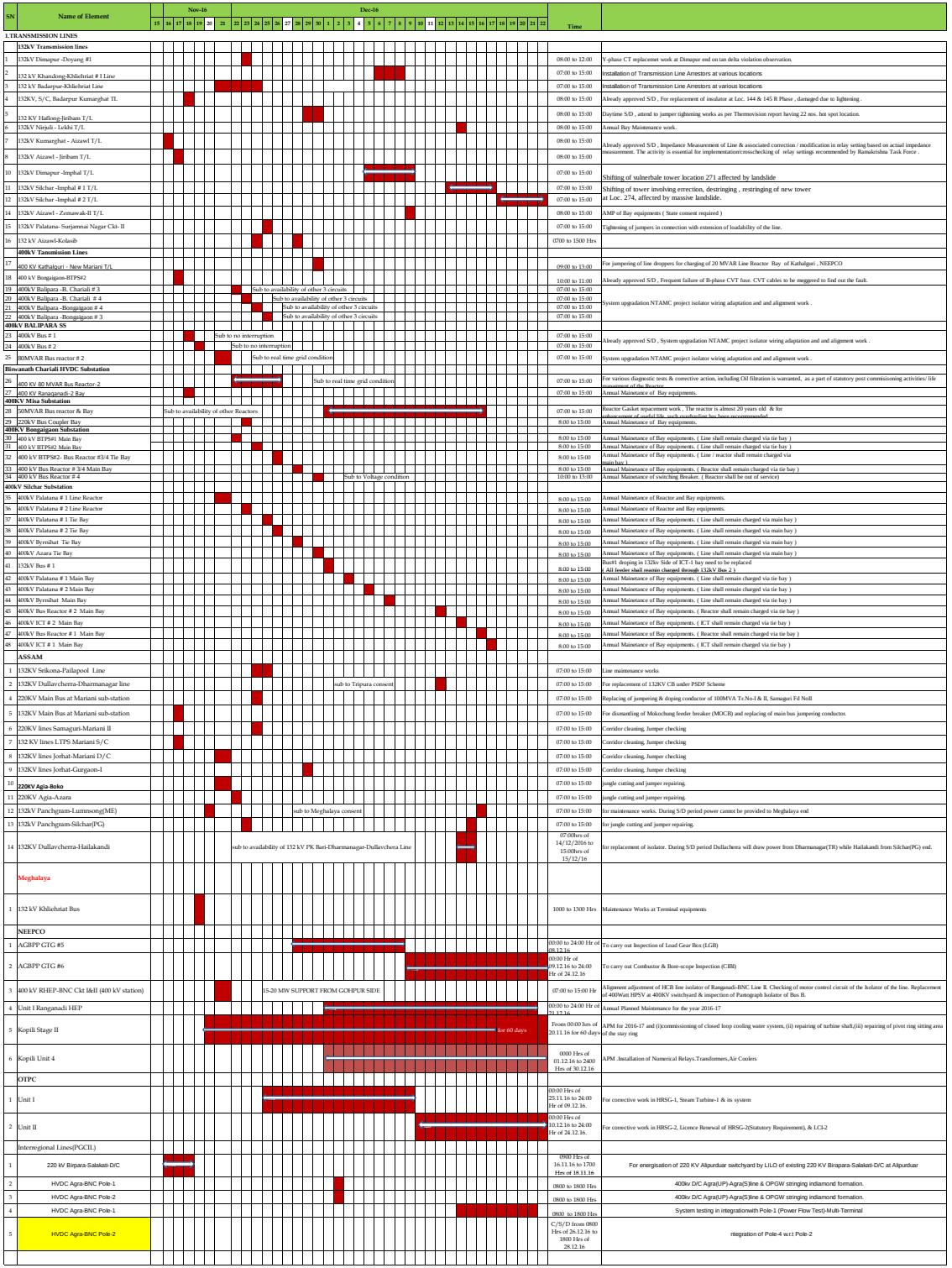
Grid Capacity				
Utility / Station	**Type**	**No. of Units**	**Size (MW)**	**Total (MW)**
Central Sector				
Khandong	H	3	25	75
Kopili	H	4	50	200
Doyang	H	3	25	75
AGBPP	G	4	33.5	134.0
	G	2	33.5	67.0
	S	3	30	90
AGTCCPP	G	4	21	84
	S	2	25.5	51
Ranganadi	H	3	135	405
Monarchak	G	1	65.5	65.5
Monarchak Solar PV	SO	1	5.45	5.45
Total NEEPCO				**1251.9**
Loktak	**H**	**3**	**35**	**105**
Total NHPC				**105**
Palatana	**G**	**2**	**232.3**	**464.6**
	S	**2**	**131.0**	**262.0**
Total OTPC				**726.6**
BgTPP	**C**	**1**	**250**	**250**
Total NTPC				**250**
Total (Central Sector)				**2334**
State Sector				
Meghalaya				
Umiam Stage I	H	4	9	36
Umiam Stage II	H	2	10	20
Umiam Stage III	H	2	30	60
Umiam Stage IV	H	2	30	60
Umtru	H	4	2.8	11.2
Myntdu Leshka	H	3	42	126
Sonapani	H	1	1.5	1.5
MPL	C	1x8+1x45.15		53
Adhunik	C	1	25	25
Shyam Century	C	1	13.8	13.8
Maithan Alloys Ltd	C	1	15	15
Total Meghalaya				**421.7**
Nagaland				
Likimro	H	3	8	24
Total Nagaland				**24.00**

Grid Capacity				
Utility / Station	**Type**	**No. of Units**	**Size (MW)**	**Total (MW)**
Tripura				
Baramura	G	2	21	42
Gumti	H	3	5	15
Rokhia	G	3	21	63
Total Tripura				**120**
Assam				
Champabati	H	2	2	4
Namrup	G	20+21+21+11+24+22		119
Lakwa	G	4x15+3x20+1x37.2		157.2
Langpi HEP	H	2	50	100
Myntreng	H	3.00	1.50	13.50
		3.00	3.00	
Suryatap	S	1	5	5
Total Assam				**399**
Mizoram				
Micro Hydel	H	2x1.5+3x0.35+2x1.5+3x1+2x1+2x1.5		17.85
		3x0.1+2x0.25+2x0.25+1x0.5+2x0.25+2x0		
Serlui B	H	3	4	12
Total Mizoram				**30**
Total (State Sector)				**994**

Regional Total	
Isolated	110
Grid (Hydro)	1361
Grid (Gas)	1599
Grid (Coal)	357
Grid (Solar)	10.45
Total Central Sector	**2334**
Total Grid	**3328**
Total NER Capacity	**3438**

H=Hydro, G=Gas, C=Coal, S=Steam, SO = Solar

APPROVED SHUTDOWN OF ELEMENTS FOR 126th OCCM- BAR CHART



SN	Name of Element	Time	
I.TRANSMISSION LINES			
	132kV Transmission lines		
1	132kV Dimapur -Doyang #1	08:00 to 12:00	Y-phase CT replacemet work at Dimapur end on tan delta violation observation.
2	132 kV Khandong-Khliehriat # 1 Line	07:00 to 15:00	Installation of Transmission Line Arrestors at various locations
3	132 kV Badarpur-Khliehriat Line	07:00 to 15:00	Installation of Transmission Line Arrestors at various locations
4	132KV, S/C, Badarpur Kumarghat Tl.	08:00 to 15:00	Already approved S/D , For replacement of insulator at Loc. 144 & 145 R Phase , damaged due to lightening .
5	132 KV Haflong-Jiribam T/L	08:00 to 15:00	Daytime S/D , attend to jumper tightening works as per Thermovision report having 22 nos. hot spot location.
6	132kV Nirjuli - Lekhi T/L	08:00 to 15:00	Annual Bay Maintenance work.
7	132kV Kumarghat - Aizawl T/L	08:00 to 15:00	Already approved S/D , Impedance Measurement of Line & associated correction / modification in relay setting based on actual impedance measurement. The activity is essential for implementation/cross checking of relay settings recommended by Ramakrishna Task Force .
8	132kV Aizawl - Jiribam T/L	08:00 to 15:00	
10	132kV Dimapur -Imphal T/L	07:00 to 15:00	Shifting of vulnerbale tower location 271 affected by landslide
11	132kV Silchar -Imphal # 1 T/L	07:00 to 15:00	Shifting of tower involving errection, destringing , restringing of new tower
12	132kV Silchar -Imphal # 2 T/L	07:00 to 15:00	at Loc. 274, affected by massive landslide.
14	132kV Aizawl - Zemawak-II T/L	08:00 to 15:00	AMP of Bay equipments (State consent required)
15	132kV Palatana- Surjamnai Nagar Ckt- II	07:00 to 15:00	Tightening of jumpers in connection with extension of loadability of the line.
16	132 kV Aizawl-Kolasib	0700 to 1500 Hrs	
	400kV Tanmsission Lines		
17	400 KV Kathalguri - New Mariani T/L	09:00 to 13:00	For jumpering of line droppers for charging of 20 MVAR Line Reactor Bay of Kathalguri , NEEPCO
18	400 kV Bongaigaon-BTPS#2	10:00 to 11:00	Already approved S/D , Frequent failure of B-phase CVT fase. CVT cables to be meggered to find out the fault.
19	400kV Balipara -B. Charlali # 3	07:00 to 15:00	
20	400kV Balipara -B. Charlali # 4	07:00 to 15:00	System upgradation NTAMC project isolator wiring adaptation and and alignment work .
21	400kV Balipara -Bongaigaon # 4	07:00 to 15:00	
22	400kV Balipara -Bongaigaon # 3	07:00 to 15:00	
	400kV BALIPARA SS		
23	400kV Bus # 1	07:00 to 15:00	Already approved S/D , System upgradation NTAMC project isolator wiring adaptation and and alignment work .
24	400kV Bus # 2	07:00 to 15:00	
25	80MVAR Bus reactor # 2	07:00 to 15:00	System upgradation NTAMC project isolator wiring adaptation and and alignment work .
	Biswanath Charlali HVDC Substation		
26	400 KV 80 MVAR Bus Reactor-2	07:00 to 15:00	For various diagnostic tests & corrective action, including Oil filtration is warranted, as a part of statutory post commissioning activities/ life measurement of the Reactor.
27	400 KV Ranganadi-2 Bay	07:00 to 15:00	Annual Maintenance of Bay equipments.
	400kV Misa Substation		
28	50MVAR Bus reactor & Bay	07:00 to 15:00	Reactor Gasket repacement work , The reactor is almost 20 years old & for enhancement of useful life, such overhauling has been recommended.
29	220kV Bus Coupler Bay	8:00 to 15:00	Annual Maintenance of Bay equipments.
	400KV Bongaigaon Substation		
30	400 kV BTPS#1 Main Bay	8:00 to 15:00	Annual Maintenance of Bay equipments. (Line shall remain charged via tie bay)
31	400 kV BTPS#2 Main Bay	8:00 to 15:00	Annual Maintenance of Bay equipments. (Line shall remain charged via tie bay)
32	400 kV BTPS#2- Bus Reactor #3/4 Tie Bay	8:00 to 15:00	Annual Maintenance of Bay equipments. (Line / reactor shall remain charged via main bay)
33	400 kV Bus Reactor # 3/4 Main Bay	8:00 to 15:00	Annual Maintenance of Bay equipments. (Reactor shall remain charged via tie bay)
34	400 kV Bus Reactor # 4	10:00 to 13:00	Annual Maintenance of switching Breaker. (Reactor shall be out of service)
	400kV Silchar Substation		
35	400kV Palatana # 1 Line Reactor	8:00 to 15:00	Annual Maintenance of Reactor and Bay equipments.
36	400kV Palatana # 2 Line Reactor	8:00 to 15:00	Annual Maintenance of Reactor and Bay equipments.
37	400kV Palatana # 1 Tie Bay	8:00 to 15:00	Annual Maintenance of Bay equipments. (Line shall remain charged via main bay)
38	400kV Palatana # 2 Tie Bay	8:00 to 15:00	Annual Maintenance of Bay equipments. (Line shall remain charged via main bay)
39	400kV Byrnihat Tie Bay	8:00 to 15:00	Annual Maintenance of Bay equipments. (Line shall remain charged via main bay)
40	400kV Azara Tie Bay	8:00 to 15:00	Annual Maintenance of Bay equipments. (Line shall remain charged via main bay)
41	132kV Bus # 1	8:00 to 15:00	Bus#1 droping in 132kv Side of ICT-1 bay need to be replaced **(All feeder shall remin charged through 132kV Bus 2)**
42	400kV Palatana # 1 Main Bay	8:00 to 15:00	Annual Maintenance of Bay equipments. (Line shall remain charged via tie bay)
43	400kV Palatana # 2 Main Bay	8:00 to 15:00	Annual Maintenance of Bay equipments. (Line shall remain charged via tie bay)
44	400kV Byrnihat Main Bay	8:00 to 15:00	Annual Maintenance of Bay equipments. (Line shall remain charged via tie bay)
45	400kV Bus Reactor # 2 Main Bay	8:00 to 15:00	Annual Maintenance of Bay equipments. (Reactor shall remain charged via tie bay)
46	400kV ICT # 2 Main Bay	8:00 to 15:00	Annual Maintenance of Bay equipments. (ICT shall remain charged via tie bay)
47	400kV Bus Reactor # 1 Main Bay	8:00 to 15:00	Annual Maintenance of Bay equipments. (Reactor shall remain charged via tie bay)
48	400kV ICT # 1 Main Bay	8:00 to 15:00	Annual Maintenance of Bay equipments. (ICT shall remain charged via tie bay)
	ASSAM		
1	132KV Srikona-Pailapool Line	07:00 to 15:00	Line maintenance works
2	132KV Dullavcherra-Dharmanagar line	07:00 to 15:00	For replacement of 132KV CB under PSDF Scheme
4	220/6KV Main Bus at Mariani sub-station	07:00 to 15:00	Replacing of jumpering & doping conductor of 100MVA Tr.No-I & II, Samaguri Fd Noll
5	132KV Main Bus at Mariani sub-station	07:00 to 15:00	For dismantling of Mokochung feeder breaker (MOCB) and replacing of main bus jumpering conductor.
6	220KV lines Samaguri-Mariani II	07:00 to 15:00	Corridor cleaning, Jumper checking
7	132 KV lines I.TPS Mariani S/C	07:00 to 15:00	Corridor cleaning, Jumper checking
8	132KV lines Jorhat-Mariani D/C	07:00 to 15:00	Corridor cleaning, Jumper checking
9	132KV lines Jorhat-Gurgaon-I	07:00 to 15:00	Corridor cleaning, Jumper checking
10	**220KV Agia-Boko**	07:00 to 15:00	jungle cutting and jumper repairing.
11	220/6KV Agia-Azara	07:00 to 15:00	jungle cutting and jumper repairing.
12	132kV Panchgram-Lumnsong(ME)	07:00 to 15:00	for maintenance works. During S/D period power cannot be provided to Meghalaya end
13	132kV Panchgram-Silchar(PG)	07:00 to 15:00	for jungle cutting and jumper repairing.
14	132KV Dullavcherra-Hailakandi	07:00hrs of 14/12/2016 to 15:00hrs of 15/12/16	for replacement of isolator. During S/D period Dullachera will draw power from Dharmanagar(TR) while Hailakandi from Silchar(PG) end.
	Meghalaya		
1	132 kV Khliehriat Bus	1000 to 1300 Hrs	Maintenance Works at Terminal equipments
	NEEPCO		
1	AGBPP GTG #5	10:00 to 24:00 Hr of 08.12.16	To carry out Inspection of Lead Gear Box (LGB)
2	AGBPP GTG #6	10:00 Hr of 09.12.16 to 24:00 Hr of 24.12.16	To carry out Combustor & Bore-scope Inspection (CIBI)
3	400 kV RHEP-BNC Ckt I&II (400 kV station)	07:50 to 15:00 Hr	Alignment adjustment of HCB line isolator of Ranganadi-BNC Line II. Checking of motor control circuit of the Isolator of the line. Replacement of 400Watt HPSV at 400KV switchyard & inspection of Pantograph Isolator of Bus B.
4	Unit I Ranganadi HEP	00:00 to 24:00 Hr of 31.12.16	Annual Planned Maintenance for the year 2016-17
5	Kopili Stage II	From 00:00 hrs of 20.11.16 for 60 days	APM for 2016-17 and (i)commissioning of closed loop cooling water system, (ii) repairing of turbine shaft,(iii) repairing of pivot ring sitting area of the stay ring
6	Kopili Unit 4	0000 Hrs of 01.12.16 to 2400 Hrs of 30.12.16	APM .Installation of Numerical Relays.Transformers,Air Coolers
	OTPC		
1	Unit I	00:00 Hrs of 25.11.16 to 24:00 Hr of 09.12.16.	For corrective work in HRSG-1, Steam Turbine-1 & its system
2	Unit II	00:00 Hrs of 10.12.16 to 24:00 Hr of 24.12.16.	For corrective work in HRSG-2, Licence Renewal of HRSG-2(Statutory Requirement), & LCI-2
	Interregional Lines(PGCIL)		
1	220 kV Birpara-Salakati-D/C	0900 Hrs of 16.11.16 to 1700 Hrs of 18.11.16	For energisation of 220 KV Alipurduar switchyard by LILO of existing 220 KV Birapara-Salakati-D/C at Alipurduar
2	HVDC Agra-BNC Pole-1	0800 to 1800 Hrs	400kv D/C Agra(UP)-Agra(S)line & OPGW stringing indiamond formation.
3	HVDC Agra-BNC Pole-2	0800 to 1800 Hrs	400kv D/C Agra(UP)-Agra(S)line & OPGW stringing indiamond formation.
4	HVDC Agra-BNC Pole-1	0800 to 1800 Hrs	System testing in integrationwith Pole-1 (Power Flow Test)-Multi-Terminal
5	HVDC Agra-BNC Pole-2	C/S/D from 0800 Hrs of 26.12.16 to 1800 Hrs of 28.12.16	integration of Pole-4 wi:t Pole-2

Day-time Shutdown

Continuaous S/D

DEMAND FORECAST USING PAST 3 YEARS DATA ((Jan 2017 - Mar 2017)

										1	2	3	4		
	2013-14			2014-15			2015-16								
	Jan-14	Feb-14	Mar-14	Jan-15	Feb-15	Mar-15	Jan-16	Feb-16	Mar-16	2013-14 Average	2014-15 Average	2015-16 Average	Projected Demand for (Jan 2017 - Mar 2017) before normalization	Data given by DICs	Comments
Arunachal Pradesh	116	116	122	115	115	107	117	135	113	118	112	122	121		
Assam	1,079	1,085	1,164	1,220	1,215	1,215	1,330	1,327	1,316	1,109	1,217	1,324	1,432		
Manipur	129	128	133	144	136	146	166	158	155	130	142	160	174		
Meghalaya	330	295	278	343	316	343	377	322	315	301	334	338	361		
Mizoram	82	77	81	88	88	81	101	99	84	80	86	95	101	93	As per Mizoram
Nagaland	106	104	99	123	120	128	122	118	114	103	124	118	130		
Tripura	201	206	245	210	212	233	219	227	248	217	218	231	236		
N. Eastern Region	**1,925**	**1,929**	**1,995**	**2,202**	**2,155**	**2,131**	**2,332**	**2,328**	**2,367**						

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 (Q4) i.e Jan 2017 to Mar 2017
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/2016/psp_peak-03.pdf
http://www.cea.nic.in/reports/monthly/powersupply/2016/psp_peak-02.pdf
http://www.cea.nic.in/reports/monthly/powersupply/2016/psp_peak-01.pdf
http://www.cea.nic.in/reports/monthly/gm_div_rep/power_supply_position_rep/peak/Peak_2015_03.pdf
http://www.cea.nic.in/reports/monthly/gm_div_rep/power_supply_position_rep/peak/Peak_2015_02.pdf
http://www.cea.nic.in/reports/monthly/gm_div_rep/power_supply_position_rep/peak/Peak_2015_01.pdf
http://www.cea.nic.in/reports/monthly/gm_div_rep/power_supply_position_rep/peak/Peak_2014_03.pdf
http://www.cea.nic.in/reports/monthly/gm_div_rep/power_supply_position_rep/peak/Peak_2014_02.pdf
http://www.cea.nic.in/reports/monthly/gm_div_rep/power_supply_position_rep/peak/Peak_2014_01.pdf

Generation Projection (Jan 2017 - Mar 2017)

				Generation declared Commercial from 1st Apr '16 to 30th Sep'16					Generation declared/expected to be declared Commercial from 1st Oct'16 to 31st Dec'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**	92											92	As per NEEPCO	132	92
2	**AGTPP Extn.**	**NER**		AGTPP Extn	1	46	13	13						13			13
3	**Doyang, NEEPCO**	**NER**	52											52	As per NEEPCO	49	49
4	**Kopili, NEEPCO**	**NER**	128											128		197	197
5	**Khandong, NEEPCO**	**NER**	41											41		40	40
6	**Ranganadi, NEEPCO**	**NER**	404											404		401	401
7	**AGBPP_Kathalguri**	**NER**	245											245		220	220
8	**TGBP**	NER		TGBP	1	65	18	18						18		65	65
9	**Loktak, NHPC**	**NER**	100											100	As per NHPC	105	100
10	**Palatana GBPP**	NER	465											465	As per OTPC	547	465
11	**Bongaigaon_NTPC**	NER		Bongaigaon_NTPC	1	250	161	161						161			161
12	**Arunachal Pradesh**	**NER**	0											0			0
13	**Assam**	**NER**	337											337			337
14	**Manipur**	**NER**	0											0			0
15	**Meghalaya**	**NER**	163											163			163
16	**Nagaland**	**NER**	11											11			11
17	**Tripura**	**NER**	111											111			111
18	**Mizoram**	**NER**	6											6	As per Mizoram	8	8
	TOTAL		**2157**					**192**					**0**	**2348**			**2433**

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.

Study for SPS design for 2x125 MVA ICTs at Palatana

Sl No	Case	Tripura Demand met	Part of Bangladesh Demand met	Tripura Generation	AGTPP Generation	Critical Line Flows					
						400/132 kV, 2x125 ICTs at Palatana	132 kV Palatana-Surjamaningar	132 kV Palatana - Udaipur	132 kV AGTPP-Agartala D/C	132 kV Silchar - PKBari D/C	400/132 kV, 2x200 MVA ICTs at Silchar
A	**Palatana = 500 MW**										
1	BaseCase [Puja 2016 Maximum Demand Met of Tripura & All lines closed with 2 no. ICTs at Palatana]	273	100	65	103	2 x 92	116	67	2 x 44	2 x 14	2 x 116
2	N-1 of Palatana ICT	273	100	65	103	1 x 159	99	58	2 x 48	2 x 20	2 x 172
3	N-1 of Palatana ICT + ***Opening of 132 kV Palatana - Udaipur S/C + Load Shed through SPS in Udaipur downstream (132/66 kV transformers) and Surjamaningar downstream***	237 (22 MW load shed in Udaipur & 14 MW in Surjamainagar)	100	61	103	1 x 131	130	X	2 x 47	2 x 19	2 x 126
4	N-1 of Palatana ICT + Opening of 132 kV Palatana - Udaipur S/C + Load Shed through SPS in Udaipur downstream (132/66 kV transformers) and Surjamaningar downstream + ***Opening of Surjamaninagar - Agartala & Surjamaninagar - Budhjangnagar D/C lines***	237	100	61	103	1 x 102	101	X	2 x 52	2 x 27	2 x 139
B	**Palatana = 700 MW**										
1	BaseCase [Puja 2016 Maximum Demand Met of Tripura & All lines closed with 2 no. ICTs at Palatana]	273	100	65	103	2 x 100	127	73	2 x 41	2 x 10	2 x 119
2	***N-1 of Palatana ICT***	273	100	65	103	1 x 173	108	63	2 x 46	2 x 17	2 x 131
3	N-1 of Palatana ICT + ***Opening of 132 kV Palatana - Udaipur S/C + Load Shed through SPS in Udaipur downstream (132/66 kV transformers) and Surjamaningar downstream***	237 *(22 MW load shed in Udaipur & 14 MW in Surjamainagar)*	100	61	103	1 x 144	143	X	2 x 45	2 x 16	2 x 130
4	N-1 of Palatana ICT + Opening of 132 kV Palatana - Udaipur S/C + Load Shed through SPS in Udaipur downstream (132/66 kV transformers) and Surjamaningar downstream + ***Opening of Surjamaninagar - Agartala & Surjamaninagar - Budhjangnagar D/C lines***	237	100	61	103	1 x 102	101	X	2 x 51	2 x 28	2 x 148

Assumptions:

1) Demand Met (Load) and Generation figures for Tripura state considered as per Puja period maximum demand met (07.10.16 at 18:45 Hrs)
2) Nodewise distribution considered as per Node-wise figures submitted by TSECL for Puja Load
3) Monarchak Generation is NIL due to low gas availability