North Eastern Regional Power Committee

Agenda
For
98th OCC & 22nd PCC Joint Sub-Committee Meeting

Time of meeting : 10:00 Hrs.

Date of meeting : 10th June, 2014 (Tuesday)

Venue : "Hotel Nandan", G.S. Road, Guwahati.

A. CONFIRMATION OF MINUTES

CONFIRMATION OF MINUTES OF 97th MEETING OF OPERATION SUB-COMMITTEE OF NERPC.

The minutes of 97th meeting of Operation Sub-committee held on 6th May, 2014 at Guwahati were circulated vide letter No. NERPC/SE (O)/OCC/2014/0143-0176 dated 16th May, 2014.

CONFIRMATION OF MINUTES OF 21st MEETING OF PROTECTION SUB-COMMITTEE OF NERPC.

The minutes of 21st meeting of Protection Sub-committee held on 6th May, 2014 at Guwahati were circulated vide letter No. NERPC/SE (O)/OCC/2014/0143-0176 dated 16th May, 2014.

No observations or comments were received from the constituents. The Sub-committee may confirm minutes of 97th OCCM & 21st PCCM of NERPC.

ITEMS FOR DISCUSSION

B. OPERATIONAL PERFORMANCE AND GRID DISCIPLINE DURING MAY, 2014

As per the data made available by NERLDC, the grid performance parameters for May, 2014 are given below:

NER PERFORMANCE DURING MAY, 2014

	Energy Met (MU)			Energy Reqr. (MU)		
States	**May-14**	**Apr-14**	**% inc(+)/dec(-)**	**May-14**	**Apr-14**	**% inc(+)/dec(-)**
Ar. Pradesh	45.54	**44.36**	2.7	48.17	**47.08**	2.3
Assam	592.54	**585.78**	1.2	655.0	**630.17**	3.9
Manipur	45.53	**45.89**	-0.8	48.42	**49.19**	-1.6
Meghalaya	114.97	**113.19**	1.6	133.81	**132.48**	1.0
Mizoram	31.98	**31.06**	3.0	34.27	**32.64**	5.0
Nagaland	45.53	**45.69**	-0.3	47.81	**48.25**	-0.9
Tripura	92.31	**82.07**	12.5	99.22	**85.14**	16.5
Region	**968.4**	**948.0**	2.1	**1066.7**	**1024.9**	4.1

	Demand Met (MW)			Demand in (MW)		
States	**May-14**	**Apr-14**	**% inc(+)/dec(-)**	**May-14**	**Apr-14**	**% inc(+)/dec(-)**
Ar. Pradesh	111	**104**	6.7	115	**105**	9.5
Assam	1212	**1230**	-1.5	1332	**1343**	-0.8
Manipur	109	**112**	-2.7	110	**115**	-4.3
Meghalaya	296	**272**	8.8	299	**280**	6.8
Mizoram	73	**76**	-3.9	75	**77**	-2.6
Nagaland	104	**102**	2.0	105	**105**	0.0
Tripura	233	**247**	-5.7	236	**247**	-4.5
Region	**1986**	**2045**	-2.9	**2140**	**2197**	-2.6

REGIONAL GENERATION & INTER-REGIONAL EXCHANGE IN MU

Month---->	**May-14**	**Apr-14**
Total Generation in NER (Gross)	711.27	697.83
Total Central Sector Generation (Gross)	434.45	468.63
Total State Sector Generation (Gross)	276.82	229.2
Inter-Regional Energy Exchange		
(a) NER-ER	11.14	15.99
(b) ER-NER	276.17	287.39
© Net Import	265.03	271.4

AVERAGE FREQUENCY (Hz)

Month---->	**May-14**	**Apr-14**
	% of Time	% of Time
Below 49.7 Hz	22.3	30.09
Between 49.7 to 50.2 Hz	53.04	52.7
Above 50.2 Hz	24.66	17.21
Average	49.98	49.95
Maximum	50.59	50.56
Minimum	49.41	49.49

From the above table, it is seen that energy requirement met of the region has increased where as Peak Demand met in MW decreased.

C.1 Synchronization of Pallatana Module -I

The CoD of Unit # 1 of OTPC was declared on 04.01.2014 and 3rd Gas Booster Compressor (GBC) is still in BHEL's factory at Hyderabad.

During 97th OCC meeting, GM, OTPC informed the house that shut down of Unit # 1 is required for seven (7) days [5 days for preparation of PG test and 2 days for PG test including IDLN tuning] for carrying out Combined Cycle Performance Guarantee (PG) test including IDLN tuning. As per contractual agreement, BHEL is supposed to carry out PG test of the Unit within one month of declaration of CoD in order to establish the capability of GT and ST to generate upto their rated capacity. PG test will increase the Megawatt loading of Gas Turbine (GT) by about 15MW to 20MW as GT compressor will undergo detergent washing. Moreover, General Electric, the manufacturer of GT, wants to carry out borescopic inspection as problem in particular zone of GT is suspected because of which the machine had tripped on combustion failure on various occasions. This situation may lead to break down of machine if the condition persists for longer time. In such case, outage duration of Unit would be quite long and the stake holders of plant are likely face huge commercial loss. He then requested the forum to allow shutdown of Unit #1 w.e.f. 18.05.2014 for a period of 7 (seven) days. Further, he informed that complete shutdown of Unit # 1 is actually from 18.05.2014 to 21.05.2014. The generation is expected to increase gradually from 22.05.2014 and from 23.05.2014 onwards the generating Unit will operate at base load / full load. He wanted the healthiness / availability of Palatana-Silchar 400kV line during last two days of the PG test when Unit will run at full load. He also highlighted about the tripping of gas booster compressor motor due to low voltage problem.

After detailed discussion, the forum agreed to the proposal of OTPC for shut down of Unit # 1 for 7 (seven) days w.e.f. 18.05.204 to 24.05.2014 with the following conditions:

1. No reduction / curtailment in ATC/TTC in NER-ER corridor should take place during the period of shutdown

2. NERPC/NERLDC will have a close co-ordination with Eastern Region counterparts i.e. ERPC/ERLDC so that ATC/TTC is maintained at maximum level.

3. OTPC should furnish their schedule 2 (two) days in advance to NERLDC before availing shutdown along with schedule of generation / injection to grid from 22-05-2014.

4. OTPC should not deviate from/defer the period approved by the forum.

5. NERLDC may explore the possibility of enhancement of generations from the hydro stations / gas based station in the region to meet the shortfall during the shutdown / outage period of generating Unit # 1 of OTPC.

The subcommittee also requested OTPC to take up with ONGC for increase in quantum of gas supply so that Unit # 2 can be taken up for declaration of CoD. The GM, OTPC informed that negotiation and discussion is going on with ONGC for enhancement in quantum gas supply and positive outcome is expected very soon.

The Sub-committee also reviewed the status of commissioning of second unit of OTPC at Pallatana, following Transmission lines of POWERGRID and substation at Azara of Assam. The status as informed by OTPC, Assam and POWERGRID is as follows:

SN	Items	Present status
1	Trial operation and CoD of Unit -II of OTPC at Palatana	Trail operation is expected in June 2014 and CoD is expected in Sept, 2014
2	400KV D/C Silchar - Melriat line	December, 2014
3	400KV D/C Silchar - Imphal line	June, 2014
4	220KV D/C Mariani (New) – Mokokchung	June, 2014
5	400KV D/C Byrnihat-Bongaigaon line	Byrnihat-Azara section of line is almost complete except stringing of 2 spans, which is expected to be completed by May 2014 subject to clearance by Appellate Tribunal for Electricity (APTEL) and Azara–Bongaigaon section of line is expected by June 2014
6	400kV Balipara – Bongaigaon D/C line # 3 & 4 with FSC	May, 2014 subject to availability of forest clearance for 5.2 kms of the line. [FSC commissioned on 11.01.2014]
7	400/220 kV sub-station at Azara of Assam	Sub-station is ready and test charging has been carried out on 28.03.2014. The LILO arrangement is also complete. If the 400kV Byrnihat – Ajara line is commissioned by POWERGRID, then the substation at Azara can be charged at 400kV level.

Commissioning of Block-II of Palatana – Early commissioning of Block-II of Palatana is very essential for NER grid in view of Load Growth as well as metrological forecast of likely failure of monsoon this year.

SN	Items	Present status
1	Trial operation and CoD of Unit -II of OTPC at Palatana	
2	400KV D/C Silchar - Melriat line	
3	400KV D/C Silchar - Imphal line	
4	220KV D/C Mariani (New) – Mokokchung	
5	400KV D/C Byrnihat-Bongaigaon line	
6	400kV Balipara – Bongaigaon D/C line # 3 & 4 with FSC	
6	400/220kV substation at Azara of Assam	

Subcommittee may discuss about the delay in return of shutdown of Unit #1 of OTPC and the technical reason thereof.

C.2 SPS scheme for Pallatana

The following four (4) System Protection Scheme (SPS) associated with generating Unit#1 (363.3MW) of OTPC at Palatana has been planned for NER:

Case 1: Tripping of generating unit of OTPC at Palatana

Case 2: Tripping of 400 kV D/C Palatana- Silchar line (with generation from OTPC's plant at Palatana)

Case 3: Tripping of 400 kV Silchar-Byrnihat line (with generation from OTPC's plant at Palatana)

Case 4: Tripping of 400 KV Silchar – Byrnihat line (without generation from OTPC's plant at Palatana)

During 95th OCC meeting, the Sub-committee reviewed the status of implementation of the scheme and the status was as follows:

Case I & Case IV: Has already been implemented

Case 2-3: GM, OTPC stated that implementation of SPS -2 & 3 mentioned above was discussed in detail and the scheme was finalized in the meeting held with BHEL at Palatana on 17.01.2014. Subsequently some modification has been carried out by BHEL and same will be circulated to all. The commercial offer for implementation of scheme is expected in 10days time and the scheme is will be implemented very soon after completion of procurement process.

OTPC had requested POWERGRID to look into following issues:

(a) SPS at OTPC end should not be modified with commissioning of 2nd Circuit of Silchar _ Bongaigaon 400kV line.

(b) Trip command from two different sources should be available to desynchronize the machine to avoid unwarranted tripping of generating Unit when the generation is more than 200MW. During 93rd OCC meeting, subcommittee had suggested OTPC for getting input from Circuit breakers at both ends of the line (Silchar & Byrnihat) through communication link and to discuss the matter with POWERGRID.

(c) Two out of three logics [i.e. inputs from circuit breaker (s), master trip relay (s) etc.] shall be utilized for de-synchronization of Gas Turbines. During 93rd OCC meeting, subcommittee had suggested OTPC to discuss the matter with POWERGRID.

During the 96th OCC meeting, the Sub-committee expressed concern for delay in implementation of SPS -2 & 3 and requested OTPC to pursue with BHEL for early implementation of the scheme.

GM, OTPC informed that commercial offer for Rs. 13.5 Crores has been received from BHEL for implementation of the scheme and OTPC feels that the cost is exorbitantly high and the matter is under review and discussion is going on with BHEL about the cost.

The forum requested OTPC to share the detail with the subcommittee and forum will try to help. OTPC agreed. The forum insisted for early implementation of SPS-2 & 3, otherwise the safety and security of the grid is / will be in danger.

DGM, NERTS enquired about the requirement of SPS-5 after commissioning of Byrnihat – Azara 400kV line.

The sub-committee requested NERLDC to carry out the system studies so that the requirement of SPS-5 can be reviewed.

The Sub-committee may like to discuss.

C.3 Details of Installations and self-certification (by STUs and CTUs) in respect of operationalisation of Under Frequency Relays (UFRs) in NER systems and additional requirement of UFR and df/dt relays:

During 97th OCC meeting, the Committee reviewed the status of UFR based load shedding as given below:

Ar. Pradesh: CE, Ar. Pradesh stated that installation of UFRs for Stage-I i.e for load shedding of 5MW (at 92.2Hz) has been completed. The identification of feeders for installation of UFRs for load relief of another 15 MW (5 MW in each of 3 remaining stages) has been completed i.e. one at 33 kV Bhalukpong and two at Lekhi S/S. Installation of remaining stages would be completed by June, 2014.

Assam: UFRs based load shedding for 220MW have been implemented.

Manipur: During 96th OCC, Manipur stated that identification of the feeders and installation of UFRs for the required quantum of UFR based load shedding at different stages will be completed by April 2014. Since no representative was present, the status could not be updated.

Meghalaya: EE, SLDC informed that the existing standalone UFRs for Stage – I & II has already been installed at 33 kV Mawphlang S/S. Further, EE, SLDC informed that the installation of UFRs for Stage – III & IV will be completed by May 2014.

Mizoram: During 96th OCC, representative from Mizoram stated that the work associated with utilization of the existing standalone UFRs for Stage – I & II of revised UFR based load shedding would be completed by April, 2014. The remaining work will be completed by June 2014. Since no representative was present, the status could not be updated.

Nagaland: During 94th OCC meeting, EE, SLDC had stated that UFR for stage – III is already in place and installation of UFRs for Stage – I & II will be completed by February, 2014 and installation of UFRs for Stage – IV will be completed by April, 2014. Since no representative was present, the status could not be updated.

Tripura: The representative of Tripura informed that the work associated with utilization of the existing standalone UFRs for Stage – I & II of revised UFR based load shedding has been completed and the installation of UFRs for Stage – III &IV would be completed by July 2014.

The subcommittee once again requested all constituent states of the region to complete the installation of UFRs required for all four stages at the earliest.

The subcommittee also requested all constituent states of the region to provide details of UFR operation [i.e. location, frequency at which UFRs operated / frequency setting of UFRs and the quantum of load shedding happened due to operation of UFRs] on 19-03-2014, on the day of a major grid disturbance in NER, in the next OCC meeting.

The Sub-committee may now like to know about the status of implementation of UFRs based load shedding in respect of Ar. Pradesh, Manipur, Meghalaya, Mizoram, Tripura and Nagaland

C.4 Lines under long outages

During the 97th OCC meeting, the issue for restoration of these lines was reviewed by the committee and the status was as follows:

a) 220kV BTPS – Agia line (one ckt) – [Since Nov'97]: During 96th OCC meeting, the representative of Assam informed that the work associated with 15 kms of the line (out of 42km) has been completed and the target for completion of rest of the work is **June, 2014.**

b) 132kV Mariani – Mokokchung line - [Since Apr'02]

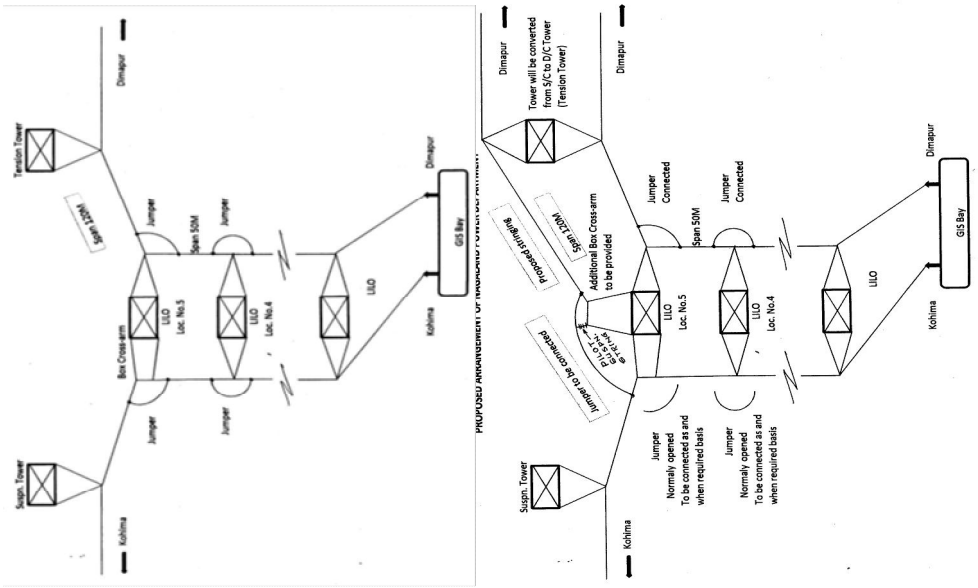
During 93rd OCC meeting, SDO, DoP, Nagaland had informed that the work associated with replacement of insulators in the section of line within Nagaland territory has been completed and the line was test charged in January, 2014 from Mokokchung till Langtho (the border point of Nagaland) and now the remaining portion from Langtho – Mariani, which is under the jurisdiction of Assam, has to be completed by Assam. AGM of Assam had requested Nagaland to check the adequacy of CT ratio at Mokokchung end and had enquired about the test charging voltage level. DGM, POWERGRID had requested Nagaland to check their CT ratio before charging the above line.

During 95th OCC meeting, the representative of Nagaland informed that CE, Nagaland has already communicated to MD, AGECL in this regard vide their letter No. CEL/TB/NERPC/OCC/MEETING/3326 dated 04-03-2014. During 96th OCC meeting, the representative of Assam informed that work associated with the section of the line in Assam territory, beyond Langtho, was executed by Nagaland on deposit work basis and hence replacement of insulator in other section of line, within territory of Assam, can be taken up by Nagaland on deposit work basis. Subcommittee requested Assam and Nagaland to sort out the issue as early as possible. Since no representative from Nagaland was present, the subcommittee requested Assam to sort out the issue with Nagaland as early as possible.

c) 39km of 132kV Rengpang – Jiribam line – [Since Oct'02]

During 93rd OCC, EE, DoP, Manipur had informed that site for relocation of new tower (due to ground clearance problem caused due to road cutting by BRTF) has been identified. During 96th OCC meeting, the representative of Manipur informed that the work is in progress and line would be charged by April, 2014. Since no representative from Manipur was present, the status could not be updated.

d) LILO of 132 kV Dimapur (Nagaland) – Kohima (Nagaland) line at 220/132 kV Dimapur (PGCIL) Substation- [Since Aug'11]:



Before Modification After Modification

During 93rd OCC meeting, the subcommittee had suggested DoP, Nagaland to utilize the LILO arrangement at GIS substation at Dimapur for the connectivity to Kohima. The EE, SLDC, Nagaland informed that the CB of GIS bay tripped on 6th February 2014 while the line was operating through LILO arrangement. The DGM POWERGRID informed that the problem with the CB of GIS bay would be rectified by 20th February 2014 and requested Nagaland to use the LILO arrangement at Dimapur GIS substation of POWERGRID. Nagaland agreed.

During 95th OCC meeting, DGM, POWERGRID informed that the project proposal for suggested modification (i.e. incorporation of additional Box Cross Arm at Tower Location No. 5) has been approved by competent authority of POWERGRID with following condition.

"Normal arrangement should be as per approved and implemented scheme i.e. Dimapur (PG) – Dimapur (State) 132kV S/C and Dimapur (PG) – Kohima 132kV S/C. Only during contingency at Dimapur (PG), it may be operated as Dimapur (State) – Kohima 132kV S/C."

The communication in this regard has already been issued, vide letter No. NESH/OS/F-1004/475 dated 25-02-2014, addressed to EE, Electrical Transmission division, DoP, Govt. of Nagaland.

During 96th OCC meeting, EE, DoP, Nagaland informed that they have no objection to the arrangement suggested by POWERGRID. The work associated with above modification will be taken up soon and the work is likely to be completed by May 2014.

Since no representative from Nagaland was present, the status could not be updated.

POWERGRID, Nagaland, Assam and Manipur may kindly intimate the current status.

C.5 CT Ratio of Transmission Lines in NER:

For determining present loadability limits of Transmission lines of NER (132 kV & above), all constituents are requested to send the following details of CTs at both ends of their lines at the earliest: Present Setting of CT Ratio & PSM Setting (for protection) and CT specification.

It was discussed during 90th, 91st, 92nd, 93rd and 94th OCCMs that the data to be provided at the earliest.

TSECL, Me. PTCL, Nagaland, POWERGRID & NEEPCO (Kopili) have furnished these details. However other utility (NEEPCO, MSPCL, Mizoram, Arunachal Pradesh & NETC) have not furnished these data till date.

During 97th OCC meeting, NERLDC informed that the details of CTs have been received from Tripura, Meghalaya and Nagaland. The representative of Assam informed that the details of CTs were submitted during 96th OCC meeting. The subcommittee requested Assam to resubmit / mail to NERLDC. NEEPCO informed that details of CT for the remaining stations have already been sent to NERLDC. CE, Ar. Pradesh stated that the details of CT will be furnished by May, 2014. The subcommittee requested others to submit the CT details to NERLDC at the earliest.

Concerned constituents may kindly intimate the status.

C.6 Furnishing Geographic Co-ordinates of Nodes of NER Grid:

Power Maps of NER states are being developed by CBIP. To represent nodes of NER Grid in power maps, Co-ordinates of **existing Nodes, Nodes under construction** & **identified future Nodes** (66 kV & above) of NER Grid are required. Power Utilities of NER are requested to furnish latitude & longitudes of Nodes of NER Grid.

During the 97th OCC meeting, Ar. Pradesh & Tripura stated that the above data will be furnished by May, 2014. Assam and Meghalaya informed that the above data will be furnished by June, 2014. Meghalaya has furnished the above data.

The forum requested POWERGRID to help in getting latitude and longitude of stations of NER grid. DGM, NERTS stated that POWERGRID can help the constituents by providing the GPS equipment and the concern person of the constituents can co-ordinate with in-charge of nearby substation of POWERGRID.

The sub-committee requested the constituents to tie up with POWERGRID in this matter so that data as required by NERLDC can be furnished at the earliest.

Committee may like to discuss.

C.7 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 2014-15 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	Jun14	Jul14	Aug14	Sep14	Oct14
Ar. Pradesh	57	61	62	64	70
Assam	645	725	735	715	790
Manipur	49	59	59	61	65
Meghalaya	145	160	150	145	170
Mizoram	36	39	37	35	43
Nagaland	54	60	50	60	65
Tripura	105	120	120	125	120
NER	**1091**	**1224**	**1213**	**1205**	**1323**

Availability:

Name of State	Jun14	Jul14	Aug14	Sep14	Oct14
Ar. Pradesh	62	79	74	65	58
Assam	554	655	666	614	524
Manipur	66	85	87	79	72
Meghalaya	211	279	222	250	232
Mizoram	47	56	50	42	46
Nagaland	47	58	62	55	52
Tripura	164	180	180	185	147
NER	**1151**	**1403**	**1341**	**1290**	**373**

- *These data required for preparation of various reports.*

Constituents may kindly furnish the data to NERLDC.

C.8 Monthly MW requirement & availability of each state of NER:

The following figures were taken from minutes of 96th OCCM. These figures are to be reviewed.

A. Peak Demand in MW

Name of State	Jun14	Jul14	Aug14	Sep14	Oct14
Ar. Pradesh	120	121	90	139	136
Assam	1400	1400	1400	1350	1380
Manipur	110	125	110	135	140
Meghalaya	320	300	260	310	335
Mizoram	80	85	85	86	87
Nagaland	110	105	110	100	140
Tripura	250	240	250	260	310
NER	**2390**	**2358**	**2345**	**2380**	**2528**

B. Peak Availability in MW

Name of State	Jun14	Jul14	Aug14	Sep14	Oct14
Ar. Pradesh	130	130	100	101	130
Assam	1200	1200	1050	1045	993
Manipur	130	130	90	122	134
Meghalaya	300	320	350	401	415
Mizoram	85	90	95	91	91
Nagaland	95	95	100	95	86
Tripura	210	230	260	300	295
NER	**2200**	**2235**	**2045**	**2155**	**2145**

As decided in 96th OCCM, SLDCs are requested to provide the following data:-

A. Off Peak Demand in MW

Name of State	Jun14	Jul14	Aug14	Sep14	Oct14
Ar. Pradesh	72	72	74	77	75
Assam	888	893	918	868	856
Manipur	75	78	81	81	84
Meghalaya	213	201	202	202	201
Mizoram	56	55	54	57	57
Nagaland	79	81	72	72	84
Tripura	179	182	182	175	202
NER	**1487**	**1490**	**1500**	**1460**	**1485**

B. Off Peak Availability in MW

Name of State	Jun14	Jul14	Aug14	Sep14	Oct14
Ar. Pradesh	123	130	129	121	121
Assam	968	964	955	903	914
Manipur	146	123	123	114	114
Meghalaya	360	452	460	437	390
Mizoram	88	95	94	89	84
Nagaland	82	89	88	83	78
Tripura	283	291	291	284	284
NER	**1948**	**2069**	**2068**	**1955**	**1910**

D. N E W I T E M S

D.1 Generation Planning (ongoing and planned outages)

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

Khandong –	MU
Kopilli –	MU
Ranganadi -	MU
Doyang –	MU
Loktak –	MU
Pallatana -	MU

Hydro generation planning for lean hydro period - The reservoir levels in all the hydro stations have started depleting. Hence proper planning is necessary this year in view of likely failure of monsoon as predicted by metrological department.

Restoration of Kopili & Khandong units - NER is reeling under severe shortfall of power due to outage of all the units of Kopili & Khandong stations. Early revival of these units is very essential for meeting the demand of the region which is increasing very fast.

The Committee may discuss and approve the proposed shutdown if any by Generating Stations. **Annexure- D.1**

D.2 Outage Planning Transmission elements

Uploading of monthly outage proposals in NERPC website and other issues like delay in returning of shutdown, frequent requisition for shutdown of elements other than already approved list etc - All the above issues are very important and required to be deliberated for actions by concerned from the angle of CERC regulations/ CEA guidelines etc for ensuring smooth & secure grid operation. This was discussed in various OCC meeting but no concrete action has been taken.

Members may please deliberate on the issue.

The sub-Committee may kindly discuss and approve the transmission line outages proposed by Constituents for June - August, 2014 as enclosed at **Annexure- D.2**.

D.3 Monthly Power Supply Position to Rural Villages:

Month & Year:

Name of the State	Number of Distribution Companies in the State	Name of Distribution Company	Total Electrified villages		Average Hours of Power Supply to rural areas in the month (Hours)	Energy supplied to Rural Areas during the month (MU)
			Total No. of inhabited villages as per 2011 census	No. of inhabited villages Electrified		

Even after repeated request, only Assam, Mizoram and Tripura have submitted the required information for last three months [February, March and April 2014] in above simplified format. Ministry of Power and CEA are insisting for submission of above information on monthly basis. All constituent states of NER are requested to submit required information on monthly basis by 15th of next month.

The Sub-Committee may like to discuss.

D.5 LGBR for 2014 - 2015:

The LGBR for 2014 -15 for NE Region in respect of Demand(MW) & Requirement(MU) and availability (MW & MU) has been finalized & published on 30.04.2014. All the constituents are requested to submit the data for preparation of LGBR for important transmission elements shutdown in state sector. CTU has already furnished the data for FY 2014-15.

Constituents are requested to kindly submit the above data in the format furnished by NERPC at the earliest.

D.6 Automatic Data Management Scheme (ADMS):

Assam stated that the Honorable Commission in its order dated 25.04.2014 in Petition No. SM/005/ 2014 has directed all Officer In Charge of the respondents State Transmission Utilities/ SLDCs to Show cause latest by 15.05.2014, as to why action under Section 142 of the Electricity act 2003 should not be taken against them for non compliance with CERC's direction and the provisions of the Act and the Grid Code with regard to implementation of the Automatic Load Management Scheme.

In this regard a reply was given by Assam to Hon'ble commission that due to non availability of in house expert, the ADMS could not be implemented in Assam. However the other schemes like installation of UFR, Islanding scheme, SPS etc. were intimated to the commission. But the petitioner NLDC in the hearing intimated that the ADMS scheme is basically to restrict the over drawl of power from the system and every State/Distribution Licensees should install ADMS without any delay in order to maintain the security of the grid.

As the States of NER do not have any knowledge in this regard, it is requested NERPC forum to highlight this matter and give the knowhow of the scheme so that this may be implied in NER to maintain the generation load balance to restrict the overdrawl.

Similarly, Meghalaya stated that as per Regulation 5.4.2 of IEGC, the SLDC through respective State Electricity Boards/Distribution Licensees shall also formulate and implement state-of-art demand management like rotational load shedding, demand response (which may include lower tariff for interruptible loads) etc., before 01.02.2011, to reduce overdrawal in order to comply para 5.4.2 (a) and (b). A Report detailing the scheme and periodic reports on progress of implementation schemes shall be sent to Central Commission by the concerned SLDC.

Further, NERLDC informed that Violation of Regulation 7 (1) of CERC (Deviation Settlement and related matters) Regulation 2014 (Limit on volume of deviation) - List of state-wise overdrawl & underdrawl violation details w.e.f 17.02.2014 to 11.05.2014 is attached at **Annexure D.6 (I).**

Violation of regulation 7 (10) of CERC (Deviation Settlement and related matters) Regulation 2014: (Sustained deviation from schedule in one direction) - List of state-wise zero crossing violation details w.e.f 17.02.2014 to 11.05.2014 attached at **Annexure – D.6 (II).**

NERPC/NERLDC may kindly deliberate.

D.7 Review of Pallatana SPS:

Meghalaya informed that with the available of 126 MW of Myntdu Leshka HEP, the Special Protection Scheme of Pallatana needs to be reviewed.

Committee may like to discuss.

D.8 Enhancement of SPS related load shedding:

NERLDC informed that it has been observed that there was number of tripping of Palatana machines during Apr14. Due to tripping of Palatana machines, NER Grid was operated in vulnerable condition. Though, there was relief of around 40-50 MW (Off Peak) & 80-90 MW (Peak) after activation of SPS I, it is felt that the quantum is not sufficient to maintain the healthiness of NER Grid. To operate NER Grid in safe, secure and reliable mode, it is required to enhance SPS related load shedding to 250 MW [RTC].

As per regulation no 5.2.o of IEGC, all Users, STU/ SLDC, CTU/RLDC and NLDC, shall also facilitate identification, installation and commissioning of System Protection Schemes (SPS) (including inter-tripping and run-back) in the power system to operate the transmission system closer to their limits and to protect against situations such as voltage collapse and cascade tripping, tripping of important corridors/flow-gates etc.

During 97th OCC meeting, representative of Assam did not agree with the view of NERLDC and strongly opposed the load shedding upto 250MW during the tripping of generating unit at Palatana. The sub-committee requested NERLDC to review the proposal so that the issue can be discussed further in the next OCC meeting.

NERLDC may kindly deliberate on the issue.

D.9 Status/Load ability of 132 kV Lumshnong – Panchgram Line:

Meghalaya informed that since the line is old, loading of above line needs to be fixed at a safe thermal limit. Hence both Assam & Meghalaya may look into the matter for strengthening of the system.

Committee may like to discuss.

D.10 Construction of 220/132/33 kV sub-station at Sonapur:

AEGCL informed that they are planning to construct 220/132/33kV substation at Sonapur with 2x100MVA, 220/132kV & 2x25 MVA, 132/33kV transformers which is situated at 25 KM east from Guwahati City. AEGCL is proposing this substation to substantiate the growing demand of greater Guwahati city as the City is entirely dependent on the only 220/132/33kV Sarusajai substation of capacity 3 x 100 MVA, 220/132kV transformer capacity. In the month of July 2013, 220/33kV, 2 x 50MVA Jawaharnagar substations was commissioned by one circuit LILO of Samaguri – Sarusajai D/C line.

It may be mentioned that the Misa – Byrnihat 220kV D/C line, which is connecting two numbers vital source i.e. Pallatana in Byrnihat end and Kopili & Ranganadi power in Misa end **(SLD at Annexure – D.10**). Moreover, the distance between Misa – Byrnihat 220kV D/C line and the proposed Sonapur 220kV substation site is only 2 KM. By LILO of one circuit of the Misa – Byrnihat 220kV D/C line, the system security as well as reliability of the system will be increased as follows:

- In case, there is a Bus fault/400kV Silchar – Azara line fault/Shut down of 400kV bus at Kukurmara, the power evacuation from Palatana generators may not be possible for Assam's share. Load flow study has already been conducted by simulating this condition and it is observed that the Misa – Samaguri 220kV D/C line get overloaded.
- Similar in the case of Byrnihat end as described above, Meghalaya is to suffer.
- Further, for any contingency in Misa – Samaguri 220kV lines section, Assam has to surrender Kopili power at Misa end.

Committee may like to discuss.

D.11 LILO of 132 kV Kahilipara – Umtru line at Byrnihat:

Assam informed that there are two numbers 132kV D/C lines, one from Kahilpara (Assam) 132/33kV substation to Umtru (Meghalaya) and the other one from Sarusajai (Assam), 220/132/33kV substation to Umtru (Meghalaya). At Sarusajai, one 100MVA, 220/132kV ICT was commissioned in the year 2005, deposited by Meghalaya for evacuating their share from Eastern Grid (**SLD at Annexure-D.11**). After commissioning of 220kV Byrnihat substation, the above links remains as redundant to Meghalaya's transmission network. Now, with the up gradation of Byrnihat 220kV to 400kV, the above lines remain as a part of contingency planning. While, in Assam, particularly for Guwahati City, Sarusajai being the only source, for any contingencies either in lines or substations equipment, Guwahati becomes out of power, even having the afore mentioned links as there are only one D/C connectivity between Byrnihat 132kV bus to Umtru 132kV bus.

Now AEGCL want to propose D/C LILO of Kahilipara – Umtru 132kV D/C line at Byrnihat, so that during contingency of Sarusajai substation, the Guwahati city can be partially powered up. On the other hand, if drawl of double circuit LILO pause problem i.e. numbers bay requirement will be four at 132kV Byrnihat bus, the Kahilipara – Umtru 132kV D/C line may be terminated at Byrnihat and in this case only two numbers bay will be required at Byrnihat 132kV bus.

The execution of the above proposal will be beneficial for both the States i.e. Assam & Meghalaya and shall remain as a part of n-2 contingency criteria of transmission planning.

Committee may like to discuss.

D. 12 Augmentation of Transformation Capacity at 400/220/33 kV Misa sub-station of POWEWRGRID in NER:

At present, the Transformation Capacity at 400/220/33kV Misa Sub Station is 2X315MVA at 400/220kV level. But it has been observed that combined loading of ICT # 1 & 2 becomes more than 300MW during outages of various elements in NE Grid as detailed below:

SN	MW ICT # (1+2)	DATE	TIME	ELEMENT UNDER OUTAGE
1	312	19.12.13	20:00	Pallatana Generation
2	310	28.02.14	18:00	Kathalguri 2 units
3	382	01.03.14	20:00	Pallatana Generation
4	334	02.03.14	20:00	Kathalguri 2 units
5	342	03.03.14	20:00	Kathalguri 3 units
6	300	04.03.14	20:00	Kathalguri 4 units
7	364	05.03.14	18:00	Kathalguri 4 units
8	342	08.03.14	20:00	Kathalguri 2 units
9	334	09.03.14	18:00	Kathalguri 4 units

10	338	10.03.14	19:00	Kathalguri 4 units
11	390	15.03.14	18:00	Pallatana Generation + Kathalguri 3 units
12	300	16.03.14	18:00	Pallatana Generation + Kathalguri 3 units
13	306	10.04.14	19:00	Kathalguri 2 units
14	410	22.04.14	21:00	Kathalguri 2 units + BTPS-Agia-Sarusaji
15	310	29.04.`14	21:00	Pallatana Generation
16	334	07.05.14	19:00	Pallatana Generation
17	410	08.05.14	18:00	Kathalguri 3 units
18	348	19.05.14	20:00	Pallatana Generation
19	370	20.05.14	20:00	Pallatana Generation + Kathalguri 2 units
20	380	21.05.14	18:00	Pallatana Generation
21	382	22.05.14	21:00	Pallatana Generation
22	344	23.05.14	21:00	Pallatana Generation
23	308	25.05.14	23:00	Pallatana Generation

Thus, under said circumstances as above, the N-1 philosophy fails and the Grid becomes vulnerable to collapse in the event of tripping of any one ICT at Misa. The situation is going to be more critical in future with increase of load.

Hence, augmentation of transformation capacity at 400/220kV Misa Sub Station is essential to stabilise & strengthen the Grid for ensuring reliable and secure power NER constituents.

At present, one of the ICTs at Misa is 3 X 105MVA (1-Phase), 400/220kV with a spare unit which were commissioned during December 1995. Considering the space constraints and also, connectivity of various Generations at 220kV level viz. Kathalguri GBP, Kopili HEP, Doyang HEP etc. at Misa, it is proposed to install 2X500MVA, 400/220/33kV (3-Phase) ICTs in place of existing 4 units of 1-Phase ICTs and accommodate associated bays on GIS to manage the installation in available limited space. On removal of 1-Phase ICTs at Misa the same can be kept as regional spare against ICTs at Balipara and Bongaigaon.

Committee may like to discuss.

D.13 <u>Capitalization of various works carried out during Tariff Block (2009-2014)</u>:

During 96th OCC Meeting the issue of capitalisation of various works carried out during Tariff Block 2009-14 was discussed. Accordingly, DGM, NERTS informed that certain jobs have already been taken up by POWERGRID during Tariff block 2009-14 as per requirement of various regulations of CEA and requested the forum for approval in order to take up matter with CERC for capitalization of expenditure in Tariff Block (2014-19). The sub-committee requested POWERGRID to approach CERC for capitalization of the expenditure. However, sub-committee requested POWERGRID to provide details of expenditure on this account to the forum in the next OCC meeting. The details of expenditure are as below:

SN	Activity	Year of Execution	Remarks	Expenditure (in Lakhs)
1	Installation of N_2 Fire Extinguisher System (14 nos.) in Transformers and Reactors at Salakati (2 nos.), Dimapur (4 nos.), Nirjuli (2 nos.), Ziro (4 nos.), Kumarghat (1 no.) & Aizawl (1 no.) Sub Station	2013-14	As per CEA Notification dated 20.08.2010	149.89
2	Installation of 2nd Numerical Relays (20 nos.) for 220kV Lines. (a) Misa-Dimapur D/C – 4 nos. (b) Misa-Kopili D/C – 2 nos. (c) Misa-Kopili S/C – 1 nos. (d) Misa – Samaguri D/C – 4 nos. (e) Misa–Mariani–Kathalguri D/C-4 no. (f) Balipara-Samaguri – 1 no. (g) Salakati-Birpara D/C – 2 nos. (h) Salakati-BTPS D/C – 2 nos.	2013-14	As per CEA Regulation 2007	53.59
3	Replacement of Old (more than 15 years age) and Obsolete ETI PLCC Panels (38 NOS) at Misa (6 nos.), Samaguri (2 nos.), Kopili (3 nos.), Salakati (2 nos.), BTPS (2 nos.), Dimapur (3 nos.), Imphal (2 nos.), Loktak (2 nos.), Jiribam (3 nos.), Haflong (2 nos.), Aizawl (2 nos.), Khliehriat (1 nos.), Khandong (3 nos.), Nirjuli (2 nos.), Gohpur (1 nos.), Kumarghat (1 no.) and Ranganadi (1 no.).	2012-13	As per CERC Notification 21.02.2014	183.20
4	Pile foundation at the following tower locations:			
(i)	Loc. 73 & 75 of 132KV Gohpur-Itanagr line	2012-13	As per requirement	79.30
(ii)	Loc. 29 of 220KV Balipara-Samaguri line	2013-14	As per requirement	75.30
(iii)	Loc. 42 of 400KV Ranganadi - Balipara line.	2013-14	As per requirement	125.80
(iv)	Loc. 288 of 400KV Balipara-Bongaigaon line	2013-14	As per requirement	97.70

SN	Activity	Year of Execution	Remarks	Expenditure (in Lakhs)
(v)	Loc. 586 & 587 of 400KV Misa-Mariani line.	2013-14	As per requirement	318.13

Committee may like to note.

D.14 <u>Capitalization of various works taken up/to be taken during Tariff Block (2009-2014)</u>:

During 96th OCC Meeting the issue of capitalisation of various works to be carried out during Tariff Block 2009-14 was discussed. Accordingly, DGM, NERTS informed that certain works as detailed below have been taken up / likely to be taken up by POWERGRID during Tariff block 2014-19 as per requirement of various regulations of CEA and requested the forum for approval. The sub-committee requested POWERGRID to provide details of expenditure already incurred /anticipated expenditure on this account to the forum in the next OCC meeting and capitalization of expenditure can be done as per CERC regulations.

The details of expenditure are as below:

SN	Activity	Remarks	Expenditure (in Lakhs)
1	Installation of Hydrant System at Salakati, Nirjuli, Ziro, Kumarghat & Aizawl Sub Station as per Regulation	As per CEA Notification dated 20.08.2010	60.00
2	Installation of 220kV Bus Bar Protection Scheme including replacement of 245kV CTs at Dimapur Sub Station as per Regulation	As per CEA Regulation 2007	50.00
3	Optical Terminal Equipments (SDH) against Obsolete SDH	Already agreed by constituents in UCC Meeting	200.00
4	Installation of Fire Alarm system in Control Rooms	As per CEA Notification dated 20.08.2010	150.00
5	Replacement of Old (more than 25 years age) Bay Equipments viz: Isolator, CT & CVT of POWERGRID bays at Samaguri (AEFCL) Sub Station	As per CERC Notification 21.02.2014	80.00
6	Strengthening of Suspension towers of 400KV Balipara-Bongaigaon line	As per system requirement	390.00

SN	Activity	Remarks	Expenditure (in Lakhs)
7	Pile foundation at loc.45,58 & 66 of 400KV Ranganadi-Balipara line	As per Requirement	500.00

Committee may like to note.

D.15 <u>Up-gradation of 132 kV Halflong, 132 kV Jiribam, 132 kV Kumarghat and 132 kV Aizawl sub-stations on completion of 25 years age and capitalization during Tariff Block (2014-2019)</u>:

During 96th OCC Meeting the issue of up-gradation of 132kV Haflong, 132kV Jiribam, 132kV Aizawl and 132kV Kumarghat Sub Station was discussed. Accordingly, DGM, NERTS informed that up-gradation of above sub-stations are mandatory since they have completed 25 years of service and capitalization will be done in Tariff Block (2014-19).

The sub-committee requested POWERGRID to approach CERC for capitalization of expenditure. However, sub-committee requested POWERGRID to provide details of expenditure on this account to the forum in the next OCC meeting.

The details of tentative expenditure are as below:

SN	Sub Station	Year of Comm.	Expenditure (in Rs. Lakhs)
1	132kV Haflong Sub Station	1987	472.00
2	132kV Aizawl Sub Station	1987	549.00
3	132kV Jiribam Sub Station	1987	646.00
4	132kV Kumarghat Sub Station	1987	760.00
		Total =	***Rs. 2426.00 Lakhs***

Committee may like to note.

D.16 <u>Pallatana Generation:</u>

Tripura informed that on 10th May 2014, Palatana Generation was available. But schedule has given to the beneficiary. TSECL has brought to the notice of NERLDC/NERPC.

Committee may like to discuss.

D.17 Partial Requisition Based Scheduling in NER:

Tripura informed that Partial Requisition based schedule has been implemented in the region except for Hydel Generation. But hydel generation frequently changes their schedule which is effected the DSM & penalty imposed for that.

Committee may like to discuss.

D.18 PG Test of Pallatana:

Tripura informed that as per request of OTPC Palatana, NERLDC have given consent for carrying out of 60 % capacity test from 00:00 hrs to 04:00 hrs of dated 04.06.2014 without getting any confirmation from SLDC Tripura. More over NERLDC has given full schedule to Tripura from OTPC Palatana in "0" revision for the date 04.06.2014. Regarding the test run NERLDC have intimated SLDC, TRIPURA at 21:30 hrs on 03.06.2014 through mail. During this period we were unable to manage our power system resulting huge commercial losses. Further balancing of drawal schedule under DSM has become more critical under such situation with commercial heavy penalty.

In this regard Tripura once again requested to intimate at least one day before to implement the programmed. It will be helpful for Tripura as well as the region for smooth maintaining of power system.

Committee may like to discuss.

D.19 Low Generation of Kopili and Khandong HEP of NEEPCO:

During the current year 2014-15 the energy generation of all the units of Kopili-I, Kopili II and Khandong are unexpectedly low. While after long shut down Kopili-I started generation from mid of April' 2014 but the availability of energy is too low. KHEP-II is under long shut down from January' 2014 and Khandong is under shut down from April' 2014.

Because of low rainfall, the generation of other hydro stations of the region is available only in peak support depending on the water availability. The reliability of thermal stations of the region is also not steady. Though Assam is importing power from NTPC stations of ER as well as purchasing from outside the region through short term arrangement, but transmission constraints at ER-NER link is causing problems particularly at peak hours. As such, optimum generation from regional sources is the only way to alleviate the sufferings of ultimate consumers.

The forum is requested deliberate on the subject matter and evolve a road map which can meet the interest of both sides.

Further, all generating stations of the region are requested to inform to all Beneficiaries about their station-wise availability of generation in MW/MWh on three months basis in advance so that the Beneficiaries can take necessary steps accordingly.

Committee may like to discuss.

D.20 Action by NERLDC to control overdrawal by beneficiaries:

NERLDC informed that it has been observed that despite of repeated requests made by NERLDC in real time, beneficiaries fail to maintain their drawal within the scheduled quantum most of the times resulting in not only violation of various clauses of IEGC & other regulations but also putting the NER grid in jeopardy. NERLDC is compelled to issue violations messages and also to open feeders to save the situations. It is to be noted that the list of violations messages issued by NERLDC are compiled and sent to various authorities including CERC periodically as per regulations.

Committee may like to discuss.

D.21 Pre monsoon activity of transmission elements:

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

During 97th OCC meeting, the Sub-committee requested all the constituents/utility to carry out the above activities as suggested by NERLDC.

NERLDC may kindly intimate the status.

D.22 Import TTC of NER-ER Corridor:

NERLDC informed that Import TTC of NER-ER corridor for Peak Hours (w.e.f 1700 Hr to 2300 Hr) & Off Peak Hours (w.e.f 0000 Hr to 1700 Hr & 2300 Hr to 2400 Hr) restricted due to limitation of transfer capability of North-South Corridor of NER (Brahmaputra Flow Gate) & congestion in ER network. Major changes of Import TTC of NER-ER corridor takes place due to generation pattern of Ranganadi, long outage of 220 kV BTPS-Agia, feeding of Nangalbibra load from Agia, increase in capital area load of Assam, capacity limitation of Misa ICT, etc.

To enhance Import TTC of NER-ER corridor, the following are required:

i. Loading capacity of 220 kV BTPS-Agia line
ii. Loading capacity of 220 kV BTPS-Salakati line
iii. Second circuit of 220 kV BTPS-Agia line to be revived at the earliest
iv. Capacity of Misa ICT to be enhanced
v. New 220 kV line from Kukurmara-Sarusajai/Kukurmara-GIS(Jawhar Nagar) & enhancement of transformation capacity of Sarusajai/GIS.

Committee may like to discuss.

D.23 Up-dated List of important Grid Elements May 2014 document (Draft):

NERLDC informed that as per Clause No 5.2.c of IEGC, List of Important Grid Elements was prepared and uploaded to NERLDC website and also e-mailed to regional entities of NER to furnish data required for finalization of List of Important Grid Elements May14 by 25th May'14. It was discussed in last OCC meeting that the document is to be finalized by 28th May14. No comments received from any regional entities of NER till 25.05.14.

Updated List of Important Grid Elements May14 finalized and uploaded to NERLDC website. The document is password protected. Password may be obtained from SOII department of NERLDC. [A Mallick DGM m/no 9436302720]

Constituents may like to note.

D.24 Up-dated Power Maps and Single Line Diagrams of NER States & NER:

NERLDC informed that Updated version of this document uploaded to NERLDC website & e-mailed to power utilities of NER for comment and suggestion. Power utilities of NER are requested to submit comment and suggestion for this document by 25th Jun14. This document will be finalized by 28th Jun14.

Constituents may kindly give their observations/comments at the earliest.

D.25 Telemetry Status/Data not available/inconsistent:

I) ISTS/ISGS:

a. PALATANA and 400 KV SILCHAR frequent data outage due to DC power supply problem.(On 04.06.14 from 0214 to 1040) During last one week 4-5 times data turned suspect.

b. Kathalguri data goes out frequently.(from 30.05.14-01.06.14 and again from 04.06.14)

c. ZIRO S/S: RTU not reporting from 04.12.13 - ***Dedicated voice communication not established.***

d. 400 KV BYRNIHAT S/S: Major S/S but data not updating from POWERGRID/ Me. PTCL/Me. ECL end from 04.01.14..400 side data not modeled by Meghalaya - ***Dedicated voice communication not established. POWERGRID/Me. ECL***

II) **In ASSAM System** only 22-24 RTUs are reporting against total no of RTUs of 50.132 KV Major non-reporting S/S are Dhaligaon, Badarpur, Gohpur, Dullavcherra, Sishugram, Srikona, Rangia, BNC, Dispur.

Data Unstable: BTPS, MARIANI, SAMAGURI, NTPS, LTPS, Dibrugarh, Agia, Boko.

III) **TSECL**: Generating Stations Gumti (since Jan 2011),2.Rokhia (All CB status suspect)

Substations: Badharghat, Kamalpur, Jirania, Budhjungnagar, Ambasa, Udaipur (Palatana line not connected) 6-7 RTUs are reporting against 15 RTUs.Surjyamani Nagar: RTU not installed.

Dharmanagar: Reporting from 06.10.13 but 132 KV Gournagar line data and local t data not updating. Bus summation mismatch also exist.

IV) **DATA VALIDATION**: It is observed that in most of the telemeter stations (all constituents) real time telemeter Analog data/CB status are not matching with the field data/CB status even if RTU is reporting and data/CB status quality is showing good. These types of telemetered data are giving misleading information to Grid Managers and other concerned.

So it important to check/validate the telemetered data with the actual field data at-least once in a week and interchange among us. This will also be important feedback to concerned persons to take corrective action to correct telemetry value/CB status.

V) **State Estimator/RTCA Operation**: RTCA and SE in NER is not giving graceful solution due to non availability of S/S end data. It is opined by experts that at-least 80% data should be good for SE/RTCA operation. So all constituents are requested to make arrangements so that 80 % data remains good in real time.

The Sub-Committee may like to discuss.

D.26 Estimated Transmission Availability Certificate (TAC) for the month of May, 2014.

The Estimated Transmission System Availability for the month of May, 2014, furnished by PGCIL, is **99.9820%.** The detail outage data for calculation of Transmission System Availability furnished by PGCIL, is at **Annexure D.26.** NER constituents are requested to kindly communicate their views and observations, if any, by 27th May, 2014 so that Final TAC for the month of April, 2014 may be finalized by NERPC Secretariat.

The Sub-Committee may like to discuss.

E. NEW ITEMS

E.1 Implementation of islanding scheme in NER

During the 94thOCC meeting, the committee had decided the following islanding scheme and associated frequencies levels for creation of islands in NER:

SN	Islanding Scheme	Lines required to be opened	UFR Location	Implementing Agency
1	**ISLAND AT 48.80 Hz with 5 Sec delay:** Island comprising of generating units of AGBPP (Gas), NTPS (Gas) & LTPS (Gas) and loads of Upper Assam system & Deomali area (Ar. Pradesh) **[Total Generation: 380-400MW and load: 200MW (off peak)-300MW (peak)]**	(a) 220 kV New Mariani (PG) – AGBPP	UFR-1 [At New Mariani (PG)]	**PGCIL**
		(b) 220 kV Mariani – Misa	UFR-2 [At Mariani, Samaguri of AEGCL]	**AEGCL**
		(c) 220 kV Mariani – Samaguri		
		(d) 132 kV Mokukchung – Mariani		
		(e) 132 kV Dimapur (PG) – Bokajan	UFR-3 [At Dimapur (PG)]	**PGCIL**
		(f) Generators to be desynchronized for reduction of generation [if Generation > Load in the islanded pocket]		
		(g) De-synchronization / isolation of one GT and one ST from each of two modules of AGBPP, which are in operation, leading to reduction of generation of about 80-90 MW [i.e each module will contribute to reduction of about 40-45 MW (GT:30MW+ST:15MW)].	At AGBPP [UFRs of line bays & Generator to be used]	**NEEPCO**
		(h) Lines required to be opened for load shedding of 30MW (off-peak) and 50MW (peak) [if load > generation in the islanded pocket]		
		(i) 132kV Tinsukia – Ledo S/C line (at 48.7Hz instantaneous).	UFR [At Tinsukia]	**AEGCL**
		(j) 66kV Tinsukia – Rupai S/C line (at 48.6Hz instantaneous)		**AEGCL**

		(k) 132kV Jorhat – Bokakhat line (at 48.5Hz instantaneous)	UFR [At Jorahat / Bokakhat]	**AEGCL**
2	**ISLAND AT 48.50 Hz with 5 Sec delay :** Island comprising of generating units of AGTPP (Gas), generating units at Baramura (Gas), Rokhia (Gas) & Gumati (Hydro) and loads of Tripura system & Dullavcherra area (Assam) **[Total Generation: 150-160MW and load: 110MW (off-peak) &170-180MW (peak)]**	132 kV Palatana – Udaipur 132 kV Palatana – Surjamani Nagar	UFR-1 [At Palatana]	**OTPC**
		132 kV Silchar – Dullavcherra	UFR-2 [At Silchar]	**PGCIL**
		132 kV AGTPP – Kumarghat 132 kV P K Bari – Kumarghat	UFR-3 [At Kumarghat]	**PGCIL**
3	**ISLAND AT 47.90 Hz:** Isolation of NER from NEW grid at ER-NER boundary with rest of the generation and load of NER	To be decided after system study		

Both the Islanding schemes were implemented as discussed in OCC/PCC forum and it was decided that two UFRs (one as back up) are to be provided for disconnection of lines as well as generators. Further subcommittee had suggested for use the UFR of the generators as back up for de-synchronization of Gas Turbine (s) and for developing the logic to identify the Units, which are in service / operation so that these modules are de-synchronized/ isolated from the system in order to achieve the load and generation balance and to activate the Automatic Governor Control of each module. It was also decided that in future, in case any problem arises, both islanding schemes will reviewed and modified as per system requirement.

During 97th OCC meeting, MS I/C informed that the first meeting of subgroup was held in the conference hall of NERLDC at Shillong on 11.04.2014 taking representation from Assam, Meghalaya, POWERGRID, NEEPCO, NERLDC and NERPC. It was also decided to include representation from other states / organization as and when required / depending on the interest shown by the organization. The following officers were nominated for the 1st meeting of the subgroup:

Assam: Sh. Gunajit Bhuyan, AGM (MRT) & Sh. Ashutosh Bhattacharji, Mgr

Meghalaya: Sh. F.E. Kharshiing, SE, SLDC & Sh. H. Shangpliang, EE (MRT)

PGCIL: Sh. P. Kanungo, DGM, Sh. M. Madhavan, Mgr & Sh. Supriya Paul, Er

NEEPCO: Sh. Tanya Taji, Sr. Mgr & Sh. Jaypal Roy, Mgr.

NERLDC: Sh. P.P. Bandapodhyay, DGM & Sh. A. Mullick, CM

NERPC: Sh. B. Lyngkhoi, SE(O) and Sh. S.M. Jha, EE(O)

OTPC has requested to include Shri S.R. Das as their nominee for the subgroup.

In the meeting of Operation and Protection sub-group, it was brought to the notice that most of UFRs associated with two islanding schemes operated as expected and it was decided to reduce the time delay setting of UFR to 2 secs (in place of 5 sec). Assam had informed that there is some change in load connected with NTPS and subgroup had requested Assam to provide details of connected load. Assam & NEEPCO was also requested to intimate about the low frequency setting for tripping of Gas based Generators at NTPS (of Assam), at AGBPP & AGTPP (of NEEPCO) and to intimate frequency at which machines at NTPS, AGBPP & AGTPP tripped on 19-03-2014 so that the matter can be discussed further.

During the meeting the DGM, POWERGRID suggested to reduce the time delay setting of UFR to 500ms instead of 2 secs as proposed in last subgroup meeting. The subcommittee felt that following information should be collected before deciding about the final setting of UFRs.

(a) Operation of UFRs, installed on various lines associated with the particular Island, on 19-03-2014 [i.e { UFRs at New Mariani, Dimapur of Powergrid; UFRs at Mariani, Samaguri of AEGCL and UFRs at AGBPP associated with Islanding Scheme –I (at 48.8 Hz) } and { UFRs at Silchar, Kumarghat of Powergrid; and UFR at Palatana of OTPC associated with Islanding Scheme –II (at 48.5 Hz) }]

(b) Operation of UFRs, installed on various lines associated with the particular Islanding Scheme –I (at 48.8 Hz), on 19-03-2014 [i.e UFRs at Tinsukia, Jorahat / Bokakhat of AEGCL]

(c) Whether carrier inter-tripping (wherever available) functioned as expected?

(d) Operation of frequency relays **of generators** at AGBPP (NEEPCO), NTPS (AEGCL), LTPS (AEGCL) on 19-03-2014 and frequency at which generating Unit (s) tripped

(e) Time delay setting low frequency relays **of generators** at AGBPP (NEEPCO), NTPS (AEGCL), LTPS (AEGCL)

(f) Operation of frequency relays **of generators** at AGTPP (NEEPCO), Baramur (TSECL), Rokhia (TSECL) and Gumati (TSECL) on 19-03-2014 and frequency at which generating Unit (s) tripped

(g) Time delay setting low frequency relays **of generators** at AGTPP (NEEPCO), Baramur (TSECL), Rokhia (TSECL) and Gumati (TSECL)

(h) Whether generating Units tripped due to operation of UFRs of line (s) or due to operation of frequency relay of generating unit or due to some other reason.

(i) Number of generating unit (s) tripped at the station on 19-03-2014.

(j) The details of load connected with NTPS and LTPS on 19-03-2014 and maximum load connected with NTPS & LTPS

(k) Why the NTPS could not survive with its own load? This has happened in past in many occasions, even during last major grid disturbance on 31st July 2013 NTPS survived with its own connected loads.

(l) Any other information which the generating company (ies) would like to share with the forum which has relevance with the proposed islanding scheme.

The subcommittee also requested all constituent states of the region to provide details of UFR operation [i.e. location, frequency at which UFRs operated / frequency setting of UFRs and the quantum of load shedding happened due to operation of UFRs] on 19-03-2014.

The subcommittee felt that due to isolation of NER grid from National grid on the day of the incidence (i.e. 19-03-2014), the power number become very small [reduced to about 30-40MW/Hz from 3000-3400MW/Hz when it was in synchronism with National grid] and hence the rate of fall of frequency might have been fast. Under such scenario, only UFRs may not serve the objective. There could be requirement of df/dt relays along with UFRs. System studies would definitely help to arrive at some conclusion. But in absence of adequate information about the old machines in the islanded pocket, it has become difficult to carry out system studies. Although Prof. P. Tripathi of IIT, Guwahati was requested to help in this regard, but no progress has happened in this direction so far. In view of all these difficulties the sub-committee suggested that after receiving above information from Assam, NEEPCO, TSECL and constituent states of the region, the subgroup would meet again to study / investigate the matter and decide further course of action.

NEEPCO and Assam are requested to provide the required information and sub-committee may like to discuss further on the islanding scheme.

E.2 Major Events in North-Eastern Regional Grid during the period May 2014

NERLDC informed that there was no major Grid Disturbances in NER during the month of May, 2014.

Some of the grid incidences occurred during the month of May, 2014 is given below. The Sub-committee may kindly discuss and give suggestions to avoid repetition again.

A. Category IV Grid Disturbance occurred in NER on 10.05.14:

At around 0254 Hrs, 400 kV Silchar- Byrnihat (carrying 215 MW) tripped. This caused overloading & subsequent tripping of 132 kV Khleihriat – Badarpur S/C on over-current. This resulted overloading & subsequent tripping of 132 kV Haflong – Jiribam, 132 kV Dimapur – Imphal S/C, 132 kV Loktak – Imphal S/C on power swing. Due to tripping of these lines, Southern Part of NER Grid comprising of South Assam, Manipur, Mizoram & Tripura separated from rest of NER Grid and subsequently GTG I & STG I of Palatana tripped triggering the operation of SPS I. Southern part of NER Grid was collapsed due to load generation imbalance.

Generation Loss: 466 MW (AGTPP: 54 MW, Palatana: 315 MW, TSECL: 97 MW)
Load Loss: 217 MW (MSPCL: 25 MW, Mizoram: 31 MW, TSECL: 125 MW & South Assam: 36 MW)

B. Palatana Module I Tripping (11 Nos):

At 1449 Hrs on 01.05.14, Palatana GTG- I tripped. Due to tripping of GTG-I, STG- I also tripped. There was a generation loss of **325 MW (GTG I- 210 MW & STG I- 115 MW)**

At 0045 Hrs 02.05.14, Palatana GTG- I tripped. Due to tripping of GTG-I , STG- I also tripped. There was a generation loss **of 140 MW (GTG I- 70 MW & STG I- 70 MW)**

At 1229 Hrs on 03.05.14, Palatana GTG- I tripped. Due to tripping of GTG-I, STG- I also tripped at 1245 Hrs. There was a generation loss of **327 MW (GTG I- 215 MW & STG I- 112 MW)**

At 0616 Hrs on 07.05.14, Palatana GTG- I tripped. Due to tripping of GTG-I, STG- I also tripped. Tripping of Palatana machines triggered the operation of SPS-I resulting in load relief of 25 MW in South Assam area. There was a generation loss of **330 MW.**

At 0559 Hrs on 08.0514, Palatana GTG- I tripped. Due to tripping of GTG-I, STG- I also tripped at 0612 Hrs. There was a generation loss of **160 MW.**

At 1717 Hrs on 08.0514, Palatana STG- I tripped. There was a generation loss of **48 MW.**

At 0130 Hrs 09.05.14, Palatana GTG- I tripped. Due to tripping of GTG-I , STG- I also tripped. There was a generation loss of **75 MW**

At 0254 Hrs 10.05.14, Palatana GTG- I tripped. Due to tripping of GTG-I , STG- I also tripped. There was a generation loss of **80 MW**

At 1415 Hrs on 10.05.14, Palatana STG- I tripped. There was a generation loss of **49 MW.**

At 1755 Hrs on 12.0514, Palatana STG- I tripped. There was a generation loss of **112 MW.**

At 1628 Hrs on 31.05.14, Palatana STG- I tripped. There was a generation loss of **14 MW.**

C. Disturbance in Manipur System (7 Nos):

At 1232 Hrs on 02.05.14, 132 kV Imphal(PG) – Imphal I and II lines tripped. Due to tripping of these elements, power supply to Imphal area of Manipur was interrupted.
Load Loss: 41 MW

At 1635 Hrs on 03.05.14, 132 kV Imphal(PG) – Imphal I and II lines tripped. Due to tripping of these elements, power supply to Imphal area of Manipur was interrupted**.**
Load Loss: 40 MW

At 1350 Hrs on 07.05.14, 132 kV Imphal (PG) – Imphal I and II, 132 kV Loktak- Imphal, 132 kV Imphal- Ningthoukhong and 132 kV Loktak-Ningthoukhong lines tripped. Due to tripping of these elements, power supply to Imphal and Ningthoukhnong area of Manipur was interrupted.
Load Loss: 40 MW

At 1630 Hrs on 09.05.14, 132 kV Imphal(PG) – Imphal I and II lines tripped. Due to tripping of these elements, power supply to Imphal area of Manipur was interrupted.
Load Loss: 55 MW

At 1147 Hrs on 20.05.14, 132 kV Imphal(PG) – Imphal I and II lines tripped. Due to tripping of these elements, power supply to Imphal area of Manipur was interrupted.
Load Loss: 46 MW

At 1440 Hrs on 26.05.14, 132 kV Dimapur - Imphal(PG) and 132 kV Loktak-Jiribam lines tripped. Due to tripping of these elements, power supply to Manipur was interrupted.
Load Loss: 18 MW

At 1719 Hrs on 28.05.14, 132 kV Imphal(PG) – Imphal I and II and 132 kV Loktak- Imphal lines tripped. Due to tripping of these elements, power supply to Imphal area of Manipur was interrupted.
Load Loss: 38 MW

D. <u>Disturbance in Meghalaya System (5 Nos):</u>

At 0108 Hrs on 07.05.14, 132 kV Khleihriat (PG) - Khleihriat I & II and 132 kV Khandong- Khleihriat I & II lines tripped. Due to tripping of these elements, power supply to Khliehriat area of Meghalaya was interrupted
Load Loss: 25 MW

At 1631 Hr on 09.05.14, 132 kV Khleihriat (PG) - Khleihriat I & II lines tripped. Due to tripping of these elements, power supply to Khliehriat Area of Meghalaya interrupted.
Load Loss: 60 MW

At 2232 Hr on 14.05.14, 132 kV Khandong- Khleihriat I and 132 kV Khleihriat (PG) - Khleihriat I & II lines tripped. Due to tripping of these elements, power supply to Khliehriat Area of Meghalaya interrupted.
Load Loss: 46 MW

At 1418 Hr on 16.05.14, 132 kV Khandong- Khleihriat I and 132 kV Khleihriat (PG) - Khleihriat I & II lines and Leskha Unit I, II and III tripped. Due to tripping of these elements, there was a generation loss at Leshka and power supply to Khliehriat Area of Meghalaya interrupted.
Generation Loss: 68 MW
Load Loss: 36 MW

At 1627 Hr on 16.05.14, 132 kV Khandong- Khleihriat I and 132 kV Khleihriat (PG) - Khleihriat I & II lines and Leskha Unit I, II and III tripped. Due to tripping of these elements, there was a generation loss at Leshka and power supply to Khliehriat Area of Meghalaya interrupted.
Generation Loss: 70 MW
Load Loss: 50 MW

E. Disturbance in Assam System (2 Nos):

At 1015 Hr on 14.05.14, 220 kV Sarusajai - Samaguri I & II lines tripped. Due to tripping of these elements, power supply to Capital Area (Assam) disrupted.
Load Loss: 233 MW

At 1815 Hr on 17.05.14, 220/132 kV, 3x100 MVA ICT I, II & III at Sarusajai tripped. Due to tripping of these elements, power supply to Capital Area (Assam) disrupted.
Load Loss: 250 MW

F. Major Events in North-Eastern Regional Grid:

List of multiple tripping of elements and tripping of important elements in North-Eastern Regional Grid during the period **w.e.f. 01st May, 2014 to 31st May, 2014** along-with (Letters for **Furnishing Event information** on weekly basis are being sent to the power utilities of NER by e-mail. Constituents are requested to furnish details of tripping reported in the letters.

Any other item:

Date and Venue of next OCC

It is proposed to hold the 99th OCC meeting of NERPC on first week of July, 2014. The exact venue will be intimated in due course.

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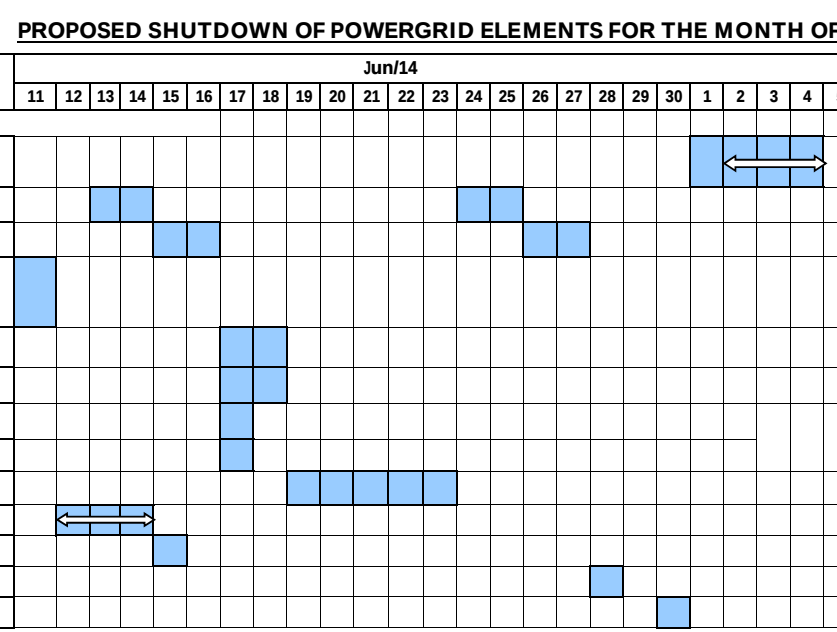
ANNEXURE-D.2

PROPOSED SHUTDOWN OF POWERGRID ELEMENTS FOR THE MONTH OF JUN-14 & JULY-14 BAR CHART

SN	Name of Element	Time
1.TRANSMISSION LINES		
1	132KV Dimapur-Imphal	08:00 to 16:00 on 01.07.14 / from 2.07.14 to 04.07.14 continuous
2	132KV Doyang-Dimapur-I	08:00 to 16:00 Hrs
3	132KV Doyang-Dimapur-II	08:00 to 16:00 Hrs
4	132KV Haflong-Jiribam	continuous from 05.07.14 as approved in last OCC
5	220KV Samaguri-Sarusajai-I #	08:00 to 16:00 Hrs
6	220KV Samaguri-Sarusajai-II #	07:00 to 15:00 Hrs
7	400KV Misa-Balipara I #	07:00 to 15:00 Hrs
8	400KV Misa-Balipara II #	07:00 to 15:00 Hrs
9	400 KV Silchar-Byrnihat	07:00 to 15:00 Hrs
10	400KV Balipara-Bongaigaon-I *	continuous from 12.06.14 to 14.06.14
11	400KV Balipara-Bongaigaon-II	07:00 to 15:00 Hrs
12	132KV Aizawl-Kumarghat	08:00 to 16:00 Hrs
13	132KV Aizawl-Kolasib	08:00 to 16:00 Hrs
2. SUBSTATION		
1	132KV Bus Pavoi (AEGCL)	10:00 to 13:00 Hrs
2	400KV Bus-I at Bongaigaon	07:00 to 15:00 Hrs
3	400KV Bus-II at Bongaigaon *	continuous from 12.06.14 to 14.06.14
4	400/220KV ICT at Bongaigaon	09:00 to 09:45 Hrs
5	220/132 KV ICT-II at Dimapur	07:00 to 15:00 Hrs
6	400KV Bus Reactor-I at Bongaigaon	07:00 to 15:00 Hrs
7	400KV Bus Reactor-II at Bongaigaon	07:00 to 15:00 Hrs
8	400/220KV ICT Main Bay at Bongaigao	07:00 to 15:00 Hrs
9	400KV Bus Reactor at Misa	07:00 to 15:00 Hrs
10	400KV Balipara-2 & ICT Tie Bay at Misa	07:00 to 15:00 Hrs
11	400KV Balipara-1 Main-II Bay at Misa	07:00 to 15:00 Hrs
12	400KV Balipara-1 Main-I Bay at Misa	07:00 to 15:00 Hrs



* , # Together

: Daytime Shutdown

: Continuous Shutdown

ANNEXURE-D.6 (I)

	ARUNACHAL PRADESH		ASSAM		MANIPUR		MEGHALAYA		MIZORAM		NAGALAND		TRIPURA	
Date	No. of Violations (OD>12% of Schedule)	No. of Violations (UD>12% of Schedule)	No. of Violations (OD>12% of Schedule)	No. of Violations (UD>12% of Schedule)	No. of Violations (OD>12% of Schedule)	No. of Violations (UD>12% of Schedule)	No. of Violations (OD>12% of Schedule)	No. of Violations (UD>12% of Schedule)	No. of Violations (OD>12% of Schedule)	No. of Violations (UD>12% of Schedule)	No. of Violations (OD>12% of Schedule)	No. of Violations (UD>12% of Schedule)	No. of Violations (OD>12% of Schedule)	No. of Violations (UD>12% of Schedule)
2/17/2014	77	3	3	31	11	29	21	2	27	21	34	8	57	9
2/18/2014	22	13	10	9	27	26	29	5	55	0	16	7	59	19
2/19/2014	93	0	11	4	51	14	16	13	49	0	28	13	41	37
2/20/2014	84	0	4	3	45	19	18	3	19	2	39	7	24	52
2/21/2014	87	0	4	2	33	15	20	2	17	7	26	8	13	57
2/22/2014	75	0	3	0	36	16	32	2	26	0	27	12	10	58
2/23/2014	91	0	3	4	63	13	8	1	48	3	41	4	45	20
2/24/2014	96	0	12	1	58	17	3	1	70	2	32	17	41	18
2/25/2014	96	0	1	0	69	10	26	3	89	0	31	8	53	24
2/26/2014	96	0	8	0	74	12	36	3	72	0	49	4	44	21
2/27/2014	96	0	4	3	68	13	15	2	63	3	37	6	53	15
2/28/2014	96	0	19	5	80	1	46	5	91	1	69	6	85	2
3/1/2014	94	0	31	4	87	1	76	0	85	3	84	1	92	0
3/2/2014	89	0	43	0	82	0	83	1	65	4	88	0	20	57
3/3/2014	95	0	51	1	80	8	83	0	82	0	79	0	89	4
3/4/2014	94	1	29	1	58	9	63	0	76	1	76	0	62	16
3/5/2014	85	0	25	2	51	11	55	1	77	0	52	0	55	14
3/6/2014	88	1	5	1	45	12	67	0	53	0	24	4	34	30
3/7/2014	89	0	6	2	40	19	55	0	52	0	47	0	55	22
3/8/2014	88	0	17	1	72	15	43	0	67	1	65	0	61	17
3/9/2014	87	1	18	3	78	10	39	1	65	0	36	4	67	9
3/10/2014	83	0	25	2	64	14	68	0	54	0	55	0	92	0
3/11/2014	94	0	5	4	50	13	46	2	64	0	48	1	63	7
3/12/2014	72	4	5	18	28	23	48	0	45	13	14	1	35	25
3/13/2014	86	0	10	0	62	13	66	0	47	4	25	1	86	0
3/14/2014	89	0	5	0	49	22	65	0	62	0	52	0	90	2
3/15/2014	83	6	47	0	80	8	91	0	94	0	88	1	96	0
3/16/2014	90	0	14	4	57	17	81	3	64	1	80	3	82	1
3/17/2014	79	0	6	11	40	16	61	1	57	0	64	1	64	13
3/18/2014	87	0	4	1	30	22	38	4	52	5	57	0	58	22
3/19/2014	73	6	5	36	39	32	42	28	41	7	41	32	85	0
3/20/2014	83	5	0	40	1	57	21	4	47	11	4	72	68	18
3/21/2014	47	6	0	42	4	58	39	1	29	3	15	41	39	3
3/22/2014	66	5	5	1	13	32	41	2	40	1	10	26	28	33
3/23/2014	76	2	0	39	17	34	38	3	18	29	4	56	19	18
3/24/2014	92	0	0	2	17	27	75	0	35	4	9	35	40	27
3/25/2014	91	0	2	3	23	16	58	1	45	7	22	16	48	13
3/26/2014	90	0	6	27	25	28	39	0	54	0	22	15	81	3
3/27/2014	92	0	22	8	33	21	52	4	60	0	18	11	96	0
3/28/2014	89	0	12	8	25	25	11	20	51	0	25	17	93	0
3/29/2014	75	1	24	1	19	44	54	0	56	2	10	56	92	1
3/30/2014	66	7	13	1	14	51	45	0	51	12	4	49	86	1
3/31/2014	46	26	1	1	0	80	35	9	15	11	4	43	49	5
4/1/2014	83	0	45	0	12	32	28	3	70	0	23	3	56	0

	ARUNACHAL PRADESH		ASSAM		MANIPUR		MEGHALAYA		MIZORAM		NAGALAND		TRIPURA	
Date	No. of Violations (OD>12% of Schedule)	No. of Violations (UD>12% of Schedule)	No. of Violations (OD>12% of Schedule)	No. of Violations (UD>12% of Schedule)	No. of Violations (OD>12% of Schedule)	No. of Violations (UD>12% of Schedule)	No. of Violations (OD>12% of Schedule)	No. of Violations (UD>12% of Schedule)	No. of Violations (OD>12% of Schedule)	No. of Violations (UD>12% of Schedule)	No. of Violations (OD>12% of Schedule)	No. of Violations (UD>12% of Schedule)	No. of Violations (OD>12% of Schedule)	No. of Violations (UD>12% of Schedule)
4/2/2014	91	0	38	0	17	24	29	5	64	0	58	0	57	3
4/3/2014	93	0	58	0	30	27	40	6	79	1	63	2	54	23
4/4/2014	95	0	21	8	47	21	18	31	25	35	20	33	49	26
4/5/2014	96	0	31	0	44	12	9	2	75	0	22	9	17	54
4/6/2014	94	0	22	0	50	17	26	3	36	1	36	0	6	62
4/7/2014	95	0	37	0	52	13	45	2	69	0	69	2	49	26
4/8/2014	88	0	11	5	40	12	21	5	55	3	18	41	30	27
4/9/2014	71	22	40	4	69	9	5	20	45	27	51	5	54	26
4/10/2014	18	5	21	0	17	14	18	1	17	27	35	20	35	22
4/11/2014	91	1	48	1	48	14	27	5	88	0	69	0	76	3
4/12/2014	92	0	36	1	53	24	37	3	73	2	85	0	84	0
4/13/2014	86	1	50	0	66	12	36	2	52	0	66	0	51	23
4/14/2014	91	1	24	4	62	11	42	1	55	0	69	0	76	1
4/15/2014	83	6	11	8	31	28	11	10	71	0	43	5	55	12
4/16/2014	67	4	19	0	75	11	24	0	81	1	56	0	70	10
4/17/2014	73	3	38	10	69	7	65	0	82	0	57	8	94	0
4/18/2014	93	1	55	0	74	12	42	5	72	3	88	0	56	24
4/19/2014	92	0	66	2	64	15	31	1	84	4	96	0	77	8
4/20/2014	95	0	72	0	71	12	16	2	77	0	88	0	84	5
4/21/2014	96	0	77	0	48	13	13	1	70	0	86	0	81	2
4/22/2014	94	0	64	1	65	12	34	1	65	6	88	0	78	5
4/23/2014	95	0	50	0	54	13	61	4	82	0	87	0	82	0
4/24/2014	95	0	19	1	51	16	75	0	88	0	61	2	93	0
4/25/2014	93	0	42	0	51	29	79	0	86	1	68	9	71	2
4/26/2014	95	0	15	1	38	36	73	4	79	1	70	0	54	18
4/27/2014	93	0	26	0	6	64	64	3	92	0	77	1	91	0
4/28/2014	77	4	11	21	10	52	66	8	55	23	60	2	15	52
4/29/2014	37	50	1	23	10	79	79	2	37	30	41	21	30	37
4/30/2014	90	0	43	0	30	22	82	0	62	19	77	0	27	49
5/1/2014	92	0	81	0	42	22	93	2	93	0	82	0	63	5
5/2/2014	86	1	46	0	76	5	93	1	86	3	55	12	83	0
5/3/2014	92	0	7	21	45	20	78	6	78	5	51	3	30	28
5/4/2014	53	20	1	54	37	23	80	5	45	3	28	18	16	38
5/5/2014	58	0	3	45	18	18	67	0	51	0	2	62	37	21
5/6/2014	57	10	55	10	49	11	85	3	82	0	51	0	74	2
5/7/2014	56	23	29	40	42	24	49	15	55	10	45	21	83	6
5/8/2014	43	34	43	7	38	32	30	37	48	19	31	26	51	38
5/9/2014	0	73	24	21	0	52	26	48	2	36	0	70	51	10
5/10/2014	0	79	54	1	0	66	52	25	0	27	2	62	74	9
5/11/2014	49	15	39	5	4	49	49	16	31	27	25	9	37	36
AVERAGE VIOLATIONS	80	5	24	7	43	23	46	5	58	6	46	12	58	17

Annexure D.6 (II)

	Arunachal Pradesh		Assam		Manipur		Meghalaya		Mizoram		Nagaland		Tripura	
Date	No of Violations	Max. no of Block Continue violation	No of Violations	Max. no of Block Continue violation	No of Violations	Max. no of Block Continue violation	No of Violations	Max. no of Block Continue violation	No of Violations	Max. no of Block Continue violation	No of Violations	Max. no of Block Continue violation	No of Violations	Max. no of Block Continue violation
2/17/2014	7	77	2	33	3	23	2	25	5	26	4	27	0	0
2/18/2014	5	42	4	21	4	22	1	20	3	30	3	15	6	66
2/19/2014	8	123	2	17	7	73	1	20	6	42	4	32	3	34
2/20/2014	7	198	1	18	4	82	0	0	3	21	4	33	4	41
2/21/2014	7	49	0	0	3	16	0	0	3	16	5	39	3	45
2/22/2014	7	133	2	16	5	29	3	25	4	28	5	27	3	47
2/23/2014	8	229	4	35	6	57	2	18	6	58	5	71	2	24
2/24/2014	8	325	3	28	5	31	1	15	5	59	5	47	2	32
2/25/2014	8	421	2	18	5	53	2	17	8	155	5	37	4	45
2/26/2014	8	517	3	28	6	56	3	20	7	168	7	92	5	55
2/27/2014	8	613	1	18	6	54	2	17	7	61	5	43	3	28
2/28/2014	8	687	3	34	7	78	7	53	7	97	5	46	6	74
3/1/2014	7	74	6	33	8	90	7	80	6	55	8	78	6	72
3/2/2014	8	74	5	78	7	94	8	56	6	46	8	49	3	31
3/3/2014	8	117	5	42	6	76	7	50	6	78	7	99	5	60
3/4/2014	8	205	5	23	4	42	7	92	7	69	8	158	3	37
3/5/2014	8	65	3	28	5	38	6	37	8	165	6	198	2	33
3/6/2014	8	137	3	19	4	20	6	58	4	168	3	31	2	24
3/7/2014	8	65	3	24	2	22	5	63	8	91	6	44	1	22
3/8/2014	7	153	4	22	7	72	6	62	5	99	6	82	3	36
3/9/2014	7	49	3	28	6	81	6	35	8	105	5	41	2	29
3/10/2014	8	120	3	33	5	26	7	64	5	61	6	74	6	79
3/11/2014	8	118	2	17	4	39	6	71	6	51	7	87	3	40
3/12/2014	5	150	1	22	3	21	6	52	6	28	4	39	2	24
3/13/2014	7	93	2	15	6	57	5	37	7	67	5	26	3	41
3/14/2014	8	98	2	16	4	24	7	73	6	57	4	46	7	60
3/15/2014	7	144	7	87	6	76	8	56	8	111	6	105	8	156
3/16/2014	8	86	3	89	5	28	7	93	6	127	7	95	2	180
3/17/2014	7	61	1	23	3	16	6	82	5	58	6	62	5	34
3/18/2014	8	86	2	15	1	20	4	18	6	57	8	75	3	28
3/19/2014	7	65	3	87	3	22	5	47	2	32	5	51	6	111
3/20/2014	7	81	4	75	3	45	4	21	4	28	3	47	2	50
3/21/2014	7	54	5	68	2	32	4	46	4	27	2	31	1	22
3/22/2014	7	65	3	27	2	24	4	35	0	0	5	79	3	25
3/23/2014	7	82	5	69	4	28	6	36	3	30	4	51	3	28
3/24/2014	8	85	1	20	2	22	8	72	5	57	4	40	2	34
3/25/2014	8	94	1	21	5	26	5	59	5	56	3	26	1	13
3/26/2014	8	96	3	27	4	21	4	43	8	61	4	21	4	50
3/27/2014	8	111	4	34	4	43	7	37	7	95	4	34	8	146
3/28/2014	8	190	4	26	3	21	4	32	6	56	3	23	8	242
3/29/2014	7	90	4	35	2	22	6	37	6	55	4	36	4	279
3/30/2014	6	70	4	27	4	35	2	23	5	53	3	41	5	90

	Arunachal Pradesh		Assam		Manipur		Meghalaya		Mizoram		Nagaland		Tripura	
Date	**No of Violations**	**Max. no of Block Continue violation**	**No of Violations**	**Max. no of Block Continue violation**	**No of Violations**	**Max. no of Block Continue violation**	**No of Violations**	**Max. no of Block Continue violation**	**No of Violations**	**Max. no of Block Continue violation**	**No of Violations**	**Max. no of Block Continue violation**	**No of Violations**	**Max. no of Block Continue violation**
3/31/2014	5	47	2	22	7	86	5	30	3	24	3	47	3	51
4/1/2014	7	79	6	47	2	22	3	56	8	100	4	23	4	48
4/2/2014	7	41	5	39	2	20	3	32	7	121	7	64	4	52
4/3/2014	8	95	5	52	4	21	5	43	5	60	7	57	3	35
4/4/2014	8	94	2	19	6	42	4	26	4	29	2	22	5	67
4/5/2014	8	112	5	46	4	16	2	15	7	61	3	17	5	45
4/6/2014	8	191	7	41	6	51	5	40	5	33	5	31	2	33
4/7/2014	8	95	5	46	5	54	5	50	7	74	6	72	4	43
4/8/2014	8	94	4	19	6	25	4	38	6	90	6	63	2	17
4/9/2014	7	85	5	44	6	53	3	18	6	51	6	56	2	27
4/10/2014	3	22	5	25	2	15	2	16	4	35	7	29	1	22
4/11/2014	8	81	6	76	4	35	2	23	8	100	7	62	3	42
4/12/2014	8	95	5	58	3	24	5	41	7	156	8	142	6	80
4/13/2014	8	93	5	39	6	57	2	24	6	37	8	238	4	69
4/14/2014	8	93	3	35	4	44	4	31	3	16	8	307	2	28
4/15/2014	8	89	4	24	4	27	2	23	6	59	4	73	2	31
4/16/2014	6	67	5	40	5	45	5	34	6	123	5	47	2	29
4/17/2014	7	81	4	28	5	57	7	49	8	112	5	79	8	114
4/18/2014	8	93	6	39	7	75	3	40	5	165	8	112	5	90
4/19/2014	8	94	6	73	6	78	3	22	5	44	8	208	3	56
4/20/2014	8	111	8	87	5	41	2	22	8	127	8	304	6	90
4/21/2014	8	207	7	44	4	21	2	30	7	144	7	350	2	32
4/22/2014	8	303	7	91	6	44	5	37	4	42	8	145	6	89
4/23/2014	8	399	5	40	5	43	4	28	7	79	7	193	5	65
4/24/2014	8	495	3	22	3	26	6	52	7	90	5	89	6	86
4/25/2014	8	569	5	45	5	51	5	55	6	68	5	73	3	36
4/26/2014	8	117	2	15	4	33	5	21	7	74	6	55	3	33
4/27/2014	8	213	6	55	3	36	5	29	8	132	8	100	7	110
4/28/2014	8	288	4	25	3	37	5	48	5	136	5	142	2	32
4/29/2014	7	58	2	19	5	61	4	65	6	58	5	39	3	24
4/30/2014	8	87	6	45	4	18	6	56	6	38	7	52	5	48
5/1/2014	8	94	7	85	4	35	7	60	8	131	8	148	4	39
5/2/2014	8	95	5	42	5	47	7	83	6	189	5	182	5	60
5/3/2014	8	94	3	27	3	23	5	63	6	51	3	50	4	44
5/4/2014	7	66	5	70	3	31	5	69	4	44	5	79	4	31
5/5/2014	7	44	5	62	4	18	6	65	6	52	4	59	1	18
5/6/2014	5	72	5	70	3	25	7	62	7	116	4	37	6	71
5/7/2014	5	60	6	56	3	28	3	41	4	23	4	19	6	146
5/8/2014	6	36	3	31	4	25	2	16	5	30	5	30	3	24
5/9/2014	6	82	3	26	2	32	2	35	2	27	4	54	4	48
5/10/2014	8	178	5	35	3	41	3	28	3	27	4	48	4	57
5/11/2014	5	179	5	39	2	29	4	33	4	31	2	23	2	21
Total Violations	618		330		362		371		474		447		315	