भारत सरकार Government of India
विद्युत मंत्रालय Ministry of Power
उत्तर पूर्वी क्षेत्रीय विद्युत समिति
North Eastern Regional Power Committee
एन ई आर पी सी कॉम्प्लेक्स, डोंग पारमाओ, लापालाङ, शिल्लोंग-७९३००६, मेघालय
NERPC Complex, Dong Parmaw, Lapalang, Shillong - 793006, Meghalaya

Ph. No: 0364 - 2534039
Fax No: 0364 - 2534040
Website: www.nerpc.nic.in

No. NERPC/SE (O)/OCC/2018/ ***523-560*** Dated: May 24, 2018

To,

1. Managing Director, AEGCL, Bijuli Bhawan, Guwahati – 781 001
2. Managing Director, APDCL, Bijuli Bhawan, Guwahati – 781 001
3. Managing Director, APGCL, Bijuli Bhawan, Guwahati – 781 001
4. Director (Generation), Me. PGCL, Lumjingshai, Short Round Road, Shillong – 793 001
5. Director (Distribution), Me. ECL, Lumjingshai, Short Round Road, Shillong – 793 001
6. Director(Transmission), Me. PTCL, Lumjingshai, Short Round Road, Shillong – 793 001
7. Managing Director, MSPDCL, Secure Office Bldg. Complex, South Block, Imphal – 795 001
8. Managing Director, MSPCL, Electricity Complex, Keishampat, Imphal – 795 001
9. Director (Tech.), TSECL, Banamalipur, Agartala -799 001.
10. Director (Generation), TPGCL, Banamalipur, Agartala -799 001.
11. Chief Engineer (WE Zone),Department of Power ,Govt. of Arunachal Pradesh, Itanagar- 791111
12. Chief Engineer (EE Zone),Department of Power, Govt. of Arunachal Pradesh, Itanagar- 791111
13. Chief Engineer (TP&MZ),Department of Power, Govt. of Arunachal Pradesh, Itanagar- 791111
14. Engineer-in-Chief (P&E), Department of Power, Govt. of Mizoram, Aizawl – 796 001
15. Chief Engineer (P), Department of Power, Govt. of Nagaland, Kohima – 797 001
16. CGM, (LDC), SLDC Complex, AEGCL, Kahilipara, Guwahati-781 019
17. Group General Manager, NTPC, Bongaigoan Thermal Power Project, P.O. Salakati, Kokrajhar- 783369
18. ED, NERTS, PGCIL, Dongtieh-Lower Nongrah, Lapalang, Shillong -793 006
19. ED (O&M), NEEPCO Ltd., Brookland Compound, Lower New Colony, Shillong-793003
20. ED (Commercial), NEEPCO Ltd., Brookland Compound, Lower New Colony, Shillong-793003
21. ED (O&M), NHPC, NHPC Office Complex, Sector-33, Faridabad,Haryana-121003
22. Vice President (Plant), OTPC, Badarghat Complex, Agartala, Tripura - 799014
23. GM, NERLDC, Dongtieh, Lower Nongrah, Lapalang, Shillong -793 006
24. Member Secretary, ERPC, 14 Golf Club Road, Tollygunge, Kolkata-700033
25. Chief Engineer, GM Division, Central Electricity Authority, New Delhi – 110066
26. Chief Engineer (NPC), NRPC Complex, Katwaria Sarai, SJSS Marg., New Delhi - 110016

Sub: Minutes of 144th OCC Meeting.

Sir/Madam,

Please find enclosed herewith the minutes of 144th OCC Meeting held at Guwahati on the **11th May, 2018** for your kind information and necessary action. The minute is also available on the website of NERPC, **www.nerpc.nic.in**.

Any comments/observations may kindly be communicated to NERPC Secretariat at the earliest.

Encl: As above

भवदीय / Yours faithfully,

बि. लिंगखोइ / B. Lyngkhoi
निदेशक / **Director/ SE**

Copy to:

1. CGM, AEGCL, Bijuli Bhavan, Guwahati - 781001
2. CGM, APGCL, Bijuli Bhavan, Guwahati - 781001
3. CGM, DISCOM, Bijuli Bhavan, Guwahati - 781001
4. Head of SLDC, Me.ECL, Lumjingshai, Short Round Road, Umjarain, Shillong – 793 022
5. Head of SLDC, Department of Power, Govt. of Arunachal Pradesh, Itanagar- 791 111
6. Head of SLDC, Department of Power, Dimapur, Nagaland
7. Head of SLDC, Electricity Department, Govt. of Manipur, Keishampat, Imphal – 795 001
8. Head of SLDC, Department of Power, Govt. of Mizoram, Aizawl – 796 001
9. Head of SLDC, TSECL, Agartala – 799 001
10. Chief Engineer(Elect), Loktak HEP,Vidyut Vihar, Kom Keirap, Manipur- 795124
11. Addl. GM (EED), NTPC Ltd., Bongaigoan Thermal Power Project, P.O. Salakati, Kokrajhar- 783369
12. DGM (C&M), OTPC, 6th Floor, A-Wing, IFCI Tower -61, Nehru Place, New Delhi – 110019.

निदेशक / **Director/ SE**

North Eastern Regional Power Committee

MINUTES OF THE 144th OPERATION COORDINATION SUB-COMMITTEE MEETING OF NERPC

Date : 11/05/2018 (Friday)

Time : 10:00 hrs

Venue : "Hotel RajMahal", Guwahati.

The List of Participants in the 144th OCC Meeting is attached at **Annexure – I**

Shri P.K. Mishra, Member Secretary, NERPC welcomed all the participants to the 144th OCC meeting. He noted the presence of participants from all the utilities except Arunachal Pradesh and Manipur. He reiterated that the pace of PSDF works is very slow and urged them to take the matter seriously, else non-utilized funds may be diverted by MoP. Member Secretary informed that a parliamentary committee had visited NER recently and enquired about the reasons and possible actions regarding trippings & unavailability of power in the region. He directed member utilities to keep detailed records of trippings and remedial actions undertaken in this regard. He also informed that procurement of Protection Database Management System(PDMS) from PSDF has been approved and the tendering will be carried out shortly.

Thereafter, Member Secretary requested Shri B. Lyngkhoi, Director/SE(O&P) to take up the agenda for discussion. SE(O&P), NERPC welcomed delegates from POSOCO, M/s SIEMENS and M/s GE and requested them to give presentations on HR-Practices & scopes of improvements for SLDC officials and SAMAST respectively. Further he informed that DPR of ADMS and SAMAST would be finalized by respective group very soon. He requested all the NER States to send the complete DPRs to NPC & NLDC with a copy to NERPC Secretariat.

A. CONFIRMATION OF MINUTES

CONFIRMATION OF MINUTES OF 143rd MEETING OF OPERATION SUB-COMMITTEE OF NERPC.

The minutes of 143rd meeting of Operation Sub-committee held on 12th April, 2018 at Guwahati were circulated vide letter No. NERPC/SE (O)/OCC/2016/4556-4591 dated 26th April, 2018.

The Sub-committee confirmed the minutes of 143rd OCCM of NERPC as no comments/observations were received from the constituents.

ITEMS FOR DISCUSSION

B.1. ACTION TAKEN:

1. IMPLEMENTATION OF PROJECTS FUNDED FROM PSDF:

The status as informed in 144th OCC:

State	Protection System	ADMS	Capacitor Installation	SAMAST**
Arunachal Pradesh	Could not be updated due to absence of officials.	Corrigendum to DPR to be furnished	-	SLDC to apprise SERC of the project. DPR to be prepared by 21.05.2018.
Nagaland	Pack-A: completed Pack-B: Aug'18 Pack-C: Aug'18 Pack-D: Completed.	Corrigendum to DPR to be furnished	To re-submit proposal to NERPC for Study.	DPR to be prepared by 21.05.2018.
Mizoram	Remaining LOAs by May'18.	Corrigendum to DPR to be furnished	Appraisal Committee is yet to approve	DPR to be prepared by 21.05.2018.
Manipur	Could not be updated due to absence of officials.	Corrigendum to DPR to be furnished	Submitted to NERPC for Study before sending to NPC/NLDC.	DPR to be prepared by 21.05.2018.
Tripura	UC by 31.05.18.	Revised DPR to be submitted.	To submit proposal to NERPC for Study.	DPR to be prepared by 21.05.2018.
Assam	R&U Remaining 40% LOAs April'18 Retendering Diagnostic Tools, DG set and PLCC By Jun'18 all LOAs BCU Rem 40% LOAs by Apr'18	Revised DPR to be submitted.	-	DPR to be prepared by 21.05.2018.

Meghalaya	MePTCL- All LOAs awarded. Earthing Package tender and balance items by June'18 MePGCL –By April'18 erection is likely to be completed	Revised DPR to be submitted.	-	DPR to be prepared by 21.05.2018.

Deliberation of the sub-Committee:

DGM(MO), NERLDC informed that list of meter locations have been received from all SLDCs and based on the T-to-D interface they have been verified. He suggested that a special meeting may be held to finalise the IT & meter requirements.

SE(O&P), NERPC decided that meeting will be held on 16.05.2018 to freeze the BoQ. He requested all the utilities to send their respective officials to the said meeting.

MePTCL representative informed that Air Condition equipment under PSDF R&U scheme have been supplied and installed in various sub-station of MePTCL. However, due to non availability of stabilizers, MCB etc., the Air Condition is not put in operation. The estimate for procurement amounting @ Rs 5 Lakhs only, based on the L1 offer is prepared for procurement has been put up to the authority for approval. The authority desires that the expenditure be booked from the available sanction amount under PSDF as the accessories is solely for operation of the equipment procured under the PSDF.

Members unanimously concurred and requested MePTCL to approach NLDC for booking the cost under suitable head of the already sanctioned amount based on L1 estimate.

DGM(AM), NERTS cited POWERGRID experience with regard to TLSA installation. Considering that NER has higher isokeraunic levels compared to the rest of the country, he hoped that TLA installation would be taken up by the states. SE(O&P), NERPC requested NERTS to share the report(s) justifying the effectiveness of installation of TLA, so that state transmission utilities may accordingly proceed. The matter was referred to the PCC forum for preparation of feasibility report and roadmap.

M/s GE presented their ADMS concept to the forum, briefly as follows:-

- Architecture of the scheme
- Communication to be used OFC, PLCC, GPRS and LAURA.
- DMS would be used wherever present.

EE, MePDCL informed that DMS usage is not feasible for Meghalaya due to unavailability for most locations. Also it is planned to isolate upto 11kV level in Meghalaya under ADMS to cause the minimum outage and also provide maximum load relief. SE, SLDC, MeECL informed that OPGW connectivity is there upto all 132/33kV stations in Meghalaya but expressed anxiety at the lack of connectivity for 33/11kV stations selected under ADMS.

The forum hoped that all vendors participating in ADMS would not supply any proprietary software, which would not allow customization.

The Sub-Committee noted as above.

Action: All state utilities/NERPC.

2. <u>Outage of Important Grid Elements:</u>

Name of the Element	Name of Utility	Status as informed in 144th OCC
63MVAR Reactor at Byrnihat to replace with 80MVAR Reactor	MePTCL	To be referred to SCM of NER.**
400KV 80MVAR Bus Reactor at Palatana	OTPC	Unavailability of critical spare. By 31.05.2018 - CoD.
132 kV P K Bari – Silchar I & II	NERTS	Ckt#II – restored. Ckt#I - restored.
DHEP Unit 2	NEEPCO	By May'18
400/220 kV, 315 MVA ICT-II at BgTPP	NTPC	By May'18
Replacement of R-ph bushing of 63MVAR L/R at Balipara for 400kV Balipara-Bongaigaon -II (*out since 17.02.18)*	NERTS	By Nov'18

The forum requested MePTCL to obtain LOA of reactor and send to the Accounting/Finance Wing of MePTCL for assessing the salvage value based on depreciation method. EE(SP), MePTCL agreed to revert back.

The Sub-Committee noted as above.

Action: All concerned utilities.

3. Furnishing of various data for reliable grid operation:

<table>
<tr><td>Data regarding</td><td>Status as of 144th OCC</td></tr>
<tr><td>DAS output for FRC calculation</td><td>Event Date: 23.04.18; RHEP, OTPC, Kopili, Khandong, Kopili Stg-II, BgTPP provided information.
Event Date: 06.05.18; OTPC, Kopili and RHEP provided information.
NERLDC once again requested all generators to provide DAS data at the earliest for FRC calculation.</td></tr>
<tr><td>Operating Procedures.</td><td><table><tr><th>Items</th><th>Data submitted by</th></tr><tr><td>OP of States</td><td>Submitted only by AEGCL and MePTCL</td></tr><tr><td>OP of Transmission System</td><td>Not submitted by any constituents</td></tr><tr><td>OP of Generating Stations</td><td>Not submitted by any generators</td></tr><tr><td>OP of GIS</td><td>Not submitted by any constituents</td></tr></table></td></tr>
<tr><td>Data related to Power Map.</td><td><table><tr><th>Items</th><th>Data submitted by</th></tr><tr><td>Communication (PLCC/OPGW/ GPRSVSAT/ Satellite</td><td>List of lines mailed by NERLDC on 9th January’18 Assam & Mizoram provided the data.</td></tr></table></td></tr>
<tr><td>Patrolling report(s) for T/L**.</td><td>-</td></tr>
</table>

Deliberation of the sub-Committee:

** NERLDC informed that patrolling report(s) are being submitted by NERTS, NETC during Availability Verification. However in Sub-group meetings and PCC it is noted that number of lines have transient nature of trippings. As follow up procedure all the transmission utilities are supposed to submit patrolling reports regularly.

DGM(AM), NERTS opined that pattern of tripping is to be identified. If tripping is only in certain months then not vegetation, while it may be due to lightning. If it occurs throughout the year then it is certainly due to vegetation overgrowth.

The matter was referred to PCC Sub-Committee to deliberate and identify the list of lines affected due to vegetation.

The Sub-committee noted as above.

Action: All utilities as above.

4. Monitoring of Corrective actions as decided in PCC forum:

Name of the Element	Action to be taken	Name of Utility	Status as of 144th OCC
132 kV Dimapur - Doyang 1 & 2 Lines	Installation of Numerical Relay at Doyang	NEEPCO	By Dec'18
132kVPK Bari-Kumarghat	Installation of Line differential relay	NERTS	By Oct'18
132kV PKBari	Installation of Numerical Relay under R&M (*high priority).* TSECL to divert NR to AGTCCPP.	TSECL	By Aug'18
AGTCCPP- LFO	AVR replacement	NEEPCO	By Oct'18
132kV AGTCCPP-Agartala D/C.	Line differential relay to be installed	NERTS	By Dec'18

The Sub-committee noted as above.

Action: All utilities as above.

B.2. OPERATIONAL PERFORMANCE AND GRID DISCIPLINE DURING APRIL, 2018

As per the data made available by NERLDC, the grid performance parameters for April, 2018 are given below:

NER PERFORMANCE DURING APRIL, 2018

	Energy Met (MU)		w.r.t. Mar,18 % inc (+) /dec (-)	Energy Reqr. (MU)		w.r.t. Mar,18 % inc (+) /dec (-)	% inc (+) /dec (-) of energy reqr vs met. In Apr,18
States	**April-18**	**March-18**		**April-18**	**March-18**		
Ar. Pradesh	62.59	63.73	-1.79	63.82	64.85	-1.59	-1.93
Assam	664.32	655.39	1.36	699.90	682.41	2.56	-5.08
Manipur	63.35	68.54	-7.57	64.51	69.63	-7.35	-1.80
Meghalaya	132.99	149.39	-10.98	132.99	149.39	-10.98	0.00
Mizoram	47.86	47.75	0.23	48.80	48.50	0.62	-1.93
Nagaland	56.85	61.80	-8.01	65.19	70.14	-7.06	-12.79
Tripura	107.27	114.09	-5.98	111.40	115.76	-3.77	-3.71
Region	**1135.24**	**1160.69**	-2.19	**1186.61**	**1200.66**	-1.17	-4.33

States	Demand Met (MW)		w.r.t. Mar,18 % inc (+) /dec (-)	Demand in (MW)		w.r.t. Mar,18 % inc (+) /dec (-)	% inc (+) /dec (-) of Demand vs met. In Apr,18
	Apr-18	**Mar-18**		**Apr-18**	**Mar-18**		
Ar. Pradesh	125	124	0.81	138	138	0.00	-9.42
Assam	1503	1446	3.94	1533	1472	4.14	-1.96
Manipur	186	178	4.49	193	185	4.32	-3.63
Meghalaya	307	307	0.00	307	307	0.00	0.00
Mizoram	89	91	-2.20	98	100	-2.00	-9.18
Nagaland	127	120	5.83	156	148	5.41	-18.59
Tripura	265	256	3.52	269	257	4.67	-1.49
Region	**2552**	**2250**	13.42	**2600**	**2283**	13.89	-1.85

REGIONAL GENERATION & INTER-REGIONAL EXCHANGE IN MU

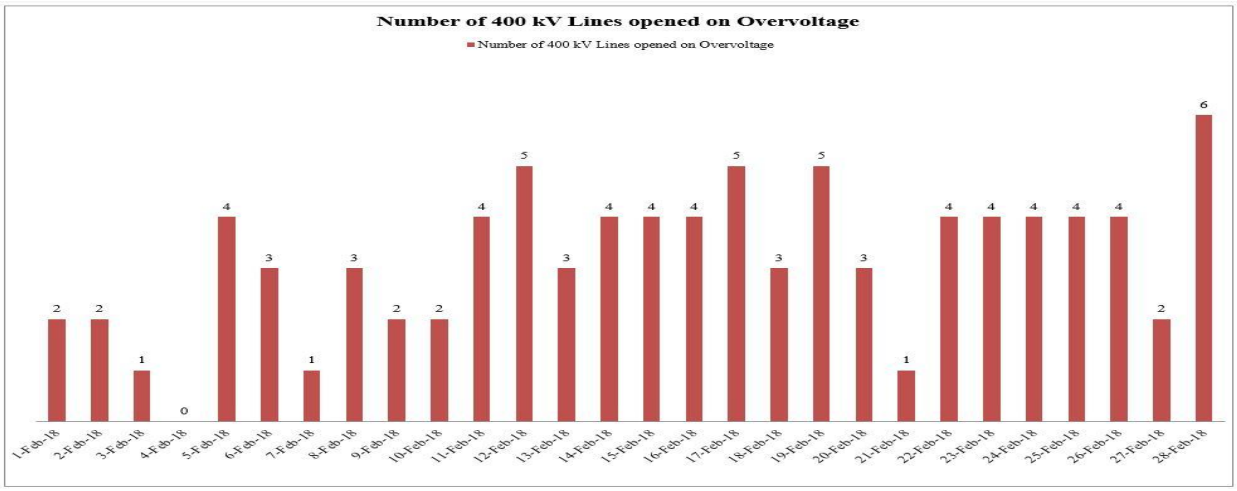
Month---->	**Apr-18**	**Mar-18**
Total Generation in NER (Gross)	1157.530	1222.310
Total Central Sector Generation (Gross)	906.296	974.427
Total State Sector Generation (Gross)	251.234	247.883
Inter-Regional Energy Exchange		
(a) NER-ER	**29.127**	**126.9**
(b) ER-NER	**271.839**	**133.22**
(c)NER-NR	**155.498**	**40.99**
(d)NR-NER	**74.889**	**135.96**
© Net Import	162.103	101.29

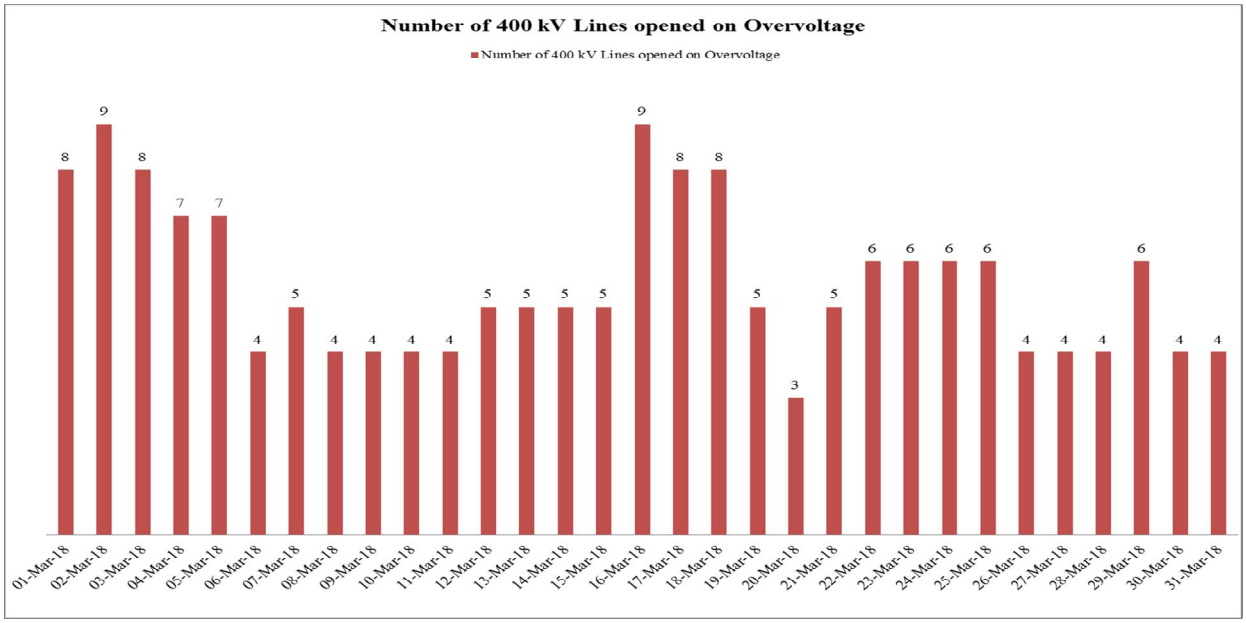
AVERAGE FREQUENCY (Hz)

Month---->	**Apr-18**	**Mar-18**
	% of Time	% of Time
Below 49.9 Hz	13.16	12.99
Between 49.9 to 50.05 Hz	79.25	79.29
Above 50.05 Hz	7.59	7.72
Average	49.97	49.97
Maximum	50.21	50.25
Minimum	49.62	49.68

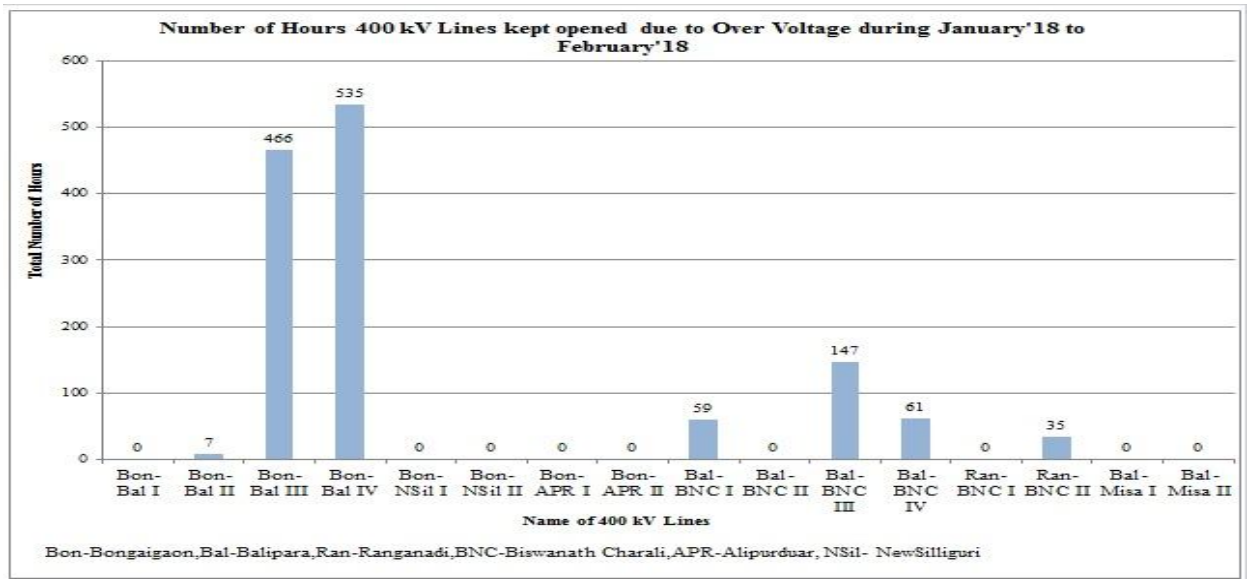
Deliberation of the sub-Committee:

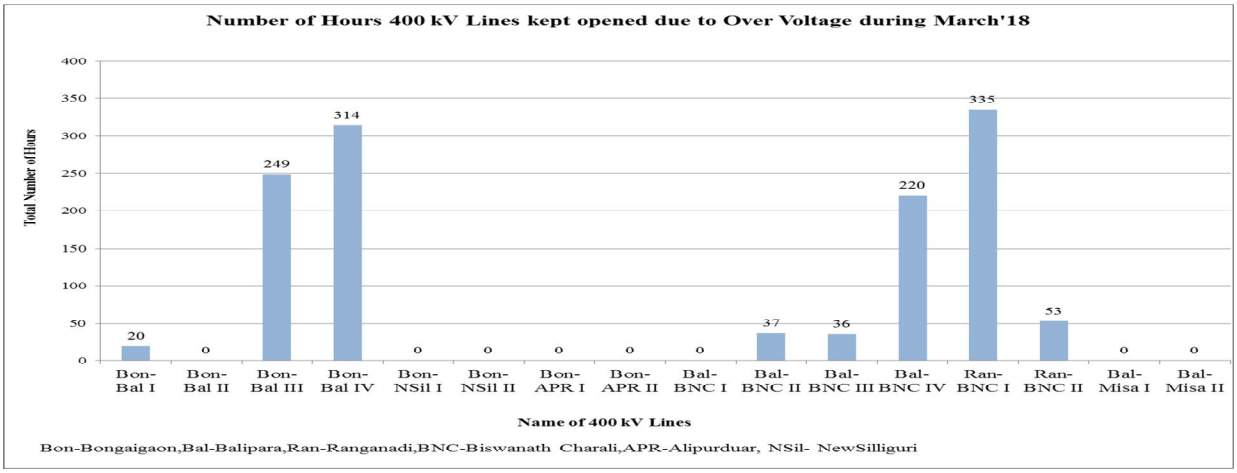
NERLDC gave a presentation on the grid performance for the month of April'18. NERLDC also highlighted that Daily, Weekly and Monthly Voltage Deviation Report, Frequency Deviation Report and System Reliability Report for April'18 are already mailed to all the constituents for necessary actions. Further it was informed that members may access these reports from NERLDC website under the tab CERC KPI Reports. NERLDC informed the forum about the number of lines kept open on high voltage. Forum express concern about the same and requested the generators to absorb MVAR. NERLDC again requested for early restoration of reactors which are under long outage and commissioning of new reactors at the earliest as mentioned in Sl. No. B.1.2 and C.1 so that it does not require to open lines for maintaining voltage profile within IEGC band. The plots of 400 kV lines opened for maintaining voltage profile within IEGC band during April'18 is mentioned below





Outage Hours: For 400 kV Lines





The Sub-Committee noted as above.

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

C. OLD I T E M S

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

During 144th OCC meeting, the status as informed by different beneficiaries is as follows:

SN	Items	Status as given in 143rd OCC Meeting	Status as given in 144th OCC Meeting
a. New Elements			
1	400/220kV, 315 MVA ICT-1 of NTPC at Bongaigaon	-	Delayed due to construction issues. By June'18
2	Kameng HEP of NEEPCO two units (2 x 150 MW) Next two units (2x150 MW)	Sep'18	Sep'18
3	Pare HEP of NEEPCO (2 x 55 MW)	Unit #I - By 25.04.18	Unit #II - Trial run 15.05.18 Unit #I - CoD by May'18
4	400 kV D/C Silchar - Melriat line of PGCIL	June, 2018.	June, 2018.
5	132kV Monarchak – Surjamaninagar D/C of TSECL	Severe RoW issues. To be referred to next SCM for resolution of bay issue at Palatana.	Severe RoW issues. To be referred to next SCM for resolution of bay issue at Palatana.

6	400kV D/C Balipara – Kameng	Completed.	Completed.
7	SLDCs (Ar. Pradesh, Manipur, Mizoram, Nagaland)	Nagaland-DoCO to be finalized Ar. Pradesh, Manipur - CoD Mizoram-ToC date to be confirmed.	Nagaland-DoCO to be finalized Ar. Pradesh, Manipur - CoD Mizoram-ToC date to be confirmed.
8	400/220 kV 315 MVA ICT-II at Bongaigaon	Tied up with GIS. By June'18.	Tied up with GIS. By Aug'18.
9	220/132 kV, 160MVA ICT-II at Balipara	ICT#II - delayed, Sept''18	ICT#II - delayed, Sept''18
10	220/132 kV, 1x160 MVA ICT with GIS Bay at Kopili	Sept, 2018.	Sept, 2018.
11	400/132 kV, 1x315 MVA ICT-III at Silchar	May, 2018.	June, 2018.
12	Replacement of 2x315 MVA ICTs with 2x500 MVA ICTs at Misa (PG)	ICT-I : May'18 ICT-II : Aug'18	ICT-I : Jun'18 ICT-II : Aug'18
13	400 kV Silchar – Misa D/C	2019	2019
14	1x125 MVAR Bus Reactor at 400 kV at Balipara	March, 2018(LOA date).	Sept, 2018(LOA date).
15	1x125 MVAR Bus Reactor at 400 kV Bongaigoan	March, 2018(LOA date).	Sept, 2018(LOA date).
16	Tuirial HEP of NEEPCO	Unit #I -CoD pending Communication and Connection Agreement. Unit #II - Feb'18	Voice and data connectivity upto SLDC to be ensured for DoCO.
17	33kV bay at 220kV Mariani(AS) S/Sn	Take up with APDCL. Load security payment is under process. APDCL will install meter.	Take up with APDCL. Load security payment is under process. APDCL will install meter.
18	33kV Tezu-Tezu(AP)	-	-
19	33kV bay for 132kV Badarpur(PG) S/Sn	APDCL submitted estimate to PG_Badarpur recently.	APDCL submitted estimate to PG_Badarpur recently.

20	Dedicated 33kV feeder at Khliehriat Substation from Lumshnong.	To be taken up by NERTS with MePDCL.	To be taken up by NERTS with MePDCL.
21	Construction of 132 kV Imphal (PG) - Yurembam III & IV lines with high capacity conductor by MSPCL	By last week of Apr'18	-
22	LILO of 132kV Aizawl-Jiribam at Tipaimukh by MSPCL	April'18	-
b. Elements under breakdown / upgradation			
23	Up-gradation of 132 kV Lumshnong-Panchgram line	To be approved by Techno-Economic sub-group for funding from PSDF.	To be approved by Techno-Economic sub-group for funding from PSDF.
24	Switchable line Reactors at 400kV Balipara & Bongaigoan	June'18	Aug'18
25	PLCC Panels at Loktak end of Loktak – Ningthoukhong 132 kV feeder and Loktak - Rengpang 132 kV feeder	Oct'2018	Oct'2018
26	LILO of 132kV Ranganadi – Itanagar (Chimpu) at Pare of Ar. Pradesh	Bay 1 at RHEP for Pare: Delayed Bay 2 at Pare for Itanagar: Delayed	Bay 1 at RHEP for Pare: Delayed Bay 2 at Pare for Itanagar: Delayed
27	Re-conductoring of 132kV Umiam Stg#I - Umiam Stg-III	DPR prepared and submitted for approval	DPR prepared and submitted for approval
28	Upgradation of ULDC FO node	Target completion : June 2018	Target completion : June 2018
29	HTLS re-conductoring of 132kV Agartala – RC Nagar – II	Ckt #I&II- completed	Completed. To be dropped.
30	Re-conductoring of Imphal (PG)-Yurembam 132 kV S/C POWERGRID line with high capacity conductor by NERTS	Apr'18	Completed. To be dropped

31	Up gradation / modification of bay equipment at Imphal (PG) by POWERGRID and at Yurembam by MSPCL	Apr'18	Completed at both ends. To be dropped.

Deliberation of the sub-Committee:

Sr. Manager, NEEPCO informed that trial run for Pare HEP Unit #II(55MW) is slated to commence from 15.05.2018. The same has been communicated vide mail dtd. 05.05.18 to all beneficiaries, NERLDC & NERPC. Constituents strongly opined that intimation of 10 days in advance should be given to constituents as well as to NERPC & NERLDC and requested NEEPCO to postpone the trial run at a later date. Sr. Manager, NEEPCO requested the forum to consider the trial run of Unit #II w.e.f. 15.05.2018 (for 12 hours) to comply with the regulations (i.e. intimation of 10 days in advance). After detailed deliberation, the forum allowed NEEPCO considering the importance of capacity addition in the region.

Sr. Manager, NEEPCO thanked the forum and informed that the Unit #I (55MW) is scheduled for trial run w.e.f. 23.05.2018 and requested all the constituents in advance to witness the trial run of Unit #I. The official communication will be followed soon.

DGM(AM), NERTS informed that NERTS is in the process of installing rooftop solar in most substations. For this purpose DISCOMs have to provide net metering. The forum decided to refer the matter to next CCM of NERPC for resolution.

DGM(SO-I),NERLDC requested that furnishing of documents and fulfilling pre-requisites for CoD be kept as separate column under item **C.1**. He also requested NHPC to provide SLD pertaining to Subansiri HEP at the earliest.

The Sub-Committee noted as above.
Action: All state utilities/central utilities/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		6.02	707.15

Kopili-II	1			
Kopili	4		52.98	599.63
Ranganadi	2		Subject to inflow	
Doyang	2		7.00	311.20
Loktak	3		24.66	766.94
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:

The Committee discussed and approved the proposed shutdown by Generating Stations and the same has already been uploaded in the website of NERPC.

The Sub-Committee noted as above.

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 134th OCCM, it was decided that all communication related shutdown be approved in OCC forum only.

In 142nd OCCM, SE (O&P), NERPC suggested that henceforth shutdown list may be prepared under following categories:

(i) New Construction Related Shut Down

(ii) Existing System Improvement Related Shut Down.

(iii) Existing System Normal Maintenance Related Shut Down

(iv) Communication Related Shutdown

(v) R&U works Related Shut Down under PSDF

The forum further decided that the modalities of communication related shutdown should be finalized. Members requested NERPC to invite POWERGRID telecom in next OCCM alongwith with officials (handling communication issues) from all utilities for this purpose.

In 143rd OCCM, SE(O&P), NERPC once again reiterated that shutdowns which are not being availed will not be entertained in the following month and would only be accorded in the next to next month. He hoped that in view of greater complexity in grid operation due to communication issues, the list of important links would be finalised by NERLDC very soon. He also requested NERTS to impress upon POWERGRID Telecom to attend the next OCCM positively.

Deliberation in the Meeting:

SE(O&P), NERPC once again requested NERLDC to finalise the list of important communication links(for which OCC s/d approval would be required) in the region. He emphasized that this is of utmost necessity keeping security of integrated grid operation in mind.

DGM(AM), NERTS informed that laying of OPGW is a central project with various ramifications. The stalling of works for 400kV Palatana-Silchar is highly undesirable. He stated that NERTS would not requisition for shutdown of the said line(s) for OPGW laying works, which NETC has to do. Further he requested NERPC to apprise CEA and MoP regarding the matter.

NERLDC highlighted that OCC forum approves the S/D after lots of discussion but it is observed that some of the shutdowns are not being availed. Details of Shutdown not availed and shutdowns applied on D-3 basis is as below:

Total S/D approved	Total S/D availed	Total S/D not availed	Total S/D availed on D-3 basis	Total S/D not applied on D-3 basis
110	83	27	79	31

NERLDC highlighted that the inordinate delay in revival of elements under S/D for ISTS licensees is coming very high which is affecting the secure operation of the grid. Details for the month of April'18 are as below:

Transmission Licensee	Total Delay	Avg. Delay	Max. Delay
POWERGRID	131 Hrs 35 Min.	2 Hrs 41 Min.	4 Hrs 28 Min. on 2nd May'18 for 132 kV Khandong – Kopili line
NETC	7 Hrs	1 Hrs 7 Min	3 Hrs 44 Min. on 5th May'18 for 400 kV Azara – Bongaigaon line
ENICL	Nil	Nil	Nil

NERLDC requested ISTS licensees to return the element under shutdown as per approved schedule.

The sub-Committee discussed and approved the proposals received from the constituents regarding transmission elements and generating units for May,2018 - June, 2018 and the same has already been uploaded in website of NERPC.

D.3 Estimated Transmission Availability Certificate (TAC) for the month of November, 2017 to January, 2018:

NETC and POWERGRID have submitted the outage data for the month of November, 2017 to January, 2018. So the attributability of outage of the said elements may please be finalized.

In 141st OCCM, DGM (MO), NERLDC stated that outages would be made attributed to respective transmission licensees due to absence of documentary evidence during verification stage. NERPC secretariat would take due care accordingly. After detailed deliberation it was decided that Transmission Licensees (POWERGRID, NETC etc) would provide the relevant documents during verification process itself and no plea would be honored after that.

For streamlining the process of Verification of Transmission Element Availability, a draft Procedure is prepared by NERLDC and NERPC.

Constituents of NER are requested to send comment and suggestion for this document by 28th Mar'18. This document will be finalized by 31st Mar'18.

In 142nd OCCM, NERLDC informed the forum that the draft procedure has been prepared and the same shall be circulated shortly. NERPC and NETC were requested to provide their comments on the draft Procedure by 31st March'18. The forum once again advised NETC & POWERGRID to submit data in a time bound manner as decided previously.

In 143rd OCCM, it was decided that an element-wise cumulative tripping details attributable to the licensees for the current FY has to be submitted by the respective transmission utilities on monthly basis along with outage data. Then after all prudence checks by NERLDC/NERPC, once the outage is certified by NERPC, final cumulative tripping details attributable to the transmission licensee would be published by NERPC.

Deliberation in the Meeting:

SE(O&P),NERPC requested the members to furnish their comments w.r.t. the draft procedure attached at **Annex D.3.**

NERLDC informed the forum that during 142th OCC Meeting, a draft Procedure was prepared by NERLDC and NERPC for streamlining the process of Verification of Transmission Element Availability. POWERGRID and NETC were requested to give their comments by 31.03.18. It was informed by NERLDC that same was circulated but no reply was received. NERLDC requested the forum to decide on the same.

SE(O&P), NERPC asked POWERGRID and NETC to comment on the procedure attached in **Annexure D.3.1.** The procedure will be finalized in the next meeting.

Member Secretary, NERPC informed the forum that 3 times reminder may be sent for any document for which comments were sought. If no comments are still received, the document will be considered as final.

The Sub-Committee noted as above.

Action: Concerned transmission utilities/NERLDC/NERPC

D.4 Assessment of Total Transfer Capability (TTC), Transmission Reliability Margin (TRM) and Available Transfer Capability (ATC) by SLDC on respective Inter-State Transmission Corridor

Updated PSS/E Base Cases have been mailed to all the SLDCs on 30.04.18. All SLDCs are requested to assess the Total Transfer Capability (TTC), Transmission Reliability Margin (TRM) and Available Transfer Capability (ATC) for the month of June'18 using these cases, and submit the study cases and results to NERLDC by 20.05.18.

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 will be presented in the meeting. SLDCs are requested to check the TTC of their control areas as computed by NERLDC and give comments, if any, by 20.05.18.

If no comments received from any SLDCs of NER, 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 on 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

SE(O&P), NERPC informed that SLDC, Ar. Pradesh would give presentation on ATC/TTC Calculation for Ar. Pradesh grid in the 145th OCC.

NERLDC has assessed TTC of each state control area of NER, each state subsystem on behalf of SLDCs of NER and group of control-area wise TTCs for NER Grid for the month of June'18:

States	Off-peak		Peak	
	N-0	N-1	N-0	N-1
Arunachal	222	192	214	184
Assam	1701	1599	1726	1542
Manipur	338	259	332	254
Meghalaya	296	170	300	160
Mizoram	127	116	127	116
Nagaland	184	166	180	158
Tripura (including Bangladesh)	309	80	292	84

The Sub-Committee noted as above.

Action: All SLDCs.

D.5. SPS mock testing & existing SPS scheme related:

The 138th OCC forum requested NERTS to prepare a draft sequence of operation for each SPS and present in next OCC for ratification. The date for SPS 2 and SPS 3 mock testing will also be finalized in next OCC Meeting.

The 140th OCC forum opined that NERPC/NERLDC may find some experts from the region to solve this long pending issue and if not, the same may be called from other region. The forum requested OTPC to intimate the details of their action plan for addressing the issues at their end pertaining to the successful operation of SPS-2 & 3 at the earliest.

NERPC vide letter dated. NERPC/SE(O)/OCC/2018 dated 08.02.2018 has requested OTPC to implement the changes as early as possible.

OTPC vide mail dated. 26.02.18 has intimated that Modified SPS-2&3 has been taken into service w.e.f. 26.02.18(10:45hrs) with 15ms time delay at OTPC end.

Since both SPS-2& 3 are operational within the stipulated time delay the forum may approve that grant of any shutdown related to Palatana ATS would be unconditional of generation backing down at Palatana GBPP.

In 142nd OCC GM,NERLDC informed that though currently s/d of Palatana ATS is being allowed without generation backing down, a mock test would be very fruitful. The forum after detailed deliberation requested NERPC to schedule mock test with representatives from NERTS, TSECL, OTPC, NERLDC & NERPC at the earliest.

In 143rd OCCM SE(O&P), NERPC informed that testing would be carried out tentatively in the first week of May,2018. He requested AEGCL, MeECL, NERTS, OTPC and NERLDC to depute concerned personnel for the said purpose.

In the Special Meeting on SPS-3(MoM attached at **Annex.D.5**) held at NERPC Shillong on 03.05.2015, the matter of mock testing was discussed. Members suggested that after implementation of the procedure on 07.05.2018, the date of mock testing may be finalized in the 144th OCCM.

Deliberation in the meeting

DGM, OTPC informed that on 10.05.2018 SPS-3 signal on particular PLCC panel was received 40 times consecutively. Generator outage could be averted because SPS-3 was turned off at Palatana end. He stated that repeated receipt of spurious signals at OTPC end indicates non-reliability of SPS-3 and requested the forum to allow OTPC to turnoff SPS-3 till RCA for the spurious signals are identified and resolved.

DGM(AM), NERTS informed the following:-

- The incident on 10.05.2018 was not spurious at Palatana end as increment was recorded in Silchar also. The exact reason will be intimated to NERPC/NERLDC shortly.

- The events preceding 10.05.2018 were spurious as signals were only received at Palatana with no counter increment at Silchar. From 07.05.2018 scanner has been put in service by interchanging the permissive and DT Inter-trip channels with SPS 3 disconnected at Palatana end. The channel is kept on observation for any spurious signal for further needful.
- He assured that the issue of DT being sent due to BCU restart will be attended shortly once OEM visits the site.

GM, NERLDC further informed that Palatana GBPP tripped around 08:50hrs on 11.05.2018 due to triggering of SPS-2. This is supposedly due to fault in the both the 400kV Palatana-Silchar-I&II. However the exact cause is yet to be ascertained. He requested that timeline for SPS-3 activation at Palatana be decided by the forum.

After detailed deliberation it was decided that by 30.05.2018 NERTS would resolve the issues leading to generation of anomalous SPS-3 signal from Silchar. Subsequently after confirmation OTPC would turn on SPS-3 at Palatana. NETC was requested to increase patrolling and regular maintenance operation(s) for Palatana evacuation corridor(i.e. 400kV Palatana-Silchar I&II, 400kV Silchar-Byrnihat and 400kV Silchar-Azara). Further it was decided that in the intervening period 400kV Silchar-Byrnihat and 400kV Silchar-Azara shutdown would be decided on a case to case basis.

The Sub-Committee noted as above.

Action: OTPC/NERTS/AEGCL/MeECL/NERPC/NERLDC.

D.6. <u>Update on Real Time Energy Assessment for Effective Grid Management:</u>

In 139th OCCM, CDAC representative stated that they would require the proprietary protocol from the meter manufacturer(s) to proceed further with the Project. DGM(MO), NERLDC explained that as per practice followed in other Regions like NR, ER etc., AMR provider, Meter manufacturer and Powergrid sign a tripartite agreement to enable passing of the protocol to AMR provider. A sample of draft agreement in ER (TCS is AMR provider) was provided to CDAC and it was advised that CDAC should initiate process and circulate a draft agreement for the present case. CDAC agreed to do the needful and stated that they would develop protocol converter accordingly.

CDAC has furnished the draft tripartite agreement which is to be signed between CDAC, POWERGRID-NERTS and meter manufacturer(s).

In 140th OCCM, NERPC intimated that the process of signing tripartite agreement between CDAC, Powergrid and L&T was in progress. He requested NERTS to expedite the matter.

In 141st OCCM, all the SLDCs confirmed the receipt of server at their premises. DGM,SLDC,AEGCL informed that static IP and SIMs have been procured by them.

In 143rd OCCM, SE(O&P),NERPC informed that tripartite agreement has been signed and protocol would be handed over by 21.04.2018.

Deliberation in the meeting

SE(O&P), NERPC informed that the protocol has been handed over and CDAC has initiated subsequent works.

The Sub-Committee noted as above.

Action: CDAC.

D.7. Recording of operational instructions over VOIP in RLDC:

As per 139th OCC discussion establishment of recording system for all real time instructions and conversations thro' VOIP network was supposed to be established within Feb'18. It is very important to establish the recording system at the earliest as all verbal communication/ conversations among RLDCs, SLDCs and stations are getting lost. Recording status at SLDC also may be discussed.

In 142nd OCCM, Manager, NERTS informed that re-tendering for DONGLE is in process and order would be placed by Mar'18/ April'18. Delivery would be by May'18/ June'18.

In 143rd OCCM, NERTS informed that LOA would be done by May'18 and supply by June'18/July'18.

Deliberation in the meeting

NERTS informed that LOA for DONGLE (facilitating voice recording facility in existing VOIP Exchange console at NERLDC) would be done by May'18 and supply by June'18/July'18.

The Sub-Committee noted as above.

Action: NERTS

D.8. Low voltage issue in Tripura, Mizoram & Nagaland Power Systems

POWERGRID Dimapur S/S is restored by 24th February'18. Even after restoration of Dimapur S/S, system voltage Aizawl and MELRIAT during morning and evening peak

hours drops to 122 kV. NERLDC is taking all available corrective action by opening bus Reactors at Aizawl, Kumarghat, Imphal but still voltage remains low. Capacitive compensation at local level is necessary.

In 141st OCCM, it was decided that NERLDC/NERPC would conduct studies regarding Low voltage problem in Tripura, Mizoram in consonance with studies carried out by TSECL and P&ED Mizoram. Regarding funding for capacitor banks installation NERPC would take up the issue with IA/NLDC.

In 143rd OCCM, SE(O&P),NERPC informed that study data has been received from Mizoram. He requested TSECL to expedite the process. CE,NPC stated that DPR for capacitor bank installation must be supported by justifying studies.

Deliberation in the meeting

SE(O&P), NERPC informed that due to paucity of funds in PSDF it has been decided at the national level to keep Capacitor Installation project in low priority. However the studies are to be finalised and kept ready. The forum requested NERPC&NERLDC to complete studies i.r.o. Tripura at the earliest.

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

D.9. Integration of new RTUs at RHEP:

GE supplied RTU at RHEP will be provided for accommodating the two new 132 kV extension bays being constructed by us at RHEP in the first-second week of March 2018. Integration of new RTU with existing RTU at RHEP and NERLDC control centre shall be required. Hence special permission may be required through appropriate forum in this regard.

In 142nd OCCM, Sr. Manager, NEEPCO informed that RTU procurement is under tendering process and would be commissioned by Dec'18.

In 143rd OCCM, Sr. Manager, NEEPCO informed that as per discussion in 9th NETeST forum for 132kV RHEP-NDTL line, a team from NERLDC, NERTS would visit RHEP on 24.04.18 to sort out the RTU problem. For 132kV RHEP-Chimpu line he informed that RTU is under procurement and same would be installed by Dec'18. However NERLDC requested to install RTU at RHEP at the earliest possible time as current RTU is not reliable, hence creating grid monitoring problem.

A team from NERLDC and NERTS visited RHEP on 27.04.2018 and made the following recommendations:-

- The S900 RTU may be replaced with new C264 RTU or existing bays may be integrated with installed C264 RTU.
- The old transducers for existing bays are to be replaced with MFTs.

NEEPCO has agreed to integrate the existing bays with installed C264 RTU.

Deliberation in the meeting

DGM(SO-I), NERLDC informed the forum that at present CB position & other data are reporting from RHEP. However the present S900 RTU is not reliable and needs resetting frequently, therefore he requested NEEPCO to expedite the work of integrating existing bays with installed C264 RTU. Sr. Manager, NEEPCO informed that due process has been initiated and work is expected to be complete latest by Dec'18. The forum requested NEEPCO to finish the works by Aug'18.

The Sub-Committee noted as above.

Action: NEEPCO

D.10. Balipara PMU voltage problem while switching 400 kV Balipara-Bong-3

To curtail the high voltage issue everyday; NERLDC used to open 400 kV lines. But whenever 400 kV Balipara Bongaigaon line-3 opens, it has been observed that the 400 kV voltage at Balipara PMU dips from 417 kV to 192 kV. This type of voltage dip occurs regularly during hand tripping of the above said line.(Attached mail dated 3/2/18).Corrective action is necessary at BALIPARA end.

In 142nd OCCM, NERLDC highlighted that whenever 400 kV Balipara Bongaigaon line-3 is opened to control Over Voltage, it has been observed that the 400 kV voltage at Balipara PMU dips from 417 kV to 192 kV. This type of voltage dip occurs regularly during hand tripping of the above said line and is creating a problem for real time operators. NERLDC also informed that the issue was taken up with NERTS previously but rectification is yet to be done.

DGM(AM), NERTS informed that OEM has been called to rectify the issue.

NERTS informed that OEM has already been informed and the PMU would be rectified by May'18

Deliberation in the meeting

DGM(AM),NERTS informed that the matter has been deliberated internally and it seems that ownership of the said PMU rests with NERLDC. Members requested

NERPC to discuss the matter separately with NERTS and NERLDC and revert back to the forum.

The Sub-Committee noted as above.

Action: NERPC, NERLDC , NERTS.

D.11. Ensuring proper functioning of Under Frequency Relays(UFR) & df/dt Relays:

In 7th NPC meeting held on 08.09.17 it was agreed that mock test is good enough to test the healthiness of the UFR & df/dt relays. The frequency of site inspection was proposed to be upto six months. RPC may carry out periodic inspection, in line with provisions of IEGC and furnish inspection reports to NPC.

In 142nd OCCM, SE(O&P),NERPC informed that as mandated periodical inspection of UFR needs to be carried out. In this regard he requested help of NERTS by providing suitable kits.

DGM(AM),NERTS stated that Frequency Injection Kit is available in PGCIL stations and any logistical help may be provided. He further requested that an action plan in this regard may be devised and handed over for future course of action.

In 144th OCCM DGM(AM), NERTS requested that a detailed schedule be prepared and circulated to concerned constituents for nomination of members. SE(O&P), NERPC stated that the detailed schedule location wise would be prepared and circulated by NERPC forthwith.

A detailed schedule has been prepared location wise and is attached at **Annexure-D.11.** Utilities may kindly nominate members and finalize date(s) for inspection.

Deliberation in the meeting

Sr. Manager, NEEPCO informed that AGTCCPP Extn only has PSS but it is not enabled. The same would be done while commissioning of DAVR for AGTCCPP-GTGs. He requested NERPC to modify the schedule accordingly.

DGM(AM), NERTS opined the following w.r.t. UFR and PSS inspection:-

- Testing procedure is to be finalized beforehand. If the scheme is integrated in NR then relay to be taken out of service. Further OMICRON kit is required, which is available in select locations only and is not recommended for movement over longer distances.
- Dates need to be assigned location wise. This would enable nomination from all utilities.
- Also protection audit may be combined for fruitful outcome.

After detailed deliberation the forum decided that NERPC would in consultation with NERTS & NERLDC prepare the completed schedule and procedure.

The Sub-Committee noted as above.

Action: NERPC, NERLDC , NERTS.

D.12. <u>Absorption of Reactive Power by generators:</u>

Details of AVR installation for grid connected generating stations as updated in 143rd OCCM:

Name of generating station	Name of utility/State	Status of AVR installation	Whether reactive power absorption as per capability curve (Y/N)
Khandong HEP	NEEPCO	YES	Y
Kopili II HEP	NEEPCO	YES	Y
Kopili HEP	NEEPCO	YES	Y
Doyang HEP	NEEPCO	YES	Y
Ranganadi HEP	NEEPCO	YES	Y
AGBPP	NEEPCO	YES	Y
AGTCCPP	NEEPCO	YES	Y
TGBPP	NEEPCO	YES	Y
Turial HEP	NEEPCO	YES	Y
Loktak HEP	NHPC	YES	Y
Palatana GBPP	OTPC	YES	Y
BgTPP	NTPC	YES	Y
Umiam HEP Stg I through IV	Meghalaya	YES	Y(except Stg III)
Umtru HEP	Meghalaya	YES	Y
Leshka HEP	Meghalaya	YES	Y
Rokhia GBPP	Tripura	YES	Y
Baramura GBPP	Tripura	YES	Y
Likimro HEP	Nagaland	NO	-
Bairabi GBPP	Mizoram	NO	-
LTPS	Assam	YES	Y
NTPS	Assam	YES	Y
Langpi HEP	Assam	YES	Y

For testing of reactive power absorption capabilities a draft procedure (**circulated in 143rd OCCM**) has been prepared by NERLDC with inputs from Southern Region where similar tests have been conducted. Members are requested to provide their valuable comments. Generators where AVR is not installed may please provide the time schedule for installation.

In 143rd OCCM Manager, OTPC opined that as per draft procedure, testing is difficult as most of the tests are done during time of commissioning. To test under restricted loading is not permissible when machine is connected to the grid. SE(O&P),NERPC

requested all the members to kindly peruse the draft procedure and provide their valuable comments prior to next OCC.

CE,NPC suggested that the frequency of testing may be fixed as once in five years.

Deliberation in the meeting

Sr. Manager, NEEPCO informed that testing as per suggested procedure is impracticable. Since the capability curve is at rated terminal voltage, it is not suggested to vary the system voltage. After detailed deliberation the forum decided that testing would be done as per common practice of other regions. Members requested NERPC/NERLDC to frame the procedure in contiguity with other regions.

EE, SLDC, P&ED Mizoram informed that Bairabi GBPP is a H.F.Oil station which is not run nowadays. So AVR installation is not required. The forum decided to drop the same from the list.

The Sub-Committee noted as above.

Action: NERPC, NERLDC.

D.13. Audit of PSS:

An action plan for PSS audit of generating stations is attached at **Annexure D.11** (*same annexure)*.

Deliberation in the meeting

Pls refer to discussions in item **D.11.**

The Sub-Committee noted as above.

D.14. Review of SPS 1 & 4 and Islanding Scheme 2:

In 143rd OCCM GM, NERLDC informed that configuration of South Assam has changed and it is imperative to turn off SPS-1&4 before review is done. After detailed deliberation the forum decided that NERPC would write to NERTS in this regard.

The review of SPS and islanding schemes would be discussed during the System Studies Meeting on 10.05.2018.

Deliberation in the meeting

Pls refer to discussions in 50th PCC Meeting.

The Sub-Committee noted as above.

D.15. Mock exercise of Black Start procedure of ISGS:

As per report of enquiry committee on Grid Disturbance in NR on 30th Jul'12 & in NR, ER & NER on 31st Jul'18, there is requirement of more periodic mock exercises to ensure preparedness of all stakeholders involved.

So it is very important to do the mock testing of black start of KHEP (Kopili/ Khandong), AGTCCPP (RCNagar) and DOYANG, RHEP and LOKTAK HEP. It is proposed to do the testing in the 2nd half of April'18 and 1st half of May'18.

In 143rd OCCM GM, NERLDC informed that the mock exercise would be carried out by NERLDC within 15.04.18 to 31.05.18. Manager, NHPC, Loktak requested that for Loktak HEP the test be carried out on April'2018. However actual date of mock test will be decided in consultation with LOKTAK and NERLDC.

Mock Black Start Exercise was carried out on 26th April 2018 for Loktak HEP (NHPC) & Khandong HEP (NEEPCO).

Deliberation in the meeting

NERLDC informed the forum that as deliberated in 143rd OCC Meeting of NERPC, Mock Black Start Exercise was carried out on 26th April 2018 for Loktak HEP (NHPC) & Khandong HEP (NEEPCO). The report is attached in **Annexure-D.15**.

The forum thanked NERLDC,NHPC and NEEPCO for the excellent Mock Start exercise on 26.04.2018. SE(O&P), NERPC requested members to go through the report and provide their valuable comments.

DGM(SO-I), NERLDC informed the forum that Black Start of other machines will be carried out in suitable dates within the month. However due to outage of telemetry of DHEP the said mock exercise is getting delayed and requested forum to solve the telemetry issue of DHEP at the earliest.

The Sub-Committee noted as above.

Action: All generating utilities.

D.16 Reversion of configuration of 132kV Balipara-Sonabil-Ghormari:

DGM, AEGCL informed that in interest of better load sharing and to reduce any occurrence of congestion in the near future, it is required to revert back the configuration of 132kV Balipara-Sonabil-Ghoramari. The present configuration would be shorting of 132kV Balipara-Sonabil and 132kV Balipara-Ghoramari at Loc.No.62.

The forum approved the configuration and requested AEGCL to do the needful. Schematic attached at **Annexure D.16(I)**.

Taking into consideration the increase in load in Depota area, NERLDC has conducted system studies. The study results are attached in **Annexure-D.16(II).**

System studies reveal that, whenever, 132 kV Balipara - Sonabil S/C is connected, the Depota load is mainly fed through 132 kV Sonabil - Depota line thereby overloading the line. Load restriction has to be made in Depota area to control the overloading of 132 kV Sonabil - Depota S/C line.

LILO of 132 kV Sonabil – Balipara line at Depota sub-station will relieve congestion of 132 kV Sonabil - Depota line and enhance reliability of the system. It would also increase the capability of the system to cater more downstream loads of Depota area of Assam.

Deliberation in the meeting

NERLDC informed that it has been observed that there is trend of increase in load at Depota area. So, 132kV Sonabil-Balipara is to be LILO'd at Depota to cater to the increased load. NERLDC presented the study result in pictorial form for suggestion regarding LILO of 132 kV Sonabil –Balipara line at Depota.

AEGCL was of the view that using HTLS conductor in 132 kV Sonabil – Depota line may solve the issue. However, NERLDC opined that LILO of the circuit will increase the redundancy as well and will be better option for catering more load of Depota area of Assam Power System.

DGM, SLDC, AEGCL informed that as per current configuration 132kV Sonabil-Ghoramari is to be LILO'd at Depota, the feasibility of which would be studied. The forum decided to drop the agenda item in the meantime.

The Sub-Committee noted as above.

Action: AEGCL.

D.17 Geospatial Energy Portal for NITI Aayog:

NITI Aayog is developing a user friendly GIS based Energy Map of India, which would provide true locations of all energy resources in India including power plants, coal and oil reserves, transmission lines, refineries, etc.

Ministry of Power (MoP), GoI has designated Central Electricity Authority (CEA) as the nodal agency to collect all the required data/information pertaining to the

Power Sector of India by collecting it from different Utilities of Power Sector and submit it to NITI Aayog for early development of the Geospatial Energy Map of India.

Accordingly, CEA vide letters dated 09.02.2018 and 01.05.2018 requested Heads of DISCOMs/Power Departments to furnish the information regarding the name, voltage level, capacity, longitude and latitude of 33 kV and 66 kV Substations and lines as per proforma. However, information is still awaited from most of the utilities

Non furnishing of above information by DISCOM was discussed in a meeting taken by Chairperson, CEA on 26.04.2018, wherein it was advised that all RPCs may be requested to take up the issue in the OCC meetings for furnishing the information in a time bound manner.

The details of the sub-stations required are attached at **Annexure-D.17.** Corresponding utilities are requested to provide the missing details in the annexure at the earliest.

Deliberation in the meeting

SE(O&P), NERPC informed that the required data is for national interest and requested all utilities to submit the same. NERLDC requested that the name of substations and transformation capacity given in Annexure D.17 may also be verified and sent to NERPC and NERLDC.

The Sub-Committee noted as above.

Action: All SLDCs/Distribution utilities.

D.18 Preparatory Measures to meet increased summer demand

Chief Engineer, GM, CEA through letter dated 9th April'18 has informed that IMD has forecasted a comparatively harsher summer this year which will push up the weather beating load in the country. Keeping these aspects in view and to meet the increased demand of power smoothly in the months ahead, CEA has requested all concerned power utilities to take up the preparatory measures. The letter is enclosed in **Annexure-D.18**.

The preparatory measures as identified by CEA are as follows:

1. Generating stations should build up coal stocks.
2. RLDCs and SLDCs should remain in high state of alert, particularly in case of forecast of an imminent cyclone / thunderstorm / heavy rainfall.

3. States/UTs need to monitor closely and maintain their drawl from the grid as per the schedule at all points of time. Instructions of RLDCs need to be followed by the concerned SLDCs without any delay to ensure smooth and integrated operation of the grid.
4. All protection systems including SPS, islanding schemes and Automatic Demand Management Schemes (ADMS), etc. need to be checked by the concerned utilities for their proper functionality and confirmed to the respective RPCs.
5. Consider deferment of planned shutdown of generating units if necessary. This should preferably be done at those power stations which fall in the lower part of the merit order list and where coal stock is also less.
6. Due to increased load, low voltages may be witnessed in the grid. Therefore, there is a need to keep shunt capacitors in service and reactors in off position in the low voltage prone areas.
7. High voltages may be witnessed in case of load throw off following a thunder-storm, cyclone or heavy rainfall. To control high voltages, opening of transmission lines should be avoided. Instead, reactors and capacitors should be used to control voltages. In case, a transmission line needs to be opened due to high voltage despite switching of reactors/capacitors, it should be brought back in service as soon as the voltage returns into the normal range.
8. All transmission utilities / licensees should keep ERS in readiness, preferably at more than one location, so that these can be transported to any affected area in the region / state in least time.
9. Maintenance and protection staff should also remain on high alert along with earmarked vehicles for their immediate movement.
10. Inventory should be kept well stocked to ensure ready availability of spare parts /equipment. This would facilitate quick replacement of faulty part / equipment and hence, quick restoration of supply in the affected area.
11. Thermal units, which are under reserve shutdown, should be kept in readiness for operation at a short notice.
12. Gas based power stations should make necessary arrangements including appropriate tie up for RLNG / Spot gas so that these stations may be brought on bars at a short notice, if required.

It is requested to all concerned power utilities to take above mentioned steps to maintain smooth supply of power to the consumers in the forthcoming summer / monsoon season.

It is also to be mentioned that load in North Eastern Grid mainly consists of domestic Load. During the upcoming summer season, all constituents must manage their demand by proper utilization of intra state generation and by strictly maintaining their drawl as per their schedule. The short-term market may be utilized extensively in order to minimize the deviation from schedule.

Deliberation in the meeting

SE(O&P), NERPC requested all generating utilities and SLDCs to follow the preparatory measures outlined by CEA to meet increased summer demand.

The Sub-Committee noted as above.

Action: All utilities.

D.19 Ratification of Technical and Commercial data for computation of PoC Charges and Losses for Q2 of 2018-19 (Jul 2018 – Sep 2018):

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 forum.

All the power utilities of NER has submitted the Technical and Commercial data for computation of PoC Charges and Losses for Q2 of 2018-19 (Jul 2018 – Sep 2018).

Deliberation in the meeting

Members ratified the data with the following modifications:-

- Meghalaya demand --> 320MW
- Assam was requested to provide Generation data for Q2.
- Meghalaya will review the Generation Figure for Q2.

NERLDC also informed that during validation Committee Meeting, reason for increase in Load or Generation of quantum greater than 2% is sought by CERC and the same may be furnished by all the utilities in written through mail. NERLDC has already mailed to all utilities on 14th May'18.

The Sub-Committee noted as above.

D.20 Updated List of Important Grid Elements of NER, May 2018 (Draft):

As per Clause No 5.2.c of IEGC, List of Important Grid Elements of NER May 2018 (Draft) prepared by NERlDC. Updated List of Important Grid Elements of NER May 2018 (Draft) was e-mailed to regional entities of NER on 6th April'18 and the same is also available in NERLDC website at http://nerldc.org/IE.aspx .

It is requested to all power utilities of NER to validate and furnish the remaining data for finalization of List of Important Grid Elements by **25th May'18** as this document will be finalized by 30th May'18. The document is password protected. Password may be collected from SOII department of NERLDC.

Deliberation in the meeting

NERLDC informed the forum that List of Important Grid Elements of NER May 2018 (Draft) is prepared and mailed to all the constituents. The same is also available in NERLDC website at http://nerldc.org/IE.aspx . NERLDC requested all power utilities of NER to validate and furnish the remaining data for finalization of List of Important Grid Elements by **25th May'18** as this document will be finalized by 30th May'18.

The Sub-Committee noted as above.

D.21 Transformer Tap Optimization

System study regarding Transformer Tap Optimization was conducted by NERLDC considering high & lean hydro scenarios on half yearly basis. In line of the above, NERLDC has conducted studies considering High Hydro Scenario in North Eastern Region.

Suggested taps position of important transformers in NER for maintaining bus voltages within permissible limit as well as to minimize system losses will be shared during the meeting.

Deliberation in the meeting

NERLDC informed the forum that studies have been conducted for Transformer Tap Optimization of Transformers in Mizoram after obtaining data from them. The study results are **attached at Annexure. D.21**. NERLDC requested P&ED, Mizoram to go through the study results and to provide their comments.

The Sub-Committee noted as above.

Action: All utilities

D.22 Non-availability of SOE records of Biswanath Chariali & Ranganadi:

The SOE records of both BNC and RHEP do not appear for any breaker operations in any of the elements of both the stations. This causes lack of proper visibility for the system operators in real time and causes hindrance in proper & quick decision making.

Deliberation in the meeting

NERLDC requested the forum to restore the CB status and SOE data of HVDC,BNC as well as RHEP at the earliest as both the stations are very important for NER grid management.

NERTS stated that it would revert back with the latest status.

The Sub-Committee noted as above.

Action: NERTS

D.23 Shutdown Codes not been taken frequently from NERLDC:

In some of the recent OCCM approved shutdown activity, it has been observed that some utilities are not taking opening or closing code for switching of their elements. As per IEGC 5.2.C, no important element of the National / Regional grid shall be deliberately opened or removed from service at any time, except when specifically instructed by RLDC or with specific and prior clearance of RLDC.

Deliberation in the meeting

NERLDC requested all the concerned utilities that prior intimation must be given to NERLDC for switching of elements. Operation without codes affects the system operation and hence switching codes should be taken from NERLDC for all important grid elements .

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

D.24 Erroneous PMU data of Balipara during switching of 400 kV Balipara – Bongaogaon Circuit III

To contain the high voltage everyday NERLDC open 400 kV lines. But whenever 400 kV Balipara Bongaigaon line-3 is opened, it has been observed that the 400 kV voltage at Balipara PMU shows erroneous data. The same is automatically restored with the switching of Line reactor into Bus.

Deliberation in the meeting

Pls refer to discussion in item **D.10.**

The Sub-Committee noted as above.

Action: NERLDC.

D.25 Schedule checking by all concerned utilities:

The process of energy scheduling has become more and more complex over the time. Energy scheduling process is a very important function in real time system operation and flawless scheduling is very much essential. Post-facto revision is not acceptable in scheduling process. So correctness of scheduling is our topmost target. Despite of utmost care during scheduling some inadvertent errors take place. This issue has been deliberated in the 139th and 141st OCC.

During both the meetings NERLDC has asked all concerned to check their generation / drawal schedule on Day Ahead basis (R 0 & R 1) and on Real Time basis with each schedule revision and inform NERLDC control room if any discrepancy is observed.
As a precautionary measure NERLDC is sending the R 0 & R 1 schedule through email to all concerned.

Deliberation in the meeting

NERLDC requested all utilities to check the R0, R1 schedules and all the realtime revisions uploaded in NERLDC website and report back to NERLDC control room in case of any discrepancies in to prevent any erroneous revisions or discrepancies.

The Sub-Committee noted as above.

Action: All concerned utilities.

D.26 Repeated Occurrence of Low Frequency Oscillations (LFO) after synchronization of Kopili Stg II Unit

LFO was observed on 21-04-2018 from 13:13 Hrs to 13:17 Hrs and on 22-04-2018 form 13:01 to 13:07 Hrs in NER Grid.

During both the occurrences, LFO was observed to be starting after synchronization of Kopili STG II unit and dyeing down with the reduction of generation of the same unit.

The repeated occurrence of similar events of LFO can cause any undesirable consequence in the system.

Deliberation in the meeting

NERLDC informed the forum that LFO was observed on 21-04-2018 from 13:13 Hrs to 13:17 Hrs and on 22-04-2018 form 13:01 to 13:07 Hrs in NER Grid. During both the occurrences, LFO started after synchronization of Kopili STG II unit and died down with the reduction of generation of the same unit.

Sr. Manager, NEEPCO informed that LFO was due to operational issue at Kopili, which has since been rectified and assured that the same would be avoided in future.

The Sub-Committee noted as above.

D.27 Poor Governor Response during sudden drop of frequency

On 23.04.2018 at 10:42 Hrs, there was a sudden decrease of frequency from 50.02 HZ to 49.72Hz in which Palatana has shown an increase of 49MW instantly. Whereas the other NER generators has shown almost a NIL response. Reasons may be intimated.

Deliberation in the meeting

NERLDC informed the forum that on 23.04.2018 at 10:42 Hrs, there was a sudden decrease of frequency from 50.02 HZ to 49.72Hz. During calculation of Frequency Response, it has been observed that most of the generators in NER has shown NIL response except for Palatana.

Sr. Manager, NEEPCO informed that TGBPP responded very well with GTG contributing 7MW and STG almost 2MW. He also informed that Kopili reservoir was very low but still increased generation by 0.75MW inspite of LFO issues. Further the vanes were at full capacity. For AGBPP, he informed that the unit(s) were in temperature control mode which did not allow to respond due to dip in frequency. The forum requested NHPC and NTPC to revert back with the reasons for poor response.

The Sub-Committee noted as above.

Action: NHPC, NTPC.

D.28 Disruption in Agartala PMU Data

PMU Data of Agartala got disrupted on (i) 04:53 hrs of 30/04/2018 to 20:00 Hrs of 01/05/2018; and (ii) 16:41 Hrs of 02/05/2018 to 10:32 Hrs of 03/05/2018. On enquiry it was found out that the 132 KV Dhalabil-Agartala S/C Line was under shut down on these period.

This indicates that the CVT input for Agartala PMU has been taken from line CVT of Dhalabil-Agartala S/C Line. To avoid any such disruption in future, it is required to shift the CVT input of PMU to Bus CVT of Agartala.

Deliberation in the meeting

NERLDC informed the forum that PMU Data of Agartala got disrupted on 04:53 hrs of 30/04/2018 to 20:00 Hrs of 01/05/2018; and 16:41 Hrs of 02/05/2018 to 10:32 Hrs

of 03/05/2018. On both the occasion, it was found out that the 132 KV Dhalabil-Agartala S/C Line was under shut down on these period.

After detailed deliberation it was surmised that line CVT of 132kV Dhalabil-Agartala is being used for PMU. NERLDC requested TSECL to shift the connection to 132kV Bus. TSECL agreed to do the needful by May'18.

The Sub-Committee noted as above.

Action: TSECL.

D.29 Slow progress in URTDSM implementation

NERLDC has submitted the approved location of workstations to be installed, but the cabling and installation work is still pending. The work progress for integration of PMUs even after link availability (e.g, MISA & Bongaigaon) to NERLDC is very slow. Further, installation & commissioning of 9 PMUs in 3 substations were pending as per last status.

POWERGRID may please update about the current status and expedite the work.

Deliberation in the meeting

DGM(AM), NERTS informed that supply has been completed for all stations. In case of Biswanath Chariali and Ranganadi commissioning work has already been started and would be completed by July'18. NERLDC requested NERTS to expedite the commissioning works.

The Sub-Committee noted as above.

Action: NERTS

D.30. Procurement of additional 70 Laptops:

Revised Target as intimated by NERTS in 143rd. OCC:

- e-RA: by 1st. week of April'18.
- LOA: June'18
- Supply: August'18

Deliberation in the meeting

NERTS provided the latest status as under:

- e-RA: completed.
- LOA: June'18
- Supply: August'18

The Sub-Committee noted as above.

Action: NERTS.

D.31. Installation of new L&T SEMs in NER:

In 143rd. OCC meeting, NERTS intimated that meter installation at Pare HEP & Kameng HEP are complete in all respects and other installations are in progress.

Deliberation in the meeting

NERTS informed that 86 SEMs out of the total of 131 have been installed. The balance would be completed by Jun'18.

The Sub-Committee noted as above.

Action: NERTS.

D.32. AMR in NER:

In 143rd OCCM, NERTS informed that the qualifying requirement is to be updated &provided the latest status as under:

- QR: by 30.04.18
- Bid sale: till 08.06.18
- OBD: 15.06.18
- LOA: 30.06.18

Deliberation in the meeting

NERTS provided the web-link for the tender as under:
www.pgcileps.buyjunction.in

DGM(AM), NERTS also informed that the LOA would be completed by 30th June'2018.

The Sub-Committee noted as above.

Action: NERTS.

D.33. Testing of SEMs at accredited laboratory:

In the 142nd. OCC meeting, Manager, NERTS informed that current estimate is based on all 234 SEMs in NER with appx. Cost being INR 22lakhs(@8140/meter). DGM(MO),NERLDC clarified that testing is required only for meters which have been in service for more than 5yrs but less than 10yrs. NERTS was requested to obtain fresh estimate on finalization of number of Meters to be tested.

Accordingly, no. of meters to be tested has been worked out.

In 143rd OCCM, Manager, NERTS informed that the revised estimate has worked out to be appx. Rs.15.96 lakhs.

Deliberation in the meeting

NERTS informed that the testing of SEMs is under tendering process.

The Sub-Committee noted as above.

Action: NERTS.

D.34. Procurement of DCD:

In the 142nd. OCC meeting, NERTS representative intimated that LOA for the DCDs would be issued by May'18.

In 143rd OCCM, NERTS informed that the DCDs recently supplied by the agency M/s L&T are presently not available in view of enhancement of memory capacity subsequent to introduction of new version. POWERGRID taken up with the DCD supplier to provide the new versions at the same rate and terms and conditions so that procurement action can be taken up on repeat order basis vis-à-vis the contract recently awarded to M/s L&T for supply of SEM, DCD and Laptops.On confirmation from M/s L&T necessary action would be taken up by POWERGRID for procurement of DCD.

Deliberation in the meeting

NERTS informed that the Technical Specifications have been changed due to up gradation of DCD with higher memory capacity and the same has been communicated to M/s L&T.

The Sub-Committee noted as above.

Action: NERTS.

D.35. Erratic reading of SEM:

1. Dullavcherra end of 132 KV Dullavcherra-Dharmanagar feeder
2. Jiribam(PG) end of 132 kV Jiribam(PG)-Jiribam(Manipur)
3. Dimapur(PG) end of 132 Dimapur(PG)-Bokajan(Assam)

In the 143rd. OCC meeting, Manager, NERTS informed that the SEMs would be replaced by Apr'18.

Deliberation in the meeting

NERTS informed thet the SEMs would be replaced by 15.05.2018 at two locations viz. Dullavcherra and Jiribam (PG) and at Dimapur by 25.05.2018.

The Sub-Committee noted as above.

Action: NERTS.

D.36. Commissioning of RS-485 scheme in all ISGS of NER:

NERTS was advised to initiate action regarding implementation of RS-485 scheme in all ISGS at the earliest in line with point 4 of MOM of SEM meeting. It was agreed that if necessary, L&T personnel should be called for this.

Regarding detailed extensive training by L&T, it was decided it would be carried out after implementation experience of RS-485 in some Stations and training may be in one such Stations.

In the 141st. OCC meeting, NERTS representative intimated that status would be furnished in next OCC meeting.

In the 142nd. OCC meeting, NERTS informed that Kopili HEP had been identified as the pilot project. In this regard vendors have been approached and quotations would be received within 21.03.18. Regarding extensive training by L&T on metering issues it was decided that after laptops are delivered and RS-485 is implemented in at least one station, the training would be held.

In 143rd OCCM, it was decided that the work would be executed based on appx length of cables. Upon completion bill would be prepared based on actuals.

Further since no other parties are responding to submit offer , the forum opined to frame cost estimate based on offer received from M/s ISOSCELES Sales & Service Pvt. Limited for tendering purpose.

Deliberation in the meeting

DGM(AM), NERTS informed that for total of 28 locations and 300 SEMs NERTS would go for tendering. The timeline would be intimated by next OCC.

The Sub-Committee noted as above.

Action: NERTS.

D.37. Installation of SEM for 33/11 KV Bhutan feeder in Assam system

In 143rd. OCC meeting, NERTS was requested to provide APDCL with one SEM on returnable basis for installation at 33/11kV Bhutan feeder.

Deliberation in the meeting

After detailed deliberation it was decided that APDCL would provide the date for installation to NERTS at the earliest.

The Sub-Committee noted as above.

Action: APDCL & NERTS.

D.38. Time drift in SEMs.

It has been observed from time drift status report received from various locations that there is large drift in some locations due to inaction by utilities.

(i) Following locations have no time drift due to prompt action by utilities:

Loktak, Kathalguri, RC Nagar, Khandong, Kopili

(ii) Following list indicates large drift and immediate action is to be taken by respective utilities:

a) NTPC-BgTPP (main meters time drift of about 8 minutes)

b) Bongaigaon (PG) (in the range of 10 minutes)

c) Dimapur (PG)

d) Imphal (Manipur) (in the range of 10-12 minutes)

e) 79 tilla (Tripura) (in the range of 10-12 minutes)

f) Silchar (PG)

Deliberation in the meeting

NTPC representative requested that time drift correction training be provided as many present members from different utilities could not attend because they have been posted afresh. DGM(MO),NERLDC opined that the training for time drift correction has already been provided twice by NERTS. Further the videos and manuals are available which may be circulated separately. All the utilities agreed to correct time drift in the respective meters by May'18 and requested NERLDC to circulate the materials.

Regarding time drift correction in Elster make SEM matter to be taken up with OEM. If OEM fails to provide support , decision to be taken regarding replacement of the high time drifted Elster make SEM in next OCC.

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

D.39 Spurious SPS-3 Signal Received at Palatana on dated 21st April 18 and 30th April 18 lead to opening of GTG-1 & GTG-2 Breaker.

Date: 21/04/2018;at 17:36 Hrs, Spurious SPS-3 Signal received at OTPC Palatana lead to opening of GT-1 & GT-2 breaker as per SPS-3 logic, GT-1 synchronised back to grid at 17:45 hrs and GT-2 synchronised to grid at 17:51 Hrs.

Date: 30/04/2018; at 17:45 Hrs Spurious SPS-3 Signal received at OTPC Palatana lead to opening of GT-1 & GT-2 breaker as per SPS-3 logic, GT-1 synchronised back to grid at 17:45 hrs and GT-2 synchronised to grid at 17:48 Hrs.

Deliberation in the meeting

Pls refer to discussion in item **D.5.**

The Sub-Committee noted as above.

Action: NERTS.

D.40 DC corrected By NERLDC on dated 25/04/2018, for block 82.

On dated 25/04/2018 gas flow was increased by ONGC and DC was revised by OTPC accordingly, for block 82 DC was sent 716 MW according to current Ambient Temp (24°C) however NERLDC given corrected DC 708 MW by taking reference of forecasted temperature (27.2°C) sent with DC (R-0) on dated 24th April 2018.

Deliberation in the meeting

DGM(MO),NERLDC informed that NERLDC has been adopting the day ahead temperature based correction because IMD temperature is unavailable for Udaipur. Further he clarified that the DC provided by OTPC is being considered for Accounting (PAF) purposes, while the one calculated on day ahead temperature basis is used only for scheduling purpose. DGM, OTPC requested that real time temperature should be used for scheduling purpose also. After detailed deliberation it was decided that procedure may be modified after discussion amongst NERPC & NERLDC, which would be communicated in the next OCCM.

The Sub-Committee noted as above.

Action: NERLDC/ NERPC.

ADDITIONAL AGENDA ITEMS:

D.41 New redundant Lines for evacuation of power from Ranganadi, Kameng, Pallatana Generations :

It may be noted that Generations like Kameng , Ranganadi, Pallatana are having single 400kV transmission line(D/C) evacuation path and as a result n-1 criteria may not be exactly full-filled. Further the Lines from Kameng GS & Ranganadi GS are subjected to high hilly & forest terrain (which succumb to landslides/high rate of growth of vegetation etc.) Forum may discuss and suggest on technical grounds of future operational requirements

Deliberation in the meeting

DGM(AM), NERTS opined that geographical redundancy is required for evacuation of power from Ranganadi, Kameng and Palatana generating plants. After detailed deliberation the forum referred the matter to upcoming 7th SCM of NERPC.

The Sub-Committee noted as above.

Action: NERPC.

D.42 OPGW installation in different Transmission Lines of NER:

OPGW installation in different Transmission Lines of NER is going on as per list given 18th NERPC under NER FO Expansion project (as per Annexure-B.22). It may be noted that OPGW installation will be carried out in Manipur, Tripura, Meghalaya in next 6-10 months. It may be noted that due to grid constraints in rainy season, work could not be done in February –May along Silchar-Pallatana and same was proposed to be postponed by NETC till September. The forum may discuss.

Deliberation in the meeting

Subcommittee noted as above and asked all to cooperate to avoid delay as far as possible.

The Sub-Committee noted as above.

Action: All Concerned Utilities.

D.43 Shifting of URTDSM PDC Location from Chimpu SLDC , SLDC Arunachal to Other SLDC Tripura:

It may be noted that due to space constraints in present location of SLDC Arunachal Pradesh (situated in the control room building of Chimpu Substation, temporarily), PDC installation could not be done. The project is already delayed. Keeping in view future OPERATIONAL requirement , it is proposed to divert the PDC Set up originally meant for AP SLDC to either Tripura/Manipur/Back-Up Guwahati.

Deliberation in the meeting

Under URTDSM Phase1 (present) PDC earlier meant for putting in SLDC AP may be shifted to Back Up NERLDC Guwahati permanent set up as a measure of backing up main NERLDC to new B/U RLDC geographically located at diff place. Further, in URTDSM Phase-2, PDC locations may considered as possible for Tripura & Manipur in future as per technical requirement.

The Sub-Committee noted as above.

Action: NERTS.

D.44 Requirement of facilitating Net Metering at LT side of Aux Power Transformer (4 stations of NERTS) as connected to DICOM of respective State utility(Bongaigaon(Salakati) Substation, Balipara S/S, Mokokchung SS, Badarpur S/S)

It may be noted that POWERGRID, through Central Electronics Limited has taken up installation of Solar PV Installation at various premises (on roof top of building) of POWERGRID. Total 5 MWp solar power plants are proposed to be installed at 54 locations/substations. In this phenomena, local Utility station/connected distribution small-area can also be benefited with NET metering philosophy. Out of Different Locations, following are planned in NER area.

Sl. No.		Name of Region	Capacity-kW	REMARKS
North Eastern Region (NER)	Assam/ Balipara	Tezpur-Tawang Road, Rangapara North	165	This will envisage
	Assam/ Bongaigaon	Village - Fukagaon, P.O.- Salakati, Landmark - Opp. NTPC, Near Salakati Railway Station, Assam - 783376	130	
	Nagaland/Mokokchung	Mokokchung-Kohima Road, Nagaland	80	

Deliberation in the meeting

For this DISCOMs have to provide meters etc. for net metering purpose. The forum decided to refer the matter to next CCM of NERPC for resolution.

The Sub-Committee noted as above.

Action: NERPC.

D.45 Presentation by Corporate Centre, POSOCO on HRD Plan:

DGM (HRD), Corporate Centre POSOCO gave presentation on Capacity Builidng inviting all the SLDCs to different programs. These programs comprise of Functional, IT, Behavioral, Communication Skills and other programs. It was informed that the training will be free of cost but travelling and accommodation expenses will have to be borne by the utilities. It was also informed that 5 slots per program will be arranged on first come basis.

The forum appreciated POSOCO for taking up such initiatives. Member Secretary, NERPC opined that all the utilities can be involved in such programs besides SLDCs. DGM (HRD), CC POSOCO informed that they will revert on inclusion of all utilities in such programs.

The Sub-Committee noted as above.

Date & Venue of next OCC meeting

It is proposed to hold the 145th OCC meeting of NERPC on second week of June, 2018. 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 144th OCC Meetings held on 11.05.2018

SN	Name & Designation	Organization	Contact No.
	No Representative	**Ar. Pradesh**	
1.	Sh. Dipesh Ch. Das, AGM (LDC)	Assam	09954110254
2.	Sh P. Saha, Dy. Manager	Assam	09435361717
3.	Sh. K. Goswami, Consultant, APDCL	Assam	08638487200
4.	Sh. A. Boro, AGM (TRC), APDCL	Assam	08473049492
5.	Sh. G.K. Bhuyan, AGM (HQ)	Assam	09854015601
6.	Sh. N. Hazarika, AGM (HQ)	Assam	09435386310
	No Representative	**Manipur**	
7.	Sh. F.E. Kharshiing, SE, MePTCL	Meghalaya	09863066960
8.	Sh. B. Wankhar, EE (MoD), MePTCL	Meghalaya	-
9.	Sh. D.J. Lyngdoh, EE (SM), MePTCL	Meghalaya	-
10.	Sh. W. Khyriem, EE (GSPD), MePGCL	Meghalaya	-
11.	Sh. M.F. Mawlieh, DGM (East), MePDCL	Meghalaya	09436108972
12.	Sh. N. Shangpliang, AEE, SCADA, MePDCL	Meghalaya	09862788733
13.	Sh. A.G. Tham, AEE (MM), MePTCL	Meghalaya	09774664034
14.	Sh. K. Kynjing, AE (MM)	Meghalaya	-
15.	Sh. Benjamin L. Tlumtea, Sr.EE, (P&ED)	Mizoram	09436151424
16.	Sh. H. Vanlalhlima, EE (P&E)	Mizoram	09436143244
17.	Sh. Rokobeito Iralu, SDO (Trans.)	Nagaland	09436832020
18.	Sh. Debabrata Pal, Sr. Manager	Tripura	09436500244
19.	Sh. B.K .Chakraborty, DGM (E)	NEEPCO	09436309730
20.	Sh. Joypal Roy, Sr. Manager (E/M)	NEEPCO	09435577726
21.	Sh. N.R. Paul, GM	NERLDC	09436302723
22.	Sh. R. Sutradhar , DGM (MO)	NERLDC	09436302714
23.	Sh. V. Kaikhochin, DGM	NERLDC	-
24.	Sh. V.K. DeSouza, AGM	NERLDC	09436302718
25.	Sh. Ankit Jain, Sr. Engineer	NERLDC	09436335381
26.	Smti. Momai Dey, Sr. Engineer	NERLDC	09436302716
27.	Smti. Bornali Nath, Asst. Engineer	NERLDC	08414927752
28.	Sh. Chitra Thapa, Engineer	NERLDC	08135989964
29.	Smti. Kirti Yadav, Officer (HR)	POSOCO	09873644325
30.	Smti. Sharmila Modwal, DGM (HRD)	POSOCO	09871791020
31.	Sh. H. Talukdar, CM (AM)	PGCIL	09436335237

32.	Sh. P. Kanungo, DGM (AM)	PGCIL	09436302823
33.	Sh. U.Kataki, AGM (AM)	PGCIL	09435505418
34.	Sh. P. Nandi, Sr. Engineer	PGCIL	09480335227
35.	Sh. Pulak Deka,DM (Mech)	NHPC	09435187838
36.	Sh. Anirban Bhattacharjee, DM (Elect)	NHPC	08811071048
37.	Sh. Alokesh Hazarika, Sr. Executive (O&M)	OTPC	08787606131
38.	Sh. Bibek Roy, DGM (O&M)	OTPC	07085058902
39.	Sh. Kangkan Paul, DM (EEMG)	NTPC	09435029230
40.	Sh. Sunil Kr. Singh	M/s GE-Power	09818094633
41.	Sh. M. Kumar	M/s GE-Power	09810618386
42.	Sh. Ashok Agarwal	M/s SIEMENS	09127072893
43.	Sh. Amol Dhode	M/s SIEMENS	08451049728
44.	Sh. S.K. Suyuli	M/s SIEMENS	09854247810
45.	Sh. P.K. Mishra, Member secretary	NERPC	09968380242
46.	Sh. B. Lyngkhoi, Director/S.E (O&P)	NERPC	09436163419
47.	Sh. S. Mukherjee, AD/EE	NERPC	08794277306
48.	Sh. Farouque Iqbal, DD/EE	NERPC	08700450141
49.	Sh. S. Imam, AD/AEE	NERPC	08986666366

Annexure-D.3

Procedure for verification of Transmission Availability Certificate

As per Terms and Conditions of Tariff Regulations of 2014 of CERC, Transmission system availability factor for a calendar month (TAFM) shall be calculated by the respective transmission licensee, got verified by the concerned RLDC and certified by the MemberSecretary, Regional Power Committee of the region concerned, separately for each AC and HVDC transmission system and grouped according to sharing of transmission charges.

For streamlining the process of Verification of Transmission Element Availability, a Procedure is prepared by NERLDC and NERPC.

1. Transmission Licensees shall submit the monthly outage data of previous month by 5th of every month. (say data for the month of January18 shall be submitted by 5th of February18)
2. Transmission Licensees shall also submit following details/documents along with monthly outage data against each outage due to tripping, which are claimed as non - attributable:
   a. Relevant clause no. of Terms and Conditions of Tariff Regulations of 2014 of CERC
   b. Relay Indications at each end
   c. Disturbance Recorder (DR) output, Event Logger (EL) output & FIR(First Information Report)
   d. Reason for outage
   e. Weather Condition
   f. Other relevant documentary evidences (photograph, patrolling report, LA/PLCC counter reading of pre and post event, etc) wherever required.
3. Submitted Disturbance Recorder (DR) output shall contain all digital &analog channels as per standard, DR file name, date and time of tripping, Name of the Substation and Name of the transmission element tripped and Event Logger (EL) output shall contain all relay operations, breaker, earth switch and isolator operations& other relevant information (Status of DC Supply, Trip Circuit etc) related to the respective outage.

4. In case of non-submission of Disturbance Recorder (DR) output & Event Logger (EL) output against outage due to element tripping, reason for non-submission is to be clearly stated by the Transmission Licensees.
5. Submitted documentary evidences shall be properly named and marked so that stated reason for outage can be inferred from the evidence. (example: In case of outage due falling of trees from outside corridor, photographs shall be submitted showingclearly the trees fell from outside corridor,adjacent tower numbers and name of phase).
6. If NERLDC/NERPC feels that evidences submitted by Transmission Licensee are not sufficient to conclude an outage as non-attributable, respective transmission licensee shall submit evidencesrequiredby NERLDC/NERPC within 7 days of communication from NERLDC/NERPC failing which corresponding outages shall be considered as attributable to respective Transmission Licensee.
7. In case of any mismatch (mismatch in outage time, missing outages etc.) in monthly outage submitted by Transmission Licensee and NERLDC outage register, necessary corrections shall be done and modified monthly outage document along with clarification shall be submitted by Transmission Licensee within 3 days of communication from NERLDC/NERPC failing which these mismatches shall be considered as attributable to respective Transmission Licensee.
8. NERLDC shall verify the monthly outage document within 15 days of submission of all relevant documents by Transmission Licensee (20^{th} of February18, in case of all necessary data submitted within 5^{th} February by Transmission Licensee)and submit the monthly outage document along with necessary comments to NERPC.
9. NERLDC/NERPC shall place the monthly outage document of Transmission Licensees in the latest available OCC meeting/PCC meeting (2^{nd} week of March18, say by 14^{th} March) for comments from NER constituents.
10. NERPC shall certify the monthly outage document within 15 days after discussion in OCC meeting& PCC Meeting (say by 29th March18).

North Eastern Regional Power Committee

MINUTES OF SPECIAL MEETING ON SPS-3

Date : 03/05/2018 (Thursday)

Time : 15:00 hrs

Venue : "NERPC Secretariat", Shillong.

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

Shri B. Lyngkhoi, Director/SE(O&P) welcomed all the members to the Special Meeting. He explained the backdrop for convening this urgent meeting. Further he informed that the NERPC Conference Hall is almost completed and is ready for inauguration which is expected by June, 2018. He requested all the members to give valuable suggestions if any pertaining to the conference hall so that inauguration would be a grand success. He requested all the members to make full use of the facilities as and when required by them for various meetings.

Thereafter he presented briefly the circumstances regarding Spurious SPS-3 operation and the same is attached at **Annexure-II.**

- DT received at Palatana on 08.02.2018 at 16:34:23 hrs. After thorough investigation by NERTS, attributed to maloperation in DC battery bank switching. ***Also OEM to attend to DT send due to BCU restart.***
- SPS-3 operated at Palatana on 21.04.2018 at 17:36:57.960 hrs. GTG-1&2 Main Tie Open after 70ms (appx.). GTG-1 synchronised back to grid 17:45 hrs & GTG-2 17:51 hrs. ***Silchar end- no confirmation for DT send***
- SPS-3 operated at Palatana on 30.04.2018 at 17:42:04:714 hrs. After 68 ms (appx) GT-1 & GT-2 breaker open. GTG-1 synchronised back to grid 17:45 hrs & GTG-2 17:48 hrs. ***Silchar end – No DT send record in SOE and no counter increment.***

DGM (AM), NERTS stated that on 08.02.2018 due to battery bank switchover, DC interruption was there and BCU sent DT on restart. NERTS, has already taken up with OEM to investigate and rectify the cause of sending DT by BCU on restart. Further, NERTS has also confirmed that utmost care will be taken while carrying out similar operation considering the behavior of BCU.

DGM, OTPC requested that personnel involved in the maintenance activities should be aware of the gravity of the situation. It was further decided that any operational activities which might trigger SPS at Silchar is to informed beforehand to OTPC. EE (SP), MePTCL suggested that DO's and DONT's may be prepared at Silchar S/S in this regard. The forum concurred.

DGM (AM) NERTS informed the following w.r.t. the events on 21.04.2018 and 30.04.2018:-

- No evidence of sending DT from Silchar exists as per the record of PLCC Counter Reading and SOE.

OTPC informed the following w.r.t. the events on 21.04.2018 and 30.04.2018:

- No counter increment monitored at Palatana.
- SPS-3 signal was received, as was confirmed from DCS log on both occasions.
- Also DR confirms the receipt of SPS-3 signal.
- Since signal is coming from PLCC contacts to DR&DCS via Aux. Relay, it is inferred that signal was received at PLCC panel on both occasions.
- After 30.04.18, PLCC readings are being taken manually on an hourly basis.
- There has been no receipt of spurious signal in the permissive trip channel.

The forum noted.

DGM, OTPC requested the forum to consider the severe difficulties faced by Palatana GBPP on multiple occasions due to receipt of spurious SPS-3 signal. Not only OTPC is suffering commercially but also the units may be damaged due to repeated trippings and subsequent start-ups.

DGM (AM), suggested that SPS 3 scheme will be shifted to existing permissive channel of PLCC by interchanging of Direct and Permissive Inter-trip Channels in PLCC as spurious signals were not observed in existing permissive channel. Further, on interchange, the permissive inter-trip (presently Direct) channel will kept under observation for spurious signal generation for which Silchar and Pallanta will maintain the record of PLCC counter and other monitoring devices to capture the evidence of spurious signal. The subsequent, corrective measures will be taken up thereafter.

The forum welcomed the suggestion and approved it. It also decided the following w.r.t its implementation:-

1. Palatana shall communicate NERTS 24hrs before changeover of channels jointly by NERTS and OTPC. Contact person of NERTS is Sh. Pinak Nandi (9436335227)
2. During changeover of channel; carrier inter-trip at Silchar and Palatana to be turned off.
3. PLCC for data would remain in service.
4. SPS-2&3 would be disabled at both end before changeover and put in service after completion.
5. Checklist would be prepared by NERTS and OTPC on 03.05.2018 and final detailed checklist including wiring to be prepared by 05.05.2018.
6. The exercise would be carried out on 07.05.2018 (08:00hrs to 14:00hrs).
7. After completion DCS/PLCC logging to be done continuously.

The forum requested OTPC to explore automatic PLCC logging in the near future for better monitoring.

The forum unanimously decided that OTPC should turn on SPS-2&3 at Palatana after the changeover procedure.

******

Annexure-I

List of Participants in the Special Meeting held on 03/05/2018

SN	Name & Designation	Organization	Contact No.
1.	Shri B. Nikhla, EE(SP), MePTCL	Meghalaya	9436314163
2.	Shri A.G. Tham, AEE, MePTCL	Meghalaya	9774664034
3.	Shri R. Khongmalai, AE, MePTCL	Meghalaya	8014137268
4.	Shri Bibek Roy, DGM(O&M)	OTPC	8334966111
5.	Shri N. Gupta, Sr. Manager	OTPC	9774233426
6.	Shri A. Hazarika, Sr. Executive(O&M)	OTPC	8787606131
7.	Shri P. Kanungo, DGM(AM)	NERTS	9436302823
8.	Shri P. Nandi, Sr. Engr.	NERTS	9436335227
9.	Shri N.R. Paul, GM	NERLDC	
10.	Shri M.K. Ramesh, DGM	NERLDC	9449599174
11.	Shri V. Kaikhochin, DGM	NERLDC	9436302712
12.	Shri A. Mallick, DGM(SO-II)	NERLDC	9436302720
13.	Shri R. Sutradhar, DGM(MO)	NERLDC	
14.	Shri Ankit Jain, Sr. Engr.	NERLDC	9436335381
15	Shri Keshab Borah, Asst. Engr.	NERLDC	7399276312
16	Smt. Momai Dey, Sr. Engr.	NERLDC	9436302716
17.	Smt Bornali Nath, Asst. Engr.	NERLDC	8414927752
18.	Shri Chitra Bahadur Thapa, Engr.	NERLDC	8135989964
19.	Shri Jerin Jacob, Engr.	NERLDC	9402120113
20.	Shri B.Lyngkhoi, Director/SE(O&P)	NERPC	9436163419
21.	Shri Farooque Iqbal, EE	NERPC	9868172987
22.	Shri S. Mukherjee, AEE	NERPC	8794277306
23	Shri Sadiq Imam, AEE	NERPC	
24.	Shri Shaishav Ranjan, AE	NERPC	

Draft schedule for UFR & PSS Inspection **Annexure-D.11**

Name of State	UFR Location	Plant for PSS inspection	Date	Name of representative (NERTS)	Name of representative (NERLDC)	Name of representative (State utility)	Name of representative (CSGS) *for PSS inspection*	Name of representative (NERPC)
Arunachal Pradesh	Lekhi	Ranganadi						
Assam	Gauripur	BgTPP						
	Baghjap							
	Diphu							
	Jogighopa							
	Sankardevnagar							
	Sipajhar							
	Dhemaji	AGBPP						
	Majuli							
	Gohpur							
	Rupai							
Manipur	Yurembam	Loktak						
	Yaingangpokpi							
Meghalaya	Mawphlang							
	Khliehriat	Kopili, Kopili-II, Khandong						
	Nongstoin							
Mizoram	Khawiva							
	Bukpui							
Nagaland	Mokokchung	Doyang						
Tripura	Badarghat							
	Rabindra Nagar	AGTCCPP, Palatana						

ANNEXURE-D.15

Report of mock black start exercise onLoktak HEP and Khandong HEP conducted on the 26th April 2018 as per decisionItem D-23 of Agendain the 143rd OCC meeting held at Guwahati on 12.04.2018

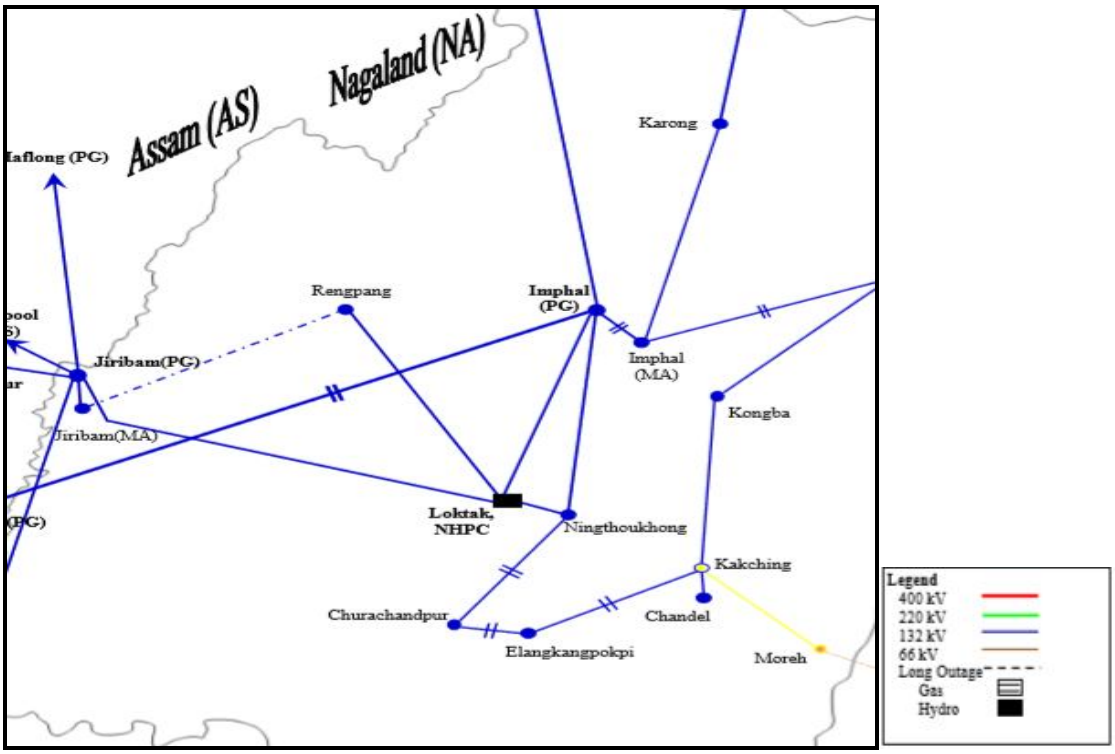
1. Loktak HEP (3x35 MW)

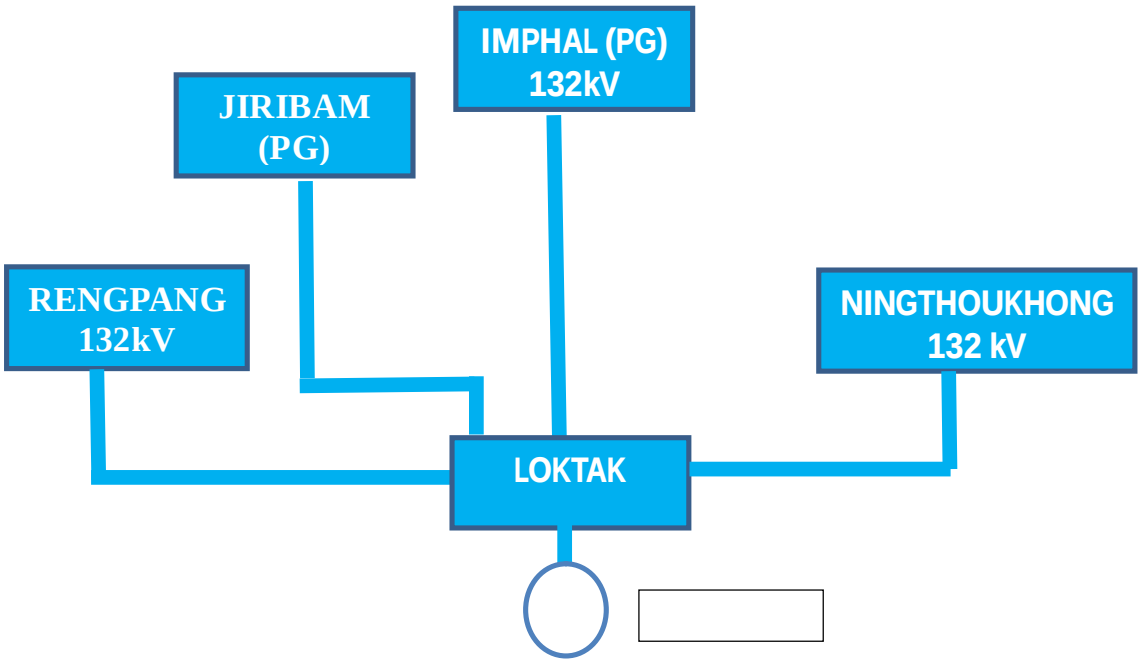
Background:

Loktak Hydro Electric Power Generating Station of NHPC, having installed capacity of 105MW (3x35) is located at 39 km south of Imphal in the Churachandpur district of Manipur.Loktak HEP is connected to the main Grid through 4 feeders viz-132kV Loktak-Imphal S/C(PG), 132kV Loktak-Jiribam S/C(PG), 132kV Loktak- Ningthoukhong S/C(Manipur) and 132 kV Loktak-Rengpang S/C (Manipur) lines.View of Power Station shown below:

Loktak Hydro Electric Power Plant, NHC

Power Map & connectivity of Loktak HEP to Main Grid

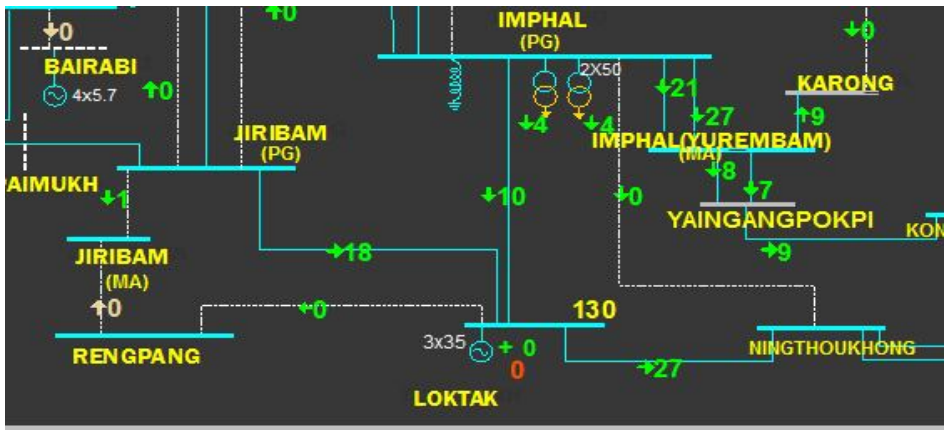




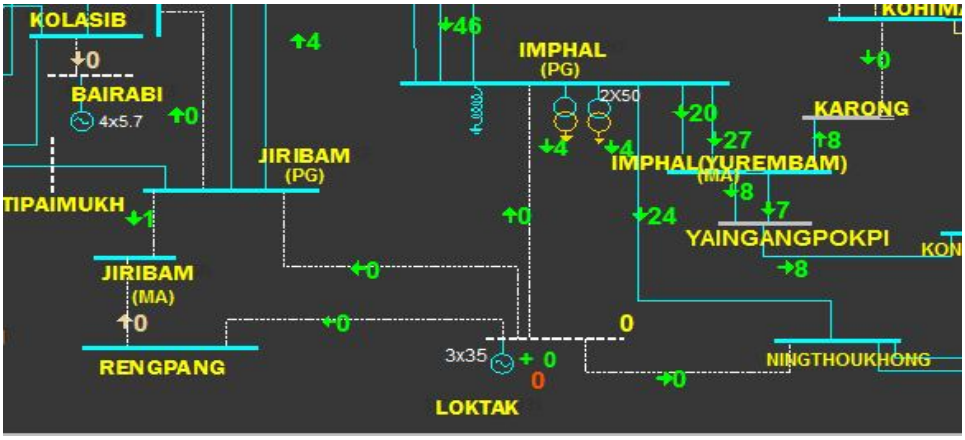
Connectivity of Loktak to the main Grid

Observations: Step by Step details recorded during mock black start exercise as shown below:

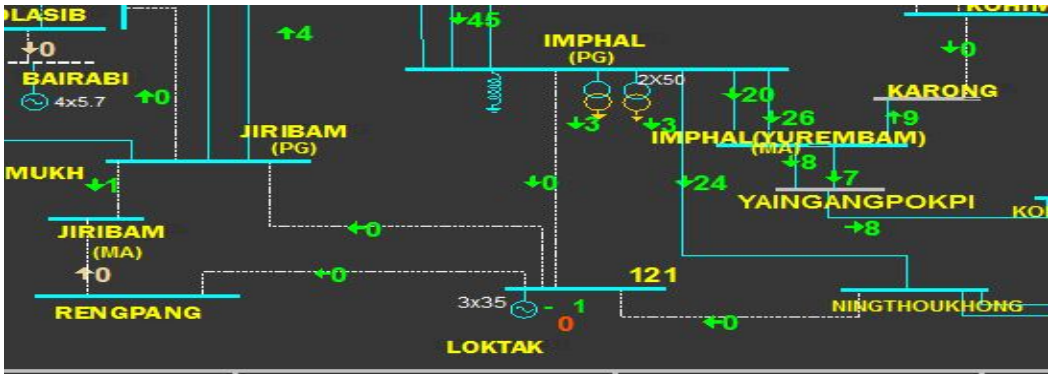
1. At 10:50hrs, 132 kVLoktak Bus Voltage was 130 kV.Snap shot before opening of the 132 kV Loktak outgoing feeders.



2. At 10:50hrs,132 kV Loktak-Ningthoukhong CB opened at 132 kV Ningthoukhong end.
3. At 10:57 hrs, 132 kVLoktak-Imphal (PG) CB opened at 132 kVImphal end.
4. At 11:00hrs, 132 kVLoktak-Jiribam(PG) CB opened at 132 kV Jiribam end
5. At 11:01hrs, 132 kVLoktak-Rengpang CB opened at 132 kV Rengpang end
6. At 11:02hrs, 132 kVLoktak- Imphal CB opened at 132 kVLoktak end.
7. At 11:03hrs, 132 kVLoktak- Ningthoukhong CB opened at 132 kV Loktak end.
8. At 11:04hrs, 132 kVLoktak- Jiribam CB opened at 132 kV Loktak end.
9. At 11:05hrs, 132 kVLoktak- Rengpang CB opened at 132 kV Loktak end.
10. 132kV Loktak Bus became dead after opening all the above lines. Snap shot is shown below:



11. At 11:05hrs, Back Start process started with the operation of500 KVA DG Set supplying Station load at 11:06 hrs..
12. At 11:13 hrs, Black start of Unit II and generator voltage maintained at 10 kV



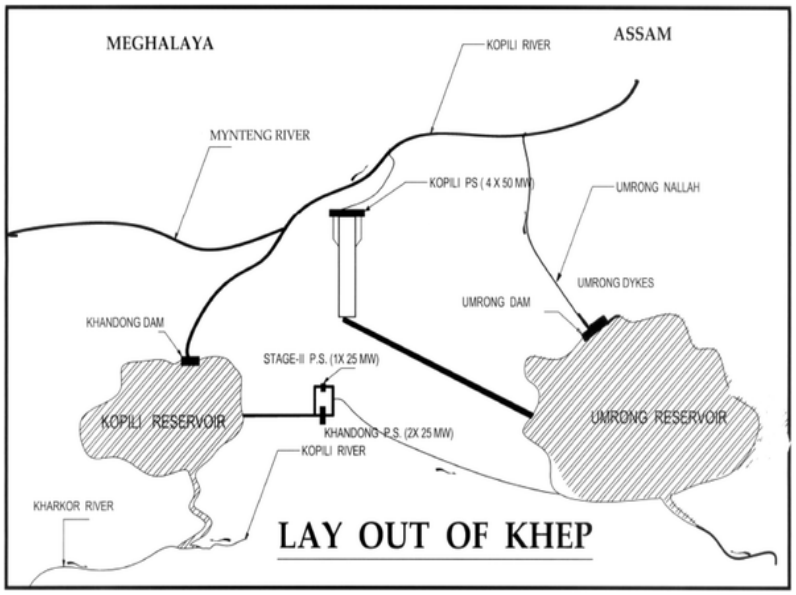
13. At 11:20 hrs, 132 kVLoktak Bus B charged by closing Generator Unit-2 Breaker.
14. At 11:22 hrs, 132 kVLoktak-Imphal line Breaker closed at 132 kVLoktak end.
15. At 1131 hrs. Generator voltage10.56kV, frequency-49.91Hz-1.46 MVAR & after improving voltage 132 KV at Bus maintained as per instructions from132 kV Imphal S/S (PGCIL),the line breaker was closed at 132 kV Imphal end hence synchronized Loktak generation.Generation increased to 35 MW.
16. At 11:44hrs, 132 kVLoktak-Jiribam linecharged from 132 kV Jiribam end
17. At 11:45hrs, 132 kVLoktak-Jiribam line closed at132 kV Loktak end
18. At 11:46hrs, 132 kVLoktak – Ningthoukhong line closed from 132 kV Ningthoukhong end
19. At 11:48hrs, 132 kVLoktak- Ningthoukhong line closed from 132 kV Loktak end

20. At 11:58hrs, 132 kVLoktak- Rengpang line closed from 132 kV Loktak end
21. Hence the whole mock black start process completed successfully within 1 hr 8 mins (from 10:50 hrs to 11:58 hrs). After withdrawing DG.Set,Loktak Unit-2 was desynchronized at 1208 hrs.The events went smoothly and black start exercise was completed successfully.

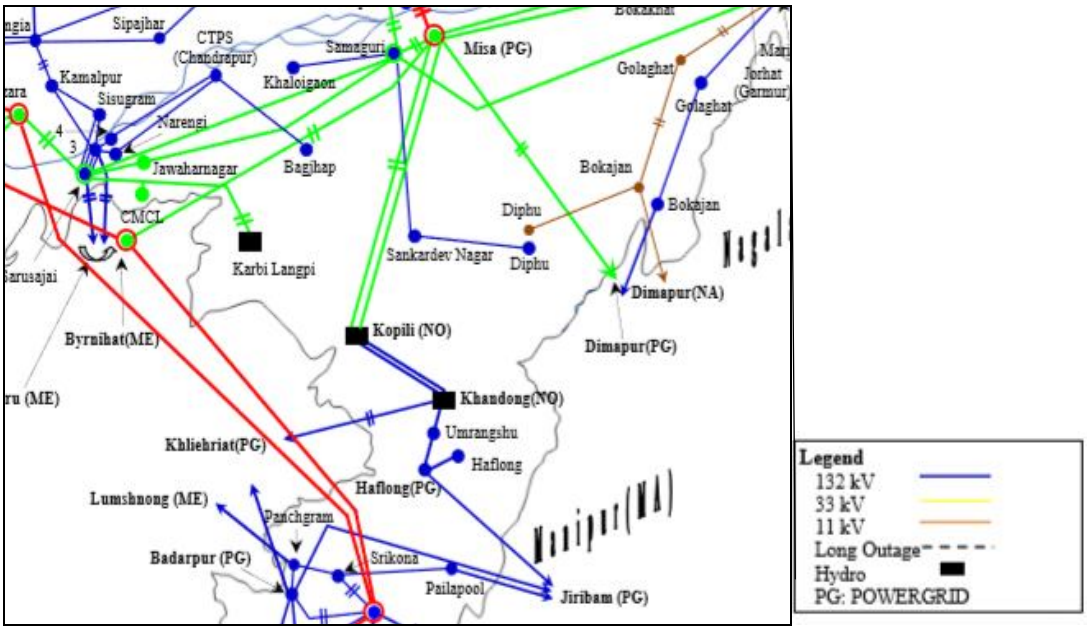
2. Khandong HEP(3x25 MW)

Background:

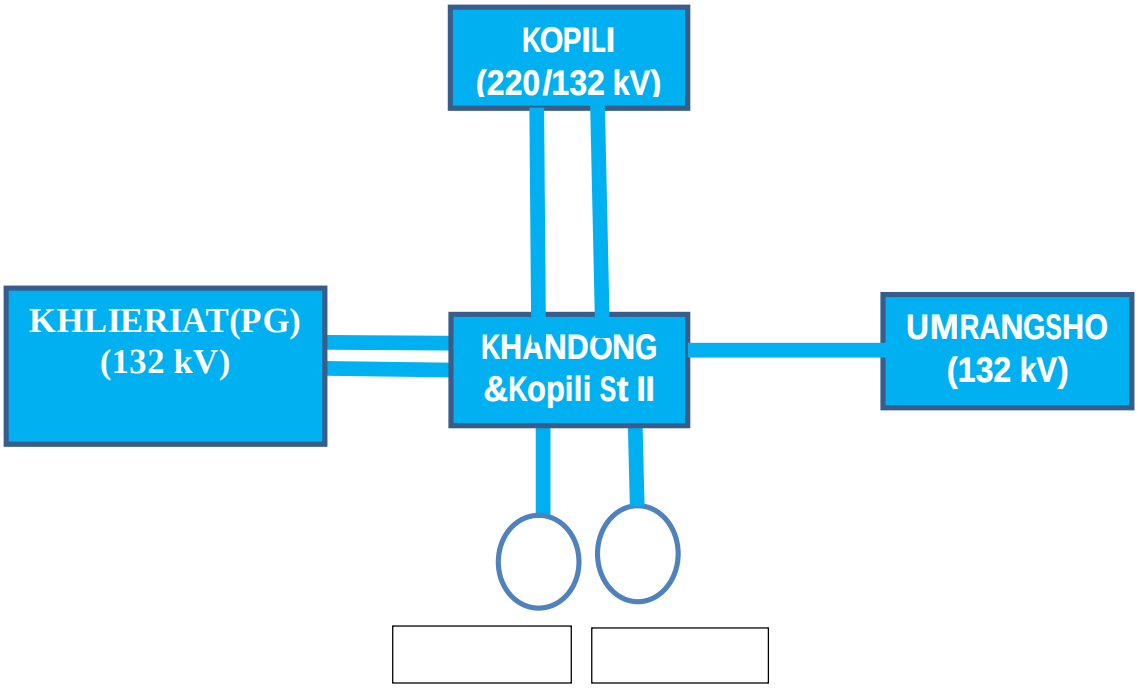
Khandong is a hydro generating station of NEEPCO having capacity of 75MW (2 X 25 +1 X25)MW. It is connected to the main grid through 132 kV Khandong-Kopili D/C(PG), 132 kV Khandong-Khleihriat D/C(PG) & 132 kV Khandong-UmrangshuS/C(Assam) lines.



Power map near Khandong

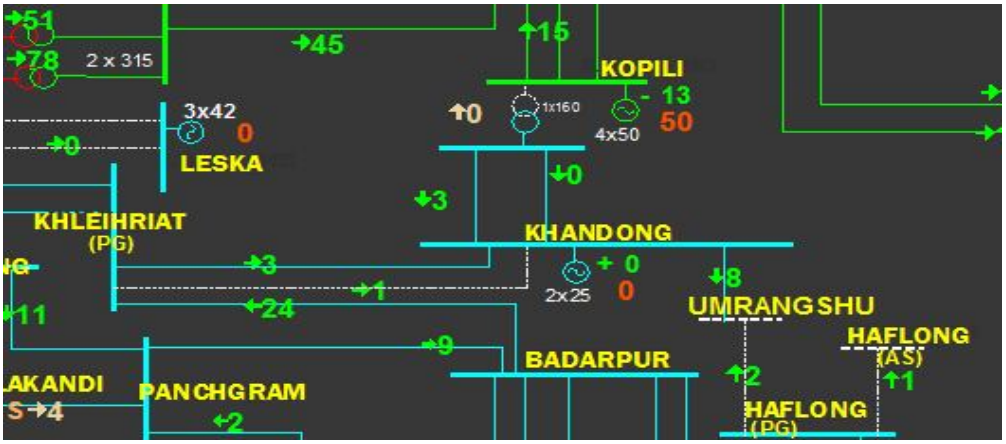


Connectivity of Khandong with the Main Grid

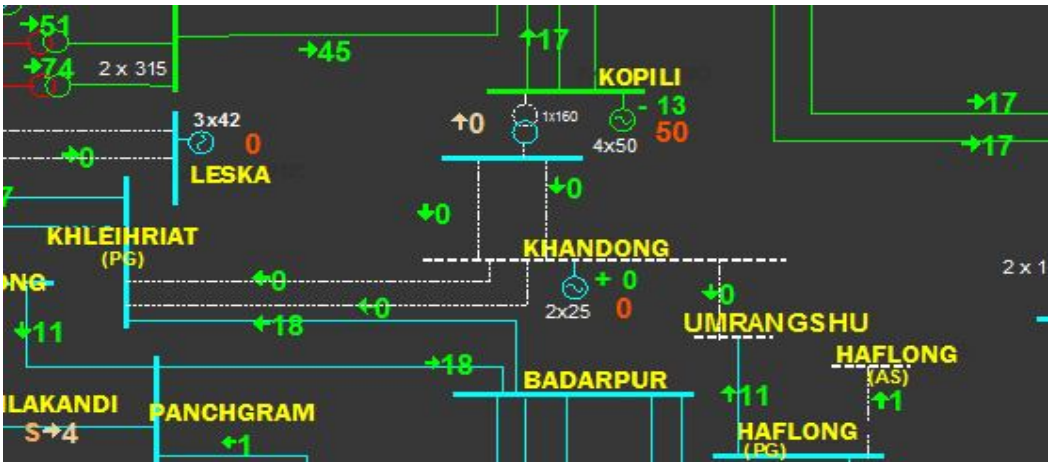


Observations: ***Step by Step details recorded during mock black start exercise of Khandong Station as shown below:***

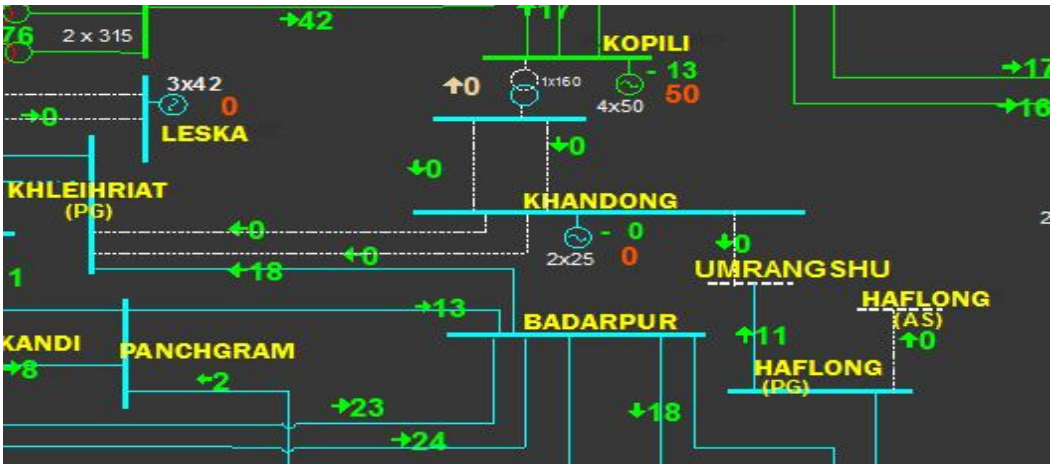
1. At 12:01hrs,132 kV Khandong Bus Voltage was 132.9kV.



2. At 12:01hrs, 132 kVKhandong-Khliehriat feeder-1 CB opened at 132 kVKhandong end.
3. At 12:02 hrs, 132 kVKhandong-Khliehriat feeder-1 CB opened at 132 kVKhliehriat end.
4. At 12:03 hrs, 132 kVKhandong-Khliehriat feeder-2 CB opened at Khandong end.
5. At 12:04 hrs, 132 kVKhandong-Khliehriat feeder-2 CB opened at 132 kVKhliehriatend.
6. At 12:05hrs, 132 kVKhandong-Umrongshu CB opened at 132 kVKhandong end.
7. At 12:06hrs, 132 kVKhandong-Kopili feeder-1 CB opened at132 kVKhandong end.
8. At 12:06hrs, 132 kVKhandong-Kopili feeder-2 CB opened at 132 kVKhandong end.
9. At 12:07 hrs,250KVA DG Set started supplying to Station Aux systems.
10. At 12:08 hrs, 132 kVKhandong-Kopili feeder-1 CB opened at 132 kVKopili end.
11. At 12:10 hrs, 132 kVKhandong-Umrongshu feeder CB opened at 132 kVUmrongshu end
12. At 12:17 hrs, 132 kVKhandong-Kopili feeder-2 CB opened at 132 kVKopili end
13. 132 kV Khandong Bus became dead after opening all the above lines.Snap shot shown below.



14. At 12:31 hrs, Khandong Unit-2 charged dead bus with 132kV at 50.30Hz
15. At 12:39 hrs, Khandong Unit-2CB tripped due to under frequency at 47.50Hz. (During the process of synchronization at 132 kVKopili power station connect to 220 kV Grid)
16. At 12:40 hrs, 132 kVKhandong-Kopili feeder-1 CB opened at 132 kVKhandong end
17. At 12:44 hrs, Khandong Unit-1 charged dead bus with 132 kV at 50.16Hz.



18. At 12:49 hrs, 132 kVKhandong-Kopili feeder-1 synchronized with Kopili PS.
19. At 12:49 hrs, Khandong Unit-1 increased upto 19MW.
20. At 12:54 hrs, 132 kVKhandong-Khliehriat feeder-1 charged from 132 kVKhandong end and synchronized at 132 kVKhliehriat end.
21. At 13:00 hrs, 132 kVKhandong-Umrangshu feeder closed at 132 kVKhandong SS.

22. At 13:02 hrs, 132 kVKhandong-Khliehriat feeder-2 charged from 132kVKhandong end and closed at 132 kVKhliehriat end.
23. At 13:10 hrs, 132 kVKhandong-Kopili feeder-2 synchronized at 132k kVKhandong end.
24. At 13:15 hrs, Khandong station supply (SST-1) restored. With this, the whole process completed within 1 hrs 14 mins (from 1201hrs to 1315 hrs).

Conclusion

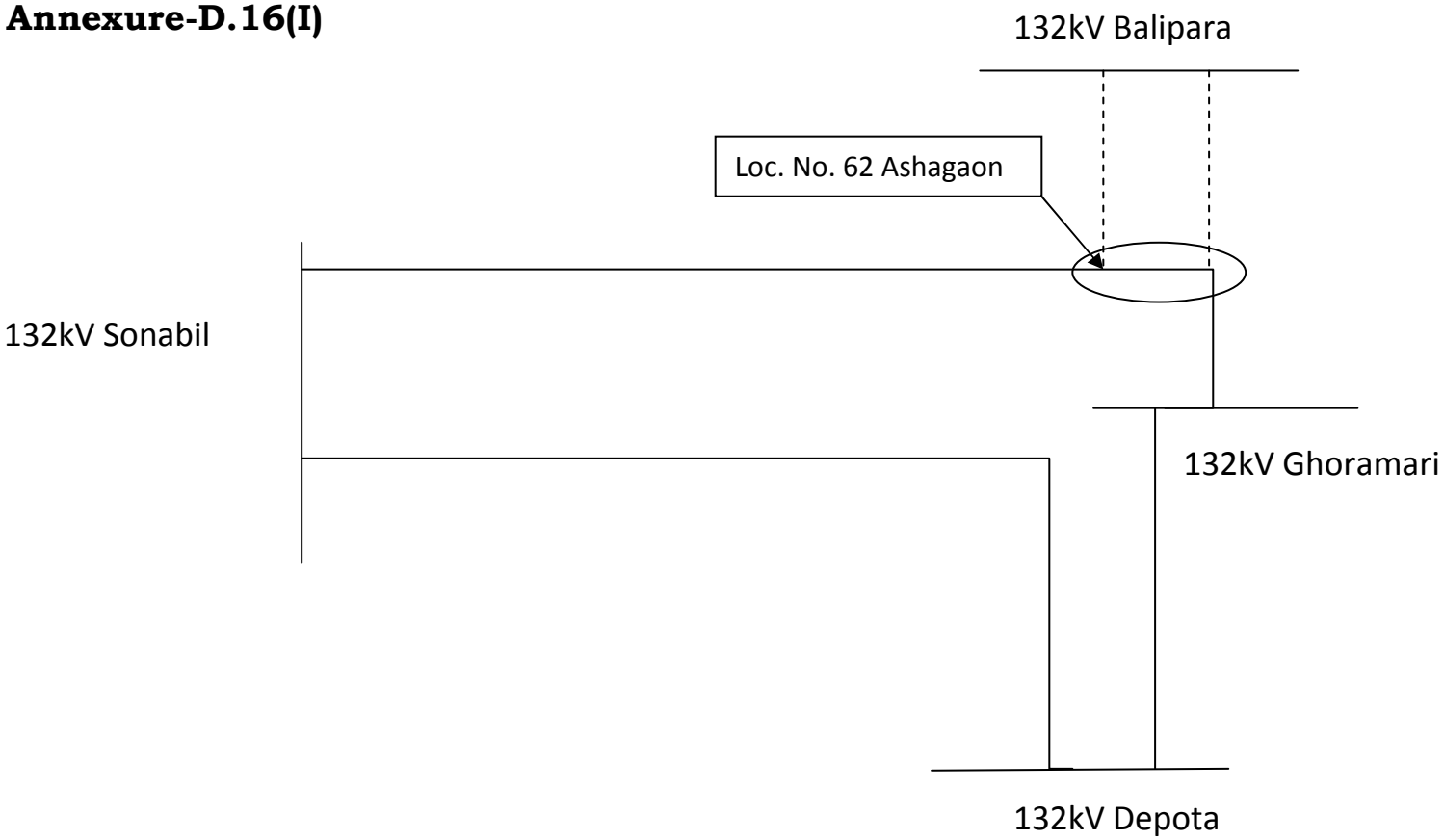
The successful exercise of Mock Black Start process conducted on 26/04/2018 for Loktak HEP &Khandong HEP has given immense happiness and confidence to Grid Operators of NERLDC andLoktak/KhandongSystem Operators. This exercise has proven the availability and capability of DG Sets installed at both the Power Stations to black start the Generating Units during emergency situations.The restoration procedure will be modified in line with the experience gathered from the exercise.

Lastly but not the least,theco-operations given to System Operation Group of NERLDC by all the System Operators of Loktak HEP(NHPC),Khandong HEP(NEEPCO),132 kVImphal S/S(PG),132 kV Ningthoukhong S/S (Manipur),132 kV Jiribam S/S(PG), SLDC (Manipur),Kopili HEP(NEEPCO),132 kV Kliehriat S/S(PG) and 132 kV Umrangshu S/S (Assam),SLDC (ASSAM),SLDC(Meghalaya)and also to all those present during the mock black start exercise were highly appreciated without which the Mock Black Start Exercise would not be possible.Thanks to all concern once again.

Grid Management Team

NERLDC SO-I Dept.

Annexure-D.16(I)



Annexure-D.17

Sl. No.	Name of Substation	Voltage Level	Transformation Capacity	Geographical Co-ordinates		Name of utility/state
			MVA	Latitude	Longitude	
1	Bomdila	33/11				DoP Ar.Pradesh
2	Pasighat	33/11				DoP Ar.Pradesh
3	Yinkiong	33/11				DoP Ar.Pradesh
4	Khumtai	66/33 kV				APDCL
5	Diphu	66/33kV	2x5			APDCL
6	Golaghat	66/33kV	2x10			APDCL
7	Mariani	66/33kV	2x5			APDCL
8	Nalbari	66/33kV	2x5			APDCL
9	Nazira	66/33kV	2x16			APDCL
10	NTPS	66/33kV	2x10			APDCL
11	Rupai	66/33kV	3x3.3			APDCL
12	Tinsukia	66/33kV	3x20			APDCL
13	Jawaharnagar	33/11				APDCL
14	Kalákhetra	33/11				APDCL
15	Veterinary	33/11				APDCL
16	Indian Hotel	33/11				APDCL
17	Sixmile	33/11				APDCL
18	Sonapur	33/11				APDCL
19	Sarutari	33/11				APDCL
20	Game Village	33/11				APDCL
21	Garbhanga	33/11				APDCL
22	Ayursundra	33/11				APDCL
23	Borbari	33/11				APDCL
24	Bhetapara	33/11				APDCL
25	Kahilipara GSS	33/11				APDCL
26	Barsapara	33/11				APDCL
27	Kahilipara New	33/11				APDCL
28	Kalapahar	33/11				APDCL
29	Zoo road	33/11				APDCL
30	Spanish Garden	33/11				APDCL
31	Big Bazaar	33/11				APDCL
32	Chandmari	33/11				APDCL
33	Uzan Bazaar	33/11				APDCL
34	Narengi	33/11				APDCL
35	CTPS	33/11				APDCL
36	Bamunimaidan	33/11				APDCL
37	Fatasil	33/11				APDCL

38	Gorchuk	33/11				APDCL
39	Ulubari	33/11				APDCL
40	GMCH	33/11				APDCL
41	Bigbazaar	33/11				APDCL
42	Paltan Bazaar	33/11				APDCL
43	Judges Field	33/11				APDCL
44	Jail	33/11				APDCL
45	Borjhar	33/11				APDCL
46	Rani	33/11				APDCL
47	Jalukbari	33/11				APDCL
48	Mirza	33/11				APDCL
49	Bijaynagar	33/11				APDCL
50	Loharghat	33/11				APDCL
51	Bamunigaon	33/11				APDCL
52	Gobardhan	33/11				APDCL
53	Chamaria	33/11				APDCL
54	Chatabari	33/11				APDCL
55	Jogipara	33/11				APDCL
56	North Guwahati	33/11				APDCL
57	Kamakhya	33/11				APDCL
58	Adabari	33/11				APDCL
59	Hazo	33/11				APDCL
60	Sualkuchi	33/11				APDCL
61	Nalbari	33/11				APDCL
62	Dhamdhama	33/11				APDCL
63	Sarihatali	33/11				APDCL
64	Poila	33/11				APDCL
65	Kamarkuchi	33/11				APDCL
66	Ghograpar	33/11				APDCL
67	Chamata	33/11				APDCL
68	Mukalmua	33/11				APDCL
69	Kaithalkuchi	33/11				APDCL
70	Chirakhundi	33/11				APDCL
71	Goreswar	33/11				APDCL
72	IIDC	33/11				APDCL
73	Dimu	33/11				APDCL
74	Jamtola	33/11				APDCL
75	Alipub	33/11				APDCL
76	Bezera	33/11				APDCL
77	Borka	33/11				APDCL
78	Tamulpur	33/11				APDCL

79	Kumarikata	33/11				APDCL
80	Basugaon	33/11				APDCL
81	Chapar	33/11				APDCL
82	Choibari	33/11				APDCL
83	Salkocha	33/11				APDCL
84	Fakiragram	33/11				APDCL
85	Sapatgram	33/11				APDCL
86	Kachgaon	33/11				APDCL
87	Hatidhura	33/11				APDCL
88	Garikhana Road	33/11				APDCL
89	Ambagan	33/11				APDCL
90	Mahamaya	33/11				APDCL
91	Bisondoi	33/11				APDCL
92	Agomoni	33/11				APDCL
93	Rustam	33/11				APDCL
94	Gopigaon	33/11				APDCL
95	Bhalukdobi	33/11				APDCL
96	Mornoi	33/11				APDCL
97	Balijana	33/11				APDCL
98	Chutki	33/11				APDCL
99	Damra	33/11				APDCL
100	Krishnai	33/11				APDCL
101	Dhupdhara	33/11				APDCL
102	Rangjuli	33/11				APDCL
103	Nidanpur	33/11				APDCL
104	Simlabari	33/11				APDCL
105	Jorganda	33/11				APDCL
106	Abhayapuri	33/11				APDCL
107	Chalantapara	33/11				APDCL
108	North Salmara	33/11				APDCL
109	Bijni	33/11				APDCL
110	Pasalabari	33/11				APDCL
111	Dolaigaon	33/11				APDCL
112	Chapaguri	33/11				APDCL
113	Bengtol	33/11				APDCL
114	Shantipur	33/11				APDCL
115	Kajalgaon	33/11				APDCL
116	Shyamthaibari	33/11				APDCL
117	Dhekiajuli	33/11				APDCL
118	Thelamara	33/11				APDCL
119	Mizibari	33/11				APDCL

120	Narayanpur	33/11				APDCL
121	Tezpur Town	33/11				APDCL
122	Batamari	33/11				APDCL
123	Porua	33/11				APDCL
124	Dipota	33/11				APDCL
125	Chagaliaghat	33/11				APDCL
126	Harchura	33/11				APDCL
127	Rangapara	33/11				APDCL
128	Missabari	33/11				APDCL
129	Tezpur University	33/11				APDCL
130	Air Force	33/11				APDCL
131	Laxman Marg	33/11				APDCL
132	Tezpur Medical College	33/11				APDCL
133	Solmara MES	33/11				APDCL
134	Missamari Army	33/11				APDCL
135	Borgang	33/11				APDCL
136	Monabari	33/11				APDCL
137	Chariali	33/11				APDCL
138	Itakhola	33/11				APDCL
139	Jamuguri	33/11				APDCL
140	Sootea	33/11				APDCL
141	Dubia	33/11				APDCL
142	Dugglagarh	33/11				APDCL
143	Jagiroad	33/11				APDCL
144	Maloibari	33/11				APDCL
145	Morigaon	33/11				APDCL
146	Basanaghat	33/11				APDCL
147	Mikirbheta	33/11				APDCL
148	Baropujia	33/11				APDCL
149	Lahorighat	33/11				APDCL
150	Dhing	33/11				APDCL
151	Lumding	33/11				APDCL
152	Railway	33/11				APDCL
153	Kheroni forest	33/11				APDCL
154	Hamren	33/11				APDCL
155	Donkamokam	33/11				APDCL
156	Baithalangsho	33/11				APDCL
157	Howrahghat	33/11				APDCL
158	Dokmoka	33/11				APDCL
159	Bakalia	33/11				APDCL
160	Dilaji	33/11				APDCL

161	Manja	33/11				APDCL
162	Haranagajao	33/11				APDCL
163	Maibang	33/11				APDCL
164	Umpenai	33/11				APDCL
165	Khatkhati	33/11				APDCL
166	Quary Dedicated	33/11				APDCL
167	CCI Dedicated	33/11				APDCL
168	Newtech Steel Dedicated	33/11				APDCL
169	CRPF Dedicated	33/11				APDCL
170	Borpothar	33/11				APDCL
171	Numaligarh	33/11				APDCL
172	Malinibeel	33/11				APDCL
173	Chirukandi	33/11				APDCL
174	IID Centre	33/11				APDCL
175	Panpatty	33/11				APDCL
176	Kabuganj	33/11				APDCL
177	Sonai	33/11				APDCL
178	Bhaga	33/11				APDCL
179	Meherpur	33/11				APDCL
180	Dargakona	33/11				APDCL
181	Kumbhirgram	33/11				APDCL
182	Baskandi	33/11				APDCL
183	Katigorah	33/11				APDCL
184	Kalain	33/11				APDCL
185	Borkhola	33/11				APDCL
186	Jonaki Nagar	33/11				APDCL
187	Ganakpukhhuri	33/11				APDCL
188	Kamarbandha	33/11				APDCL
189	Leteku	33/11				APDCL
190	Tatelitol	33/11				APDCL
191	Kumarpotty	33/11				APDCL
192	Usha	33/11				APDCL
193	Kachamari	33/11				APDCL
194	Numaligarh	33/11				APDCL
195	Kohora	33/11				APDCL
196	Sarupathar	33/11				APDCL
197	Uriamghat	33/11				APDCL
198	Barpathar	33/11				APDCL
199	Phukan Nagar	33/11				APDCL
200	Rongpur	33/11				APDCL
201	Konwar Gaon	33/11				APDCL

202	Pragati	33/11				APDCL
203	Gaurisagar	33/11				APDCL
204	Jhanji	33/11				APDCL
205	Demow	33/11				APDCL
206	Nitaipukhuri	33/11				APDCL
207	Nemuguri	33/11				APDCL
208	Kochumari	33/11				APDCL
209	Sepon	33/11				APDCL
210	Khowang	33/11				APDCL
211	Bamunbari	33/11				APDCL
212	Gargaon	33/11				APDCL
213	Galeky	33/11				APDCL
214	Banfera	33/11				APDCL
215	Sakathoni	33/11				APDCL
216	Namti Chariali	33/11				APDCL
217	Amguri	33/11				APDCL
218	Parbatia	33/11				APDCL
219	Borguri	33/11				APDCL
220	Hukanpukhuri	33/11				APDCL
221	Makum	33/11				APDCL
222	HUL Dedicated	33/11				APDCL
223	Ferra Tech	33/11				APDCL
224	Dinjan	33/11				APDCL
225	Vission Ispat	33/11				APDCL
226	Chabua	33/11				APDCL
227	Digboi	33/11				APDCL
228	Doomdooma	33/11				APDCL
229	Talap	33/11				APDCL
230	Kakopathar	33/11				APDCL
231	Raidung	33/11				APDCL
232	Koomsung	33/11				APDCL
233	Chapakhowa	33/11				APDCL
234	Sunpura	33/11				APDCL
235	Lekhapani	33/11				APDCL
236	Jagon	33/11				APDCL
237	Bihpuria	33/11				APDCL
238	Silanibari	33/11				APDCL
239	Laluk	33/11				APDCL
240	Romanichowk	33/11				APDCL
241	Baluijan	33/11				APDCL
242	Boginodi	33/11				APDCL

243	Panigaon	33/11				APDCL
244	Raidongia	33/11				APDCL
245	Mainapara	33/11				APDCL
246	Bordoloni	33/11				APDCL
247	Dhankuwakhana	33/11				APDCL
248	Machkhowa	33/11				APDCL
249	Chilapathar	33/11				APDCL
250	Simengchapori	33/11				APDCL
251	Jonai	33/11				APDCL
252	Bhakatpara	33/11				APDCL
253	Chenga	33/11				APDCL
254	Mandia	33/11				APDCL
255	Medical	33/0.4				APDCL
256	KP Cement	33/0.4				APDCL
257	Anjalee Cement	33/0.4				APDCL
258	Barpeta Road	33/11				APDCL
259	Howly	33/11				APDCL
260	Sorbhog	33/11				APDCL
261	Manikpur	33/11				APDCL
262	Kharisala	33/11				APDCL
263	Sarthebari	33/11				APDCL
264	Pathsala	33/11				APDCL
265	Sarupeta	33/11				APDCL
266	Nathkuchi	33/11				APDCL
267	Patacharkuchi	33/11				APDCL
268	Barjhat	33/11				APDCL
269	Chapai	33/11				APDCL
270	Ramhari	33/11				APDCL
271	Dalgaon	33/11				APDCL
272	Burigaon	33/11				APDCL
273	Kharupetia	33/11				APDCL
274	Futkitali	33/11				APDCL
275	Dipila	33/11				APDCL
276	Mazbat	33/11				APDCL
277	Orang	33/11				APDCL
278	Tangla	33/11				APDCL
279	Khairabari	33/11				APDCL
280	Kachbil	33/11				APDCL
281	Hatigarh	33/11				APDCL
282	Barangajuli	33/11				APDCL
283	Udalguri	33/11				APDCL

284	Rowta local	33/11				APDCL
285	Kalaigaon	33/11				APDCL
286	Kalakhuwa	33/11				APDCL
287	Pulibor	33/11				APDCL
288	Panichakhuwa	33/11				APDCL
289	Dergaon	33/11				APDCL
290	Rangaliting	33/11				APDCL
291	Lichubari	33/11				APDCL
292	JMCH	33/11				APDCL
293	Gotanga	33/11				APDCL
294	Sadar	33/11				APDCL
295	Murmuria	33/11				APDCL
296	Titabor	33/11				APDCL
297	Borhola	33/11				APDCL
298	Phuloni	33/11				APDCL
299	Nagajanka	33/11				APDCL
300	Nakachari	33/11				APDCL
301	Teok	33/11				APDCL
302	Gaurisagar	33/11				APDCL
303	Kakojan	33/11				APDCL
304	Nagaon	33/11				APDCL
305	Haibargaon	33/11				APDCL
306	Juria	33/11				APDCL
307	Deodhar	33/11				APDCL
308	Bebejia	33/11				APDCL
309	Hojai	33/11				APDCL
310	Nilbagan	33/11				APDCL
311	Kathiatoli	33/11				APDCL
312	Jamunamaukh	33/11				APDCL
313	Modertoli	33/11				APDCL
314	Kampur	33/11				APDCL
315	Borduwa	33/11				APDCL
316	Garubondha	33/11				APDCL
317	Burapahar	33/11				APDCL
318	Brahampur	33/11				APDCL
319	Amoni	33/11				APDCL
320	Ambagan	33/11				APDCL
321	DRDO	33/11				APDCL
322	KD	33/11				APDCL
323	Salnah	33/11				APDCL
324	Barapujila	33/11				APDCL

325	J B Garh	33/11				APDCL
326	Lamajuar	33/11				APDCL
327	Nilambazar	33/11				APDCL
328	Algapur	33/11				APDCL
329	R K Nagar	33/11				APDCL
330	Lala	33/11				APDCL
331	Latakandi	33/11				APDCL
332	Manipur	33/11				APDCL
333	Tengakhat	33/11				APDCL
334	Bhadoi Panchali	33/11				APDCL
335	Naharkotia	33/11				APDCL
336	Tipling	33/11				APDCL
337	Joypur	33/11				APDCL
338	Pathrtkandi	33/11				APDCL
339	Tingkhong	33/11				APDCL
340	Rajgarh	33/11				APDCL
341	Kodomoni	33/11				APDCL
342	Khanikar	33/11				APDCL
343	Behiating	33/11				APDCL
344	Dibrugarh University	33/11				APDCL
345	Sessa	33/11				APDCL
346	AMCH	33/11				APDCL
347	Moderkhat	33/11				APDCL
348	MES	33/11				APDCL
349	Hazelbank	33/11				APDCL
350	Phoolbagan	33/11				APDCL
351	Imphal Power House	33/11				MSPDCL
352	Lamphel	33/11				MSPDCL
353	Yurembam	33/11				MSPDCL
354	Iroishemba	33/11				MSPDCL
355	Khuman Lampak	33/11				MSPDCL
356	Mantripukhuri	33/11				MSPDCL
357	Kangla	33/11				MSPDCL
358	Mayang Imphal	33/11				MSPDCL
359	Airport	33/11				MSPDCL
360	Sangaiprou	33/11				MSPDCL
361	Mongsangei	33/11				MSPDCL
362	Kakwa	33/11				MSPDCL
363	Noney	33/11				MSPDCL
364	Leimakhong	33/11				MSPDCL
365	Kongba	33/11				MSPDCL

366	Sangaipat	33/11				MSPDCL
367	Khuman Lampak	33/11				MSPDCL
368	JNIMS	33/11				MSPDCL
369	Ushoipokpi	33/11				MSPDCL
370	Napetpalli	33/11				MSPDCL
371	Chingarel	33/11				MSPDCL
372	Sagolmarg	33/11				MSPDCL
373	Saikul	33/11				MSPDCL
374	Litan	33/11				MSPDCL
375	Hundung	33/11				MSPDCL
376	Kamjong	33/11				MSPDCL
377	Tolloi	33/11				MSPDCL
378	Namrei	33/11				MSPDCL
379	Jessami	33/11				MSPDCL
380	Kakching	33/11				MSPDCL
381	Tengnoupal	33/11				MSPDCL
382	Moreh	33/11				MSPDCL
383	Wangjing	33/11				MSPDCL
384	Thoubal	33/11				MSPDCL
385	Leisangthem	33/11				MSPDCL
386	Sekmaijing	33/11				MSPDCL
387	Mayang Imphal (From Kakching	33/11				MSPDCL
388	Machi	33/11				MSPDCL
389	Khongjom	33/11				MSPDCL
390	New Chayang	33/11				MSPDCL
391	Sugnu	33/11				MSPDCL
392	Chakpikarong	33/11				MSPDCL
393	Karong	33/11				MSPDCL
394	Kangpokpi	33/11				MSPDCL
395	Tamei	33/11				MSPDCL
396	Sekmai	33/11				MSPDCL
397	Leimakhong	33/11				MSPDCL
398	Nilakuthi	33/11				MSPDCL
399	Maram	33/11				MSPDCL
400	Tadubi	33/11				MSPDCL
401	Wilong	33/11				MSPDCL
402	Gamphazol	33/11				MSPDCL
403	Ningthoukhong	33/11				MSPDCL
404	Khwairakpam	33/11				MSPDCL
405	Nambol	33/11				MSPDCL
406	Kheljang	33/11				MSPDCL

407	New Lamka	33/11				MSPDCL
408	Thanlon	33/11				MSPDCL
409	Thinkew	33/11				MSPDCL
410	Moirang	33/11				MSPDCL
411	Moirangkhunou	33/11				MSPDCL
412	Jiribam	33/11				MSPDCL
413	Shivapurikhal	33/11				MSPDCL
414	Rengpang	33/11				MSPDCL
415	Tamenglong	33/11				MSPDCL
416	Tousem	33/11				MSPDCL
417	Khoupum	33/11				MSPDCL
418	Jowai	33/11				MePDCL
419	Amlarem	33/11				MePDCL
420	Shangpung	33/11				MePDCL
421	Lalong	33/11				MePDCL
422	Nartiang	33/11				MePDCL
423	Sohkha Dawki	33/11				MePDCL
424	Khliehtyrshi	33/11				MePDCL
425	Mukhtapur-Syndai	33/11				MePDCL
426	Mookaiaw	33/11				MePDCL
427	Borato	33/11				MePDCL
428	Sutnga	33/11				MePDCL
429	Latyrke	33/11				MePDCL
430	Saipung	33/11				MePDCL
431	Looksi	33/11				MePDCL
432	Khliehriat	33/11				MePDCL
433	Umkiang	33/11				MePDCL
434	Lumshnong	33/11				MePDCL
435	Sohra	33/11				MePDCL
436	Ichamati	33/11				MePDCL
437	Pynursla	33/11				MePDCL
438	Weiloi	33/11				MePDCL
439	Mawsynram	33/11				MePDCL
440	Laitumsaw	33/11				MePDCL
441	Sohiong	33/11				MePDCL
442	Jongksha	33/11				MePDCL
443	Nongstoin	33/11				MePDCL
444	Nongpundeng	33/11				MePDCL
445	Riangdo	33/11				MePDCL
446	Rambrai	33/11				MePDCL
447	Nongkasen	33/11				MePDCL

448	Mawkyrwat	33/11				MePDCL
449	Mawsaw	33/11				MePDCL
450	Masawa	33/11				MePDCL
451	Nongkhlaw	33/11				MePDCL
452	Kynshi	33/11				MePDCL
453	Keating Road	33/11				MePDCL
454	Mawlai	33/11				MePDCL
455	Mawiong	33/11				MePDCL
456	Nongthymmai	33/11				MePDCL
457	Mawprem	33/11				MePDCL
458	Kenche's Trace	33/11				MePDCL
459	Airforce	33/11				MePDCL
460	Mawphlang	33/11				MePDCL
461	Dympep	33/11				MePDCL
462	Laitlynkot	33/11				MePDCL
463	SE Falls	33/11				MePDCL
464	Lad Nongkrem	33/11				MePDCL
465	Happy Valley	33/11				MePDCL
466	Meter Factory	33/11				MePDCL
467	EPIP,Raja Bagan	33/11				MePDCL
468	Byrnihat	33/11				MePDCL
469	Killing	33/11				MePDCL
470	Nongpoh	33/11				MePDCL
471	Umsong	33/11				MePDCL
472	Umiam,Zero Point	33/11				MePDCL
473	Zero Point	33/11				MePDCL
474	Umsning	33/11				MePDCL
475	Umsohlait	33/11				MePDCL
476	Bhoirymbong	33/11				MePDCL
477	Williamnagar	33/11				MePDCL
478	Baghmara	33/11				MePDCL
479	Chokpot	33/11				MePDCL
480	Nangalbibra	33/11				MePDCL
481	Darugre	33/11				MePDCL
482	Mendipathar	33/11				MePDCL
483	Kharkutta	33/11				MePDCL
484	Dainadubi	33/11				MePDCL
485	Bajengdoba	33/11				MePDCL
486	Jengal	33/11				MePDCL
487	Garobadha	33/11				MePDCL
488	Selsella	33/11				MePDCL

489	Ampati	33/11				MePDCL
490	Mahendraganj	33/11				MePDCL
491	Dadenggre	33/11				MePDCL
492	Tirikilla	33/11				MePDCL
493	Hallidayganj	33/11				MePDCL
494	Phulbari	33/11				MePDCL
495	Hawakhana	33/11				MePDCL
496	Dakopgre	33/11				MePDCL
497	Dobasipara	33/11				MePDCL
498	Edenbari	33/11				MePDCL
499	Rongkhon	33/11				MePDCL
500	Dalu	33/11				MePDCL
501	Kolasib	66/33kV	6.3			P&ED Mizoram
502	Project Veng,Kolasiib	33/11				P&ED Mizoram
503	Bilkhawthlir	33/11				P&ED Mizoram
504	Vairengte	33/11				P&ED Mizoram
505	Kawnpui	33/11				P&ED Mizoram
506	Sentlang	33/11				P&ED Mizoram
507	Zamuang	33/11				P&ED Mizoram
508	W. Phaileng	33/11				P&ED Mizoram
509	Rawpuichipp	33/11				P&ED Mizoram
510	Mamit	33/11				P&ED Mizoram
511	Chhingchip	33/11				P&ED Mizoram
512	Thenhlum	33/11				P&ED Mizoram
513	Thenzawl	33/11				P&ED Mizoram
514	E.Lungdar	33/11				P&ED Mizoram
515	N.Vanlaiphai	33/11				P&ED Mizoram
516	Phullen	33/11				P&ED Mizoram
517	Darlawn	33/11				P&ED Mizoram
518	Sakawrdai	33/11				P&ED Mizoram
519	Khawruhlian	33/11				P&ED Mizoram
520	Thingsulthliah	33/11				P&ED Mizoram
521	Khawhai	33/11				P&ED Mizoram
522	Sialhawk	33/11				P&ED Mizoram
523	Ngopa	33/11				P&ED Mizoram
524	Kawlkulh	33/11				P&ED Mizoram
525	Lower Champhai	33/11				P&ED Mizoram
526	Hnahlan	33/11				P&ED Mizoram
527	Khuangleng	33/11				P&ED Mizoram
528	S.Khawbung	33/11				P&ED Mizoram
529	Farkawn	33/11				P&ED Mizoram

530	Chawnpui	33/11				P&ED Mizoram
531	Sairang	33/11				P&ED Mizoram
532	Lengpui	33/11				P&ED Mizoram
533	Tlangnuam	33/11				P&ED Mizoram
534	Aibawk	33/11				P&ED Mizoram
535	Mualpui	33/11				P&ED Mizoram
536	Zuangtui 'L'	33/11				P&ED Mizoram
537	Indoor	33/11				P&ED Mizoram
538	Durtlang	33/11				P&ED Mizoram
539	AR Zokhawsang	33/11				P&ED Mizoram
540	Sialsuk	33/11				P&ED Mizoram
541	Theiriat	33/11				P&ED Mizoram
542	P&E Complex, Lunglei	33/11				P&ED Mizoram
543	Sazaikawn	33/11				P&ED Mizoram
544	Hnahthial	33/11				P&ED Mizoram
545	S.Vanlaiphai	33/11				P&ED Mizoram
546	Sangau	33/11				P&ED Mizoram
547	Lungsen	33/11				P&ED Mizoram
548	Tlabung	33/11				P&ED Mizoram
549	Chawngte	33/11				P&ED Mizoram
550	Chawnhu	33/11				P&ED Mizoram
551	Meisatla	33/11				P&ED Mizoram
552	Meisatla	33/11				P&ED Mizoram
553	Tuipang 'L'	33/11				P&ED Mizoram
554	Tuipang 'V'					P&ED Mizoram
555	Tuipang 'L'	33/11				P&ED Mizoram
556	Lere Kohima	33/11				DoP Nagaland
557	Keyake Kohima	33/11				DoP Nagaland
558	ITI Kohima	33/11				DoP Nagaland
559	New Secretariate Kohima	33/11				DoP Nagaland
560	Jakhama	33/11				DoP Nagaland
561	Pungro Kiphire	33/11				DoP Nagaland
562	Longnak	33/11				DoP Nagaland
563	Chakhabama	33/11				DoP Nagaland
564	Chazouba	33/11				DoP Nagaland
565	Seyechung Kiphire (D&R)	33/11				DoP Nagaland
566	Lalmati S/s. Kohima (D&R)	33/11				DoP Nagaland
567	Mokokchung	66/33 kV	2x7.5			DoP Nagaland
568	Rabindranagar	66/33/11kV	10MVA(66/33kV), 10MVA(66/11kV)			TSECL
569	Teliamura(Gamaitilla)	66/33kV	6.3			TSECL

570	Udaipur	66/33kV	10			TSECL
571	Gumti	66/11kV	4			TSECL
572	Jatanabari	66/11kV	6.3			TSECL
573	Banamalipur	33/11				TSECL
574	Rampur	33/11				TSECL
575	College Tilla	33/11				TSECL
576	Jogendranagar	33/11				TSECL
577	Badharghat Stadium	33/11				TSECL
578	Durjoynagar	33/11				TSECL
579	MES	33/11				TSECL
580	Capital Complex	33/11				TSECL
581	Khayerpur	33/11				TSECL
582	Mandwai	33/11				TSECL
583	N.I.T	33/11				TSECL
584	Mohanpur	33/11				TSECL
585	Hezamara	33/11				TSECL
586	Gandachhara	33/11				TSECL
587	Ganga Nagar	33/11				TSECL
588	Raishyabari	33/11				TSECL
589	Manu	33/11				TSECL
590	Tulashikhar	33/11				TSECL
591	Kalyanpur	33/11				TSECL
592	Pecharthal	33/11				TSECL
593	Kanchanpur	33/11				TSECL
594	Chhamanu	33/11				TSECL
595	Vangmun	33/11				TSECL
596	Panisagar	33/11				TSECL
597	Damchhara	33/11				TSECL
598	Kadamtala	33/11				TSECL
599	Dighalbag	33/11				TSECL
600	Killa	33/11				TSECL
601	Rani	33/11				TSECL
602	Jolaibari	33/11				TSECL
603	Rajnagar	33/11				TSECL
604	Hrishyamukh	33/11				TSECL
605	Silachari	33/11				TSECL
606	Karbook	33/11				TSECL
607	Bishalgarh	33/11				TSECL
608	Madhupur	33/11				TSECL
609	Kathalia	33/11				TSECL
610	Melaghar	33/11				TSECL

611	Boxanagar	33/11				TSECL

सत्यमेव जयते

भारत सरकार

Government of India

विद्युत मंत्रालय

Ministry of Power

केन्द्रीय विद्युत प्राधिकरण

Central Electricity Authority

ग्रिड प्रबंधन प्रभाग

Grid Management Division

विषय : ग्रीष्म ऋतु में बढ़ी हुई मांग की आपूर्ति हेतु तैयारी के सम्बन्ध में।

उपरोक्त विषय से सम्बन्धित दस्तावेज आपकी जानकारी एवं आवश्यक कार्यवाही हेतु संलग्न है।

संलग्नक: यथोपरि।

9.4.18

(दिनेश चन्द्रा)
मुख्य अभियंता (जी.एम.)

सदस्य सचिव (पू.क्षे.वि.स. / उ.पू.क्षे.वि.स / उ.क्षे.वि.स. / द.क्षे.वि.स. / प.क्षे.वि.स.)

सं. 2/ए.आई./जी.आर.डी./ग्रि.प्र./2018/656-662 दिनांक: 09/04/2018

प्रति सूचनार्थ :

1. मुख्य अभियंता (ओ.एम.), विद्युत मंत्रालय, नई दिल्ली
2. सी.एम.डी, पोसोको, नई दिल्ली

नि (मा ओ)
सभी को सूचित करने हेतु,
13/4/18

ED (ERLDC)
ED (WRLDC)
ED (NERLDC)
GM (SRLDC)
GM (NRLDC)
GM (NLDC) For summer & Manm Mg.

सेवा भवन ,आर. के. पुरम-I, नई दिल्ली110066- टेलीफैक्स: 011-26109750. ईमेल: gmcea@nic.in वेबसाइट: www.cea.nic.in
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सत्यमेव जयते

भारत सरकार

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Ministry of Power

केन्द्रीय विद्युत प्राधिकरण

Central Electricity Authority

ग्रिड प्रबंधन प्रभाग

Grid Management Division

Subject : Preparatory measures to be taken to meet increased summer demand.

IMD has recently forecast a comparatively harsher summer this year, particularly in Northern and Western Regions. Summer season is likely to set in a little earlier and the temperature is likely to remain somewhat higher than that during summer last year. This is likely to push up the weather beating load in the country. Besides this, instances of cyclones, thunderstorms in various parts of the country and heavy rainfall in certain pockets are also common during summer / monsoon season. Keeping these aspects in view and to meet the increased demand of power smoothly in the months ahead, the following preparatory measures need to be taken by all concerned power utilities:

1. Generating stations should build up coal stocks.
2. RLDCs and SLDCs should remain in high state of alert, particularly in case of forecast of an imminent cyclone / thunderstorm / heavy rainfall.
3. States/UTs need to monitor closely and maintain their drawl from the grid as per the schedule at all points of time. Instructions of RLDCs need to be followed by the concerned SLDCs without any delay to ensure smooth and integrated operation of the grid.
4. All protection systems including SPS, islanding schemes and Automatic Demand Management Schemes (ADMS), etc. need to be checked by the concerned utilities for their proper functionality and confirmed to the respective RPCs.
5. Consider deferment of planned shutdown of generating units if necessary. This should preferably be done at those power stations which fall in the lower part of the merit order list and where coal stock is also less.
6. Due to increased load, low voltages may be witnessed in the grid. Therefore, there is a need to keep shunt capacitors in service and reactors in off position in the low voltage prone areas.
7. High voltages may be witnessed in case of load throw off following a thunder-storm, cyclone or heavy rainfall. To control high voltages, opening of transmission lines should be avoided. Instead, reactors and capacitors should be used to control voltages. In case, a transmission line needs to be opened due to high voltage despite switching of reactors/capacitors, it should be brought back in service as soon as the voltage returns into the normal range.
8. All transmission utilities / licensees should keep ERS in readiness, preferably at more than one location, so that these can be transported to any affected area in the region / state in least time.
9. Maintenance and protection staff should also remain on high alert along with earmarked vehicles for their immediate movement.

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10. Inventory should be kept well stocked to ensure ready availability of spare parts / equipment. This would facilitate quick replacement of faulty part / equipment and hence, quick restoration of supply in the affected area.
11. Thermal units, which are under reserve shutdown, should be kept in readiness for operation at a short notice.
12. Gas based power stations should make necessary arrangements including appropriate tie up for RLNG / Spot gas so that these stations may be brought on bars at a short notice, if required.

It is requested to advise all concerned power utilities in your region to take above mentioned steps to maintain smooth supply of power to the consumers in the forthcoming summer / monsoon season.

9.4.18

(Dinesh Chandra)
Chief Engineer (GM)

Member Secretary, ERPC / NERPC / NRPC / SRPC / WRPC
No.2/AI/GRD/GM-2018/ Date:9th April 2018

Copy to:
1. Chief Engineer (OM), MoP, New Delhi.
2. CMD, POSOCO, New Delhi.

List of Transformer and their Tap Postions (Mizoram)

From Bus Name	To Bus Name	Id	MVA	Total Tap Position	Present Tap Position	Suggested Tap Position	Old Voltage (132/66kV) (132/33kV)	New Voltage (132/66kV) (132/33kV)
CHAMPAI 132.00 kV	CHAMPAI 33.000 kV	1	12.5	17	10	1	118/28.7	119/32.6
KHAZAWAL 132.00	KHAZAWAL 33.000	1	12.5	17	9	1	119/29.3	119/32.8
KOLASIB 132.00	KOLASIB 66.000	1	12.5	17	9	9	131/64	131/64
KOLASIB 132.00	KOLASIB 66.000	1	12.5	16	10	10	131/64	131/64
LONGMOL 132.00	LUANGMUAL 33.000	1	12.5	17	9	3	124/31	125/33.0
LONGMOL 132.00	LUANGMUAL 33.000	2	12.5	17	4	3	124/31	125/33.0
LONGMOL 132.00	LUANGMUAL 33.000	3	12.5	17	9	3	124/31	125/33.0
LUNGLEI 132.00	LUNGLEI33 33.000	1	12.5	17	5	2	119/30	118/32.1
LUNGLEI 132.00	LUNGLEI33 33.000	2	12.5	17	9	2	119/30	118/32.1
SAITUAL 132.00	SAITUAL33 33.000	1	6.3	17	5	2	118/30.7	119/32.2
SERCHIP 132.00	SERCHIP33 33.000	1	12.5	17	7	3	121/29.9	120/32.0
SERCHIP 132.00	SERCHIP33 33.000	2	6.3	7	6	2	121/29.9	120/32.0
ZEMABAWK 132.00	ZEMABAWK 33.000	1	12.5	17	6	3	123/31.2	123/33.1
ZEMABAWK 132.00	ZEMABAWK 33.000	2	12.5	17	5	3	123/31.2	123/33.1
ZEMABAWK 132.00	ZEMABAWK 33.000	3	12.5	17	9	3	123/31.2	123/33.1
ZEMABAWK 132.00	ZEMABAWK 33.000	4	12.5	17	9	3	123/31.2	123/33.1
				Data Provided by SLDC Mizoram				