

North Eastern Regional Power Committee

Agenda For

144th OCC Sub-Committee Meeting

Time of meeting : 10:00 Hrs.

Date of meeting : 11th May, 2018 (Friday)

Venue : "Hotel RajMahal", Guwahati.

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 may confirm 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 143rd OCC:

State	Protection System	ADMS	Capacitor Installation	SAMAST**
Arunachal Pradesh	Requisition of funds by May-June 2018.	Clarification submitted to Techno-Economic Sub-group.	-	SLDC to apprise SERC of the project.
Nagaland	Pack-A: May'18 Pack-B: Aug'18 Pack-C: Aug'18 Pack-D: Completed.	Clarification submitted to Techno-Economic Sub-group.	To re-submit proposal to NERPC for Study.	Meter Requirement submitted to SAMAST group for DPR preparation.
Mizoram	Could not be updated- due to absence of officials	Clarification submitted to Techno-Economic Sub-group.	Appraisal Committee is yet to approve	DPR to be completed by Mar'18.

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Manipur	All LOAs by Apr'18	Clarification submitted to Techno-Economic Sub-group.	Submitted to NERPC for Study before sending to NPC/NLDC.	DPR to be completed by Mar'18.
Tripura	UC by 31.03.18.	Clarification submitted to Techno-Economic Sub-group.	To submit proposal to NERPC for Study.	DPR to be completed by Mar'18.
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	Clarification submitted to Techno-Economic Sub-group.	-	DPR finalized.
Meghalaya	MePTCL-Earthing Activities Package Tendering by June'18. Erection - works is in progress. Monthly Progress Report furnish to NLDC,NERPC MePGCL -By April'18 erection is likely to be completed.	Clarification submitted to Techno-Economic Sub-group.	-	Approved DPR sent to NERPC.

The status of implementation of the above schemes (physical as well as financial progress) may please be reviewed and the entities are requested to expedite implementation of the schemes. The entities may also be advised to furnish status as per format by first week of every month on regular basis to Member Convener, PSDF Project Monitoring Group (AGM, NLDC, POSOCO) with a copy to NPC & NERPC. The LOAs of R&M Scheme are to be furnished to NERLDC/NERPC regularly.

States may please intimate the latest status.

2. Long Outage of Important Grid Elements:

Name of the Element	Name of Utility	Status as informed in 143rd OCC	Latest status
63MVAR Reactor at Byrnihat to replace with 80MVAR Reactor	MePTCL	To be referred to SCM of NER.**	

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400KV 80MVAR Bus Reactor at Palatana	OTPC	Unavailability of critical spare. By 30.04.2018 - CoD.	
132 kV P K Bari – Silchar I & II	NERTS	Ckt#II – restored. Ckt#I - by 30.04.18	
DHEP Unit 2	NEEPCO	By Apr'18	
400/220 kV, 315 MVA ICT-II at BgTPP	NTPC	By Apr'18	
Replacement of R-ph bushing of 63MVAR L/R at Balipara for 400kV Balipara-Bongaigaon -II (<i>out since 17.02.18</i>)	NERTS	By Nov'18	

**In 143rd OCCM EE(SP), MePTCL stated that salvage value of 63MVAR Bus reactor at Byrnihat was desired by NLDC in Technical Committee meeting dated. 19.01.2018. 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.

Utilities may please intimate the latest status.

3. Furnishing of various data for reliable grid operation:

Data regarding	Status as of 143rd OCC		Latest status
DAS output for FRC calculation	Event Date: 30.01.18; Doyang & RHEP provided information. Event Date: 20.02.18; Doyang, & OTPC provided information. Event Date: 07.03.18; RHEP provided information NERLDC once again requested all generators to provide DAS data at the earliest for FRC calculation.		
Operating Procedures.	Items	Data submitted by	
	OP of States	Submitted only by AEGCL and MePTCL	
	OP of Transmission System	Not submitted by any constituents	
	OP of Generating Stations	Not submitted by any generators	
	OP of GIS	Not submitted by any constituents	

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Data related to Power Map.	Items	Data submitted by	
	Communication (PLCC/OPGW/GPRVSAT/Satellite)	List of lines mailed by NERLDC on 9 th January'18 Assam & Mizoram provided the data.	
Patrolling report(s) for T/L.	-		

NERLDC may please inform the status.

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

Name of the Element	Action to be taken	Name of Utility	Status as of 143rd OCC	Latest status
132 kV Dimapur - Doyang 1 & 2 Lines	Installation of Numerical Relay at Doyang	NEEPCO	By Dec'18	
132kV PK Bari-Kumarghat	Installation of Line differential relay	NERTS	By Dec'18	
132kV PK Bari	Installation of Numerical Relay under R&M (<i>high priority</i>). TSECL to divert NR to AGTCCPP.	TSECL	By Apr'18	
AGTCCPP-LFO	AVR replacement	NEEPCO	By Oct'18	

Concerned utilities may please inform the status.

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

States	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
	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

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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

AVERAGE FREQUENCY (Hz)

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

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

C. OLD ITEMS

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

During 143rd 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	-	

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2	Kameng HEP of NEEPCO two units (2 x 150 MW) Next two units (2x150 MW)	Sep'18	
3	Pare HEP of NEEPCO (2 x 55 MW)	Unit #1 - By 25.04.18	
4	400 kV D/C Silchar - Melriat line of PGCIL	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.	
6	400kV D/C Balipara - Kameng	Completed.	
7	SLDCs (Ar. Pradesh, Manipur, Mizoram, Nagaland)	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.	
9	220/132 kV, 160MVA ICT-II at Balipara	ICT#II - delayed, Sept''18	
10	220/132 kV, 1x160 MVA ICT with GIS Bay at Kopili	Sept, 2018.	
11	400/132 kV, 1x315 MVA ICT-III at Silchar	May, 2018.	
12	Replacement of 2x315 MVA ICTs with 2x500 MVA ICTs at Misa (PG)	ICT-I : May'18 ICT-II : Aug'18	
13	400 kV Silchar - Misa D/C	2019	
14	1x125 MVAR Bus Reactor at 400 kV at Balipara	March, 2018(LOA date).	
15	1x125 MVAR Bus Reactor at 400 kV Bongaigoan	March, 2018(LOA date).	

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16	Tuirial HEP of NEEPCO	Unit #I -CoD pending Communication and Connection Agreement. Unit #II - Feb'18	
17	33kV bay at 220kV Mariani(AS) S/Sn	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.	
20	Dedicated 33kV feeder at Khliehriat Substation from Lumshnong.	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.	
24	Switchable line Reactors at 400kV Balipara & Bongaigoan	June'18	
25	PLCC Panels at Loktak end of Loktak - Ningthoukhong 132 kV feeder and Loktak - Rengpang 132 kV feeder	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	
27	Re-conductoring of 132kV Umiam Stg#I - Umiam Stg-III	DPR prepared and submitted for approval	

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28	Upgradation of ULDC FO node	Target completion : June 2018	
29	HTLS re-conductoring of 132kV Agartala – RC Nagar – II	Ckt #I&II- completed	
30	Re-conductoring of Imphal (PG)- Yurembam 132 kV S/C POWERGRID line with high capacity conductor by NERTS	Apr'18	
31	Up gradation / modification of bay equipment at Imphal (PG) by POWERGRID and at Yurembam by MSPCL	Apr'18	

Concerned constituents may kindly intimate the status.

D. NEW ITEMS

D.1 Generation Planning (ongoing and planned outages)

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

Generating Station	Units running	MW	MU	Reservoir
Khandong				
Kopili				
Kopili-II				
Ranganadi			Subject to inflow	
Doyang				
Loktak				
AGBPP	-	-	-	-
AGTPP	-	-	-	-

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

The Committee may discuss and approve the proposed shutdown by Generating Stations as given in Annexure – D.2 which is available in NERPC website.

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 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 finalised. 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.

The sub-Committee may kindly discuss and approve the transmission line outages proposed by Constituents for May,2018-June,2018 at Annexure- D.2., which is available in the website of NERPC.

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

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

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

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cumulative tripping details attributable to the transmission licensee would be published by NERPC.

Members may please discuss.

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.

Members may discuss.

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.

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

In 141st OCCM, Manager, OTPC informed that the modifications would be implemented by 25.02.2018. He further requested that necessary actions be carried out by NERPC/NERLDC subsequently, so that shutdowns related to Palatana ATS may be availed without generation reduction. In case of emergency, OTPC has agreed to reduce their generation as per grid requirement.

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.

In 142nd OCCM, 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 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.

NERTS/OTPC may please update the status.

D.6. Update on Real Time Energy Assessment for Effective Grid Management:

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

NERPC/NERTS may please intimate the status.

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

POWERGRID may please intimate the latest status.

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.

NERPC/TSECL/P&ED Mizoram may please intimate status.

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.

NEEPCO may please intimate the latest status.

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

To contain the high voltage everyday NERLDC 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.

In 143rd OCCM, NERLDC mentioned that as the PMU is misleading the Grid managers; it is prudent to resolve the issue at the earliest.

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

NERTS may please update latest status.

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 finalise date(s) for inspection.

Members may please discuss.

D.12. Absorption of Reactive Power by generators:

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

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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.

Members may please discuss.

D.13. Audit of PSS:

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

Members may please discuss.

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.

NERPC/NERTS may please intimate the status.

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).

Report on Mock Black Start Exercise is attached in **Annexure-D.15**.

NERLDC may please intimate the status.

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-Ghormari. The present configuration would be shorting of 132kV Balipara-Sonabil and 132kV Balipara-Ghormari 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.

Members may please discuss.

AGENDA ITEMS FROM NERPC:

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.

This is for information and necessary action please.

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.

Members may please discuss.

AGENDA ITEMS FROM NERLDC

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).

Members may please ratify.

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 NERIDC. 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.

NERLDC may please deliberate.

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.

NERLDC may please deliberate.

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.

NERLDC may please deliberate.

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.

NERLDC may please deliberate.

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.

NERLDC may please deliberate.

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.

NERLDC may please deliberate.

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 from 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.

NERLDC may please deliberate.

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.

NERLDC may please deliberate.

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.

NERLDC may please deliberate.

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.

NERLDC may please deliberate.

METERING RELATED ITEMS

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: **Aug'18.**

Status may be discussed.

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.

NERTS may update about new installations.

D.32. AMR in NER:

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

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

NERTS may update status. NERTS may submit the weblink where NIT is available.

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 was worked out by NERLDC and submitted in 143rd. OCC meeting.

Manager, NERTS informed that the revised estimate has worked out to be appx. • 15.96 lakhs.

Status may be furnished by NERTS.

D.34. Procurement of DCD:

In the 143rd. OCC meeting, NERTS representative intimated that the manufacturer has introduced new features in the DCDs and NERTS has taken up with manufacturer to provided DCDs at the same rate / terms and conditions. On resolving the issue, procurement action would be taken up.

NERTS may update status.

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.

Status may be furnished.

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.

After detailed deliberation in 143rd. OCC meeting, it was decided that the work would be executed based on approx. length of cables. Upon completion bill would be prepared based on actuals.

NERTS may furnish status.

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.

Status may be discussed.

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)

NERLDC may be please deliberate.

Any other item:

Date and Venue of next OCC

It is proposed to hold the 145th OCC meeting of NERPC on second week of June, 2018. The date & exact venue will be intimated in due course.

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 on Loktak HEP and Khandong HEP conducted on the 26th April 2018 as per decision Item D-23 of Agenda in the 143rd OCC meeting held at Guwahati on 12.04.2018

1. Loktak HEP (3x35 MW)

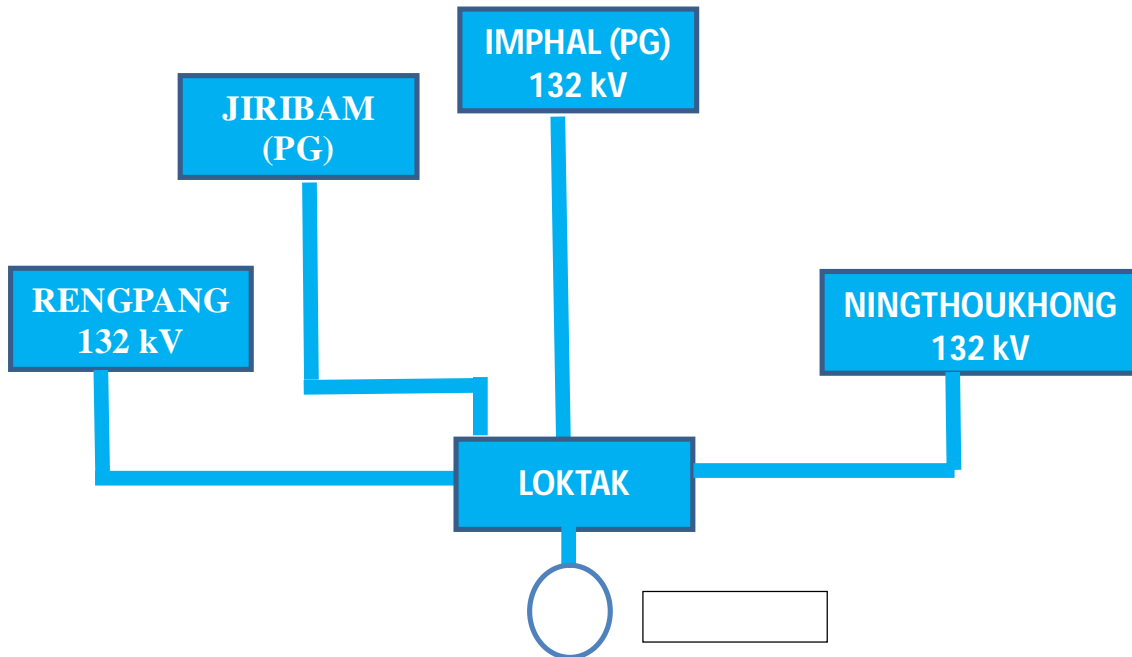
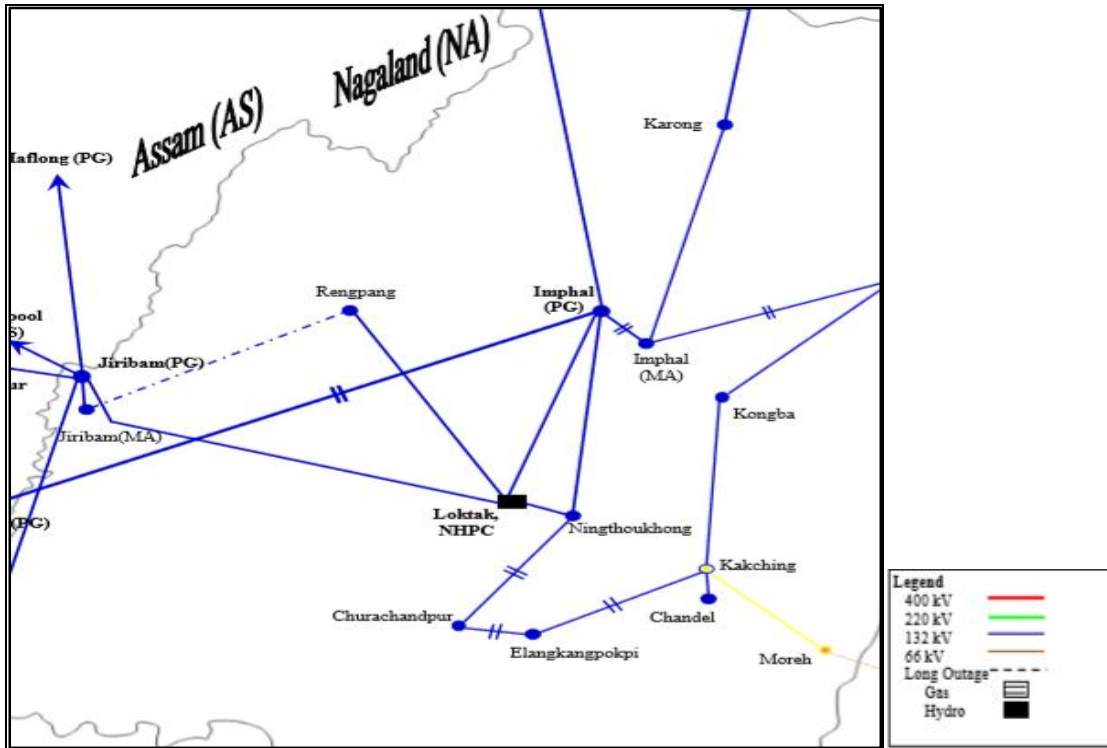
Background:

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-132 kV Loktak-Imphal S/C (PG), 132 kV Loktak-Jiribam S/C(PG), 132 kV 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

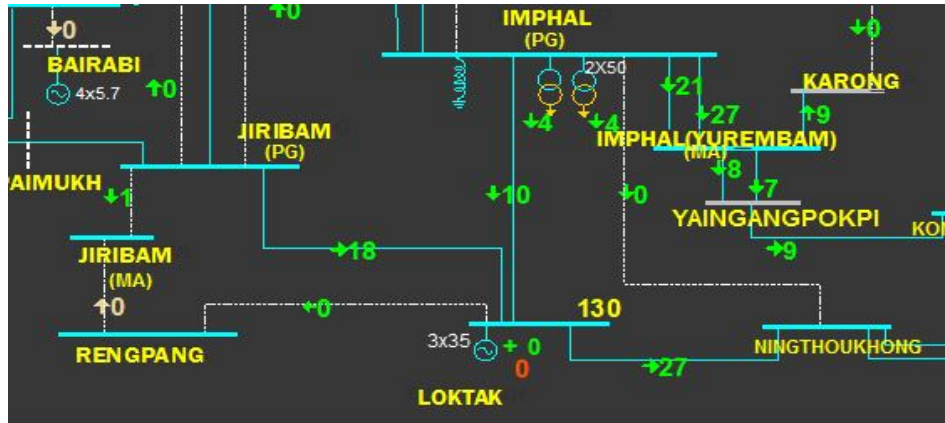
Power Map & connectivity of Loktak HEP to Main Grid



Connectivity of Loktak to the main Grid

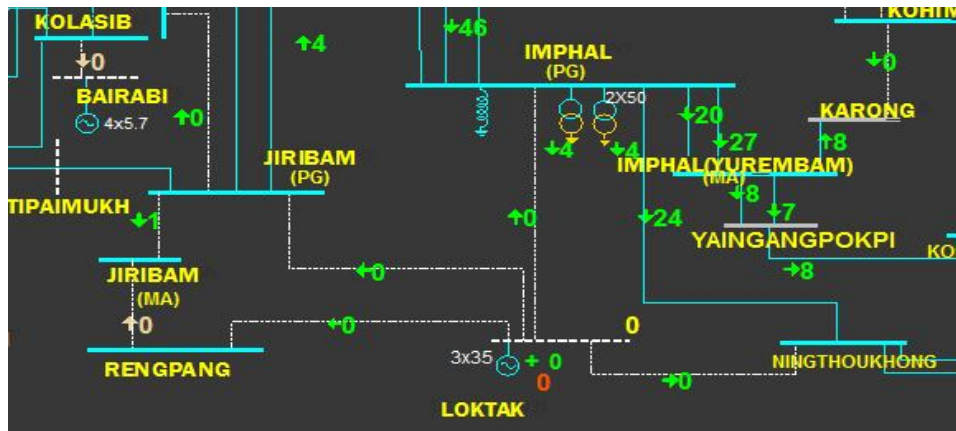
Observations: Step by Step details recorded during mock black start exercise as shown below:

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

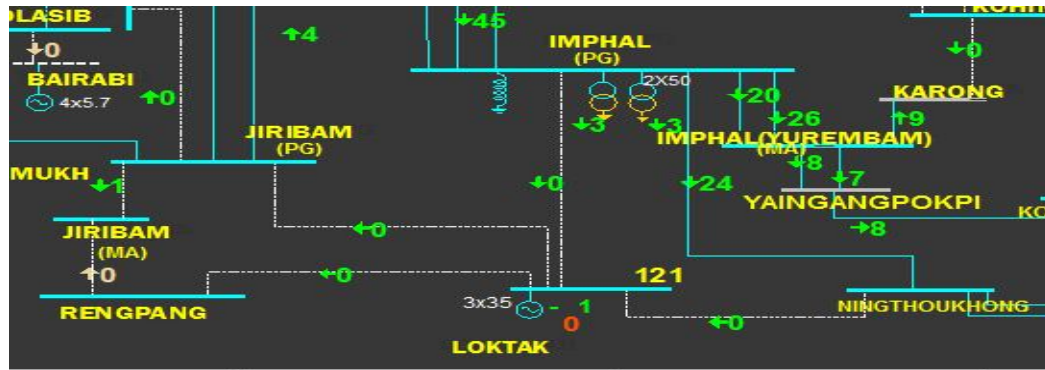


2. At 10:50 hrs, 132 kV Loktak-Ningthoukhong CB opened at 132 kV Ningthoukhong end.
3. At 10:57 hrs, 132 kV Loktak-Imphal (PG) CB opened at 132 kV Imphal end.
4. At 11:00 hrs, 132 kV Loktak-Jiribam(PG) CB opened at 132 kV Jiribam end
5. At 11:01 hrs, 132 kV Loktak-Rengpang CB opened at 132 kV Rengpang end
6. At 11:02 hrs, 132 kV Loktak- Imphal CB opened at 132 kV Loktak end.
7. At 11:03 hrs, 132 kV Loktak- Ningthoukhong CB opened at 132 kV Loktak end.
8. At 11:04 hrs, 132 kV Loktak- Jiribam CB opened at 132 kV Loktak end.
9. At 11:05 hrs, 132 kV Loktak- 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 11:05 hrs, Back Start process started with the operation of 500 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

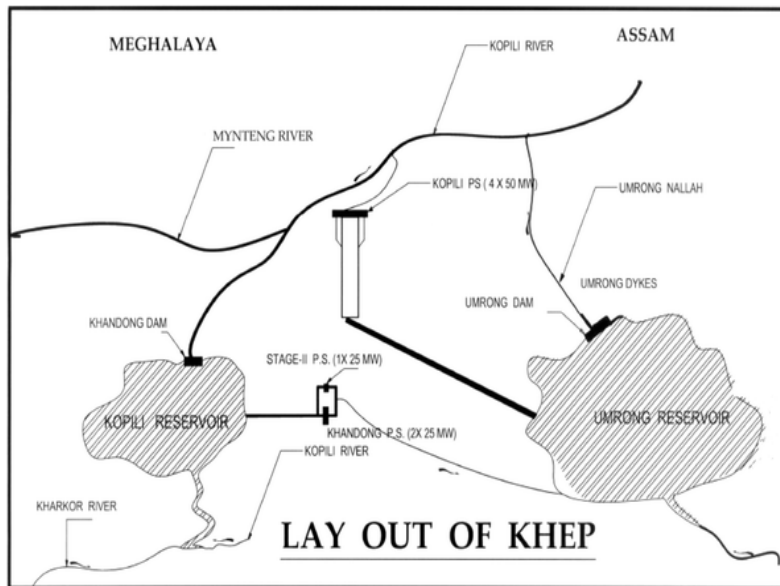


13. At 11:20 hrs, 132 kV Loktak Bus B charged by closing Generator Unit-2 Breaker.
14. At 11:22 hrs, 132 kV Loktak-Imphal line Breaker closed at 132 kV Loktak end.
15. At 11:31 hrs. Generator voltage 10.56 kV, frequency-49.91Hz-1.46 MVAR & after improving voltage 132 KV at Bus maintained as per instructions from 132 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 11:44 hrs, 132 kV Loktak-Jiribam line charged from 132 kV Jiribam end
17. At 11:45 hrs, 132 kV Loktak-Jiribam line closed at 132 kV Loktak end
18. At 11:46 hrs, 132 kV Loktak – Ningthoukhong line closed from 132 kV Ningthoukhong end
19. At 11:48 hrs, 132 kV Loktak- Ningthoukhong line closed from 132 kV Loktak end
20. At 11:58 hrs, 132 kV Loktak- 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 12:08 hrs. The events went smoothly and black start exercise was completed successfully.

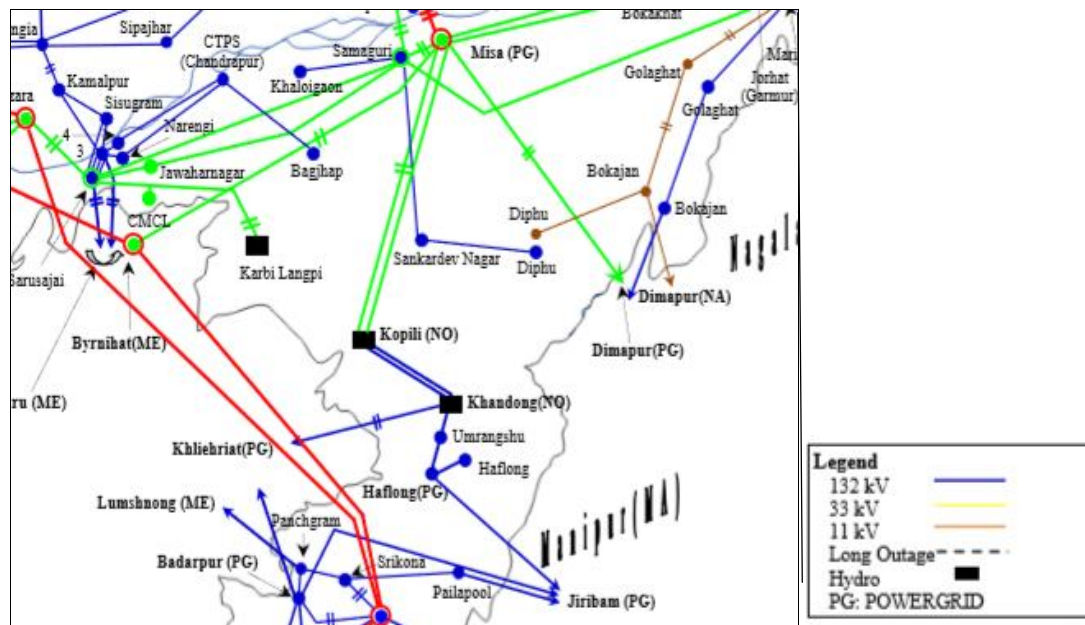
2. Khandong HEP(3x25 MW)

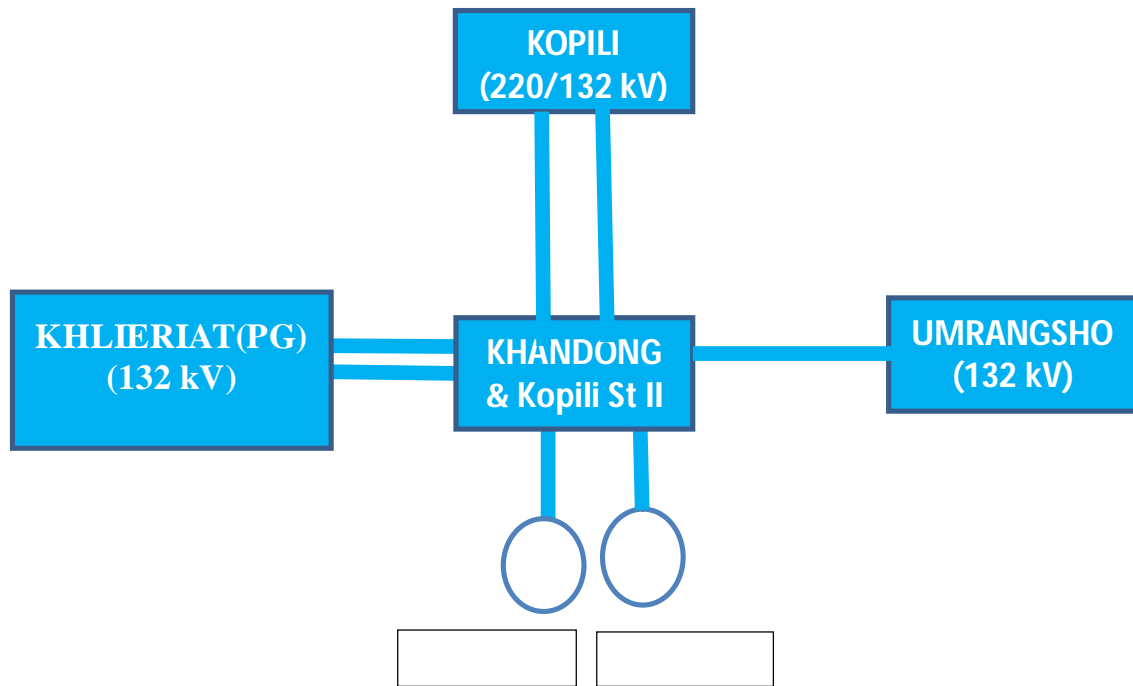
Background:

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



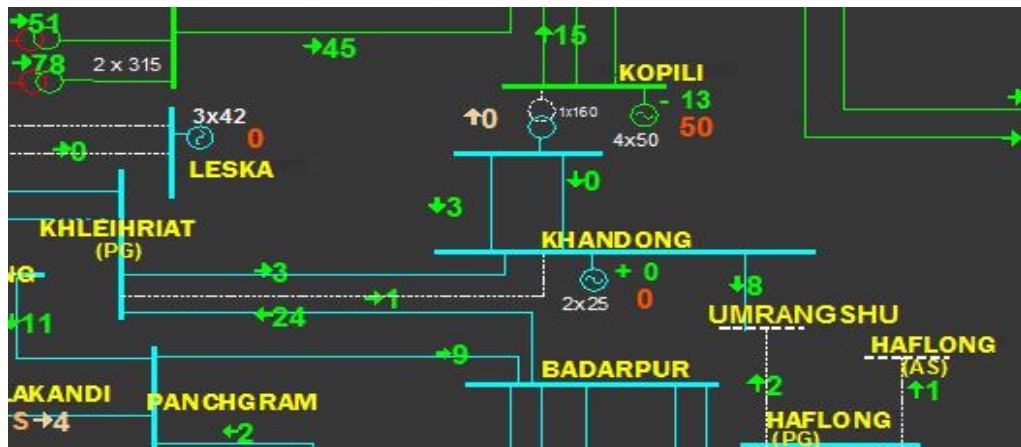
Power map near Khandong





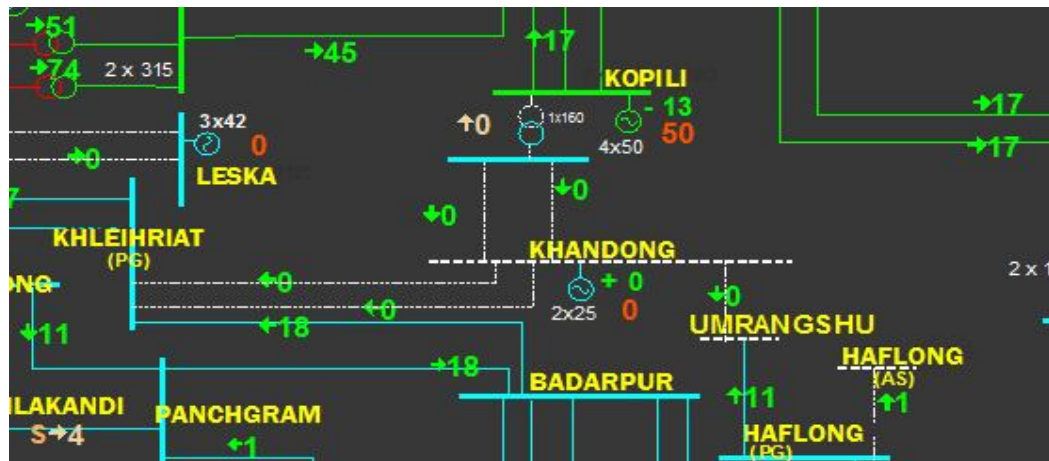
Observations: Step by Step details recorded during mock black start exercise of Khandong Station as shown below:

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



2. At 12:01 hrs, 132 kV Khandong-Khliehriat feeder-1 CB opened at 132 kV Khandong end.
3. At 12:02 hrs, 132 kV Khandong-Khliehriat feeder-1 CB opened at 132 kV Khliehriat end.
4. At 12:03 hrs, 132 kV Khandong-Khliehriat feeder-2 CB opened at Khandong end.

5. At 12:04 hrs, 132 kV Khandong-Khliehriat feeder-2 CB opened at 132 kV Khliehriat end.
6. At 12:05 hrs, 132 kV Khandong-Umrongshu CB opened at 132 kV Khandong end.
7. At 12:06 hrs, 132 kV Khandong-Kopili feeder-1 CB opened at 132 kV Khandong end.
8. At 12:06 hrs, 132 kV Khandong-Kopili feeder-2 CB opened at 132 kV Khandong end.
9. At 12:07 hrs, 250KVA DG Set started supplying to Station Aux systems.
10. At 12:08 hrs, 132 kV Khandong-Kopili feeder-1 CB opened at 132 kV Kopili end.
11. At 12:10 hrs, 132 kV Khandong- Umrongshu feeder CB opened at 132 kV Umrongshu end
12. At 12:17 hrs, 132 kV Khandong-Kopili feeder-2 CB opened at 132 kV Kopili 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-2 CB tripped due to under frequency at 47.50Hz.
(During the process of synchronization at 132 kV Kopili power station connect to 220 kV Grid)
16. At 12:40 hrs, 132 kV Khandong-Kopili feeder-1 CB opened at 132 kV Khandong end
17. At 12:44 hrs, Khandong Unit-1 charged dead bus with 132 kV at 50.16Hz.

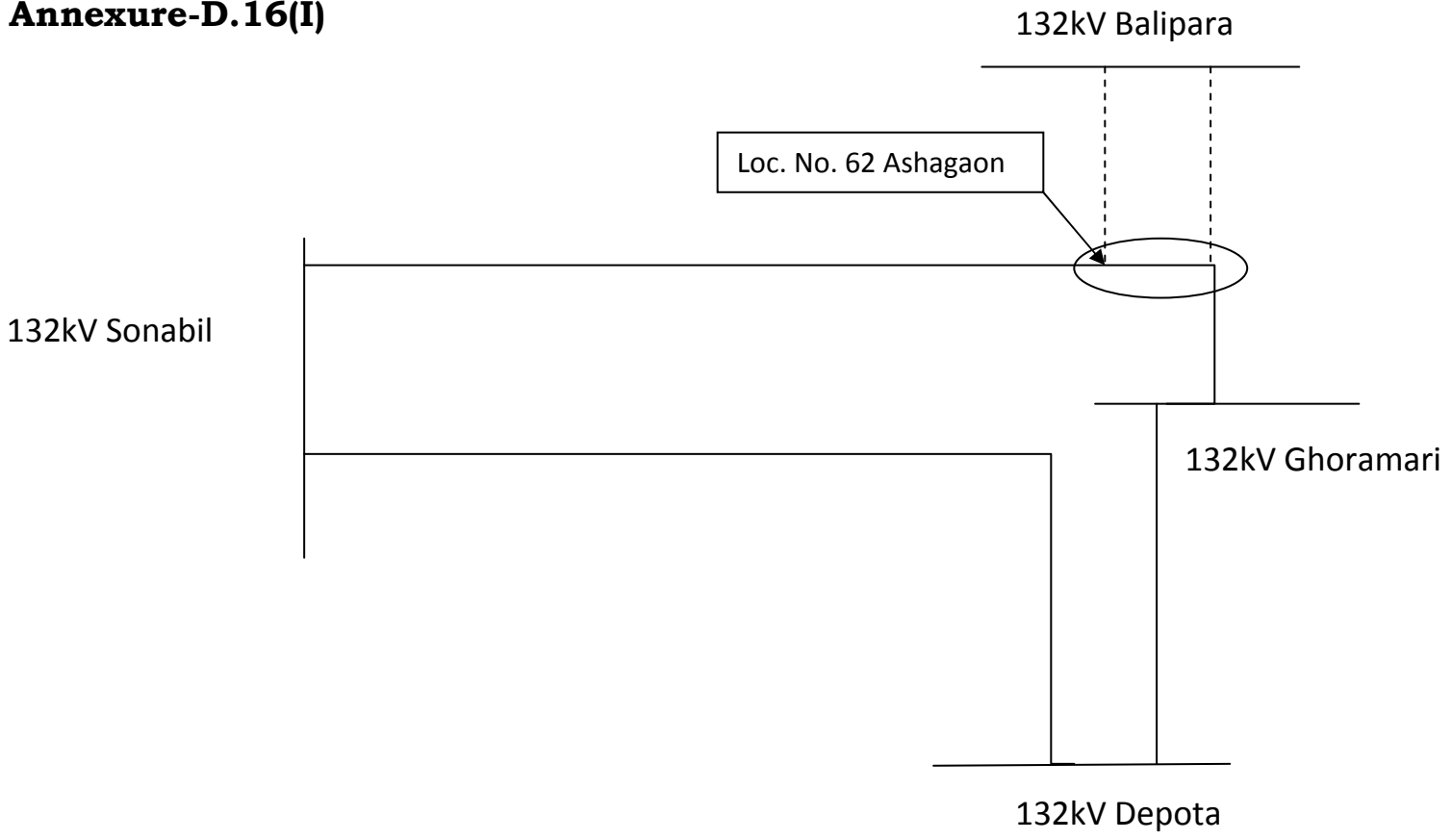
Conclusion

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 and Loktak/Khandong System 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, the co-operations given to System Operation Group of NERLDC by all the System Operators of Loktak HEP(NHPC), Khandong HEP(NEEPCO), 132 kV Imphal 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.

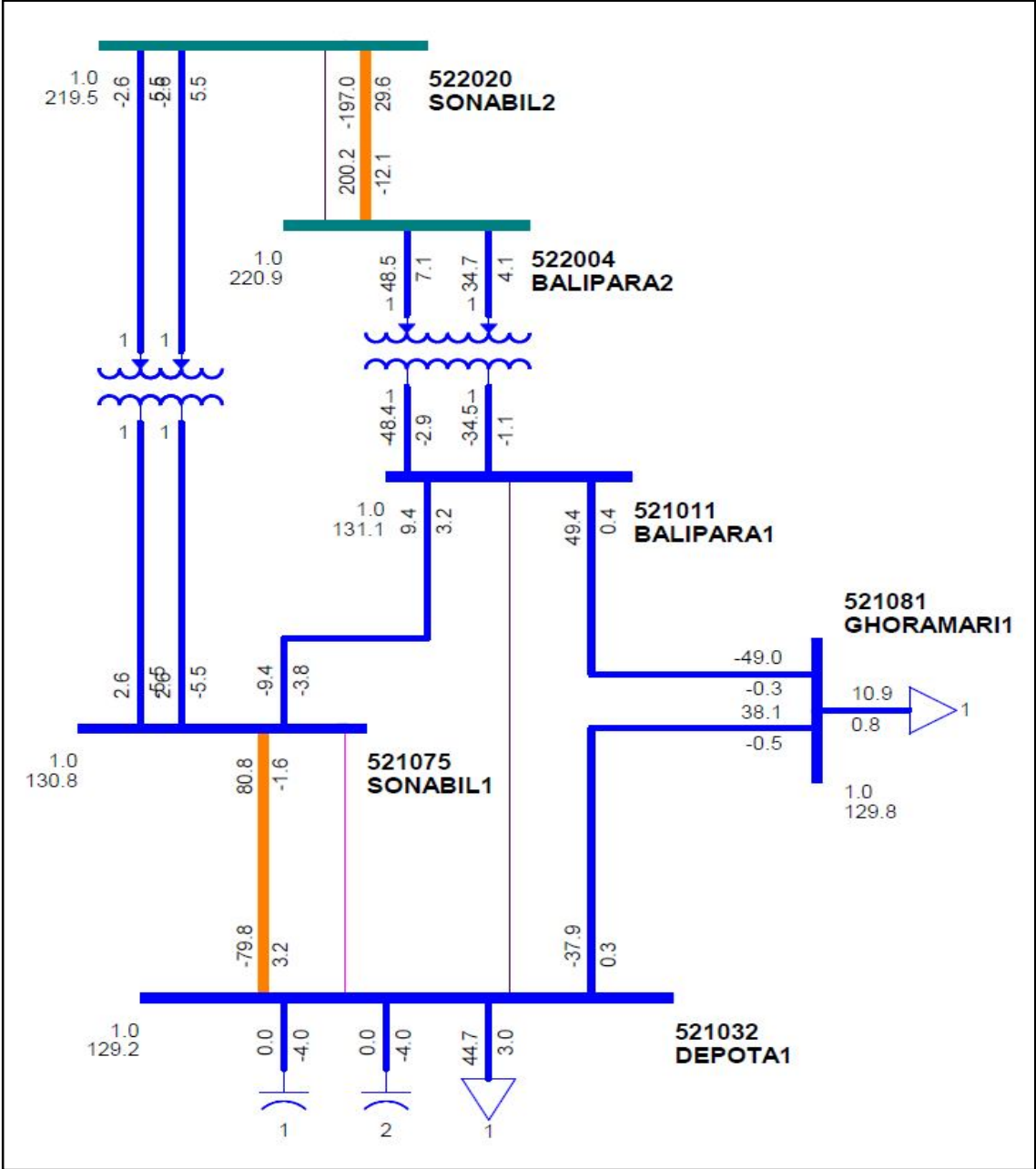
Grid Management Team
NERLDC SO-I Dept.

Annexure-D.16(I)

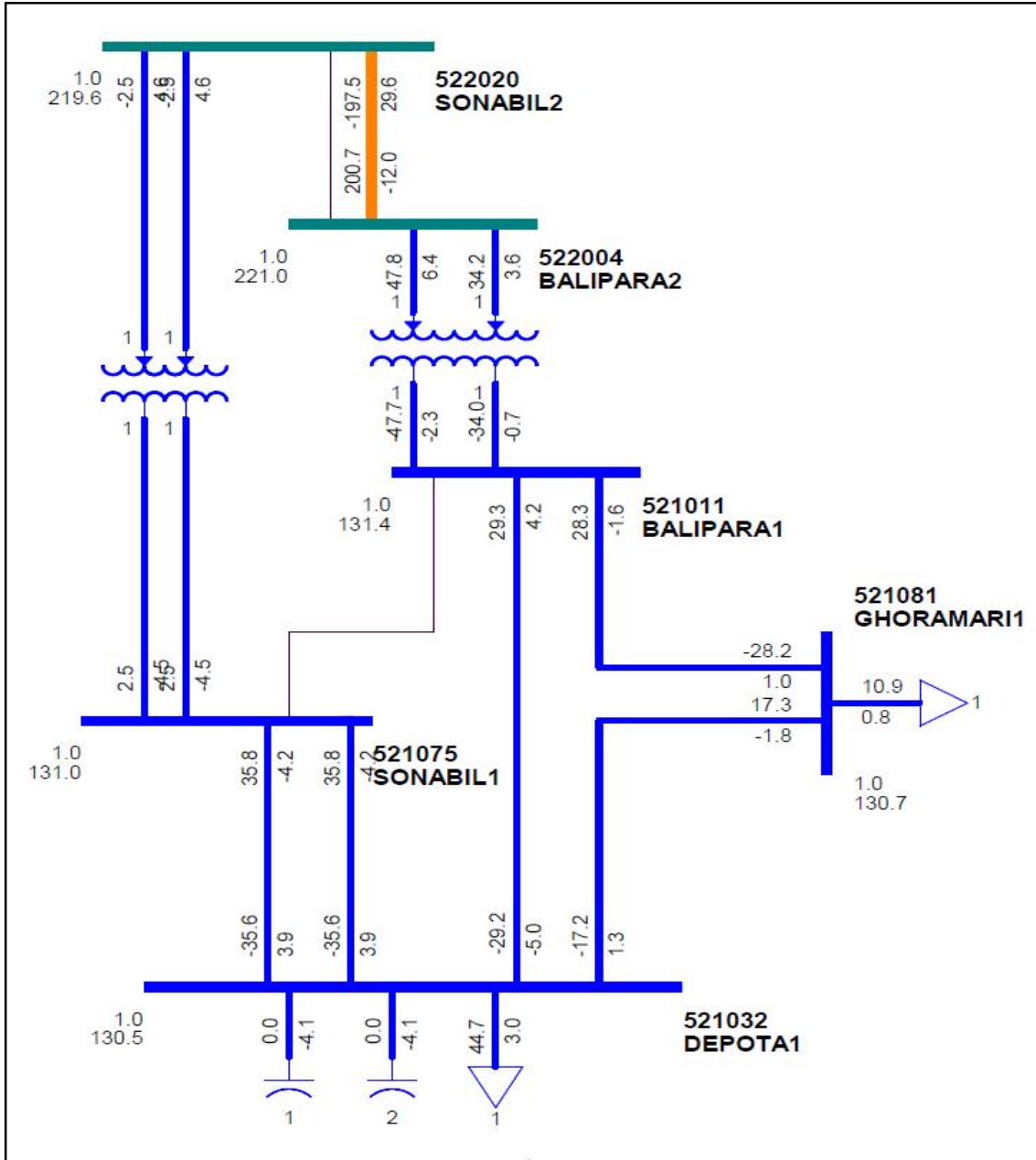


Study results for LILO of 132 kV Sonabil- Balipara at Depota

Base Case: In the base case, connecting 132 kV Balipara – Sonabil line causes high loading of 132 kV Sonabil – Depota Line.



Proposed Connection: It is proposed that LILO of 132 kV Sonabil – Baliparaline at Depotasub-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.



Annexure-D.17

Sl. No.	Name of Substation	Voltage Level	Transformation Capacity	Geographical Co-ordinates		Name of utility/state
				Latitude	Longitude	
			MVA			
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	Nitaiпukhuri	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	Simengchapor	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	Pathrktandi	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	Sekmajing	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	Moirangkunou	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	Sellsella	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



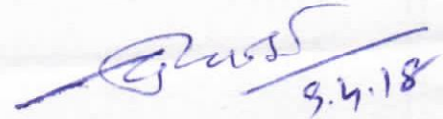
सत्यमेव जयते
भारत सरकार

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 (माओ)

सभी को सूचित करने हेतु

ED (ERL) (2)
ED (WR) (2)
ED (NER) (2)
GM (SL) (2)
GM (NRL) (2)
GM (NL) (2)

योगेश
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Hdy.

बाबा
13/4/18



भारत सरकार

Government of India

विद्युत मंत्रालय

Ministry of Power

केन्द्रीय विद्युत प्राधिकरण

Central Electricity Authority

ग्रिड प्रबंधन प्रभाग

Grid Management Division

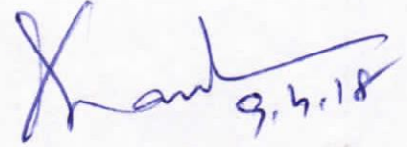
Subject : Preparatory measures to be taken to meet increased summer demand.

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.

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.



(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.